



HITACHI
S10 α SERIES

SOFTWARE MANUAL
OPTION

D.NET
For Windows[®]

2 α
S10mini
SERIES

Applicable to :
S10mini model S
S10mini model H
S10mini model F
S10mini model D

NOTE

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FIRST EDITION, APRIL, 2001, SAE - 3 - 136 (D) (out of print)

SECOND EDITION, DECEMBER, 2001, SAE - 3 - 136 (E) (out of print)

THIRD EDITION, SEPTEMBER, 2003, SAE - 3 - 136 (F)

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- 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.
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- If you have any question concerning any part of this manual, contact your nearest Hitachi branch office or service engineer.
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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

Thank you for purchasing the D.NET system for Windows® (hereinafter referred to as the D.NET system).

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

This manual describes the operation of the D.NET system.

For details such as setting ranges and others, see “Help” of the D.NET system.

This manual is applicable to the following system versions.

System name/version
D.NET SYSTEM For Windows® 07-04

For the D.NET module, refer to the following manual.

<Related manual>

HARDWARE MANUAL OPTION D.NET (Manual number SME-1-106)

When a number indicated in this manual is prefixed by “/” or “0x”, it is a hexadecimal number. All the other numbers are in decimal notation.

Example 1) Decimal numbers: -12 0 4783

Example 2) Hexadecimal numbers: /FE /00 /12AB

Example 3) Hexadecimal numbers: 0x1A 0x00 0x3215

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- Microsoft® Windows® operating system, Microsoft® Windows® 95 operating system, Microsoft® Windows® 98 operating system, Microsoft® Windows® 2000 operating system, Microsoft® Windows® XP operating system are registered trademarks of Microsoft Corporation in the United States and/or other countries.
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 - DeviceNet is a registered trademark of ODVA (Open DeviceNet Vendor Association, Inc.)
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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	4α H 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 α 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 α 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

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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

The D.NET system enables users to set system parameters for the S10mini D.NET module and to display S table information, hard error information, slave error information, log information of refresh time, F/D functions, and DeviceNet serial numbers through operations similar to those for common Windows® applications.

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.

<Hardware other than PC>

- CPU module for S10mini series
- Power supply for S10mini series
- D.NET module (LQE070, LQE170, LQE175) for S10mini series
- Mount base for S10mini series
- Connection cable between the personal computer and PCs
- Remote I/O stations, other power supplies and mount bases, option modules, I/O modules, and wiring as required

NOTICE

Users of this product require knowledge of the Windows® environment and user interface. The D.NET 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 D.NET system.

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2 INSTALLATION

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 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 (*)

This section describes how to start up D.NET system.

- (1) The system to be installed by each system is automatically registered in the [Start] menu of Windows®. From this [Start] menu, select [Program (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.

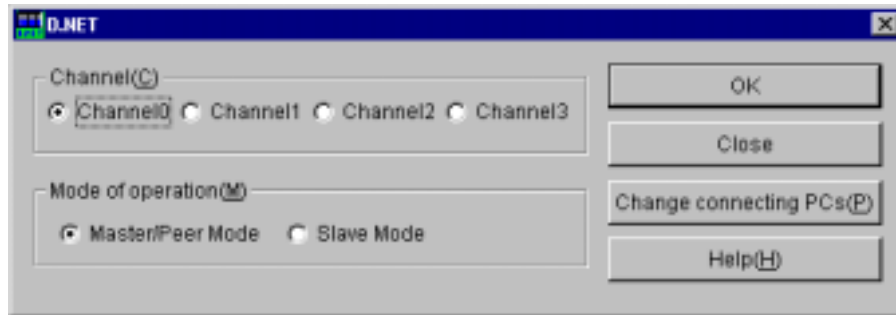
<Executable File Storage Directory Table>

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	4 α LADDER CHART SYSTEM	S-7890-17	C:\Hitachi\S10\4ALDC	S10Ladder_4A.exe
12	4 α H 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

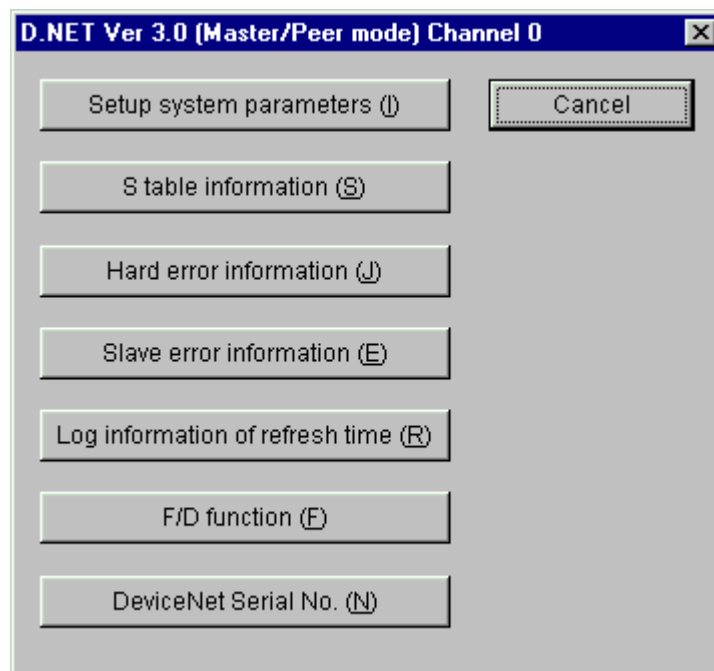
(*1) Directory name when “C” is the drive name of installing destination.

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

- (2) D.NET system starts and the [D.NET] window is displayed.
Select a “Channel” and a “Mode of operation”, then click the button.

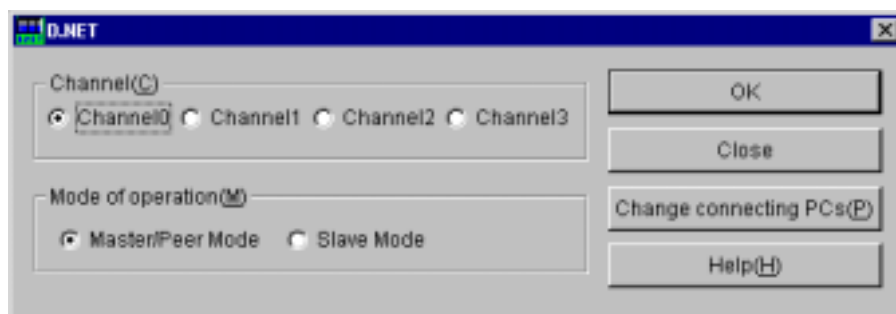


- (3) The [D.NET] window is displayed. Click a desired command.



2.4 Terminating the System

Click the or button on the [D.NET] window.



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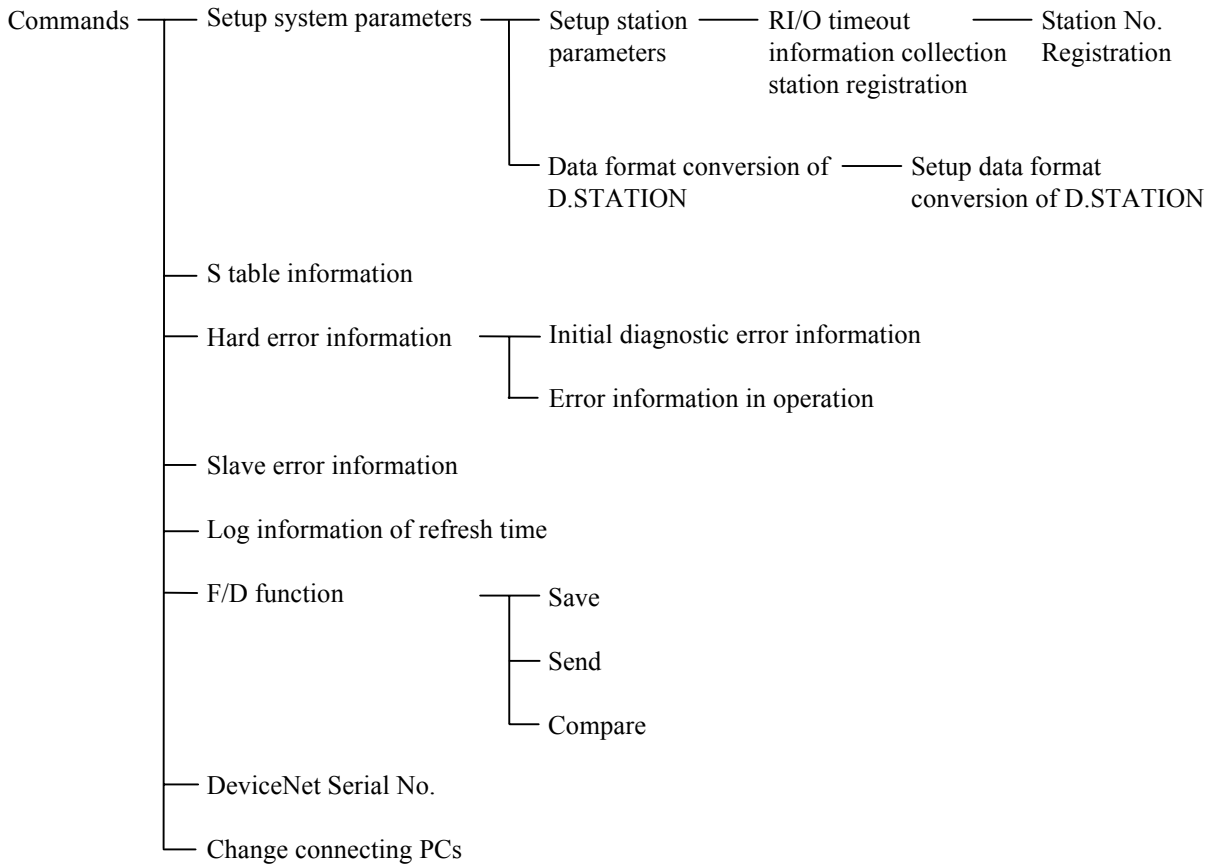
3 COMMANDS

3 COMMANDS

3.1 Command System

The D.NET 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.



