

# Instruction Manual

**OMNUC U** SERIES Servo Driver  
**Computer Monitor Software (Version 1.1)**

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Thank you for choosing this OMNUC U-series Servo Motor/Driver. This Instruction Manual has been produced to explain the functions and methods of operation of your OMNUC U-series Computer Monitor Software.

This manual lists all the necessary information on using your OMNUC U-series Computer Monitor Software. Please read this manual thoroughly and be sure you understand the information provided before attempting to install and operate it. Always keep this manual nearby for future reference.

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## ■ Safety Precautions

### ● Starting Up Multiple Axis Communications

**Caution** Make sure not to duplicate the Unit No. of Drivers when setting up. Starting communications with your computer with duplicate Unit Nos. may result in damage to Drivers and/or the computer.

1. When using multiple axis communications, set the Unit No. of each Driver before connecting to your computer.
2. For multiple axis communications, set the Unit No. in the range of 1 to E (14). Never use Unit No. "0."
3. With **H/L** and **UE**, there is no Unit No. setting as multiple axis communications do not apply to this model.  
With **HA/LA**, set the Driver's Unit No. using the Parameter Unit.  
With **UT**, set the Driver's Unit No. using the rotary switch located on the front of each Driver.

### ● Parameter Transfer to Drivers

**Caution** When connecting **HA/LA** Drivers to your computer, make sure that the Driver's Unit No. are all correct or yet to be specified before transferring parameters to the Drivers. Transferring an incorrect Unit No. to Drivers may result in damage to Drivers and/or the computer.

1. When using multiple axis communications, if one of the Driver's Unit No. was specified as "0" or is the same as the Unit No. of another Driver, this may damage the Drivers and/or the computer.
2. If the User Parameter Window displays "-----" in the Unit No. column, this means that the Unit No. is yet to be specified. In this case, the unspecified parameter can not be transferred to a Driver.

### ● Absolute Encoder Setup

**Caution** If the 12 bit Absolute Encoder Alarm Reset has been performed, make sure to reset the original point. Failure to do so may result in personal injury or damage to the machines.

1. If the 12 bit Absolute Encoder Alarm Reset is performed, the volume of multiple rotation is automatically reset to "Zero." Starting the mechanical system without resetting the original point will alter this position and can be very dangerous.
2. 12 bit Absolute Encoder Alarm Reset corrects and resets the following encoder errors from your computer:
  - A. 81 Encoder backup alarm
  - A. 82 Encoder checksum error

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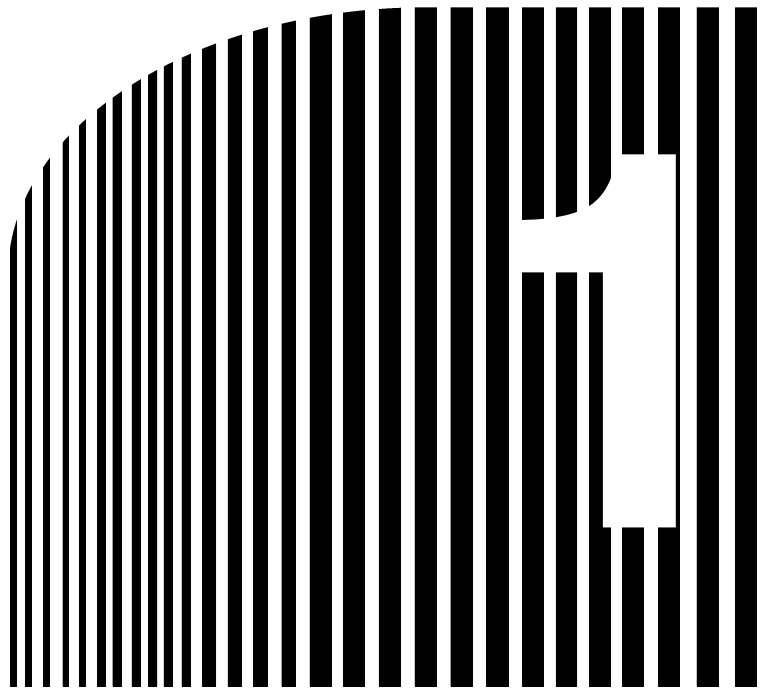
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# Chapter 1

## • Introduction •

1-1 Functions

1-2 System Configuration

## 1-1 Functions

OMNUC U-series Computer Monitor Software is a program which easily carries out the following functions on a IBM PC/AT or compatible computer:

- Parameter editing
- Jog operation and auto tuning
- Checking the condition of Servo Drivers
- Displaying graphs related to speed or torque.

### ■ Servo Driver Models Required

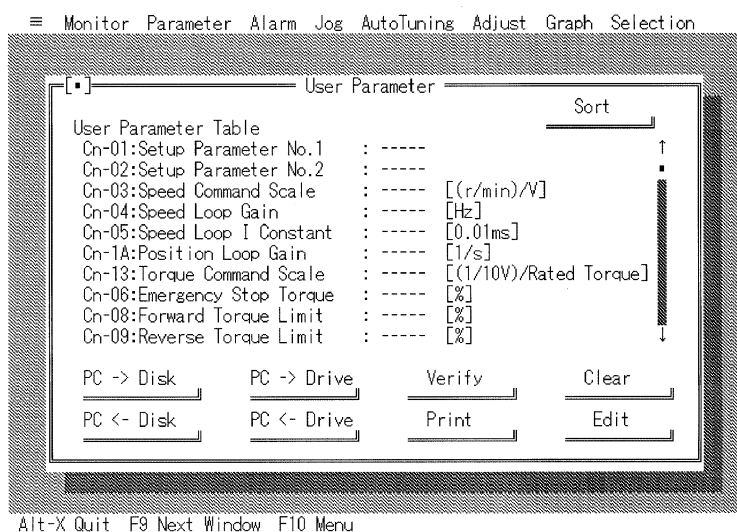
The Servo Driver models that can be used this Computer Monitor Software are as follows:

1. R88D-UA□□H/-UA□□L (30 to 750 W, analog input)
2. R88D-UP□□H/-UP□□L (30 to 750 W, pulse-train input)
3. R88D-UA□□HA/-UA□□LA (30 to 750 W, analog input, upgraded version)
4. R88D-UP□□HA/-UP□□LA (30 to 750 W, pulse-train input, upgraded version)
5. R88D-UT□□H (1 to 5 kW, combined analog/pulse train input )
6. R88D-UT□□V/-UT□□W (30 to 750 W, combined analog/pulse train input, product meets EN standards)
7. R88D-UEP□□H/-UEP□□L (100 to 750 W, pulse-train input, UE models)

Since functions vary from model to model, the following abbreviations are used in this manual to distinguish between models:

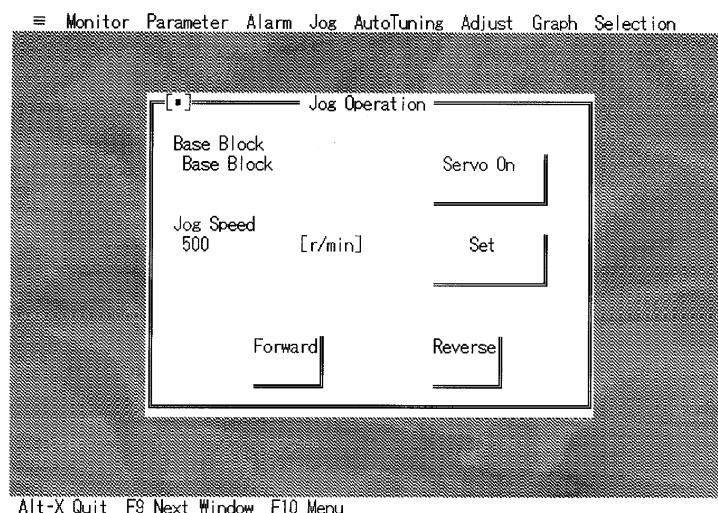
- |        |              |
|--------|--------------|
| 1., 2. | <b>H/L</b>   |
| 3., 4. | <b>HA/LA</b> |
| 5., 6. | <b>UT</b>    |
| 7.     | <b>UE</b>    |

### ■ Parameter Editing (H/L, HA/LA, UT, UE)



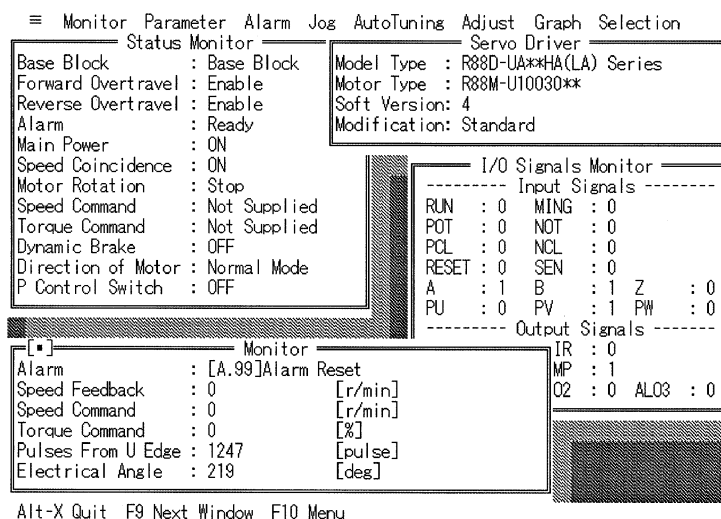
- Parameters (Setup Parameter & User Parameter) edited on a IBM PC/AT or compatible can be transferred to Servo Drivers.
- Parameters set in Servo Drivers can be read from the IBM PC/AT or compatible.
- Parameters edited on the IBM PC/AT or compatible can be saved on a floppy disk as well as on a hard disk.
- Parameters saved on a disk can be read.

