

Numerical Control (CNC)

CNC Remote Operation Software

NC Monitor2 Instruction Manual

Introduction

This instruction manual describes how to use NC Monitor2. Incorrect handling may lead to unforeseen accidents, so make sure to read this instruction manual thoroughly before operation to ensure correct usage.

NC Monitor2 supports the following NC series.

Supported models
M800VW/M800VS/M80VW/M80V/M800W/M800S/M80W/M80/E80/C80 Series
M700VW/M700VS/M70V/M700/M70/E70 Series

Notes on Reading This Manual

- (1) For the specifications of individual machine tools, refer to the manuals issued by the respective machine tool builders. The "restrictions" and "available functions" described by the machine tool builders have precedence over this manual.
- (2) This manual describes as many special operations as possible, but it should be kept in mind that operations not mentioned in this manual cannot be performed.

Precautions for safety

Make sure to read this manual, related manuals and auxiliary documents carefully before starting installation, operation, programming, maintenance or inspection to ensure correct usage. Thoroughly understand the device, safety information and precautions of this control system before starting operation.

This manual ranks the safety precautions into "DANGER", "WARNING" and "CAUTION".



DANGER

When the user may be subject to imminent fatalities or major injuries if handling is mistaken.




WARNING

When the user may be subject to fatalities or major injuries if handling is mistaken.



CAUTION

When the user may be subject to injuries or when physical damage may occur if handling is mistaken.

Note that some items ranked as " CAUTION" may lead to major results depending on the situation.

In any case, important information that must always be observed is described.

DANGER







Not applicable in this manual.

WARNING

Not applicable in this manual.

CAUTION

1. Items related to product and manual

-  If the descriptions relating to the "restrictions" and "allowable conditions" conflict between this manual and the machine tool builder's instruction manual, the latter has priority over the former.
-  The operations to which no reference is made in this manual should be considered "impossible".
-  This manual is written on the assumption that your machine is provided with all optional functions. Refer to the specifications issued by machine tool builder to confirm the functions available for your machine before proceeding to operation.
-  In some NC system versions, there may be cases where different pictures appear on the screen, the machine operates in a different way or some function is not activated.
-  To protect the availability, integrity and confidentiality of the NC system against cyber-attacks including unauthorized access, denial-of-service (DoS) (*1) attack, and computer virus from external sources via a network, take security measures such as firewall, VPN, and anti-virus software.
(*1) Denial-of-service (DoS) refers to a type of cyber-attack that disrupts services by overloading the system or by exploiting a vulnerability of the system.
-  Mitsubishi Electric assumes no responsibility for any problems caused to the NC system by any type of cyber-attacks including DoS attack, unauthorized access and computer virus.

Trademarks

MELDAS, MELSEC, EZSocket, EZMotion, iQ Platform, MELSOFT, GOT, CC-Link, CC-Link/LT and CC-Link IE are either trademarks or registered trademarks of Mitsubishi Electric Corporation in Japan and/or other countries.

Ethernet is a registered trademark of Xerox Corporation in the United States and/or other countries.

Microsoft and Windows are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

CompactFlash and CF are either trademarks or registered trademarks of SanDisk Corporation in the United States and/or other countries.

SD logo and SDHC logo are either registered trademarks or trademarks of LLC.

UNIX is a registered trademark of The Open Group in the United States and/or other countries.

Intel and Pentium are either trademarks or registered trademarks of Intel Corporation in the United States and/or other countries.

Other company and product names that appear in this manual are trademarks or registered trademarks of the respective companies.

CONTENTS

1. OVERVIEW	1
1.1 Outline of NC Monitor2.....	1
1.2 Specifications of NC Monitor2	2
1.2.1 Operating Environment of NC Monitor2.....	2
1.3 Screen Configuration of NC Monitor2.....	4
1.3.1 Menu Bar	5
1.3.2 Tool Bar	6
1.3.3 Connected NC Data.....	6
1.3.4 NC List Area	7
1.3.5 Screen Display Window.....	9
2. INSTALLATION AND SETUP.....	10
2.1 How to Install onto Your Computer.....	10
2.2 How to Uninstall from Your Computer.....	10
3. HOW TO USE NC MONITOR2.....	11
3.1 Start and Terminate NC Monitor2.....	11
3.1.1 Start NC Monitor2	11
3.1.2 Terminate NC Monitor2.....	11
3.2 Connect and Disconnect	12
3.2.1 Display the Connected NC's Screen (Connect).....	12
3.2.2 Close the Connected NC's Screen (Disconnect)	12
3.2.3 Change NC Name.....	13
3.2.4 Add Connected NC.....	14
3.2.5 Delete Connected NC	15
3.2.6 Update Connected NC.....	15
3.2.7 Switch Languages.....	15
3.2.8 Arrange Windows.....	15
3.2.9 Version Information.....	15
3.3 Display/Setting Limitations of Connected NC.....	16
3.4 Points to Note.....	17
APPENDIX	18
Appendix 1. Parameters.....	18
Appendix 1.1 Operation Parameters.....	18
Appendix 1.2 Ethernet Parameters.....	18
Appendix 1.3 Wireless LAN Parameters (Only for M8V Series)	19
Appendix 2. Messages.....	22
Appendix 3. Shortcut Key List.....	23
Appendix 4. Restrictions.....	24
Appendix 4.1 Common Restriction	24
Appendix 4.2 Restriction on Devices	25
Appendix 4.2.1 Points to Note	28
Appendix 4.3 Restriction on Guidance.....	28
Appendix 4.4 Restriction on Device Open Parameter Screen	28

Appendix 4.5 Restriction on Ethernet Parameter Screen.....	28
Appendix 4.6 Restriction on PLC Device	28
Appendix 5. Troubleshooting.....	29
Appendix 5.1 Screen Is Displayed Smaller and Buttons Are Difficult to Press.....	29
Appendix 5.2 A Connection Error Occurs when Attempting to Connect to an NC with NC Monitor2 in Windows 8.1.....	30

1. OVERVIEW

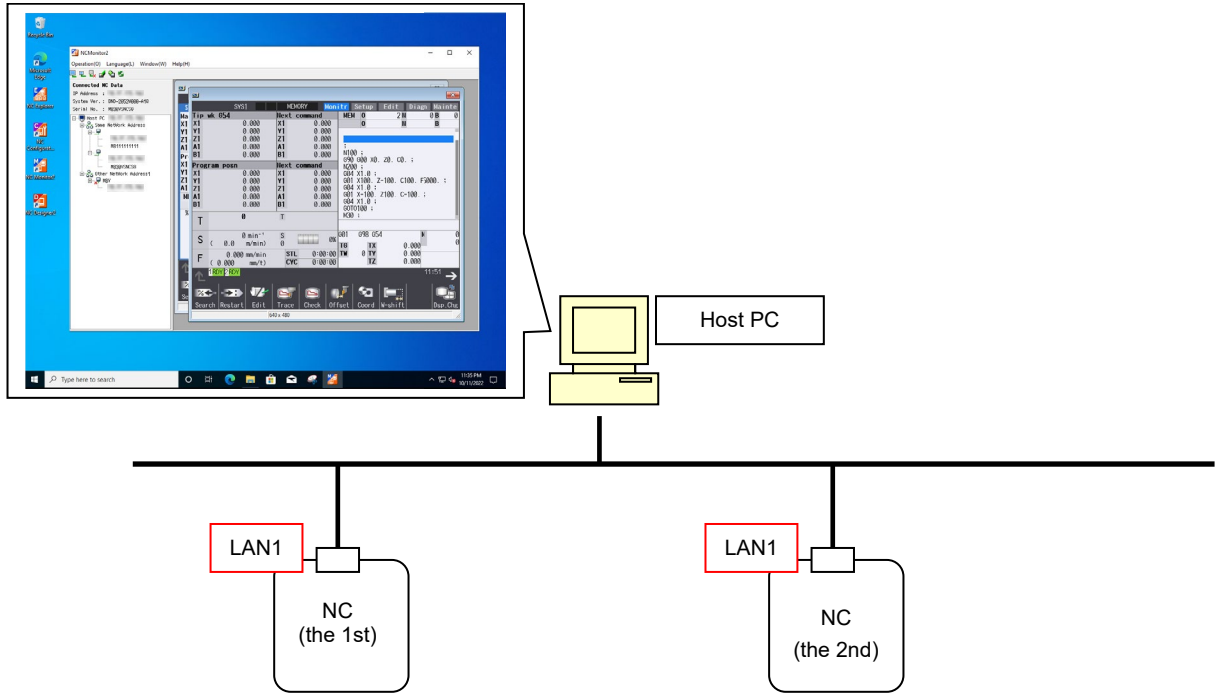
1. OVERVIEW

This chapter explains the outline of NC Monitor2.

1.1 Outline of NC Monitor2

NC Monitor2 is software which enables monitoring of remote numerical controllers (referred to as NCs) by use of the intranet on production site.

NC Monitor2 is possible to connect to more than one NC, thus it can monitor multiple NCs at a time.



Operating the NC screen on NC Monitor2 (excluding the changing of NC data such as parameters) does not operate the screen of the connected NC. Additionally, operating the screen of the connected NC does not operate the NC screen on NC Monitor2.

1. OVERVIEW

1.2 Specifications of NC Monitor2

1.2.1 Operating Environment of NC Monitor2

NC Monitor2 works under the following environment.

OS (Note 1)	Windows 8.1 (32bit version/64bit version) (Note 2) Windows 10 (32bit version/64bit version)
CPU	Windows 8.1, Windows 10: 1GHz or faster
Memory	Windows 8.1, Windows 10: 1GB (32bit version) / 2GB (64bit version) or more
Available hard disk space	1GB or more (excluding the free space necessary for running the OS)
Interface	10M/100M/1G Ethernet
Display	Resolution: SXGA (1280x1024) recommended
Connected NC	M800VW/M800VS/M80VW/M80V Series M800W/800S/M80W/M80/E80/C80 Series M700VW/M700VS/M70V/M700/M70/E70 Series
Number of simultaneously connectable NCs	Up to 10 NCs can be connected and the screens of the connected NCs can be displayed.

(Note 1) WOW64 (structure that operates 32 bit application by 64bit version OS.) is used for 64bit version OS.

(Note 2) To use NC Monitor2 version A7 or later in Windows 8.1, all the following Windows Update programs must be applied to the PC.

- KB2919442: Servicing stack update program
- KB2919355: Update program of Windows 8.1 Update
(apply KB2919442 before this)
- KB2999226: Update program of Windows Universal C Runtime (CRT)
(apply KB2919355 before this)

The release date for each Windows update program is as follows.

- KB2919442: 10 Mar. 2014
- KB2919355: 5 May 2014
- KB2999226: 15 Sep. 2015

1. OVERVIEW

NC Monitor2 can be connected to the following NC.

