HITACHI
S10α SERIES

SOFTWARE MANUAL
OPERATION

CPMS DEBUGGER
For Windows®

2α SERIES

Applicable to :
HITACHI-S10/2α NESP-S25E

SAE-3-125 (D)

HITACHI

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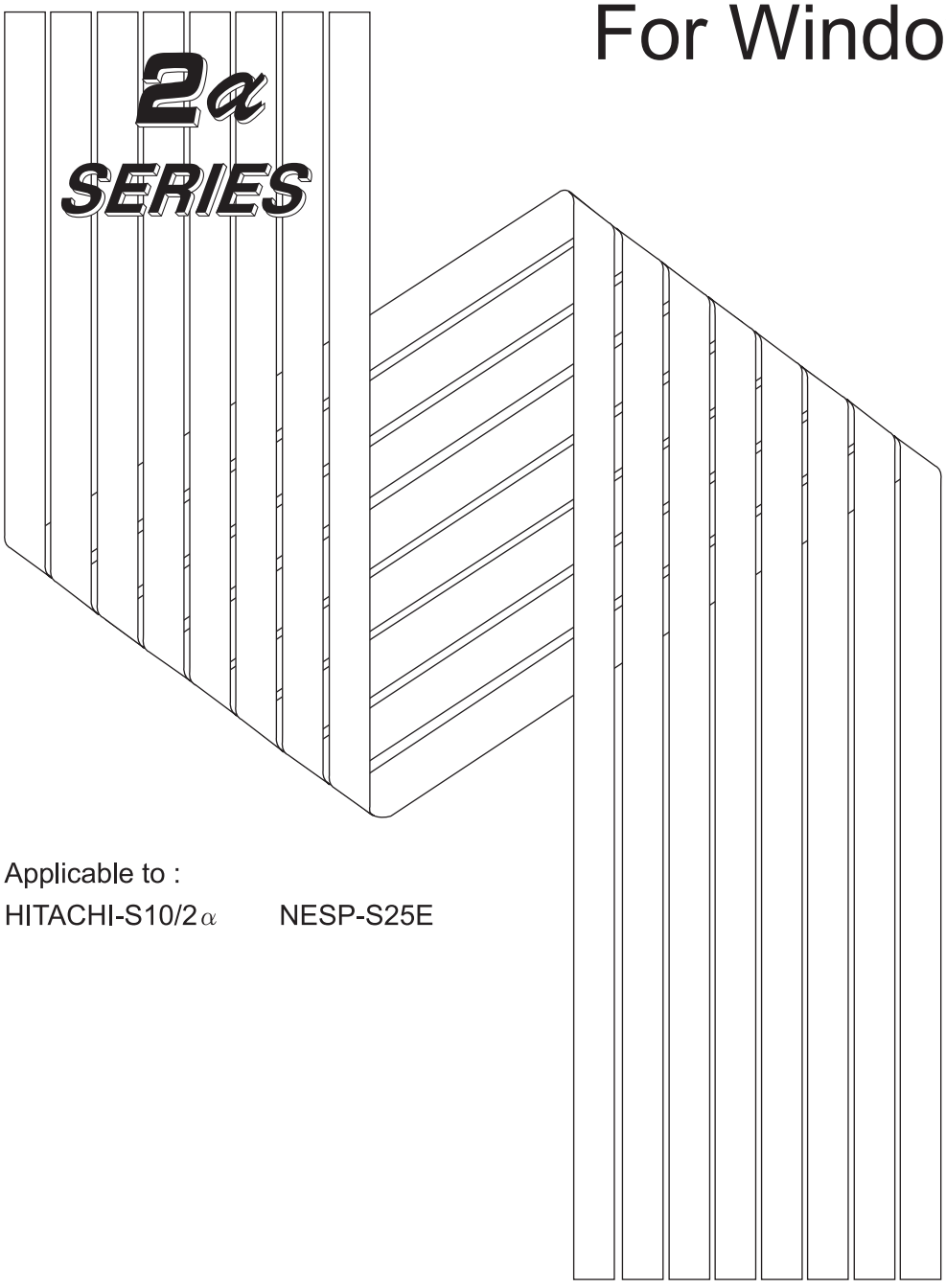

Applicable to :

HITACHI-S10/2α NESP-S25E

HITACHI

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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.
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- 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.

PREFACE

We greatly appreciate your purchase of this CPMS debugger system.

The CPMS debugger system runs on a personal computer. It registers, initiates, and deletes the tasks that are executed on PCs. The system also monitors the set/reset status of address-specified bits and displays the system status.

This manual describes the operation of the CPMS debugger system.
This manual is applicable to the following system versions.

System name/version
CPMS DEBUGGER SYSTEM For Windows® 07-02

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

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

【HITACHI-S10α series】		【NESP series】
HITACHI-S10/2α	·····	NESP-S25E

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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 S10α 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 S10α and S10mini series come under this PLC.

<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) = 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

CONTENTS

1 BEFORE USE

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

1.1 System Overview

The CPMS debugger for Windows® (hereinafter simply referred to as the CPMS debugger) transfers the system programs of the CPMS debugger for HITACHI-S10/2α, and registers, initiates, and monitors tasks, 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)>

OS / Item	Windows® 95 (*1) Windows® 98 (*1)	Windows® 2000 (*1)	Windows® XP (*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.

<Hardware other than PC>

- CPU for HITACHI-S10α series (2αE)
- Power supply for HITACHI-S10α series
- Backboard for HITACHI-S10α series
- Connection cable between the personal computer and PCs
- Remote I/O stations, other power supplies and backboards, cards, and wiring as required

NOTE
Users of this product require knowledge of the Windows® environment and user interface. The CPMS debugger 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 CPMS debugger system.

