HITACHI

SOFTWARE MANUAL

OPERATION

BACKUP RESTORE SYSTEM For Windows®

S10V

Programmable Controller

SVE-3-127(E)

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OPERATION

BACKUP RESTORE SYSTEM

For Windows®

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First Edition, February 2006, SVE-3-127(A) (out of print)
Second Edition, February 2007, SVE-3-127(B) (out of print)
Third Edition, February 2010, SVE-3-127(C) (out of print)
Fourth Edition, May 2010, SVE-3-127(D) (out of print)
Fifth Edition, July 2011, SVE-3-127(E)

Printed in Japan.

TP<IC> (FL-MW2007)

SAFETY PRECAUTIONS

- Read this manual thoroughly and follow all the safety precautions and instructions given in this manual before operations such as system configuration and program creation.
- Keep this manual handy so that you can refer to it any time you want.
- If you have any question concerning any part of this manual, contact your nearest Hitachi branch office or service engineer.
- Hitachi will not be responsible for any accident or failure resulting from your operation in any manner not described in this manual.
- Hitachi will not be responsible for any accident or failure resulting from modification of software provided by Hitachi.
- Hitachi will not be responsible for reliability of software not provided by Hitachi.
- Make it a rule to back up every file. Any trouble on the file unit, power failure during file access or incorrect operation may destroy some of the files you have stored. To prevent data destruction and loss, make file backup a routine task.
- Furnish protective circuits externally and make a system design in a way that ensures safety in system operations and provides adequate safeguards to prevent personal injury and death and serious property damage even if the product should become faulty or malfunction or if an employed program is defective.
- If an emergency stop circuit, interlock circuit, or similar circuit is to be formulated, it must be positioned external to the programmable controller. If you do not observe this precaution, equipment damage or accident may occur when this programmable controller becomes defective.
- Before changing the program, generating a forced output, or performing the RUN, STOP, or like procedure during an operation, thoroughly verify the safety because the use of an incorrect procedure may cause equipment damage or other accident.
- This manual contains information on potential hazards that is intended as a guide for safe use of this product. The potential hazards listed in the manual are divided into four hazard levels of danger, warning, caution, and notice, according to the level of their severity. The following are definitions of the safety labels containing the corresponding signal words DANGER, WARNING, CAUTION, and NOTICE.

⚠ DANGER	: This safety label identifies precautions that, if not heeded, will result in death or serious injury.
⚠ WARNING	: Identifies precautions that, if not heeded, could result in death or serious injury.
⚠ CAUTION	: Identifies precautions that, if not heeded, could result in minor or moderate injury.
NOTICE	: This safety label without a safety alert symbol identifies precautions that, if not heeded, could result in property damage or loss not related to personal injury.

Failure to observe any of the ⚠CAUTION and *NOTICE* statements used in this manual could also lead to a serious consequence, depending on the situation in which this product is used. Therefore, be sure to observe all of those statements without fail.

The following are definitions of the phrases “serious injury,” “minor or moderate injury,” and “property damage or loss not related to personal injury” used in the above definitions of the safety labels.

Serious injury: Is an injury that requires hospitalization for medical treatment, has aftereffects, and/or requires long-term follow-up care. Examples of serious injuries are as follows: vision loss, burn (caused by dry heat or extreme cold), electric-shock injury, broken bone, poisoning, etc.

Minor or moderate injury: Is an injury that does not require either hospitalization for medical treatment or long-term follow-up care. Examples of minor or moderate injuries are as follows: burn, electric-shock injury, etc.

Property damage or loss not related to personal injury: Is a damage to or loss of personal property. Examples of property damages or losses not related to personal injury are as follows: damage to this product or other equipment or their breakdown, loss of useful data, etc.

The safety precautions stated in this manual are based on the general rules of safety applicable to this product. These safety precautions are a necessary complement to the various safety measures included in this product. Although they have been planned carefully, the safety precautions posted on this product and in the manual do not cover every possible hazard. Common sense and caution must be used when operating this product. For safe operation and maintenance of this product, establish your own safety rules and regulations according to your unique needs. A variety of industry standards are available to establish such safety rules and regulations.

1. ⚠ Hazard Warning Statements

The following are the hazard warning statements contained in this manual.

1.1 NOTICE Statement

(chapter 1, page 1-3)

NOTICE

- This product can rewrite programs and internal register values while PCs is running. Be aware that rewriting without careful consideration can damage equipment or cause a serious accident. Before performing rewriting, check the equipment status and make sure that rewriting will not cause any problems.
- The Backup Restore System loads backup data into a CMU module and then writes it to the built-in CMU flash memory. Concurrent writes to the same address in the built-in CMU flash memory may destroy data. To prevent such data destruction, do not send data concurrently from the Backup Restore System and another tool (such as a HI-FLOW system, RPDP, or NX/Tools-S10V system) that writes to the CMU module.

(chapter 3, page 3-62)

NOTICE

- A higher communication speed places a greater load on the PCs during backup or a restore operation than normal speed does. When you select high speed, therefore, make sure that the increased load on the PCs will not cause any problems.
  - Rough standard for PCs load (CMU's load ratio (%))

    Backup Normal speed: 65%
    High speed: 70%

    Restore Normal speed: 85%
    High speed: 90%
- The setting of this command is valid when the system is connected with CMU built-in Ethernet® or ET.NET. The communication speed is not changed when the system is connected with RS-232C.

This manual provides information on the following program product:

<Program product>
S-7895-09, S10V BACKUP RESTORE SYSTEM, 01-08

Revision record

Revision No.	Revision record (revision details and reason for revision)	Month, Year	Remarks
A	First edition	June 2003	
A	Writing errors corrected	February 2006	
B	Descriptions added for the following additional targets of backup and restore: • Battery-backed CMU module • 2-channel D.NET module • FR.LINK module • PIOP module	February 2007	
C	CMU module (of model LQP526) support	February 2010	S10V Backup Restore System, 01-06 or later
	Automatic PCs reset capability is made cancelable.		
D	Backup restore of multiple PCs support	May 2010	S10V Backup Restore System, 01-07 or later
E	100M EQ.LINK module support	July 2011	S10V Backup Restore System, 01-08 or later
	Notes added for CMU and EQ.CMU modules (models LQP527 or LQP528).		

In addition to the above changes, all the unclear descriptions and typographical errors found are also corrected without prior notice.

PREFACE

Thank you for purchasing S10V Backup Restore System.

> This system operates on a personal computer. It can back up the system programs used on the existing programmable controllers (PCs) all at once to a specified floppy disk or hard disk. It can also restore the files previously created by backup all at once to the PCs.

This manual describes the operation of S10V Backup Restore System.
This manual is applicable to the following system version.

System name/version
S10V Backup Restore System For Windows® 01-08

<Trademarks>

- Microsoft® Windows® operating system, Microsoft® Windows® 2000 operating system, and Microsoft® Windows® XP operating system are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- Ethernet® is a registered trademark of Xerox Corp.

<Note for storage capacity calculations>

- Memory capacities and requirements, file sizes and storage requirements, etc. must be calculated according to the formula 2^n. The following examples show the results of such calculations by 2^n (to the right of the equals signs).
  1 KB (kilobyte) = 1,024 bytes
  1 MB (megabyte) = 1,048,576 bytes
  1 GB (gigabyte) = 1,073,741,824 bytes
- As for disk capacities, they must be calculated using the formula 10^n. Listed below are the results of calculating the above example capacities using 10^n in place of 2^n.
  1 KB (kilobyte) = 1,000 bytes
  1 MB (megabyte) = $1{,}000^2$ bytes
  1 GB (gigabyte) = $1{,}000^3$ bytes

<Definitions of Terms>

PCs: An abbreviation of Programmable Controllers.
This is a general term for PLCs such as those of the S10V, S10α, and S10mini series.

CONTENTS

FIGURES

TABLES

1 BEFORE USE

This manual is intended for users who use Windows® personal computer programming.

1.1 System Overview

The S10V Backup Restore System for Windows® (abbreviated hereafter to Backup Restore System) saves and loads S10V programs all at once using operations equivalent to those used in Windows®-based applications.

1.2 Hardware and Software Requirements

The Backup Restore System requires the following hardware and software.

- A personal computer (hereafter abbreviated to PC) with a 300 MHz or higher Pentium®
- A display with a resolution of 800 × 600 (SVGA) or more
- Microsoft® Windows® 2000 or Microsoft® Windows® XP operating system
- 64 MB or more of RAM (for Windows® 2000)
- 128 MB or more of RAM (for Windows® XP)
- 10 MB or more free space on the hard disk
- LPU and CMU for the S10V series
- Power supply and backboard for the S10V series
- Connection cable between the personal computer and the PCs (LAN cable)
- Remote I/O stations, other power supplies and backboards, cards, and wiring as required

NOTICE

- This product can rewrite programs and internal register values while PCs is running. Be aware that rewriting without careful consideration can damage equipment or cause a serious accident. Before performing rewriting, check the equipment status and make sure that rewriting will not cause any problems.
- The Backup Restore System loads backup data into a CMU module and then writes it to the built-in CMU flash memory. Concurrent writes to the same address in the built-in CMU flash memory may destroy data. To prevent such data destruction, do not send data concurrently from the Backup Restore System and another tool (such as a HI-FLOW system, RPDP, or NX/Tools-S10V system) that writes to the CMU module.

Users of this product must be knowledgeable about the Windows® environment and user interface. The Backup Restore System conforms to the Windows® standard. This manual is intended for users who have a good basic understanding of Windows®.

- When you use a PC with the suspend feature, disable the suspend feature. If the suspend feature operates while this system is running, the PC may not run properly.
- If the amount of free memory in the RAM is insufficient, an application error may occur.
  If an application error occurs, check the amount of free memory. If it is insufficient, increase the RAM.

1.3 Backup Area

The backup/restore operation saves, loads, and compares the following areas.

(1) System area and ladder program area
The following areas are automatically saved during a backup:
• OS (work area included)
• Ladder program and DW register
• FW and BD registers
• Timer setting and keep-relay status values
• CMU battery information (*1)
• Equalization setting parameters (*2)

For the addresses of these areas, see “APPENDIX B BACKUP AREAS.”

(2) CMU module areas
The following programs stored in memory within the installed CMU module are saved during a backup, except when a connection is established between your tool (a personal computer with the Backup Restore System installed in it) and the destination via an RS-232C module or model LQE520 ET.NET module.
• HI-FLOW programs (with data) -- saved only when they are configured.
• RPDP programs (with data) -- saved only when they are configured.
• NX user-buffer areas -- see the note following the parenthesized asterisk “(*1)” below.

For details on the addresses that are subjected to backup, see “APPENDIX B BACKUP AREAS.”

(3) Installed optional-module areas

The installed optional-module areas are also saved automatically, but where they are saved depends on the optional module used. For the addresses of these areas, see “APPENDIX B BACKUP AREAS.”

(*1) The CMU battery information and the NX user-buffer areas’ contents are saved only when the installed CMU module satisfies both of the following conditions:

① The CMU/EQ.CMU module is of model LQP525/526/527/528 (battery-backed model)

② The CMU module’s BAT.SEL (battery backup/TM setting) switch is set in “0” (zero) position, indicating that a battery is connected to it.

(*2) The equalization parameter settings are saved only when a CMU or EQ.CMU module (of model LQP526/528) supporting equalization is installed in place.

1.4 Backup/Restore Precautions

When backing up information with optional modules and CMU modules mounted, you must observe the following precautions.

(1) Duplication of a module setup switch
If a module setup switch is duplicated for optional modules of the same type, the backup/restore process cannot be guaranteed. To perform a backup/restore operation successfully, make sure that the module setup switch is not duplicated.

(2) Backup/restore operation between different optional modules
Different optional modules may be saved in the same backup file. The data backed up from these optional modules can be loaded into different optional modules, but this operation may cause a malfunction. When you perform a restore operation, make sure that the configuration of the optional module is the same as the one from which the data was backed up.
For details on the backup files, see "APPENDIX A BACKUP FILES."

(3) Backup/restore operation for the CMU module areas using an RS-232C or ET.NET connection
None of the memory areas in the CMU module are subjected to saving and loading if a connection is established between your tool and that destination via an RS-232C module or model LQE520 ET.NET module. To achieve saving and loading for a CMU module, establish a connection with the destination again, but this time via the CMU module's built-in Ethernet® (*) or a model LQE720 ET.NET module.

(*) If the CMU module used is a CMU or EQ.CMU module supporting equalization, it does not allow direct connection from the network to its built-in Ethernet® port by cable. So, be sure to use a model LQE720 ET.NET module when connecting that CMU module to the network.

(4) Backup/restore operations for battery-backed CMU/EQ.CMU modules (model LQP525/526/527/528)

Backup/restore operations for battery-backed CMU/EQ.CMU modules (model LQP525/526/527/528) are supported only by Ver-Rev 01-05 or later of the Backup Restore System -- they are not supported by Ver-Rev 01-04 or earlier. The results of restore operations on battery-backed CMU/EQ.CMU modules differ, as described below, depending on whether the Ver-Rev of the Backup Restore System used supports backup/restore operations on such CMU/EQ.CMU modules.

<Result of a restore operation using a non-supporting Ver-Rev>

The RPDP's GLB area (GLBRW) is initialized with the initial values generated by the execution of svrpl.

<Result of a restore operation using a supporting Ver-Rev>

The RPDP's GLB area (GLBRW) is not initialized, but instead it is restored with its contents saved by a backup operation.

(5) Backup/restore operation for equalization-supporting CMU/EQ.CMU modules (model LQP526/528)

When performing a backup/restore operation for an equalization-supporting CMU/EQ.CMU module (model LQP526/528), make sure that equalization is stopped and not running in your application system. If you carry out a backup/restore operation during the progress of equalization, the load of the CMU module will increase, possibly resulting in an unsuccessful backup/restore operation.

The equalization-supporting CMU/EQ.CMU module has fewer functions than the standard CMU modules (models LQP520/525/527). Therefore, if you want to back up the data for a standard CMU module and then restore it for an equalization-supporting CMU/EQ.CMU module, check that you are not using a function or functions the equalization-supporting CMU/EQ.CMU module does not support. For information on the functions not supported by equalization-supporting CMU/EQ.CMU modules, refer to "1.3 Differences between the Models LQP520/525 and LQP526-Z" of the User's Manual, Option CMU (LQP526-Z, LQZ500-Z) (manual number SVE-1-145) and "1.3 Differences between the CMU (LQP520-Z/525-Z/527-Z/526-Z) and EQ.CMU (LQP528-Z)" of the User's Manual, Option EQ.CMU (LQP528-Z, LQZ500-Z) (manual number SVE-1-153).

The equalization-supporting CMU/EQ.CMU module is supported by the HI-FLOW system, Ver-Rev 02-06 or later. So, no HI-FLOW programs created using the HI-FLOW system, Ver-Rev 02-05 or earlier will function if restored for the equalization-supporting CMU/EQ.CMU module. If they are so restored, send to the programmable controller the HI-FLOW programs that have been created using the HI-FLOW system, Ver-Rev 02-06 or later.

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2 INSTALLATION

2.1 Installing Backup Restore System

First, make sure that you have the correct CD. Backup Restore System runs on the Microsoft® Windows® 2000 and Microsoft® Windows® XP operating systems.
To install Backup Restore System, double-click the setup.exe file located in the DISK1 folder on the Backup Restore System CD. After installation, the installed program window is no longer displayed. If necessary, paste a shortcut on the desktop into the installation folder specified during installation.

> Before installing Backup Restore System, be sure to terminate all Windows®-based programs, including memory-resident programs such as anti-virus software. If you install Backup Restore System without terminating the programs, an error may occur during installation. If such an error occurs, uninstall the product by referring to “2.2 Uninstalling Backup Restore System,” and then install Backup Restore System again after terminating all Windows®-based programs.

2.2 Uninstalling Backup Restore System

To uninstall Backup Restore System for an upgraded version, use the following procedure.

(1) Uninstalling from Windows® 2000

From the [Start] menu, select [Settings] – [Control Panel]. Double-click [Add/Remove Programs], click [Change or Remove Programs], select [S10V Backup Restore System], and click the Change/Remove button.

When the [Confirm File Deletion] window appears, click the Yes button.

(2) Uninstalling from Windows® XP

From the [Start] menu, select [Settings] – [Control Panel]. Double-click [Add or Remove Programs], click [Change or Remove Programs], select [S10V Backup Restore System], and click the Change/Remove button.

When the [Confirm File Deletion] window appears, click the Yes button.

- When the [Remove Shared File?] window appears during uninstallation in Windows®, click No not to delete the shared file.
- If you want to re-install Backup Restore System, you must uninstall it first.

2.3 Starting Up the System

This section describes how to start Backup Restore System.

(1) The installed Backup Restore System is automatically added to the [Start] menu of Windows®.
To start the system, from the [Start] menu, select [Programs] – [Hitachi S10V] – [S10V Backup Restore System] – [S10V Backup Restore System].

(2) The [BACKUP RESTORE SYSTEM] window appears. Click the button of the command you want to execute.

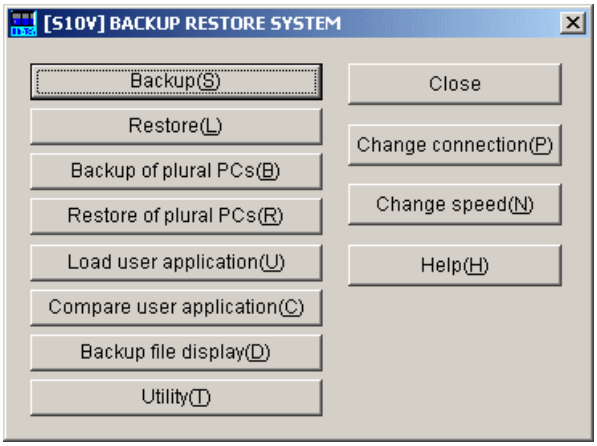


Figure 2-1 [BACKUP RESTORE SYSTEM] Window

2.4 Terminating the System

Click the [×] or [Close] button in the [BACKUP RESTORE SYSTEM] window shown in Figure 2-1.

3 COMMANDS

3.1 Command System

The backup/restore command system is shown below.
Each command is described in Section 3.2 and subsequent sections. For the details of each command, see Help.

- Commands
  - Backup
  - Restore
  - Backup of plural PCs
  - Restore of plural PCs
  - Load user application
  - Compare user application
  - Backup file display
  - Utility
  - Change connection
  - Change speed

3.2 Backup

Function: Saves the programs used on the PCs all at once.
Operation: See the procedure below.

(1) Click the Backup button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1). The [Backup] window appears (Figure 3-1).

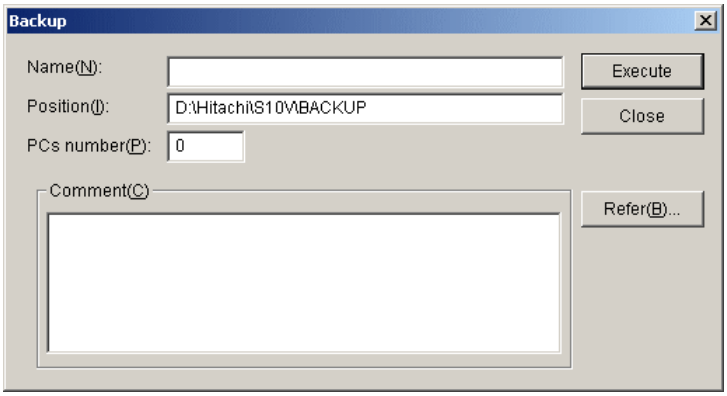


Figure 3-1 [Backup] Window

Then, if a CMU module is installed in place and a connection is established with that destination via an RS-232C module or model LQE520 ET.NET module, a warning message for unsuccessful saving of the CMU module's internal memory areas (Figure 3-2) will appear.

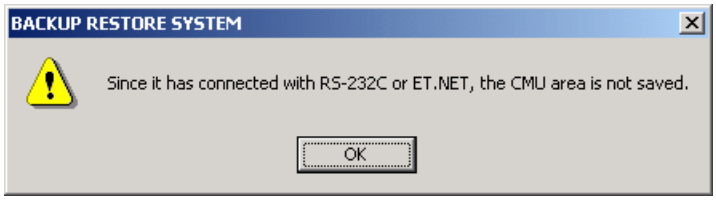


Figure 3-2 Warning Message for Unsuccessful Saving of the CMU Area

In this case, none of the CMU module's internal memory areas will be saved. If you want to save them, establish a connection with that destination again, but this time via the CMU module's built-in Ethernet® or a model LQE720 ET.NET module.

> If the CMU/EQ.CMU module used is of model LQP526/528, it does not allow direct connection from the network to its built-in Ethernet® port by cable. The connection must be indirect, via a model LQE720 ET.NET module. So, be sure to use a model LQE720 ET.NET module when connecting a model LQP526/528 CMU/EQ.CMU module to the network.

(2) Enter the "Name", "Position", and "PCs number" for the folder in which to store backup files. Enter a "Comment" as required. The following describes [Backup] window input items and button operations.