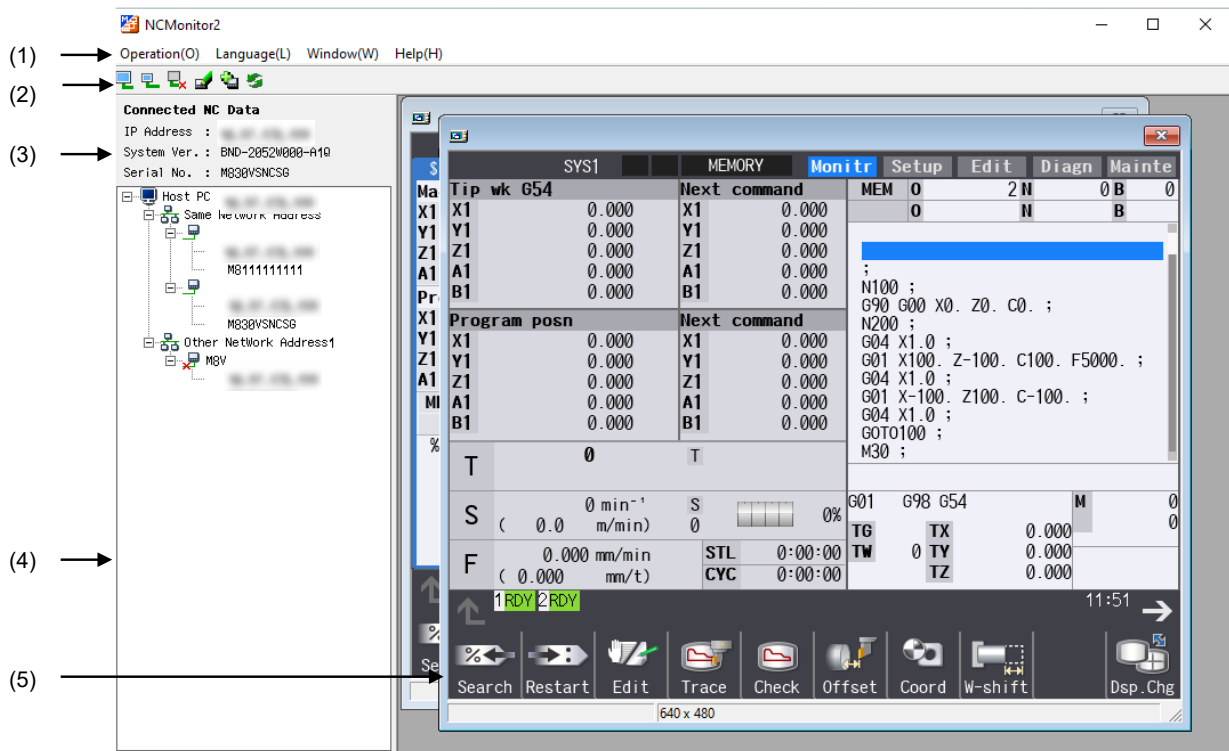
Connected NC	Version with which NC Monitor2 available with
M800VW Series	Ver.A7 or later
M800VS Series	Ver.A7 or later
M80VW Series	Ver.A7 or later
M80V Series	Ver.A7 or later
M800W Series	Ver.A0 or later
M800S Series	Ver.A1 or later
M80W Series	Ver.A4 or later
M80 Series	Ver.A1 or later
E80 Series	Ver.A6 or later
C80 Series	Ver.A4 or later
M700VW Series	Ver.A0 or later
M700VS Series	Ver.A0 or later
M70V Series	Ver.A0 or later
M700 Series *Ver.F0 or later will be the target.	Ver.A0 or later
M70 Series *Ver.F0 or later will be the target.	Ver.A0 or later
E70 Series	Ver.A0 or later

For NC Monitor2, latest software version is recommended.

1. OVERVIEW

1.3 Screen Configuration of NC Monitor2

The NC Monitor2 screen is as shown below.



Item	Description
(1) Menu bar	Possible to connect (to display the screen) and add the NC.
(2) Tool bar	Possible to use frequently used functions without selecting from the menu bar.
(3) Connected NC data	Detailed information (such as IP address, system version and serial No.) of the connected NC, which is displayed in the foreground, appears.
(4) NC list area	Connectable NCs and the NCs added by a user using "Add connected NC" function are listed. Each operation can be performed on the popup menu displayed by selecting an item from the list and right-clicking.
(5) Screen display window	Screens of the connected NCs are displayed.
Title bar	The connected NC's name and the close button are displayed.
Status bar	Displays the various conditions of tool such as the communication status, the searched or input/output device information which was selected on the NC screen, and NC screen size.

1. OVERVIEW

1.3.1 Menu Bar

Connection/disconnection with NC and addition of connected NC can be performed on menu bar.

(1) Operation (O)

Item	Description
Connect (<u>O</u>)	Connects to an NC to display the NC's screen. If the NC you've selected from the NC list is already connected (its screen is being displayed), this NC's screen is displayed in the foreground. If a cursor is not over NC in the list area, selecting this item is not possible.
15-type (<u>X</u>)	Displays the connected NC's 15-type screen. This cannot be selected when E80/C80/M70V/E70/M70 has been selected in the NC list area.
10.4-type (<u>V</u>)	Displays the connected NC's 10.4-type screen.
Disconnect (<u>C</u>)	Cuts off the connection to the NC and closes the NC's screen. When this tool is not connected to the NC, which you've selected from NC list (when this tool is not displaying the selected NC's screen), or when a cursor is not over an NC in the list area, selecting this item is not possible.
Change NC Name (<u>R</u>)	Opens the [Change NC Name] dialog box, where you can change the name of NC that is pointed by a cursor in the NC list area. If a cursor is not over an NC in list area, selecting this item is not possible.
Add connected NC (<u>A</u>)	Opens the [Add connected NC] dialog box, where you can add an NC that belongs to the other network group (a group different from the host PC's IP address) to the NC list.
Delete connected NC (<u>D</u>)	Deletes an NC, which you've added by "Add connected NC" function, from the NC list. When the NC you've selected from the list is already connected (its screen is being displayed) or when a cursor is not pointing at an NC which belongs to the other network group (a group different from the host PC's IP address) in the list area, selecting this item is not possible.
Update (<u>U</u>)	Refreshes the list of the connectable NCs (NCs belonging to the same network group as the host PC's IP address).
End (<u>X</u>)	Terminates the tool.

(2) Language (L)

Using this menu, you can switch the displayed languages of this tool. The default language is the one selected at the time of installation.

Language switching is enabled after restarting this tool.

(3) Window (W)

Using this menu, you can arrange the screen.







(4) Help (H)

Using this menu, you can see this tool's version information.

1. OVERVIEW

1.3.2 Tool Bar

You can use the functions such as connect/disconnect without selecting from the menu. Move the mouse cursor to the tool bar to display the function outline.

Item	Icon	Description
Connect (15-type screen)		Connects to an NC to display the 15-type screen. If the NC you've selected from the NC list is already connected (its screen is being displayed), this NC's screen is displayed in the foreground. Clicking on this button is not possible, if a cursor is not over an NC in the NC list area or E80/C80/M70V/E70/M70 has been selected in the NC list area.
Connect (10.4-type screen)		Connects to an NC to display the 10.4-type screen. If the NC you've selected from the NC list is already connected (its screen is being displayed), this NC's screen is displayed in the foreground. Clicking on this button is not possible, if a cursor is not over an NC in NC list area.
Disconnect		Cuts off the connection to the NC and closes the NC's screen. If this tool is not connected to the NC, which you've selected from the NC list (If this tool is not displaying the selected NC's screen), or if a cursor is not over an NC in NC list area, clicking on this button is not possible.
Change NC Name		Opens [Change NC Name] dialog box, where you can change the name of NC that is pointed by a cursor in NC list area. If a cursor is not over an NC in NC list area, clicking on this button is not possible.
Add connected NC		Opens [Add connected NC] dialog box, where you can add an NC that belongs to the other network group (different from the host PC's IP address) to the NC list.
Update		Refreshes the list of the connectable NCs (NCs belonging to the same network group as the host PC's IP address).

1.3.3 Connected NC Data

This area shows the detailed information of the connected NC whose screen is displayed in the foreground. When not connected to any NC, only the item name "Connected NC Data" is displayed.

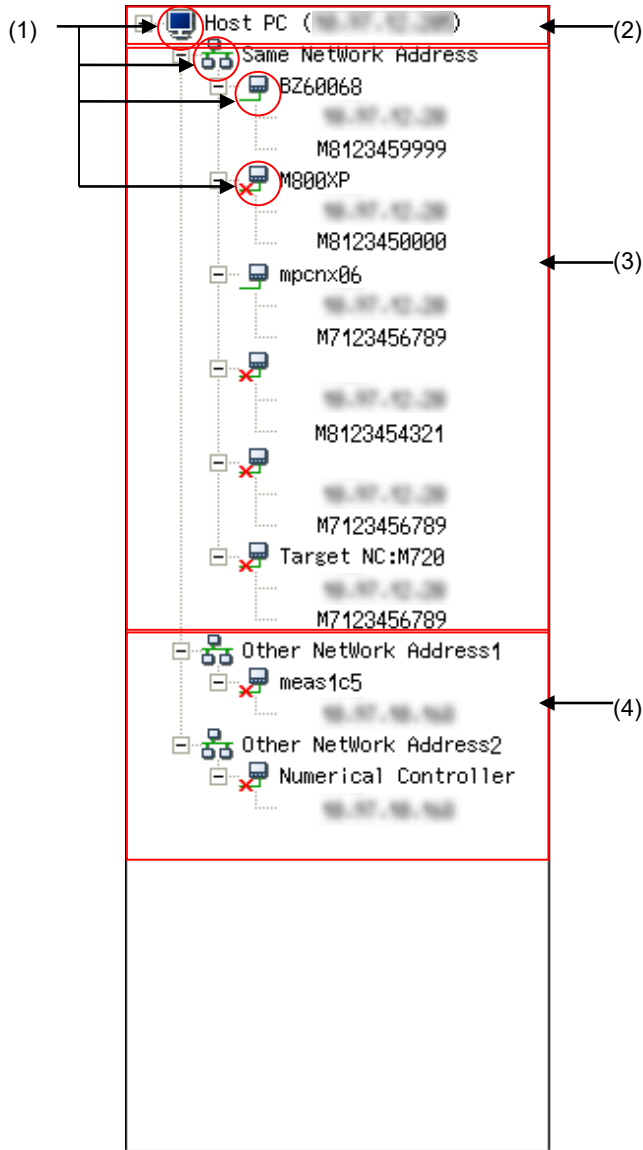
Item	Description
IP Address	Displays the connected NC's IP address (set in the base common parameter "#1926 Global IP address", which is referred to as NCIP address).
System Ver.	Displays the connected NC's system version.
Serial No.	Displays the connected NC's serial number. If the serial number is not set, it is left blank (only the item name is shown).

