

FANUC OPEN CNC

CNC Screen Display Function OPERATOR'S MANUAL

- No part of this manual may be reproduced in any form.
- All specifications and designs are subject to change without notice.

The export of this product is subject to the authorization of the government of the country from where the product is exported.

In this manual we have tried as much as possible to describe all the various matters.
However, we cannot describe all the matters which must not be done, or which cannot be done, because there are so many possibilities.
Therefore, matters which are not especially described as possible in this manual should be regarded as "impossible".

SAFETY PRECAUTIONS

This manual includes safety precautions for protecting the user and preventing damage to the machine. Precautions are classified into Warnings and Cautions according to their bearing on safety. Also, supplementary information is described as Notes. Read the Warnings, Cautions, and Notes thoroughly before attempting to use the machine.

⚠ WARNING

Applied when there is a danger of the user being injured or when there is a damage of both the user being injured and the equipment being damaged if the approved procedure is not observed.

⚠ CAUTION

Applied when there is a danger of the equipment being damaged, if the approved procedure is not observed.

NOTE

The Note is used to indicate supplementary information other than Warning and Caution.

- Read this manual carefully, and store it in a safe place.

GENERAL WARNINGS AND CAUTIONS

The following warnings and cautions describe the safety precautions related to the use of CNC units. It is essential that these precautions be observed by users to ensure the safe operation of machines equipped with a CNC unit.

WARNING

- 1 Before operating the machine, thoroughly check the entered data. Operating the machine with incorrectly specified data may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.
- 2 Never attempt to machine a workpiece without first checking the programmed value, compensation value, current position, and external signal settings. Also, never attempt to machine a workpiece without first checking the operation of the machine. Before starting a production run, ensure that the machine is operating correctly by performing a trial run using, for example, the single block, feedrate override, or machine lock function, or by operating the machine with neither a tool nor workpiece mounted. Failure to confirm the correct operation of the machine may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.
- 3 Ensure that the specified feedrate is appropriate for the intended operation. Generally, for each machine, there is a maximum allowable feedrate. The appropriate feedrate varies with the intended operation. Refer to the manual provided with the machine to determine the maximum allowable feedrate. If a machine is run at other than the correct speed, it may behave unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.
- 4 When using a tool compensation function, thoroughly check the direction and amount of compensation. Operating the machine with incorrectly specified data may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.
- 5 The parameters for the CNC and PMC are factory-set. Usually, there is no need to change them. When, however, there is no alternative other than to change a parameter, ensure that you fully Failure to set a parameter correctly may result in the machine behaving unexpectedly, possibly causing damage to the workpiece and/or machine itself, or injury to the user.

⚠ CAUTION

- 1 The operator's manual on the CNC screen display function does not cover the functions and operation of CNCs. For details of the functions and operation of a CNC, refer to the operator's manual for the CNC.
- 2 Some machine operations and screen functions are implemented by the machine tool builder. For an explanation of their usage and related notes, refer to the manual provided by the machine tool builder.
- 3 The CNC screen display function is designed to allow standard CNC screens to be displayed on the monitor of a personal computer. With this function, the same operation as the standard CNC operation can be performed. However, there are some operations that cannot be performed with this function. For details, see the notes and limitations described in this manual.

NOTE

Command programs, parameters, and variables are stored in nonvolatile memory in the CNC. Generally, the contents of memory are not lost by a power on/off operation. However, the contents of memory may be erased by mistake, or important data in nonvolatile memory may have to be erased because of recovery from a failure.

To enable the restoration of data as soon as possible if such a situation arises, always make a backup of the data.

WARNINGS AND CAUTIONS RELATING TO THE CNC SCREEN DISPLAY FUNCTION

Warnings and cautions relating to the CNC screen display function are explained in this manual. Before using the function, read this manual thoroughly to become familiar with the provided Warnings, Cautions, and Notes.

 **CAUTION**

- 1 This manual does not explain in detail those operations and parameters that vary from one CNC model to another and which vary with options. For an explanation of such operations and parameters, refer to the relevant CNC manual and the manual supplied by the machine tool builder.
- 2 This manual describes as many reasonable variations in usage as possible. It cannot address every combination of features, options, and commands that should not be attempted. If a particular combination of operations is not described, it should not be attempted.

PREFACE

Thank you for purchasing the FANUC Open CNC CNC screen display function.

The FANUC Open CNC CNC screen display function (simply called "CNC screen display function" from here on) allows the same display and operation as the FS16i/18i/21i, FS15i, or FS15B to be performed on a personal computer connected to the FS16i/18i/21i, FS15i, or FS15B via the high-speed serial bus Type 2, the FS160i/180i/210i or FS150i with a CNC Display Unit with Personal Computer Function, the FS160i/180i/210i with the personal computer function, or a personal computer connected to the FS16i/18i/21i via the Ethernet, the FS160is/180is/210is with a Display Unit for *is* Series CNC and the FS160is/180is/210is with the personal computer function.

NOTE

See Appendix 2, "CNC Screen Display Function for the FS160is/180is/210is," for explanations about the CNC screen display function for the FS160is/180is/210is with a Display Unit for *is* Series CNC and the FS160is/180is/210is with the personal computer function.

The CNC screen display function is supported by Microsoft® Windows® 95/98/NT4.0/2000/CE. This manual does not explain the basic common operations of Windows.

Users who are using Windows for the first time should read the manuals on Windows first to become familiar with the basic operation of Windows.

Read this manual thoroughly to ensure the correct use of the CNC screen display function.

CAUTION

FANUC holds the copyrights on this software product and associated manuals and other documents. Only one backup copy of this software product is permitted. Reproduction for other purposes is not allowed. This software can be installed on one computer only.

The CNC screen display function uses the following product for which copyright is held by Microsoft Corporation:

- Microsoft® Windows® Visual C++™



Microsoft, Windows are registered trademarks of Microsoft Corporation.

FEATURES AND LIMITATIONS OF THE CNC SCREEN DISPLAY FUNCTION

The CNC screen display function has the following features:

Features

- This function enables the same display and operation as for the Series 16*i*/18*i*/21*i*, Series 15*i*, or Series 15B to be performed on Windows, providing a more user-friendly environment.
- This function enables user-created screens (screens created using C Executor, Macro Executor, PMC C) to be displayed.

Note the following limitations:

Limitations

(1) Operating environment

- This software is designed specifically for a personal computer connected to the FS16*i*/18*i*/21*i*, FS15*i*, or FS15B via the high-speed serial bus Type 2, the FS160*i*/180*i*/210*i* or FS150*i* with a CNC Display Unit with Personal Computer Function, the FS160*i*/180*i*/210*i* with the personal computer function, and a personal computer connected to the FS16*i*/18*i*/21*i* via the Ethernet. This software cannot be used with other CNCs.
- This software supports the following CNCs:
HSSB version:
FS160*i*-M/T, FS180*i*-M/T, FS210*i*-M/T, FS150*i*/MA (with a CNC Display Unit with Personal Computer Function or with the personal computer function)
FS16*i*-M/T, FS18*i*-M/T, FS21*i*-M/T, FS15*i*-MA T FS15-MB/MBMA/MBMA2 (a personal computer connected via the high-speed serial bus Type 2)
Ethernet version
FS16*i*-M/T, FS18*i*-M/T, FS21*i*-M/T

(2) Display

- The screen size is always 640 by 480 dots, regardless of the resolution of the personal computer.
- Use the personal computer in more than 256-color display mode.

- The FS160*i*/180*i*/210*i* with the personal computer function, the FS160*i*/180*i*/210*i* or FS150*i* with a CNC Display Unit with Personal Computer Function, and a personal computer connected to the FS15*i* or FS15B via the high-speed serial bus Type 2 can display 14" images only. A personal computer connected to the FS16*i*/18*i*/21*i* via the high-speed serial bus Type 2 and a personal computer connected to the FS16*i*/18*i*/21*i* via the Ethernet can display both 9" images (including monochrome images) and 14" images.
- When this software is used with a personal computer connected to the FS16*i*/18*i*/21*i*, the FS15*i*, or the FS15B via the high-speed serial bus Type 2 or a personal computer connected to the FS16*i*/18*i*/21*i* via the Ethernet, the LCD display and MDI keyboard on the CNC cannot be used during execution of the CNC screen display function.
- When the CNC is in graphic display mode (for example, a tool path is being drawn), executing the CNC screen display function does not produce a graphic display which is already drawn. Also when the CNC screen display function is terminated while graphic display is being performed on the CNC screen display function side, no graphic display is produced on the CNC side. Graphic display must be performed again on each side respectively.
- The boot screen cannot be displayed.
- When characters and graphics are overlaid on one another, composite colors cannot be displayed. One of the colors, that of the characters or that of the graphic, must be specified as the priority color. (The default color is that of the characters.)
- Color palette numbers 0 to 15 and 240 to 255 are unavailable because they are reserved by Windows. Therefore, when a screen created in 256-color mode is displayed with the CNC screen display function, the colors corresponding to these color palette numbers are not displayed correctly.
- Screen programs created with the C Executor must be recompiled by using a library supporting the CNC screen display function supplied by FANUC. (FS15*i* or FS15B is not supported C language Executor function.)
- Conversational programming functions (such as Manual Guide M/T, Super CAP*i* M/T, Symbol CAP*i* T) are valid for FS160*i*/180*i*/210*i* MODEL B with a CNC Display Unit with Personal Computer Function only.

(3) Operation

- The memory card utility supported by the CNC screen display function of the FS160i/180i/210i with the personal computer function can be used only for the input/output of data. The types of the input/output data are the same as those of the data that the standard FS16i/18i/21i can input and output with the memory card (except for C Executor-created application data, which can be neither input nor output). PMC ladder editing based on direct memory card execution (ladder editing card function) is unavailable.

For a personal computer connected to the FS16i/18i/21i via the high-speed serial bus Type 2 and a personal computer connected to the FS16i/18i/21i, however, inserting a memory card into a card slot in the CNC enables the ladder editing card function.

The memory card utility of the FS150i with a CNC Display Unit with Personal Computer Function can perform input/output of only the same type of data that the standard FS15i can input from and output to a memory card.

- When the file I/O destination is set to the personal computer hard disk on the FS160i/180i/210i with the personal computer function, the FS160i/180i/210i with a CNC Display Unit with Personal Computer Function, a personal computer connected to the FS16i/18i/21i via the high-speed serial bus Type 2, or a personal computer connected to the FS16i/18i/21i via the Ethernet, the following file manipulation library functions cannot be used with the C Executor:

aux_file_mount	Register a memory card
aux_file_unmount	Cancel registration of a memory card
aux_file_memcinfo	Obtain memory card status

These functions can, however, be used when the file I/O destination is set to the CNC card slot with a personal computer connected to the FS16i/18i/21i via the high-speed serial bus Type 2 or a personal computer connected to the FS16i/18i/21i via the Ethernet.

- Position compensation and cursor control on the touch panel or by the mouse cannot be performed. In addition, mouse dragging cannot be used on a personal computer connected to the FS16i/18i/21i via the Ethernet.
- Screen erasure is disabled. Use a function such as a screen saver function of the personal computer.