NOTE

- To confirm the D.NET module microprogram versions (hereinafter referred to as the D.NET module versions) mentioned in the descriptions of commands, note the title section of a window or the CPU indicator.

D.NET module version	Window title section	CPU indicator
Ver1.0 Rev0.0	Ver1.0	DN*1.0
Ver2.0 Rev0.0	Ver2.0	DN*2.0
Ver2.0 Rev1.0	Ver2.0	DN*2.1
Ver3.0 Rev0.0	Ver3.0	DN*3.0

The “*” symbol portion of “DN*” represents the channel (0 to 3).

- The table below shows the D.NET module versions supported by the D.NET system. If setup is performed for a version not supported by the D.NET system, only the functions and items supported by the D.NET system take effect.

D.NET system issue number	D.NET module version			
	Ver1.0 Rev0.0	Ver2.0 Rev0.0	Ver2.0 Rev1.0	Ver3.0 Rev0.0
07-00	√	√	ns	ns
07-01	√	√	√	ns
07-02	√	√	√	ns
07-03	√	√	√	√
07-04	√	√	√	√

√: Supported ns: Not supported

3 COMMANDS

3.2 Setting Up System Parameters

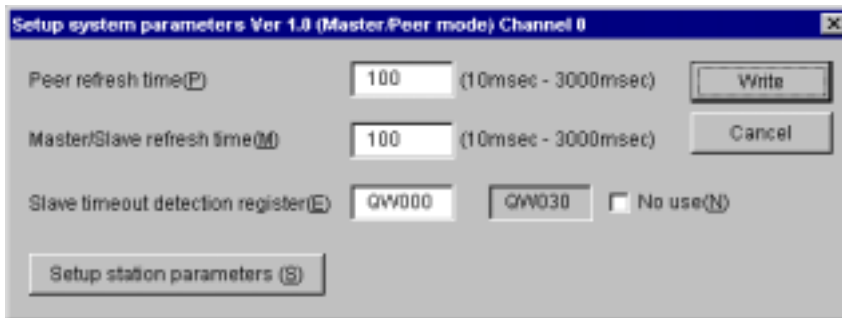
Function: This command sets system parameters and writes all settings (system parameters and station parameters) to the PCs.

The slave mode is not available in D.NET module version 1.0 (hereinafter simply called D.NET module Ver1.0).

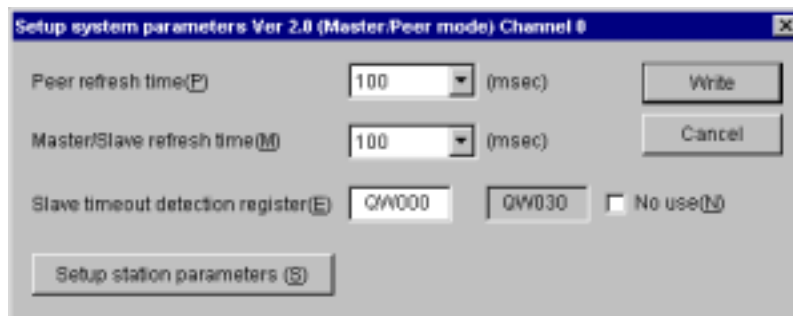
The parameters edited by this tool cannot be saved in the personal computer by using the F/D function until they have been written to the PCs. (See “3.7 F/D Function.”)

Operation: See the operation procedure below.

- (1) Click the **Setup system parameters** button on the [D.NET] window.
- (2) The [Setup system parameters] window is displayed, which shows the settings saved in the PCs. The contents of the displayed window vary with the D.NET module version.



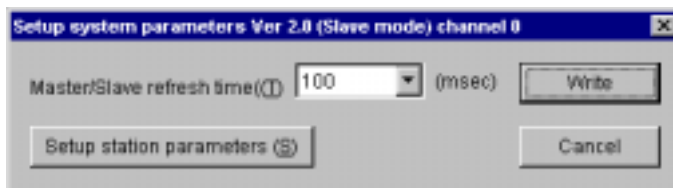
(D.NET module Ver1.0, master/peer mode)



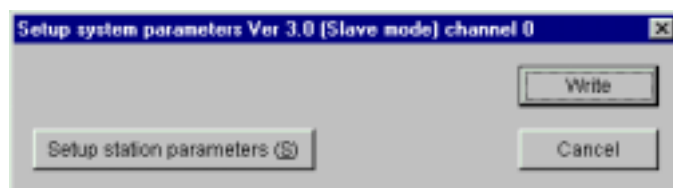
(D.NET module Ver2.0, master/peer mode)



(D.NET module Ver3.0, master/peer mode)



(D.NET module Ver2.0, slave mode)



(D.NET module Ver3.0, slave mode)

- (3) Click the button to write the settings to the PCs or the button to cancel writing of the settings.

NOTE

- As regards “Cooperation with PCs OK line,” perform setup as indicated below.
 Unchecked: The D.NET module starts communication without regard to the PCs OK line (default).
 Checked: The D.NET module starts communication when the PCs OK line turns ON. It stops communication when the signal turns OFF.
- If the “Cooperation with PCs OK line” function is enabled, you should bear in mind that the D.NET module communication stops when the PCs OK line turns OFF.

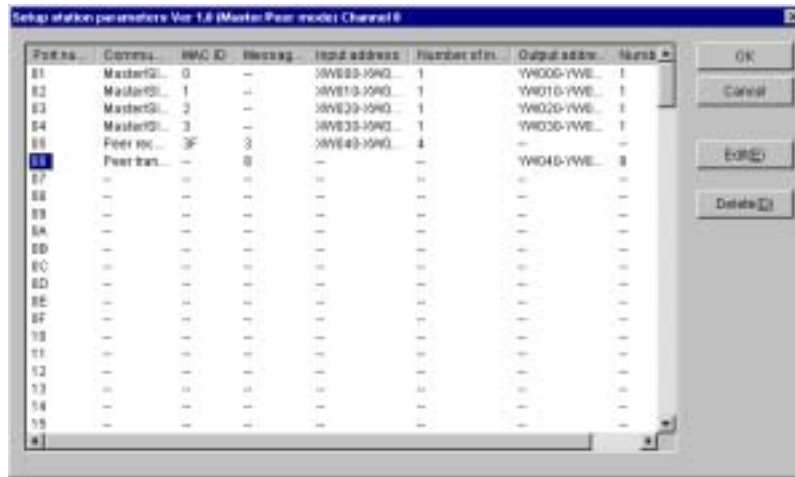
3 COMMANDS

3.2.1 Setting up station parameters (Master/Peer mode)

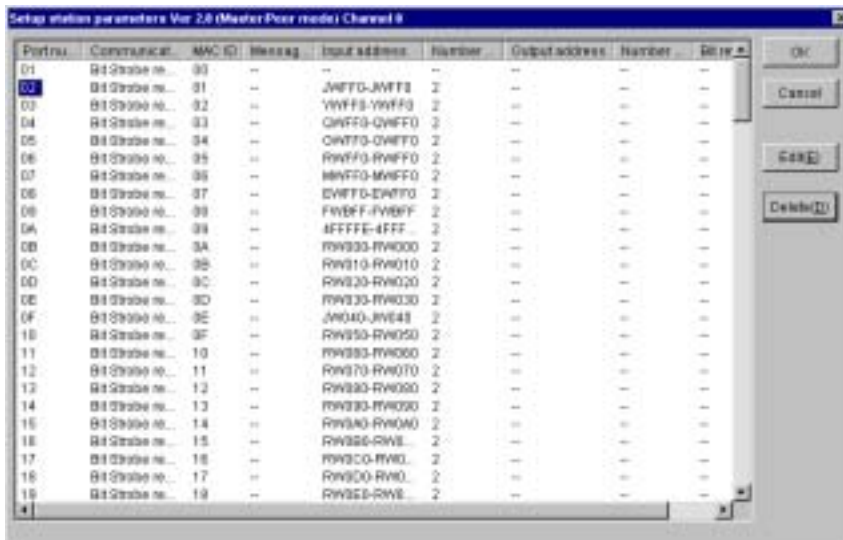
Function: This command is used to edit the settings of station parameters.

Operation: See the operation procedure below.