Name: Specify the name of the folder to which you want to save the backup file. The backup file is saved directly in this folder. For the types of backup files, see "APPENDIX A BACKUP FILES." Because there is no default name for this item, nothing is displayed for it when the window appears.

Position (location): Specify the directory path from root up to "Name". To specify the location, type the directory path from the drive name in the text box, or click the [Refer] button and select the directory path. The default location is the directory where Backup Restore System is installed.

PCs number: Specify the PCs number effective at backup time. Usually, use the PCs number displayed by default. The default is the PCs number of the PCs to which Backup Restore System is connected.

Comment: Optional. You can enter comment text in either half-size or full-size characters. The maximum is 256 half-size characters or 128 full-size characters.

Execute button: Click this button to perform backup. When the Execute button is clicked, each input value is first checked as follows:
Name: If the "Name" box is blank, an error occurs.
Position: If the "Position" box is blank or an invalid drive name is entered, an error occurs.
PCs number: If a number outside the range from 0 to 9999 or characters other than decimal digits are entered, an error occurs.
If no errors are detected in the check, the backup process starts.

Close button: Click this button to return to the [BACKUP RESTORE SYSTEM] window without performing backup.

Refer button: Click this button when you want to change the contents of the "Position" text box. Clicking this button displays the [Reference] window (Figure 3-3).

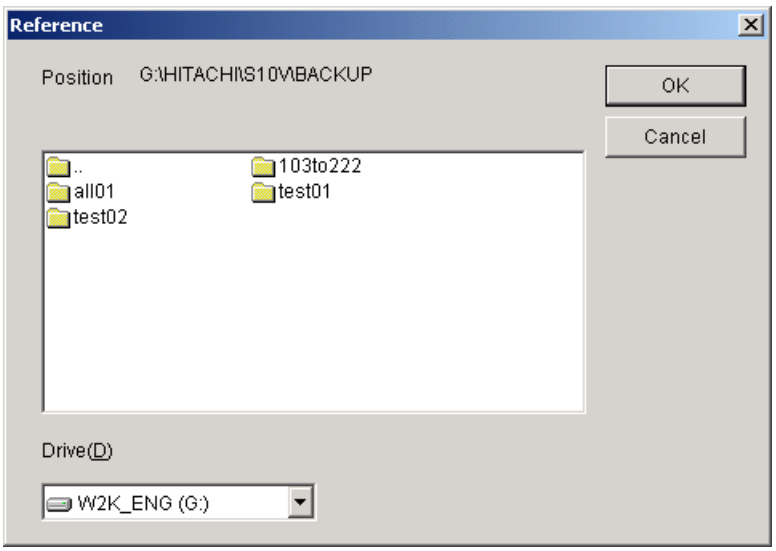


Figure 3-3 [Reference] Window

Select a folder and click the OK button. The [Reference] window disappears, and you are returned to the [Backup] window. The "Position" text box in the [Backup] window shows the full pathname (beginning with the drive name) of the folder you selected in the [Reference] window.
If you click the Cancel button, the [Reference] window disappears, and you are returned to the [Backup] window. The folder you selected in the [Reference] window is not shown in the "Position" text box in the [Backup] window.

(3) After completing entry, click the Execute button to start the backup.
If you do not want to perform backup, click the Close button. The [Backup] window disappears, and you are returned to the [BACKUP RESTORE SYSTEM] window.

(4) If you clicked the [OK] button in the [Reference] window in the previous step, a backup confirmation message (Figure 3-4) is displayed. If you really want to save them, click the [Yes] button. Otherwise, click the [No] button. Clicking [No] button will return you to the [Backup] window without saving them.

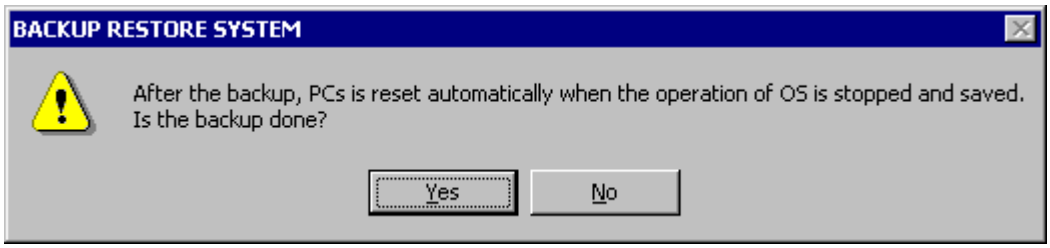


Figure 3-4 Backup Confirmation Message

(5) When a backup process starts, a confirmation message for aborting all running tasks (Figure 3-5) appears if a connection is established via the CMU module's built-in Ethernet® or a model LQE720 ET.NET module.

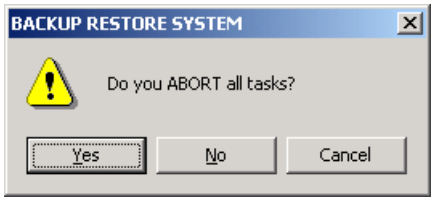


Figure 3-5 Confirmation Message for Aborting All Tasks

Click the [Yes] button to abort (stop) all tasks. Then, the CMU module enters into a suppressed state of task execution so that the execution of any task will be suppressed thereafter.
Click the [No] button not to abort the tasks.
Click the [Cancel] button to return to the [Backup] window without performing backup.

<Aborting (stopping) all tasks>

For the sake of safety, it is recommended that the entire plant and equipments be stopped, together with the operating system (OS), before starting a backup operation. If the ladder and/or HI-FLOW programs cannot be stopped, you may stop only the existing tasks. To accomplish this, be sure to ABORT all the existing tasks.

(6) If the PCs is in the RUN status, a confirmation message (Figure 3-6) asking you whether you want to continue processing appears.

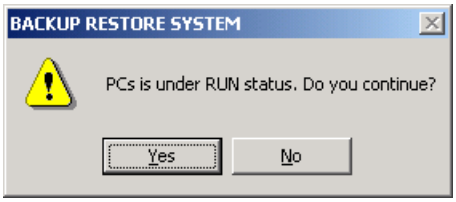


Figure 3-6 Confirmation Message for PCs in RUN Status

Click the [Yes] button to start backup.
Click the [No] button to return to the [Backup] window without performing backup.

(7) A confirmation message (Figure 3-7) asking you whether you want to stop the OS operation appears.

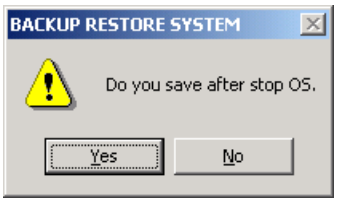


Figure 3-7 Confirmation Message for Stopping the OS

If you click the [Yes] button, the following three things will occur automatically: 1) the PCs will be reset, 2) the OS will be stopped, and 3) backup will be carried out. (In this case, the PCs enters the STOP state if it is in RUN state. Upon completion of the backup, the PCs in STOP state will go back into RUN state. At the end of the backup, the PCs will again be automatically reset with no reset confirmation message displayed.)
If you click the [No] button in place of [Yes] button, backup will be carried out immediately without stopping the OS. In this case, the PCs will not be automatically reset.

<Stopping the OS>
For the sake of safety, it is recommended that the entire plant and equipments be stopped, together with the operating system (OS), before starting a backup operation.

(8) A backup progress window (Figure 3-8) appears, which remains open during the backup.

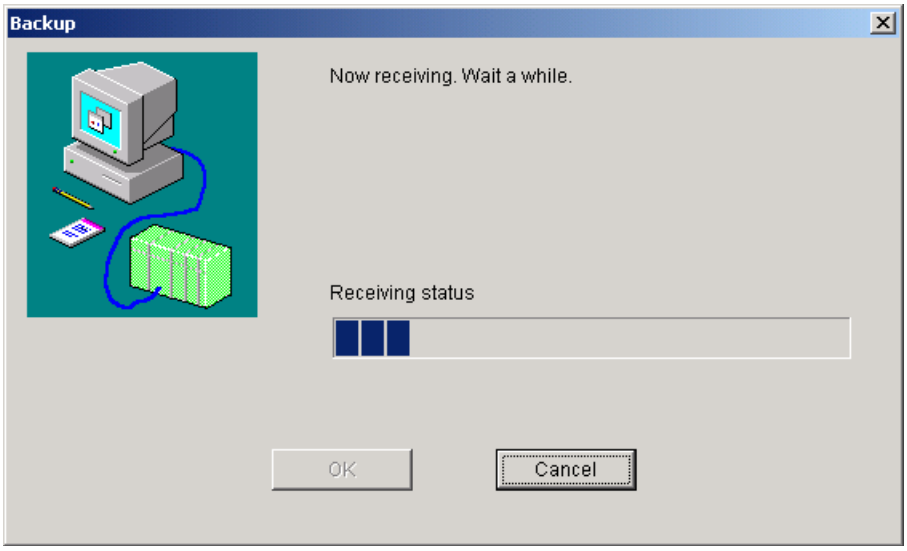


Figure 3-8 Window Displayed During Backup

If you click the OK button after backup has been completed, the [Backup] window reappears. You cannot click the OK button before the backup operation has been completed.
If you click the Cancel button, the backup in progress is stopped, and you are returned to the [Backup] window. In this situation, the save information file that was saved before the Cancel button was clicked is not deleted. Do not perform the restore process using this file, since a malfunction will result.

(9) In the [Backup] window, click the Close button to end the backup process.

<Limitation>
The save area size cannot be changed for any specific module.

- If the backup process is canceled or terminates due to an error, the OS may remain stopped. In this case, you must use the Utility command to check the OS startup status, and return the OS to the running status (see “3.9 Utility”).
- If the backup process terminates abnormally due to an error, the CMU module may be left in a suppressed state of task execution. So, be sure to use the Utility command and check the “status of task execution control” in the [Utility] window to see if it is actually in such a state. If it is, clear the state.

3.3 Restore

Function: Loads the backed-up programs all at once into the PCs.
Operation: See the procedure below.

(1) Click the Restore button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Restore] window (file selection) appears (Figure 3-9).

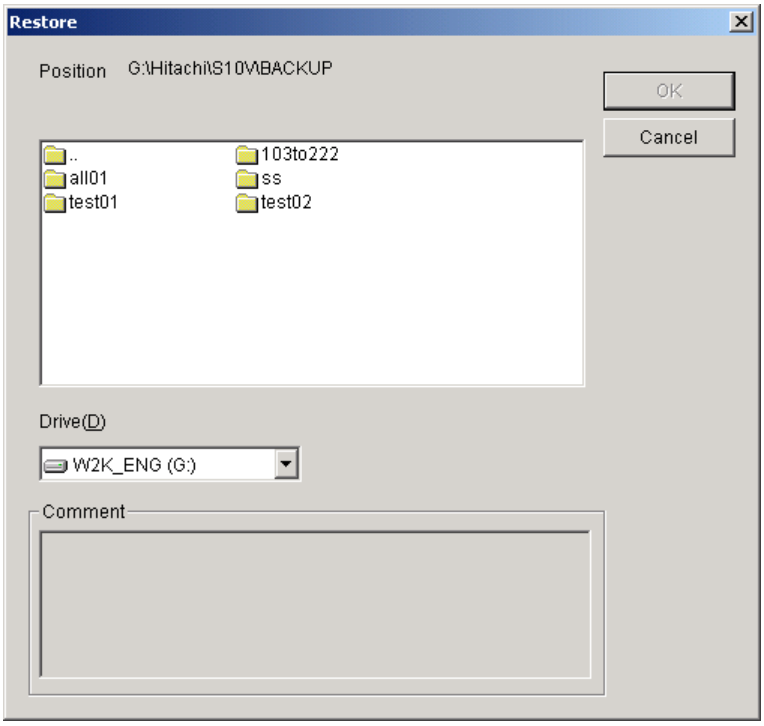


Figure 3-9 [Restore] Window (File Selection)

Select the folder you want to restore and click the OK button. The [Restore Information] window (Figure 3-10) appears. If the selected folder does not contain any backup files, you cannot click the OK button. If the backup files have been saved on a floppy disk, select the drive containing that floppy disk in the "Drive" box.
If you do not want to perform the restore process, click the Cancel button. The [Restore] window (file selection) disappears without the restore process being performed, and you are returned to the [BACKUP RESTORE SYSTEM] window.
The "Comment" box is displayed in the [Restore] window (file selection), but it cannot be edited. When a backup file is selected, a comment is displayed only if a comment was entered at backup time.

(3) In the [Restore] window (file selection), click the OK button. The [Restore Information] window (Figure 3-10) appears.

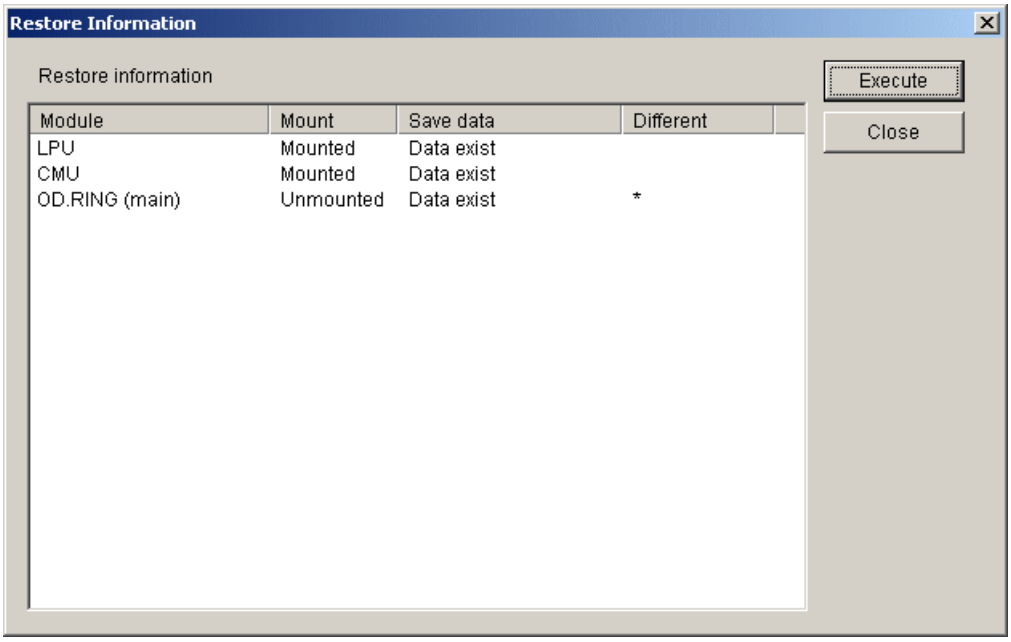


Figure 3-10 [Restore Information] Window

Then, if a CMU module is installed in place and a backup file for that CMU module is present but a connection is established with that destination via an RS-232C module or model LQE520 ET.NET module, a warning message for unsuccessful loading of the CMU module's internal memory areas (Figure 3-11) will appear.

Figure 3-11 Warning Message for Unsuccessful Loading of the CMU Area

In this case, none of the CMU module's internal memory areas will be restored to it. If you want to restore them, establish a connection with that destination again, but this time via the CMU module's built-in Ethernet® or a model LQE720 ET.NET module.
Further, if a restore is found not possible for a module(s) due to a mismatch detected between the installed (mounted) modules and existing backup files, a mismatch warning message for restore (Figure 3-12) appears.

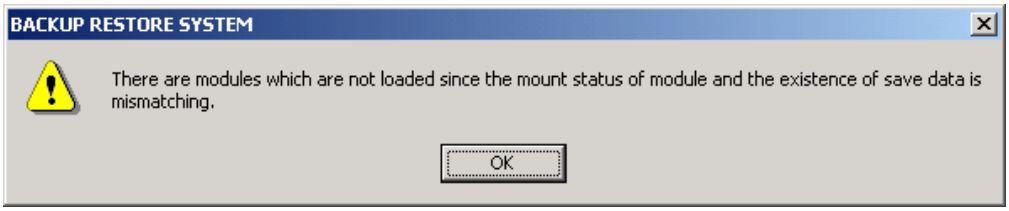


Figure 3-12 Mismatch Warning Message for Restore Operation

The [Restore Information] window shows whether each module is mounted and whether its save data exists, and lists the save data to be restored. This window does not display modules that are not mounted and whose save data does not exist. After confirming the save data, click the Execute button to start the restore process (Note).
If you do not want to perform the restore process, click the Close button. The [Restore Information] window disappears, and you are returned to the [Restore] window (file selection).
The following describes the items displayed in the [Restore Information] window.

Module: Displays all modules that can be backed up and restored. When multiple modules are allocated to the same area, the names of modules actually mounted are displayed. For details on the types of the displayed modules, see "APPENDIX B BACKUP AREAS." When the following modules are not mounted, the indicated module names are displayed:
OD.RING/SD.LINK: "OD.RING" is displayed.
J.NET/J.NET-INT/IR.LINK: "J.NET" is displayed.
RS-232C/RS422: "RS-232C" is displayed.

Mount: Displays the mount status of modules. "Mounted" is displayed when a module is mounted. "Unmounted" is displayed when a module is not mounted.

Save data: Displays whether save data for a module exists.

"Data exist": Indicates that a save data file exists for the module.

"No data": Indicates that a save data file does not exist for the module.

"Data exist (no set value)":

Indicates that, although a save data file exists for the module, its content is the initial values for that module (i.e., no new parameter values are set yet). This indication is displayed only when the module is a PIOP module -- it is not displayed for any other type of optional module.

If this indication is displayed but nothing is displayed in the "Different" column (see below for details) for the PIOP module, care must be taken when carrying out a restore. The set parameter values for that PIOP module stored in the mounted CMU module, if any, will be replaced by the corresponding initial values during restore. If you want to keep those parameter values intact, do not restore the save data file to the PCs. However, if an asterisk ("*") is displayed in the "Different" column for that PIOP module, no such replacement will occur during restore.

"Data exist (Equalize Support)":

Indicates that, although a save data file exists that contains data ('backup14.wsvl') for a model LQP526/528 CMU/EQ.CMU module, the module to be restored is of a model other that LQP526/528. In this case, the restore process will not restore the data (equalization setting parameters) for the model LQP526/528 CMU/EQ.CMU module if initiated by the user.

"Data exist (Equalize Non-support)":

Indicates that, although a save data file exists that contains no data ('backup14.wsvl') for a model LQP526/528 CMU/EQ.CMU module, the module to be restored is of model LQP526/528. In this case, the restore process will clear all the data (equalization setting parameters) for the model LQP526/528 CMU/EQ.CMU module if initiated by the user.

Different: Indicates that the module cannot be restored due to a mismatch between the mount status of the module and the status of the save data. An asterisk (*) is displayed when a module is mounted but no save data exists, or when a module is not mounted but save data exists. Nothing is displayed when a module can be restored (that is, when the module is mounted and save data exists).

Note: Even if a CMU module (Ver-Rev 0005-0000 or later) is mounted in place but a PIOP module is not, and save data for that CMU module is present, this will not cause a mismatch. In this case, if the type of communication used is either RS-232C or ET.NET (model LQE520), the parameter information saved for the CMU and PIOP modules will not be loaded to the PCs by restore. (The mount status of such a non-mounted PIOP module is shown as "Unmounted" and an asterisk ("*") is displayed in the "Different" column.)

When you click the Execute button in the [Restore Information] window, a restore confirmation message (Figure 3-13 or 3-14) appears. If you really want to carry out a restore, click the Yes button. Otherwise, click the No button, in which case you are returned to the [Restore] window (file selection).

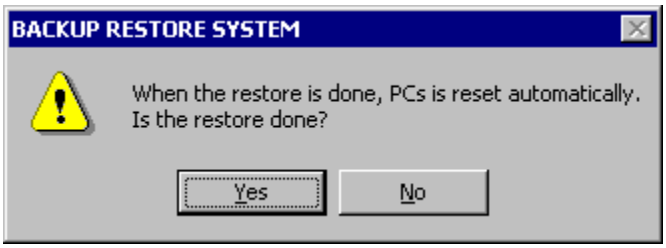


Figure 3-13 Restore Confirmation Message

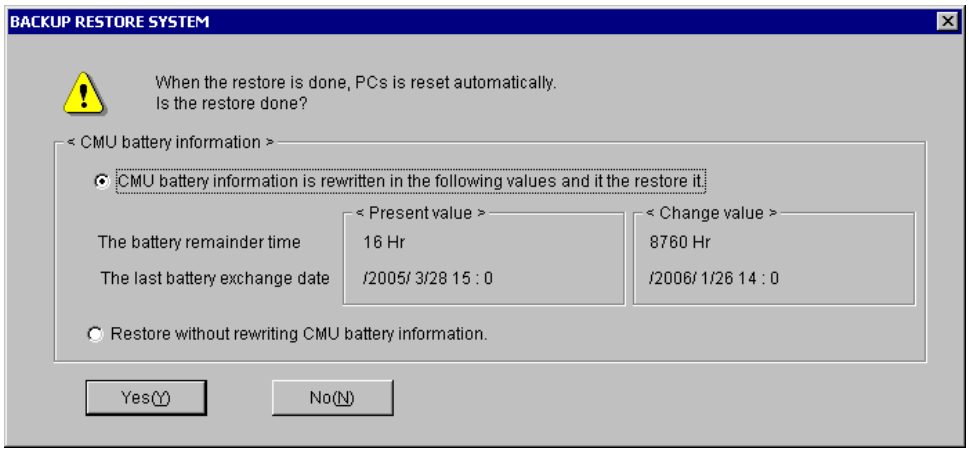


Figure 3-14 Restore Confirmation Message (when a model LQP525/526/527/528 CMU module is running in battery-backed state)

The restore confirmation message in Figure 3-14 appears only when the battery's remaining charge time in hours -- shown in the CMU battery information that is displayed for a model LQP525/526/527/528 CMU module when it is set up as connected with a battery -- is different by one hour or more between the save data file and the target CMU module. In all other cases, the restore confirmation message in Figure 3-13 appears.