- When the CNC screen display function is terminated forcibly by using, for example, [Ctrl]+[Alt]+[Delete], the CNC cannot display the screen for about 30 seconds after termination. After forcibly terminating the CNC screen display function, wait at least 30 seconds until the CNC can display the screen, then restart the CNC screen display function. (Any attempt to restart the CNC screen display function immediately after its termination will result in no response.)
In some cases with the Ethernet version, however, the CNC cannot display the screen for about five minutes after forcible termination. In such cases, wait at least five minutes until the CNC can display the screen, then restart the CNC screen display function.
- Only one CNC screen display function can be started per CNC.
On a personal computer connected to the FS16i/18i/21i via the high-speed serial bus Type 2 or a personal computer connected to the FS16i/18i/21i via the Ethernet, however, a CNC screen display function window can be opened for individual CNCs at a time.
- On the FS160i/180i/210i, pressing the [shift] key solely cannot trigger the screen copy function.
- To switch to the loader screen on the FS160i/180i/210i, use the [shift]+[help] ([shift]+[ESC]) keys.

CHECKING THE PRODUCT PACKAGE

This product package software consists of the following:

- System floppy disks (for HSSB)
FANUC Open CNC CNC Screen Display Function (A02B-0207-K770#EN07)
- System floppy disks (for Ethernet)
FANUC Open CNC CNC Screen Display Function (A02B-0207-K772#ZZ07)

NOTE

Read the Release Note (README.TXT), provided on the second floppy disk of this product package. It provides detailed information on this product package and information not described in the operator's manual.

ORGANIZATION OF THIS MANUAL

This manual has the following organization:

SAFETY PRECAUTIONS

Explains the general precautions which must be observed to ensure safety when using the CNC screen display function.

PREFACE

Briefly explains the features of the CNC screen display function. Also explains how to use this manual and provides other information on the usage of the CNC screen display function.

1. SETUP

Explains how to set up the environment for operating the CNC screen display function and to prepare the CNC screen display function for use.

2. OPERATION

Explains how to use the CNC screen display function.

3. SETTING

Explains how to switch from one language to another in the CNC screen display function, and how to change the keyboard assignment.

APPENDIX A

Explains the alarms that are generated during the execution of the CNC screen display function and the actions to be taken.

APPENDIX B

Explains the FS160is/180is/210is CNC screen display function.

NOTATION CONVENTIONS

The following explains the notation conventions used in this manual:

- Menu, command, and screen notations

Example	Explanation
[File] menu	Menu names are enclosed in brackets [].
[Title bar]	Command names are enclosed in brackets [].
<OK> button	Command buttons on the display are enclosed in angle brackets < >.

- Key notations and operation

Example	Explanation
[Enter] key	Key names are enclosed in brackets [].
[Ctrl]+[Tab] keys	When keys are to be pressed and held down sequentially, the keys are indicated by connecting them with +, as shown to the left.
Direction keys	The [→], [←], [↑], and [↓] keys are collectively called the direction keys.

- Mouse operations

Example	Explanation
Click	Press a mouse button, then release it immediately.
Double-click	Click a mouse button twice in quick succession.
Drag	Move the mouse while holding down a mouse button, then release the button at a desired location.

- Sample screens

The screens shown in this manual are merely examples on the FS160i.

The screens shown in this manual are merely examples. Note that the screen layouts and displayed file names may vary depending on the equipment being used.

The screens shown in this manual are examples of the screens displayed by Windows 95. Note that the display differs a little when Windows NT 4.0 is used.

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1

SETUP

This chapter explains how to set up the environment for operating the CNC screen display function, and how to prepare the CNC screen display function for operation.

1.1 SETUP (HSSB VERSION)

This section describes information related to the setup of the HSSB version of the CNC screen display function.



See Section 1.2, "Setup (Ethernet Version)," for explanations about the setup of the Ethernet version of the CNC screen display function.

1.1.1 Operating Environment

The software operating environment for the CNC screen display function is as follows:

- Computer
 - FS160i/180i/210i with the personal computer function
 - CNC Display Unit with Personal Computer Function or personal computer attached to high-speed serial bus Type 2 (connected to the FS16i/18i/21i, FS15B, or FS15i)
- Environmental requirements
 - For Windows 95/98
 - Pentium 100 MHz or better processor
 - 16 MB of memory (minimum)
 - For Windows NT4.0/2000
 - Pentium 120 MHz or better processor
 - 32 MB of memory (minimum)
- Recommended operating environment
 - For Windows 95/98
 - Pentium 120 MHz or better processor
 - 32 MB of memory (minimum)
 - For Windows NT4.0/2000
 - Pentium 150 MHz or better processor
 - 64 MB of memory (minimum)
- Display
 - Resolution: 640 × 480 or higher resolution
 - Color : 256 colors or more (16-color mode cannot be used)
- Required hard disk space
 - 10 MB or more

NOTE

- 1 The CNC screen display function runs under Windows 95/98 or Windows NT4.0/2000.
- 2 Maximum performance sometimes cannot be achieved depending on the type, performance, and usage of the personal computer.
- 3 As with other Windows applications, this function is subject to restrictions when operating in multitasking mode. That is, the CNC screen display function affects the execution speed of other applications, and other applications affect the execution speed of the CNC screen display function.

1.1.2 Installing the CNC Cscreen Display Function

This section explains how to install the CNC screen display function.

NOTE

Before the CNC screen display function can be installed, operations such as driver installation and setting of the following drivers must be performed according to the operating environment.

- HSSB device driver
- CNC/PMC data window library
- MDI keyboard driver (FS160i/180i/210i with personal computer function and CNC Display Unit with Personal Computer Function with MDI keys)

For details, refer to the Release Note (README.TXT) on Disk 1 of the driver library floppy disks (A02B-0207-K730#ZZ07).

Procedure for installing the CNC screen display function

1. Set Disk 1 of the system disks (A02B-0207-K770#EN07) in the floppy disk drive.
2. Select the [Start] menu.
3. Select [Run...].
4. Enter <drive-name>:SETUP, and select the <OK> button. (<drive-name> is the name of the 3.5-inch floppy disk drive.)
5. Install the CNC screen display function according to the displayed messages.

1.1.3 Uninstalling the CNC Screen Display Function

This section explains how to uninstall the CNC screen display function.

Procedure for uninstalling the CNC screen display function

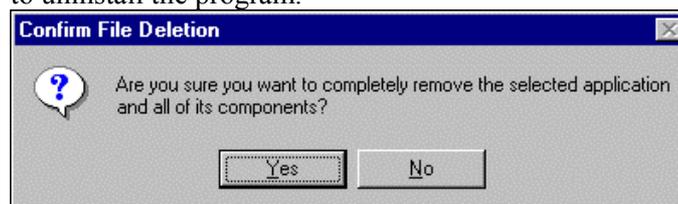
1. Choose the [Start] menu.
2. Choose [Settings], then choose the [Control Panel] command.
3. Execute [Add/Remove Programs].

The Add/Remove Programs Properties screen appears.



4. Choose the **CNC Screen Display Function**.
5. Choose the <Add/Remove...> button.

The uninstall function starts, asking you whether you really want to uninstall the program.



6. To uninstall the program, choose the <Yes> button.

When the CNC screen display function has been uninstalled normally, the function is deleted from the Windows program menu.

1.2 SETUP (ETHERNET VERSION)

This section describes information related to the setup of the Ethernet version of the CNC screen display function.



See Section 1.1, "Setup (HSSB Version)," for explanations about the setup of the HSSB version of the CNC screen display function.

1.2.1 Operating Environment

The software operating environment for the CNC screen display function is as follows:

- Environmental requirements
 - For the Windows 95/98
 - Pentium 100 MHz or better processor
 - 16 MB of memory (minimum)
 - For Windows NT4.0/2000
 - Pentium 120 MHz or better processor
 - 32 MB of memory (minimum)
- Recommended operating environment
 - For the Windows 95/98
 - Pentium 120 MHz or better processor
 - 32 MB of memory (minimum)
 - For Windows NT4.0/2000
 - Pentium 150 MHz or better processor
 - 64 MB of memory (minimum)
- Display
 - Resolution : 640 × 480 or higher resolution
 - Color : 256 colors or more (16-color mode cannot be used)
- Required hard disk space
 - 10 MB or more

NOTE

- 1 The CNC screen display function runs under Windows 95/98 or Windows NT4.0/2000.
- 2 Maximum performance sometimes cannot be achieved depending on the type, performance, and usage of the personal computer.
- 3 As with other Windows applications, this function is subject to restrictions when operating in multitasking mode. That is, the CNC screen display function affects the execution speed of other applications, and other applications affect the execution speed of the CNC screen display function.

1.2.2 Installation

This section explains how to install the CNC display function.

NOTE

The CNC screen display function is realized using socket communication (TCP/IP communication) with the FANUC Ethernet board. Before starting to use the function, check the following items by referencing the FANUC Ethernet Board Operator's Manual (B-63354EN).

- TCP/IP setting in the personal computer
- Setting of the FANUC Ethernet board and FOCAS1 (DNC1)/Ethernet function in the CNC
- Network connection between the personal computer and CNC

Procedure for installing the CNC screen display function

1. Set Disk 1 of the system disks (A02B-0207-K772#ZZ07) in the floppy disk drive.
2. Choose the [Start] menu.
3. Choose [Run...].
4. Enter <drive-name>:SETUP, and choose the <OK> button. (<drive-name> is the name of the 3.5-inch floppy disk drive.)
5. Install the CNC screen display function according to the display messages.

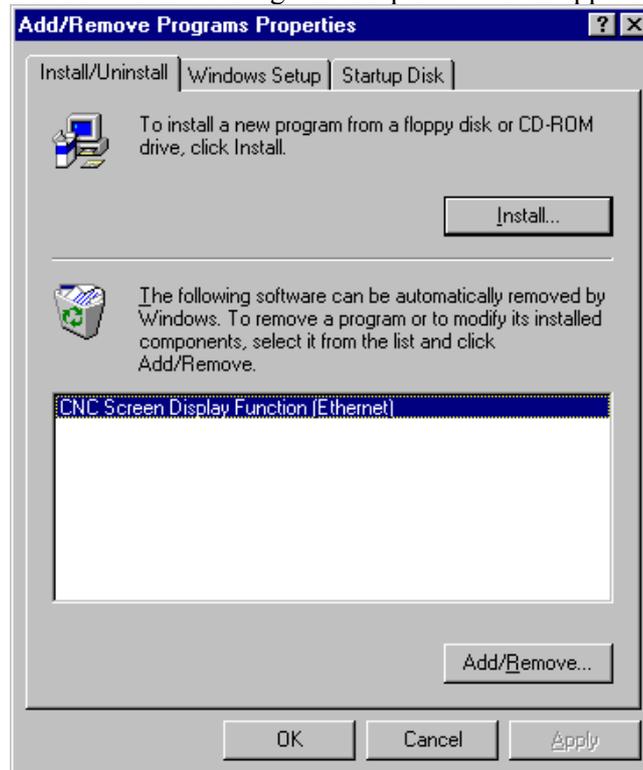
1.2.3 Uninstallation

This section explains how to uninstall the CNC screen display function.

Procedure for uninstalling the CNC screen display function

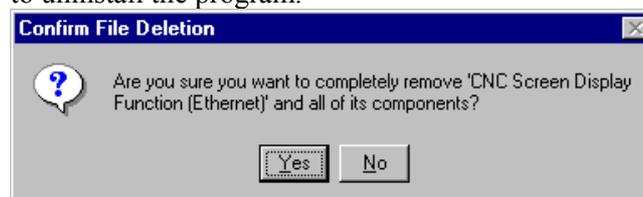
1. Choose the [Start] menu.
2. Choose [Settings], then choose the [Control Panel] command.
3. Execute [Add/Remove Programs].

The Add/Remove Programs Properties screen appears.



4. Choose the **CNC Screen Display Function (Ethernet)**.
5. Choose the <Add/Remove...> button.

The uninstall function starts, asking you whether you really want to uninstall the program.



