



**HITACHI**  
**S10 $\alpha$  SERIES**

SOFTWARE MANUAL  
OPTION

**OD.RING**  
For Windows<sup>®</sup>

**2 $\alpha$**   
**S10mini**  
**SERIES**

Applicable to :

HITACHI-S10/2 $\alpha$	NESP-S25E
HITACHI-S10/2 $\alpha$ E	NESP-2 $\alpha$ E
HITACHI-S10/2 $\alpha$ H	NESP-2 $\alpha$ H
HITACHI-S10/2 $\alpha$ Hf	NESP-2 $\alpha$ Hf
S10mini model S	
S10mini model H	
S10mini model F	
S10mini model D	

## **NOTE**

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## **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 the 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.



## **“RUN/STOP” SWITCH CAUTION**

The “RUN/STOP” switch only stops execution of the ladder logic program or HI-FLOW program. Digital and analog outputs are left in the active state when execution stops, unless the optional rungs described in the CPU manual have been added. The “RUN/STOP” switch does not affect the operation of C-language or FA-BASIC language programs. Outputs can still be produced in response to C-language or FA-BASIC programs, or by the action of programmers typing in commands in these languages, while the “RUN/STOP” switch is in the “STOP” position.

**DO NOT DEPEND ON THE STOP SWITCH TO STOP MOVING PARTS OR TO PREVENT UNEXPECTED MOTION OR ENERGIZATION. USE HARDWIRED SAFETY DISCONNECT AND LOCK OUT POWER AND CONTROL VOLTAGES BEFORE WORKING ON ELECTRICAL CIRCUITS OR PARTS THAT CAN MOVE.**

## **OD.RING/SD.LINK System**

The SD.LINK module (single mode dual link module) has been added to the S10mini series. Like the OD.RING, the SD.LINK is a module that shares data by transferring the memory between CPUs.

<Module model>

Standard model: LQE030

Environmentally resistant model: LQE030-Z

The OD.RING uses a multi-mode optical fiber and the SD.LINK uses a single-mode optical fiber. Because of this difference, the OD.RING system can set SD.LINK parameters without causing any difference between parameters to be set in the OD.RING and the parameters to be set in the SD.LINK.

For these reasons, the environment configuration tool of the SD.LINK is commonly used with the OD.RING system being the environment configuration tool of the OD.RING so that an environment configuration may be attained as the OD.RING/SD.LINK system.

For the SD.LINK, replace “OD.RING” with “SD.LINK” described in this manual and then refer to the manual.

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## PREFACE

We greatly appreciate your purchase of this OD.RING/SD.LINK system.

This system runs on a personal computer and carries out a variety of setup operations for the OD.RING module.

This manual describes the operation of the OD.RING/SD.LINK system.

This manual is applicable to the following system versions.

System name/version
OD.RING/SD.LINK SYSTEM For Windows® 07-03

System versions 05-00 and earlier do not support the Microsoft® Windows® 98 operating system. They support the Microsoft® Windows® 95 operating system only.

For the OD.RING module, refer to the following manual supplied with the module.

### <Related manuals>

- HARDWARE MANUAL OPTION OD.RING (LWE500) (Manual number SAE-2-123)
- USER'S MANUAL OPTION OD.RING (LQE010, LQE015) (Manual number SME-1-102)

See the following list when you use the NESP (Nissan Electronic Sequence Processor) series.

<b>【HITACHI-S10<math>\alpha</math> series】</b>		<b>【NESP series】</b>
HITACHI-S10/2 $\alpha$	.....	NESP-S25E
HITACHI-S10/2 $\alpha$ E	.....	NESP-2 $\alpha$ E
HITACHI-S10/2 $\alpha$ H	.....	NESP-2 $\alpha$ H
HITACHI-S10/2 $\alpha$ Hf	.....	NESP-2 $\alpha$ Hf

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- Ethernet is a registered trademark of Xerox Corp.

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## Systems Supported by Windows® 2000 and Windows® XP

The systems supported by Microsoft® Windows® 2000 operating system (hereafter abbreviated as Windows® 2000) and Microsoft® Windows® XP operating system (hereafter abbreviated as Windows® XP) are shown in the following table.