When the restore confirmation message in Figure 3-14 appears, you can select either of the following two radio buttons: "CMU battery information is rewritten in the following values and it the restore it" or "Restore without rewriting CMU battery information". The former radio button is the default selection.

Note: If the PCs number for the backup file disagrees with the PCs number of the restore destination, the [PCs No. Check] window appears (Figure 3-15). In this window, select the applicable radio button and click the OK button. If the PCs number in the backup file header is 9999, the PCs number is not checked. Note that the PCs number of the restore destination is rewritten with the PCs number for the main part of the backup file.

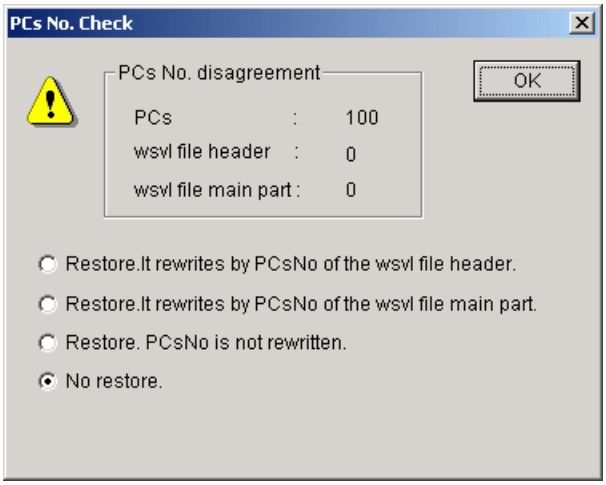


Figure 3-15 [PCs No. Check] Window

Restore.It rewrites by PCsNo of the wsvl file header.:

Rewrites the PCs No. of the restore destination with the PCs No. of the backup file header and performs the restore process. The PCs No. of the backup file header can be specified at backup time. For details, see “3.2 Backup.”

Restore.It rewrites by PCsNo of the wsvl file main part.:

Rewrites the PCs No. of the restore destination with the PCs No. for the main part of the backup file and performs the restore process. The PCs No. for the main part of the backup file is the PCs No. defined in the backup PCs.

Restore. PCsNo is not rewritten.:

Performs the restore process without changing the PCs No. of the restore destination.

No restore.: Does not perform the restore process.

The default is “No restore.”

For a CMU built-in Ethernet® or ET.NET connection, when the connected IP address disagrees with the backup file IP address, the [IP Address Check] window appears (Figure 3-16). Select the applicable radio button and click the OK button. Note, however, that if the connected IP address is 192.192.192.1, the system assumes that the connected module is operating with a fixed IP address, and does not check the IP address. Also note that when the IP address 192.192.192.1 is defined for the connected module, a line error may occur during the restore process.

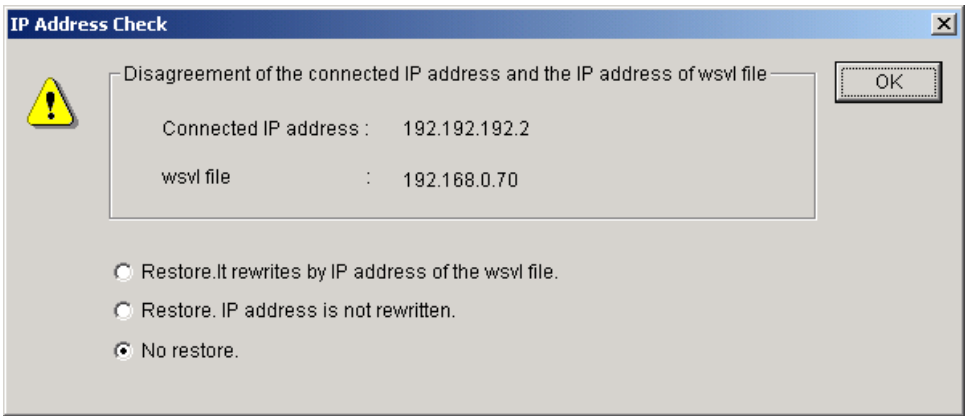


Figure 3-16 [IP Address Check] Window

Restore.It rewrites by IP address of the wsvl file.:
Rewrites the IP address of the restore destination with the IP address of the backup file and performs the restore process. All information related to the IP address (IP address, subnet mask, broadcast address, and routing information) will be rewritten.

Restore. IP address is not written.:
Performs the restore process without changing the address of the restore destination.

No restore.: Does not perform the restore process.
The default is “No restore.”

When you select the “Restore.It rewrites by IP address of the wsvl file.” option in the [IP Address Check] window, the IP address change message (Figure 3-17) appears at the end of the restore process.

Figure 3-17 IP Address Change Message

At this point, the loaded IP address has not taken effect. If changing the IP address setting will not cause any problems, manually reset the PCs or power the PCs off and then on again.

(4) If the PCs is in RUN state, a confirmation message (Figure 3-6) asking you whether you want to continue processing appears.
(Here, you are recommended to stop the PCs before doing the following.) Click the Yes button to start the restore process.
Click the No button to return to the [Restore] window (file selection) without performing the restore process.

(5) When the PCs is reset, a confirmation message asking you whether you want to recover the measured values of keep coils and counters (Figure 3-18) appears.

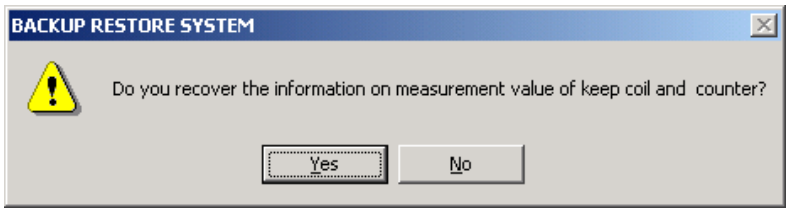


Figure 3-18 Confirmation Message for Recovery of Measured Values of Keep Coils and Counters

If you click the Yes button, the measured values of keep coils and counters are recovered at restore time.
If you click the No button, the measured values of keep coils and counters are not recovered.
Keep coil: Keep relay (blackout hold latch type), from KW000 to KWFFF
Counter: Up/down counter (count value), from CC000 to CC0FF

(6) When the Yes or No button is clicked in response to the confirmation message for recovery of keep coil and counter value information, the message window disappears and a window indicating the progress of the restore operation appears (Figure 3-19).

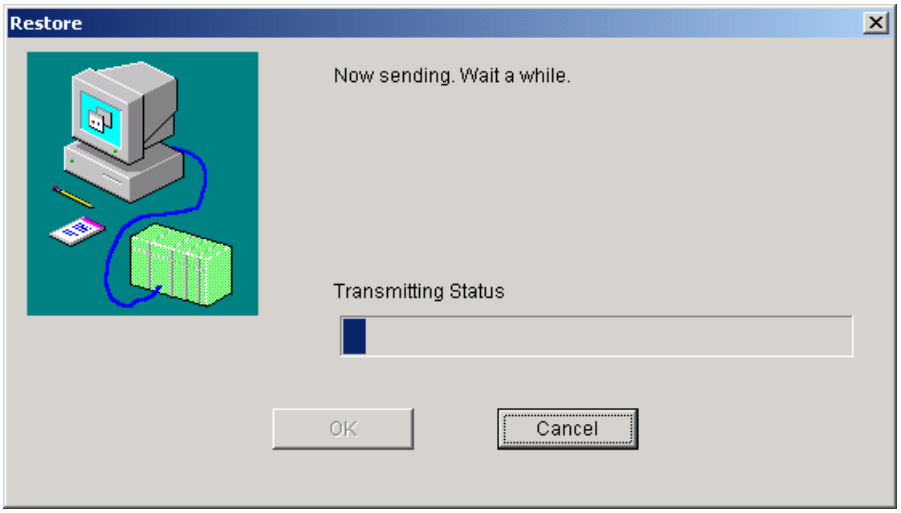


Figure 3-19 Restore Progress Status Window

If you click the Cancel button during the restore process, the restore progress status window disappears, and you are returned to the [Restore] window (file selection). In this case, the restore process is only partially completed and system operations in this condition will result in a malfunction. The restore operation must then be retried from the beginning.
Upon completion of the restore process, the PCs will be automatically reset.
When the PCs has been reset, the OK button is enabled. Click the OK button.
When you click the OK button, the restore progress status window disappears, and you are returned to the [Restore] window (file selection).

<Precaution for restore to a model LQP525/526/527/528 CMU/EQ.CMU module>

If the restore destination is a model LQP525/526/527/528 CMU/EQ.CMU module that is set up as connected with a battery, and CMU battery information is found missing from the save data file for restore, then the following error message appears:

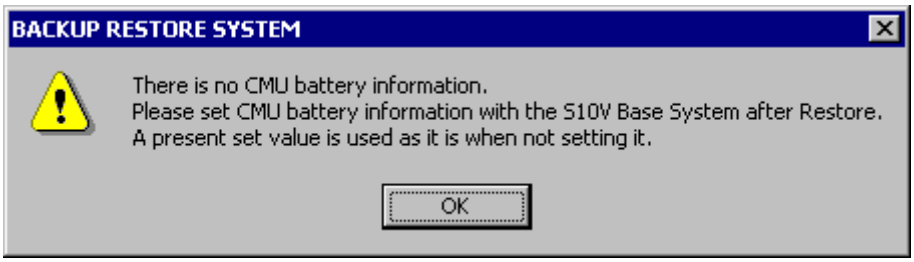


Figure 3-20 Error Message Reporting Missing CMU Battery Information

In this case, wait for the restore to be finished. Then, set CMU battery information by using [Battery Information] in the S10V Base System.

(7) In the [Restore] window (file selection), click the Cancel button to end the restore process.

- If the restore process is canceled or terminates due to an error, the OS may remain stopped. In this case, you must use the Utility command to check the OS startup status, and return the OS to a run state (see “3.9 Utility”).
- The model LQP526/528 CMU/EQ.CMU module supports the HI-FLOW interpreter, Ver-Rev 02-03 or later. If an attempt is made to restore a set of backed-up files including the HI-FLOW interpreter file, Ver-Rev 02-02 or earlier, for a model LQP526/528 CMU/EQ.CMU module, none of the HI-FLOW interpreter and programs in the back-up will be restored (and all of the HI-FLOW interpreter and programs in the programmable controller will be cleared upon completion of the restore process). In this case, send the HI-FLOW interpreter and programs over again from the HI-FLOW system to the programmable controller.

3.4 Backup of Multiple PCs

Function: Saves the programs used on two or more PCs (up to 16 PCs) all at one time.
Operation: See the procedure below.

(1) Click the Backup of plural PCs button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).
The [Backup of plural PCs] window appears (Figure 3-21).

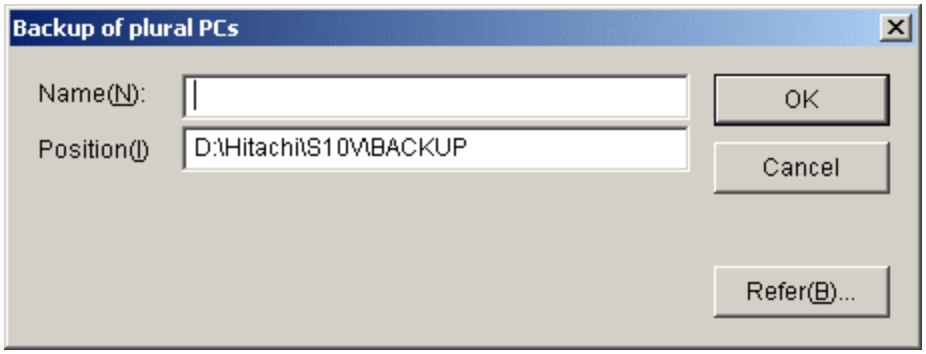


Figure 3-21 [Backup of plural PCs] Window

(2) Enter the "Name" and "Position" for the folder in which to store backup files. The following describes [Backup of plural PCs] window input items and button operations.
Name: Specify the name of the folder to which you want to save the backup of multiple PCs files. In this folder, the backup files of each programmable controller will be stored all in one single subfolder. If the specified folder already contains the backup files of multiple PCs, information on its contents will automatically be read out and displayed in the [Backup of plural PCs (List of setting)] window (Figure 3-23). For the types of backup files, see "APPENDIX A BACKUP FILES." Because there is no default name for this item, nothing is displayed for it when the window appears.
Position (location): Specify the directory path from root up to "Name". To specify the location, type the directory path from the drive name in the text box, or click the Refer button and select the directory path. The default location is the directory where Backup Restore System is installed.

OK button: Click this button to perform backup of multiple PCs. When the OK button is clicked, each input value is first checked as follows:

Name: If the "Name" box is blank, an error occurs.

Position: If the "Position" box is blank or an invalid drive name is entered, an error occurs.

If no errors are detected in the check, the [Backup of plural PCs] window appears.

Cancel button: Click this button to return to the [BACKUP RESTORE SYSTEM] window without performing backup of multiple PCs.

Refer button: Click this button when you want to change the contents of the "Position" text box. Clicking this button displays the [Reference (Specification of position)] window (Figure 3-22).

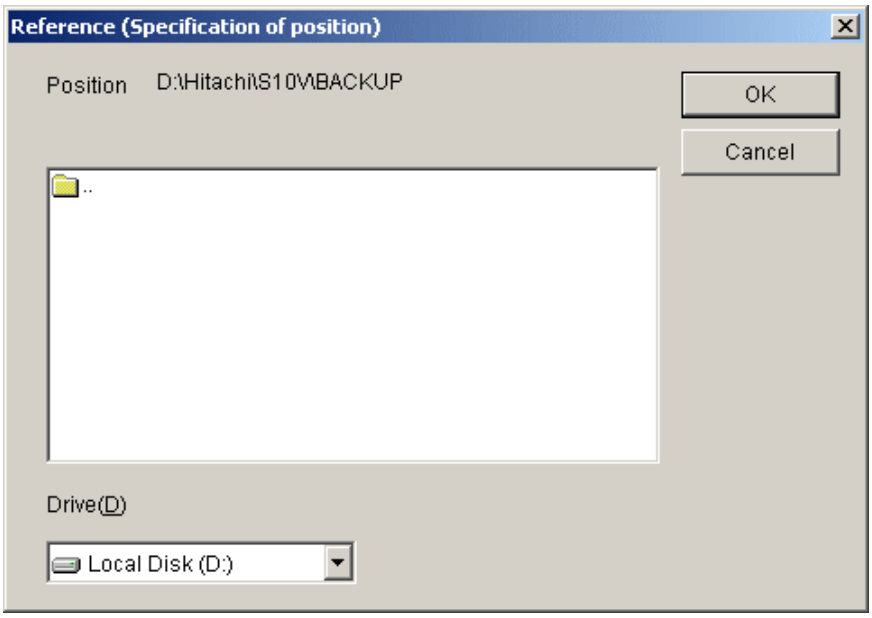


Figure 3-22 [Reference (Specification of position)] Window

Select a folder and click the OK button. The [Reference (Specification of position)] window disappears, and you are returned to the [Backup of plural PCs] window. The "Position" text box in the [Backup of plural PCs] window shows the full pathname (beginning with the drive name) of the folder you selected in the [Reference (Specification of position)] window.

If you click the Cancel button, the [Reference (Specification of position)] window disappears, and you are returned to the [Backup of plural PCs] window, where the "Position" box remains unchanged in content.

(3) When you have made entries in the “Name” and “Position” boxes in the [Backup of plural PCs] window (Figure 3-21), click either the OK button or the Cancel button. If you want to carry out the backup of multiple PCs, click OK. Then, the [Backup of plural PCs (List of setting)] window (Figure 3-23) is displayed. However, if you do not want to carry it out, click the Cancel button instead of OK. Then, the [Backup of plural PCs] window disappears, and the [BACKUP RESTORE SYSTEM] window becomes active again.

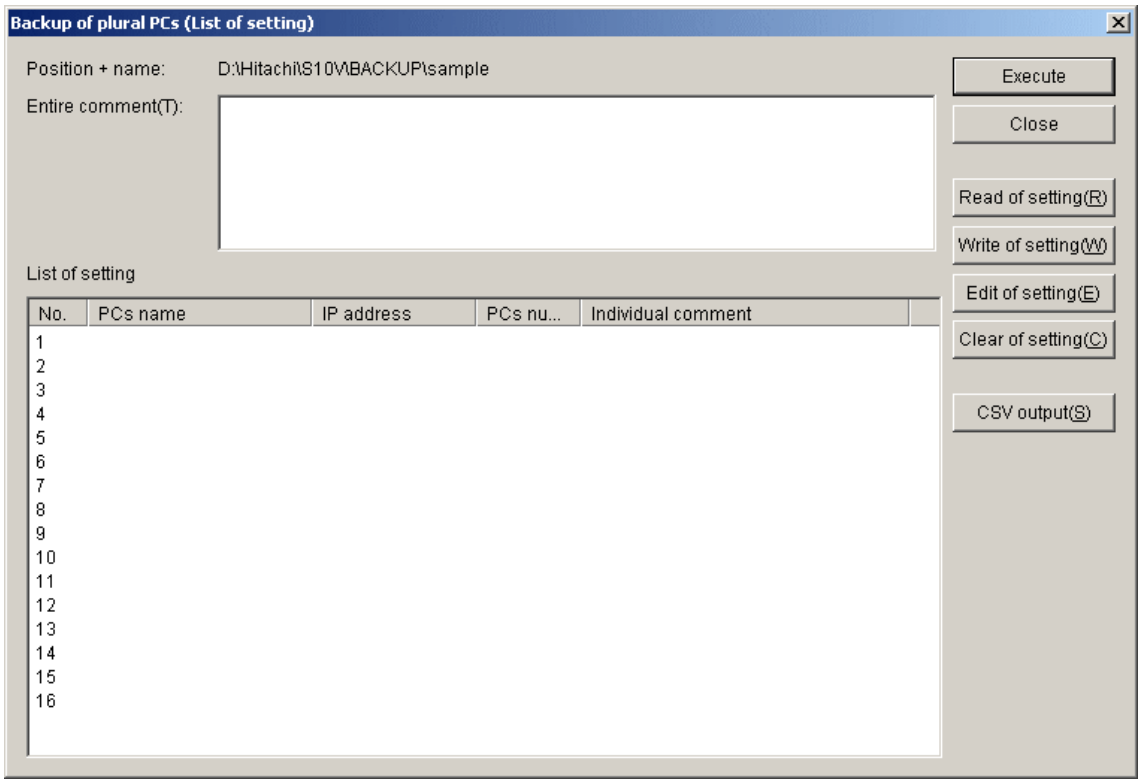


Figure 3-23 [Backup of plural PCs (List of setting)] Window

(4) Enter, in the “Entire comment” box, an optional general comment on the backup of multiple PCs you are carrying out, and make necessary settings for those PCs in the “List of setting” box. The following are descriptions of the input items and buttons provided in the [Backup of plural PCs (List of setting)] window.

Position + name: Shows the location and name of the folder in which to save the backup files generated. This item is displayed according to the entries that were made in Step (2) via the [Backup of plural PCs] window (Figure 3-21).

Entire comment: Is a general comment on the backup of multiple PCs you are carrying out. Enter an arbitrary string of up to 256 one-byte characters as this optional comment.

List of setting: Is a list of the PCs names, IP addresses, and PCs numbers of the PCs to be backed up. The three items of PCs name, IP address, and PCs number are displayed if they are already set for each of the PCs to be backed up, together with an optional comment to the right of the PCs number.

Execute button: Is clicked when you want to initiate the backup of multiple PCs. When this button is clicked, the "Backup of plural PCs" command first checks the settings displayed in the "List of setting" box. If any of the conditions listed below is found by the check, it results in an error.

- PCs names duplicated
- IP addresses duplicated
- "List of setting" box empty

Close button: Is clicked when you want to exit the "Backup of plural PCs" command without backing up the PCs.

Read of setting button: Is clicked when you want to read out all the existing settings for a backup of multiple PCs to the [Backup of plural PCs (List of setting)] window and use them again, entirely or partly, for another backup of multiple PCs. Clicking this button displays the [Read of setting (Specification of name)] window (Figure 3-24).