1. OVERVIEW





1.3.4 NC List Area

In NC list area, connectable NCs and NCs added by "Add connected NC" function are displayed in a tree structure.

When you select an item from the list and right click on it, a pop-up menu appears.



1. OVERVIEW

Item	Description
(1)Icon	<p>There are four types of icons:</p>  : means that it is Host PC.  : means that they belongs to the same network group.  : means that it is being connected (its screen is displayed).  : means that it is not being connected (its screen is not displayed).
(2)Host PC (Host PC's IP address)	<p>The host PC's IP address is shown inside the brackets next to the item name, "Host PC".</p>
(3)List of connectable NCs	<p>This shows a list of connectable NCs, which are displayed in the following configuration.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <pre> ├ NC name ├ NCIP address └ Serial No.</pre> </div> <p>"Connectable NC" means that the NC belongs to the same network group as the host PC's IP address. (E.g.) Host PC's IP address: 192.168.200.205 Host PC's subnet mask: 255.255.255.0 1) NCIP address: 192.168.200.20 →The host PC and the NC belong to the same network address <u>192.168.200.0</u>. 2) NCIP address: 192.168.100.20 →The network addresses differs; <u>192.168.200.0</u> for the host PC and <u>192.168.100.0</u> for NC, thus this NC is not included in the list.</p> <p>(Note 1) Right after the installation of this tool, only connectable NCs are shown in the list. (Note 2) When connection to the NC is impossible for a reason such as the power is OFF, this NC is not shown in the list. (Note 3)If the NC name is not set, the NC name is left blank. It is possible to move a cursor over the blank area.</p>
(4)List of NCs added by the "Add connected NC" function	<p>This shows a list of NCs belonging to the other network group (a group different from the host PC's IP address), which have been added by the "Add connected NC". These NCs are displayed in the following configuration.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <pre> ├ NC name └ NCIP address</pre> </div> <p>(Note 1) See "3.2.4 Add Connected NC" for how to add NCs. (Note 2) All of the added NCs are listed, regardless of whether the NC is connectable or not. (Note 3) The added NCs are still displayed in the list, even after closing and then restarting this tool.</p>

1. OVERVIEW

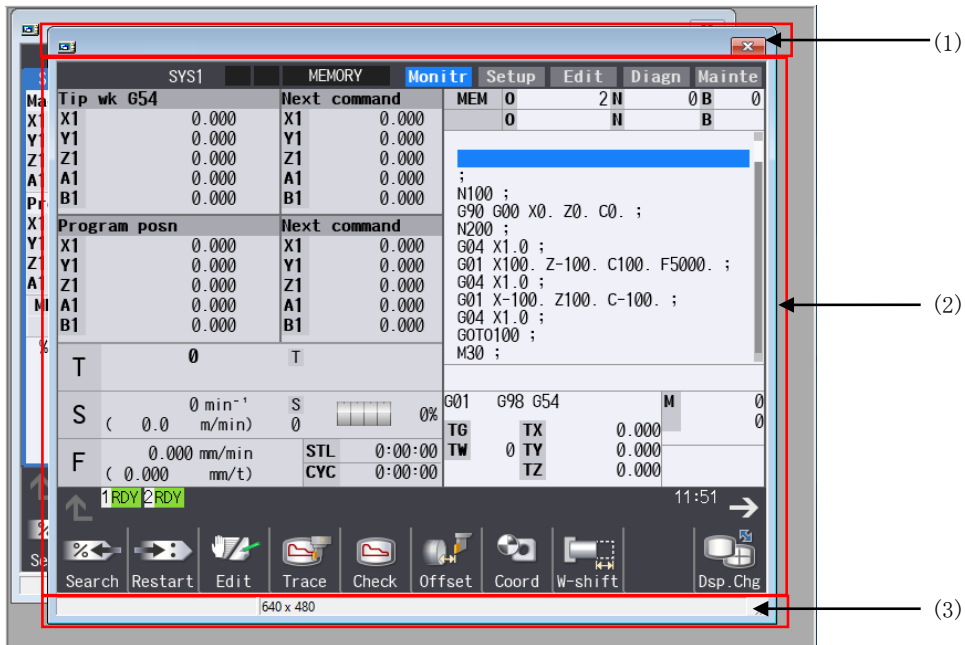
1.3.5 Screen Display Window

This window shows the connected NC's screen.

When you change the window size by dragging the window frame, the connected NC screen is also enlarged/reduced (320*240 to 2048*1536) and displayed accordingly.




If there is more than one connectable NC, screens of up to 10 NCs can be displayed.

But, it's not possible to open multiple screens for one NC.



Item	Description
(1)Title bar	Displays the NC name and the close button.
NC name	Displays the connected NC's name. The name designated by "Add connected NC" or "Change NC Name" is displayed. When NC name is not set, this is left blank.
Disconnect (Close the connected NC's screen)	Cuts off the connection to an NC to close the NC's screen.

2. INSTALLATION AND SETUP

Item	Description						
(2)Connected NC's screen	<p>Displays the connected NC's screen.</p> <p>If the connected NC is M800VW, M80VW, M800W, M80W, M700W or M700, the icon  appears when the operation parameter "#8931 Display/Set limit" is set to "0" or "1" and other host PC or display is being connected (this state is hereinafter called "host connection state").</p> <p>If the connected NC is M800VS, M80V, M800S, M80, E80, C80, M700VS, M70V, M70, or E70, the icon  appears when the operation parameter "#8931 Display/Set limit" is set to "0" or "1".</p> <p>(Note 1) The NC screen shown by NC Monitor2 has no [SOFT KEY] button.</p> <p>(Note 2) When Anshin (MTB) net communication is active in host connection state, the icon  is indicated with higher priority.</p> <p>(Note 3) When the connected NC is M800VW, M800VS, M80VW, M80V, M800W, M800S, M80W or M80, the gesture operation is available.</p>						
(3)Status bar	<p>Displays the various conditions such as the communication status, the searched or input/output device information which was selected on the NC screen, and NC screen size.</p> <table border="1" data-bbox="360 992 1465 1478"> <tbody> <tr> <td data-bbox="360 992 616 1285">Various conditions of NC Monitor2</td> <td data-bbox="616 992 1465 1285"> <p>Setting Operation Disabled: The connected NC's operation parameter "#8931 Display/Set limit" is set to "1" or "2", thus setting of parameters etc. is impossible via this tool.</p> <p>Communication Abnormalities: While connected NC's screen is being displayed, a communication failure such as the NC's power OFF has happened.</p> </td> </tr> <tr> <td data-bbox="360 1285 616 1402">Selected device information</td> <td data-bbox="616 1285 1465 1402">The actual device is displayed corresponding to the search or input/output destination selected on the NC screen. (Refer to "Appendix 3.2 Restriction on Devices".)</td> </tr> <tr> <td data-bbox="360 1402 616 1478">NC screen size</td> <td data-bbox="616 1402 1465 1478">Displays the NC screen size (width*height: in pixel) when changing the size of the screen display window.</td> </tr> </tbody> </table>	Various conditions of NC Monitor2	<p>Setting Operation Disabled: The connected NC's operation parameter "#8931 Display/Set limit" is set to "1" or "2", thus setting of parameters etc. is impossible via this tool.</p> <p>Communication Abnormalities: While connected NC's screen is being displayed, a communication failure such as the NC's power OFF has happened.</p>	Selected device information	The actual device is displayed corresponding to the search or input/output destination selected on the NC screen. (Refer to "Appendix 3.2 Restriction on Devices".)	NC screen size	Displays the NC screen size (width*height: in pixel) when changing the size of the screen display window.
Various conditions of NC Monitor2	<p>Setting Operation Disabled: The connected NC's operation parameter "#8931 Display/Set limit" is set to "1" or "2", thus setting of parameters etc. is impossible via this tool.</p> <p>Communication Abnormalities: While connected NC's screen is being displayed, a communication failure such as the NC's power OFF has happened.</p>						
Selected device information	The actual device is displayed corresponding to the search or input/output destination selected on the NC screen. (Refer to "Appendix 3.2 Restriction on Devices".)						
NC screen size	Displays the NC screen size (width*height: in pixel) when changing the size of the screen display window.						

2. INSTALLATION AND SETUP

2.1 How to Install onto Your Computer

Double click on NCMonitor2.exe. Follow the wizard instructions to install NC Monitor2.

2.2 How to Uninstall from Your Computer

Open the wizard for the uninstallation by "using Control Panels" or "double clicking NCMonitor2.exe". Follow the wizard instructions to uninstall NC Monitor2.

3. HOW TO USE NC MONITOR2

3. HOW TO USE NC MONITOR2

This chapter explains how to operate NC Monitor2.

3.1 Start and Terminate NC Monitor2

3.1.1 Start NC Monitor2

Select [NC Monitor2] from the [Start] menu to activate this tool.

More than one NC Monitor2 can't be activated at a time.

(Note) When there is more than one network card (such as both wired LAN and wireless LAN), NC Monitor2 uses the IP address of the first found network card as the host PC's IP address.

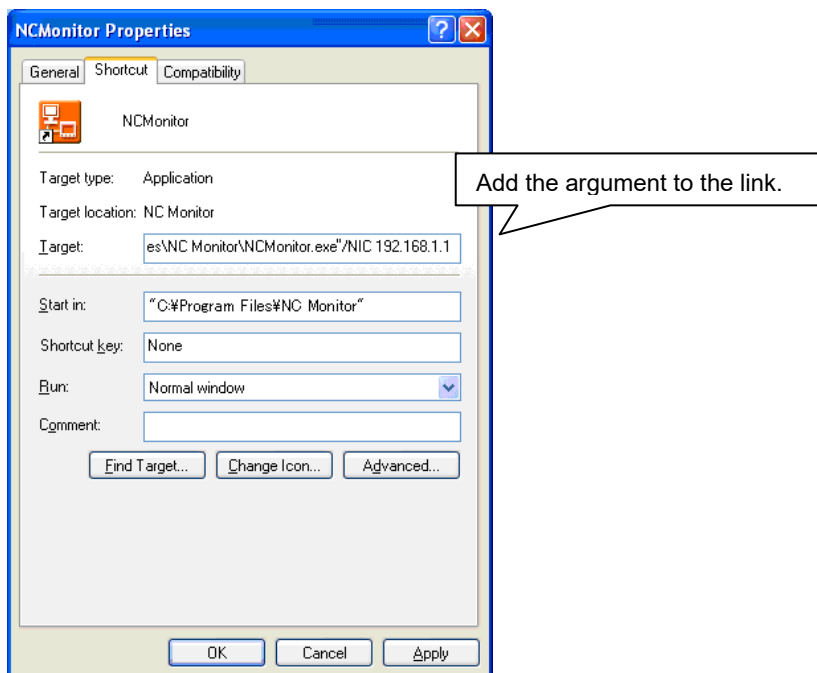
This host PC's IP address is used for searching for connectable NCs, determining network group, and so on.