Systems of earlier versions than those shown in the following table are not supported by Windows® 2000 and Windows® XP but supported by only Microsoft® Windows® 95 operating system (hereafter abbreviated as Windows® 95) and Microsoft® Windows® 98 operating system (hereafter abbreviated as Windows® 98). (The system names in the following table are hereafter abbreviated as each system.)

<Table of Systems Supported by Windows® 2000 and Windows® XP>

No.	System name	Type	Version	Windows® 2000	Windows® XP
1	S10Tools SYSTEM	S-7890-01	07-05	√	√
2	LADDER CHART SYSTEM	S-7890-02	07-05	√	√
3	HI-FLOW SYSTEM	S-7890-03	07-02	√	√
4	CPMS LOADING SYSTEM	S-7890-04	07-04	√	√
5	CPMSE LOADING SYSTEM	S-7890-05	07-04	√	√
6	CPMS DEBUGGER SYSTEM	S-7890-06	07-02	√	√
7	CPMSE DEBUGGER SYSTEM	S-7890-07	07-02	√	√
8	GP-IB LOADING SYSTEM	S-7890-08	07-01	√	√
9	BACKUP RESTORE SYSTEM	S-7890-09	08-01	√	√
10	RPDP/S10 SYSTEM	S-7891-10	03-03	√ (*2)	ns (*1)
11	NX/Tools-S10 SYSTEM	S-7890-13	07-02	√	√
12	4α LADDER CHART SYSTEM	S-7890-17	07-05	√	√
13	4αH LADDER CHART SYSTEM	S-7890-18	07-05	√	√
14	LADDER COMMENT CONVERTER SYS	S-7890-19	06-01	√	√
15	HIGH SPEED REMOTE I/O SYSTEM	S-7890-21	07-01	√	√
16	CPU LINK SYSTEM	S-7890-22	07-01	√	√
17	4ch ANALOG PULSE COUNTER SYS	S-7890-23	07-01	√	√
18	EXTERNAL SERIAL LINK SYSTEM	S-7890-24	07-02	√	√
19	S10ET LINK SYSTEM	S-7890-25	07-02	√	√
20	J.NET SYSTEM	S-7890-27	07-02	√	√
21	OD.RING/SD.LINK SYSTEM	S-7890-28	07-03	√	√
22	ET.NET SYSTEM	S-7890-29	07-01	√	√
23	FL.NET SYSTEM	S-7890-30	07-03	√	√
24	D.NET SYSTEM	S-7890-31	07-04	√	√
25	LADDER CHART MONITOR SYSTEM	S-7890-34	07-04	√	√
26	HI-FLOW MONITOR SYSTEM	S-7890-35	07-01	√	√
27	IR.LINK SYSTEM	S-7890-36	07-02	√	√
28	Crossing C compiler (manufactured by Mentor graphics company)	MCP68K	5.3	√ (*2)	ns (*1)

√: Supported ns: Not supported

(\*1) Crossing C compiler (No.28) is not supported by Windows® XP. Use it on Windows® 2000.

(\*2) Crossing C compiler (No.28) must be a version supported by Windows® 2000 (later than version 5.3) as a premise.



<Definitions of Terms>

N coil: A ladder program converted into a form that can be run on the PCs by pasting a symbol on the sheet displayed on a PC.

Process: A HI-FLOW program converted into a form that can be run on the PCs by pasting a symbol on the sheet displayed on a PC.

Compile: To convert an application program such as a ladder chart and HI-FLOW into a form (N coil, process, etc.) that can be run on the PCs.

Build: To compile only a corrected application program.

Rebuild: To compile every existing application program.

Sheet: Paper to prepare an application program of ladder chart and HI-FLOW, etc. This paper is controlled on a PC.

PCs: An abbreviation of Programmable Controllers.  
This is a general term for PLC such as the S10 $\alpha$  and S10mini series.

PLC: An abbreviation of Programmable Logic Controller.  
This is an industrial electronic device to exert sequence control, having an incorporated program.  
The S10 $\alpha$  and S10mini series come under this PLC.

<Note for storage capacity calculations>

- Memory capacities and requirements, file size 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) = 1024 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) = 1000 bytes

1 MB (megabyte) =  $1000^2$  bytes

1 GB (gigabyte) =  $1000^3$  bytes

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# 1 BEFORE USE

## 1 BEFORE USE

This manual is intended for personal computer programmers using the Windows®.