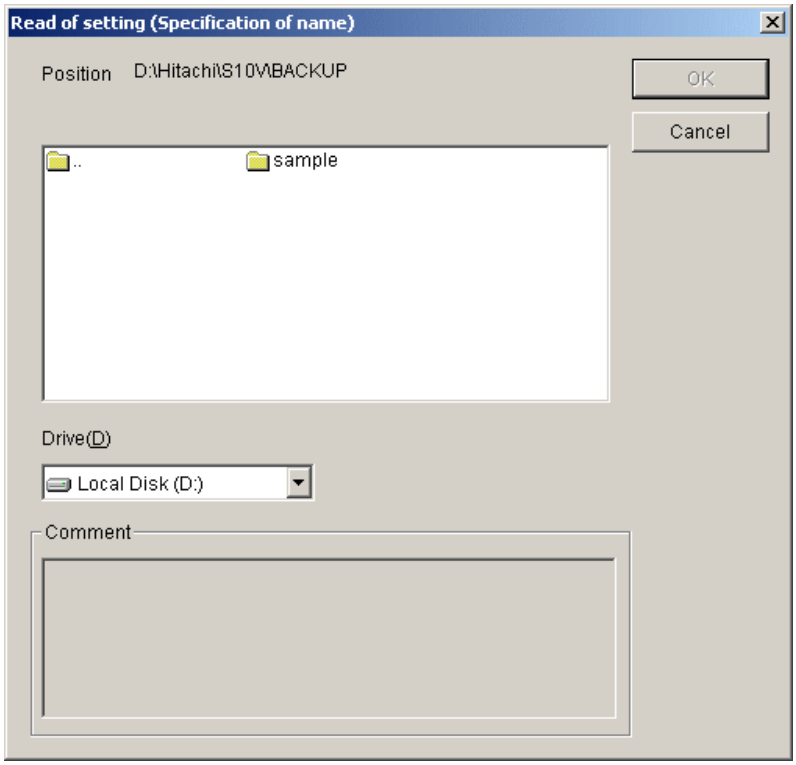


Figure 3-24 [Read of setting (Specification of name)] Window

In this window, select the desired folder in which the backup files of multiple PCs are stored. Then, the OK button becomes clickable. If you click OK, the [Read of setting (Specification of name)] window closes and the [Backup of plural PCs (List of setting)] window becomes active again which reflects the existing settings read out. If you click the Cancel button instead of OK, the [Read of setting (Specification of name)] window closes and the [Backup of plural PCs (List of setting)] window becomes active again but it remains unchanged in content.

Write of setting button: Click this button when you want to save all the displayed settings for the backup of multiple PCs. When this button is clicked, the "Backup of plural PCs" command first checks the displayed settings in the "List of setting" box for error. The possible error conditions found by the check are the same as those which are found when the Execute button is clicked.
Care must be taken when you use this Write of setting button. If the PCs that have the settings for their backup currently displayed in the window are already backed up, and you save those settings by clicking this button, then their backup files cannot be restored until they are backed up again.

Edit of setting button: Is clicked following the selection (clicking) of the setting line for a particular programmable controller in the "List of setting" box. This enables you to edit the selected settings, if any. The same effect can also be achieved by double-clicking that setting line. In either case, the [Setting of IP address] window (Figure 3-25) is displayed.

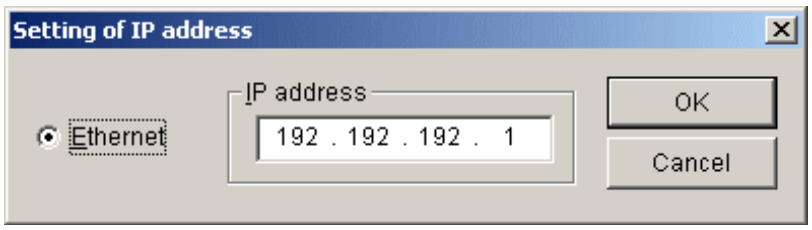


Figure 3-25 [Setting of IP address] Window

In this window, take one of the following actions: 1) entering the IP address of the programmable controller and clicking the OK button, or 2) clicking the Cancel button instead. If you take the first action, then the [Backup of plural PCs (Edit of setting)] window (Figure 3-26) appears. However, if you take the second action, then the [Setting of IP address] window disappears and the [Backup of plural PCs (List of setting)] window (Figure 3-23) becomes active again.

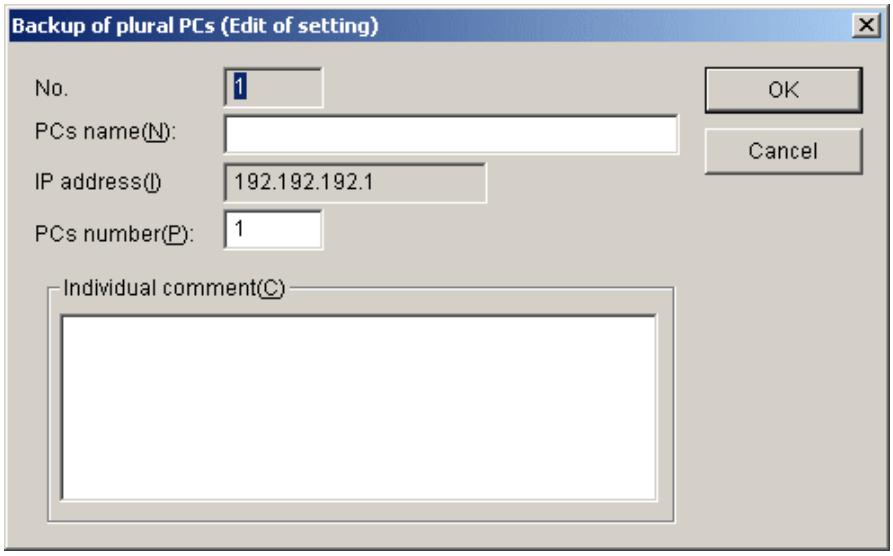


Figure 3-26 [Backup of plural PCs (Edit of setting)] Window

In this window, as you did above, take one of the following actions: 1) entering the PCs name and PCs number of the programmable controller along with an optional individual comment and clicking the OK button, or 2) clicking the Cancel button instead. If you take the first action, then the [Backup of plural PCs (Edit of setting)] window disappears and the [Backup of plural PCs (List of setting)] window becomes active again that reflects the information entered. However, if you take the second action, then the [Backup of plural PCs (Edit of setting)] window disappears and the [Backup of plural PCs (List of setting)] window becomes active again but it remains unchanged in content.

During the input of an individual comment, you may habitually press the Return key one or more times. In this case, the individual comment displayed in the [Backup of plural PCs (List of setting)] window is only the text that you had entered until you first pressed the Return key during the input.

Clear of setting button: Is used to delete the settings of a particular programmable controller listed in the "List of setting" box. First select the setting line of the desired programmable controller and then click this button. The selected setting line will then be deleted. Once its setting line is deleted, the programmable controller will no longer be subjected to backup operations.

CSV output button: Click this button when you want to output all the settings for the backup of multiple PCs to a file in CSV format. When this button is clicked, the [Save As] window (Figure 3-27) is first displayed. In this window, specify the desired storage location in which to save the created file, enter the name of that file, and then click the Save button. A CSV file will then be created.
If you click the Cancel button instead of Save, the [Save As] window closes and the [Backup of plural PCs (List of setting)] window becomes active again.

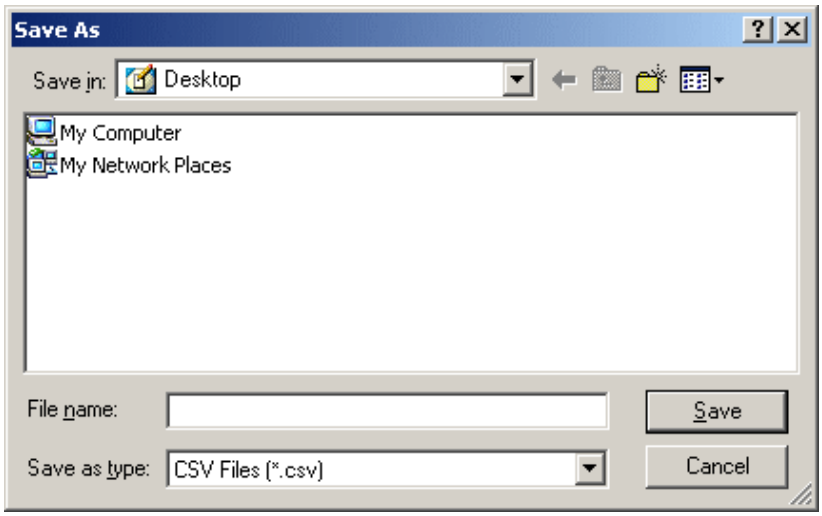


Figure 3-27 [Save As] Window

(5) When you have made all necessary settings in the [Backup of plural PCs (List of setting)] window for the backup of multiple PCs, click the Execute button.

(6) A requested backup process starts and a confirmation message for aborting all currently active tasks (Figure 3-28) is displayed if a connection is established via the CMU module's built-in Ethernet® or an ET.NET module (of a model other than LQE520) supporting the CMU module.

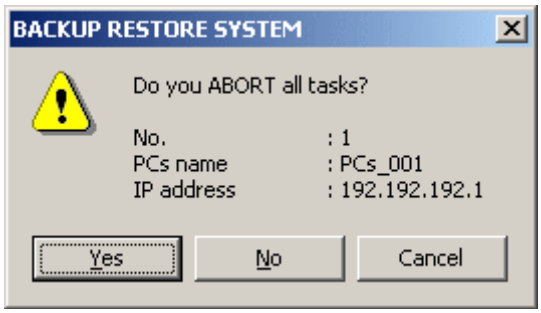


Figure 3-28 Confirmation Message for Aborting All Tasks

Click the Yes button to abort (stop) all tasks. Then, the CMU module enters into a suppressed state of task execution so that the execution of any task will be suppressed thereafter.
Click the No button not to abort the tasks.
Click the Cancel button to return to the [Backup] window without performing backup.

<Aborting (stopping) all tasks>

For the sake of safety, it is recommended that the entire plant and equipments be stopped, together with the operating system (OS), before starting a backup operation. If the ladder and/or HI-FLOW programs cannot be stopped, you may stop only the existing tasks. To accomplish this, be sure to ABORT all the existing tasks.

(7) If a connection is established with an ET.NET module (model LQE520) not supporting the installed CMU module, a warning message (Figure 3-29) will be displayed, which tells you that the content of the CMU area (No. 2 in Table B-1) in memory is not saved yet.

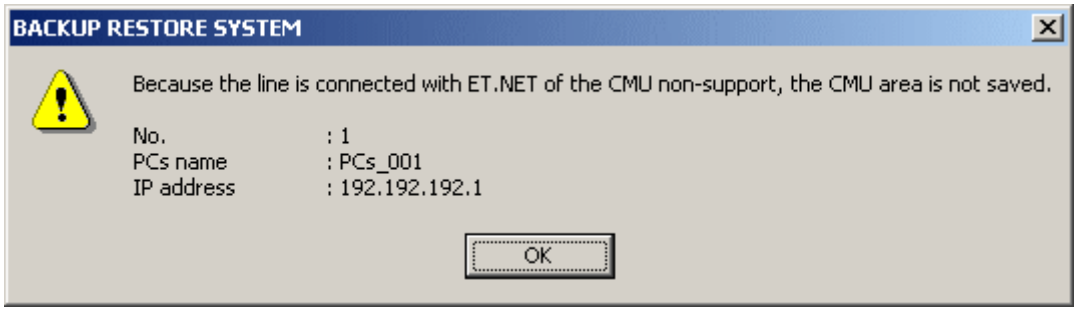


Figure 3-29 Warning Message Notifying of the CMU Area Not Saved Yet

To continue your backup procedure, click the OK button in the above dialog box.

(8) If the PCs is in the RUN status, a confirmation message (Figure 3-30) asking you whether you want to continue processing appears.

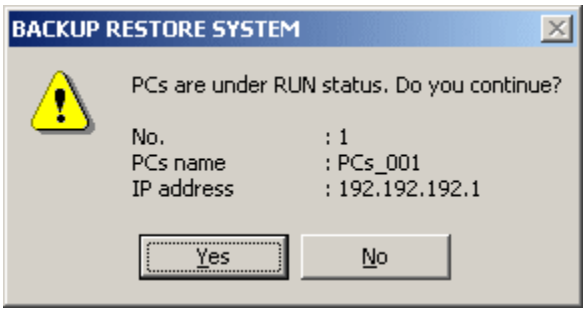


Figure 3-30 Confirmation Message for PCs in RUN Status

Click the Yes button if you want to start the backup of multiple PCs.
If you want to quit the backup, click the No button. Then, proceed to Step (13).

(9) A confirmation message (Figure 3-31) asking you whether you want to stop the OS operation appears.

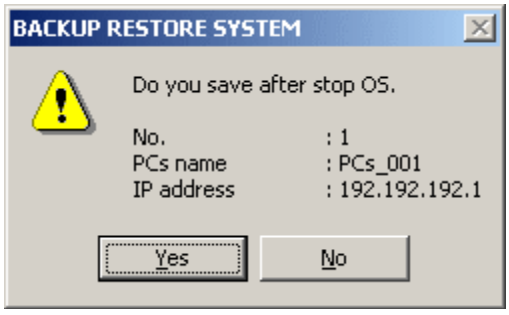


Figure 3-31 Confirmation Message for Stopping the OS

If you click the Yes button, the following three things will occur automatically: 1) the PCs will be reset, 2) the OS will be stopped, and 3) backup will be carried out. (In this case, the PCs enters the STOP state if it is in RUN state. Upon completion of the backup, the PCs in STOP state will go back into RUN state. At the end of the backup, the PCs will again be automatically reset with no reset confirmation message displayed.)
If you click the No button in place of Yes button, backup will be carried out immediately without stopping the OS. In this case, the PCs will not be automatically reset.

<Stopping the OS>
For the sake of safety, it is recommended that the entire plant and equipments be stopped, together with the operating system (OS), before starting a backup operation.

(10) A backup progress window (Figure 3-32) appears, which remains open during the backup.

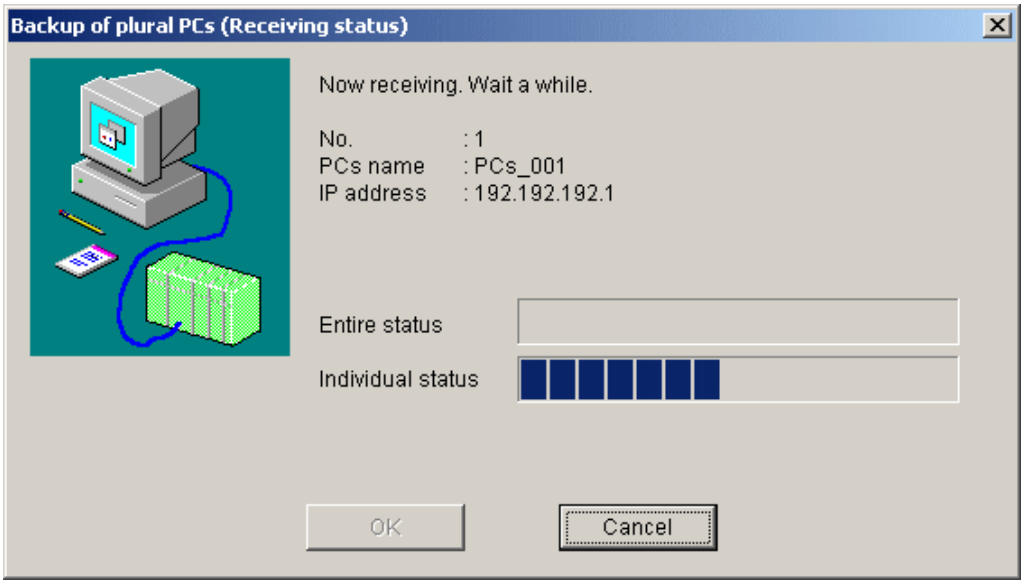


Figure 3-32 [Backup of plural PCs (Receiving status)] Window

If you click the OK button after backup has been completed, the [Backup] window reappears. You cannot click the OK button before the backup operation has been completed.
If you click the Cancel button, the backup in progress is stopped, and you are returned to the [Backup] window. In this situation, the save information file that was saved before the Cancel button was clicked is not deleted. Do not perform the restore process using this file, since a malfunction will result.

(11) If a line error occurs during the backup of multiple PCs in progress, a line error message (Figure 3-33) will be displayed.

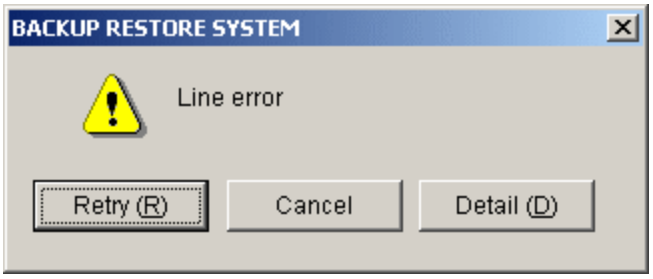


Figure 3-33 Line Error Message

In this case, you can either continue or abort the backup in progress. If you want to continue, first troubleshoot the communication line that is connected to the programmable controller identified in the [Backup of plural PCs (Receiving status)] window. Then click the Retry button in the error message dialog box.
If you want to abort, just click the Cancel button in the error message dialog box.
Then, if there is still any other programmable controller that needs to be backed up next, a confirmation message (Figure 3-34) is displayed that asks whether or not you want to continue the backup.

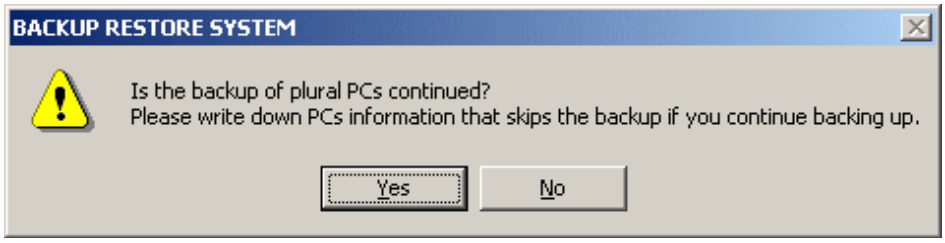


Figure 3-34 Confirmation Message for Continuing the Backup

If you want to back up the next programmable controller, click the Yes button in the dialog box. Alternatively, if you do not want to continue the backup of the remaining programmable controller(s), click the No button.

(12) If you click the Cancel button during the backup of multiple PCs in progress, a confirmation message (Figure 3-35) is displayed that asks whether or not you really want to abort the backup in progress.

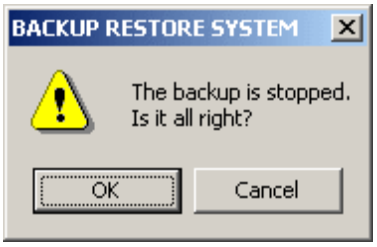


Figure 3-35 Confirmation Message for Aborting the Backup

If you want to abort the backup, click the OK button; otherwise, click the Cancel button to resume the backup. When Cancel is clicked, the confirmation message shown in Figure 3-34 is displayed if there is still any other programmable controller that needs to be backed up next.

(13) When the backup of multiple PCs is complete, the [OK] button in the [Backup of plural PCs (Receiving status)] window becomes clickable. Click [OK]. Then, the [Backup of plural PCs (Receiving status)] window disappears and the [Backup of plural PCs (List of setting)] window becomes active again.

(14) In the [Backup of plural PCs (List of setting)] window, click the [Close] button to end the backup of multiple PCs process.

<Limitation>

The save area size cannot be changed for any specific module.

- If the backup process is canceled or terminates due to an error, the OS may remain stopped. In this case, you must use the Utility command to check the OS startup status, and return the OS to the running status (see "3.9 Utility").
- If the backup process terminates abnormally due to an error, the CMU module may be left in a suppressed state of task execution. So, be sure to use the Utility command and check the "status of task execution control" in the [Utility] window to see if it is actually in such a state. If it is, clear the state.
- If the backup of a particular programmable controller is canceled, or ends up with an error, during the backup of multiple PCs, no backup files of that programmable controller can be restored later by the restore of multiple PCs.
- Even if the backup of a particular programmable controller is canceled, or ends up with an error, during the backup of multiple PCs, the subsequent programmable controller(s) may be backed up by resuming the backup. In this case, however, the programmable controller not backed up cannot be additionally backed up later by another backup of multiple PCs. To back up all the PCs, you have to perform a backup of multiple PCs anew. For this reason, when, for example, a line error occurs during the backup of multiple PCs in progress, you are advised to first troubleshoot the line error and then click the [Retry] button to continue the backup. By doing so, you can back up all the PCs at one time.

3.5 Restore of Multiple PCs

Function: Restores a given collection of backup files to the PCs from which they were generated by a backup of multiple PCs.

Operation: See the procedure below.