6. To uninstall the program, choose the <Yes> button.

When the CNC screen display function has been uninstalled normally, the function is deleted from the Windows program menu.

2

OPERATION

This chapter explains how to operate the CNC screen display function.

2.1 START AND TERMINATION (HSSB VERSION)

This section explains how to start and terminate the HSSB version of the CNC screen display function, and explains the points to be noted when the function is started.



See Section 2.2, "Start and Termination (Ethernet Version)," for explanations about how to start and terminate the Ethernet version of the CNC screen display function.

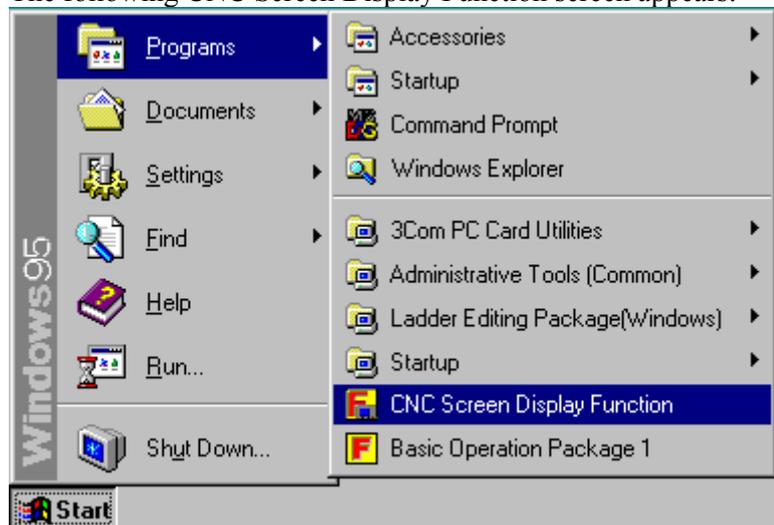
2.1.1 Starting the CNC Screen Display Function

The following explains the procedure for starting the CNC screen display function and explains the points to be noted when the function is started.

Procedure

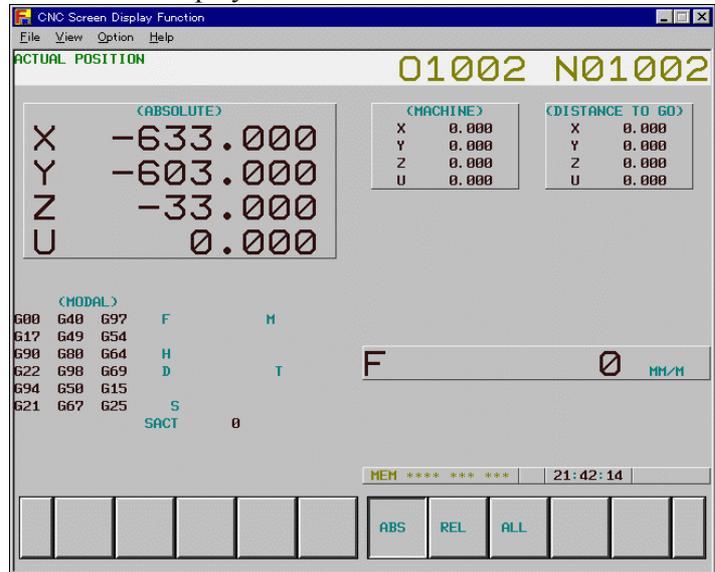
1. Choose the [Start] menu.
2. Choose the [Programs] command.
3. Choose the [**CNC Screen Display Function**] command.

The following CNC Screen Display Function screen appears:



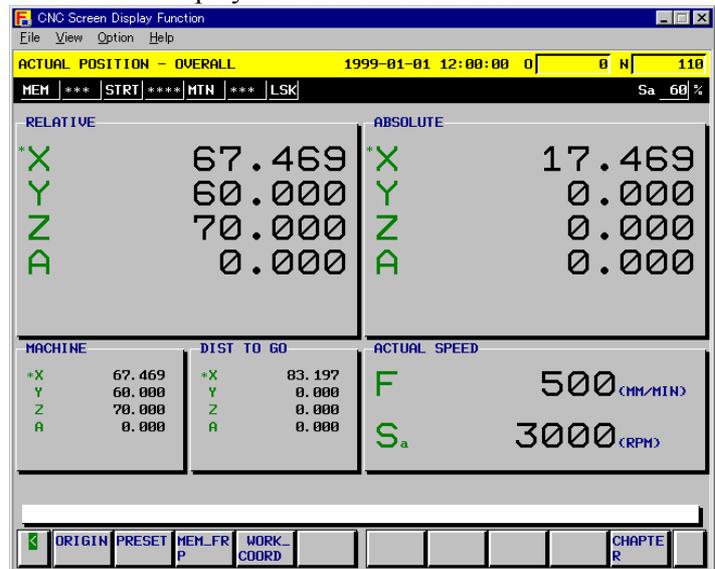
Example 1.

CNC screen display function on the FS160i/180i/210i



Example 2.

CNC screen display function on the FS150i

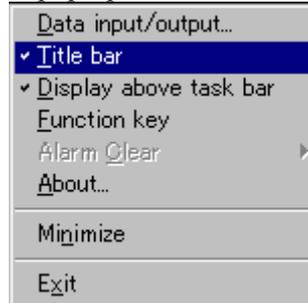


4. When the resolution of the display is 640 × 480 dots, disable the display of the title bar by choosing [Title bar] from the submenu of [View] in the menu bar, to maximize the size of the CNC screen on the display.



5. To display the title bar, perform the following:
- When using the mouse : Click the right button.
 - When using the full keyboard : [Shift]+[F10]
 - When using the MDI keyboard : [SHIFT]+[GRAPH]

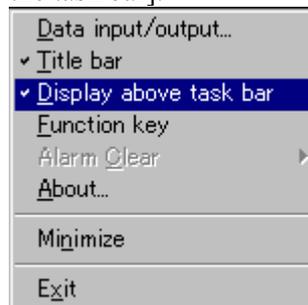
A pop-up menu, shown below, appears. Choose [Title bar].



By choosing [Display above the task bar] from the submenu of [View] in the menu bar, to the CNC screen displays above the task bar. (Edition 1.11 or later)



A pop-up menu, shown below, appears. Choose [Display above the task bar].

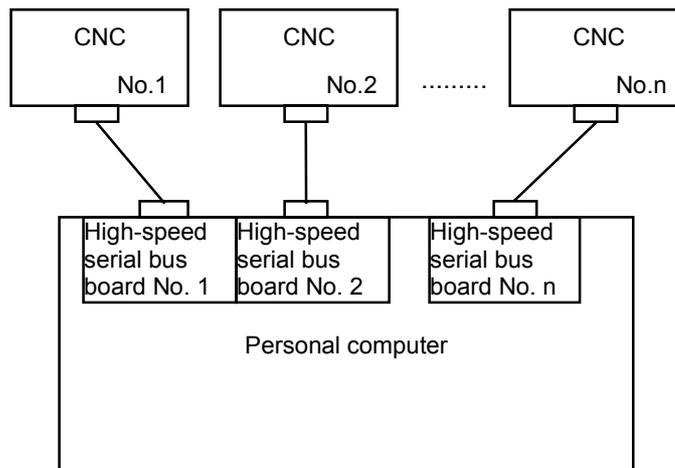


NOTE

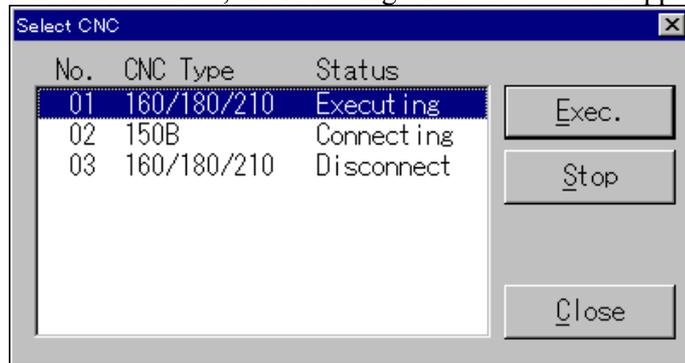
- 1 When the CNC screen display function is started on the FS160*i*/180*i*/210*i*, the CNC display screen to be displayed is determined according to the following CNC parameters:
CNC parameters: Nos. 3198 and 3199
(CNC parameter for enabling the above parameters: Bit 6 of parameter No. 3103)
When the CNC screen display function is started on the FS150B or FS150*i*, the screen that was selected on the CNC before this function is started remains displayed. Likewise, when the CNC screen display function is ended, the screen that was displayed by this function is displayed on the CNC. Note that when the PMC screen is displayed, the screen of the CNC that was displayed before the PMC screen is displayed is displayed. Also, when the CNC screen display function is started or ended with the help menu or multi-tuning function pop-up menu displayed, these screens are cleared.
- 2 When the screen resolution is higher than 640 × 480 dots, the title bar is always displayed. (You cannot choose the [Title bar] from the menu.)

2.1.2 Starting the CNC Screen Display Function (Multiple Connection)

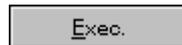
The CNC screen display function allows one personal computer to be used for operating up to eight CNCs (Series 16*i*/18*i*/21*i*, FS15B, FS15*i*) when these CNCs are connected to the personal computer via high-speed serial bus Type 2. The response to manipulation for display becomes slower as the number of connected CNCs increases.



- Starting the function**
 When more than one CNC is connected or can be connected, the CNC screen display function can be executed more than once at the same time. In this case, each time the CNC screen display function is started, the following CNC select screen appears:



The buttons have the following meanings:



: Executes the CNC screen display function.
 When the CNC screen display function is already running, the running CNC screen display function is displayed on top.



: Stops the current CNC screen display function.

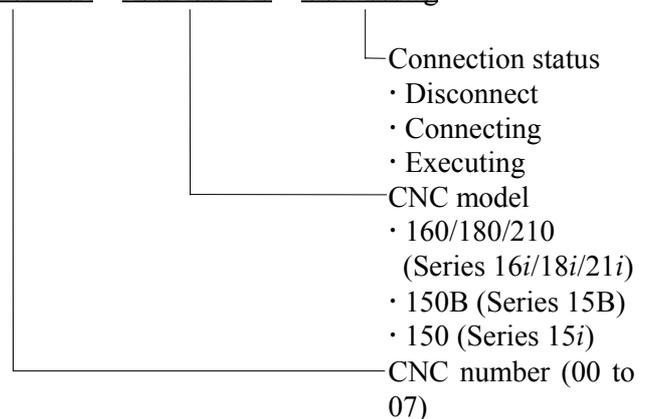


: Terminates the CNC screen display function.

- Explanation of the list**
 The list contains the following information:

- General format of the list

CNC No. = 01 160/180/210 Connecting



- (1) CNC number
The number of a CNC that can be connected is indicated.
- (2) CNC model
The model of the CNC that is connected or which can be connected is indicated.
- (3) Connection status
Disconnect :
The power to the CNC is off, or the cable is not connected correctly.
In this state, neither the  button nor  button can be chosen.
Connecting :
The CNC is connected correctly.
Choosing the  button executes the CNC screen display function.
The  button cannot be chosen.
Executing :
The CNC screen display function is running.
Choosing the  button displays the currently executed CNC screen on top.
Choosing the  button stops the CNC screen display function. When this button is chosen, the connection status in the list changes from Executing to Connecting.

NOTE

When a CNC in the Disconnect status has been connected correctly, perform the following operation. Then, the status indication changes to Connecting, and the  button can be chosen.

- ① With the mouse, click an arbitrary CNC in the list.
- ② With the cursor keys, select another item in the list.