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2 INSTALLATION

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 [Change/Remove] button. When the [Confirm File Deletion] window is displayed, click the [Yes] 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 [Change/Remove] button. When the [Confirm File Deletion] window is displayed, click the [Yes] 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 [Change/Remove] button. When the [Confirm File Deletion] window is displayed, click the [Yes] 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 [No] 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.

2.3 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.

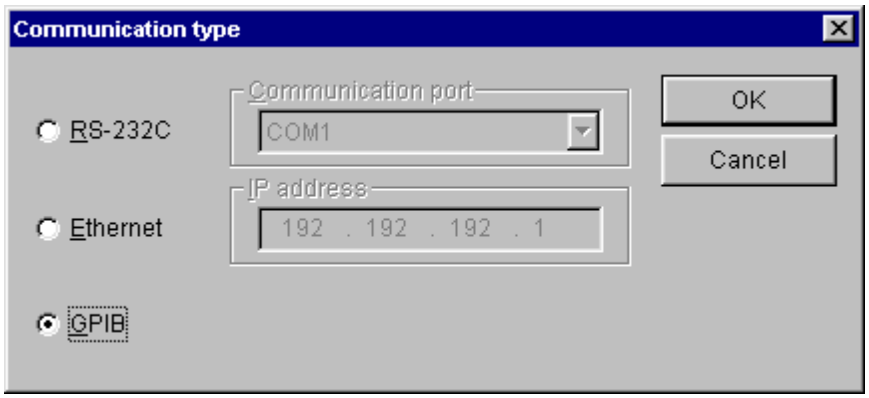
<Executable File Storage Directory Table>

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) When the [Communication type] window is displayed, set the desired communication type and then click the OK button. (See "3.17 Changing Connected PCs.")
If you need not change the previously set communication type, click the Cancel button.



(3) The [CPMS DEBUGGER SYSTEM] window is displayed, showing that the CPMS debugger has been started up. Click the desired command button.

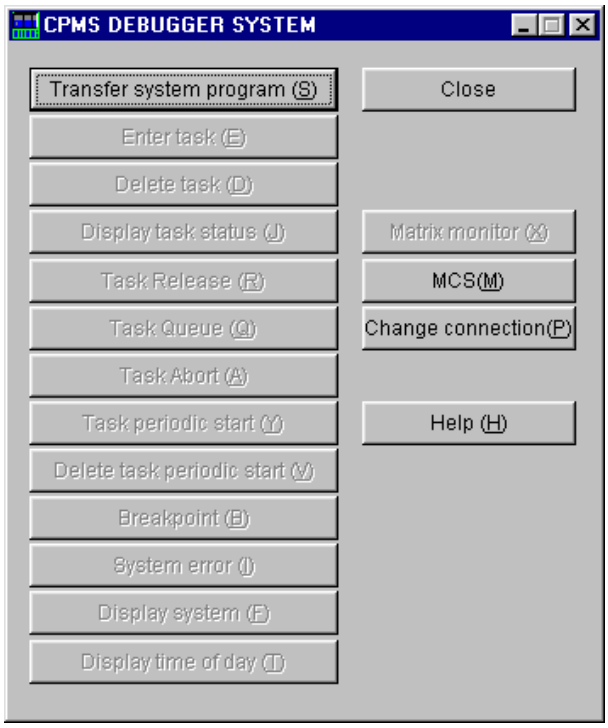


Figure 2-1 [CPMS DEBUGGER SYSTEM] Window

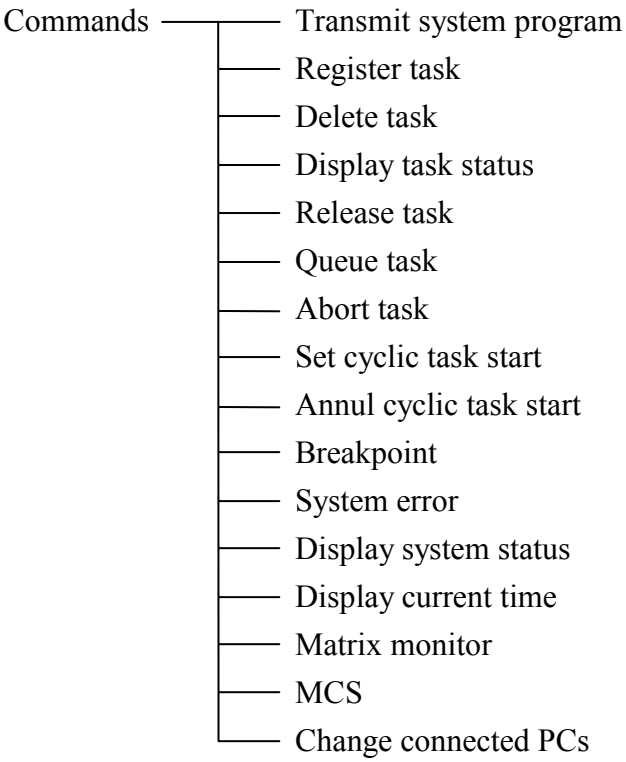
2.4 Terminating the System

The CPMS debugger is terminated by clicking the [×] or [Close] button on the [CPMS DEBUGGER SYSTEM] window shown in Figure 2-1.

3 COMMANDS

3.1 Command System

The CPMS debugger 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 Transmitting System Program

Function: Transmits the CPMS debugger system program to the PCs.
Operation: See the operation procedure below.