## ■ Jog Operation and Auto Tuning (HA/LA, UT, UE)



- Enables jog operation of the Servo Motor. The speed and the direction of the jog rotation can be set on the IBM PC/AT or compatible.
- Enables auto tuning and offset adjustment.

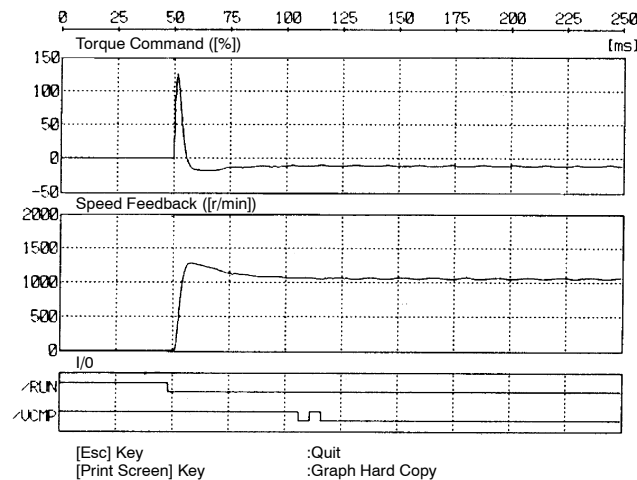
## ■ Checking the Condition of Servo Drivers (HA/LA, UT, UE)



- Checks the ON/OFF status of Servo Drivers.
- Checks the internal condition of Servo Drivers.

- Monitors speed feedback and torque commands.

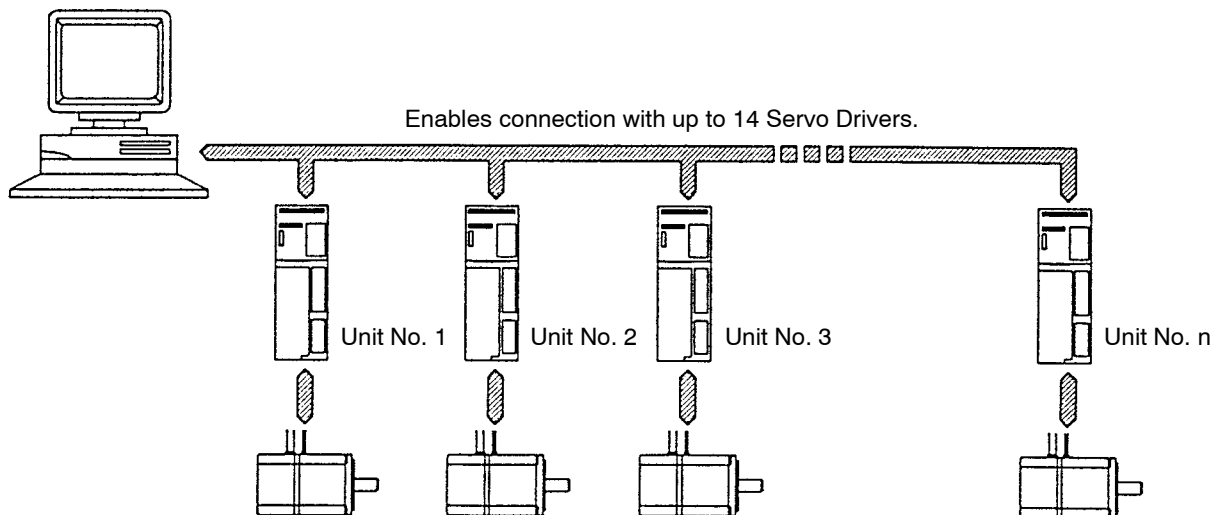
## ■ Displaying Graphs Related to Speed and Torque (HA/LA, UT, UE)



- Retrieves and displays time-related data such as torque commands, speed commands, speed feedback, and position deviation.
- Retrieves and displays input and output signals, i.e. ON/OFF status, as time-related data.
- Sampling time can be set in units of 250  $\mu$ s.
- Retrieved data can be saved on a disk.
- Graphs can be output to the printer.

## ■ Multiple Axis Communication (HA/LA, UT)

- Enables communication with up to 14 Servo Drivers using only one computer.



## ■ Setup of Absolute Encoder (HA/LA)

When using the 12 bit (1,024 pulses/rotation) Absolute Encoder, the Absolute Encoder setup can be performed from the IBM PC/AT or compatible.



■ **Parameter Files Corresponding to an OMRON Position Control Unit (H/L, HA/LA, UT, UE)**

Parameter files have been developed for the exclusive use for the connection of SYSMAC C-series Position Control Units, Motion Control Units, and Servo Drivers. Parameter setup can be easily performed by just selecting the appropriate file and editing it.

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## 1-2 System Configuration

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The OMNUC U-series Computer Monitor Software will operate on a IBM PC/AT or compatible computer (IBM DOS 3.30 or higher)

### ■ System Configuration

#### ● Computer

- IBM PC/AT or compatible computer

Use an i486SX CPU or higher. One or more 3.5-inch (2HD) disk drives will be required.

#### ● Mouse

- Serial mouse of any kind or IBM PS/2

Operation is possible without using the mouse, but using the mouse allows easier operation.

#### ● Printer

- ESC/P printer or equivalent or Laser Jet printer (Hewlett Packard)

Required for printing graph data or parameters. Select the printer required from the Printer Selection of the System Monitor.

#### ● DOS

Use one of the following DOS versions.

- IBM DOS Ver. 3.30 or higher (IBM)
- MS-DOS Ver. 3.30 or higher (Microsoft Corporation)

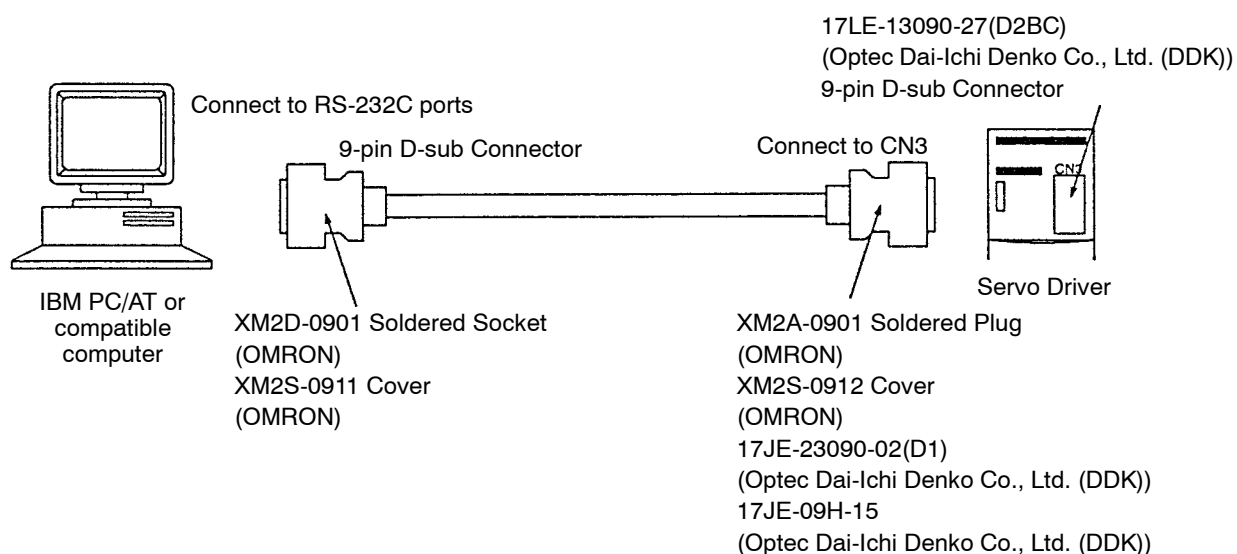
This product does not include DOS. Purchase the DOS separately and install it on the IBM PC/AT or compatible in advance.