The CNC to be connected can be specified using an argument on the command line. When this argument is used, the above Select CNC screen does not appear. The format of the command line specification is as follows:

```
CNCSCRN /NODE = <CNC-number>
```

2.1.3 Terminating the CNC Screen Display Function

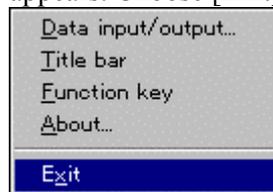
The following explains how to terminate the CNC screen display function.

As explained below, there are several termination methods. You can use any of these methods to terminate the CNC screen display function.

Operation 1

Terminating from a pop-up menu

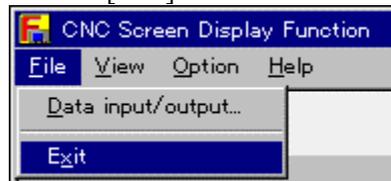
Click the right button of the mouse on the screen of the CNC screen display function. Then, the following pop-up menu appears. Choose [Exit].



Operation 2

Terminating from the menu bar

Choose [Exit] from the submenu of [File].



Operation 3

Terminating from the title bar

Click .



Operation 4

Terminating from the keyboard

- When a personal computer connected to the FS16i/18i/21i/15i/15B via high-speed serial bus Type 2, the full keyboard type of the FS160i/180i/210i with the personal computer function, or the full keyboard type of the FS160i/180i/210i/150i with a CNC Display Unit with Personal Computer Function are used

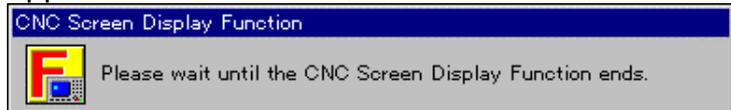
Press [Alt]+[F4].

- When the MDI keyboard type of the FS160i/180i/210i with the personal computer or the MDI keyboard type of the FS160i/180i/210i/150i with a CNC Display Unit with Personal Computer Function are used

Press the unlabeled key (or [FAPT])+[SHIFT]+[DELETE].

NOTE

During the termination processing for the CNC screen display function, the following message appears:



If the CNC screen display function is restarted while this message is being displayed, the CNC screen display function may operate abnormally. When restarting the CNC screen display function, restart the function after the above message disappears.

2.2 START AND TERMINATION (ETHERNET VERSION)

This section explains how to start and terminate the Ethernet version of the CNC screen display function, and explains the points to be noted when the function is started.



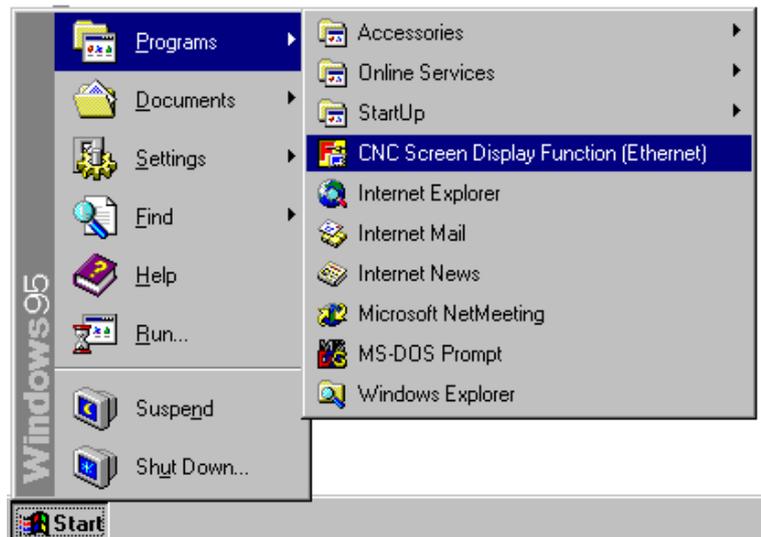
See Section 2.1, "Start and Termination (HSSB Version)," for explanations about how to start and terminate the HSSB version of the CNC screen display function.

2.2.1 Start

The following explains the procedure for starting the CNC screen display function from the Windows start menu, and explains the points to be noted when the function is started.

Procedure

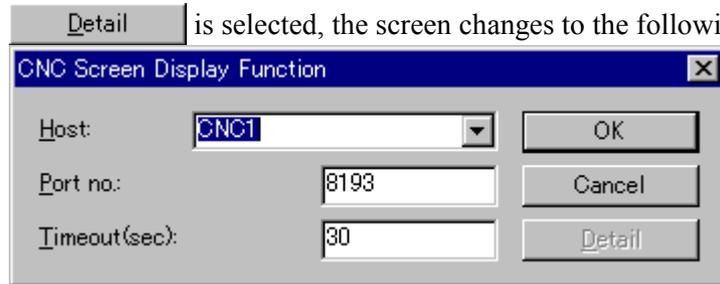
1. Choose the [Start] menu.
2. Choose the [Programs] command.
3. Choose **CNC Screen Display Function (Ethernet)** to start it.



4. When the CNC screen display function is started, the following screen appears to specify the destination:



When the function is started for the first time or the **Detail** is selected, the screen changes to the following:



On this screen, enter the following items.

- Host : Specify a host name (such as "CNC1") or an IP address (such as "190.0.2.31").
- Port no. : Specify the port number for the FOCAS1 (DNC1)/Ethernet function.
- Timeout : Specify a timeout value for graphic data transmission/reception in seconds. Entering 0 disables timeout processing, causing an infinite wait.

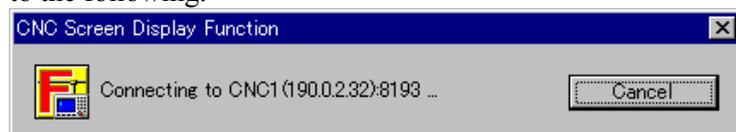


A host name and port number can be specified using arguments on the command line. When these arguments are used, the above screen to specify the destination does not appear. The format of the command line specification is as follows:

```
CNCSCRNE /H=<host-name>:<port-number>
          /T=<timeout-value (by default, 30)>
```

The /H and /T arguments can be specified at the same time.

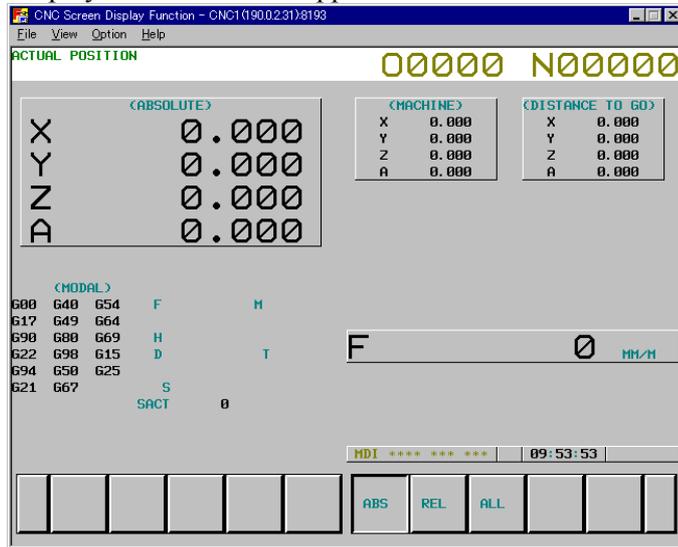
5. Choosing the **OK** button causes the screen to change to the following:



NOTE

It may take several minutes for the Ethernet version to start. Choosing **Cancel** discontinues the start sequence.

When the CNC is connected successfully, the CNC Screen Display Function screen appears.

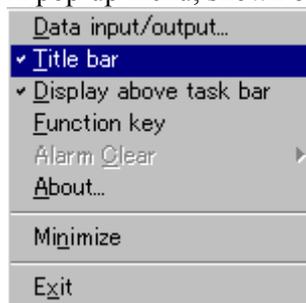


- When the resolution of the display is 640 × 480 dots, disable the display of the title bar by choosing the [Title bar] from the submenu of [View] in the menu bar, to maximize the size of the CNC screen on the display.



- To display the title bar, perform the following:
 When using the mouse : Click the right button.
 When using the keyboard : [Shift]+[F10]

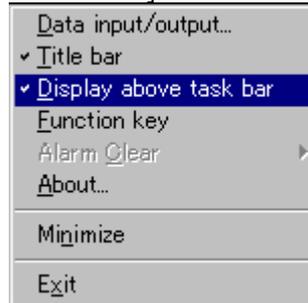
A pop-up menu, shown below, appears. Choose [Title bar].



- By choosing [Display above the task bar] from the submenu of [View] in the menu bar, to the CNC screen displays above the task bar. (Edition 1.4 or later)



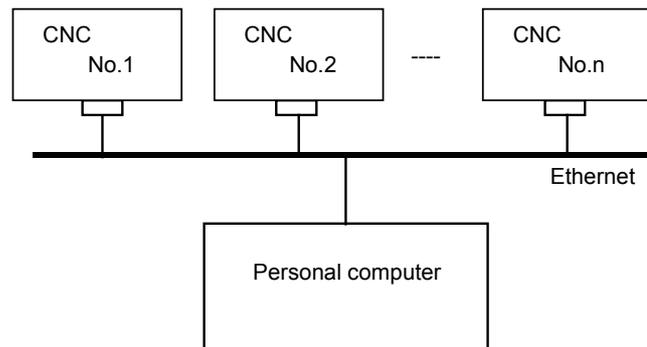
A pop-up menu, shown below, appears. Choose [Display above the task bar].

**NOTE**

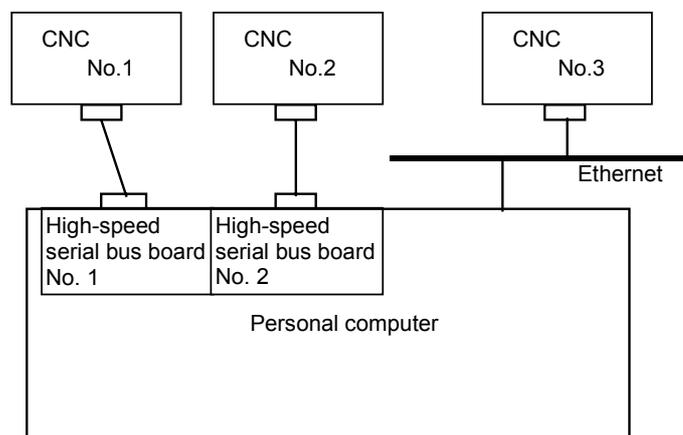
- 1 When the CNC screen display function is started, the CNC display screen to be displayed is determined according to the following CNC parameters:
CNC parameters: Nos. 3198 and 3199
(CNC parameter for enabling the above parameters: Bit 6 of parameter No. 3103)
- 2 When the screen resolution is higher than 640 × 480 dots, the title bar is always displayed. (You cannot choose the [Title bar] from the menu.)

2.2.2 Start (Multiple Connection)

The Ethernet version of the CNC screen display function allows one personal computer to be used for operating two or more CNCs connected over an Ethernet network (the maximum number of connectable CNCs is determined according to the related Ethernet limitation). The response to manipulation for display becomes slower as the number of connected CNCs increases.



- Starting the function**
 This function can be started using the same starting procedure described in Section 2.2.1. Specify the host name (such as "CNC1" or "CNC2") or IP address that matches the CNC to be connected.
- Simultaneous Ethernet and high-speed serial bus connection**
 It is possible to run the CNC screen display function for a CNC connected via the high-speed serial bus and that for the CNC connected via the Ethernet simultaneously on a single personal computer. To set up the functions for this purpose, perform the setting procedures described in both Section 1.1, "Setup (HSSB Version)," and Section 1.2, "Setup (Ethernet Version)." To start and terminate the functions, follow the procedures described in Section 2.1, "Start and Termination (HSSB Version)," and Section 2.2, "Start and Termination (Ethernet Version)."