(1) Click the Restore of plural PCs button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Read of setting (Specification of name)] window appears (Figure 3-36).

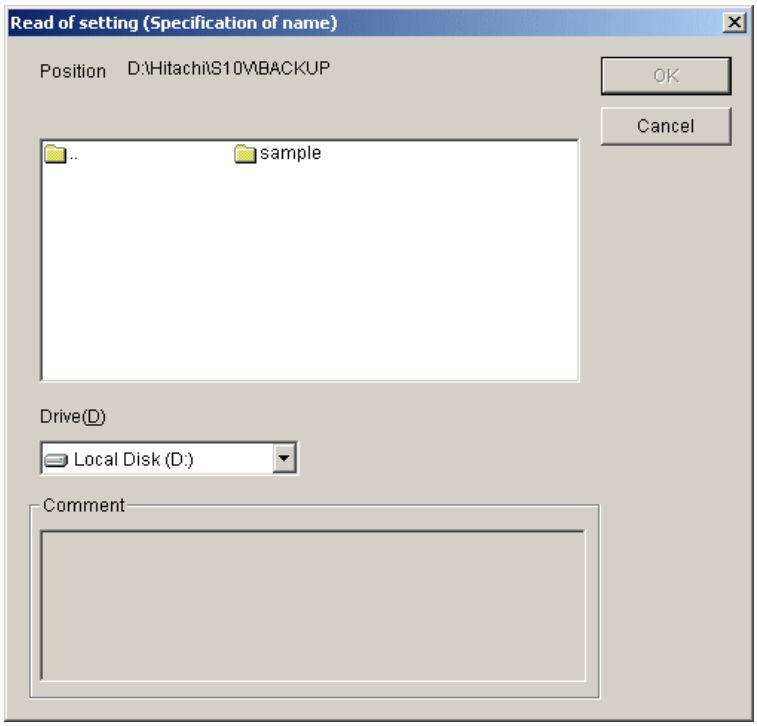


Figure 3-36 [Read of setting (Specification of name)] Window

In this window, select the desired folder that contains the backup files you want to restore by a restore of multiple PCs. Then, the OK button becomes clickable. If you click OK, the [Read of setting (Specification of name)] window closes and the [Restore of plural PCs (List of setting)] window (Figure 3-37) is displayed.

The OK button in the above window does not become clickable if you select a folder other than those that have been generated by a backup of multiple PCs. If the desired folder that was generated by a backup of multiple PCs is stored on a different drive, specify that drive in the “Drive” box.

If you do not want to perform the restore of multiple PCs process, click the Cancel button. The [Read of setting (Specification of name)] window then disappears without the restore of multiple PCs process being performed, and you are returned to the [BACKUP RESTORE SYSTEM] window.
The "Comment" box is displayed in the [Read of setting (Specification of name)] window, but it cannot be edited. When a folder that was generated by a backup of multiple PCs is selected, a comment is displayed only if a comment was entered at the backup time.

(3) In the [Read of setting (Specification of name)] window, click the OK button. The [Restore of plural PCs (List of setting)] window (Figure 3-37) appears.

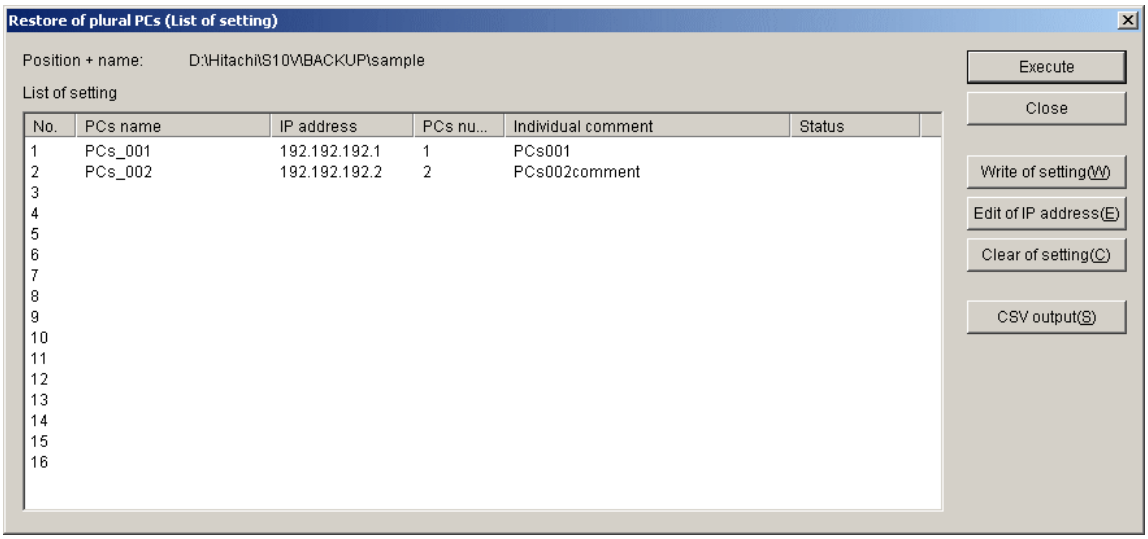


Figure 3-37 [Restore of plural PCs (List of setting)] Window

(4) The [Restore of plural PCs (List of setting)] window shows all existing settings for the restore of multiple PCs. The following are descriptions of the input items and buttons provided in the window.
Position + name: Shows the location and name of the folder that you have selected via the [Read of setting (Specification of name)] window.
List of setting: Is a list of the PCs names, IP addresses, and PCs numbers of the PCs whose backup files need to be restored by a restore of multiple PCs.

Execute button: Is clicked when you want to initiate the restore of multiple PCs. When this button is clicked, the "Restore of plural PCs" command first checks the settings (e.g., IP addresses) displayed in the "List of setting" box. If any of the conditions listed below is found by the check, it results in an error.

- IP addresses duplicated
- "List of setting" box empty
- "No save" given as a "Status" indication
- "File not found" given as a "Status" indication

Close button: Is clicked when you want to exit the "Restore of plural PCs" command without restoring the PCs.

Write of setting button: Click this button when you want to save all the displayed settings for the restore of multiple PCs. When this button is clicked, the "Restore of plural PCs" command first checks the displayed settings in the "List of setting" box for error. The possible error conditions found by the check are the same as those which are found when the Execute button is clicked.
Care must be taken when you use this button. If a programmable controller has its setting line deleted from the "List of setting" box by using the Clear of setting button, and all the remaining settings currently displayed in the window are saved by using this button, then the programmable controller whose setting line has been deleted can no longer be restored by a restore of multiple PCs.

Edit of IP address button: Is used to change an IP address displayed in the "List of setting" box. To accomplish this, first select the setting line of the desired programmable controller and then click this button. (Alternatively, double-click the setting line.) Then, the [Setting of IP address] window (Figure 3-38) is displayed.

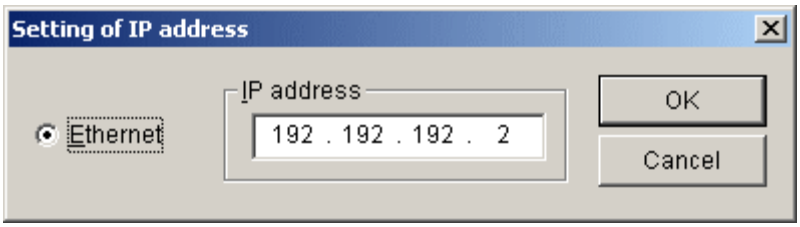


Figure 3-38 [Setting of IP address] Window

In this window, enter the new IP address of the programmable controller and click the OK button. Then, the [Setting of IP address] window closes and the [Restore of plural PCs (List of setting)] window becomes active again showing the new IP address you entered.

Clear of setting button: Is used to delete the settings of a particular programmable controller listed in the "List of setting" box. First select the setting line of the desired programmable controller and then click this button. The selected setting line will then be deleted. Once its setting line is deleted, the programmable controller will no longer be subjected to restore operation.

CSV output button: Click this button when you want to output all the settings for the restore of multiple PCs to a file in CSV format. When this button is clicked, the [Save As] window (Figure 3-39) is first displayed. In this window, specify the desired storage location in which to save the created file, enter the name of that file, and then click the Save button. A CSV file will then be created.
If you click the Cancel button instead of Save, the [Save As] window closes and the [Backup of plural PCs (List of setting)] window becomes active again.

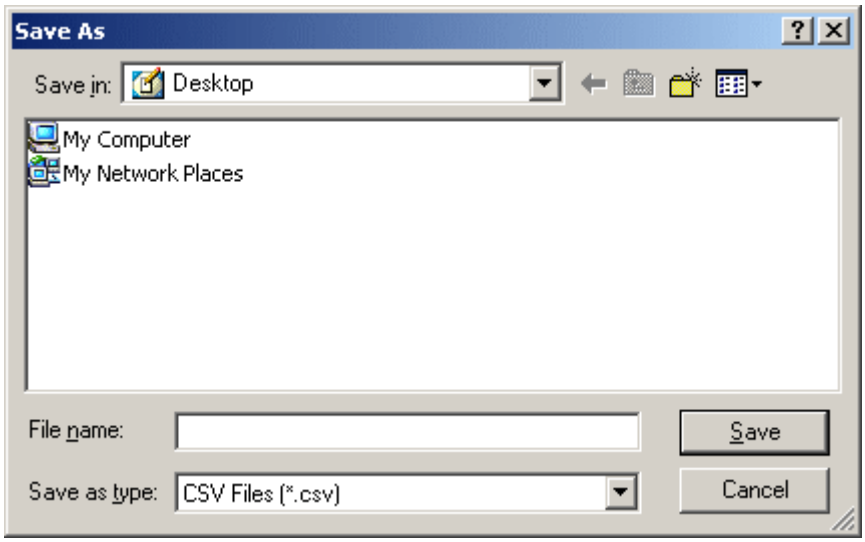


Figure 3-39 [Save As] Window

(5) When you have made all necessary settings in the [Restore of plural PCs (List of setting)] window for the restore of multiple PCs, verify the settings and click the Execute button.

(6) If there is any difference found between the hardware modules mounted in the PCs and the backup (save data) of those PCs, the [Restore Information] window (Figure 3-40) is displayed.

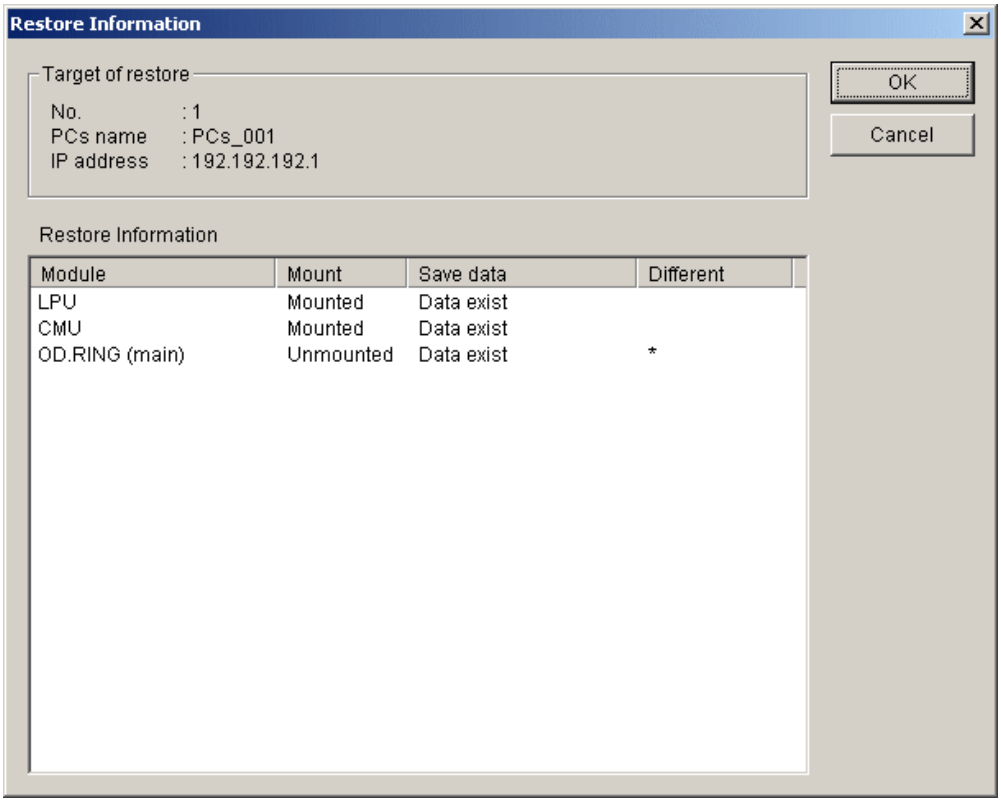


Figure 3-40 [Restore Information] Window

Then, if a CMU module is installed in place and a backup file for that CMU module is present but a connection is established with that destination via a model LQE520 ET.NET module, a warning message for unsuccessful loading of the CMU module's internal memory areas (Figure 3-41) will appear.

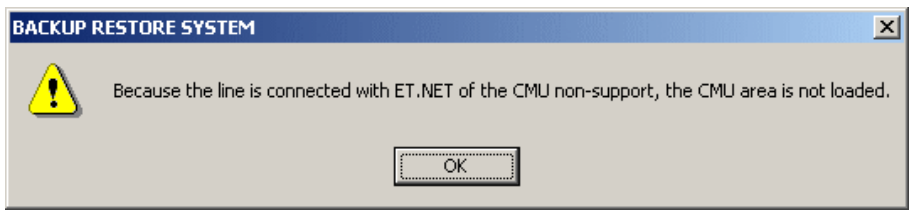


Figure 3-41 Warning Message for Unsuccessful Loading of the CMU Area

In this case, none of the CMU module's internal memory areas will be restored to it. If you want to restore them, establish a connection with that destination again, but this time via the CMU module's built-in Ethernet® or a model LQE720 ET.NET module.
Further, if a restore is found not possible for a module(s) due to a mismatch detected between the installed (mounted) modules and existing backup files, a mismatch warning message for restore (Figure 3-42) appears.

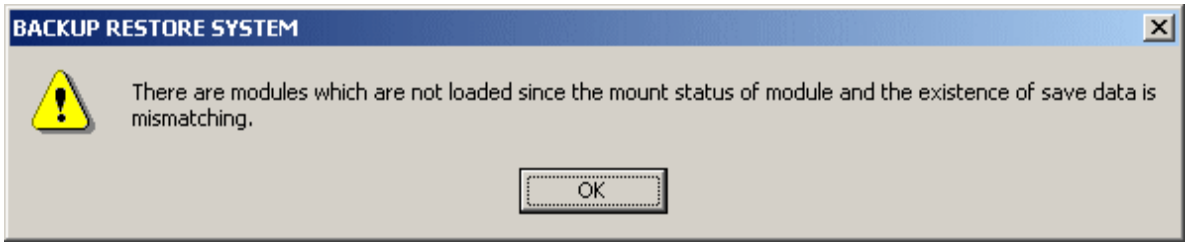


Figure 3-42 Mismatch Warning Message for Restore Operation

The [Restore Information] window shows whether each module is mounted and whether its save data exists, and lists the save data to be restored. This window does not display modules that are not mounted and whose save data does not exist. After confirming the save data, click the OK button to start the restore process (Note).
If you do not want to perform the restore process, click the Cancel button. The [Restore of plural PCs (List of setting)] window disappears, and you are returned to the [Restore] window.
The following describes the items displayed in the [Restore Information] window.

Module: Displays all modules that can be backed up and restored. When multiple modules are allocated to the same area, the names of modules actually mounted are displayed. For details on the types of the displayed modules, see "APPENDIX B BACKUP AREAS." When the following modules are not mounted, the indicated module names are displayed:
OD.RING/SD.LINK: "OD.RING" is displayed.
J.NET/J.NET-INT/IR.LINK: "J.NET" is displayed.
RS-232C/RS422: "RS-232C" is displayed.

Mount: Displays the mount status of modules. "Mounted" is displayed when a module is mounted. "Unmounted" is displayed when a module is not mounted.

Save data: Displays whether save data for a module exists.

"Data exist": Indicates that a save data file exists for the module.

"No data": Indicates that a save data file does not exist for the module.

"Data exist (no set value)":

Indicates that, although a save data file exists for the module, its content is the initial values for that module (i.e., no new parameter values are set yet). This indication is displayed only when the module is a PIOP module -- it is not displayed for any other type of optional module.

If this indication is displayed but nothing is displayed in the "Different" column (see below for details) for the PIOP module, care must be taken when carrying out a restore. The set parameter values for that PIOP module stored in the mounted CMU module, if any, will be replaced by the corresponding initial values during restore. If you want to keep those parameter values intact, do not restore the save data file to the PCs. However, if an asterisk ("*") is displayed in the "Different" column for that PIOP module, no such replacement will occur during restore.

"Data exist (Equalize Support)":

Indicates that, although a save data file exists that contains data ('backup14.wsvl') for a model LQP526/528 CMU/EQ.CMU module, the module to be restored is of a model other that LQP526/528. In this case, the restore process will not restore the data (equalization setting parameters) for the model LQP526/528 CMU/EQ.CMU module if initiated by the user.

"Data exist (Equalize Non-support)":

Indicates that, although a save data file exists that contains no data ('backup14.wsvl') for a model LQP526/528 CMU/EQ.CMU module, the module to be restored is of model LQP526/528. In this case, the restore process will clear all the data (equalization setting parameters) for the model LQP526/528 CMU/EQ.CMU module if initiated by the user.

Different: Indicates that the module cannot be restored due to a mismatch between the mount status of the module and the status of the save data. An asterisk (*) is displayed when a module is mounted but no save data exists, or when a module is not mounted but save data exists. Nothing is displayed when a module can be restored (that is, when the module is mounted and save data exists).

Note: Even if a CMU module (Ver-Rev 0005-0000 or later) is mounted in place but a PIOP module is not, and save data for that CMU module is present, this will not cause a mismatch. In this case, if the type of communication used is ET.NET (model LQE520), the parameter information saved for the CMU and PIOP modules will not be loaded to the PCs by restore. (The mount status of such a non-mounted PIOP module is shown as "Unmounted" and an asterisk ("*") is displayed in the "Disagreement" column.)

(7) When you click the Execute button in Step (5), a confirmation message (Figure 3-43) appears that asks whether or not you want to reset the PCs.

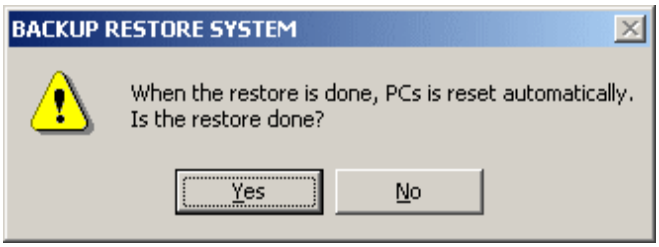


Figure 3-43 Confirmation Message for Resetting the PCs

Click the Yes button to perform a restore of multiple PCs. If you want to exit the "Restore of plural PCs" command, click the No button instead of Yes.

(8) The confirmation message for restoring CMU battery information in Figure 3-44 appears only when the battery's remaining charge time in hours -- shown in the CMU battery information that is displayed for a model LQP525/526 CMU module when it is set up as connected with a battery -- is different by one hour or more between the save data file and the target CMU module. In all other cases, the confirmation message for restoring CMU battery information in Figure 3-43 appears.

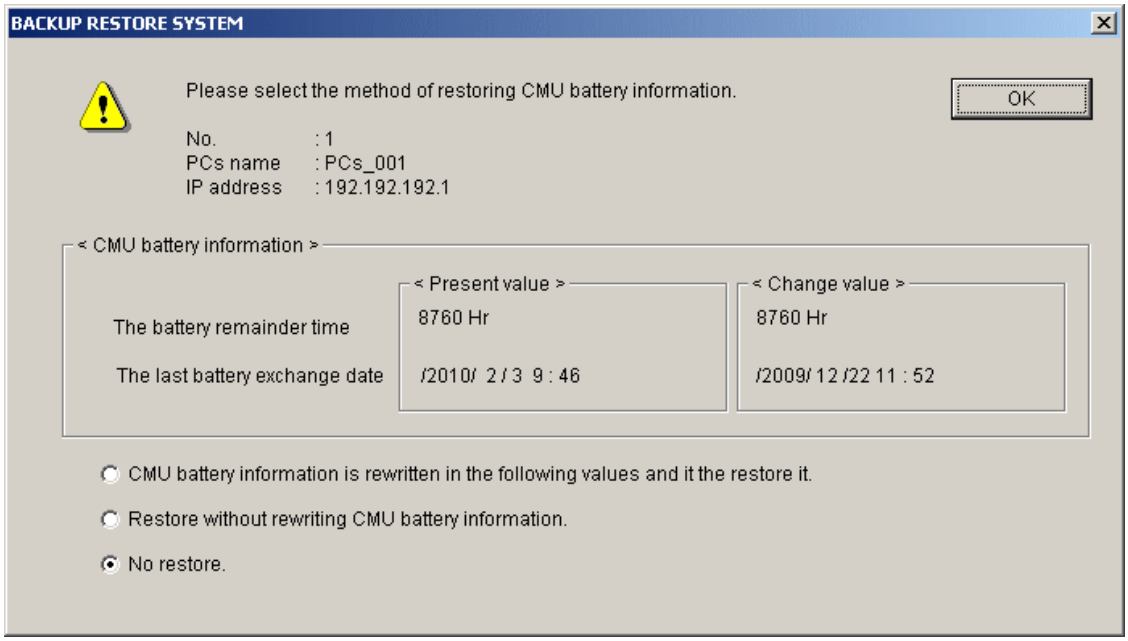


Figure 3-44 Confirmation Message for Restoring CMU Battery Information

When the confirmation message for restoring CMU battery information in Figure 3-44 appears, you can select either of the following two radio buttons: “CMU battery information is rewritten in the following values and it the restore it” or “Restore without rewriting CMU battery information”. The “No restore” radio button is the default selection.