(1) Click the Transfer system program button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Transfer system program] window is displayed.

(3) Click the Next button, and system program transmission will then be started. If the system program need not be transmitted, click the Cancel button.

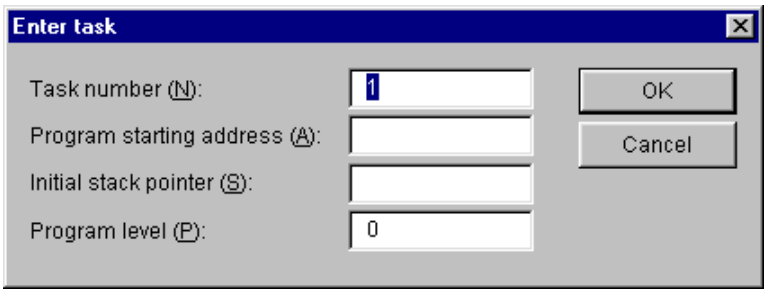
NOTE FOR SYSTEM PROGRAM TRANSMISSION
Be sure to transmit the system program to the PCs before using the debugger functions. Otherwise, the commands described in Section 3.3 and later will be unavailable.

3.3 Registering Task

Function: Registers a task.
Operation: See the operation procedure below.

(1) Click the Enter task button on the [CPMS DEBUGGER SYSTEM] window.

(2) When the [Enter task] window is displayed, enter the desired "Task number," "Program starting address," "Initial stack pointer," and "Program level."



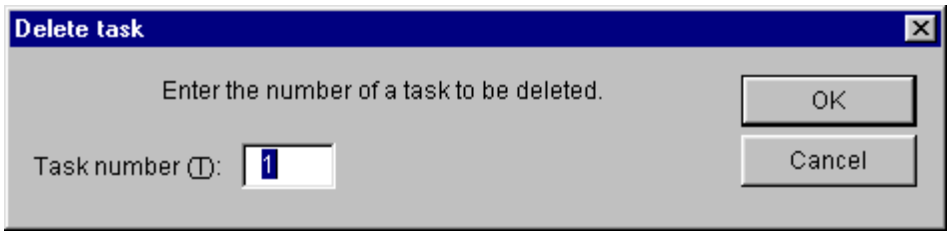
(3) When the entry of all the necessary values is completed, click the OK button if you really want to register the task. Otherwise, click the Cancel button.

3.4 Deleting Task

Function: Deletes a task.
Operation: See the operation procedure below.

(1) Click the Delete task button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Delete task] window is displayed. Enter the desired "Task number."



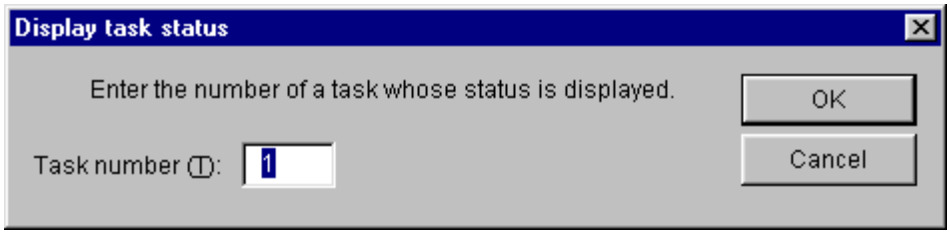
(3) When the entry is completed, click the OK button if you really want to delete the task. Otherwise, click the Cancel button.

3.5 Displaying Task Status

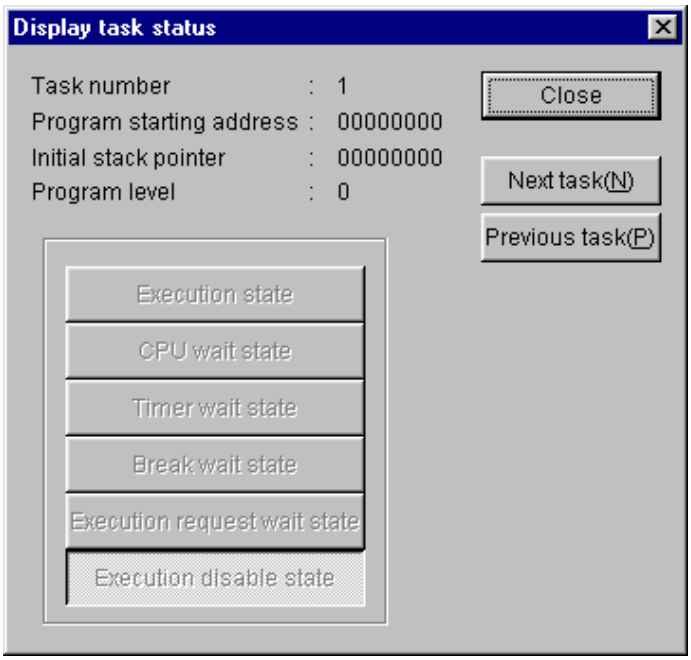
Function: Displays task status.
Operation: See the operation procedure below.

(1) Click the Display task status button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Display task status] window is displayed. Enter the "Task number" of the task whose status you want to check, and click the OK button. If you do not want to, click the Cancel button.



(3) The [Display task status] window is displayed.