### 1.1 System Overview

OD.RING for Windows® (hereinafter simply called OD.RING) is used to edit the main module and submodule parameters of the HITACHI S10α series and S10mini series OD.RING module and displays error information through operations similar to those used by Windows® application users.

### 1.2 Hardware and Software Requirements

Using each system requires the following hardware and software.

<Personal Computers (hereafter abbreviated as PC)>

Item \ OS	Windows® 95 (*1)	Windows® 2000 (*1)	Windows® XP (*1)
	Windows® 98 (*1)		(*2)
CPU	Pentium 133 MHz or more		Pentium 300 MHz or more
Memory (RAM)	32 MB or more	64 MB or more	128 MB or more
Free hard disk capacity (*3)	20 MB or more/system (However, 10 MB or more/system for OS loading and option module support software)		
Floppy disk drive	1 unit or more (required to install software by FD)		
CD-ROM drive	1 unit or more (required to install software by CD-ROM)		
Ethernet (10BASE-T)	1 port or more (required to connect a PC with the ET.NET module)		
Serial (D-sub 9-pin)	1 port or more (required to connect the PCs with a PC by RS-232C or set an IP address for the ET.NET module)		
PC card (conforming to the PC Card Standard (JEITA V4.2) TYPE II or TYPE III)	1 slot or more (required to connect a PC with the parallel interface module (LWZ400). At this time, the following GP-IB card is also required.) GP-IB card: PCMCIA-GPIB (Model: 777438-02) (manufactured by National Instruments Corporation)		
Display	Resolution of 800 × 600 pixels or more		
Microsoft® Internet Explorer	Version 4.01 or later		

(\*1) For the OS service pack, refer to the attached reference materials for software.

(\*2) No.10 and No.28 in <Table of Systems Supported by Windows® 2000 and Windows® XP> in "PREFACE" are excepted.

(\*3) This is a capacity required to install each system. A free capacity to save user programs is also required.

## &lt;Hardware other than PC&gt;

- CPU for HITACHI-S10 $\alpha$  series (2 $\alpha$ , 2 $\alpha$ E, 2 $\alpha$ H, 2 $\alpha$ Hf) or S10mini series
- Power supply for HITACHI-S10 $\alpha$  series or S10mini series
- Backboard for HITACHI-S10 $\alpha$  series or S10mini series
- OD.RING module (LWE500) for HITACHI-S10 $\alpha$  series or OD.RING module (LQE010, 015) for S10mini series
- Connection cable between the personal computer and PCs
- Remote I/O stations, other power supplies and backboards, cards, and wiring as required

**NOTICE**

Users of this product require knowledge of the Windows® environment and user interface. The OD.RING system conforms to the Windows® standard. This manual is intended for users who have mastered the basic usage of Windows®.

**NOTE FOR PERSONAL COMPUTER SETTING**

When you use a personal computer with the suspend function, disable the function. The personal computer may malfunction if the suspend function remains enabled during execution of the OD.RING system.

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## 2 INSTALLATION

## 2 INSTALLATION

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### 2.1 Installing the System (\*)

First, check if your CD is correct.

To install each system, double-click the Setup.exe file saved in the DISK1 folder of the system CD. After installing it, an installed program window is not displayed.

To install each system, install Microsoft® Internet Explorer 4.01 or later. If it is not installed, install each system after installing it.

#### NOTE

- To operate each system, install Microsoft® Internet Explorer 4.01 or later. If it is not installed, each system does not operate normally.
- Before installing each system, be sure to terminate such a program residing in the memory as virus monitoring software. If each system is installed without terminating the program, an error may occur. In this case, uninstall the system by referring to “2.2 Uninstalling the System” and terminate all Windows® programs. Then, install each system once again.
- To install and uninstall each system by using Windows® 2000, set “Administrator” or “Member of Administrators” as the user account to be logged on.
- To install and uninstall each system by using Windows® XP, set “Computer administrator” as the user account to be logged on. If “Account with limitations” is set, each system does not operate normally.

(\*) No.10 and No.28 in <Table of Systems Supported by Windows® 2000 and Windows® XP> in “PREFACE” are excepted.