#### ● Connecting Cables

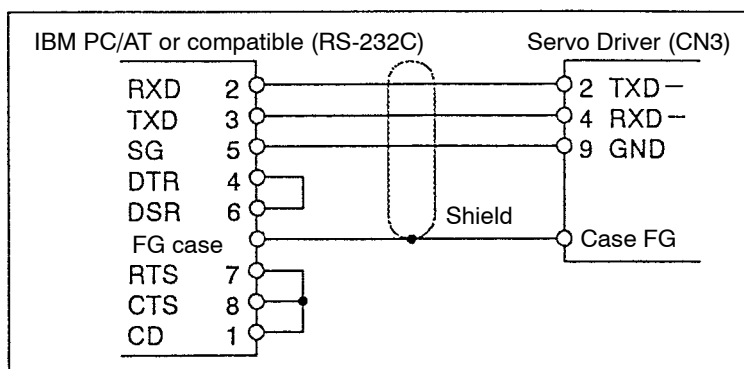
- Communications cables to connect the IBM PC/AT or compatible with Servo Drivers

Connect the cables using the following diagrams.

## ■ Connecting Cables

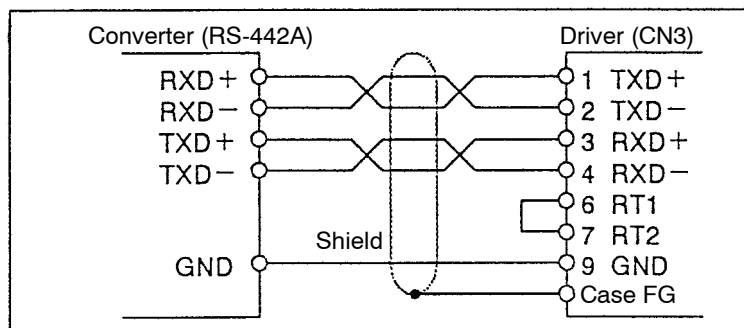


### ● Connecting to One Servo Driver (Connecting Directly to RS-232C Ports)



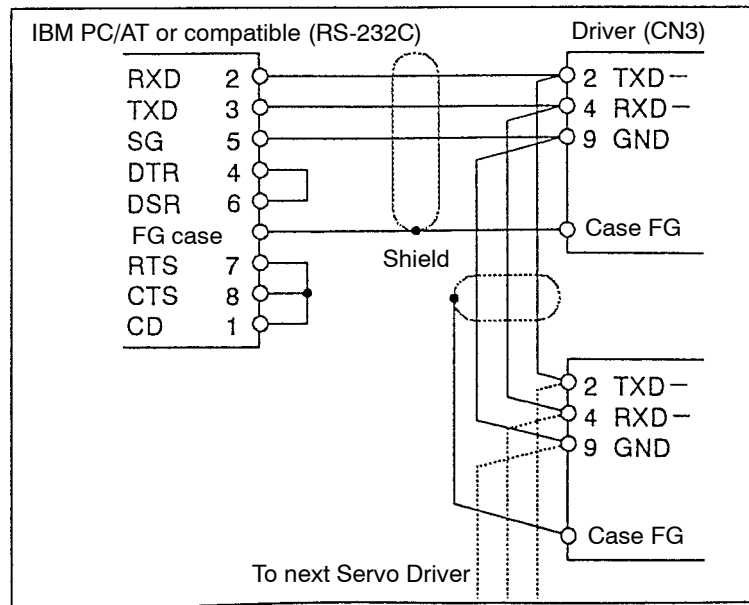
Make sure that the cable length is no longer than 2 m.

### ● Connecting to One Servo Driver (Connecting to RS-442A Converter Ports)



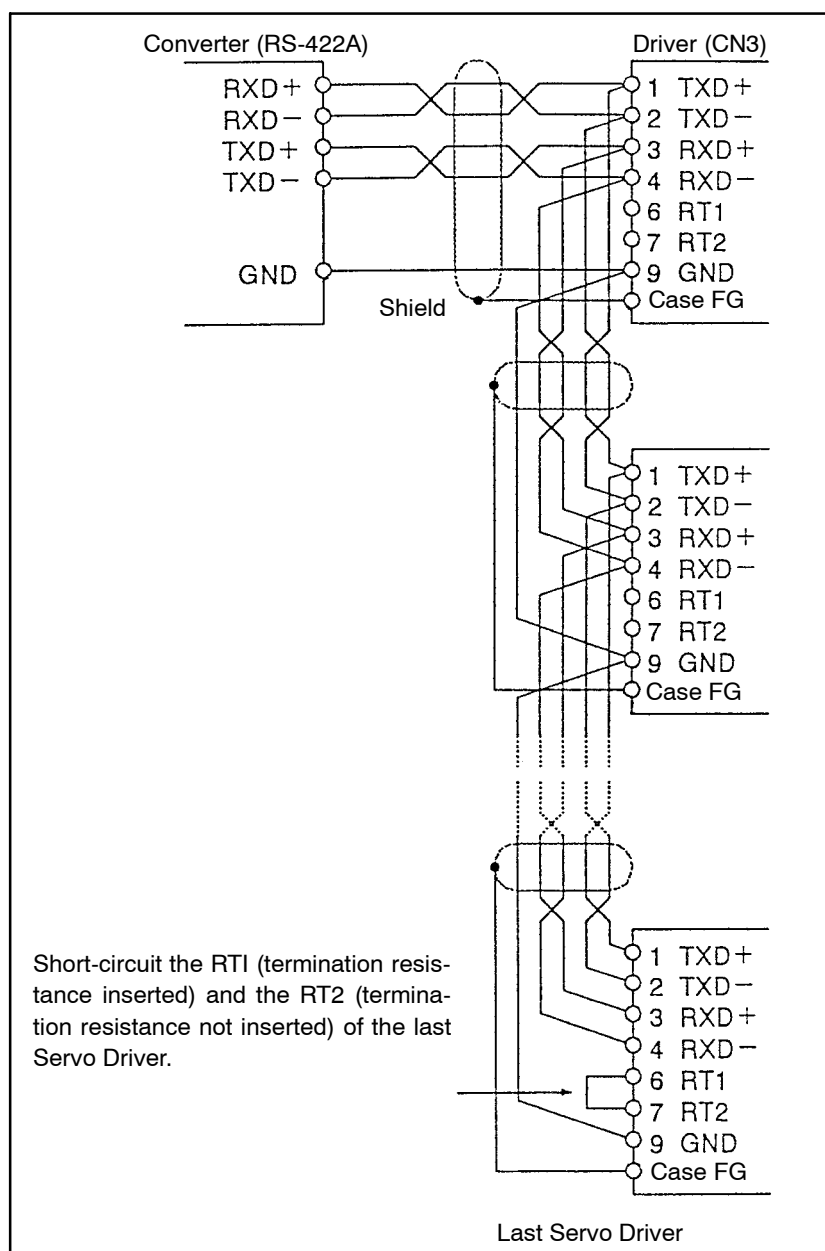
When connecting to the RS-442A converter ports for the purpose of extending the cable length, etc., wire according to the diagram above. Make sure that the cable length is no longer than 30 m.

- Connecting to More than One Servo Driver (Connecting Directly to RS-232C Ports)

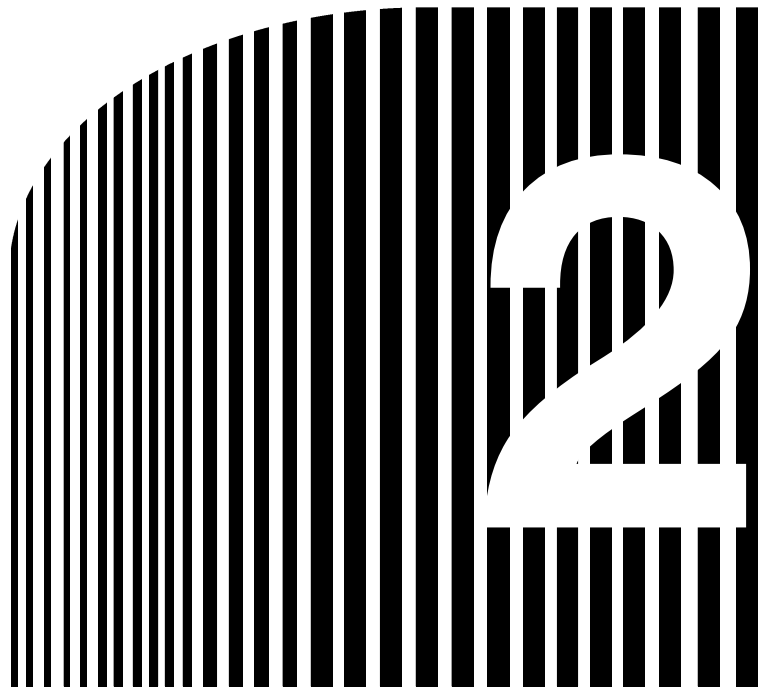


Make sure that the cable length is no longer than 2 m.