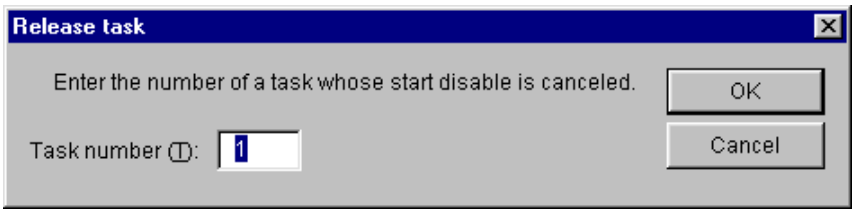
(4) Examine the displayed task status and click the Close button.
If you want to display the task status of the next or previous task number, click the Next task or Previous task button, respectively.

3.6 Releasing Task

Function: Sets a task free from its initiation-prohibited state.
Operation: See the operation procedure below.

(1) Click the Task Release button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Release task] window is displayed. Enter the desired "Task number."



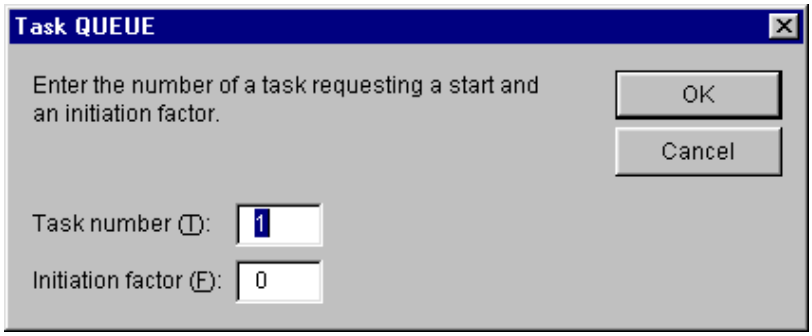
(3) When task number entry is completed, click the OK button if you really want to release the task. Otherwise, click the Cancel button.

3.7 Queuing Task

Function: Requests initiation of a task.
Operation: See the operation procedure below.

(1) Click the Task Queue button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Task QUEUE] window is displayed. Enter the desired "Task number" and "Initiation factor."



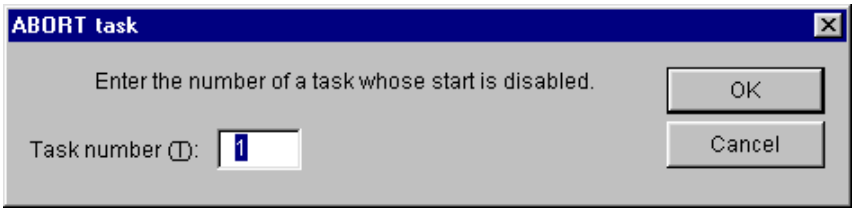
(3) When all necessary value entry is completed, click the OK button if you really want to queue the task. Otherwise, click the Cancel button.

3.8 Abort Task

Function: Places a specified task into initiation-prohibited state.
Operation: See the operation procedure below.

(1) Click the Task Abort button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [ABORT task] window is displayed. Enter the desired "Task number."



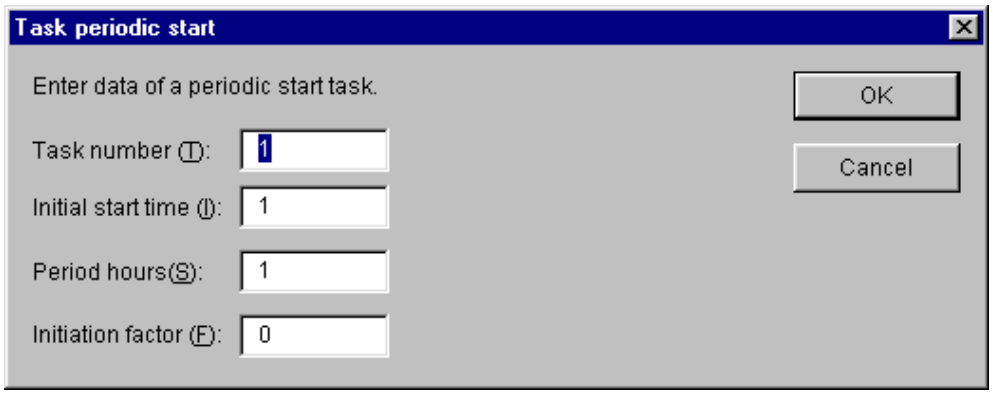
(3) When task number entry is completed, click the OK button if you really want to abort the task. Otherwise, click the Cancel button.

3.9 Setting Cyclic Task Start

Function: Sets cyclic start of a task.
Operation: See the operation procedure below.

(1) Click the Task periodic start button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Task periodic start] window is displayed. Enter the desired "Task number," "Initial start time," "Period hours," and "Initiation factor."



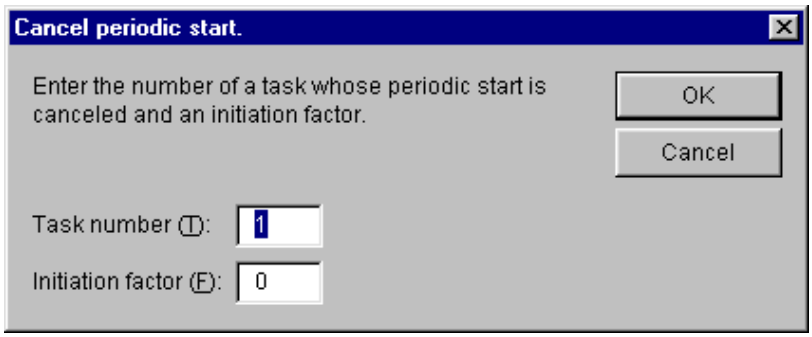
(3) When all necessary value entry is completed, click the OK button if you really want to set cyclic start. Otherwise, click the Cancel button.