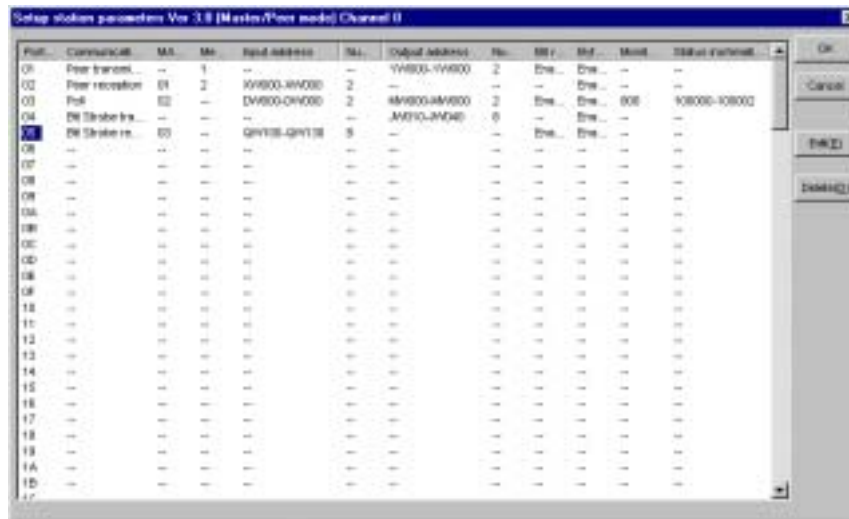
- (1) Click the Setup station parameters button on the [Setup system parameters] window (master/peer mode).
- (2) The [Setup station parameters] window is displayed. Click a “Port number” whose parameters you want to edit and click the Edit button.



(D.NET module Ver1.0)

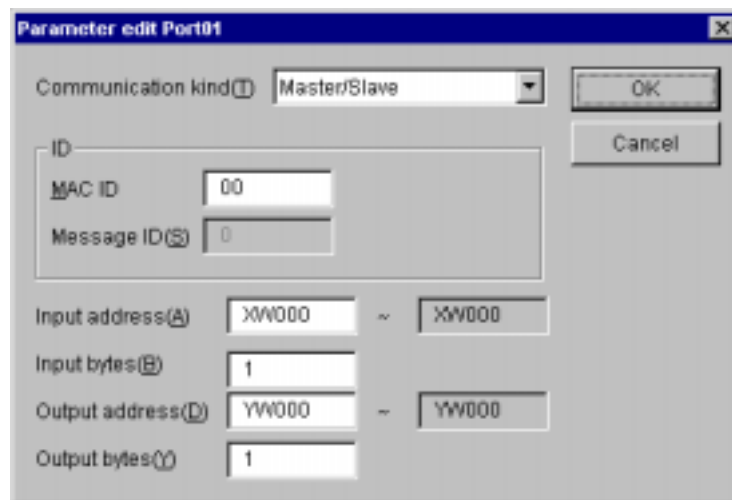


(D.NET module Ver2.0)



(D.NET module Ver3.0)

- (3) The [Parameter edit] window is displayed. Select a “Communication kind” you want to use, then specify the parameters.



(D.NET module Ver1.0)

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(D.NET module Ver2.0)



(D.NET module Ver3.0)

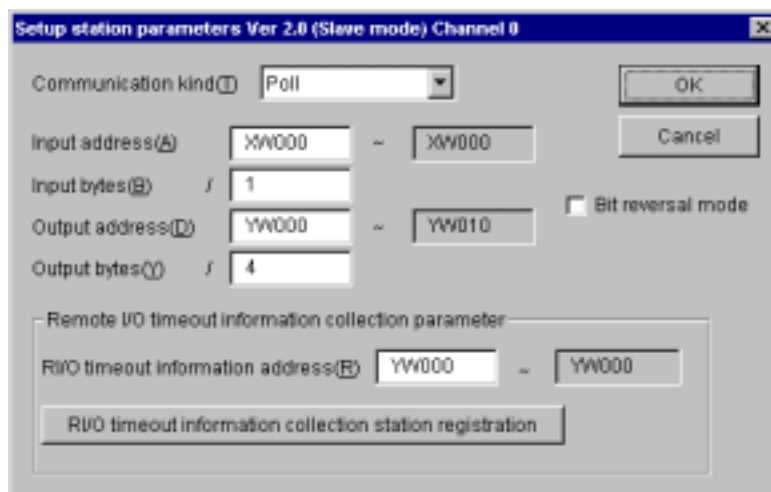
- (4) Click the **OK** button when the editing is completed or the **Cancel** button to cancel the settings you have just made.

3.2.2 Setting up station parameters (Slave mode)

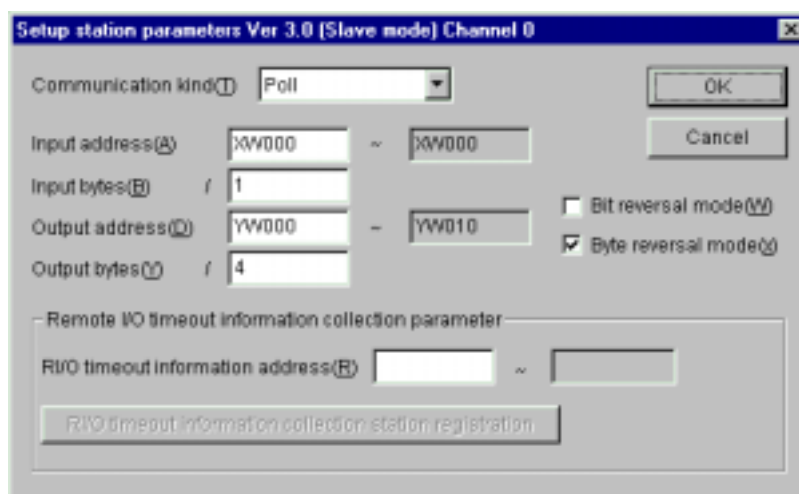
Function: This command is used to edit the settings of station parameters. (The slave mode is not available in D.NET module Ver1.0.)

Operation: See the operation procedure below.

- (1) Click the Setup station parameters button on the [Setup system parameters] window (slave mode).
- (2) The [Setup station parameters] window is displayed. Select a “Communication kind” you want to use, then specify the parameters.



(D.NET module Ver2.0)



(D.NET module Ver3.0)

- (3) Click the OK button when the editing is completed or the Cancel button to cancel the settings you have just made.

3 COMMANDS

3.2.3 Remote I/O timeout information collection station registration (Slave mode)

Function: This command registers or deletes a station that collects remote I/O timeout information. This command can register up to 24 stations.

Operation: See the operation procedure below.

- (1) Enter an RI/O timeout information address at the [Setup station parameters] window (see the window of the preceding page). The RI/O timeout information address is a memory location that stores the timeout information for remote I/O operations. The address must be in the range of “Output addresses” specified by such addresses on the [Setup station parameters] window. The end “RI/O timeout information address” varies according to the number of stations that are registered via the [RI/O timeout information collection station registration] window (see <Remote I/O timeout information>).

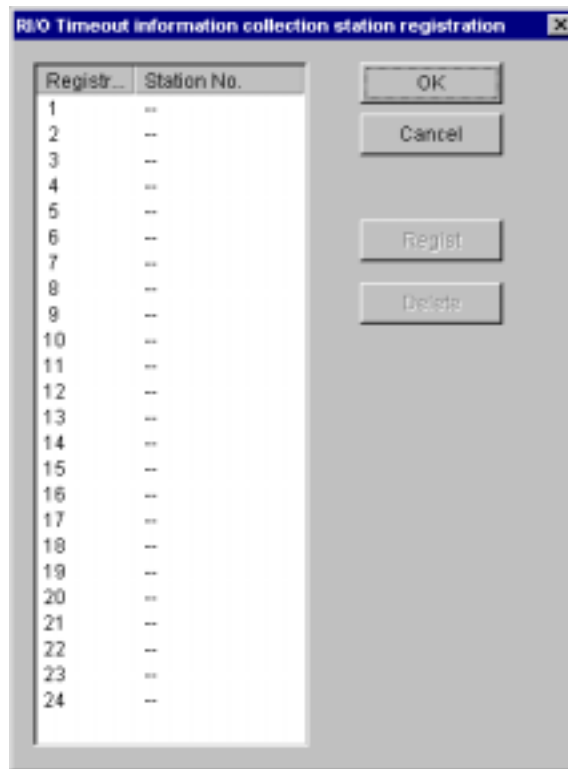
Note: As timeout information is written to a location in the output area that is specified as the RI/O timeout information address (that is, the existing PI/O data is overwritten with the timeout information), the lost PI/O data can no longer be read from that address.

Example:

Let's assume that the output area of the slave D.NET module is from YW000 to YW3F0, and that the RI/O timeout information address is YW000, and that the input area of the master D.NET module is from XW000 to XW3F0. Then, the PI/O data in the XW000 area of the master D.NET module is overwritten with the RI/O timeout information from the slave.

- (2) Click the RI/O timeout information collection station registration button on the [Setup station parameters] window.

- (3) The [RI/O Timeout information collection station registration] window is displayed. (See the figure below.)