• **Connecting to More than One Servo Driver (Connecting to RS-422A Converter Ports)**



When connecting to the RS-422A converter ports for the purpose of extending the cable length, etc., wire according to the diagram above. Make sure that the cable length is no longer than 30 m.



## Chapter 2

### • Installation •

2-1 Installation on a IBM PC/AT or Compatible

This chapter provides instructions for installing the OMNUC U-series Computer Monitor Software on an IBM PC/AT or compatible's hard disk.

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## **2-1 Installation on a IBM PC/AT or Compatible**

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### **■ Before Installation**

- If the hard disk has not been formatted yet, format the hard disk using either IBM DOS Ver. 3.30 or higher, or MS-DOS Ver. 3.30 or higher. If, however, some applications have already been installed on the IBM PC/AT or compatible, this means that the formatting has already been done. In this case, do not format. Otherwise, applications will be erased.

### **■ Installation Procedures**

Follow these procedures if your hard disk is the C drive and your floppy disk drive is the A drive.

#### **1. Power**

- Turn the IBM PC/AT or compatible on.
- A DOS prompt such as C: \>\_ should appear on the screen. If the Menu Program automatically starts, exit the program to return to DOS.

#### **2. Create a Directory**

- Create the directory for the Computer Monitor Software installation. If, for example, a directory named USD is to be created, type the following:

**MD USD**

#### **3. Access a Directory**

- Type the following to access the directory where the Computer Monitor Software is to be installed:

**CD USD**

The prompt C: \USD\_ will appear on the screen.

#### **4. Copy the Computer Monitor Software**

- Insert the floppy disk containing the Computer Monitor Software into drive A.
- Type the following:

**COPY\_A: \*. \***

All the files will be copied into the USD directory.

- When the copying is complete, eject the floppy disk from the IBM PC/AT or compatible. Store this floppy disk in a safe place as this is no longer needed for the installation procedures.

#### **5. Edit AUTOEXEC. BAT to Enable the Mouse**

- Start your word processor or editor, and read AUTOEXEC. BAT in the root directory.
- To enable the mouse, add the following command, if not already added:

**LH MOUSE**

#### **6. End of Procedures**

- The above procedures ensure the installation of the Computer Monitor Software.
- Install the Menu Program as necessary (refer to the Menu Program Manual). Remember that the start command for the Computer Monitor Software is UMON.

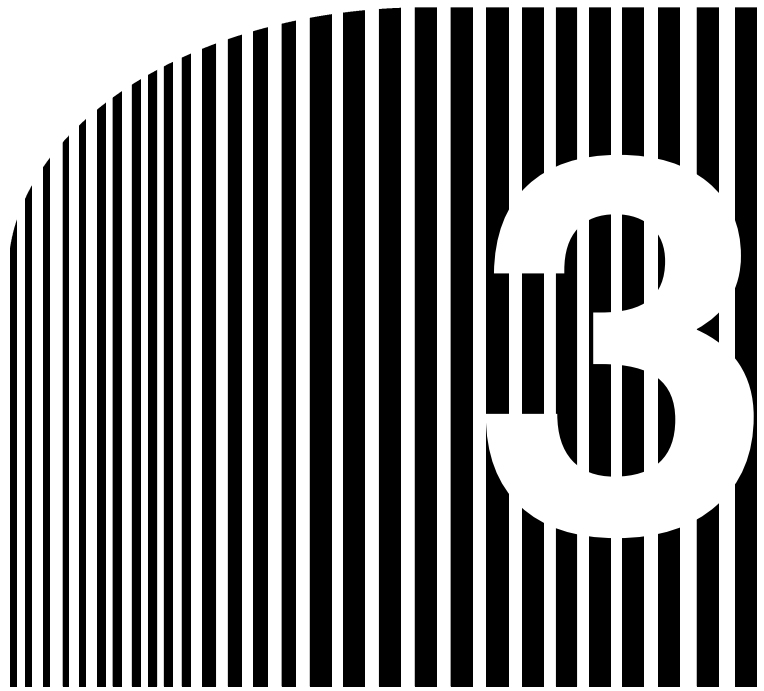
## ■ List of Files for Installation

File name	Contents
UMON.EXE	Computer Monitor Software (Main File)
UAL.TBL	R88D-UA□□H/-UA□□L Table File
UPL.TBL	R88D-UP□□H/-UP□□L Table File
UALA.TBL	R88D-UP□□HA/-UA□□LA Table File
UPLA.TBL	R88D-UP□□HA/-UP□□LA Table File
UTH.TBL	R88D-UT□□H Table File
UTW.TBL	R88D-UT□□V/-UT□□W Table File
UEP.TBL	R88D-UEP□□H/-UEP□□L Table File
MOTOR.TBL	Servo Motor Information Table File
ATT.BGI	Graphic Driver
CGA.BGI	Graphic Driver
DOSVGA.BGI	Graphic Driver
EGAVGA.BGI	Graphic Driver
HERC.BGI	Graphic Driver
IBM8514.BGI	Graphic Driver
PC3270.BGI	Graphic Driver
UAIN.TUAL	R88D-UA□□H/-UA□□L Parameter File
UPINT.UAL	R88D-UP□□H/-UP□□L Parameter File
UAAINT.UAL	R88D-UA□□HA/-UA□□LA Parameter File
UPAINT.UAL	R88D-UP□□HA/-UP□□LA Parameter File
UTHINT.UTH	R88D-UT□□H Parameter File (pulse-train input)
UTHANL.UTH	R88D-UT□□H Parameter File (analog input)
UTWINT.UTW	R88D-UT□□V/-UT□□W Parameter File (pulse-train input)
UTWANL.UTW	R88D-UT□□V/-UT□□W Parameter File (analog input)
UEPINT.UEP	R88D-UEP□□H/-UEP□□L Parameter File

In addition, running the Computer Monitor Software will create the following extension files.

File name	Contents
*.PRM	Servo Driver Communications Software Ver. 0.0 (old version) Parameter File
*.UAL	R88D-UA□□H□/-UA□□L□/-UP□□H□/-UP□□L□ Parameter File
*.UTH	R88D-UT□□H Parameter File
*.UTW	R88D-UT□□V/-UT□□W Parameter File
*.UEP	R88D-UEP□□H/-UEP□□L Parameter File
*.GRP	Graph Data File (in all models)





## Chapter 3

### • Basic Operation •

- 3-1 Mouse Operations
- 3-2 Keyboard Operations
- 3-3 Function Selection
- 3-4 Function Key Allocation

This chapter explains the basic operating methods for the OMNUC U-series Computer Monitor Software.

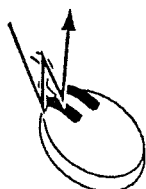
## 3-1 Mouse Operations

### ■ Description and Methods of Mouse Operation

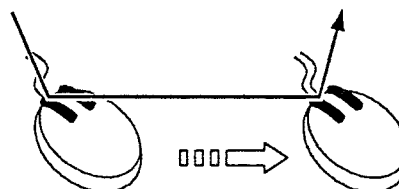
Descriptions	Mouse operations
Click	Press the button and release it quickly
Double-click	Press the button twice quickly
Drag	Move the mouse while pressing the button and release it at the desired position.



Click




Double-click



Drag

**Note 1.** For this particular Computer Monitor Software, the functions of right and left buttons on the mouse are exactly the same. Use the button you feel most comfortable with.










**Note 2.** From *Chapter 4* on, procedures where the mouse is used are marked with . Refer to this mark when using the mouse.


### ■ Mouse Operations and Functions

Descriptions	Main functions
Click	<ul style="list-style-type: none"> <li>• Selecting menus</li> <li>• Carrying out functions</li> <li>• Changing windows</li> <li>• Closing windows</li> <li>• Switching ON/OFF</li> <li>• Scrolling parameter display screens</li> </ul>
Double-click	<ul style="list-style-type: none"> <li>• Selecting and editing parameters</li> </ul>
Drag	<ul style="list-style-type: none"> <li>• Moving windows</li> <li>• Selecting menus</li> </ul>









## 3-2 Keyboard Operations

### ■ Descriptions and Functions of Keyboard Operations

Descriptions	Operation methods
 + 	While pressing the Alt Key, press the X Key.
	Press the Return Key.
	Press the Space Key.
    	Press the keys as listed.

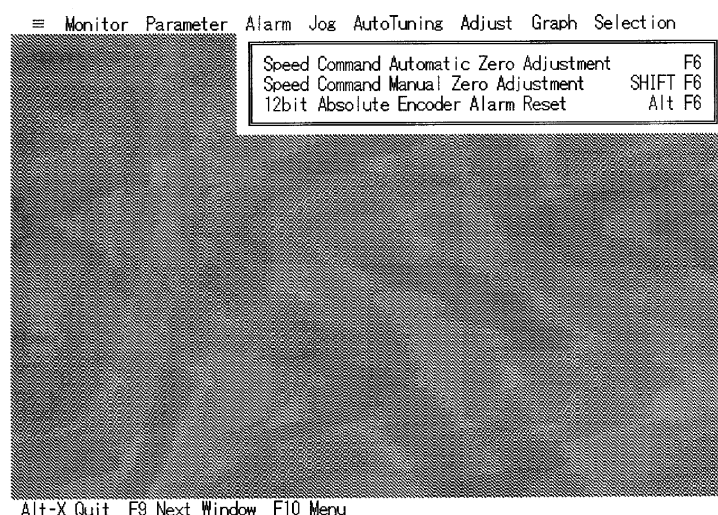
**Note** From *Chapter 4* on, procedures where the keyboard is used are marked with . Refer to this mark when using the keyboard.