To specify an arbitrary fixed IP address, designate the IP address to the start argument, as "/NIC xxx.xxx.xxx.xxx".

If the IP address specified for the network card does not exist, an error message appears.


After the error message is closed, NC Monitor will start in the same state as when there is no argument specification.

(E.g.) When the host PC's IP address is 192.168.1.1



3.1.2 Terminate NC Monitor2

Perform either one of the followings to terminate this tool;

- Select [Operation (O)] and [End (X)] from the menu bar.
- Click on  button on the tool's title bar.



If this tool is in connection state (displaying NC's screen), connection with NC is cut off and the NC's screen is closed.



3. HOW TO USE NC MONITOR2

3.2 Connect and Disconnect

3.2.1 Display the Connected NC's Screen (Connect)

Select the NC to connect from the NC list and perform one of the following operations to connect this tool with the NC and to display the NC screen.

- Select [Operation (O)] - [Connect (O)] - [15-type(X)] or [10.4-type(V)] from the menu bar.
- Click on  or  on the tool bar.
- Right click to open its pop-up menu and select [Connect (O)] - [15-type(X)] or [10.4-type(V)].
- Double click the left button of a mouse (Display the NC screen in the following default size.)
 - Display with the screen type and zooming when the NC is disconnected last time.
 - Display on 10.4-type screen when the NC has not been connected.
- Press the [Enter] key (the NC screen size is same as (d)).

After NC connection is completed, the NC's icon in the NC list area is changed from  to .



If the NC you've selected is already in connection state (its screen is being displayed), the connected NC's screen is displayed in the foreground.



If connection fails due to the one of the following reasons, the connection error message box pops up.

- The selected NC does not exist.
- The selected NC's power is OFF.
- A communication trouble has occurred.
- The number of connected NCs has reached the maximum.
- The setting value of the selected NC's parameter "#8931 Display/Set limit" is "2" (Restrict the selected NC's display on NC Monitor2).

3.2.2 Close the Connected NC's Screen (Disconnect)

Perform one of the following operations to cut off the connection with NC and close the NC's screen.


- Select an NC to cut off from NC list and select [Operation (O)] - [Disconnect (C)] from the menu bar.
- Select an NC to cut off from NC list and click on  button on the tool bar.
- Select an NC to cut off from NC list and right click to open the pop-up menu and select [Disconnect (C)].
- Click on  button on the screen display window's title bar.

After the cutoff, the NC's icon in the NC list area changes from  to .

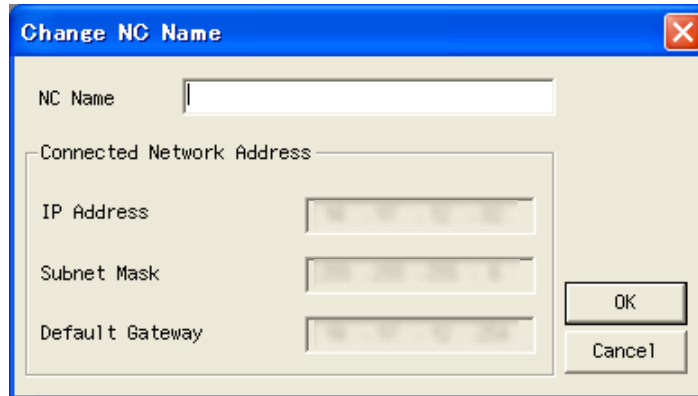
3. HOW TO USE NC MONITOR2

3.2.3 Change NC Name

Change the NC name displayed in the NC list.

- (1) Select the NC to change the name from the NC list and perform one of the following operations to display the [Change NC Name] dialog box.
 - Select [Operation (O)] and [Change NC Name (R)] from the menu bar.
 - Click on  button on the tool bar.
 - Right click to open the pop-up menu and select [Change NC Name (R)].

The connected network address is shown in IP Address, Subnet Mask and Default Gateway boxes.



To cancel this operation, click on  or CANCEL button.

The NC name can be up to 32 one-byte characters in length.

- (2) Input an arbitrary NC name in [Change NC Name] dialog and click on OK button.

Then, the [Change NC Name] dialog box closes and the screen is switched back to the NC Monitor2 operation screen.

- (3) The new NC name is shown in the NC list.


If you've changed the NC name, which is already in connection state (its screen is being displayed), the new name is also shown on Screen display window's title bar.

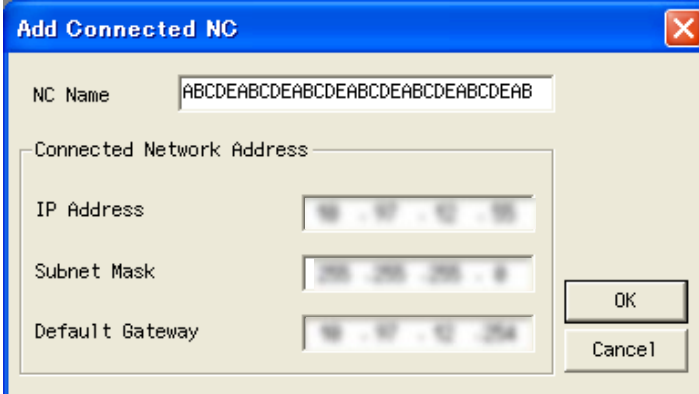
3. HOW TO USE NC MONITOR2

3.2.4 Add Connected NC

Add an NC that belongs to the other network group (a group different from the host PC's IP address).

(1) Perform one of the following operations to display the [Add Connected NC] dialog box.

- Select [Operation (O)] and [Add Connected NC (A)] from the menu bar.
- Click on  on the tool bar.
- Right click on the NC list area to open the pop-up menu and select [Add connected NC (A)].



To cancel the operation, click on  or CANCEL button.

The NC name can be up to 32 one-byte characters in length.

(2) Input the NC name and network address (IP address, subnet mask and default gateway) in [Add Connected NC] dialog and click on OK.

Then, the [Add connected NC] dialog box closes and the screen is switched back to NC Monitor2.

(3) Added NCs, both connectable and non-connectable, are all included in the NC list area.

(Even if you designate an NC whose power is OFF, for example, the NC is also added to the list.)

When the network address of the same network group as the IP address of the host is added, a network group error message box appears.

If you attempt to add a network address which is already registered (displayed in the NC list area), the [Duplication Error] message box pops up.

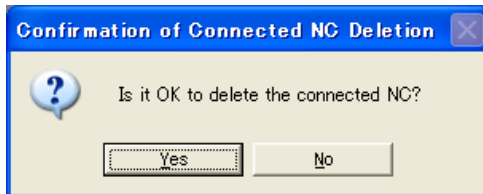
If incorrect network address (IP address is 255.255.255.255) is added, the [Setting Error] message box pops up.

3. HOW TO USE NC MONITOR2

3.2.5 Delete Connected NC

Delete an NC that belongs to a network group different from the host PC's IP address, which you've added by "Add connected NC" function (See "3.2.4 Add Connected NC").


- (1) Select the NC to delete the connection from the NC list and perform one of the following operations to display the [Confirmation of Connected NC Deletion] message box.
 - Select [Operation (O)] and [Delete connected NC (D)] from the menu bar.
 - Right click to open the pop-up menu and select [Delete connected NC (D)].



- (2) Click on the [Yes] button to delete the NC.
Click on the [No] button to cancel the deletion.
You cannot delete an NC which belongs to the same network group as the host PC's IP address.

3.2.6 Update Connected NC

Perform either one of the following operations to refresh the list of NCs that belong to the same network group as the host PC's IP address.

- Select [Operation (O)] and [Update (U)] from the menu bar.
- Click on  on the tool bar.

3.2.7 Switch Languages

If you wish to change the language displayed on NC Monitor2, select [Language (L)] and [English (E)] or [Language (L)] and [Japanese (J)] from the menu bar.

After the language switching, a message box requesting you to restart the tool pops up.

After restarting the tool, selected language display is enabled.

(Note) This tool will not be restarted automatically just by pressing the OK button.

3.2.8 Arrange Windows

If you wish to display multiple NCs' screens in an aligned (overlapped) manner, select [Window (W)] and [Overlap Display (C)] from the menu bar.

3.2.9 Version Information

If you wish to check NC Monitor2's version, select [Help (H)] and [Version Information (A)] from the menu bar to open the [Version Information] dialog box.

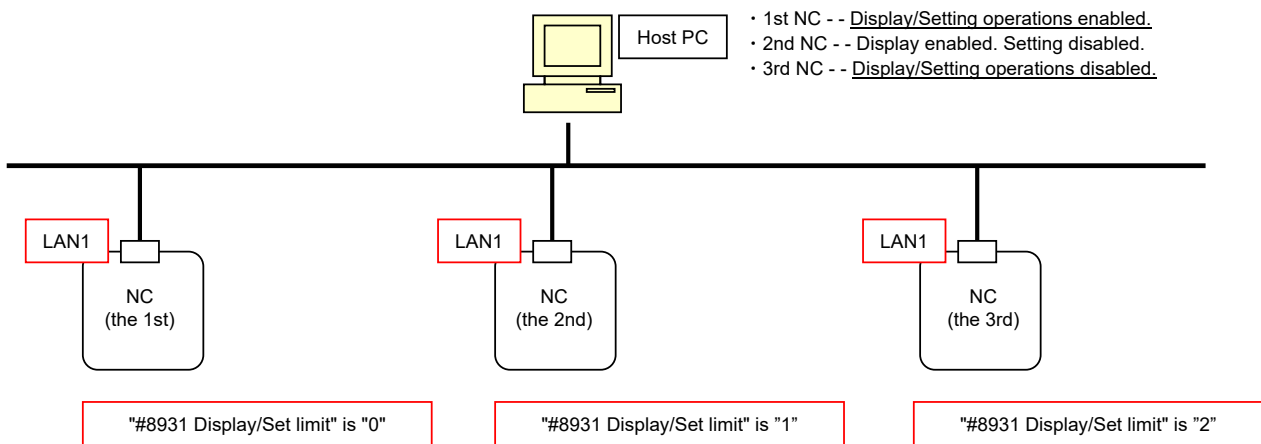
3. HOW TO USE NC MONITOR2

3.3 Display/Setting Limitations of Connected NC

By setting the NC's operation parameter "#8931 Display/Set limit", you can restrict the NC's display or setting on or from NC Monitor2.