## 2.2 Uninstalling the System (\*)

To uninstall each system for version-up, observe the following procedure.

### (1) Uninstalling from Windows® 95 or Windows® 98

Open [Settings] in the [Start] menu – [Control Panel]. Double-click [Add/Remove Programs], select “Each System” by the [Install/Uninstall] tab, and click the  button. When the [Confirm File Deletion] window is displayed, click the  button.

### (2) Uninstalling from Windows® 2000

Open [Settings] in the [Start] menu – [Control Panel]. Double-click [Add/Remove Programs], click [Change or Remove Programs], select “Each System,” and click the  button. When the [Confirm File Deletion] window is displayed, click the  button.

### (3) Uninstalling from Windows® XP

Open ([Settings] – ) [Control Panel] in the [Start] menu. Double-click [Add or Remove Programs], click [Change or Remove Programs], select “Each System,” and click the  button. When the [Confirm File Deletion] window is displayed, click the  button.

When a shortcut of each system executable file has been created on the desktop, etc. delete this shortcut.

### NOTE

- When the [Remove Shared File?] window is displayed while each system is uninstalled on Windows®, click  not to delete the shared file.
- To install and uninstall each system by using Windows® 2000, set “Administrator” or “Member of Administrators” as the user account to be logged on.
- To install and uninstall each system by using Windows® XP, set “Computer administrator” as the user account to be logged on.
- If the [Add/Remove Programs] window is locked (inoperable) when each system is uninstalled by using Windows® 2000, log off from [Shut Down] in the [Start] menu of Windows®, and then log on again on the [Log On to Windows] window.

(\*) No.10 and No.28 in <Table of Systems Supported by Windows® 2000 and Windows® XP> in “PREFACE” are excepted.

## 2 INSTALLATION

### 2.3 Starting Up the System (\*)

- (1) The system to be installed by each system is automatically registered in the [Start] menu of Windows®. From this [Start] menu, select [Programs (All Programs)] – [Hitachi S10] – “Each System” to start the system.

If the logged-on user name in installing each system is different from the user name in starting each system, each system is not displayed in the [Start] menu. In this case, create a shortcut of the executable file (extension .exe) for each system shown below and then double-click this shortcut to start each system.

<Executable File Storage Directory Table>

No.	System name	Type	Executable file storage directory (*1)	Executable file name
1	S10Tools SYSTEM	S-7890-01	C:\Hitachi\S10	S10Ladder.exe
				S10Tool.exe
2	LADDER CHART SYSTEM	S-7890-02	C:\Hitachi\S10\2ALDC	S10Ladder.exe
3	HI-FLOW SYSTEM	S-7890-03	C:\Hitachi\S10\HF	S10Tool.exe
4	CPMS LOADING SYSTEM	S-7890-04	C:\Hitachi\S10\CPMS	Cpms.exe
5	CPMSE LOADING SYSTEM	S-7890-05	C:\Hitachi\S10\CPMSE	Cpmse.exe
6	CPMS DEBUGGER SYSTEM	S-7890-06	C:\Hitachi\S10\DEBUG	Debugger.exe
7	CPMSE DEBUGGER SYSTEM	S-7890-07	C:\Hitachi\S10\DEBUGE	DebuggerE.exe
8	GP-IB LOADING SYSTEM	S-7890-08	C:\Hitachi\S10\GPIB	Gpib.exe
9	BACKUP RESTORE SYSTEM	S-7890-09	C:\Hitachi\S10\BACKUP	SysAllSaveLoad.exe
10	NX/Tools-S10 SYSTEM	S-7890-13	C:\Hitachi\S10\NX	NXTool.exe
11	4α LADDER CHART SYSTEM	S-7890-17	C:\Hitachi\S10\4ALDC	S10Ladder_4A.exe
12	4αH LADDER CHART SYSTEM	S-7890-18	C:\Hitachi\S10\4AHLDC	S10Ladder_4AH.exe
13	LADDER COMMENT CONVERTER SYS	S-7890-19	C:\Hitachi\S10\CFCONV	Cfconv.exe
14	HIGH SPEED REMOTE I/O SYSTEM	S-7890-21	C:\Hitachi\S10\HISRIO	HiSpeedRIO.exe
15	CPU LINK SYSTEM	S-7890-22	C:\Hitachi\S10\CPULINK	CpuLink.exe
16	4ch ANALOG PULSE COUNTER SYS	S-7890-23	C:\Hitachi\S10\ANALOG	AnalogPuls.exe
17	EXTERNAL SERIAL LINK SYSTEM	S-7890-24	C:\Hitachi\S10\EXLINK	ExLink.exe
18	S10ET LINK SYSTEM	S-7890-25	C:\Hitachi\S10\ETLINK	EtherNet.exe
19	J.NET SYSTEM	S-7890-27	C:\Hitachi\S10\JNET	JNet.exe
20	OD.RING/SD.LINK SYSTEM	S-7890-28	C:\Hitachi\S10\ODRING-SDLINK	ODRing.exe
21	ET.NET SYSTEM	S-7890-29	C:\Hitachi\S10\ETNET	Et_Net.exe
22	FL.NET SYSTEM	S-7890-30	C:\Hitachi\S10\FLNET	FLnet.exe
23	D.NET SYSTEM	S-7890-31	C:\Hitachi\S10\DNET	DNet.exe
24	LADDER CHART MONITOR SYSTEM	S-7890-34	C:\Hitachi\S10\2ALDCM	S10LadderM.exe
25	HI-FLOW MONITOR SYSTEM	S-7890-35	C:\Hitachi\S10\HFM	S10ToolM.exe
26	IR.LINK SYSTEM	S-7890-36	C:\Hitachi\S10\IRLINK	IrLink.exe