### ■ Keyboard Operations and Functions

Keys	Main functions
	<ul style="list-style-type: none"> <li>• Closing windows</li> <li>• Forced quitting</li> </ul>
	<ul style="list-style-type: none"> <li>• Changing options</li> </ul>
	<ul style="list-style-type: none"> <li>• Carrying out options</li> <li>• Switching ON/OFF</li> </ul>
   	<ul style="list-style-type: none"> <li>• Selecting menus</li> </ul>
	<ul style="list-style-type: none"> <li>• Typing in characters</li> <li>• Carrying out functions</li> </ul>

### 3-3 Function Selection

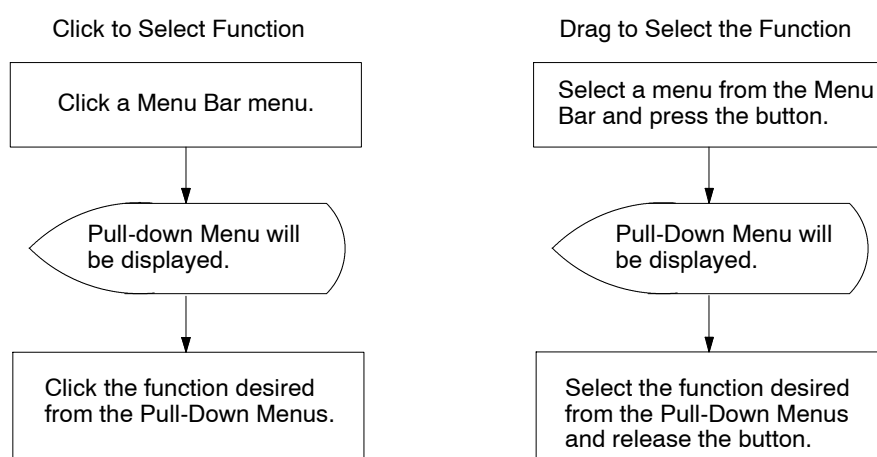
- The functions of the Computer Monitor Software are displayed on a bar on the upper part of the screen. This is called the Menu Bar.
- Each menu provides a Pull-Down Menu.
- If a menu is selected from the Menu Bar, a Pull-Down Menu will then be displayed for function selection.



#### ■ Function Selection Using the Mouse

There are two ways to select a function using the mouse.

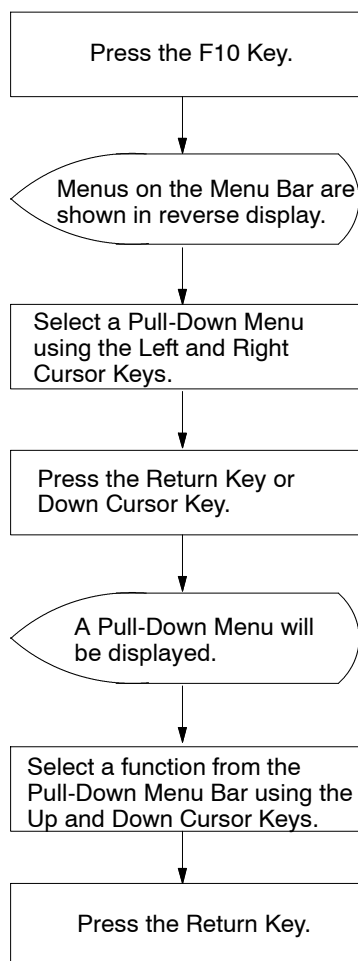
- Click on a Menu Bar menu, then click on a function from one of the Pull-Down Menus.
- Drag a Menu Bar menu to open a Pull-down Menu, then release the mouse button at the desired function.



**Note** If a window is already open, click on [•] to close the window and then select a function. This is not required when closing the monitor display screen.

## ■ Function Selection Using Keyboard

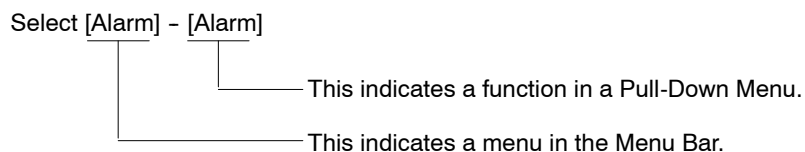
Function selection using the keyboard is shown in the flowchart below.



**Note** If a window is already open, press the Escape Key to close the window and then select a function. This is not required when closing the monitor display screen.

## ■ Function Selection Description

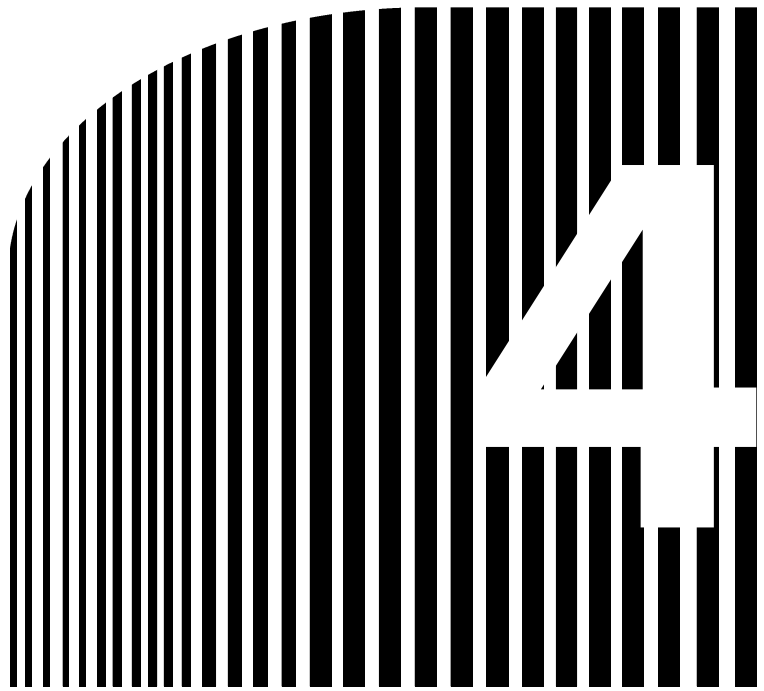
From *Chapter 4* on, the following description will be used when a certain function is required.



### 3-4 Function Key Allocation

Function keys are allocated to provide shortcuts for quick operation.

Keys	Functions allocated
F1	Monitor
F2	Parameter edit
SHIFT + F2	Parameter adjustment
F3	Alarm
F4	Jog operation
F5	Auto tuning
F6	Speed command automatic zero adjustment
SHIFT + F6	Speed command manual zero adjustment
ALT + F6	12 bit absolute encoder setup
F7	Data trace (graph data retrieval)
SHIFT + F6	Re-display of data trace
F8	Selection of Servo Driver
F9	Changing windows on monitor
F10	Cursor returns to Menu Bar



## Chapter 4

- **Start and Quit Procedures** •

- 4-1 Start Procedure
- 4-2 Start Screen Operation
- 4-3 Quit Procedure

Following *Chapter 2 Installation*, this chapter describes how to start and quit the Computer Monitor Software installed on an IBM PC/AT or compatible.

The Computer Monitor Software has two modes.

On line mode: The Servo Driver is connected to carry out parameter settings and monitor control.

Off line editing mode: The Servo Driver is disconnected for parameter edit and graph display.

Before starting in on line mode, carry out a pre-start check.

---

## 4-1 Start Procedure

---

### ■ Pre-start Check Criteria for On Line Mode

- When using multiple axis communications set each Servo Driver's Unit No. before connecting to the IBM PC/AT or compatible.

**Caution** Do not duplicate Unit No. settings. Duplication may result in damage to both the Servo Driver and IBM PC/AT or compatible when the Servo Driver communicates with the IBM PC/AT or compatible.

**Note** 1. For multiple axis communication set a Unit No. from 1 through to E (14) inclusive.

**Note** 2. **H/L** and **UE** have no Unit No. setting for multiple axis communication (multiple axis communication cannot be performed).

For **HA/LA** set the Unit No. using a Parameter Unit.

For **UT** set the Unit No. using the rotary switch on the front panel.

- Securely connect the IBM PC/AT or compatible to the Servo Driver using the Connecting Cable listed in *1-2 System Configuration*.