3.10 Annulling Cyclic Task Start

Function: Makes ineffective the set cyclic start of a task.
Operation: See the operation procedure below.

(1) Click the Delete task periodic start button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Cancel periodic start.] window is displayed. Enter the desired "Task number" and "Initiation factor."



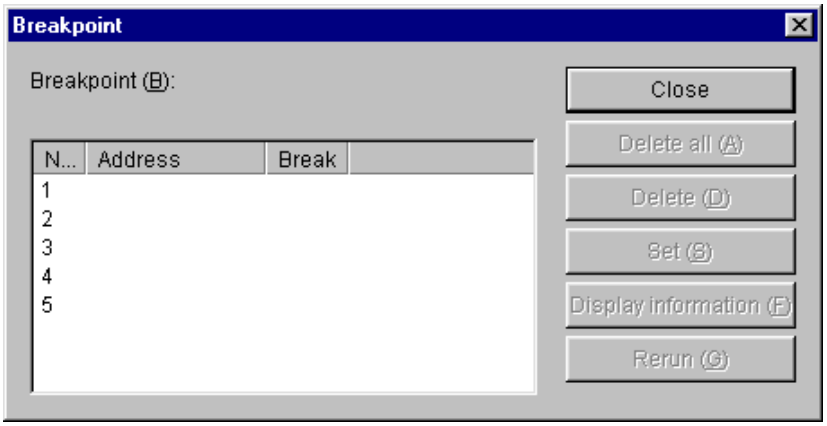
(3) When all necessary value entry is completed, click the OK button if you really want to annul the set cyclic start. Otherwise, click the Cancel button.

3.11 Breakpoint

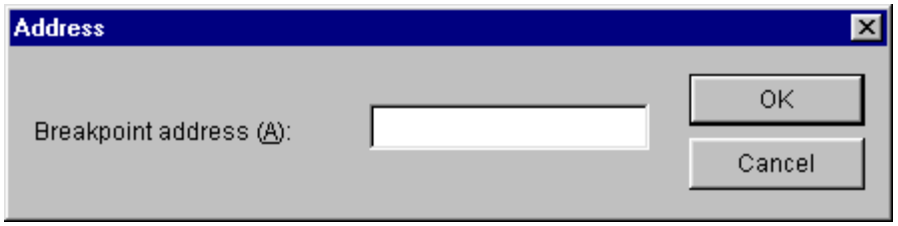
Function: Sets or removes breakpoints.
Operation: See the operation procedure below.

(1) Click the Breakpoint button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Breakpoint] window is displayed.
If all the breakpoints already set are unnecessary, click the Delete all button to remove them.
If only a selected breakpoint needs to be removed, click the breakpoint number "N..." and then the Delete button.
If you want to set a breakpoint, click the breakpoint number "N" and then the Set button.

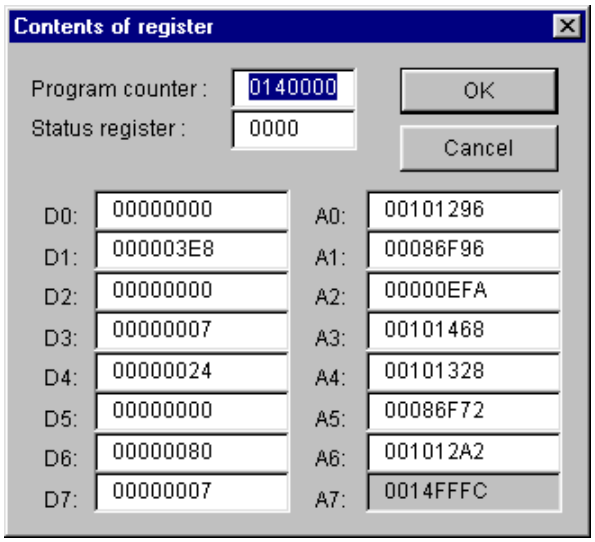


(3) The [Address] window is displayed to allow you to enter the "Breakpoint address."



(4) When address entry is completed, click the OK button if you really want to set the breakpoint. Otherwise, click the Cancel button.

(5) When a breakpoint halt occurs, clicking the [Display information] button on the [Breakpoint] window displays the [Contents of register] window. Enter values to be set in the "Program counter," "Status register," user stack pointer data registers, and address registers.



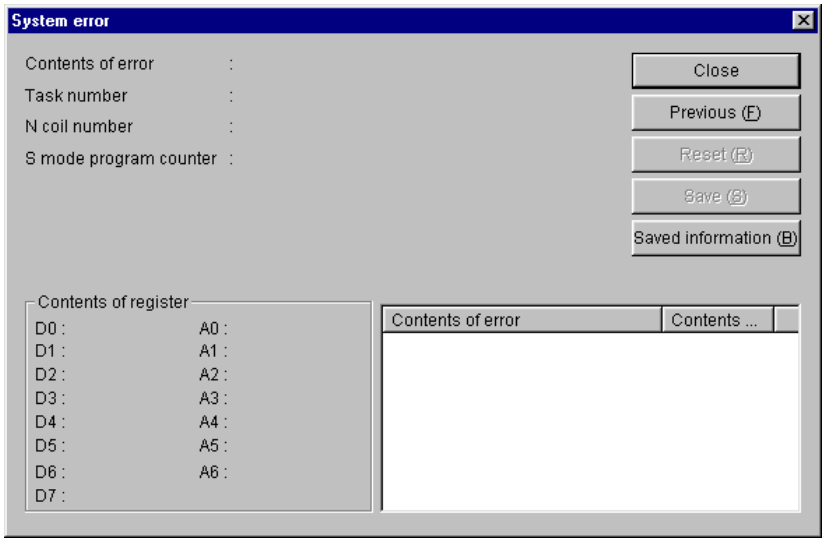
(6) When all value entry is completed, click the [OK] button if you really want to set the entered values in the counter and registers. Otherwise, click the [Cancel] button.