(9) If any of the PCs is in RUN state, a confirmation message (Figure 3-45) asking you whether you want to continue processing appears.

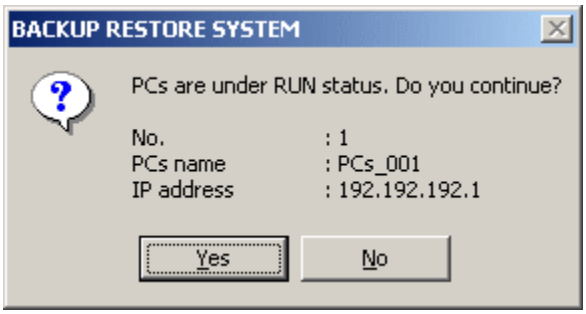


Figure 3-45 Confirmation Message for PCs in RUN Status

Click the Yes button to perform a restore of multiple PCs. Alternatively, if you want to exit the “Restore of plural PCs” command, click the No button.

(10) If the PCs number of a specified programmable controller is different from its PCs number specified in the backup, then a message (Figure 3-46) is displayed that asks you how to restore the programmable controller having its PCs number made inconsistent.

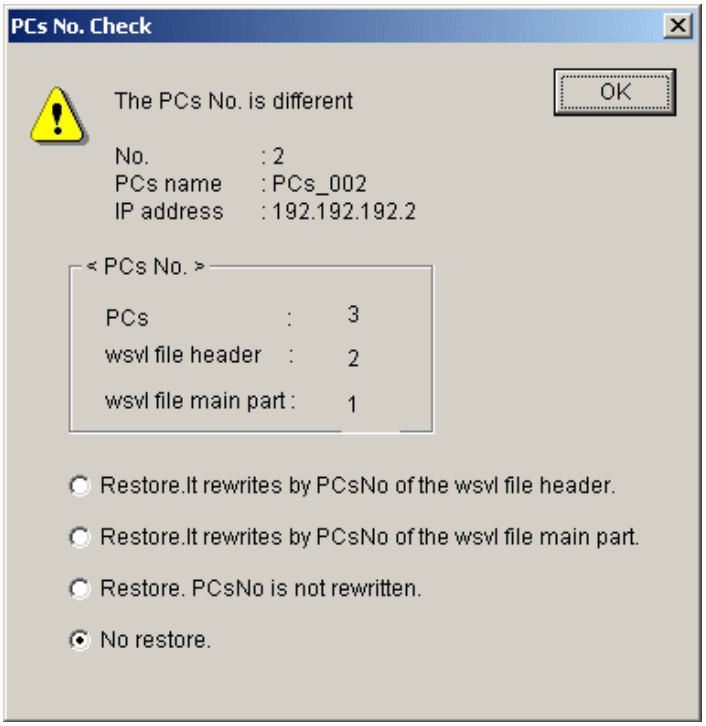


Figure 3-46 "PCs No. Check" Message

In this window, select the applicable radio button and click the OK button. If the PCs number in the backup file header is 9999, the PCs number is not checked. Note that the PCs number of the restore destination is rewritten with the PCs number for the main part of the backup file.

Restore.It rewrites by PCsNo of the wsvl file header.:

Rewrites the PCs No. of the restore destination with the PCs No. of the backup file header and performs the restore process. The PCs No. of the backup file header can be specified at backup time. For details, see "3.4 Backup of Multiple PCs."

Restore.It rewrites by PCsNo of the wsvl file main part.:

Rewrites the PCs No. of the restore destination with the PCs No. for the main part of the backup file and performs the restore process. The PCs No. for the main part of the backup file is the PCs No. defined in the backup PCs.

Restore. PCsNo is not rewritten.:

Performs the restore process without changing the PCs No. of the restore destination.

No restore.: Does not perform the restore process.
This is the default setting of this check function. You can change this default setting to perform a restore of multiple PCs.

(11) When the connected IP address disagrees with the backup file IP address the [IP Address Check] message appears (Figure 3-47). Select the applicable radio button and click the OK button. Note, however, that if the connected IP address is 192.192.192.1, the system assumes that the connected module is operating with a fixed IP address, and does not check the IP address. Also note that when the IP address 192.192.192.1 is defined for the connected module, a line error may occur during the restore process.

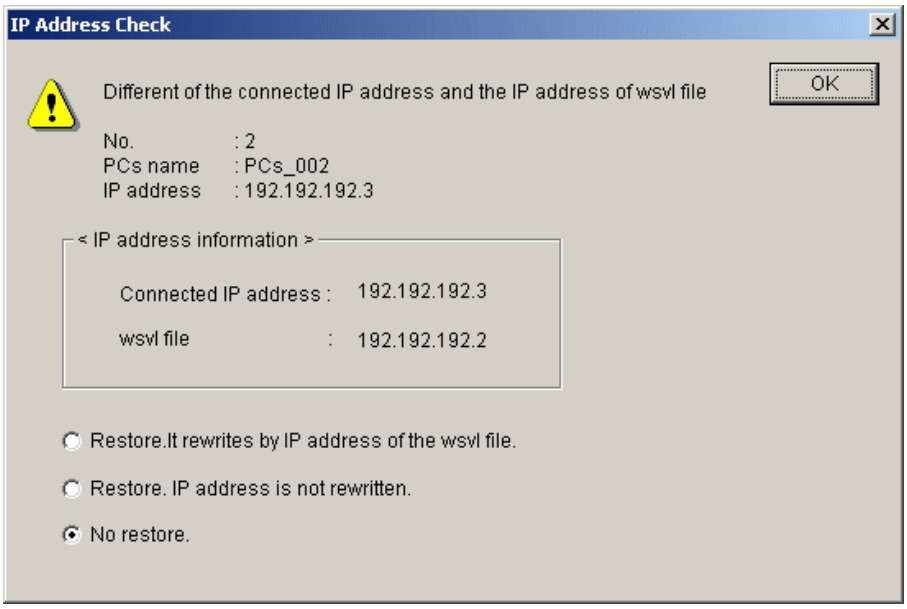


Figure 3-47 [IP Address Check] Message

Restore.It rewrites by IP address of the wsvl file.:
Rewrites the IP address of the restore destination with the IP address of the backup file and performs the restore process. All information related to the IP address (IP address, subnet mask, broadcast address, and routing information) will be rewritten.

Restore. IP address is not written.:
Performs the restore process without changing the address of the restore destination.

No restore.: Does not perform the restore process.
This is the default setting of this check function. You can change this default setting to perform a restore of multiple PCs.

(12) Next, a confirmation message asking you whether you want to recover the measured values of keep coils and counters (Figure 3-48) appears.

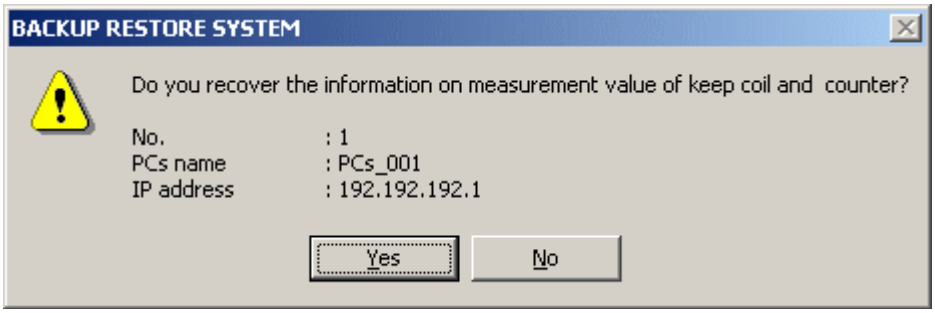


Figure 3-48 Confirmation Message for Recovery of Measured Values of Keep Coils and Counters

Click the Yes button if you want to recover the measured values of keep coils and counters; otherwise, click the No button.

Keep coil: Keep relay (blackout hold latch type), from KW000 to KWFFF

Counter: Up/down counter (count value), from CC000 to CC0FF

(13) When the Yes or No button is clicked in response to the confirmation message for recovery of keep coil and counter value information, the message window disappears and the [Restore of plural PCs (Sending status)] window appears (Figure 3-49).

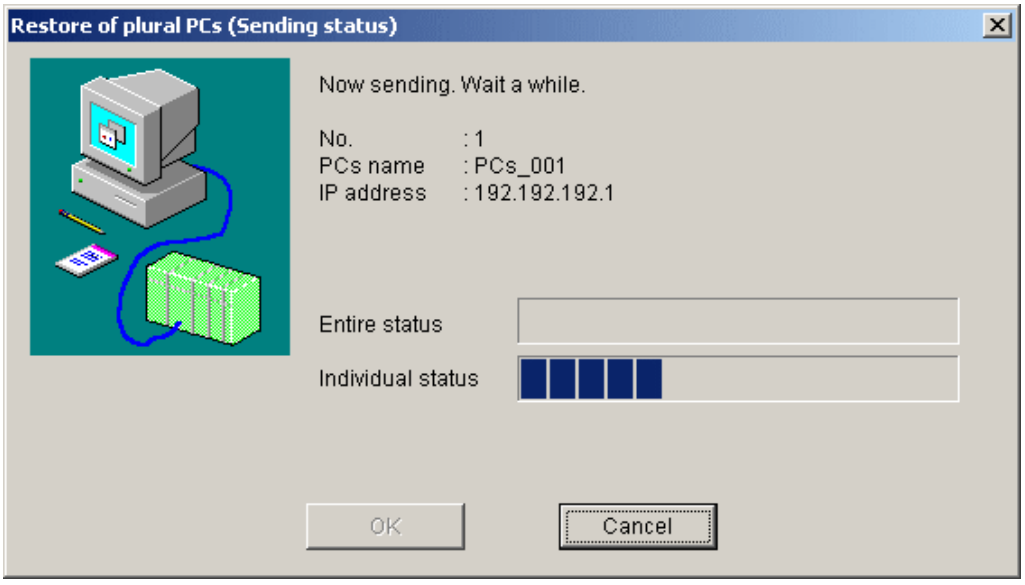


Figure 3-49 [Restore of plural PCs (Sending status)] Window

(14) If a line error occurs during the restore of multiple PCs in progress, a line error message (Figure 3-33) will be displayed. In this case, you can either continue or abort the restore in progress. If you want to continue, first troubleshoot the communication line that is connected to the programmable controller identified in the [Restore of plural PCs (Sending status)] window. Then click the Retry button in the error message dialog box.
If you want to abort, just click the [Cancel] button in the error message dialog box. Then, if there is still any other programmable controller that needs to be restored next, a confirmation message (Figure 3-50) is displayed that asks whether or not you want to continue the restore.

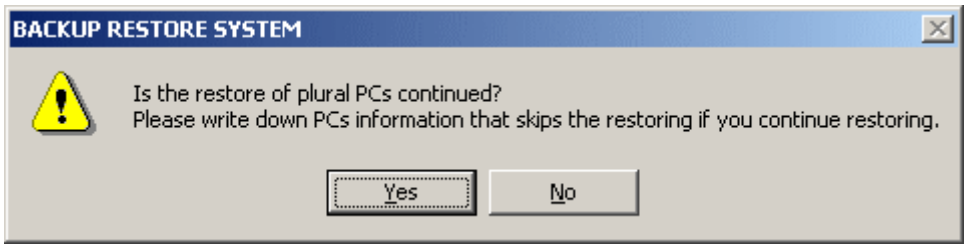


Figure 3-50 Confirmation Message for Continuing the Restore

If you want to restore the next programmable controller, click the Yes button in the dialog box. Alternatively, if you do not want to continue the restore of multiple PCs for the remaining programmable controller(s), click the No button.
If, in the line error message dialog box (Figure 3-33) displayed, the Cancel button is clicked, the restore of multiple PCs is terminated halfway through. Under this circumstance, do not operate your application system, as it may cause malfunction. Instead, be sure to perform a restore of multiple PCs again.

(15) If you click the Cancel button during the restore of multiple PCs in progress, a confirmation message (Figure 3-51) will be displayed that asks you whether or not to abort the restore of multiple PCs in progress.

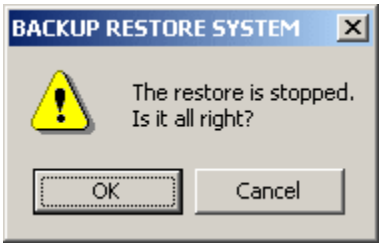


Figure 3-51 Confirmation Message for Aborting the Restore of Multiple PCs

Click the OK button to abort the restore of multiple PCs temporarily stopped. Alternatively, if you still want to continue the restore, click the Cancel button. Then, if there is still any other programmable controller that needs to be restored next, a confirmation message (Figure 3-50) is displayed that asks whether or not you want to continue the restore. If you want to restore the next programmable controller, click the Yes button in the message dialog box. Alternatively, if you do not want to continue the restore for the remaining programmable controller(s), click the No button.
If, in the confirmation message dialog box (Figure 3-51) displayed, the OK button is clicked, the restore of multiple PCs is terminated halfway through. Under this circumstance, do not operate your application system, as it may cause malfunction. Instead, be sure to perform a restore of multiple PCs again.

(16) When the restore of multiple PCs is complete, the PCs will be automatically reset. Then, the OK button in the [Restore of plural PCs (Sending status)] window becomes clickable. Click OK. Then, the [Restore of plural PCs (Sending status)] window disappears and the [Restore of plural PCs (List of setting)] window becomes active again.

(17) In the [Restore of plural PCs (List of setting)] window, click the Close button to end the restore process.

- If the restore process is canceled or terminates due to an error, the OS may remain stopped. In this case, you must use the Utility command to check the OS startup status, and return the OS to a run state (see “3.9 Utility”).
- The model LQP526/528 CMU/EQ.CMU module supports the HI-FLOW interpreter, Ver-Rev 02-03 or later. If an attempt is made to restore a set of backed-up files including the HI-FLOW interpreter file, Ver-Rev 02-02 or earlier, for a model LQP526/528 CMU/EQ.CMU module, none of the HI-FLOW interpreter and programs in the back-up will be restored (and all of the HI-FLOW interpreter and programs in the programmable controller will be cleared upon completion of the restore process). In this case, send the HI-FLOW interpreter and programs over again from the HI-FLOW system to the programmable controller.

3.6 Load User Application

Function: Loads the specified user application programs into the PCs. The user application programs that can be loaded are wsvl files that are created using backup and the S10V Ladder Chart system, and S code files created using the SuperH RISC engine C/C++ compiler (V7.0 or later) and the S10V Ladder Chart system. These files can be loaded into the PCs one file at a time.

Operation: See the procedure below.

(1) Click the Load user application button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Load user application] window appears (Figure 3-52).

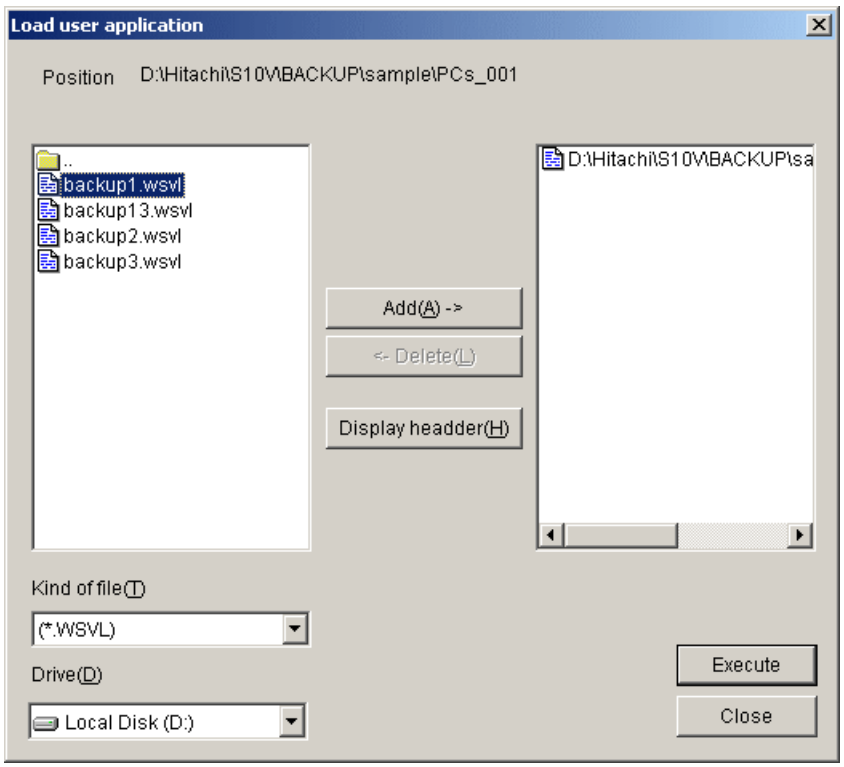


Figure 3-52 [Load user application] Window

(3) Select the file you want to load, and click the Add button. You can select more than one file for loading. When you want to remove a selected file, click the Delete button. When you want to view the contents of the file to be loaded, click the Display header button. The [File header information] window (Figure 3-53) containing the header information for the specified file appears.

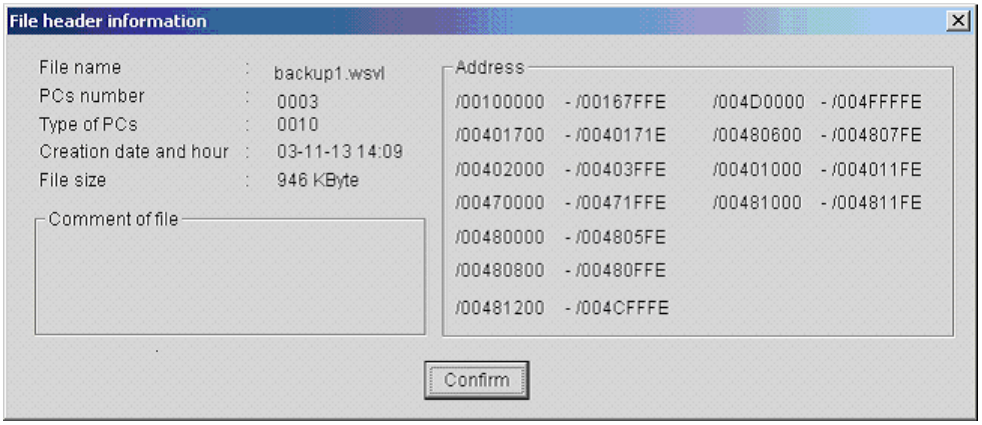


Figure 3-53 [File header information] Window

(4) After checking the file header information, click the Confirm button. The [File header information] window disappears, and you are returned to the [Load user application] window.

(5) When you have completed settings in the [Load user application] window, click the Execute button. User application loading starts.

(6) If a file containing built-in CMU flash memory areas is selected, the confirmation message displayed before reset (Figure 3-54) appears when user application loading starts.

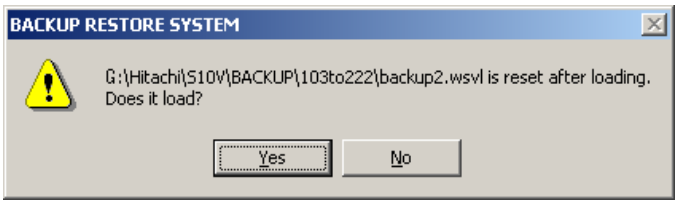


Figure 3-54 Confirmation Message Before Reset

Click the Yes button to start user application loading.
Click the No button to return to the [Load user application] window without performing user application loading.

(7) A window indicating the progress of user application loading appears (Figure 3-55).