### ■ Start Procedure

#### 1. Turning On

- Once connected to the Servo Driver, turn the Servo Driver on.
- Turn the IBM PC/AT or compatible on.
- A DOS prompt such as **C: \>\_** should appear.
- If the Menu Program starts, exit the program and return to DOS.

#### 2. Access a Directory

- Type the following to access the Computer Monitor Software directory.

**CD\_USD**

The prompt **C: \USD\_** will appear.



**3. Type the Start Command**

- The Computer Monitor Software's start command is UMON.

**UMON**

**About the Start Option**

The UMON command has the following start option. When using a notebook personal computer with a black and white CRT, add -MONO to give the screen better definition.

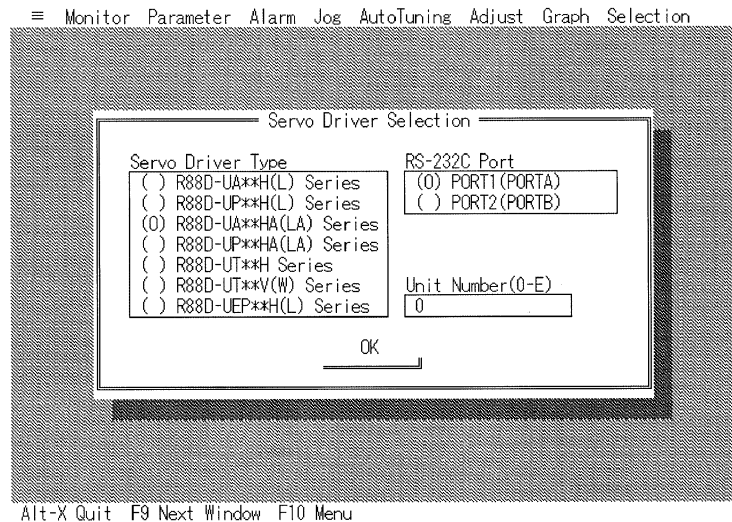
When using a black and white CRT, type the following command.

**UMON - MONO**

## 4-2 Start Screen Operation

### 1. Select the Servo Driver Type

Select the Servo Driver model connected (or to be connected) to the IBM PC/AT or compatible.



Click on the selected Servo Driver model.

Select [Servo Driver Type] using the Tab Key and select the Servo Driver using the Down Cursor Key.

### 2. Select the RS-232C Port

Click on the connected port.

Select [RS-232C Port] using the Tab Key and select the connected port using the Down Cursor Key.

### 3. Unit No. Setting for **HA/LA** and **UT**

- Set the connected Servo Driver's Unit No.
- If there is only one connected Servo Driver the Unit No. is usually 0.
- When there are multiple connected Servo Drivers choose a parameter setting and monitor Servo Driver from 1 through to E (14) inclusive.

Click on [Unit Number]. Type the Unit No.

Select [Unit Number] using the Tab Key. Type the Unit No.

**Note** No unit number setting is available for **H/L** and **UE**. (Multiple axis communication is not possible.)

### 4. Using [OK] to Confirm

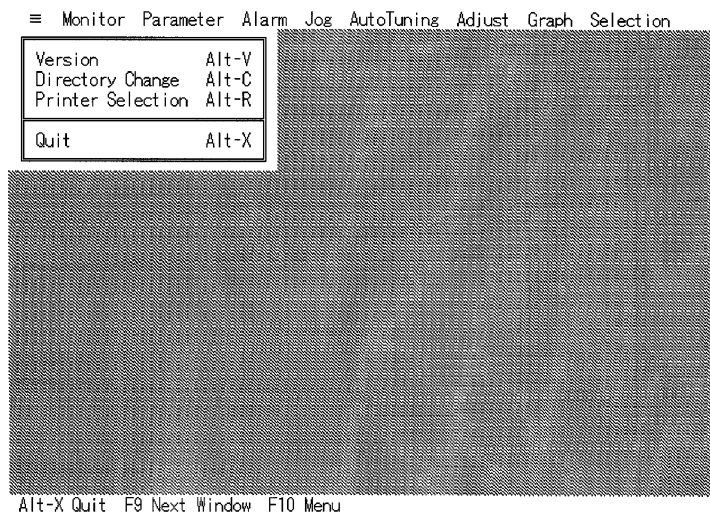
- Select Servo Driver Type and Unit No. and confirm.

Click on [OK].

Select [OK] using the Tab Key. Press the Space Key or Return Key.

5. For more information on software operation see *Chapter 5 Operation*.

## 4-3 Quit Procedure

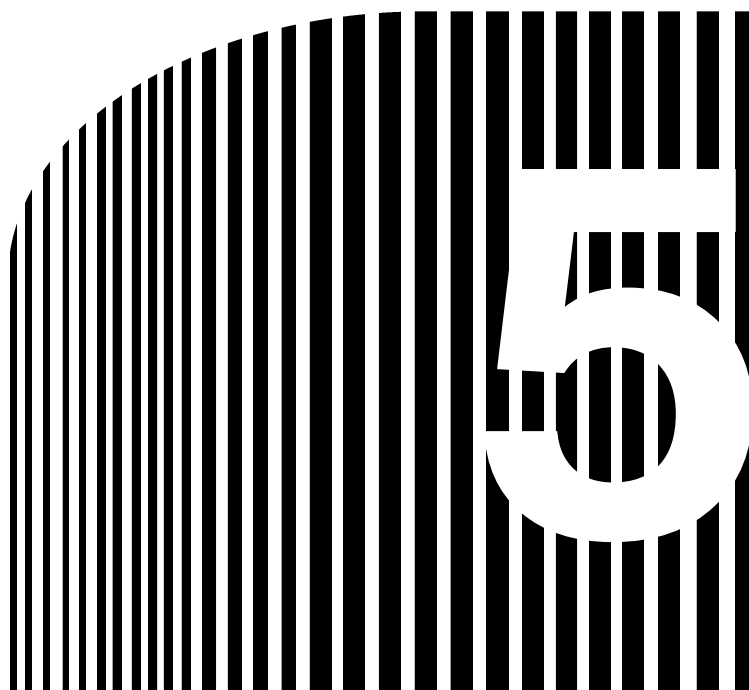


Click on [=] - [Quit].



Select [=] - [Quit] using the Tab Key or press the Alt+X Keys.

This quits the Computer Monitor Software and returns to the DOS prompt or returns to the Menu Program if working from the Menu Program.



## Chapter 5

### • Operation •

- 5-1 Basic Operating Procedure
- 5-2 Operation Tree
- 5-3 System Monitor
- 5-4 Monitor Function
- 5-5 Setting Parameters
- 5-6 Alarm Display
- 5-7 Jog Operation
- 5-8 Auto Tuning
- 5-9 Adjustment
- 5-10 Graph
- 5-11 Servo Driver Selection
- 5-12 Off Line Edit

This chapter describes the basic operations of the Computer Monitor Software in on line mode. The following explains each of these operations.

The chapter concludes with a description of the off line edit mode.

The screens used in this chapter are from the R88D-UT□□H or R88D-UA□□HA(LA) type. While the Servo Driver display contents may differ the operating procedures remain the same. The following abbreviations are used to distinguish the functions relating to different Servo Driver models.