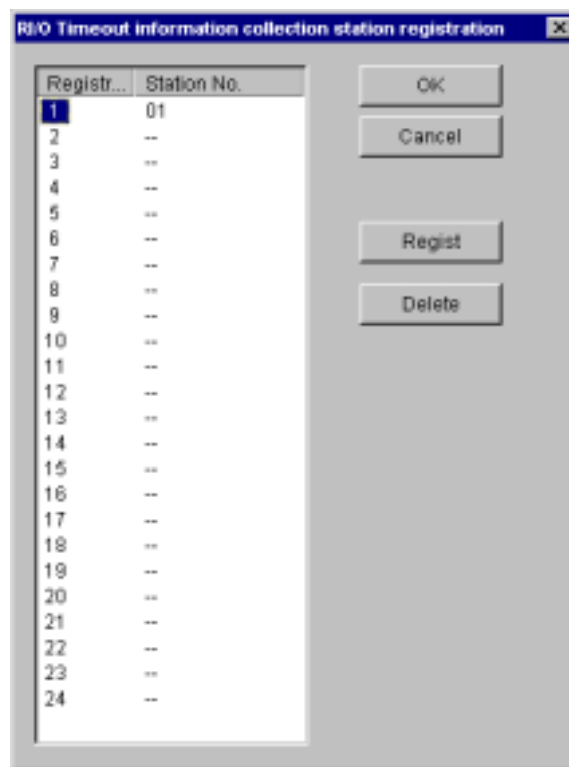
<Registering a station>

- (1) Click a desired “Registration number” on the [RI/O Timeout information collection station registration] window and click the button or double-click the “registration number.”
- (2) The [Station No. Registration] window is displayed. (See the figure below.)



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- (3) Enter a desired remote I/O station number (in hexadecimal), which collects remote I/O timeout information in the “Station No.” box, and click the **OK** button. The specified station number is displayed on the [RI/O Timeout information collection station registration] window. When you click the **Cancel** button, the specified station number is not displayed on the [RI/O Timeout information collection station registration] window. Available station numbers are 0 through 7F. When station No. 01 is registered for registration No. 1, the station number is displayed as shown below.



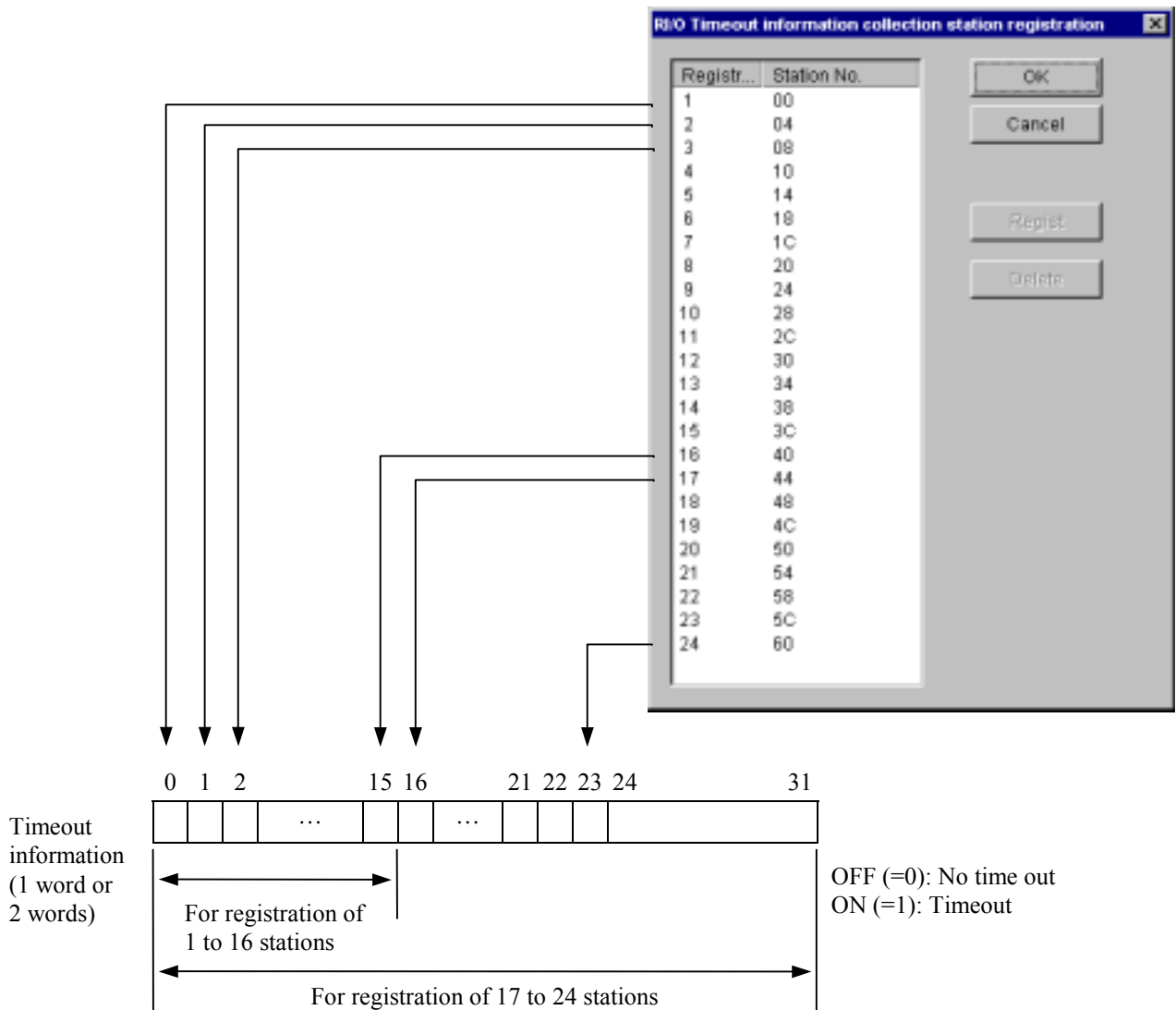
<Deleting a station>

Click a “Registration number” you want to delete on the [RI/O Timeout information collection station registration] window and click the **Delete** button. The specified station number is deleted from the list on the [RI/O Timeout information collection station registration] window.

<Remote I/O timeout information>

Station numbers specified on the [R/I/O Timeout information collection station registration] window are placed in one-to-one correspondence with the bits of the remote I/O timeout information.

Remote I/O operations can take place at a maximum of 12 distributed stations per communication line (a total of 24 stations), and two words of timeout information are used for registration of 17 stations or more.