The initial setting value is "0", so there are no limitations in displaying the connected NC on NC Monitor2 and in setting operation from NC Monitor2.

Parameter "#8931" value	Display/Setting operation
0	NC Monitor2 can display the connected NC's screen. Setting of this NC is possible from this tool.
1	NC Monitor2 can just display the connected NC's screen.
2	NC Monitor2 is unable to connect to the NC.



3. HOW TO USE NC MONITOR2

3.4 Points to Note

There are some points to note when using this tool.

- (1) When connected NC's parameter "#8931 Display/Set limit" is set to "0", another host PC or display may be operating this NC. Thus be careful if you perform setting for this NC.
- (2) When the screen display window of the connected NC appears, Caps Lock turns ON. Thus please be careful during setting operation.
- (3) Regardless of the connected NC model or the version, input/output of device and the setting value of the directory from this tool will not be maintained when the power of the connected NC is turned OFF.
- (4) When the connected NC is M80V/M80, if IPC connection is enabled, the HD can be selected as subprogram storage destination. If IPC connection is disabled, the HD cannot be selected.
- (5) When the connected NC is M800VS/M800S/E80, the HD cannot be selected as subprogram storage destination.
- (6) When the connected NC is M700VS/M70V/M70/E70, the HD, DS and FD memory card and FD cannot be selected as subprogram storage destination.
- (7) When the NC screen is enlarged and displayed, the counter update may be slow or the drawing result of trace and graphic check may be rough.
- (8) A software list, which is displayed by selecting [Config]-[S/W config] menu on the diagnosis screen, is the compatible version of NC Monitor2, not the version number of HMI of the connected NC. However, the compatible NC version of M800VW is displayed for M800VS/M80VW/M80V, the compatible NC version of M800W is displayed for M800S/M80W/M80/E80, and the compatible NC version of M700VW/VS is displayed for M70V/E70/M700/M70.
- (9) When using M800VW (Windows-based display unit)/M80VW (Windows-based display unit)/M800W (Windows-based display unit)/M80W (Windows-based display unit), the operating system information, which is displayed by selecting [Config]-[S/W config] menu on the diagnosis screen, is the operating system information of NC Monitor2, and not of a display.
- (10) Depending on the computer you are using, 3D program check screen on the connected NC might not be displayed correctly. Update the graphic driver. (Check with the graphic card manufacturer or the computer manufacturer for the latest graphic driver.)

APPENDIX

APPENDIX

This chapter explains the information which you can refer to in using NC Monitor2. Refer to this information when necessary.

Appendix 1. Parameters

The relevant parameters when using NC Monitor2 are listed below.
 For parameters with (PR), turn OFF the power of the CNC after setting. The settings become valid after turning ON the power again.

Appendix 1.1 Operation Parameters

#	Item	Description	Setting range
8931	Display/Set limit	Select the restriction of the connected NC's screen display/settings on/from the remote control tool (NC Monitor2). The menu may not be able to be selected depending on the settings. 0: Permit the connected NC to display/set the screen. 1: Permit the connected NC only to display the screen. 2: Restrict the connection with NC Monitor2.	0 to 2

Appendix 1.2 Ethernet Parameters

#	Item	Description
1926 (PR)	Global IP address	Set the main CPU's IP address. Set the NC IP address seen from an external source.
1927 (PR)	Global Subnet mask	Set the subnet mask for the IP address.
1928 (PR)	Global Gateway	Set the IP address for the gateway.

APPENDIX

Appendix 1.3 Wireless LAN Parameters (Only for M8V Series)

#	Item	Description	Setting range
75000 (PR)	WLAN STA/AP mode	Specify the operation mode of wireless LAN. 0: No mode (Wireless LAN function invalid) 1: Station (STA) mode 2: Access point (AP) mode	0 to 2
75001 (PR)	WLAN IP address	Set the IP address for the wireless LAN. (Note) This parameter is ignored when "DHCP client" is enabled.	0.0.0.0 to 255.255.255.255
75002 (PR)	WLAN Subnet mask	Set the subnet mask for the wireless LAN. (Note) In Station (STA) mode, this parameter is ignored when "DHCP client" is enabled.	0.0.0.0 to 255.255.255.255
75003 (PR)	connect SSID	For Station (STA) mode Specify the SSID of the access point to be connected.	Up to 32 characters in length, containing alphanumeric characters and symbols
75004 (PR)	connect BSSID	For Station (STA) mode Specify the BSSID (MAC address of the wireless LAN network) of the access point to be connected. When this parameter is not set, the access point that has the strongest radio wave intensity is connected.	00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF 0: No setting
75005 (PR)	SSID	For Access Point (AP) mode Specify the SSID used when a station connects to the CNC.	Up to 32 characters in length, containing alphanumeric characters and symbols
75006 (PR)	Encryption mode	For Access Point (AP) mode Specify the data encryption and authentication method for the wireless communications. 0: WPA-PSK TKIP 1: WPA2-PSK AES	0/1
75007 (PR)	Encryption key	In Access point (AP) mode, specify the encryption key to be used when the station is connecting to CNC. In Station (STA) mode, specify the encryption key of the access point to be connected.	8 or more to 32 characters in alphanumeric characters or symbols

APPENDIX

#	Item	Description	Setting range
75008 (PR)	WLAN channel	<p>For Access Point (AP) mode Specify the channel (frequency band) to be used for the wireless communication.</p> <p>0: Automatic 1 to 13: Channel for 2.4 GHz 36, 40, 44, and 48: Channel for 5 GHz (W52) 149, 153, 157, 161, and 165: Channel for 5 GHz (W58)</p> <p>(Note) Only channels that correspond to the country code can be set. JP: 1 to 13, 36, 40, 44, and 48 CN: 1 to 13, 36, 40, 44, 48, 149, 153, 157, 161, and 165 US: 1 to 11, 36, 40, 44, 48, 149, 153, 157, 161, and 165 TR: 1 to 13, 36, 40, 44, and 48 TW: 1 to 11, 36, 40, 44, 48, 149, 153, 157, 161, and 165 GB: 1 to 13, 36, 40, 44 and 48 EU countries: 1 to 13, 36, 40, 44, and 48</p>	0, 1 to 13, 36, 40, 44, 48, 149, 153, 157, 161, 165
75009 (PR)	Frequency band	<p>For Access Point (AP) mode Specify the operation frequency band for the wireless communication.</p> <p>0: 2.4GHz 1: 5GHz</p>	0/1
75010 (PR)	ESSID stealth	<p>For Access Point (AP) mode Specify whether to enable ESSID stealth.</p> <p>0: Disable 1: Enable</p>	0/1
75011 (PR)	AP isolation OFF	<p>For Access Point (AP) mode Specify whether to disable AP isolation.</p> <p>0: Disable 1: Enable</p>	0/1
75012 (PR)	abg mode	<p>For Access Point (AP) mode Specify whether to enable abg mode.</p> <p>0: Disable 1: Enable (not communicate with IEEE802.11n)</p> <p>(Note) Set this parameter if the station to be communicated malfunctions when communicating with IEEE802.11n.</p>	0/1
75050 (PR)	DHCP client	<p>Specify whether to enable DHCP client.</p> <p>0: Disable 1: Enable</p> <p>(Note) This parameter is enabled when station (STA) mode is valid.</p>	0/1

APPENDIX

#	Item	Description	Setting range
75051 (PR)	DHCP server	Specify whether to enable DHCP server. 0: Disable 1: Enable (Note) This parameter is enabled when access point (AP) mode is valid.	0/1
75052 (PR)	StartIP DHCPserver	Specify the beginning of the IP addresses to be allocated to devices in the LAN by DHCP. (Note) If the IP addresses used by the CNC are included in the allocatable IP addresses, they are not allocated.	0.0.0.0 to 255.255.255. 255
75053 (PR)	IP num DHCPserver	Specify the number of IP addresses to be allocated to devices in the LAN by DHCP. When "0" is set, the IP num DHCPserver is "20". (Note) If the IP addresses used by the CNC are included in the allocatable IP addresses, they are not allocated.	0 to 20

APPENDIX

Appendix 2. Messages

The messages (message boxes) listed below are shown during each operation of NC Monitor2.

Message	Meaning	Action
Setting Operation Disabled	Because the connected NC's operation parameter "#8931 Display/Set limit" is set to "1" or "2", this tool is unable to do parameter setting, etc.	Change the setting of the connected NC's operation parameter "#8931 Display/Set limit".
Communication Error	Communication failure has occurred because, for example, the connected NC's power turned OFF while its screen was being displayed.	- Check if the connected NC's power is ON. - Check if the connected NC has a proper network connection.
Network Group Error	The network address you attempted to add could not be added because it is the same group as the IP address of host computer.	Set the network address of a different network group from the IP address of host computer.
Duplication Error	The network address you attempted to add has been already registered.	Cancel the operation or set another network address.
Setting Error	The network address you attempted to add is incorrect (IP address is 255.255.255.255).	Input correct network address. (IP address other than 255.255.255.255)
Connection Error	- The connected NC doesn't exist. - The connected NC power is not ON. - Communication failure - The number of connected NCs reached the maximum. - Displaying on NC Monitor2 is restricted. - Connection to the connected NC is prohibited by the IP address filter. Connection failed due to one of these reasons.	- Check if the connected NC exists. - Turn ON the connected NC's power. - Check if the connected NC has a proper network connection. - Reduce the number of connected NCs. - Check the setting value of the connected NC's operation parameter "#8931 Display/Set limit". - Check the IP address filter (setting value of Ethernet parameter #9810 to #9826 and #9830 to #9846) of the connected NC.

The messages listed below are shown on the screen display window only during NC Monitor2 operation.

Message	Meaning	Action
Setting operation is restricted.	Because the connected NC's operation parameter "#8931 Display/Set limit" is set to "1" or "2", this tool is unable to do parameter setting, etc.	Change the setting of the connected NC's operation parameter "#8931 Display/Set limit".

APPENDIX

Appendix 3. Shortcut Key List

On the connected NC's screen, the following shortcut keys are available.