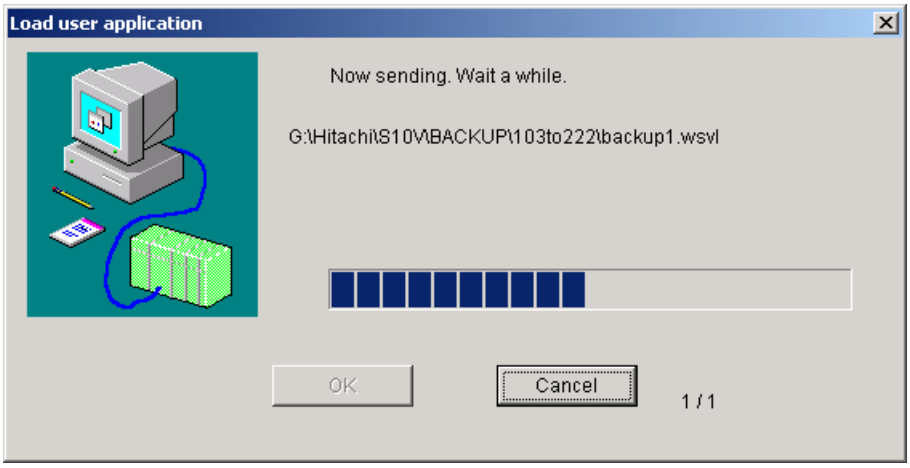


Figure 3-55 User Application Loading Progress Window

If you click the Cancel button during user application loading, the user application loading progress window disappears, and you are returned to the [Load user application] window. In this case, the user application loading process is only partially completed and system operations in this status will result in a malfunction. User application loading must then be retried from the beginning. Upon completion of user application loading, the PCs reset confirmation message (Figure 3-56) may be displayed. If it is, click the OK button. The programmable controller is reset.

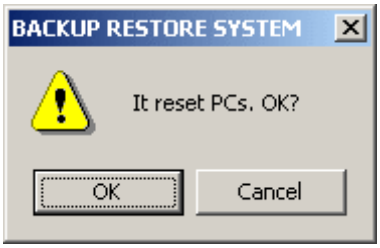


Figure 3-56 PCs Reset Confirmation Message

If you click the Cancel button instead of OK, the PCs reset cancellation message (Figure 3-57) will be displayed, indicating that the automatic PCs reset process has been canceled. In this case, the user application program(s) that have been loaded are not effective until the programmable controller is reset. So, reset it manually, or power it down and then up again.

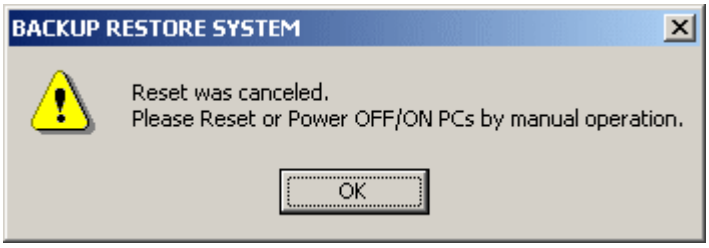


Figure 3-57 PCs Reset Cancellation Message

When user application loading has finished or the programmable controller has been reset, the OK button is enabled. Click the OK button. The user application loading progress window disappears, and you are returned to the Load user application window.

(8) In the [Load user application] window, click the Close button to end the user application loading process.

Since optional module areas require special processing, they cannot be loaded in user application loading. Therefore, if you want to load the backup file for optional modules created by the backup process, perform a restore operation. For the types of backup files, see “APPENDIX A BACKUP FILES.”

3.7 Compare User Application

Function: Compares the specified user application programs with copies in the PCs memory. The user application programs that can be compared are wsvl files that are created using backup and the S10V Ladder Chart system, and S code files created using the SuperH RISC engine C/C++ compiler (V7.0 or later) and the S10V Ladder Chart system. These files can be compared with the PCs one at a time.

Operation: See the procedure below.

(1) Click the Compare user application button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Compare user application] window appears (Figure 3-58).

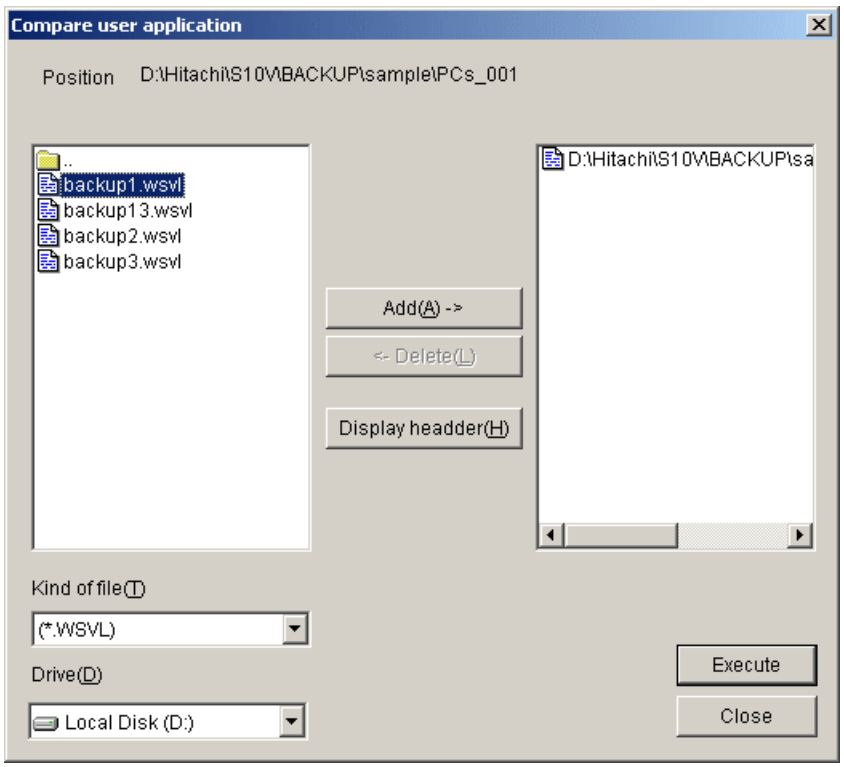


Figure 3-58 [Compare user application] Window

(3) Select the file you want to compare with its copy in PCs memory, and click the Add button. You can select more than one file for comparison. When you want to remove a selected file, click the Delete button. When you want to view the contents of a file to be loaded, click the Display header button. The [File header information] window (Figure 3-53) containing the header information for the specified file appears.

(4) After checking the file header information, click the Confirm button. The [File header information] window disappears, and you are returned to the [Compare user application] window.

(5) When you have completed settings in the [Compare user application] window, click the Execute button. File comparison starts.
If the given target address of comparison (found in file header) is a CMU module, the selected file will be compared with its copy in that CMU module's internal flash memory, except in cases where that CMU module is a model LQP525/526 CMU module and is set up as connected with a battery. In such cases, the selected file will be compared its copy in RAM, not in flash memory, within that CMU module.

(6) A window indicating the progress of user application comparison appears (Figure 3-59).

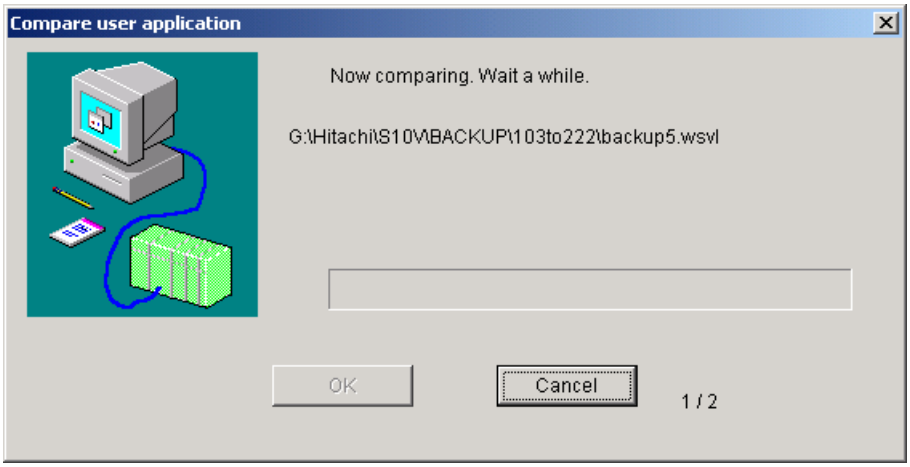
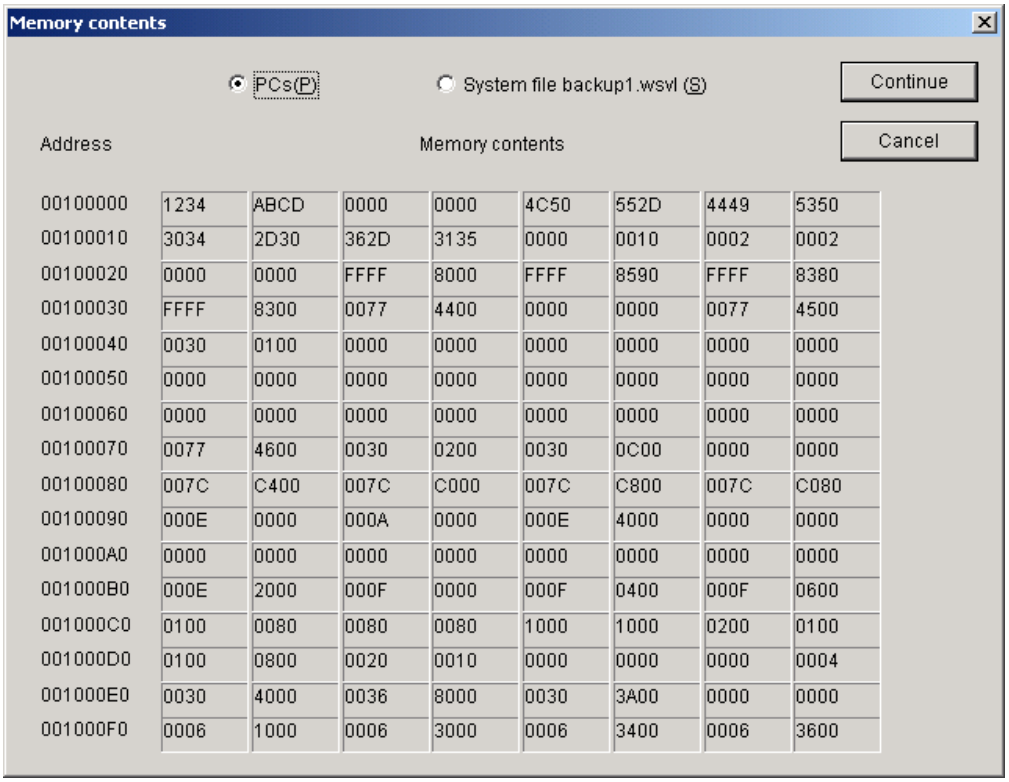


Figure 3-59 User Application Comparison Progress Window

If you click the Cancel button during user application comparison, the user application comparison progress window disappears, and you are returned to the [Compare user application] window.
When the comparison has finished, the OK button is enabled. Click the OK button. The user application comparison progress window disappears, and you are returned to the [Compare user application] window.

(7) If a difference between the PCs and the file is found during user application comparison, the [Memory contents] window (Figure 3-60) appears and displays the section in memory that is different.



Address	Memory contents							
00100000	1234	ABCD	0000	0000	4C50	552D	4449	5350
00100010	3034	2D30	362D	3135	0000	0010	0002	0002
00100020	0000	0000	FFFF	8000	FFFF	8590	FFFF	8380
00100030	FFFF	8300	0077	4400	0000	0000	0077	4500
00100040	0030	0100	0000	0000	0000	0000	0000	0000
00100050	0000	0000	0000	0000	0000	0000	0000	0000
00100060	0000	0000	0000	0000	0000	0000	0000	0000
00100070	0077	4600	0030	0200	0030	0C00	0000	0000
00100080	007C	C400	007C	C000	007C	C800	007C	C080
00100090	000E	0000	000A	0000	000E	4000	0000	0000
001000A0	0000	0000	0000	0000	0000	0000	0000	0000
001000B0	000E	2000	000F	0000	000F	0400	000F	0600
001000C0	0100	0080	0080	0080	1000	1000	0200	0100
001000D0	0100	0800	0020	0010	0000	0000	0000	0004
001000E0	0030	4000	0036	8000	0030	3A00	0000	0000
001000F0	0006	1000	0006	3000	0006	3400	0006	3600

Figure 3-60 [Memory contents] Window

Selecting the [PCs] radio button displays the contents of memory for the PCs in the “Memory contents” area.
Selecting the [System file] radio button displays the contents of memory for the system file in the “Memory contents” area.
If you click the Continue button, the [Memory contents] window disappears, and you are returned to the user application comparison progress window. The memory comparison process then continues.
If you click the Cancel button, the [Memory contents] window disappears, and you are returned to the user application comparison progress window. The memory comparison is canceled.

(8) In the [Compare user application] window, click the Cancel button to end the user application comparison process.

3.8 Backup File Display

Function: Displays the contents of a file backed up by Backup/Restore System.
Operation: See the procedure below.

(1) Click the Backup file display button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1). The [Backup file selection] window appears (Figure 3-61).

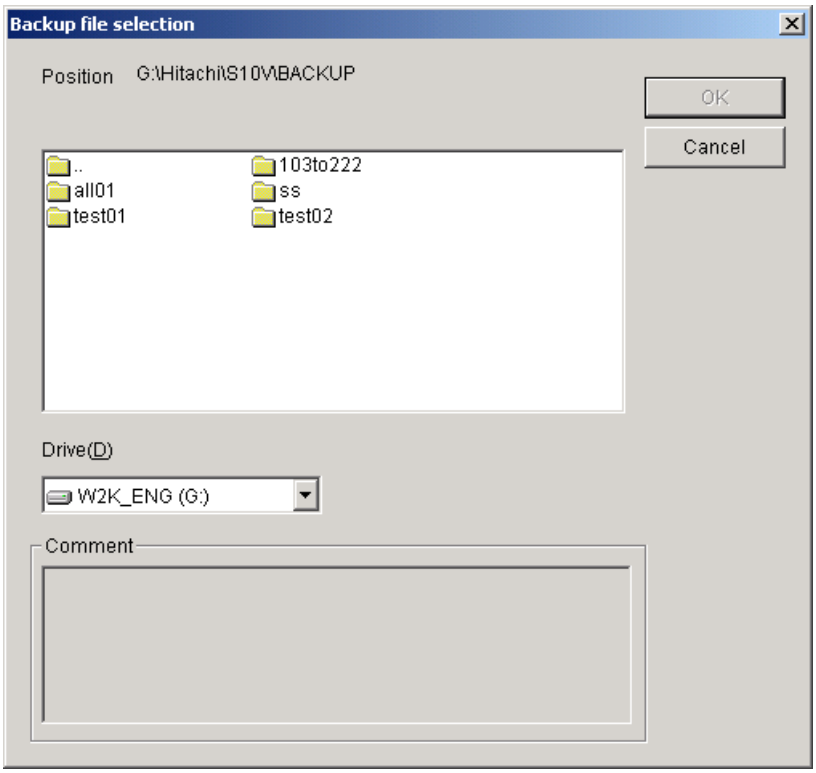


Figure 3-61 [Backup file selection] Window

Select the folder containing the backup file you want to display and click the OK button. The [Backup File Display] window (Figures 3-62 and 3-63) appears. If any folder other than one containing a backup file is selected, you cannot click the OK button.
If you do not want to display any backup files, click the Cancel button. The [Backup file selection] window disappears without a backup file being displayed, and the [BACKUP RESTORE SYSTEM] window reappears.
The "Comment" box in the [Backup file selection] window is displayed, but it cannot be edited. When a backup file is selected, a comment is displayed only if a comment was entered at backup time.

(2) When you click the OK button in the [Backup file selection] window, the [Backup File Display] window appears.

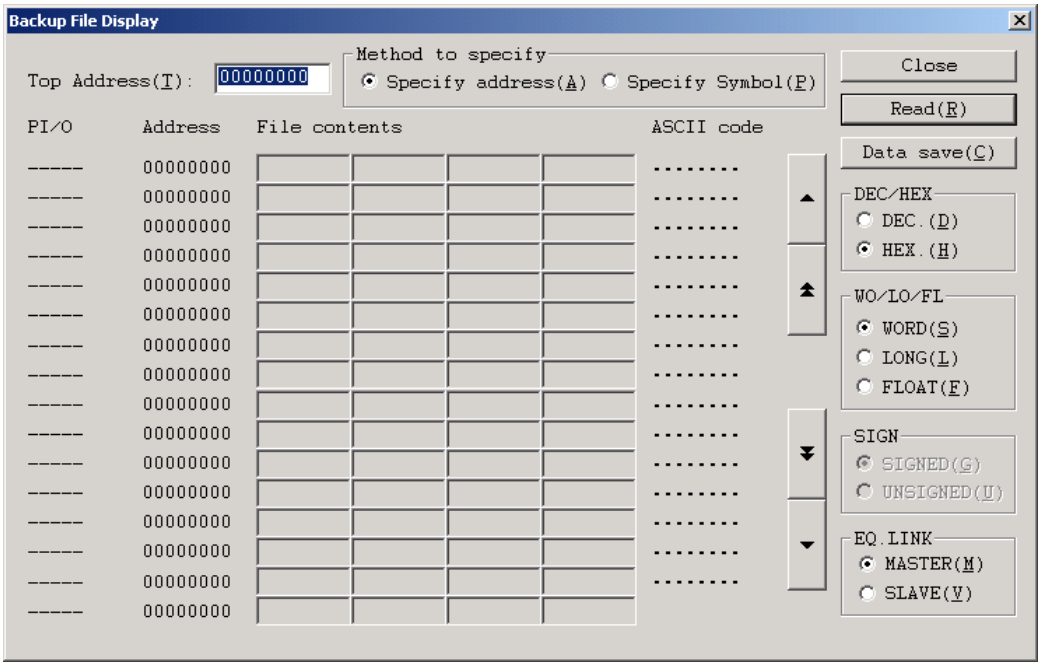


Figure 3-62 [Backup File Display] Window (with an EQ.LINK Backup File)

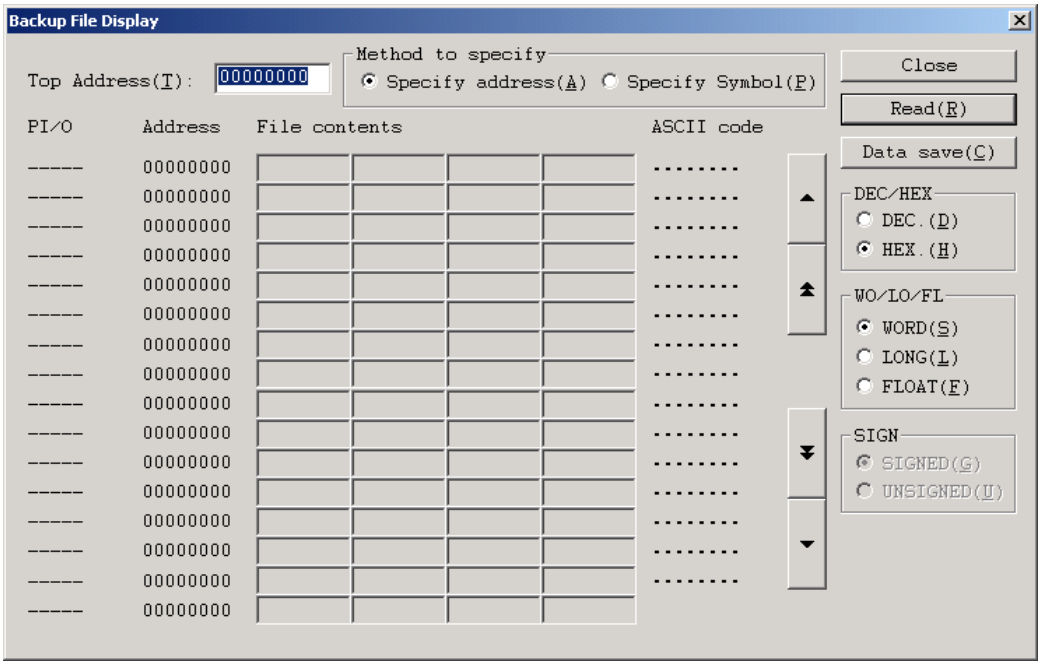


Figure 3-63 [Backup File Display] Window (without an EQ.LINK Backup File)

The [Backup File Display] window presents information when an address specification or PI/O value specification is provided. Note that if no information exists for the specified address or PI/O value in the backed up file, an error occurs.
The following describes display, input, and operation items.

<Display items>

PI/O: Displays the PI/O value into which an address is translated. If the translation fails, "------" is displayed.

Address: Displays the address of display data (always in hexadecimal). If no information exists for the specified address, "00000000" is displayed.

File contents: Displays the contents of the 128-byte data read from the specified top address. You can select the display format (decimal/hexadecimal or Long/Word/Float format). For details, see the description under <Operation items>. The contents of this file cannot be rewritten.

ASCII code: Displays the contents of display data converted to ASCII as character strings. If the conversion fails, dots (.) are displayed.

<Input items>

Top Address: Enter the top address of the backup file to be displayed.

<Operation items>

"Method to specify" group box: Select a method for specifying the top address. The [Specify address] radio button is selected by default. If the [Specify address] radio button is selected, the entry is a top address specification. If the [Specify Symbol] radio button is selected, the entry is a PI/O value specification.