**H/L:** R88D-UA□□H/-UA□□L, R88D-UP□□H/-UP□□L

**HA/LA:** R88D-UA□□HA/-UA□□LA, R88D-UP□□HA/-UP□□LA

**UT:** R88D-UT□□H, R88D-UT□□V/-UT□□W

**UE:** R88D-UEP□□H/-UEP□□L

## 5-1 Basic Operating Procedure

### ■ Operation Flow

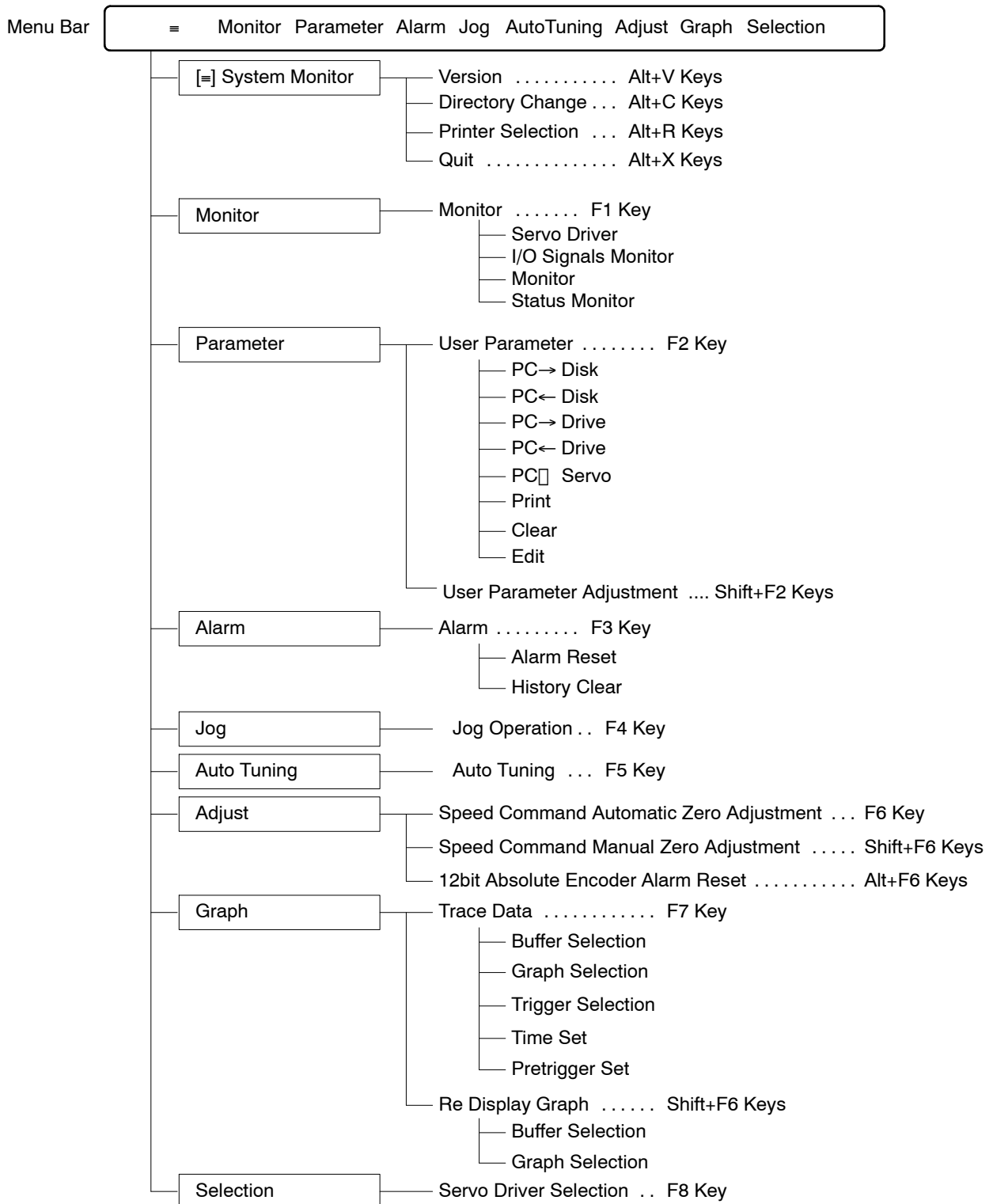
**START**

<b>1. Pre-start check</b>	<b>H/L</b>	<b>HA/LA</b>	<b>UT</b>	<b>UE</b>	<b>Chapter 4</b>
<ul style="list-style-type: none"> <li>• Servo Driver Unit No. setting (for multiple axis communication).</li> <li>• Cable connection.</li> </ul>					
<b>2. Starting the Computer Monitor Software</b>	<b>H/L</b>	<b>HA/LA</b>	<b>UT</b>	<b>UE</b>	<b>Chapter 4</b>
<ul style="list-style-type: none"> <li>• Servo Driver model setting.</li> <li>• Selecting the RS-232C port.</li> <li>• Unit No. setting (for multiple axis communication).</li> </ul>					
<b>3. Editing Parameters</b>	<b>H/L</b>	<b>HA/LA</b>	<b>UT</b>	<b>UE</b>	<b>Section 5-5</b>
<ul style="list-style-type: none"> <li>• Reading parameters from the disk.</li> <li>• Changing parameters.</li> <li>• Transferring parameters to the Servo Driver.</li> <li>• Switching the Servo Driver ON and OFF.</li> </ul>					
<b>4. Control offset automatic adjustment</b>		<b>HA/LA</b>	<b>UT</b>		<b>Section 5-9</b>
<ul style="list-style-type: none"> <li>• Adjusting the analog voltage offset for speed command and torque command (for analog input).</li> </ul>					
<b>5. Jog operation</b>		<b>HA/LA</b>	<b>UT</b>	<b>UE</b>	<b>Section 5-7</b>
<ul style="list-style-type: none"> <li>• Setting the motor revolution speed and jog operation.</li> </ul>					
<b>6. Mechanical load and connectivity (refer to the appropriate product operation manual)</b>					
<b>7. Auto tuning</b>		<b>HA/LA</b>	<b>UT</b>	<b>UE</b>	<b>Section 5-8</b>
<ul style="list-style-type: none"> <li>• Carrying out auto tuning according to mechanical rigidity.</li> </ul>					
<b>8. Test run (refer to appropriate product operation manual)</b>					
<b>9. Graph display</b>		<b>HA/LA</b>	<b>UT</b>	<b>UE</b>	<b>Section 5-10</b>
<ul style="list-style-type: none"> <li>• Checking running condition velocity and torque graph.</li> </ul>					
<b>10. Run (refer to appropriate product operation manual)</b>					

**END**

## 5-2 Function Tree

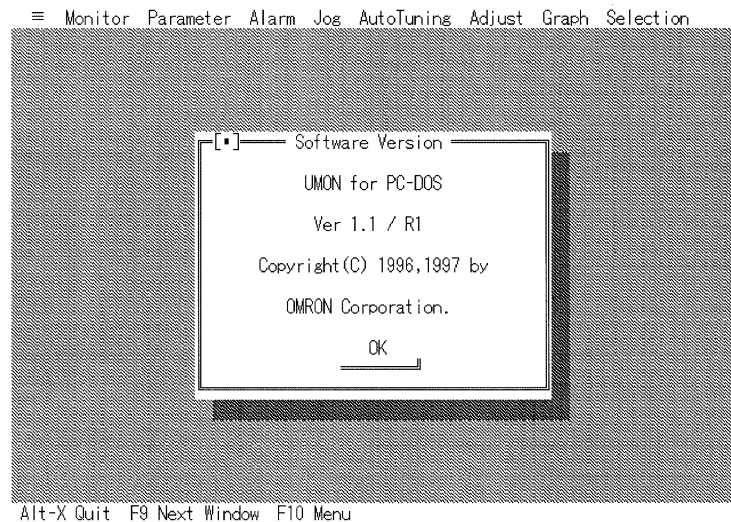
The following tree diagram provides a summary of Computer Monitor Software functions.



## 5-3 System Monitor

H/L, HA/LA, UT, UE

## ■ Version



## 1. Software Version Window

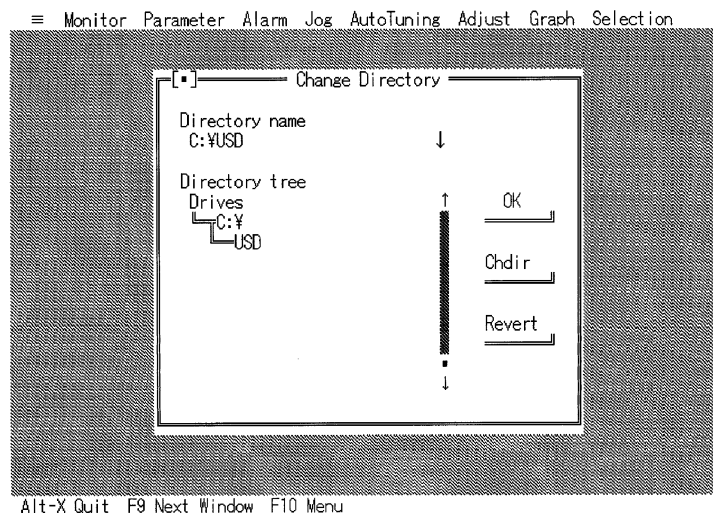
Click on or select [=] - [Version].

## 2. Closing Software Version Window

Click on [OK] or the [•] in the upper-left part of the window.

Press Space Key, Return Key, or Escape Key.

## ■ Changing the Directory



[Directory Change] is used when changing the drive or directory for reading or saving parameter files and graph data files (trace buffers).

## 1. Change Directory Window

Click on or select [=] - [Change Directory].

## 2. Change Directory

Use one of the following two methods.


### Entering the Directory Name Directly

-   Type the directory name in the [Directory Name] field and press the Return Key.

This operation will change the directory and close the Change Directory window.

### Selecting the Directory from the Screen



#### • Change the Drive

-  Double-click on [Drives] in the [Directory tree] field. The drive name is displayed. Double-click on the desired drive name.

-  Select the [Directory Tree] field using the Tab Key. When [Drives] is selected, press the Space Key or Return Key.

The drive's directories will be displayed.