	Keys on NC keyboard	Supplements	Keys on PC keyboard
FUNC	MONITOR	Monitor screen	SHIFT+F1
	SET_UP	Setup screen	SHIFT+F2
	EDIT	Edit screen	SHIFT+F3
	DIAGN	Diagnosis screen	SHIFT+F4
	MAINTE	Maintenance screen	SHIFT+F5
Part system	(\$↔\$)	Switch \$↔\$	CTRL+F1
Help	?	Display/Hide the operation/parameter/alarm guidance	CTRL+F2
Previous screen	(Back)	Select the previous screen	CTRL+F6
Menu list	MENU LIST	Display/Hide the menu list	CTRL+F8
Tab	←	Backward tab	CTRL+F9
	→	Forward tab	CTRL+F10
Page	↑	Previous page	PageUp
	↓	Next page	PageDown
MENU	MENU1		F1
	MENU2		F2
	MENU3		F3
	MENU4		F4
	MENU5		F5
	MENU6		F6
	MENU7		F7
	MENU8		F8
	MENU9		F9
	MENU10		F10
Left <	◁	Return (Menu)	F11
right >	▷	Next menu	F12
Delete		DELETE	DELETE
Insert		INSERT	INSERT
Cancel	C.B.	Clear the input area	SHIFT+Home
	CAN		ESC
Input	ENTER		ENTER
Cursor	↑		↑
	↓		↓
	←		←
	→		→
Tab	Left tab (←)	Move the input target cursor	SHIFT+TAB
	Right tab (→)	Move the input target cursor	TAB
Special	ABC/abc...		Caps Lock

Appendix 4. Restrictions

This tool has the following restrictions.

Appendix 4.1 Common Restriction

- (1) More than one NC Monitor2 cannot start at a time.
- (2) Screens of up to 10 connected NCs can be displayed on NC Monitor2.
- (3) More than one screen cannot be activated for one NC.
- (4) NC Monitor2 cannot run a machining program.
- (5) Background check is not available with NC Monitor2.
- (6) This tool is unable to display a PLC onboard screen.
- (7) This tool is unable to display a custom screen.
- (8) Screen saver (Back-light OFF) function is disabled.
- (9) Some screens and menus, etc. are not displayed depending on the connected NC version.
- (10) NC Monitor2 is not compatible to be connected to the NC under the VPN connection environment.
- (11) Security function cannot be used on Maintenance screen.
- (12) Customized data cannot be backed up or restored by all backup.
- (13) To connect NC Monitor2 with an NC, send/receive of port number 683 must be permitted.
- (14) When the connected NC is M800VW, M800VS, M80VW, or M80V, NC Monitor2 displays the M800VW's screen.
- (15) When the connected NC is M800W, M800S, M80W, M80, or E80, NC Monitor2 displays the M800W's screen.
- (16) When the connected NC is M700VW, M700VS, M70V, M700, M70, or E70, NC Monitor2 displays the M700VW's screen (excluding some menus). The NC menus displayed on NC Monitor2 are the same as those of the connected NC. (However the menus to select the device for program search, input/output, or format are the same as of M700VW.)
- (17) When the connected NC is M70V/M70/E70, [System setup] menu will not be displayed.
- (18) When the connected NC is M80VW/M80V/M80W/M80/E80/M70V/M70/E70, the option list will not be displayed on the option screen.
- (19) The automatic backup function of the NC does not work with the screen of NC Monitor2.
- (20) When the connected NC is C80, [Memory card] menu will not be displayed on the input/output screen of the Edit or Maintenance screen.
- (21) For M800 Series/M80 Series/E80 Series, the home screen is not displayed on the NC Monitor2's connected NC screen even if parameter "#11080 HomeScreen display" is set to "1" or "2" (display the home screen).
- (22) For M800/M80/E80 series, The custom cycle of interactive cycle insertion is not displayed on the screen of the connected NC displayed with NC Monitor2.
- (23) For M800V Series/M80V Series, 3D machining simulation is not supported.

APPENDIX

Appendix 4.2 Restriction on Devices

An external device (HD, memory card and floppy disk) displayed on the NC screen means either a host PC or connected NC depending on the screen when using this tool.

(1) Operation search, Restart search, Check search, T list search, Verification stop registration, Pallet program registration

Device on the display	Access target																		
	PC/NC	Device	Model																
			M800VW	M800VS	M80VW	M80V	M800W	M800S	M80W	M80	E80	C80	M700VW	M700VS	M70V	M700	M70	E70	
Memory (MDI)	Connected NC	Memory (MDI)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Serial	Host PC/ Connected NC	Serial	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DS	Connected NC	SD card in the control unit	○	×	○	×	○	×	○	×	○	×	×	×	×	×	×	×	×
		Data server in the display unit	×	○	×	○	×	○	×	○	○	×	×	×	×	×	×	×	×
		CF card in the control unit	×	×	×	×	×	×	×	×	×	×	○	×	×	○	×	×	×
Memory card	Connected NC	Front SD card	×	○	×	○	×	○	×	○	○	×	×	×	×	×	×	×	
		Front IC card	×	×	×	×	×	×	×	×	×	×	×	○	○	×	○	○	
USB memory			×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
HD			×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
FD			×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
Memory2	Connected NC	Memory2	○	○	○	○	×	×	×	×	×	○	×	×	×	×	×	×	

○: Selectable
 ×: Unselectable

APPENDIX

(2) Registration of subprogram storage destination

Device on the display	Access target																		
	PC/NC	Device	Model																
			M800VW	M800VS	M80VW	M80V	M800W	M800S	M80W	M80	E80	C80	M700VW	M700VS	M70V	M700	M70	E70	
Memory	Connected NC	Memory	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DS	Connected NC	SD card in the control unit	○	×	○	×	○	×	○	×	○	×	×	×	×	×	×	×	×
		Data server in the display unit	×	○	×	○	×	○	×	○	○	×	×	×	×	×	×	×	×
		CF card in the control unit	×	×	×	×	×	×	×	×	×	×	○	×	×	○	×	×	×
Memory card	Connected NC	Front SD card	○	○	○	○	○	○	○	○	○	○	×	×	×	×	×	×	×
		Front IC card	×	×	×	×	×	×	×	×	×	×	○	○	○	○	○	○	○
USB memory	Connected NC	Front USB memory	○	○	○	○	○	○	○	○	○	○	×	×	×	×	×	×	×
HD	Connected NC	Data server in the display unit	○	×	○	×	○	×	○	×	○	×	×	×	×	×	×	×	×
		Hard disk of IPC (Industrial PC) which network is connected with the connected NC (Can be selected when IPC connection is enabled. Cannot be selected when IPC connection is disabled.)	×	×	×	○	×	×	×	○	×	×	×	×	×	×	×	×	×
		HD	×	×	×	×	×	×	×	×	×	×	×	○	×	×	○	×	×
FD	Connected NC	FD	×	×	×	×	×	×	×	×	×	×	○	×	×	○	×	×	
Memory2	Connected NC	Memory2	○	○	○	○	×	×	×	×	×	×	×	×	×	×	×	×	

○: Selectable
 ×: Unselectable

APPENDIX

(3) Edit, Input/Output, All backup

Device on the display	PC/NC	Device	Access target															
			Model															
			M800VW	M800VS	M80VW	M80V	M800W	M800S	M80W	M80	E80	C80	M700VW	M700VS	M70V	M700	M70	E70
Memory (MDI)	Connected NC	Memory (MDI)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Serial	Host PC/ Connected NC	Serial	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DS	Connected NC	SD card in the control unit	○	×	○	×	○	×	○	×	×	×	×	×	×	×	×	×
		Data server in the display unit	×	○	×	○	×	○	×	○	○	×	×	×	×	×	×	×
		IC card in the control unit	×	×	×	×	×	×	×	×	×	×	○	×	×	○	×	×
Memory card	Host PC	Fixed disk or removable disk of the drive E	○	×	○	×	○	×	○	×	×	×	×	×	×	×	×	×
		The first found fixed disk or removable disk after the drive E	×	×	×	×	×	×	×	×	×	×	○	×	×	○	×	×
	Connected NC	Front SD card	×	○	×	○	×	○	×	○	○	×	×	×	×	×	×	×
		Front IC card	×	×	×	×	×	×	×	×	×	×	○	○	○	○	○	○
USB memory	Host PC	The first found fixed disk or removable disk after the drive F	○	○	○	○	○	○	○	○	○	○	×	×	×	×	×	
HD	Host PC	D:\NCFILE	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
FD	Host PC	A:\	×	×	×	×	×	×	×	×	×	×	○	○	○	○	○	
Memory2	Connected NC	Memory2	○	○	○	○	×	×	×	×	×	○	×	×	×	×	×	

○: Selectable
 ×: Unselectable

(4) Interactive cycle insertion (DXF data input)

Device on the display	PC/NC	Device	Access target															
			Model															
			M800VW	M800VS	M80VW	M80V	M800W	M800S	M80W	M80	E80	C80	M700VW	M700VS	M70V	M700	M70	E70
HD	Host PC	D:\NCFILE	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DS			×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
Memory card			×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
USB MEMORY			×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	

○: Selectable
 ×: Unselectable

Appendix 4.2.1 Points to Note

- (1) For M700VW/M700VS/M70V/M700/M70/E70, the serial device varies the access target according to "#9051 Data I/O port".
- (2) A file stored in the hard disk (D:\NCFILE), USB memory or floppy disk cannot be edited.
- (3) For M800VW/M80VW/M800W/M80W/M700VW/M700, a file stored in the memory card cannot be edited.
- (4) Files can be input/output to/from the host PC's hard disk (D:\NCFILE), USB memory or floppy disk, but cannot be input/output to/from the connected NC's hard disk, hard disk of IPC (Industrial PC) which network is connected with the connected NC (for M80V/M80), USB memory or floppy disk.
- (5) For M800VW/M80VW/M800W/M80W/M700VW/M700, files can be input/output to/from the host PC's memory card, but cannot be input/output to/from the connected NC's memory card.
- (6) Using "All backup", a backup to the host PC's hard disk (D:\NCFILE) or USB memory is enabled, but a backup to the connected NC is disabled.
- (7) Using "All backup" for M800VW/M80VW/M800W/M80W/M700VW/M700, a backup to the host PC's memory card is enabled, but a backup to the connected NC is disabled.
- (8) For C80, registration of subprogram storage destination and all backup function cannot be used.

Appendix 4.3 Restriction on Guidance

- (1) PLC alarm guidance can not be displayed.

Appendix 4.4 Restriction on Device Open Parameter Screen

- (1) The comments on the device open parameter screen will not be displayed.
- (2) The [Commentdisplay] menu of the group detail screen is controlled. Comments will be hidden regardless of the display/hide status of comments held by the NC.

Appendix 4.5 Restriction on Ethernet Parameter Screen

- (1) The item "Connect NC address" cannot be set.

Appendix 4.6 Restriction on PLC Device

- (1) Even when the displayed part system is changed on the NC Monitor2 screen, X760 to X767 (part system display status on the screen) will not be changed. (Note that the devices for M700VW/ M700VS/ M700/ M70/ E70 are X760 to X763.)
- (2) Even when the displayed part system is changed by Y730 to Y737 (part system selection signal of the screen) on the connected NC, the displayed part system on the NC Monitor2 screen will not be changed. (Note that the devices for M700VW/M700VS/M700/M70/E70 are Y730 to Y733.)
- (3) Even when the NC Monitor2 screen is changed to other screen (Monitor, Setup, Edit, Diagnosis or Maintenance), R210 (display screen number register) will not be changed.