2.2.3 Termination

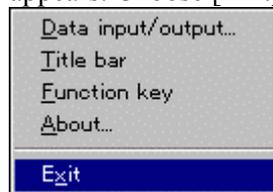
The following explains how to terminate the CNC screen display function.

As explained below, there are several termination methods. You can use any of these methods to terminate the CNC screen display function.

Operation 1

Terminating from a pop-up menu

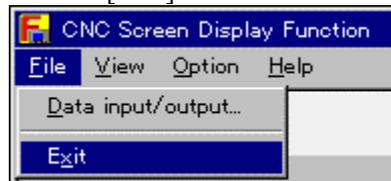
Click the right button of the mouse on the screen of the CNC screen display function. Then, the following pop-up menu appears. Choose [Exit].



Operation 2

Terminating from the menu bar

Choose [Exit] from the submenu of [File].



Operation 3

Terminating from the title bar

Click .



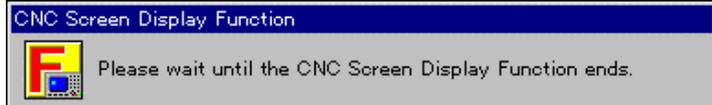
Operation 4

Terminating from the keyboard

Press [Alt]+[F4].

NOTE

During the termination processing for the CNC screen display function, the following message appears:



If the CNC screen display function is restarted while this message is being displayed, the CNC screen display function may operate abnormally.

When restarting the CNC screen display function, restart the function after the above message disappears.

2.2.4 Termination by Means of the PMC Signal

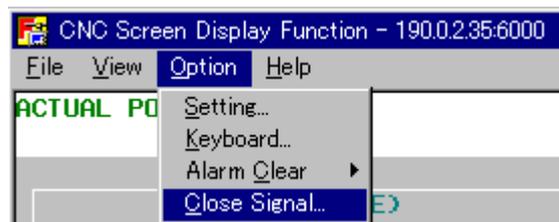
The following explains how to terminate the CNC screen display function by means of the PMC signal.



Not using this function does not influence the operation of the CNC screen display function. Use it as required.

Turning on a specified machine signal terminates the CNC screen display function. To specify the machine signal, follow the procedure below.

1. Choose the [Close Signal...] from the submenu of [Option] in the menu bar.



2. The Close Signal dialog box appears.



3. Enter the target PMC signal in the Signal on host text box, using the following format, then choose the button.

<signal-address>.<bit-position> Example) X0004.7



The close signal can be specified also using an argument on the command line.

The format of the command line specification is as follows:

```
CNCSCRNE /S=<signal-address>.<bit-position>
```

The /H, /T, and /S arguments can be specified simultaneously.

NOTE

- 1 The setting of the machine signal is preserved. It is impossible to start the CNC screen display function if the set signal is kept turned on with the PMC sequence program.
- 2 The PMC signal can be used to terminate only the Ethernet version of the CNC screen display function. It is not supported for the HSSB version of the CNC screen display function.

2.3 INPUT FROM THE KEYBOARD

This section explains the key input method.

- **Input from the MDI keyboard (MDI keyboard type of the Series 160i/180i/210i with the personal computer function and the MDI keyboard type of the FS160i/180i/210i/150i with a CNC Display Unit with Personal Computer Function)**

The CNC MDI keys, with some exceptions, can be used in the manner described in the CNC operator's manual.

The CNC screen display function uses the following MDI keys (function keys) as the [Ctrl] key and [Alt] key. When using the original functions of these MDI keys (function keys), use the alternative keys shown below.

[MDI key]	Key used in the CNC screen display function	Alternative key of function key
[CUSTOM]	[Ctrl]	[SHIFT]+[POS]
Unlabeled (or [FAPT])	[Alt]	[SHIFT]+[PROG]

NOTE

Pressing the [SHIFT] key instigates processing within the personal computer. It is not transferred to the CNC. Therefore, the functions performed by using the [SHIFT] key cannot be used.

Example: [SHIFT] Screen copy

- **Input from the full keyboard (personal computer connected to the Series 16i/18i/21i/15i via high-speed serial bus Type 2, full keyboard type of the Series 160i/180i/210i with the personal computer function, the full keyboard type of the FS160i/180i/210i/150i with a CNC Display Unit with Personal Computer Function, or a personal computer connected to the FS16i/18i/21i via the Ethernet)**

Those keys not found on the MDI keyboard, with the exception of the alphanumeric keys, are assigned as follows:

Full keyboard	Corresponding key on the MDI keyboard
[Insert]	→ [INSERT]
[Delete]	→ [DELETE]
[Home]	→ [ALTER]
[End]	→ [HELP]
[Page Up]	→ [↑PAGE]
[Page Down]	→ [↓PAGE]
[Esc]	→ [HELP]
[Tab]	→ [ALTER]
[Ctrl]+[F1] or [1] on numeric keypad	→ [POS]
[Ctrl]+[F2] or [2] on numeric keypad	→ [PROG]
[Ctrl]+[F3] or [3] on numeric keypad	→ [OFFSET/SETTING]

Full keyboard	Corresponding key on the MDI keyboard
[Ctrl]+[F4] or [4] on numeric keypad	→ [SYSTEM]
[Ctrl]+[F5] or [5] on numeric keypad	→ [MESSAGE]
[Ctrl]+[F6] or [6] on numeric keypad	→ [GRAPH]
[Ctrl]+[F7] or [7] on numeric keypad	→ [CUSTOM]
[Ctrl]+[F8] or [8] on numeric keypad	→ Unlabeled (or [FAPT])
[F1] to [F10]	→ Relative position soft keys
[F11]	→ FL (leftmost soft key)
[F12]	→ FR (rightmost soft key)

- Input from full keyboard (personal computer connected to the FS15B via the high-speed serial bus Type 2)
Keys not found on the MDI keyboard, with the exception of the alphanumeric keys, are assigned as follows:

Full keyboard	Corresponding keys on the MDI keyboard
[Insert]	→ [INPUT]
[Delete]	→ [DELETE]
[Home]	→ [ALTER]
[End]	→ [HELP]
[Page up]	→ [↑ PAGE]
[Page Down]	→ [↓ PAGE]
[Ctrl]+[F1] or [1] on numeric keypad	→ [POS]
[Ctrl]+[F2] or [2] on numeric keypad	→ [PROG]
[Ctrl]+[F3] or [3] on numeric keypad	→ [OFFSET]
[Ctrl]+[F4] or [4] on numeric keypad	→ [P-CHECK]
[Ctrl]+[F5] or [5] on numeric keypad	→ [SETTING]
[Ctrl]+[F6] or [6] on numeric keypad	→ [SERVICE]
[Ctrl]+[F7] or [7] on numeric keypad	→ [MESSAGE]
[Ctrl]+[F8] or [8] on numeric keypad	→ [OTHERS]
[Ctrl]+[F9] or [9] on numeric keypad	→ [CNC/PMC]
[Ctrl]+[F10] or [10] on numeric keypad	→ [FAPT]
[Ctrl]+[F11]	→ [AUX]
[F1] to [F10]	→ Relative position soft keys
[F11]	→ FL (leftmost soft key)
[F12]	→ FR (rightmost soft key)
[Shift]+[Enter]	→ [CALC]

NOTE

- 1 The [RESET] MDI key is not assigned to the full keyboard to prevent possible problems. When using the [RESET] key, use that on the MDI keyboard. (The [RESET] MDI key is effective even when the CNC screen display function is being executed.)
- 2 The key assignment of the full keyboard can be changed. For an explanation of how to change the key assignment, see Section 3.3.

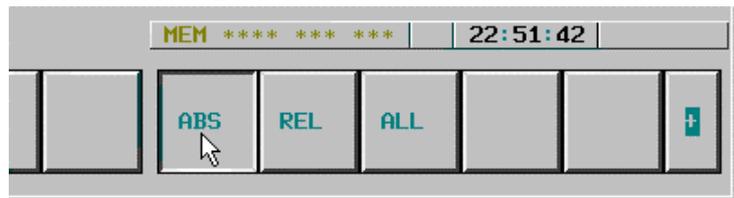
2.4 INPUT WITH THE MOUSE AND TOUCH PANEL

This section explains input with the mouse and touch panel.

Operation 1

Click a soft key by using the mouse .

For FS160i/180i/210i



Operation 2

Physically press a soft key on the touch panel.

NOTE

Within a CNC screen, the mouse and touch panel can be used only for soft key operations.

2.5 FUNCTION KEYS

This section explains how to select function keys by using the full keyboard and mouse.

- **When the full keyboard is used**

The function keys on the MDI keyboard are assigned to the full keyboard as follows:

On FS160i/180i/210i/150i

Function key on the MDI keyboard	→	Full keyboard
[POS]	→	[1] on numeric keypad or [Ctrl]+[F1]
[PROG]	→	[2] on numeric keypad or [Ctrl]+[F2]
[OFFSET/SETTING]	→	[3] on numeric keypad or [Ctrl]+[F3]
[SYSTEM]	→	[4] on numeric keypad or [Ctrl]+[F4]
[MESSAGE]	→	[5] on numeric keypad or [Ctrl]+[F5]
[GRAPH]	→	[6] on numeric keypad or [Ctrl]+[F6]
[CUSTOM]	→	[7] on numeric keypad or [Ctrl]+[F7]
Unlabeled (or [FAPT])	→	[8] on numeric keypad or [Ctrl]+[F8]

On FS150B

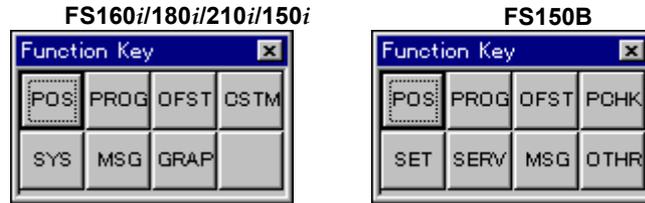
Function key on the MDI keyboard	→	Full keyboard
[POS]	→	[1] on numeric keypad or [Ctrl]+[F1]
[PROG]	→	[2] on numeric keypad or [Ctrl]+[F2]
[OFFSET]	→	[3] on numeric keypad or [Ctrl]+[F3]
[P-CHECK]	→	[4] on numeric keypad or [Ctrl]+[F4]
[SETTING]	→	[5] on numeric keypad or [Ctrl]+[F5]
[SERVICE]	→	[6] on numeric keypad or [Ctrl]+[F6]
[MESSAGE]	→	[7] on numeric keypad or [Ctrl]+[F7]
[OTHERS]	→	[8] on numeric keypad or [Ctrl]+[F8]

- **When the mouse is used**

1. Choose the [Function key] from the submenu of [View] on the menu bar.



- The function switch screen appears. Choose the button of a desired screen.



Button	Key on MDI keyboard	Button	Key on MDI keyboard
	→ [POS]		→ [POS]
	→ [PROG]		→ [PROG]
	→ [OFFSET/SETTING]		→ [OFFSET]
	→ [CUSTOM]		→ [P-CHECK]
	→ [SYSTEM]		→ [SETTING]
	→ [MESSAGE]		→ [SERVICE]
	→ [GRAPH]		→ [MESSAGE]
	→ [FAPT]		→ [OTHERS]

NOTE

- The button appears when conversational automatic programming function Symbol CAPⁱT for lathe is provided.
- The function switch screen appears at the center of the screen for the first time. Move the screen to any desired location. When the screen is displayed for the second and subsequent times, the screen appears at the location to which the screen was moved previously.