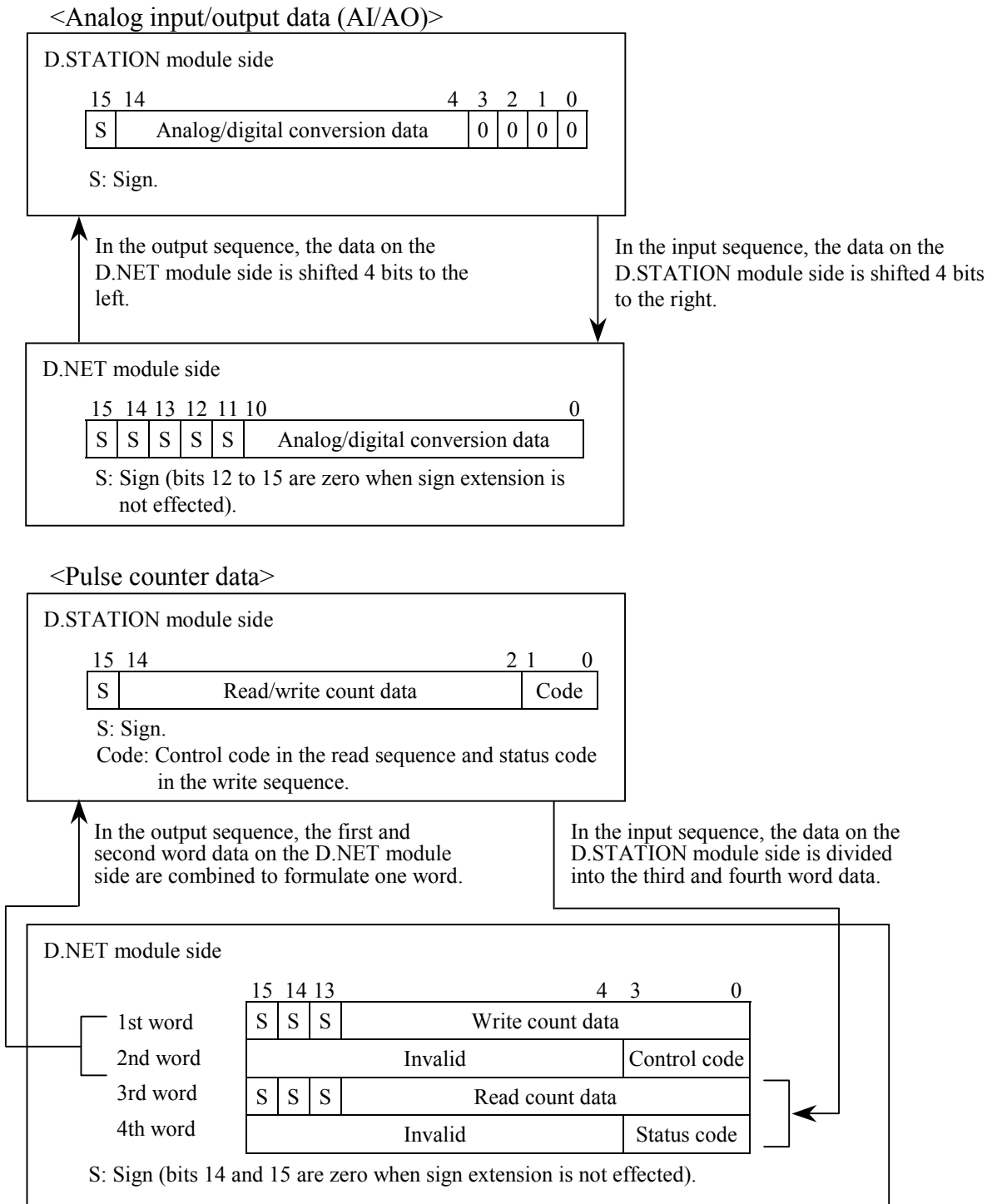


NOTE

- The information set on the [R/I/O Timeout information collection station registration] window is not reflected in the PCs until the button is clicked on the [Setup system parameters] window.
- The remote I/O timeout information collection function is capable of working with D.NET modules of version 2.0, revision 1.0 and later and not with the D.NET modules of earlier versions.
- The remote I/O timeout information collection function is supported only for transmission (output) in the slave mode. (This function is not available in the master/peer mode.)
- The output area in which timeout information is set cannot be used for remote input.

3.2.4 Setup data format conversion of D.STATION

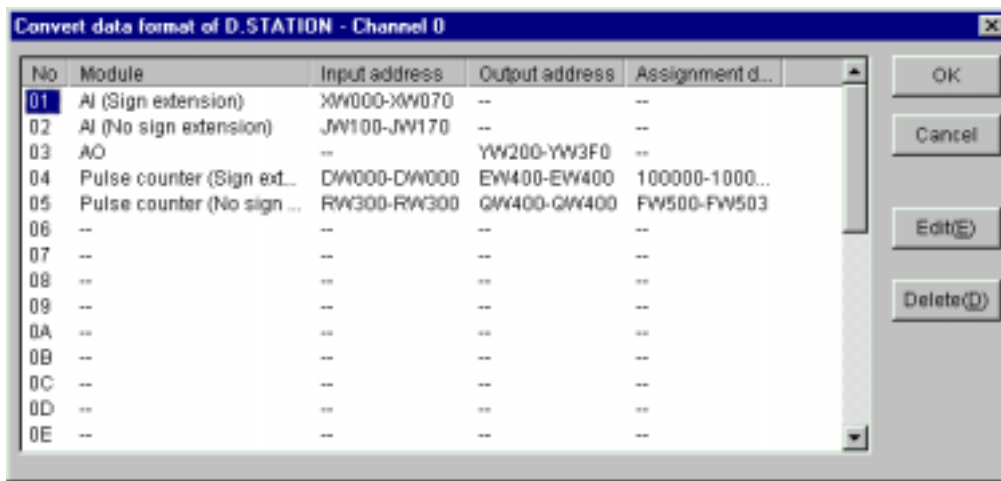
Function: Converts the input/output data of the analog module or pulse counter module used by the D.STATION. The conversion format is shown below.



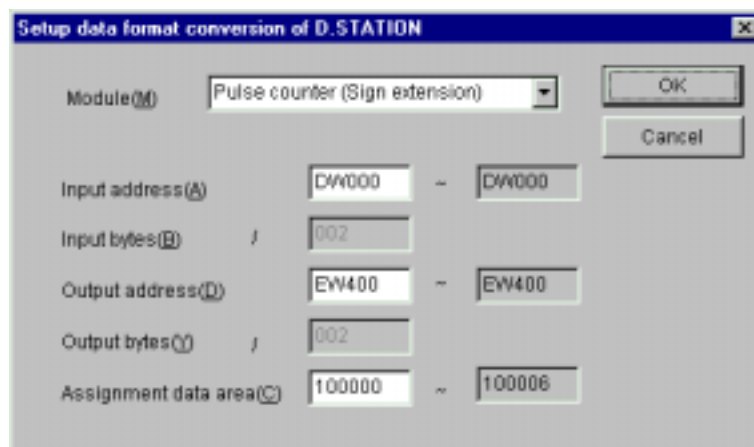
3 COMMANDS

Operation: See the operating procedure below.

- (1) From the [Setup system parameters] window for the master/peer mode, click the **Setup data format conversion of D.STATION** button.
- (2) When the [Convert data format of D.STATION] window is displayed, click the number for editing and then click the **Edit** button.



- (3) When the [Setup data format conversion of D.STATION] window is displayed, select a module and then enter various setup data.



- (4) After completion of setup, click the **OK** button. To cancel your setup data entries, click the **Cancel** button.

NOTE

The D.STATION data format conversion setup function is supported by D.NET module versions 3.0 and later and D.NET system issue numbers 07-03 and above. It cannot be used with the earlier versions of the D.NET module or D.NET system.

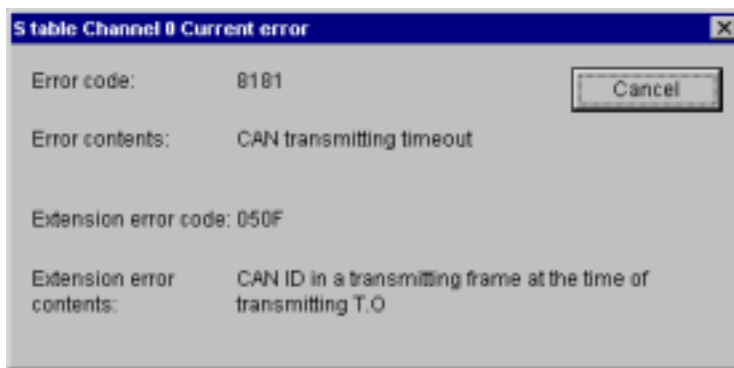
3 COMMANDS

3.3 S Table Information

Function: This command displays S table information.

Operation: See the operation procedure below.

- (1) Click the button on the [D.NET] window.
- (2) The [S table] window is displayed.



- (3) Click the button to exit this function.

The table below lists error codes displayed as S table information and their meanings.

No.	Error code	Error name	Error code extension		Meaning of error code extension	Remedy
			Upper byte	Lower byte		
1	0x7381	Transmission bus off	None		None	(*1)
2	0x4281	Duplicated MACID	MAC ID (0x0000 to 0x003F)		The specified MAC ID already exists.	(*2)
3	0x5188	Transmission number setting error	None		None	Check the parameter settings.
4	0x5189	Parameter setting error	0x01 Invalid port number	Port number (0x00-0xA0)	The port number is not in the range of /1 to /A0.	
			0x02 Invalid message ID	Port number (0x00-0xA0)	The message ID is not in the range of /0 to /F.	
			0x03 Invalid cycle	Port number (0x00-0xA0)	The transmission cycle is not any of 10, 20, 50, 100, 200, 500, and 1000 ms.	
			0x04 Invalid number of words transferred	Port number (0x00-0xA0)	The number of transferred words is not in the range of /0 to /100 bytes.	
			0x05 Coexistence of transmission modes	Port number (0x00-0xA0)	Both the master/peer mode and the slave mode are specified.	
			0x06 Invalid MACID	Port number (0x00-0xA0)	The specified MACID is invalid (not from 0 to 3F) or a local MACID.	
			0x07 Invalid communication kind	Port number (0x00-0xA0)	The kind of communication is not any of peer transmission, peer reception, poll, and bit strobe.	
			0x08 Invalid transfer address	Port number (0x00-0xA0)	The address is not in the preset transfer address range.	
			0x0A Invalid number of words transferred	(Always 0x00)	The number of transferred words is not in the range of /0 to /8 bytes.	
			0x0B Invalid registration count	MAC ID (0x00-0x3F)	The number of registering data format conversion of D.STATION is exceeded. (The number of registration per one D.STATION is within 8)	
			0x10 Invalid number of words transmitted	(Always 0x00)	In slave mode, the number of transmitted words is not in the range of /0 to /100 bytes.	
			0x11 Invalid number of words received	(Always 0x00)	In slave mode, the number of received words is not in the range of /0 to /100 bytes.	
			0x12 Coexistence of transmission modes	(Always 0x00)	In slave mode, both the master/peer mode and the slave mode are specified.	
			0x13 Invalid communication kind	(Always 0x00)	In slave mode, the kind of communication is not poll.	
0x14 Invalid transfer address	(Always 0x00)	In slave mode, the address is not in the preset transfer address range.				
5	0x8181	CAN transmission timeout	CAN ID		CAN ID in a transmission frame suffering a transmission timeout.	(*1)

(*1) Check for connector looseness, improper cable wiring, and incorrect settings for transmission rate, MAC ID, and MODU NO.

(*2) Check the Node Address setup switch setting.