Appendix 5. Troubleshooting

Appendix 5.1 Screen Is Displayed Smaller and Buttons Are Difficult to Press

When the display resolution is high (4K or 3K, etc.), the screen is displayed smaller and the buttons are difficult to press.

For Windows 10 (Ver. 1703 or later) (*1), display NC Monitor2 using high DPI scaling (*3) with the Windows 10 function (*2).

(*1) The procedures to check the Windows version

- (1) Press Windows key + [R], or select [Windows System] -> [Run] from the Start menu of Windows.
- (2) Enter 'winver' in the "Run" dialog.
- (3) Check the version in the displayed dialog.

(*2) The procedures to support high DPI display

The displayed contents of the property may differ depending on version (*1) of Windows.

- (1) Select NCMonitor2.exe (*4), then select [Properties] on the right-click menu.
- (2) Select [Change high DPI settings] in the [Compatibility] tab.
Select "Override high DPI scaling behavior. Scaling performed by:", then select "System" from the pull-down list.
- (3) Click the [OK] button.

(*3) The procedures to increase magnification

The NC Monitor2 display will be blurred by enlarging. Change the size of text or other items on a screen by following the procedures below.

- (1) Click "Start" - "Settings (gear icon)" - "System" - "Display" of Windows.
Alternatively, right-click on the desktop of the windows and click "Display settings" on the popup menu.
- (2) Set "Change the size of text, apps, and other items" under "Scale and layout".
The following lists the setting values for "Change the size of text, apps, and other items" and the recommended display resolution for each setting value.

Size	Display resolution
100 %	1024 × 768 dots or more
125 %	1900 × 1200 dots or more
150 %	1900 × 1200 dots or more
175 %	2880 × 1620 dots or more
200 %	2880 × 1620 dots or more
225 %	3840 × 2160 dots or more
250 %	3840 × 2160 dots or more

(*4) NCMonitor2.exe is stored in the folder in which NC Monitor2 is installed.

When the installation destination folder is set as the default, it is stored in the following folders.

64 bit OS: C:\Program Files (x86)\MELSOFT\NC Monitor2\NCMonitor2.exe

32 bit OS: C:\Program Files\MELSOFT\NC Monitor2\NCMonitor2.exe

Appendix 5.2 A Connection Error Occurs when Attempting to Connect to an NC with NC Monitor2 in Windows 8.1

Depending on the Windows Update status, connecting to an NC using NC Monitor2 version A7 or later in Windows 8.1 may not be possible. When unable to connect to an NC, apply the Windows update programs by the following procedure.

- (1) Apply KB2919442 (Servicing stack update program).
- (2) Apply KB2919355 (Update program of Windows 8.1 Update).
- (3) Apply KB2999226 (Update program of Windows Universal C Runtime (CRT)).

Download KB2919442, KB2919355, and KB2999226 from the Microsoft official webpage.

The release date for each Windows update program is as follows.

- KB2919442: 10 Mar. 2014
- KB2919355: 5 May 2014
- KB2999226: 15 Sep. 2015

Revision History

Date of revision	Manual No.	Revision details
Mar. 2015	IB(NA)1501324-A	<ul style="list-style-type: none"> • First edition created.
Jul. 2015	IB(NA)1501324-B	<p>Contents were revised to correspond to NC Monitor2 software version A1. Contents were revised to correspond to MITSUBISHI CNC M800S/M80 Series.</p> <p>Revised the following chapters:</p> <ul style="list-style-type: none"> 1.2.1 Operating environment of NC Monitor2 1.3 Screen Configuration of NC Monitor2 <ul style="list-style-type: none"> 1.3.1 Menu bar 1.3.2 Tool bar 1.3.5 Screen display window 3.2.1 Display the connected NC's screen (Connect) 3.2.2 Close the connected NC's screen (Disconnect) 3.4 Points to Note Appendix 1. Messages Appendix 3.1 Common Restriction Appendix 3.2 Restriction on Devices
Jan. 2016	IB(NA)1501324-C	<p>Contents were revised to correspond to NC Monitor2 software version A2.</p> <p>Revised the following chapters:</p> <ul style="list-style-type: none"> 1.2.1 Operating environment of NC Monitor 2 1.3.5 Screen display window 3.4 Points to Note Appendix 3.1 Common Restriction Appendix 3.2 Restriction on Devices Appendix 3.6 Restriction on PLC Device
Aug. 2016	IB(NA)1501324-D	<p>Contents were revised to correspond to NC Monitor2 software version A4. Contents were revised to correspond to MITSUBISHI CNC M80W/C80 Series.</p> <p>Revised the following chapters:</p> <ul style="list-style-type: none"> 1.2.1 Operating Environment of NC Monitor2 1.3.1 Menu Bar 1.3.2 Tool Bar 1.3.5 Screen Display Window 3.2.1 Display the Connected NC's Screen (Connect) Appendix 3.1 Common Restriction Appendix 3.2 Restriction on Devices
Jun. 2017	IB(NA)1501324-E	<p>Contents were revised to correspond to NC Monitor2 software version A5.</p> <p>Revised the following chapters:</p> <ul style="list-style-type: none"> 1.3.5 Screen Display Window 3.2.1 Display the Connected NC's Screen (Connect) 3.2.4 Add Connected NC 3.4 Points to Note Appendix 1. Messages Appendix 3.1 Common Restriction

Date of revision	Manual No.	Revision details
Dec. 2018	IB(NA)1501324-F	<p>Contents were revised to correspond to NC Monitor2 software version A6. Contents were revised to correspond to MITSUBISHI CNC E80 Series. Revised the following chapters:</p> <ul style="list-style-type: none"> 1.2.1 Operating Environment of NC Monitor2 1.3.1 Menu Bar 1.3.2 Tool Bar 1.3.5 Screen Display Window 3.4 Points to Note Appendix 1 Messages Appendix 3.1 Common Restriction Appendix 3.2 Restriction on Devices
Oct. 2022	IB(NA)1501324-G	<p>Contents were revised to correspond to NC Monitor2 software version A7. Contents were revised to correspond to M8V Series. Revised the following chapters:</p> <ul style="list-style-type: none"> Introduction Precautions for Safety 1.1 Outline of NC Monitor2 1.2.1 Operating Environment of NC Monitor2 1.3 Screen Configuration of NC Monitor2 <ul style="list-style-type: none"> 1.3.1 Menu Bar 1.3.2 Tool Bar 1.3.3 Connected NC Data 1.3.4 NC List Area 1.3.5 Screen Display Window 2.2 How to Uninstall from Your Computer 3.1.2 Terminate NC Monitor2 3.2.1 Display the Connected NC's Screen (Connect) 3.2.2 Close the Connected NC's Screen (Disconnect) 3.2.3 Change NC Name 3.2.4 Add Connected NC 3.2.5 Delete Connected NC 3.2.6 Update Connected NC 3.3 Display/Setting Limitations of Connected NC 3.4 Points to Note Appendix 4.1 Common Restriction Appendix 4.2 Restriction on Devices Appendix 4.6 Restriction on PLC Device <p>Added the following chapters:</p> <ul style="list-style-type: none"> Appendix 1. Parameters Appendix 4.2.1 Points to Note Appendix 5 Troubleshooting

Global Service Network

AMERICA

MITSUBISHI ELECTRIC AUTOMATION INC. (AMERICA FA CENTER)

Central Region Service Center (Chicago)
500 CORPORATE WOODS PARKWAY, VERNON HILLS, ILLINOIS 60061, U.S.A.
TEL: +1-847-478-2500 / FAX: +1-847-478-2650
Minneapolis, MN Service Satellite
Detroit, MI Service Satellite
Grand Rapids, MI Service Satellite
Milwaukee, WI Service Satellite
Cleveland, OH Service Satellite
Indianapolis, IN Service Satellite
St. Louis, MO Service Satellite

South/East Region Service Center (Georgia)

1845 SATELLITE BOULEVARD STE. 450, DULUTH, GEORGIA 30097, U.S.A.
TEL: +1-678-258-4529 / FAX: +1-678-258-4519
Charleston, SC Service Satellite
Charlotte, NC Service Satellite
Raleigh, NC Service Satellite
Dallas, TX Service Satellite
Houston, TX Service Satellite
Hartford, CT Service Satellite
Knoxville, TN Service Satellite
Nashville, TN Service Satellite
Baltimore, MD Service Satellite
Pittsburg, PA Service Satellite
Tampa, FL Service Satellite
Syracuse, NY Service Satellite
Orlando, FL Service Satellite
Lafayette, LA Service Satellite
Philadelphia, PA Service Satellite

Western Region Service Center (California)

5900-B KATELLA AVE. - 5900-A KATELLA AVE. CYPRESS, CALIFORNIA 90630, U.S.A.
TEL: +1-714-699-2625 / FAX: +1-847-478-2650
San Jose, CA Service Satellite
Seattle, WA Service Satellite
Denver, CO Service Satellite

Canada Region Service Center (Toronto)

4299 14TH AVENUE MARKHAM, ONTARIO L3R 0J2, CANADA
TEL: +1-905-475-7728 / FAX: +1-905-475-7935
Edmonton, AB Service Satellite
Montreal, QC Service Satellite

Mexico Region Service Center (Querétaro)

Parque Tecnológico Innovación Querétaro, Lateral Carretera Estatal 431, Km 2+200, Lote 91 Modulos 1 y 2
Hacienda la Machorra, CP 76246, El Marqués, Querétaro, México
TEL: +52-442-153-6050
Monterrey, NL Service Satellite
Mexico City, DF Service Satellite

BRAZIL

MITSUBISHI ELECTRIC DO BRASIL COMÉRCIO E SERVIÇOS LTDA.

Votorantim Office
AV. GISELE CONSTANTINO,1578, PARQUE BELA VISTA, VOTORANTIM-SP, BRAZIL CEP:18.110-650
TEL: +55-15-3023-9000
Blumenau, Santa Catarina Office

EUROPE

MITSUBISHI ELECTRIC EUROPE B.V.