3.12 System Error

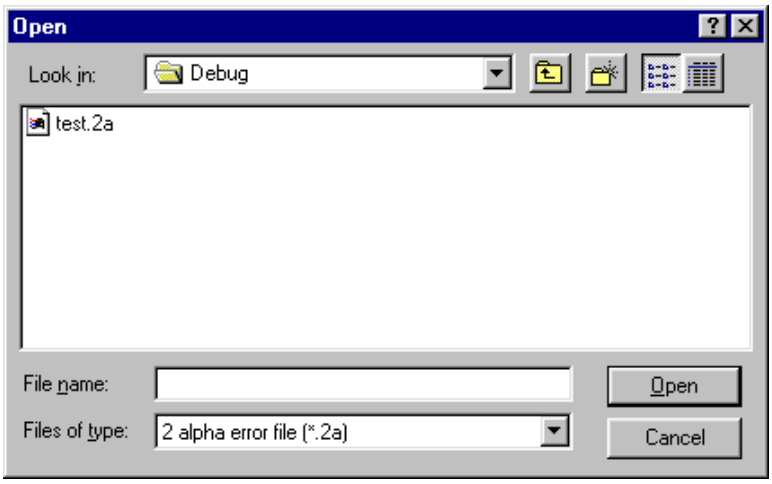
Function: Displays system errors.
Operation: See the operation procedure below.

(1) Click the [System error] button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [System error] window is displayed.

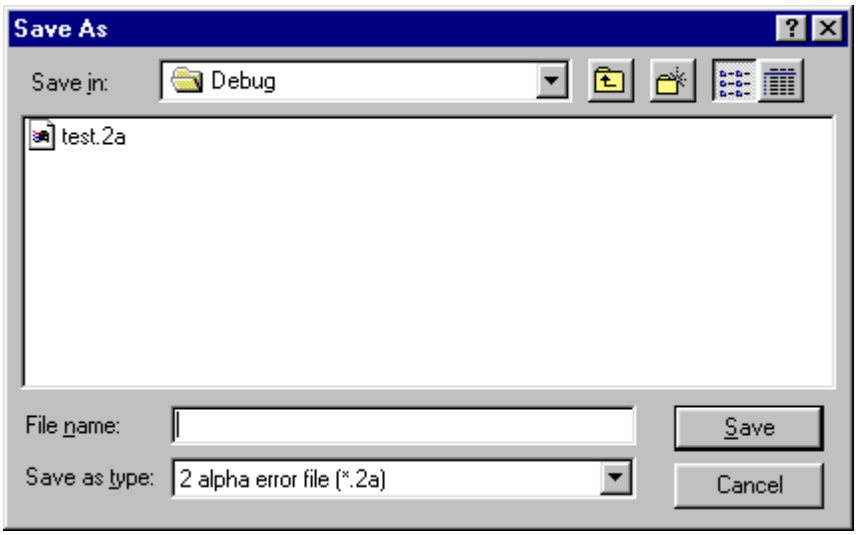


To display the previous error information, click the [Previous] button. The [Open] window for selecting a previous error information file is displayed.



Specify the "File name" of the previous error information to be referenced, and click the [Open] button. The previous error information will then be displayed. If such error information need not be displayed, click the [Cancel] button. To switch the display from the previous to the current error information, click the [Current] button.

To clear the current error information, click the [Reset] button.
To save the information rather than clearing, click the [Save] button. The [Save As] window will then be displayed.



Specify a unique "File name" for the file to be saved and click the [Save] button. The error information file will then be saved. If the file need not be saved, click the [Cancel] button.

To display the previous error information saved in the PCs, click the [Saved information] button.

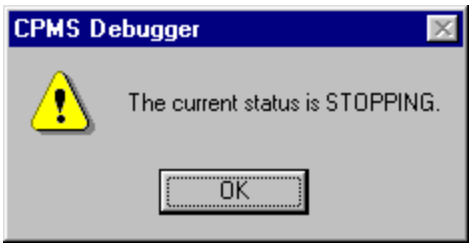
(3) Check the system errors and then click the [Close] button.

3.13 Displaying System Status

Function: Displays system status.
Operation: See the operation procedure below.

(1) Click the Display system button on the [CPMS DEBUGGER SYSTEM] window.

(2) The system status display [CPMS Debugger] window is displayed.



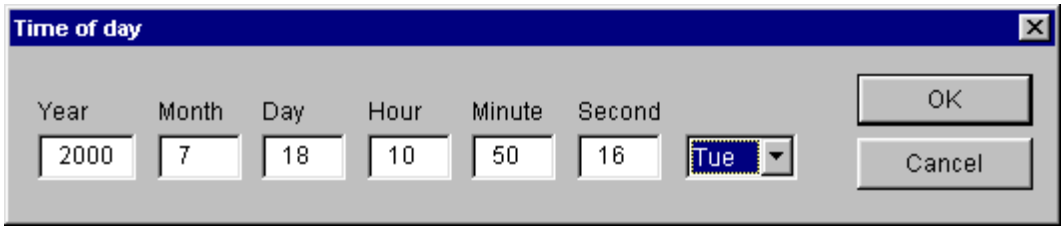
(3) Check the system status and then click the OK button.