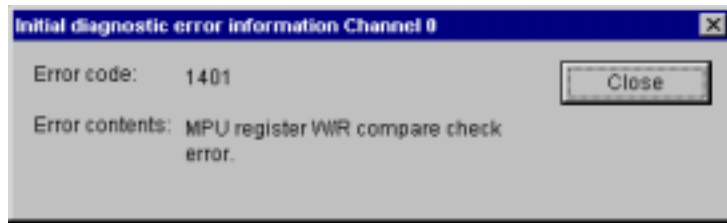
3 COMMANDS

3.4 Hard Error Information

Function: This command displays hard error information.

Operation: See the operation procedure below.

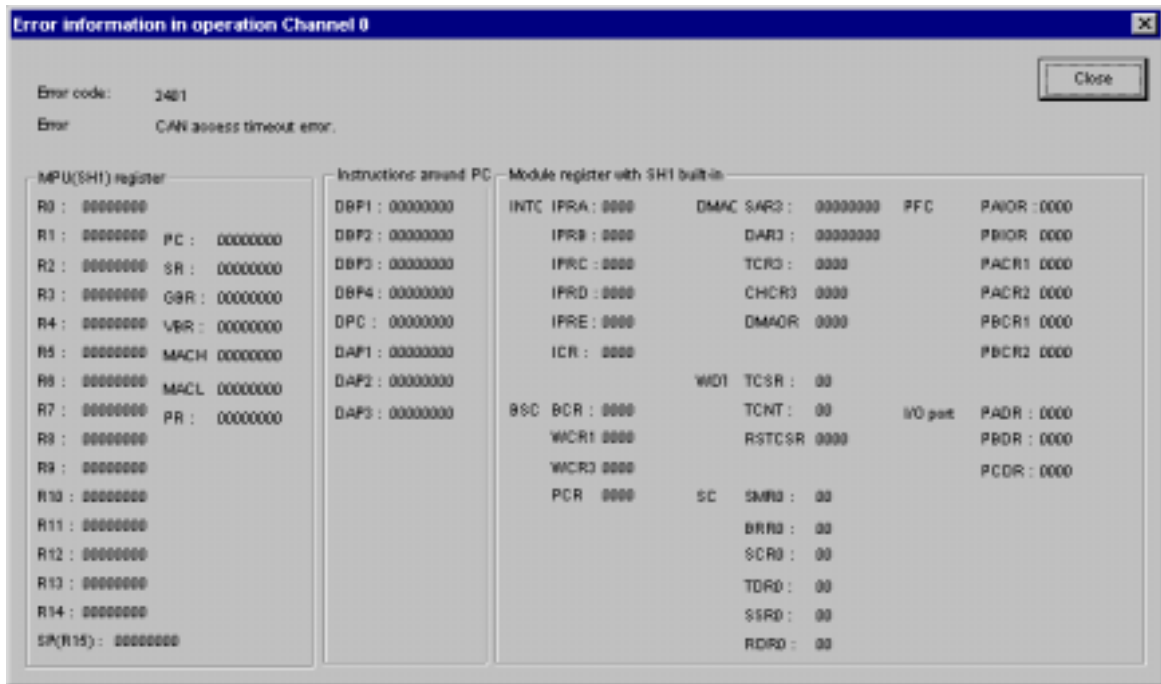
- (1) Click the Hard error information button on the [D.NET] window.
- (2) The [Initial diagnostic error information] window is displayed when an initial diagnostic error occurs.



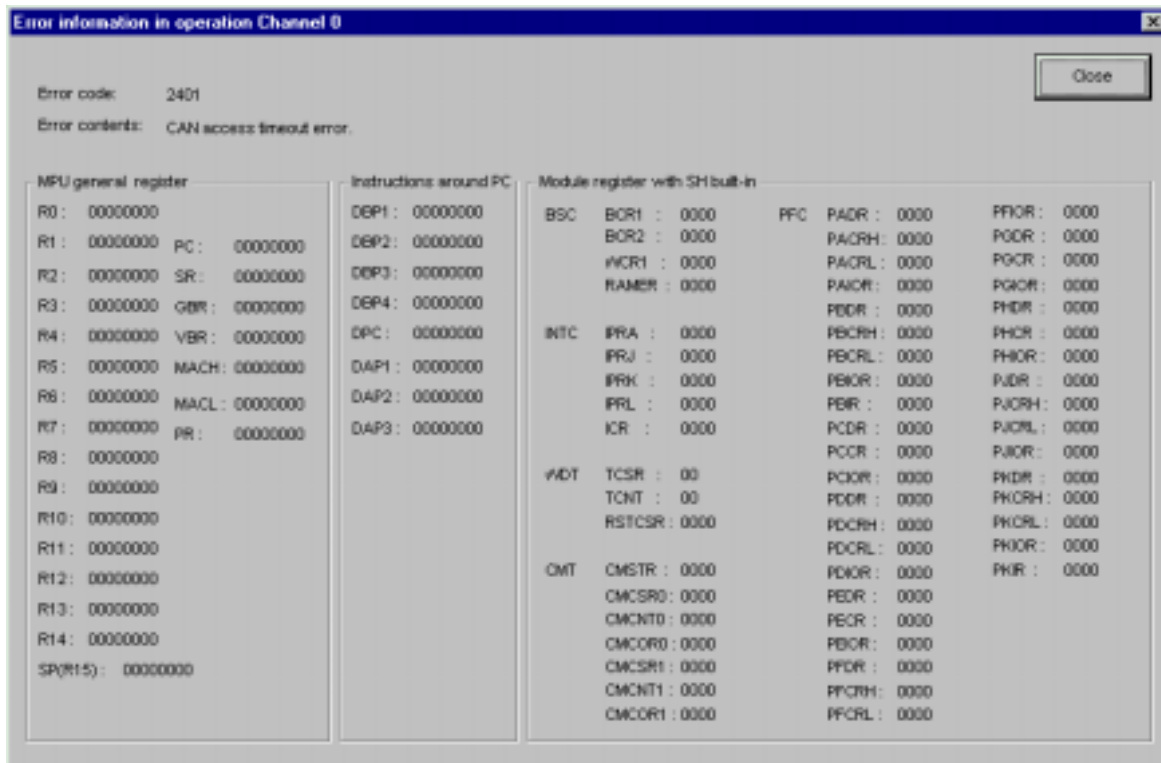
- (3) Click the Close button to close the [Initial diagnostic error information] window.
- (4) The table below lists error codes, error contents, and other display items.

No.	Error code	Meaning	Other display items	Remedy	
1	0x1401	MPU register W/R compare check error	None	If error recovery is not achieved by resetting the PCs, it is conceivable that the D.NET module may be defective. Replace the module.	
2	0x1402	MPU calculation check error	None		
3	0x1403	CAN memory compare check error	CAN memory address, write data, and read data		
4	0x1404	MPU built-in memory compare check error	Memory address write data, and read data		
5	0x1405	Compare check error in flash memory diagnosis	Flash memory address, read data 1, and read data 2		
6	0x1406	Checksum error in flash memory diagnosis (μ Prog)	Flash memory address and sum value		
7	0x1407	Compare check error in SRAM diagnosis	SRAM address, write data, and read data		
8	0x1408	Compare check error in copying from flash memory to SRAM (μ Prog)	SRAM address, write data, and read data		
9	0x1409	Error in ITU (timer built in the MPU) diagnosis	Error No. 1 = 1 ms timer error (timeout earlier than a preset time) Error No. 2 = 1 ms timer error (timeout later than a preset time) Error No. 3 = 25 ms timer error (timeout earlier than a preset time) Error No. 4 = 25 ms timer error (timeout later than a preset time)		
10	0x140A	Invalid MODU NO. switch setting	MODU NO. switch setting		Check the MODU NO. switch setting.
11	0x140B	Compare check error in copying from flash memory to SRAM (sub-OS and parameters)	Flash memory address, write data, and read data		If error recovery is not achieved by resetting the PCs, it is conceivable that the D.NET module may be defective. Replace the module.
12	0x140C	Checksum error in flash memory diagnosis (sub-OS)	Starting address of flash memory and sum value		
13	0x140D	Checksum error in flash memory diagnosis (parameters)	Starting address of flash memory and sum value		

- (5) When an error occurs during operation of the system, the [Error information in operation] window is displayed. (If both a while-in-operation error and an initial diagnostic error occur, the while-in-operation error information is displayed.)



(D.NET module Ver1.0, 2.0)



(D.NET module Ver3.0)

3 COMMANDS

(6) Click the button to close the [Error information in operation] window.

(7) The table below lists while-in-operation error codes and their meanings.

If an error occurs, reset the PCs. If error recovery is not achieved by resetting the PCs, it is conceivable that the D.NET module may be defective. Replace the module.