(\*1) Directory name when “C” is the drive name of installing destination.

(\* ) No.10 and No.28 in <Table of Systems Supported by Windows® 2000 and Windows® XP> in “PREFACE” are excepted.

- (2) The [OD.RING SYSTEM] window is displayed, showing that OD.RING has been started up. Click the desired command button.

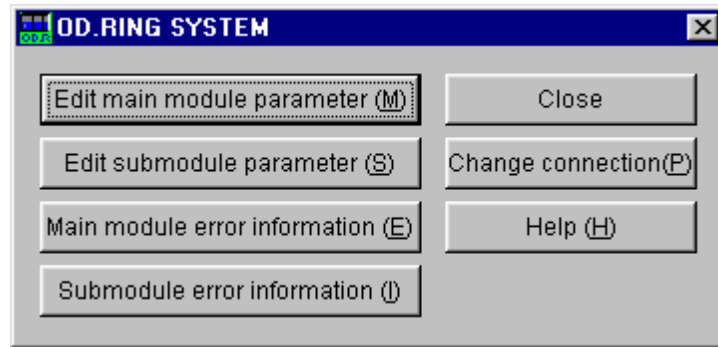


Figure 2-1 [OD.RING SYSTEM] Window

## 2.4 Terminating the System

OD.RING can be terminated by clicking the  or  button on the [OD.RING SYSTEM] window shown in Figure 2-1.

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# 3 COMMANDS

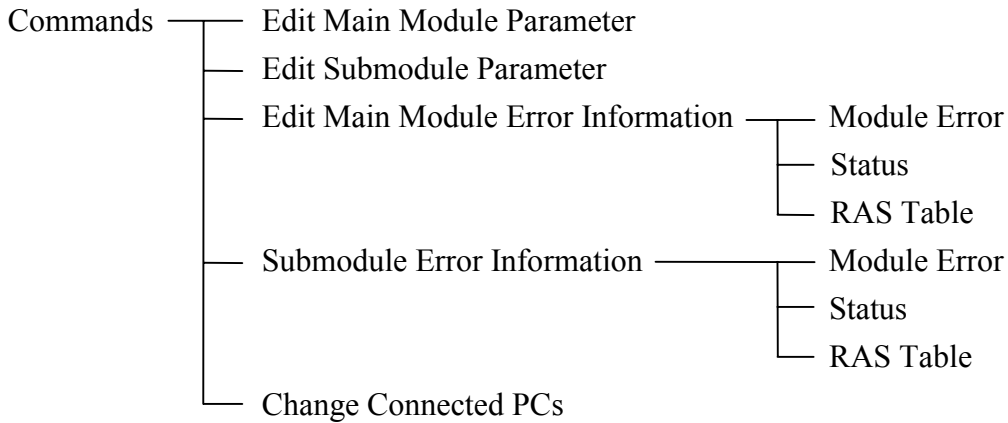
### 3 COMMANDS

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#### 3.1 Command System

The OD.RING command system is shown below.