3.14 Displaying Current Time

Function: Displays the current system time.
Operation: See the operation procedure below.

(1) Click the Display time of day button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Time of day] window is displayed.



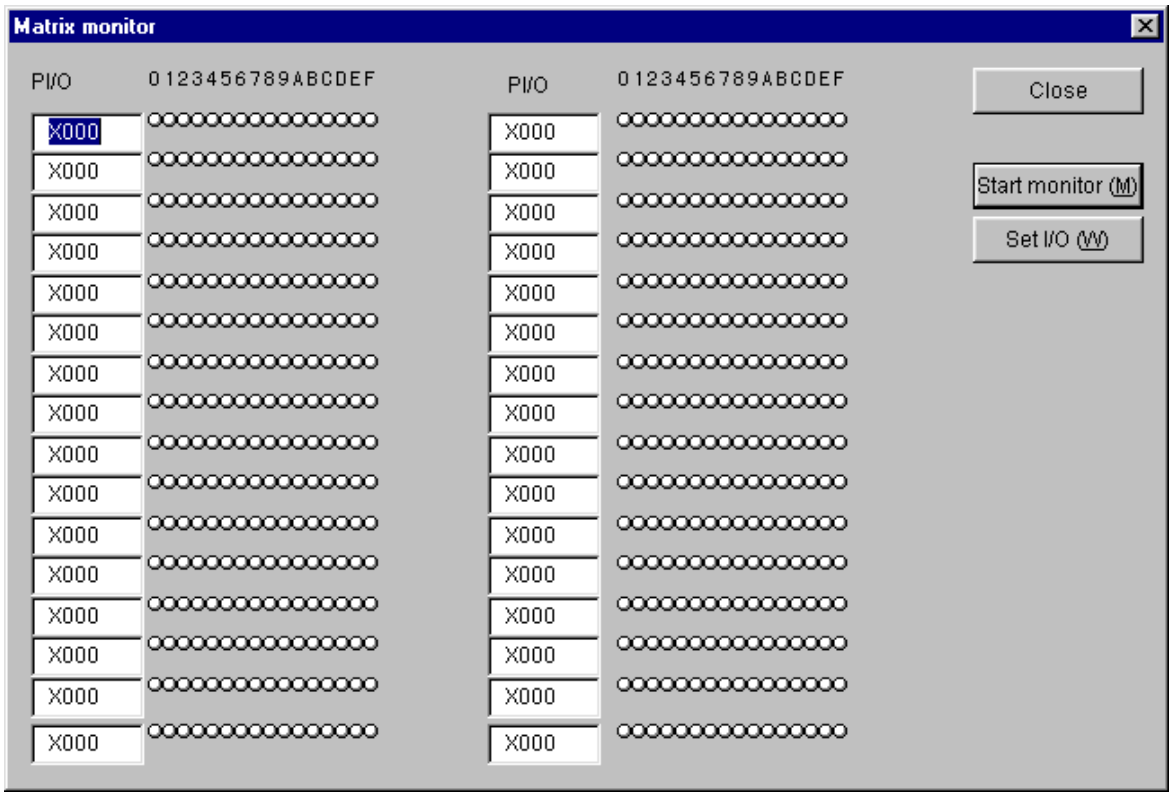
(3) If the current system time needs to be changed, enter all necessary values in the input areas and click the OK button. If it does not need to, click the Cancel button.

3.15 Matrix Monitor

Function: Displays the matrix monitor.
Operation: See the operation procedure below.

(1) Click the [Matrix monitor] button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Matrix monitor] window is displayed.



(3) Enter the "PI/O" element to be monitored and click the [Start monitor] button.
Monitoring will then be started. If the specified PI/O element needs to be set to a specific value, click the [Set I/O] button.
The [Set I/O] window will then be displayed.

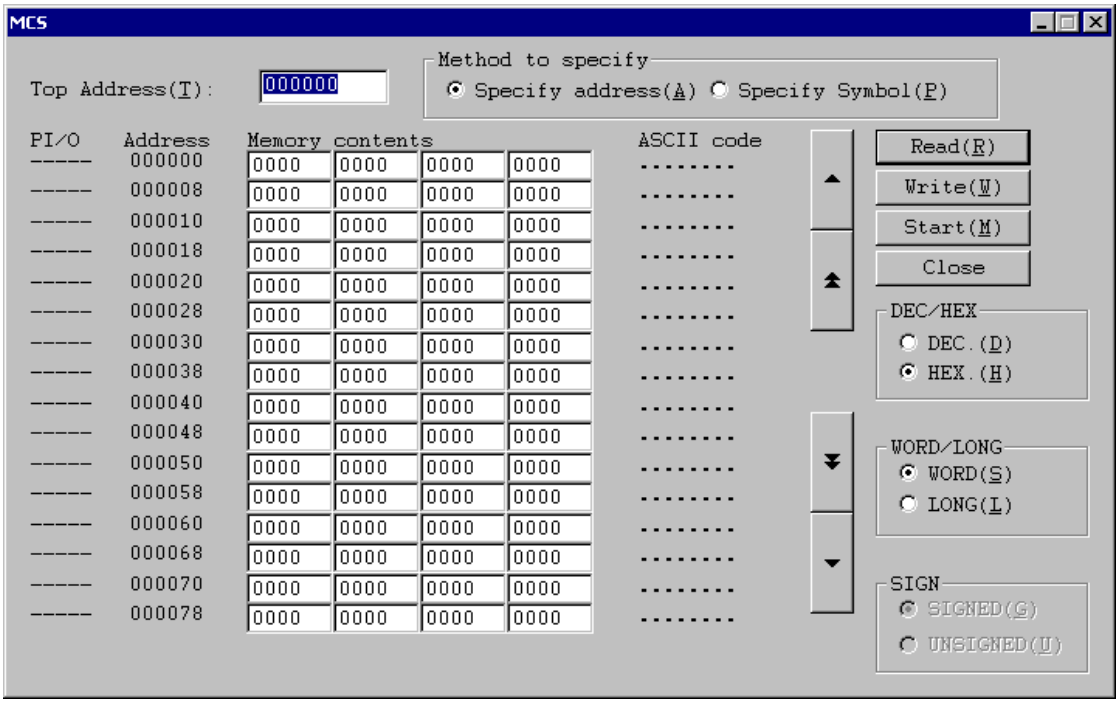
Set the individual PI/O element bits to set or reset state and click the [OK] button.