2.6 DATA INPUT/OUTPUT (EXCEPT FOR THE FS150B)

This section explains data input/output operations (input to and output from the memory card and hard disk).

2.6.1 When The FS160i/180i/210i With The Personal Computer Function or the FS160i/180i/210i/150i with a CNC Display Unit with Personal Computer Function Is Used

- Assignment to the memory card drive
In the Series 160i/180i/210i with the personal computer function or the FS160i/180i/210i/150i with a CNC Display Unit with Personal Computer Function, the memory card slot locates in front of LCD is connected to the personal computer; it is not connected to the CNC. Therefore, the memory card is handled as a kind of drive (removable disk) attached to the personal computer.

To use a memory card for input/output, set up the following parameters.

When the FS160i/180i/210i is used:

Set CNC parameter No. 20 to 4.

When the FS150i is used:

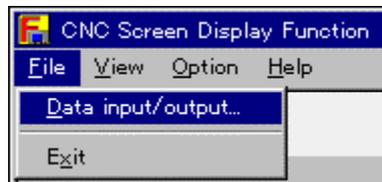
Set CNC parameter Nos. 20 to 23 to 0 or 8.

The drive to which the memory card is actually assigned varies depending on the drive configuration in the personal computer.

Set the drive to which the memory card is assigned, by using the procedure explained below.

In the following explanation, the memory card is assumed to be assigned to drive D.

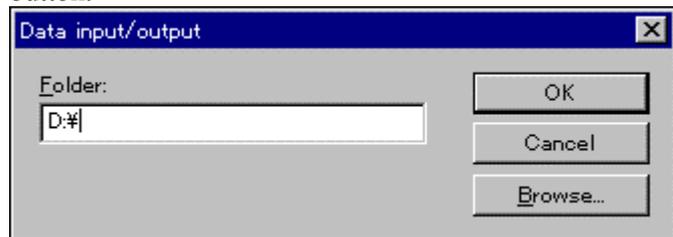
1. Choose [Data input/output...] from the submenu of [File] in the menu bar.



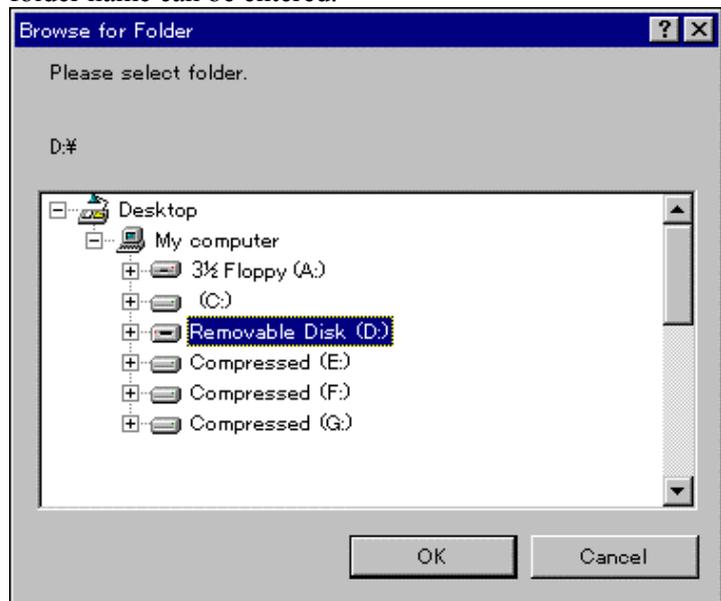
2. The [Data Input/Output] dialog box appears.



3. Enter the memory card drive (D:¥), then click the <OK> button.



When the <Browse> button is pressed on the above screen, the [Browse for Folder] dialog box appears. Choose an appropriate folder, then click the <OK> button. Then, a folder name can be entered.



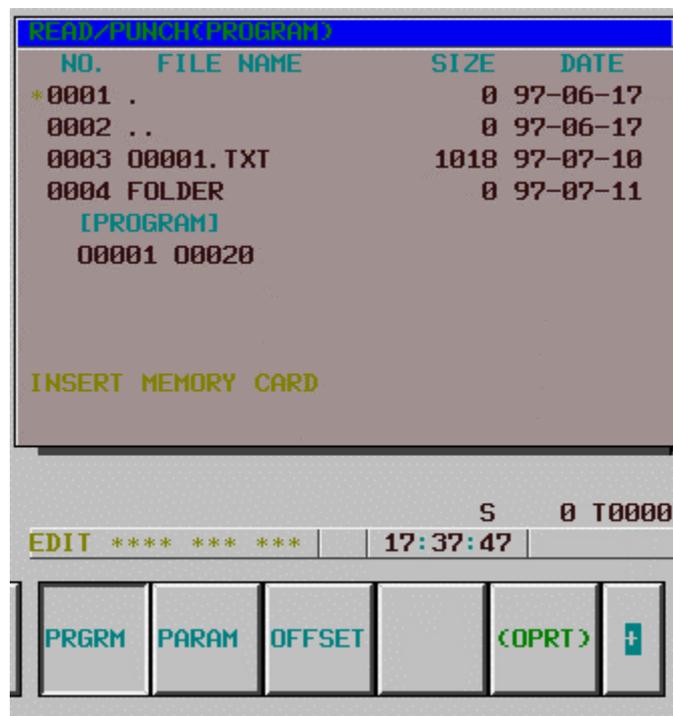
After the above steps have been completed, every memory card I/O operation by the CNC is performed for the memory card (D:¥) on the personal computer.

- **Assignment to a hard disk**

The I/O destination can be assigned to a hard disk as well as the memory card drive. Assignment to a hard disk is performed in the same way as for a memory card drive. A drive may be specified directly, or a subfolder may be specified. Once the assignment is completed, the CNC data is input to or output from the folder.

Any of the folders in the Windows file system, including the memory card, hard disk, floppy disk, and drives connected through a network, can be assigned.

For the FS160i/180i/210i, the contents of an assigned I/O folder can be checked on the CNC screen.



SYSTEM/ALL-IO screen

Shown above is a sample screen displayed when the following folder (C:\NCDATA) is assigned. The O numbers below [PROGRAM] indicate the program names contained in memory in the CNC.

Hard disk in the personal computer	CNC internal memory
C:\NCDATA ¥O0010.TXT (file)	O0001
¥FOLDER (folder)	O0020

NOTE

- 1 When a subfolder is specified as an I/O folder, "." or ".." is indicated. FOLDER indicates a folder name. Any I/O operation for these folders results in an error.
- 2 Only uppercase alphanumeric characters can be displayed on the CNC screen. Any lowercase characters included in folder names on the personal computer are converted to uppercase when displayed. Kana and kanji characters are not displayed correctly.

2.6.2 When a Personal Computer Connected via High-Speed Serial Bus Type 2 or Ethernet Is Used

When a personal computer connected to a CNC via high-speed serial bus Type 2 or Ethernet is used, a memory card slot is attached to the CNC.

I/O operations for the memory card are performed in the same way as when a personal computer is not connected to the CNC.

A folder on the hard disk in the personal computer can also be specified as the data I/O destination by setting the following parameters.

In case of the FS160*i*/180*i*/210*i*:

Set bit 0 of CNC parameter No. 0300 to 1.

In case of the FS15*i* (Ethernet connection is not supported) :

Set bit 2 of CNC parameter No. 7713 to 1.

When the above setting is made, all I/O operations for the memory card attached to the CNC are changed to I/O operations for the folder on the personal computer side.

2.7 DISPLAYING VERSION INFORMATION

This section explains how to display information used for maintenance such as version information of the CNC screen display function.

Procedure

1. Choose [About...] from the submenu of [Help] in the menu bar.



2. The About CNC Screen Display Function appears.



The displayed information includes:

- Information about the version of the CNC screen display function
- CNC type
- CNC software series
- CNC software version

3

SETTING

This chapter explains the settings for the CNC screen display function.

3.1 SWITCHING BETWEEN DISPLAY LANGUAGES

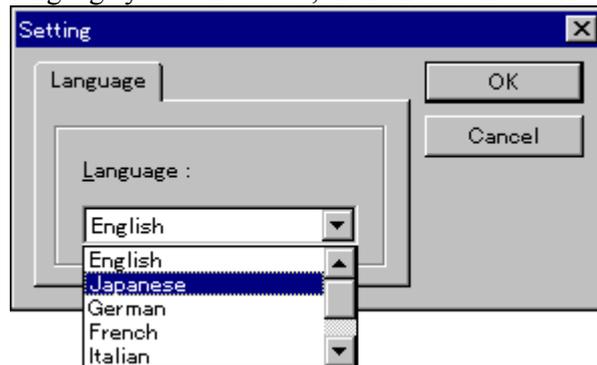
This section explains how to switch from one display language to another.

To switch between display languages, use the following procedure (where, an example for switching from English to Japanese is given):

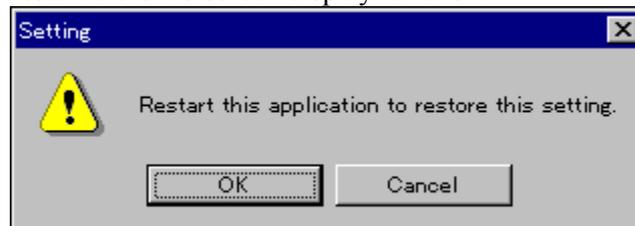
1. Choose [Setting...] from the submenu of [Option] on the menu bar.



2. The Setting screen appears. Choose [Language]. Choose the language you want to use, then choose the <OK> button.



3. The following message appears. Choose the <OK> button, then restart the CNC screen display function.



NOTE

- 1 Switching display languages in the CNC screen display function changes only the language of the displayed items specific to the CNC screen display function, such as the title bar, menu bar, and pop-up menus. The CNC screen display part is displayed in the specified CNC display language.
- 2 When a language with a font not supported by Windows is selected, the language cannot be displayed correctly. Set a display language supported by Windows.

3.2 SETTING ANIMATED SIMULATION FOR TURNING

This section explains how to set the data for animated simulation for turning.

The setting screen is displayed for the Series 160*i*-T/TT, 180*i*-T/TT, and 210*i*-T (including the two-path control function).

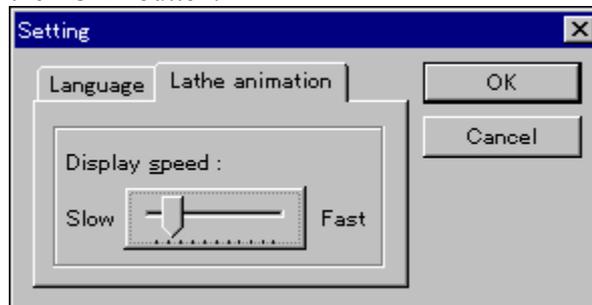
The animated simulation for turning is valid for *i* series MODEL B or later.

To modify the data for animated simulation for turning, use the procedure explained below.

1. Choose [Setting...] from the submenu of [Option] on the menu bar.



2. The Setting screen appears. Select [Lathe animation]. Set the display speed of animated simulation for turning, then choose the <OK> button.



NOTE

The display speed of animated simulation for turning is indicated as a number of dots. The display is refreshed each time the tool moves the specified number of dots. The lower the speed, the smoother the animation appears.

3.3 CHANGING KEYBOARD ASSIGNMENT

This section explains the assignment of the MDI keys to the full keyboard.