"DEX/HEX" group box: Select a display format (decimal or hexadecimal) for the display data. The [HEX.] radio button is selected by default. If the [DEC.] radio button is selected, the data is displayed in decimal format. If the [HEX.] radio button is selected, the data is displayed in hexadecimal format. When this radio button is selected, the "SIGN" group box cannot be selected. The data displayed in FLOAT format is always displayed in decimal.

"WO/LO/FL" group box: Select a display format for the display data. The [WORD] radio button is selected by default. If the [WORD] radio button is selected, the data is displayed in WORD format. If the [LONG] radio button is selected, the data is displayed in LONG format. If the [FLOAT] radio button is selected, the data is displayed in FLOAT format (IEEE754 floating point format).

"SIGN" group box: Select a display format for the display data. The [SIGNED] radio button is selected by default. If the [SIGNED] radio button is selected, the data is displayed in signed format. If the [UNSIGNED] radio button is selected, the data is displayed in UNSIGNED format. The data displayed in the FLOAT format is always displayed in signed format.

"EQ.LINK" group box: Select the master system or slave system for an EQ.LINK backup file. The "EQ.LINK" group box is displayed when there is an EQ.LINK backup file, but is not displayed when there is no EQ.LINK backup file.

[Close] button: Click this button to close the [Backup File Display] window. The [Backup file selection] window reappears.

[Read] button : Click this button to read the contents of 128 bytes in the backup file from the top address. Note that if a nonexistent top address is specified, a warning message appears.

[▲] scroll button: Click this button to move the display one row up toward the smallest address from the currently displayed address. A total of 128 bytes of data appears from the address obtained by subtracting 8 bytes from the currently displayed address.

[▲▲] scroll button: Click this button to move the display one page up toward the smallest address. A total of 128 bytes of data appears from the address obtained by subtracting 128 bytes from the currently displayed address.

[▼] scroll button: Click this button to move the display one row down toward the largest address. A total of 128 bytes of data appears from the address obtained by adding 8 bytes to the currently displayed address.

[▼▼] scroll button: Click this button to move the display one page down toward the largest address. A total of 128 bytes of data appears from the address obtained by adding 128 bytes to the currently displayed address.

Data save button: Click this button to save the information displayed in the [Backup File Display] window to a file. When you click the Data save button, the [Save As] window (Figure 3-64) appears.

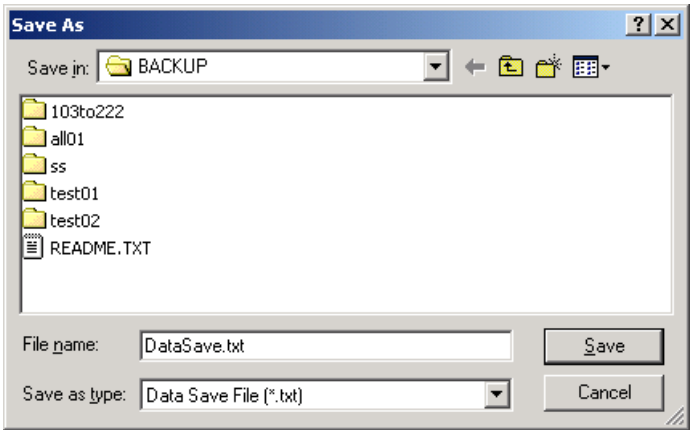


Figure 3-64 [Save As] Window

When you select a file and click the Save button, the displayed contents of the backup file are saved in the specified file and the [Save As] window disappears.
When you click the Cancel button, the [Save As] window disappears without anything being saved in a file.

(3) In the [Backup file selection] window, click the Cancel button to end the backup file display process.

<NOTICE on backup file display>
For backup file display, select only a file that has been backed up.
If you select a file that has been prepared in any other way, the success of a display operation cannot be guaranteed.

3.9 Utility

Function: Displays the operation status of the operating system (OS), recovers the OS from its stop state, and displays and clears the CMU module's suppressed state of task execution.

Operation: See the procedure below.

(1) Click the Utility button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Utility] window (Figure 3-65) appears.

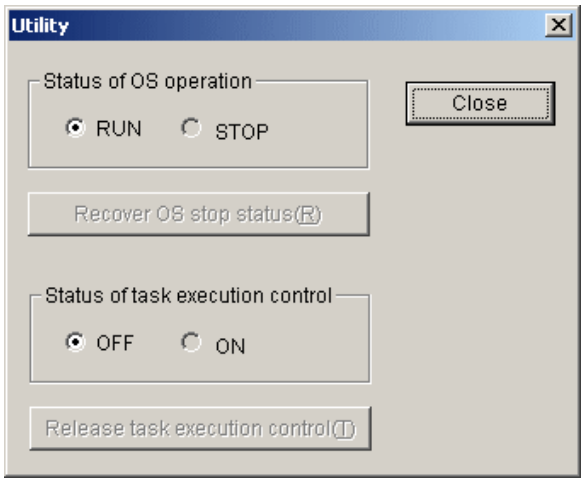


Figure 3-65 [Utility] Window

(3) The "Status of OS operation" field shows the current status of OS operation. If the OS is running, "RUN" is selected. If the OS has stopped, "STOP" is selected. When the OS has stopped, the Recover OS stop status button is enabled. Click this button to return the OS to the running status. When the OS has returned to the running status, the Recover OS stop status button is disabled.

(4) The "Status of task execution control" field shows the current status of task execution control. If the CMU module is in a suppressed state of task execution, the [ON] radio button in this field is displayed as selected. If it is in a non-suppressed state of task execution (i.e., the execution of tasks is possible), the [OFF] radio button in this field is displayed as selected. When the CMU module is in a suppressed state of task execution, the Release task execution control button is enabled and can be selected to clear the suppressed state. When you clear the suppressed state, the Release task execution control button is disabled (grayed out) and cannot be selected.

(5) Click the Close button. The [Utility] window disappears, and you are returned to the [BACKUP RESTORE SYSTEM] window.

- If the backup or restore process is canceled or terminates due to an error, the OS may remain stopped. In this case, you must use this command to check the OS startup status, and return the OS to the running status.
- If the backup process terminates abnormally due to an error, the CMU module may be left in a suppressed state of task execution. So, be sure to use this command and check the "status of task execution control" in the [Utility] window to see if it is actually in such a state. If it is, clear the state.
- The suppressed-state display and clearing functions of this command are usable only when the CMU/EQ.CMU module used is of the model listed below. If it is of any other model, its suppressed state of task execution can be cleared by simply resetting the programmable controller.

Module name	Module model	Supported Ver-Rev
CMU	LQP526	0005-0000 or later
	LQP527	0006-0000 or later
EQ.CMU	LQP528	0006-0000 or later

3.10 Change Connection

Function: Sets the communication type for the PCs and personal computer -- this command is unnecessary for the backup and restore of multiple PCs.
Operation: See the procedure below.

(1) Click the Change connection button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Communication type] window appears (Figure 3-66).

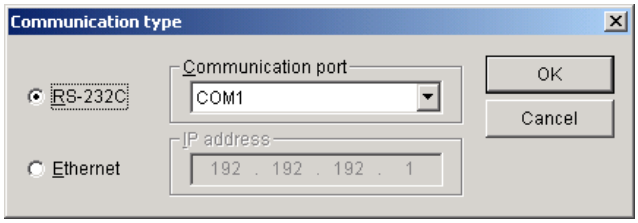


Figure 3-66 [Communication type] Window

(3) When the communication type is RS-232C, click the [RS-232C] radio button and select a communication port in the "Communication port" list box (Figure 3-67).

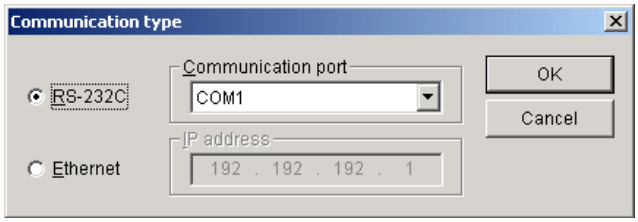


Figure 3-67 [Communication type] Window (RS-232C Port Selection)

(4) When the communication type is Ethernet®, click the [Ethernet] radio button and enter the IP address of the connection destination in the "IP address" text box (Figure 3-68).

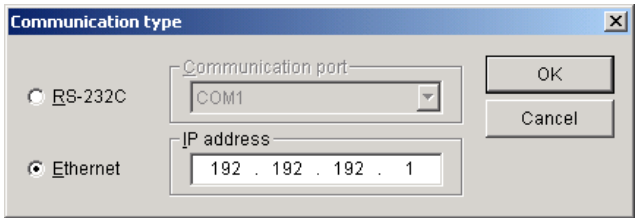


Figure 3-68 [Communication type] Window (Ethernet Connection)

(5) When you have completed the setting, click the OK button. If you make no setting, click the Cancel button.

3.11 Change Speed

Function: Specifies the communication speed for the Backup/Restore command and Backup/Restore of plural PCs command.
Operation: See the procedure below.

(1) Click the Change speed button in the [BACKUP RESTORE SYSTEM] window (Figure 2-1).

(2) The [Change speed] window appears (Figure 3-69).

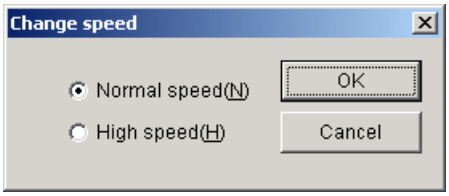


Figure 3-69 [Change speed] Window

(3) Selecting the [Normal speed] radio button sets transmission and reception in 512-byte units. Selecting the [High speed] radio button sets transmission and reception in 1,440-byte units. Note that the communication speed does not change when the system is connected with RS-232C.

(4) Click the OK button to set the communication speed and close the [Change speed] window.
Click the Cancel button to close the [Change speed] window without setting the communication speed.

NOTICE

- A higher communication speed places a greater load on the PCs during backup or a restore operation than normal speed does. When you select high speed, therefore, make sure that the increased load on the PCs will not cause any problems.
  • Rough standard for PCs load (CMU's load ratio (%))
  Backup Normal speed: 65%
  High speed: 70%
  Restore Normal speed: 85%
  High speed: 90%
- The setting of this command is valid when the system is connected with CMU built-in Ethernet® or ET.NET. The communication speed is not changed when the system is connected with RS-232C.

APPENDIXES

APPENDIX A BACKUP FILES

The following table shows a list of files that are created as a result of backup operations. Some of these files, however, may or may not be created depending on the presence or absence of an installed module or other conditions at backup time. In addition, if a given module is other than those listed below, any backup operation for that module will produce a backup in the "backup1.wsvl" file, regardless of whether that module is installed or not.

Table A-1 Backup File List

Target module for backup	Backup file name	File capacity (KB)	Remarks
LPU OS (sequence RAM, battery backup area)	backup1.wsvl	547 to 946	
CMU OS (data stored in the built-in CMU flash memory)	backup2.wsvl	742 to 22246	This file is not created when the HI-FLOW program is not loaded and RPDP is not defined.
OD.RING/SD.LINK	backup3.wsvl	1	
J.NET/J.NET-INT/IR.LINK	backup4.wsvl	33 to 132	
FL.NET	backup5.wsvl	9 to 16	
D.NET	backup6.wsvl	24 to 93	
RS-232C/RS-422	backup7.wsvl	1 to 2	
EQ.LINK (master system)	backup8.wsvl	9 to 18	
EQ.LINK (slave system)	backup9.wsvl	9 to 18	
2ch-D.NET (module 0 or 1)	backup10.wsvl	24 to 47	
2ch-D.NET (module 2 or 3)	backup11.wsvl	24 to 47	
FR.LINK	backup12.wsvl	2 to 9	
PIOP	backup13.wsvl	5	
CMU/EQ.CMU (LQP526/528)	backup14.wsvl	1	
100M EQ.LINK	backup15.wsvl	2	

File capacities with a fractional amount are rounded up to the next whole number. The file capacity varies with the number of modules installed.

APPENDIX B BACKUP AREAS

The following table shows the memory addresses of each module to be backed up.

Table B-1 Backup Areas

(1/3)

No.	Module (Backup file name)		Save address	Remarks
1	LPU (backup1.wsvl)		/0010 0000 to variable	Note 1
			/0040 1700 to /0040 171E	
			/0040 2000 to /0040 3FFE	
			/0047 0000 to /0047 1FFE	
			/0048 0000 to /0048 05FE	
			/0048 0800 to /0048 0FFE	
			/0048 1200 to /004C FFFE	
			/004D 0000 to /004F FFFE	
			/0047 32A8 to /0047 32B6	Note 5
			/0048 0600 to /0048 07FE	
			/0040 1000 to /0040 11FE	
			/0048 1000 to /0048 11FE	
2	CMU (backup2.wsvl)		/0300 0000 to /0307 FFFE	Note 2
			/0308 0000 to variable	
			/2000 0000 to /200B 943E	Note 3
			/2800 D000 to /2800 D0FE	
			/7C00 2000 to /7C00 200E	
			/3000 0000 to variable	
			/4000 0000 to variable	
			/5000 0000 to variable	
			/6000 0000 to variable	
			/0100 0000 to /010F FFFE	Note 5
3	OD.RING/SD.LINK (backup3.wsvl)	Main	/0097 8002 to /0097 802E	
		Sub	/009F 8002 to /009F 802E	

Table B-1 Backup Areas

(2/3)

No.	Module (Backup file name)		Save address	Remarks
4	J.NET/J.NET-INT/ IR.LINK (backup4.wsvl)	Main	/00A7 8008 to /00A7 FFFE	
		Sub	/00AF 8008 to /00AF FFFE	
	J.NET (backup4.wsvl)	Sub 2	/00C7 8008 to /00C7 FFFE	
		Sub 3	/00CF 8008 to /00CF FFFE	
5	FL.NET (backup5.wsvl)	Main	/00D4 1A00 to /00D4 1A32	
			/00D7 0050 to /00D7 1E4E	
			/00D7 0020 to /00D7 0048	
		Sub	/00DC 1A00 to /00DC 1A32	
			/00DF 0050 to /00DF 1E4E	
			/00DF 0020 to /00DF 0048	
6	D.NET (backup6.wsvl)	Channel 0	/00E3 0000 to /00E3 5AFE	
			/00E3 6000 to /00E3 608E	
		Channel 1	/00E7 0000 to /00E7 5AFE	
			/00E7 6000 to /00E7 608E	
		Channel 2	/00EB 0000 to /00EB 5AFE	
			/00EB 6000 to /00EB 608E	
		Channel 3	/00EF 0000 to /00EF 5AFE	
			/00EF 6000 to /00EF 608E	
7	RS-232C/RS-422 (backup7.wsvl)	Channel 0	/00F4 8100 to /00F4 81FE	
		Channel 1	/00F5 8100 to /00F5 81FE	
		Channel 2	/00F6 8100 to /00F6 81FE	
		Channel 3	/00F7 8100 to /00F7 81FE	
8	EQ.LINK (Master system: backup8.wsvl Slave system: backup9.wsvl)	Main	/00D4 1A00 to /00D4 1A32	
			/00D7 0020 to /00D7 1E4E	
			/00D7 2058 to /00D7 2060	
			/00D7 2140 to /00D7 23FE	
		Sub	/00DC 1A00 to /00DC 1A32	
			/00DF 0020 to /00DF 1E4E	
			/00DF 2058 to /00DF 2060	

Table B-1 Backup Areas

(3/3)

No.	Module (Backup file name)		Save address	Remarks
9	2ch-D.NET (backup10.wsvl)	Module 0	/00E3 0000 to /00E3 5AFE	
			/00E3 6000 to /00E3 608E	
			/00E1 0E00 to /00E1 68FE	
			/00E1 6E00 to /00E1 6E8E	
		Module 1	/00E7 0000 to /00E7 5AFE	
			/00E7 6000 to /00E7 608E	
			/00E5 0E00 to /00E5 68FE	
			/00E5 6E00 to /00E5 6E8E	
	2ch-D.NET (backup11.wsvl)	Module 2	/00EB 0000 to /00EB 5AFE	
			/00EB 6000 to /00EB 608E	
			/00E9 0E00 to /00E9 68FE	
			/00E9 6E00 to /00E9 6E8E	
		Module 3	/00EF 0000 to /00EF 5AFE	
			/00EF 6000 to /00EF 608E	
			/00ED 0E00 to /00ED 68FE	
			/00ED 6E00 to /00ED 6E8E	
10	FR.LINK (backup12.wsvl)	Module 0	/00F4 8100 to /00F4 81FE	
		Module 1	/00F5 8100 to /00F5 81FE	
		Module 2	/00F6 8100 to /00F6 81FE	
		Module 3	/00F7 8100 to /00F7 81FE	
11	PIOP (backup13.wsvl)		/7C09 0000 to /7C09 0FFE	Note 4
12	CMU/EQ.CMU (LQP526/528) (backup14.wsvl)		/7810 7E00 to /7810 7E4E	
13	100M EQ.LINK (backup15.wsvl)		/0047 52D0 to /0047 571A	

Note 1: Only the area that is actually used by the body of the ladder program, comment data, and the body of the user operation function is saved.
End address range: From /0010 4406 to /0016 7FFE

Note 2: These areas are not saved unless HI-FLOW has been stored. For areas from /0308 0000, only the area that is actually used as a HI-FLOW user program is saved. If the end address is /0308 0000, the HI-FLOW user program is not saved because it is not used.
End address range: From 0308 0000 to /033F FFFE

Note 3: These areas are not saved unless RPDP has been defined. Areas from /3000 0000, /4000 0000, /5000 0000, and /6000 0000 can be changed by the RPDP definition. A maximum of 16 MB can be saved as the total size of these four areas.

Note 4: The PIOP module's memory area is saved only when both of the following two conditions are met: 1) a connection is established with the destination via the CMU module's built-in Ethernet® or an ET.NET module (model LQE720) and 2) that CMU module is of Ver-Rev 0005-0000 or later.

Note 5: This memory area is saved only when the CMU module is a battery-backed CMU module (model LQP525/526/527) or an EQ.CMU module (model LQP528) set up as connected with a battery.

APPENDIX C BACKUP/RESTORE TIME

The following tables show the time required for the Backup, Restore, Backup of plural PCs, Restore of plural PCs, Load user application, and Compare user application commands. Use the tables as a rough standard when running the commands.
The required time varies depending on the performance of your PC.

<PC measurement environment>
Mounted memory: 256 MB
CPU: 1 GHz Celeron®
OS: Microsoft® Windows® XP Professional

Table C-1 Measured Time for RS-232C Connection

Command	Target area	Capacity	Communication speed	Measured time	Time for 1 MB
Backup	LPU	0.9 MB	Normal speed/High speed	1 minute, 45 seconds	1 minute, 55 seconds
Restore	LPU	0.9 MB	Normal speed/High speed	2 minutes, 5 seconds	2 minutes, 20 seconds
Load user application	LPU	0.9 MB	Normal speed/High speed	2 minutes, 30 seconds	2 minutes, 45 seconds
Compare user application	LPU	0.9 MB	Normal speed/High speed	2 minutes, 5 seconds	2 minutes, 20 seconds

Note: Measured times of the Backup of plural PCs and Restore of plural PCs commands are not listed in the case of RS-232C connection, because these two commands support only Ethernet® connection.

Table C-2 Measured Time for ET.NET Connection

Command	Target area	Capacity	Communication speed	Measured time	Time for 1 MB
Backup	LPU	0.9 MB	Normal speed	45 seconds	50 seconds
			High speed	30 seconds	35 seconds
Restore	LPU	0.9 MB	Normal speed	55 seconds	1 minute
			High speed	35 seconds	40 seconds
Backup of plural PCs	LPU	0.9 MB	Normal speed	45 seconds	50 seconds
			High speed	30 seconds	35 seconds
Restore of plural PCs	LPU	0.9 MB	Normal speed	55 seconds	1 minute
			High speed	35 seconds	40 seconds
Load user application	LPU	0.9 MB	Normal speed/High speed	55 seconds	1 minute
Compare user application	LPU	0.9 MB	Normal speed/High speed	1 minute	1 minute, 5 seconds

Table C-3 Measured Time for CMU built-in Ethernet® Connection

Command	Target area	Capacity	Communication speed	Measured time	Time for 1 MB
Backup	LPU + CMU	22 MB	Normal speed	3 minutes, 40 seconds	10 seconds
			High speed	3 minutes	8 seconds
Restore	LPU + CMU	22 MB	Normal speed	11 minutes, 30 seconds	30 seconds
			High speed	6 minutes, 40 seconds	18 seconds
Backup of plural PCs	LPU + CMU	22 MB	Normal speed	3 minutes, 40 seconds	10 seconds
			High speed	3 minutes	8 seconds
Restore of plural PCs	LPU + CMU	22 MB	Normal speed	11 minutes, 30 seconds	30 seconds
			High speed	6 minutes, 40 seconds	18 seconds
Load user application	LPU + CMU	22 MB	Normal speed/High speed	11 minutes, 50 seconds	32 seconds
Compare user application	LPU + CMU	22 MB	Normal speed/High speed	11 minutes, 40 seconds	31 seconds