3.16 MCS (Man-machine Communication System)

Function: Displays MCS.
Operation: See the operation procedure below.

(1) Click the [MCS] button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [MCS] window is displayed. Select the "Method to specify," and set the "Top Address" or "PI/O" element.



(3) To read data from the set "Top Address" or "PI/O" element, click the [Read] button.
To write data to the set "Top Address" or "PI/O" element, change the memory contents and click the [Write] button.
To monitor the set "Top Address" or "PI/O" element, click the [Start] button.
To close the [MCS] window, click the [Close] button.

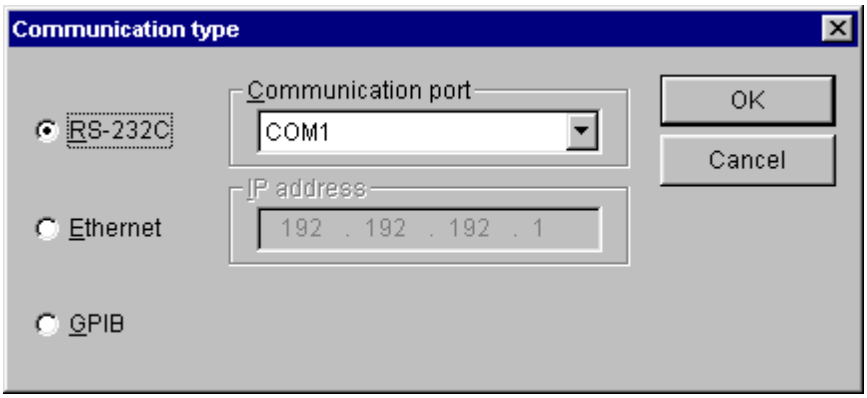
3.17 Changing Connected PCs

Function: Sets a specified communication type for the PCs and personal computer.
Operation: See the operation procedure below.

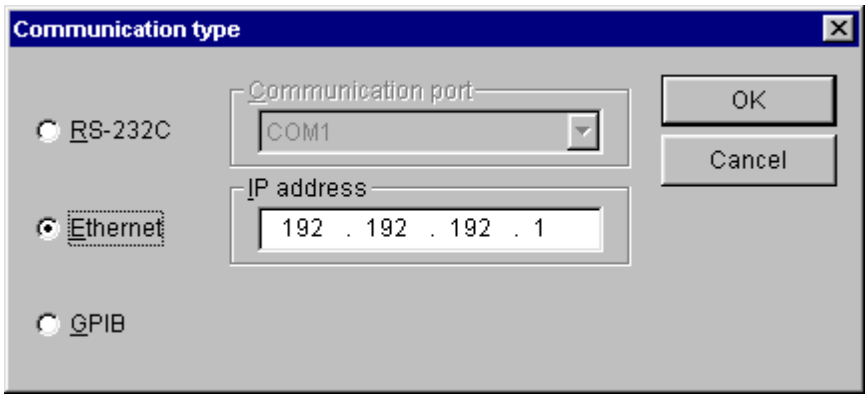
(1) Click the Change connection button on the [CPMS DEBUGGER SYSTEM] window.

(2) The [Communication type] window is displayed.

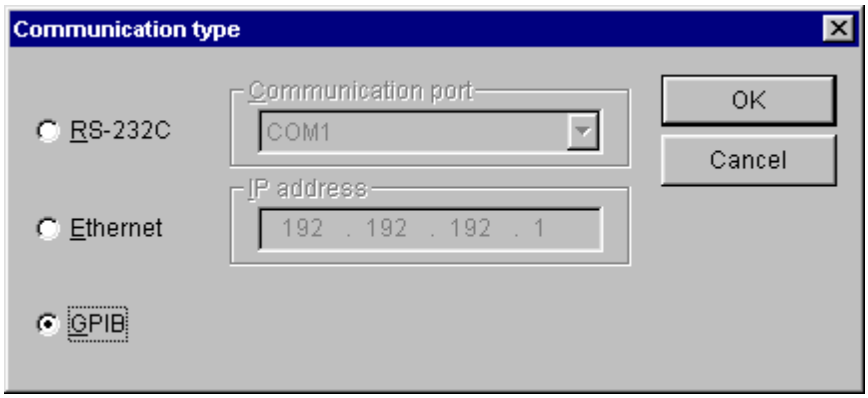
(3) If the communication type is RS-232C, click “RS-232C” radio button and select the desired “Communication port.”



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



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



(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.