Changes in keyboard assignment are reflected to the key definition file (keymat file) in the directory where the CNC screen display function has been installed. This file is installed as read-only. Before modifying its contents, change the file attribute.

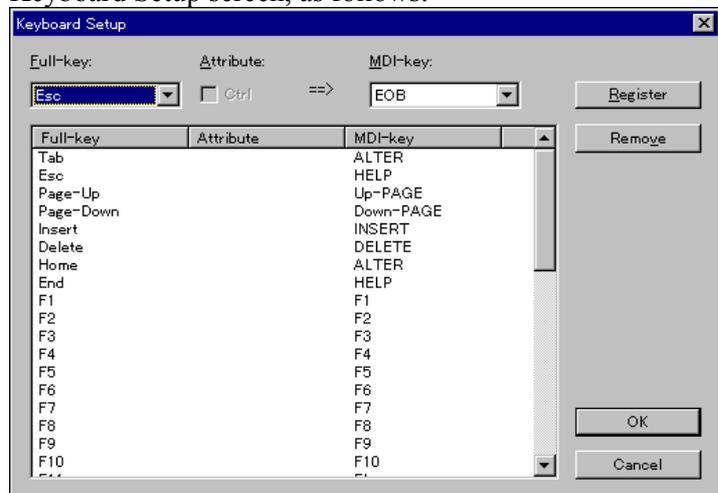
- Changing an assignment

To change the standard assignment, use the procedure explained below. In the explanation, an example for changing from [Ctrl]+[Num-9] to [PROG] is used.

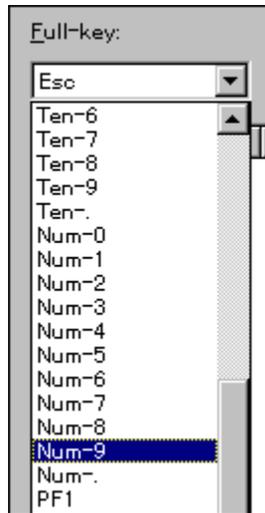
1. Choose [Keyboard...] from the submenu of [Option] on the menu bar.



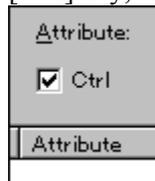
2. A list of the current assignments is displayed on the Keyboard Setup screen, as follows:



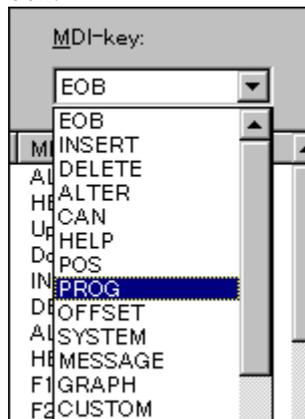
- Choose a desired key (Num-9) of the full keyboard from the list or the list in the combo box.



- When the selected key is to be pressed together with the [Ctrl] key, check the attribute item.



- Select the corresponding MDI key (PROG) from the combo box.

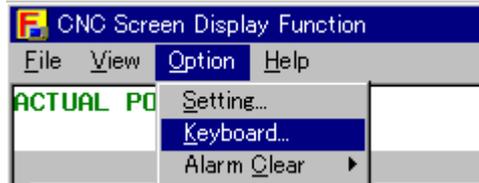


- Click the  button.

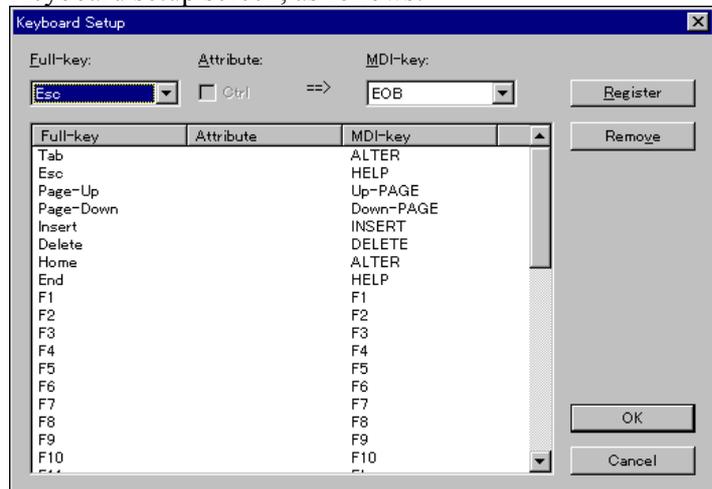
- **Deleting an assignment**

To delete an assignment, use the procedure explained below. In the explanation, an example of deleting the [Delete] key is used. As the result of this deletion example, the full keyboard has no key that functions as the [DELETE] MDI key.

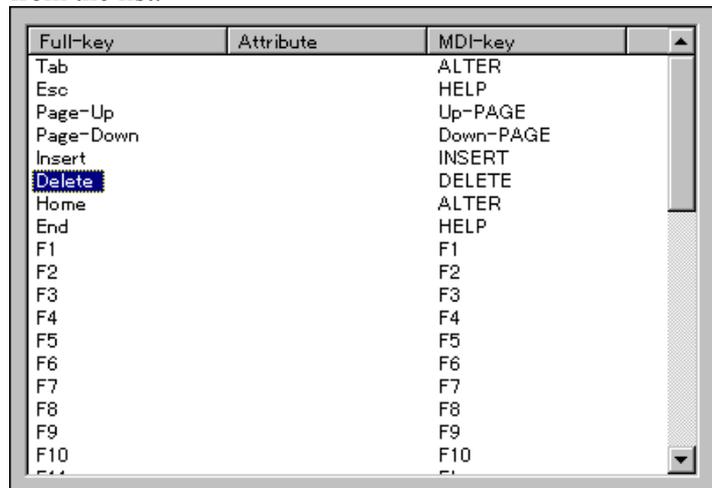
1. Choose [Keyboard...] from the submenu of [Option] on the menu bar.



2. A list of the current assignments is displayed on the Keyboard setup screen, as follows:



3. Choose the full-keyboard key (Delete) you want to delete from the list.



4. Click the  button.

- **Notes on changing the keyboard assignment**

NOTE

- 1 When both the full keyboard and MDI keyboard are to be used, do not change the assignment. If the setting of a key common to an MDI key is changed, the MDI key assignment is also changed at the same time.
- 2 The result of editing (modification and deletion) is reflected by clicking the <OK> button. Clicking the <Cancel> button cancels the edit result, restoring the status existing before the editing.

3.4 PS100/PS101 ALARM CLEAR

This section explains how to clear PS100/101 alarm.

Choose [Setting...] from the submenu of [Option] on the menu bar.



Select PS100 or PS101.

NOTE

This function is as same as the operation of pressing "CAN"+"RESET" or "PROG"+"RESET". So if you execute this operation while the machine is running, the RESET will occur and the machine will stop.

APPENDIX

A

ALARMS

The alarms generated by the CNC screen display function are explained below.

- **CNC link failed.**

Explanation	There is no response from the CNC.
Action	(1) Check whether the power to the CNC is turned on. (2) When the personal computer is connected via high-speed serial bus Type 2, check whether the cable is connected correctly. (3) Check whether driver installation, setting, and other operations performed before the installation of the CNC screen display function are correct. (4) For a personal computer connected to the CNC via the Ethernet, check its network setting and connection.

- **Restart this application to restore this setting.**

Explanation	This alarm is generated when switching between display languages has been performed.
Action	Restart the CNC screen display function.

- **Font pattern file (%s) open failed.**

Explanation	The font pattern file indicated by %s does not exist.
Action	The font pattern file must be placed in the same folder as the executable file of the CNC screen display function (CNCScrn.exe). Copy the font file to the folder containing the executable file. If the font file does not exist, re-install the CNC screen display function.

- **Font pattern file (%s) is invalid.**

Explanation	The font pattern file indicated by %s is destroyed.
Action	Re-install the CNC screen display function.

- **Keyboard allocation file (Keymatrx.dat) open failed.**

Explanation	The keyboard assignment file does not exist.
Action	The keyboard assignment file must be placed in the same folder as the executable file of the CNC screen display function (CNCScrn.exe). Copy the keyboard assignment file to the folder containing the executable file. If the keyboard assignment file does not exist, re-install the CNC screen display function.

- **Keyboard assignment file (%s) cannot save setup results as it is read-only.**

Explanation	The save setup results cannot be saved as the file attributes for the keyboard assignment file to be displayed by %s are read-only.
Action	Change the file attributes, and cancel read-only.

- **Function key assignment file (%s) open failed;**

Explanation	The function key assignment file does not exist.
Action	The function key assignment file to be displayed by %s must be in the same folder as the execution file (CNCScr.exe) of the CNC screen display function. Copy the function key assignment file to the same folder as the execution file. When there is no function key assignment file, re-install the CNC screen display function.

- **Key definition assignment file (%s) open failed;**

Explanation	The key definition file does not exist.
Action	The key definition file to be displayed by %s must be in the same folder as the execution file (CNCScr.exe) of the CNC screen display function. Copy the key definition file to the same folder as the execution file. When there is no function key assignment file, re-install the CNC screen display function.

- **Please select folder.**

Explanation	No folder is selected in data I/O setting.
Action	Set a correct folder.

- **Folder is not chosen.**

Explanation	No folder is set in data I/O setting.
Action	Set a correct folder.

- **The folder does not exist or invalid folder name.**

Explanation	A nonexistent folder or an invalid folder name was set in data I/O setting.
Action	Set a correct folder.

- **CNC Option is not found ! Option Name: Extension Driver/Library Function.**

Explanation	The CNC extension driver/library function option is not found.
Action	Purchase the option.

- **CNC Option is not found ! Option Name: CNC Screen Display Function.**

Explanation	The CNC screen display function option for the CNC is not found.
Action	Purchase the option.

● **CNC type differs from HSSB device set value.**

Explanation	The CNC Type of the HSSB device set value differs from the connected CNC.
Action	Change the CNC Type of the HSSB device set value to the same Type as the connected CNC.

● **CNC not supported by CNC screen display function is connected.**

Explanation	A CNC not supported by the CNC screen display function is connected.
Action	Change the CNC, or consider discontinued use of the CNC screen display function.

● **Enter host name or IP address.**

Explanation	Neither a host name nor IP address is specified in the destination specification dialog box of the Ethernet version.
Action	Specify the correct host name or IP address.

● **Enter port number.**

Explanation	No target CNC port number is specified in the destination specification dialog box of the Ethernet version.
Action	Specify the correct port number.

● **Enter a timeout value.**

Explanation	No communication timeout value is specified in the destination specification dialog box of the Ethernet version.
Action	Specify a timeout value (in seconds).

● **%s is not found.**

Explanation	An attempt to connect to a CNC having a host name or IP address indicated with %s failed.
Action	<ol style="list-style-type: none"> (1) Check that the CNC is supplied with power. (2) Check the setting of the FANUC Ethernet board. (3) Check the TCP/IP setting in the personal computer. (4) Check the network connection. (5) If the CNC to be connected has been specified using a host name, check the setting of the HOSTS file and DNS server. Alternatively, try to connect using an IP address.

● **The signal setting is invalid.**

Explanation	No close signal is set in the Close Signal dialog box of the Ethernet version.
Action	Specify the correct close signal.

B

CNC SCREEN DISPLAY FUNCTION FOR THE FS160is/180is/210is

The specification of the FS160is/180is/210is CNC screen display function is somewhat different from that of the FS160i/180i/210i CNC screen display function. This appendix explains the FS160is/180is/210is CNC screen display function.

Restrictions

(1) Operating environment

- This software is dedicated to the FS160is/180is/210is with a Display Unit for *is* Series CNC and the FS160is/180is/210is with the personal computer function.