No.	Error code	Meaning
1	0x2401	CAN access timeout error
2	0x2402	SRAM write protect error
3	0x2403	Shared memory parity error
4	0x2404	Watch-dog timer timeout error
5	0x2405	Reset timer overflow error
6	0x3404	General illegal instruction
7	0x3406	Slot illegal instruction
8	0x3409	Address error
9	0x34XX	MPU exception error
10	0x346C	SRAM parity error

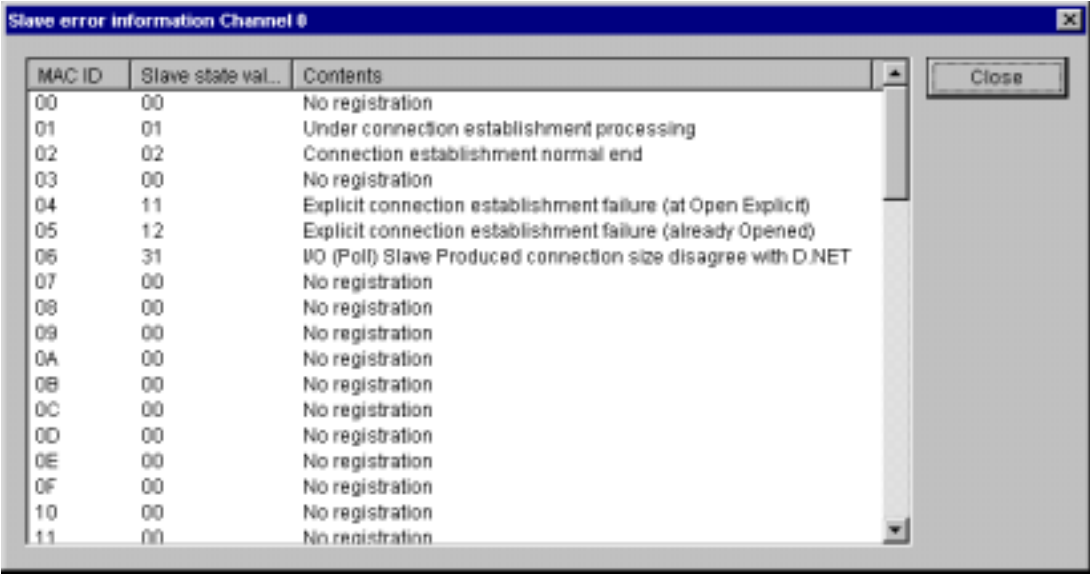
XX: Any value in the range of 00 to FF (except 04, 06, 09, and 6C).

3.5 Slave Error Information

Function: This command displays slave error information.

Operation: See the operation procedure below.

- (1) Click the button on the [D.NET] window.
- (2) The [Slave error information] window is displayed.



The screenshot shows a window titled "Slave error information Channel 0" with a table of error information. The table has three columns: "MAC ID", "Slave state val.", and "Contents". The data is as follows:

MAC ID	Slave state val.	Contents
00	00	No registration
01	01	Under connection establishment processing
02	02	Connection establishment normal end
03	00	No registration
04	11	Explicit connection establishment failure (at Open Explicit)
05	12	Explicit connection establishment failure (already Opened)
06	31	VO (Poll) Slave Produced connection size disagree with D.NET
07	00	No registration
08	00	No registration
09	00	No registration
0A	00	No registration
0B	00	No registration
0C	00	No registration
0D	00	No registration
0E	00	No registration
0F	00	No registration
10	00	No registration
11	00	No registration

- (3) Click the button to close the [Slave error information] window.

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The table below lists slave error status codes and their meanings. If the slave status value is other than 0x00, 0x01, or 0x02, check for incorrect parameter settings, improper wiring, and other abnormalities.

No.	Slave error status code	Meanings
1	0x00	Not registered
2	0x01	Now connecting
3	0x02	Connection completed successfully
4	0x80	Timeout (an explicit connection failed).
5	0x81	Timeout (an I/O [Poll] connection failed).
6	0x82	Timeout (an I/O [Bit Strobe] connection failed).
7	0x83	Timeout (an I/O [Poll] connection succeeded but an I/O [Bit Strobe] connection failed).
8	0x84	Timeout (the I/O [Poll] slave cannot get the "Produced" connection size).
9	0x85	Timeout (the I/O [Poll] slave cannot get the "Consumed" connection size).
10	0x86	Timeout (Explicit EPR setting failed).
11	0x87	Timeout (Poll EPR setting failed).
12	0x88	Timeout (Bit Strobe EPR setting failed).
13	0x89	Timeout (Bit Strobe EPR setting failed, but polling succeeded).
14	0x90	Poll response timeout
15	0x91	Bit Strobe response timeout
16	0x11	Explicit connection failed (Open Explicit error).
17	0x12	Explicit connection failed (already opened and cannot be re-opened).
18	0x13	Explicit connection failed (already connected to the other master and cannot be opened).
19	0x14	Explicit connection failed (M/S service error and cannot be opened).
20	0x15	Explicit connection failed (already established the M/S service and cannot be opened).
21	0x16	I/O (Poll) connection failed (an error response received).
22	0x17	I/O (Poll) connection failed (already established an I/O connection).
23	0x18	I/O (Poll) connection failed (already connected to the other master and cannot be opened).
24	0x19	I/O (Bit Strobe) connection failed (an error response received).
25	0x1A	I/O (Bit Strobe) connection failed (an error response received). An I/O (Poll) connection succeeded.
26	0x1B	I/O (Bit Strobe) connection failed (an I/O connection is already established).
27	0x1C	I/O (Bit Strobe) connection failed (an I/O connection is already established); an I/O (Poll) connection succeeded.
28	0x1D	I/O (Bit Strobe) connection failed (already connected to the other master and cannot be opened).
29	0x1E	I/O (Bit Strobe) connection failed (already connected to the other master and cannot be opened); an I/O (Poll) connection succeeded.
30	0x21	EPR setting failed (Explicit).
31	0x22	EPR setting failed (I/O [Poll]).
32	0x23	EPR setting failed (I/O [Bit Strobe]).
33	0x24	EPR setting failed (I/O [Bit Strobe]); an I/O (Poll) connection succeeded.
34	0x31	On the I/O (Poll) slave side, the produced connection size is not equal to that of D.NET.
35	0x32	On the I/O (Poll) slave side, the consumed connection size is not equal to that of D.NET.

No.	Slave error status code	Meanings
36	0x33	On the I/O (Poll) slave side, the produced connection size cannot be obtained.
37	0x34	On the I/O (Poll) slave side, the consumed connection size cannot be obtained.
38	0x2D	EPR setting failure at the time of I/O communication (error response reception).
39	0x2E	EPR setting failure at the time of I/O communication (response timeout).
40	0x2F	I/O status information acquisition failure.
41	0x50	Explicit connection establishment failure (already assigned).
42	0x51	Explicit connection establishment failure (except already opened, already assigned).
43	0x52	Explicit connection establishment failure (already opened).
44	0x70	Group3 Explicit connection free failure.
45	0x8A	Explicit connection establishment failure (response timeout).
46	—	Local station

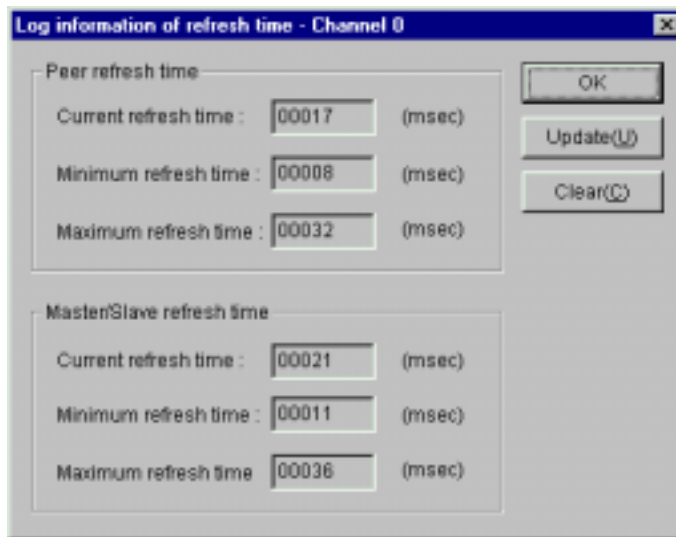
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3.6 Log Information of Refresh Time

Function: Displays the current, minimum, and maximum values of peer refresh time and master/slave refresh time.

Operation: See the operation procedure below.

- (1) From the [D.NET] window, click the button.
- (2) The [Log information of refresh time] window is displayed. It shows the refresh time values that prevail when it is displayed.



- (3) To display the up-to-date refresh time, click the button.
- (4) To clear the displayed refresh time values, click the button.
- (5) To close the refresh time log information window, click the button.

NOTE

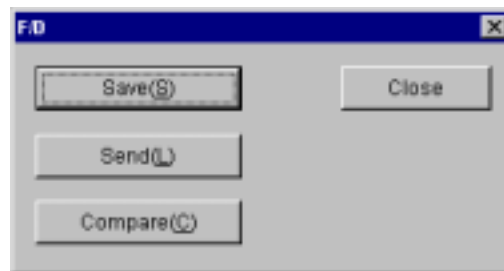
The refresh time log information function is supported by D.NET module versions 3.0 and later and D.NET system issue numbers 07-03 and above. It cannot be used with the earlier versions of the D.NET module or D.NET system.

3.7 F/D Function

Function: This command saves system parameters and station parameters information from the PCs to a personal computer, loads (or sends) the saved parameter information to the PCs, and compares the retained settings of the PCs with the contents of the saved file.

Operation: See the operation procedure below.

- (1) Click the F/D function button on the [D.NET] window.
- (2) The [F/D] window is displayed.