European Service Headquarters (Dusseldorf, GERMANY)
Mitsubishi-Electric-Platz 1 40882 RATINGEN, GERMANY
TEL: +49-2102-486-5000 / FAX: +49-2102-486-5910

South Germany Service Center (Stuttgart)

SCHELMENWASENSTRASSE 16-20, 70567 STUTTGART, GERMANY
TEL: +49-711-770598-0 / FAX: +49-711-770598-141

France Service Center (Paris)

2 RUE DE L'UNION, 92565 RUEIL-MALMAISON CEDEX, FRANCE
TEL: +33-1-41-02-83-13 / FAX: +33-1-49-01-07-25

France Service Satellite (Lyon)

240, ALLEE JACQUES MONOD 69800 SAINT PRIEST FRANCE
TEL: +33-1-41-02-83-13 / FAX: +33-1-49-01-07-25

Italy Service Center (Milan)

VIA ENERGY PARK 14, VIMERCATE 20871 (MB) ITALY
TEL: +39-039-6053-342 / FAX: +39-039-6053-206

Italy Service Satellite (Padova)

VIA G. SAVELLI, 24 - 35129 PADOVA, ITALY
TEL: +39-039-6053-342 / FAX: +39-039-6053-206

U.K. Service Center

TRAVELLERS LANE, HATFIELD, HERTFORDSHIRE, AL10 8XB, U.K.
TEL: +44-1707-288-780 / FAX: +44-1707-278-695

Spain Service Center

CTRA. RUBI, 76-80 8174 SAINT CUGAT DEL VALLES, BARCELONA, SPAIN
TEL: +34-935-65-2236 / FAX: +34-935-89-1579

Poland Service Center

UL.KRAKOWSKA 50, 32-083 BALICE, POLAND
TEL: +48-12-347-6500 / FAX: +48-12-630-4701

Hungary Service Center

BUDAÖRS OFFICE PARK, SZABADSÁG ÚT 117., 2040 BUDAÖRS, HUNGARY
TEL: +48-12-347-6500 / FAX: +48-12-630-4701

Turkey Service Center

MITSUBISHI ELECTRIC TURKEY ELEKTRİK ÜRÜNLERİ A.Ş
SERIFALI MAHALLESİ KALE SOKAK. NO.41 34775
UMRANIYE, ISTANBUL, TURKEY
TEL: +90-216-969-2500 / FAX: +90-216-661-44-47

Czech Republic Service Center

AutoCont Control Systems s.r.o (Service Partner)
KAFKOVA 1853/3, 702 00 OSTRAVA 2, CZECH REPUBLIC
TEL: +420-59-5691-185 / FAX: +420-59-5691-199

Russia Service Center

MITSUBISHI ELECTRIC RUSSIA LLC
LETNIKOVSKAYA STREET 2, BLD.1, 5TH 115114 MOSCOW, RUSSIA
TEL: +7-495-721-2070 / FAX: +7-495-721-2071

Sweden Service Center

HAMMARBACKEN 14, P.O.BOX 750 SE-19127, SOLLENTUNA, SWEDEN
TEL: +46-8-6251200 / FAX: +46-8-6251014

Bulgaria Service Center

AKHNATON Ltd. (Service Partner)
4 ANDREJ LJAPCHEV BLVD. POB 21, BG-1756 SOFIA, BULGARIA
TEL: +359-2-8176009 / FAX: +359-2-9744061

Ukraine Service Center (Kiev)

CSC Automation Ltd. (Service Partner)
4 B. YEVHENA SVERSTYUKA STR., 02002 KIEV, UKRAINE
TEL: +380-44-494-3344 / FAX: +380-44-494-3366

Belarus Service Center

TECHNIKON Ltd. (Service Partner)
NEZAVISIMOSTI PR.177, 220125 MINSK, BELARUS
TEL: +375-17-393-1177 / FAX: +375-17-393-0081

South Africa Service Center

Adroit Technologies (Service Partner)
20 WATERFORD OFFICE PARK, WATERFORD DRIVE, CNR OF WITKOPPEN ROAD,
FOURWAYS JOHANNESBURG SOUTH AFRICA
TEL: +27-11-658-6100 / FAX: +27-11-658-6101

ASEAN**MITSUBISHI ELECTRIC ASIA PTE. LTD. (ASEAN FA CENTER)**

Singapore Service Center
307 ALEXANDRA ROAD MITSUBISHI ELECTRIC BUILDING SINGAPORE 159943
TEL: +65-6473-2308 / FAX: +65-6476-7439

PHILIPPINES**MELCO FACTORY AUTOMATION PHILIPPINES INC.**

Head Office
128 LOPEZ RIZAL STREET, BRGY., HIGHWAY HILLS, MANDALUYONG CITY, MM PHILIPPINES 1550
TEL: +63-2-8256-8042 / FAX: +632-8637-2294

Philippines Service Center
KM.23 WEST SERVICE ROAD SSH, CUPANG, MUNTINLUPA CITY, PHILIPPINES
TEL: +63-2-8807-0420 / FAX: +63-2-8842-5202

VIETNAM**MITSUBISHI ELECTRIC VIETNAM CO., LTD.**

Vietnam Ho Chi Minh Service Center
11TH & 12TH FLOOR, VIETTEL TOWER B, 285 CACH MANG THANG 8 STREET, WARD 12, DISTRICT 10, HO CHI MINH CITY, VIETNAM
TEL: +84-28-3910-5945 / FAX: +84-28-3910-5947

Vietnam Hanoi Service Center
14TH FLOOR, CAPITAL TOWER, 109 TRAN HUNG DAO STREET, CUA NAM WARD, HOAN KIEM DISTRICT, HA NOI CITY, VIETNAM
TEL: +84-24-3937-8075 / FAX: +84-24-3937-8076

INDONESIA**PT. MITSUBISHI ELECTRIC INDONESIA**

Indonesia Service Center (Cikarang)
JL. KENARI RAYA BLOK G2-07A, DELTA SILICON 5, LIPPO CIKARANG - BEKASI 17550, INDONESIA
TEL: +62-21-2961-7797 / FAX: +62-21-2961-7794

MALAYSIA**MITSUBISHI ELECTRIC SALES MALAYSIA SDN. BHD.**

Malaysia Service Center (Kuala Lumpur Service Center)
LOT 11, JALAN 219, P.O BOX 1036, 46860 PETALING JAYA, SELANGOR DARUL EHSAN, MALAYSIA
TEL: +60-3-7626-5032
Johor Bahru Service Satellite
Pulau Pinang Service Satellite

THAILAND**MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO., LTD.**

Thailand Service Center (Bangkok)
101, TRUE DIGITAL PARK OFFICE, 5TH FLOOR, SUKHUMVIT ROAD, BANGCHAK, PHRA KHANONG, BANGKOK, 10260 THAILAND
TEL: +66-2-092-8600 / FAX: +66-2-043-1231-33

INDIA**MITSUBISHI ELECTRIC INDIA PVT., LTD.**

CNC Technical Center (Bangalore)
PLOT NO. 56, 4TH MAIN ROAD, PEENYA PHASE 3, PEENYA INDUSTRIAL AREA, BANGALORE 560058, KARNATAKA, INDIA
TEL: +91-80-4655-2121
Chennai Service Satellite
Coimbatore Service Satellite
Hyderabad Service Satellite

North India Service Center (Gurgaon)
PLOT 517, GROUND FLOOR, UDYOG VIHAR PHASE-III, GURUGRAM 122008, HARYANA, INDIA
TEL: +91-124-463-0300
Ludhiana Service Satellite
Panthenagar Service Satellite
Delhi Service Satellite
Jamshedpur Service Satellite
Manesar Service Satellite

West India Service Center (Pune)
ICC-Devi GAURAV TECHNOLOGY PARK, UNIT NO.402, FOURTH FLOOR, NORTH WING, SURVEY NUMBER 191-192 (P), NEXT to INDIAN CARD CLOTHING COMPANY Ltd, OPP. VALLABH NAGAR, PIMPRI, PUNE- 411 018, MAHARASHTRA, INDIA
TEL: +91-20-6819-2274
Kolhapur Service Satellite
Aurangabad Service Satellite
Mumbai Service Satellite

West India Service Center (Ahmedabad)
204-209, 2ND FLOOR, 31FIVE, CORPORATE ROAD PRAHLADNAGAR, AHMEDABAD -390015, GUJARAT, INDIA
TEL: + 91-79-6777-7888
Rajkot Service Satellite

CHINA**MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD. (CHINA FA CENTER)**

CNC Call Center
TEL: +86-400-921-5130

Shanghai Service Center
NO.1386 HONG QIAO ROAD, CHANG NING QU, SHANGHAI 200336, CHINA
TEL: +86-21-2322-3030 / FAX: +86-21-2322-3000*8422
Qingdao Service Center
Suzhou Service Center
Wuhan Service Center
Ningbo Service Center
Hefei Service Center
Beijing Service Center
Tianjin Service Center
Xian Service Center
Dalian Service Center
Chengdu Service Center

Shenzhen Service Center
LEVEL8, GALAXY WORLD TOWER B, 1 YABAO ROAD, LONGGANG DISTRICT, SHENZHEN 518129, CHINA
TEL: +86-755-2399-8272 / FAX: +86-755-8229-3686
Dongguan Service Center
Xiamen Service Center

KOREA**MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD. (KOREA FA CENTER)**

Korea Service Center
8F GANGSEO HANGANG XI-TOWER A, 401 YANGCHEON-RO, GANGSEO-GU, SEOUL 07528 KOREA
TEL: +82-2-3660-9631 / FAX: +82-2-3664-8668
Korea Daegu Service Satellite

TAIWAN**MITSUBISHI ELECTRIC TAIWAN CO., LTD. (TAIWAN FA CENTER)**

Taiwan Taichung Service Center
NO. 8-1, GONGYEQU 16th RD., XITUN DIST., TAICHUNG CITY 40768, TAIWAN
TEL: +886-4-2359-0688 / FAX: +886-4-2359-0689

Taiwan Taipei Service Center
11F, NO.88, SEC.6, ZHONGSHAN N. RD., SHILIN DIST., TAIPEI CITY 11155, TAIWAN
TEL: +886-2-2833-5430 / FAX: +886-2-2833-5433

Taiwan Tainan Service Center
11F.-1, NO.30, ZHONGZHENG S. RD., YONGKANG DIST., TAINAN CITY 71067, TAIWAN
TEL: +886-6-252-5030 / FAX: +886-6-252-5031

OCEANIA**MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD.**

Oceania Service Center
348 VICTORIA ROAD, RYDALMERE, N.S.W. 2116 AUSTRALIA
TEL: +61-2-9684-7269 / FAX: +61-2-9684-7245

Notice

Every effort has been made to keep up with software and hardware revisions in the contents described in this manual. However, please understand that in some unavoidable cases simultaneous revision is not possible.

Please contact your Mitsubishi Electric dealer with any questions or comments regarding the use of this product.

Duplication Prohibited

This manual may not be reproduced in any form, in part or in whole, without written permission from Mitsubishi Electric Corporation.

© 2015 - 2022 MITSUBISHI ELECTRIC CORPORATION
ALL RIGHTS RESERVED.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BLDG.,2-7-3 MARUNOUCHI,CHIYODA-KU,TOKYO 100-8310,JAPAN

MODEL	CNC Remote Operation Software
MODEL CODE	100-415
Manual No.	IB-1501324