Each of these commands is described in Section 3.2 and later. For details on each command, refer to Help.

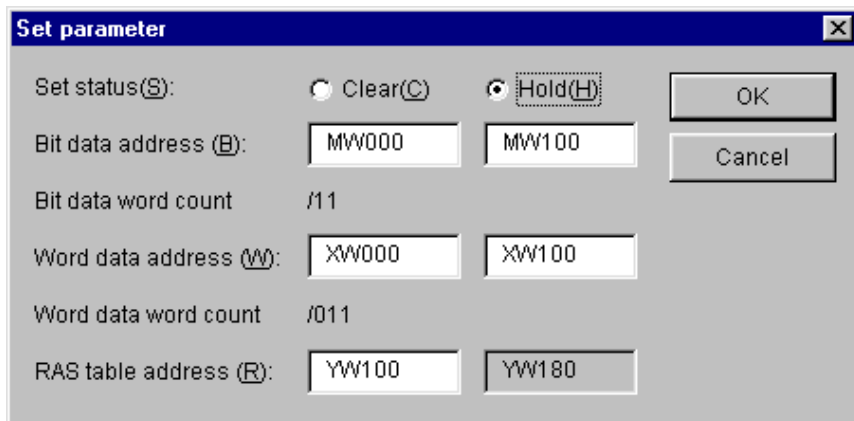


#### 3.2 Editing Main Module Parameters

Function: Sets the bit data address, word data address, and RAS table address of the main module.

Operation: See the operation procedure below.

- (1) Click the **Edit main module parameter** button on the [OD.RING SYSTEM] window.
- (2) When [Set parameter] window is displayed, enter values for the “Bit data address,” “Word data address,” and “RAS table address.”



- (3) When value entry is completed, click the **OK** button to set the values. If you want to cancel the entry, click the **Cancel** button.

### 3.3 Editing Submodule Parameter

Function: Sets the bit data address, word data address, and RAS table address of the submodule.

Operation: The operation procedure used for interaction with this command is the same as with the Edit Main Module Parameter command.

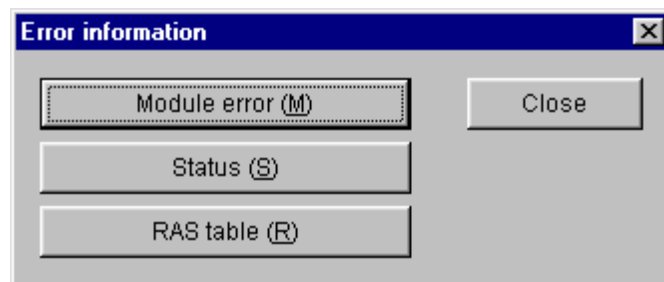
See “3.2 Editing Main Module Parameters.”

### 3.4 Main Module Error Information

Function: Selects the main module-retained error information to be displayed.

Operation: See the operation procedure below.

- (1) Click the Main module error information button on the [OD.RING SYSTEM] window.
- (2) The [Error information] window is displayed.