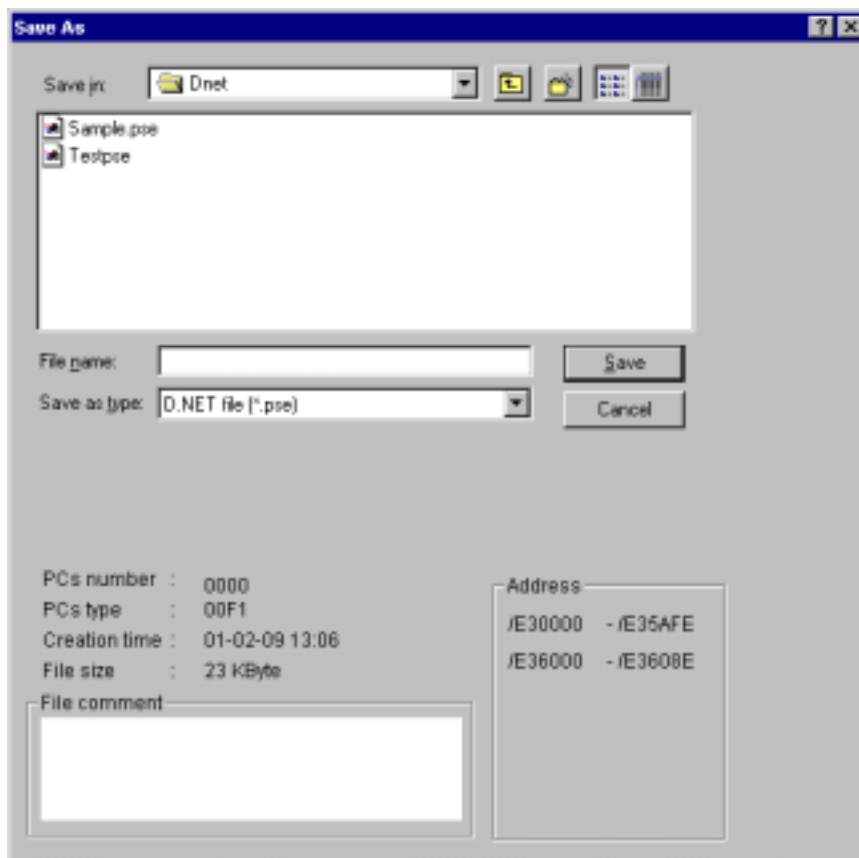
3 COMMANDS

3.7.1 Saving

Function: This command saves system parameters and station parameters information from the PCs to a file in the personal computer.

Operation: See the operation procedure below.

- (1) Click the button on the [F/D] window.
- (2) The [Save As] window is displayed. Enter a "File name" and, if necessary, a file comment (up to 128 characters).



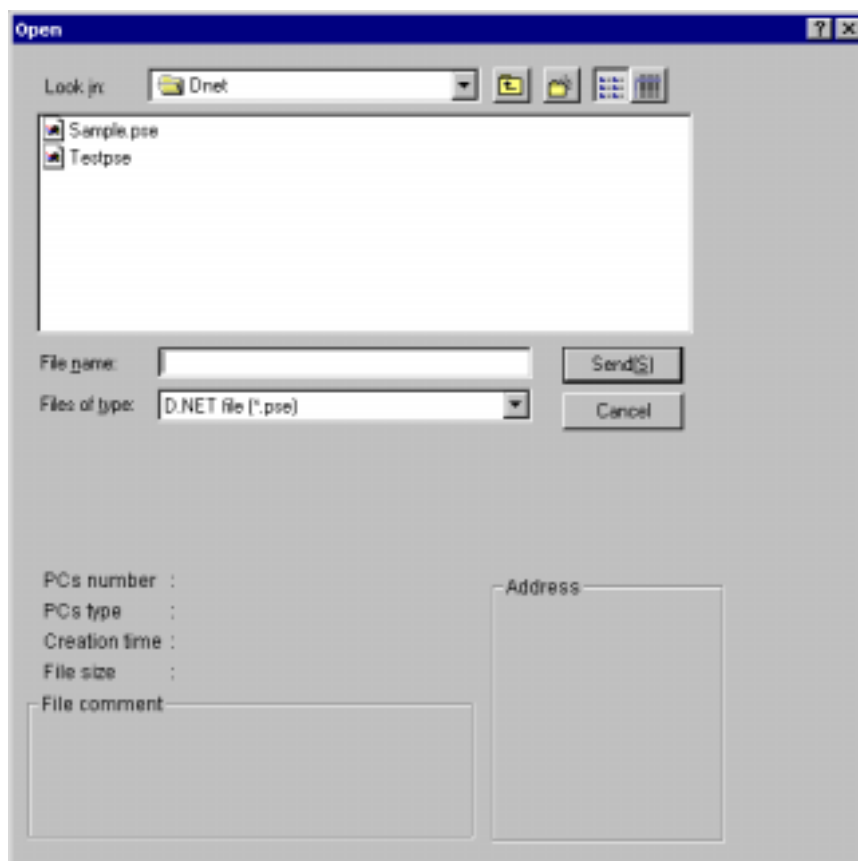
- (3) After the setting has been completed, click the button to save the parameters or the button to cancel saving.

3.7.2 Sending

Function: This command loads the saved system parameters and station parameters information from the personal computer to the PCs.

Operation: See the operation procedure below.

- (1) Click the button on the [F/D] window.
- (2) The [Open] window is displayed. Enter a "File name."



- (3) After the setting has been completed, click the button to send the parameters or the button to cancel sending.

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3.7.3 Comparing

Function: This command compares the saved system parameters and station parameters information in the personal computer with the settings retained in the PCs.

Operation: See the operation procedure below.

- (1) Click the button on the [F/D] window.
- (2) The [Open] window is displayed. Enter a "File name."



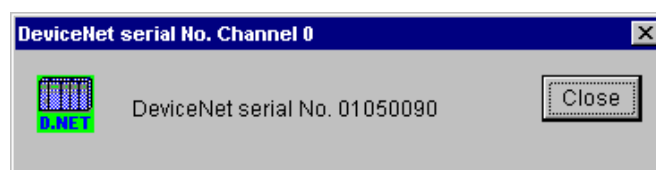
- (3) After the setting has been completed, click the button to compare information or the button to cancel comparison.

3.8 DeviceNet Serial Number

Function: This command displays a DeviceNet serial number.

Operation: See the operation procedure below.

- (1) Click the button on the [D.NET] window.
- (2) The [DeviceNet serial No.] window is displayed.



- (3) Click the button to close the [DeviceNet serial No.] window.

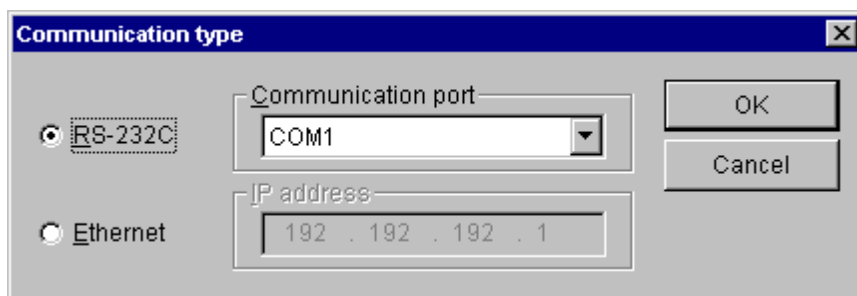
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3.9 Changing Connected PCs

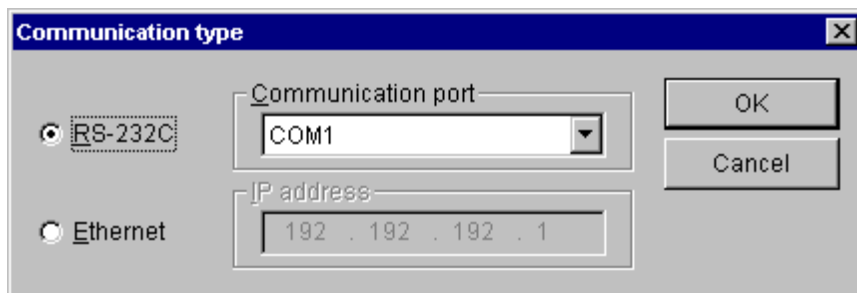
Function: Sets a specified communication type for the PCs and personal computer.

Operation: See the operation procedure below.

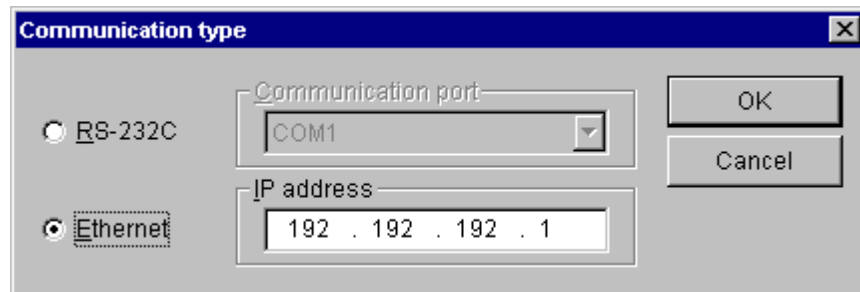
- (1) Click the Change connecting PCs button on the [D.NET] window.
- (2) The [Communication type] window is displayed.



- (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.



- (5) 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.