NOTE

The FS160is/180is/210is with a Display Unit for *is* Series CNC and the FS160is/180is/210is with the personal computer function are hereinafter collectively called the FS160is/180is/210is.

(2) Display

- The VGA mode (256 colors) is not supported.

The other properties of the FS160is/180is/210is CNC screen display function are the same as those of the FS160i/180i/210i.

Checking The Product Package

This product package software consists of the following:

- System floppy disks (for HSSB)
[MODEL A]
FANUC Open CNC CNC Screen Display Function (HSSB)
for Windows CE (A02B-0207-K771#ZZ07)
* For FS160is/180is/210is MODEL A with
WindowsCE2.0/2.12
[MODEL B]
FANUC Open CNC CNC Screen Display Function (HSSB)
for Windows CE (A02B-0207-K774)
* For FS160is/180is/210is MODEL B with
WindowsCE3.0

- System floppy disks (for Ethernet)
[MODEL A]
FANUC Open CNC CNC Screen Display Function
(Ethernet) for Windows CE (A02B-0207-K773#ZZ07)
[MODEL B]
Not supported

NOTE

- 1 Read the Release Note (README.TXT) on the floppy disk of this product package. It provides detailed information on this product package and information not described in the operator's manual.
- 2 The CNC screen display function (Ethernet) is realized using socket communication (TCP/IP communication) with the FANUC Ethernet board. Before starting to use the function, check the following items by referencing the FANUC Ethernet Board Operator's Manual (B-63354EN).
 - TCP/IP setting on the FS160is/180is/210is side
 - Setting of the FANUC Ethernet board in the CNC loaded with that board and the Ethernet functions
 - Confirming connection between the FS160is/180is/210is and the CNC loaded with the FANUC Ethernet board over the network

** Windows CE is a registered trademark of Microsoft Co., Ltd.

B.1 **INSTALLING THE CNC SCREEN DISPLAY FUNCTION**

The HSSB version of the CNC screen display function has been preinstalled in the FS160is/180is/210is. Usually, it need not be installed again. To upgrade it or install the Ethernet version, follow the steps below.

Procedure for installing the CNC screen display function

- (1) Copy the following file (self-extracting form) to an empty folder on a development personal computer and execute.
 [MODEL A (A02B-0207-K771#ZZ07) for HSSB]
 WinCE200.exe for WindowsCE2.0
 WinCE212.exe for WindowsCE2.12
 [MODEL A (A02B-0207-K773#ZZ07) for Ethernet]
 CSDFEis.exe for WindowsCE2.0
 [MODEL B (A02B-0207-K774)]
 CSDFWCE300.exe for WindowsCE3.0
- (2) "CNCScrn" folder and "Setupis.exe" file will be melted.
 (In case of CSDFEis.exe, only "CNCScrnE" will be melted.)
- (3) Copy "Setupis.exe" and the "CNCScrn" (or "CNCScrnE") folder to an ATA card.
- (4) Switch on the CNC.
- (5) Insert the ATA card into the PCMCIA slot of the FS160is/180is/210is.
- (6) Open My Computer on the desktop, and check that the ATA card is automatically recognized as "Storage Card2."
- (7) Open "Storage Card2" and start Setupis.exe.
- (8) Check the check box for "CNCScrn" (or "CNCScrnE") to be installed, and choose the "OK" button or press the "INPUT" key.

NOTE

- 1 Inserting an ATA card having a copy of a program into the CNC, then switching it on causes "Setupis.exe" to start automatically. After the function is installed, remove the ATA card, and switch the CNC off and on again.
- 2 To uninstall the function, delete the following folder.
 ¥Storage Card¥FANUC¥CNCScrn

B.2 START AND TERMINATION

This appendix explains how to start and terminate the CNC screen display function, and explains the points to be noted when the function is started.

Start procedure (HSSB version)

1. Open the ¥Storage Card¥FANUC¥CNCScrn folder.
2. Start CNCScrn.exe.

Start procedure (Ethernet version)

1. Open the ¥Storage Card¥FANUC¥CNCScrn folder.
2. Start CNCScrnE.exe.

NCBOOTis can be used to cause the CNC screen display function to start automatically when the power is switched on. As for details, refer to the NCBOOTis operator's manual (NCBOOTis.doc) which is included in the following disks.

MODEL A : A02B-0207-K733#ZZ07

MODEL B : A02B-0207-K736

Title bar display

To display the title bar, press the unlabeled key + [V], and choose [Title bar] from the [View] menu.

Termination procedure

Press the unlabeled key + [F], and choose [Exit] from the [File] menu.

B.3 INPUT FROM THE KEYBOARD

The key input method for the FS160is/180is/210is is the same as that for the MDI keyboard type of the FS160i/180i/210i with the personal computer function. See Section 2.2, "Input from the Keyboard," in this manual for details.

Full keyboard

The FS160is/180is/210is is not equipped with a full keyboard. So it cannot be operated using a full keyboard. But in case of FS160is/180is/210is MODEL B, it is possible to use 101 keyboard by connecting via USB interface.

B.4 DATA INPUT/OUTPUT

To set up the data input/output unit, press the unlabeled key + [F], and choose [Data input/output...] from the [File] menu.

The FS160is/180is/210is is equipped with a compact flash memory card instead of a hard disk. To specify the data input/output unit, enter:

¥Storage Card¥...¥... (where ... is any folder name)

Alternatively, to use the ATA card in the front PCMCIA slot, enter:

¥Storage Card2¥...¥... (where ... is any folder name)

B.5 SWITCHING BETWEEN DISPLAY LANGUAGES

The FS160is/180is/210is CNC screen display function can be used in English or Japanese whichever is selected. (Japanese version of FS160is/180is/210is only)

To select either language, press the unlabeled key + [O], then choose [Setting...] from the [Option] menu.

See Section 3.1, "Switching between Display Languages," in this manual for details.

B.6 COPYING THE CNC SCREENS (WindowsCE2.12 OR LATER)

The FS160is/180is/210is CNC screen display function can output the CNC screen images which are displayed in the client area into the files as bitmap data (bmp file).

Operation

- (1) Press the unlabeled key + [F] to display pull-down menu.
- (2) Then choose [Capture(P)] from the [File(F)] menu.
- (3) Copying is finished when the sand clock icon is disappeared.

Attentions

- (1) This function is valid only for FS160is/180is/210is CNC Screen Display Function.
- (2) The folder for outputting the bitmap data is specified by [Data input/output...]. (See Appendix2.4)
The bitmap file name is "HDCPY001.bmp".
When outputting some screens, the file names are as follows.
HDCPY001.bmp, HDCPY002.bmp, HDCPY003.bmp...
- (3) The serial number (HDCPY***) is counted up automatically until the CNC Screen Display Function is ended. When the CNC Screen Display Function is restarted, the serial number is refreshed and then the old one is overwritten.
- (4) The screen image is output as bitmap data with 256 colors. The size of bitmap file is about 300Kbyte and it takes about 4 seconds to output.
- (5) The bitmap data does not include the pull-down menu and the sand clock.
- (6) The blinking characters and cursors are not output correctly.

B.7 HOST SELECTION (ETHERNET VERSION ONLY)

When the Ethernet version of the CNC screen display function is started for the first time, a screen for selecting the host CNC loaded with the FANUC Ethernet board for connection appears.

Choosing the "OK" button with the host CNC selected from the list starts the CNC screen display function. To add a host CNC to the list, choose the

"Edit ..." button. The edit screen appears.

The result of editing is saved to the "¥Storage Card¥FANUC¥HostNc.dat" file.

HostNc.dat file format:

Host-name IP-address port-number [#comment]

- Each item is separated from another with a space or tab code.
- A line that begins with # is a comment.
- This file is in UNICODE.

Example:

This is a sample HostNc.dat

Host1 192.168.0.1 6000

Host2 192.168.0.2 6000 # A comment can be written here, too.

End of file

When the CNC screen display function is started for the second or subsequent time, the CNC selection screen does not appear. Instead, it is connected to the host CNC selected previously. To connect to another CNC, start "¥Storage Card¥FANUC¥CNCScrn¥SetHost.exe" and select the desired CNC.

If no network setting is completed for Windows CE, the CNC screen display function displays the network setting screen.

Be sure to specify IP Address and Subnet Mask. Default Gateway is optional. If you do not want to use the option, enter: "0.0.0.0"

Choosing the "OK" button causes the setting to be saved.

Once you change the network setting, switch the power off and on again to restart the system.

B.8 COMMUNICATION LOG FUNCTION (ETHERNET VERSION ONLY)

If an error occurs within the CNC screen display function, the communication log function is used to save the information about the cause of the error to a file for early problem solving.

The communication log is saved to the "%Storage Card\FANUC\CncScrnE.log" file.

Displaying the communication log

The current communication log can be viewed using the "%Storage Card\FANUC\LogView.exe" utility.

When the "LogView.exe" utility is started, the Open dialog box appears. Choose "CncScrnE.log" using an arrow key, then click the [OK] button. The log display screen appears.

How to operate the log display screen is explained below.

- Moving the cursor
To move the cursor, press an arrow key on the keyboard. The [Page Up] and [Page Down] keys on the keyboard can be used to shift the page.
- Saving to a text file
To convert the log file to a text file and save the text file, choose [Save As] from the [File] menu.
- Changing the setting
To change the setting of the log viewer, choose [Settings] from the [File] menu. The following item can be re-set.
Log information (described later)
- Updating information
To display the current contents of the log file, choose [Refresh] from the [View] menu.
- Changing the sequence of display
To start information display with the latest piece of information, check [Reverse] in the [View] menu (default). Turning off the check starts information display with the least recent piece of information.

Controlling log information

The output of the CNC screen display function can be specified using four different levels.

Level 0

No log is output.

Level 1 (default)

Information about TCP/IP start/stop events and all errors that occurred is output.

Level 2

In addition to the information output at level 1, information about all events related to TCP/IP is output.

Level 3

In addition to the information output at level 2, all communicated data is output.

Choosing [Settings] from the [File] menu displays the Settings dialog box. The "Log Level" tag of the dialog box can be used to check and change the currently effective level.

Choosing "FocaslisE.log" from the list displays the current level. Choosing a new level, then clicking the [OK] button asserts the chosen level.

To put the selected log level in effect, restart the CNC screen display function.

B.9 **TERMINATION BY MEANS OF THE MACHINE SIGNAL (ETHERNET VERSION ONLY)**

Turning on a specified machine signal terminates the CNC screen display function. To specify the machine signal, follow the procedure below.

- (1) Choose the [Close Signal...] from the [Option] menu. A dialog box for specifying the signal appears.
- (2) Enter the target PMC signal in the Signal on host text box, using the following format, then choose "OK."

<signal-address>.<bit-position> Example) X0003.7

NOTE

- 1 The setting of the machine signal is preserved. It is impossible to start the CNC screen display function if the set signal is kept turned on with the PMC sequence program.
- 2 The signal for the PMC connected via a local bus or HSSB can be specified at the same time. In this case, make settings also for the signal on the HSSB side. If the PMC signal is specified as both signal on the host side and signal on the HSSB side, the CNC screen display function is terminated when the PMC signal on either side becomes on.

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Revision Record

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Edition	Date	Contents	Edition	Date	Contents
04	Dec., 2001	Addition of "Copying the CNC screens" and "Series 160i/180i/210i MODEL B" in Appendix B			
03	Dec., 1999	- Addition of Series 160i/180i/210i - Addition of Series 150i--Addition of Ethernet			
02	Oct., 1998	Series 150-B was added.			
01	Oct., 1997	_____			