### 3 COMMANDS

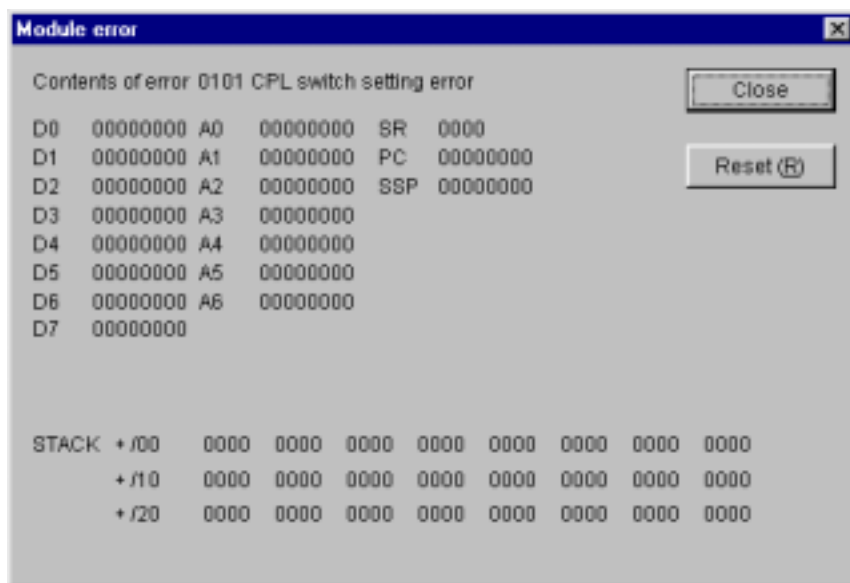
---

#### 3.4.1 Module error

Function: Displays the module error information retained by the main module.

Operation: See the operation procedure below.

- (1) Click the  button on the [Error information] window. Then, if any error(s) have been detected in the main module, the error information is displayed.



- (2) Clicking the  button displays the latest error information. To quit error display, click the  button.

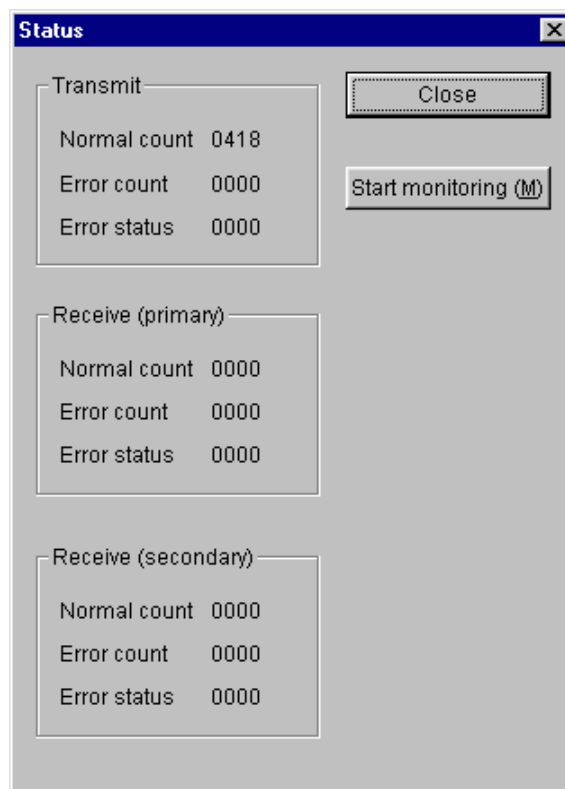


## 3.4.2 Status

Function: Displays main module status information.

Operation: See the operation procedure below.

- (1) Click the **Status** button on the [Error information] window.  
The [Status] window is displayed.



- (2) To start monitoring, click the **Start monitoring** button. To stop monitoring, click the **Stop monitoring** button.  
When you want to quit status display, click the **Close** button.

### 3 COMMANDS

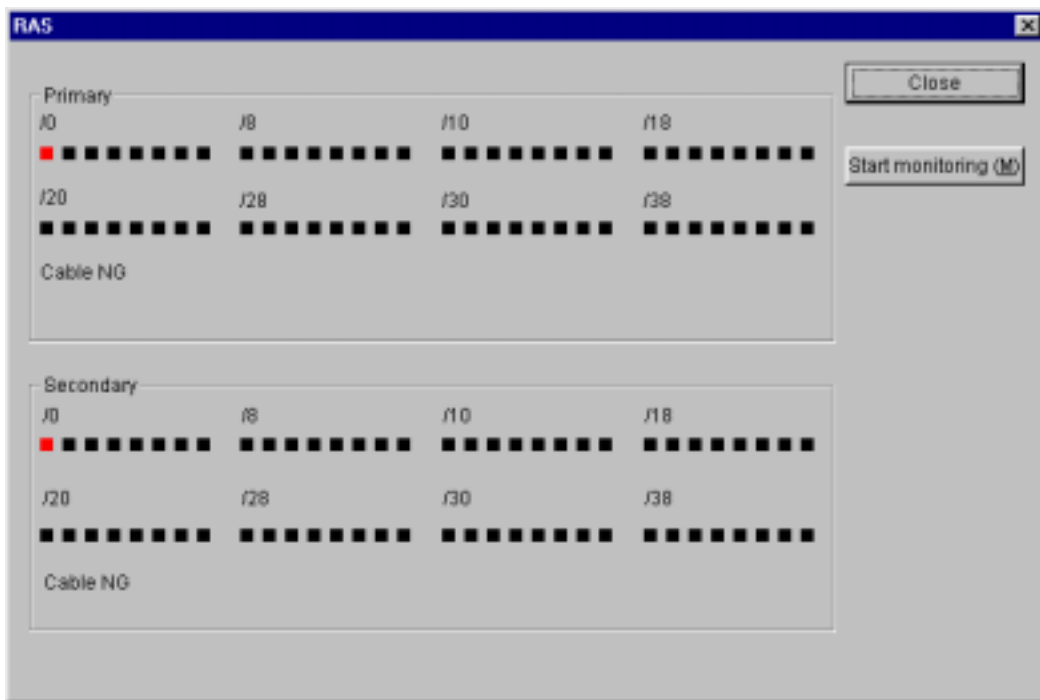
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#### 3.4.3 RAS table

Function: Displays main module RAS table information.

Operation: See the operation procedure below.

- (1) Click the **RAS table** button on the [Error information] window.  
The [RAS] window is displayed.



- (2) To start monitoring, click the **Start monitoring** button. To stop monitoring, click the **Stop monitoring** button.

When you want to quit RAS table display, click the **Close** button.

### 3.5 Submodule Error Information

Function: Displays the module errors, status, and RAS table of the submodule.

Operation: The operation procedure used for interaction with this command is the same as with the Main Module Error Information command.

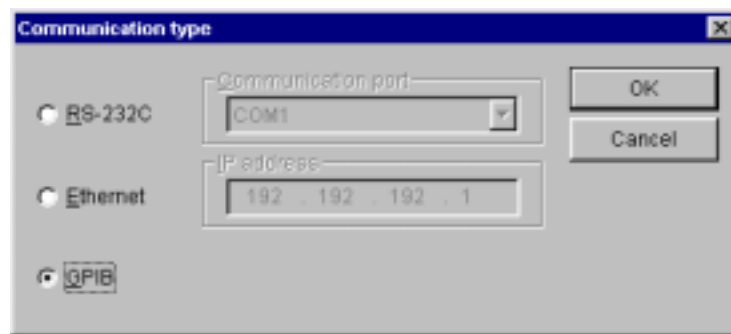
See “3.4 Main Module Error Information.”

### 3.6 Changing Connected PCs

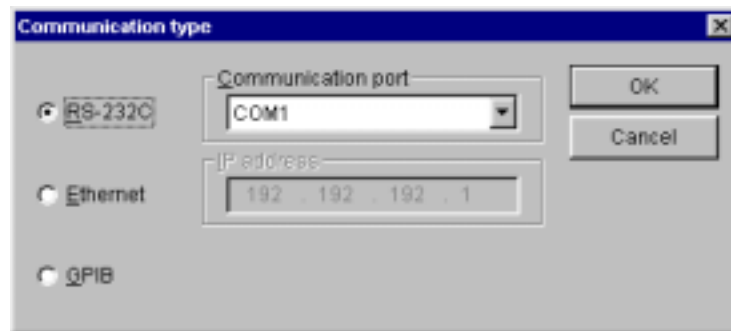
Function: Sets a specified communication type for the PCs and personal computer.

Operation: See the operation procedure below.

- (1) Click the **Change connection** button on the [OD.RING SYSTEM] window.
- (2) The [Communication type] window is displayed.



- (3) If the desired communication type is RS-232C, click the “RS-232C” radio button and select a “Communication port.”



- (4) If it is Ethernet, click the “Ethernet” radio button and enter the “IP address” of the connection destination.



### 3 COMMANDS

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- (5) If it is GP-IB, click the “GPIB” radio button.



#### NOTE

When connecting a personal computer to the S10mini series, select RS-232C or Ethernet because the S10mini series does not support GP-IB.

- (6) When communication type selection is completed, click the **OK** button to set the selection. If you want to cancel the selection, click the **Cancel** button.