#### • Select the Directory from the Screen

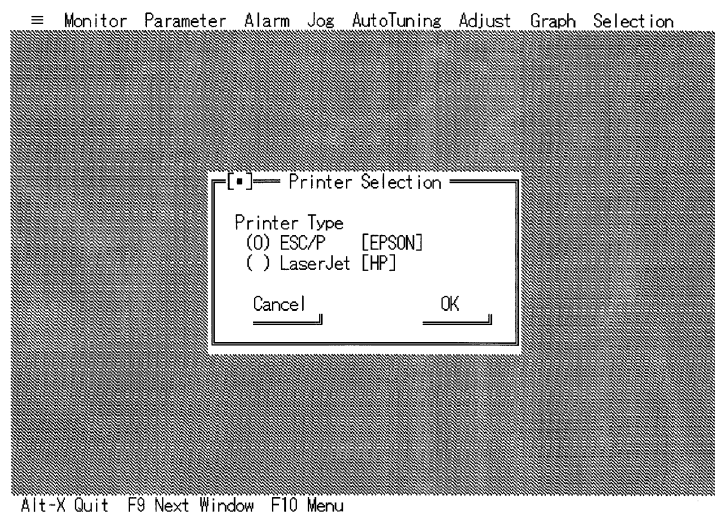
-  Double-click on the desired directory name. Click on [OK].
-  Select the desired directory name using the Tab Key. Press the Space Key or Return Key. Select [OK] using the Tab Key, then press the Space Key or Return Key.

This will change the directory and close the Change Directory window.

## 3. Other Operations

Selecting [Revert] will return the directory to its previous setting.

## ■ Selecting the Printer





[Printer Selection] is used when selecting the printer model connected to the IBM PC/AT or compatible.

### 1. Printer Selection Window

-   Click on or select [=] - [Printer Selection].

### 2. Printer Selection

-  Click on the selected printer, then click on [OK].
-  Select [Printer Type] using the Tab Key. Select the printer using the Up and Down Cursor Keys. Select [OK] using the Tab Key, then press the Space Key or Return Key.



## 5-4 Monitor Function

HA/LA, UT, UE

Selecting the Servo Driver from the screen automatically displays the Monitor Display screen. The following explains how to use the four screens (on line mode). For information on each monitor, refer to the appropriate product operation manual.

≡ Monitor Parameter Alarm Jog AutoTuning Adjust Graph Selection

Status Monitor		Servo Driver	
Base Block	: Base Block	Model Type	: R88D-UA**HA(LA) Series
Forward Overtravel	: Enable	Motor Type	: R88M-U10030**
Reverse Overtravel	: Enable	Soft Version	: 4
Alarm	: Ready	Modification	: Standard
Main Power	: ON		
Speed Coincidence	: ON		
Motor Rotation	: Stop		
Speed Command	: Not Supplied		
Torque Command	: Not Supplied		
Dynamic Brake	: OFF		
Direction of Motor	: Normal Mode		
P Control Switch	: OFF		

I/O Signals Monitor			
----- Input Signals -----			
RUN	: 0	MING	: 0
POT	: 0	NOT	: 0
PCL	: 0	NCL	: 0
RESET	: 0	SEN	: 0
A	: 1	B	: 1
PU	: 0	PV	: 1
Z	: 0	PW	: 0
----- Output Signals -----			
IR	: 0		
MP	: 1		
O2	: 0	ALO3	: 0

Monitor	
Alarm	: [A.99]Alarm Reset
Speed Feedback	: 0 [r/min]
Speed Command	: 0 [r/min]
Torque Command	: 0 [%]
Pulses From U Edge	: 1247 [pulse]
Electrical Angle	: 219 [deg]

Alt-X Quit F9 Next Window F10 Menu

## ■ Changing the Active Window

- An active window is any window on the screen that can be closed or moved to another location on the screen.
- The active window is at the front of the screen.
- The active window has a bold frame with a [•] mark on the upper-left part of the window.

### Changing the Active Window



Click on the desired window.



Press the F9 Key. Repeatedly pressing the F9 Key will make each window active in turn.

## ■ Moving the Active Window

- The active window can be re-located by dragging with the mouse.

### Moving the Active Window



Position the cursor on the upper window frame border and drag to the desired location.

## ■ Closing the Active Window

- For easier viewing close any unnecessary windows.

### Closing Active Windows



Click on the [•] mark on the upper-left part of the window.



Press the Escape Key. This operation will close the window and make the underlying window active.

**■ Displaying the Window**

- The following operation will re-display a window that has been removed from the screen.

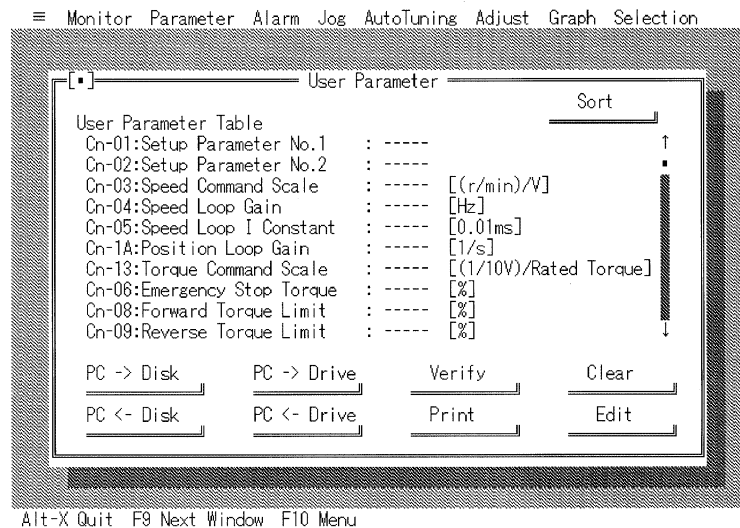
Displaying a Monitor Window

Click on or select [Monitor] – [Monitor]. All windows will be displayed.

## 5-5 Setting Parameters

H/L, HA/LA, UT, UE

In parameter settings, each user parameter can be changed in real-time through such functions as parameter edit, parameter transfer to disk or Servo Driver, and parameter comparison check. When connected to an OMRON Position Control Unit, use the existing Position Control Unit-compatible parameter files to speed-up the setting operation.



### 5-5-1 Editing Parameters

#### ■ Editing Setup Parameters

1. Opening the User Parameter Window

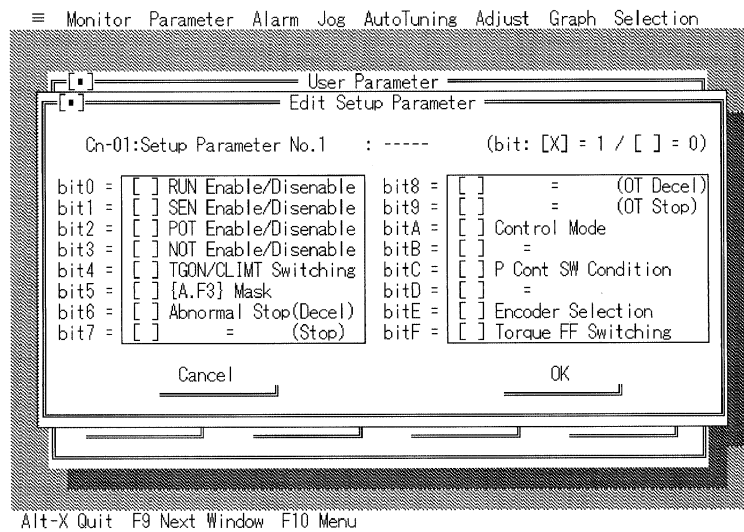
Click on or select [Parameter] - [User Parameter].

2. Selecting [Setup Parameter No.1] or [No.2]

Double-click on [Setup Parameter No.1] or [No.2].

Select [User Parameter Table] using the Tab Key. Select [Setup Parameter No.1] or [No.2] using the Down Cursor Key. Press the Return Key.

The Edit Setup Parameter window opens.



### 3. Setting Each Bit to 0 or 1

- The setup parameter sets each bit to 0 or 1.
- [ ] and [X] indicate 0 and 1 settings respectively.
- For more information on the definition of setup parameter bit, refer to the appropriate product operation manual.



Click on [ ] to the right of the desired bit No. Change the bit setting accordingly by selecting [ ] or [X] for the respective 0 and 1 settings.



Select bit No. 0 using the Tab Key. Press the Tab Key again to select descending items. Select the desired bit No. setting change and press the Space Key. [ ] and [X] indicate 0 and 1 settings respectively.

### 4. Saving the Setting Information to the IBM PC/AT or Compatible Memory

- Select [OK] to save setting information to the IBM PC/AT or compatible memory. Select [Cancel] to cancel the setting information.



Click on [OK].



Select [OK] using the Tab Key, then press the Space Key or Return Key.

Edit Setup Parameter window closes and program returns to User Parameter window.

### 5. Editing Other User Parameter Numbers

- Refer to the following section for editing user parameter numbers from Cn-03 on.

## ■ Editing User Parameter Numbers from Cn-03

### 1. Opening the User Parameter Window


  Click on or select [Parameter] - [User Parameter].

**Note** This operation is not necessary if the window is already open after setting the setup parameter.

### 2. Selecting the Desired User Parameter Setting

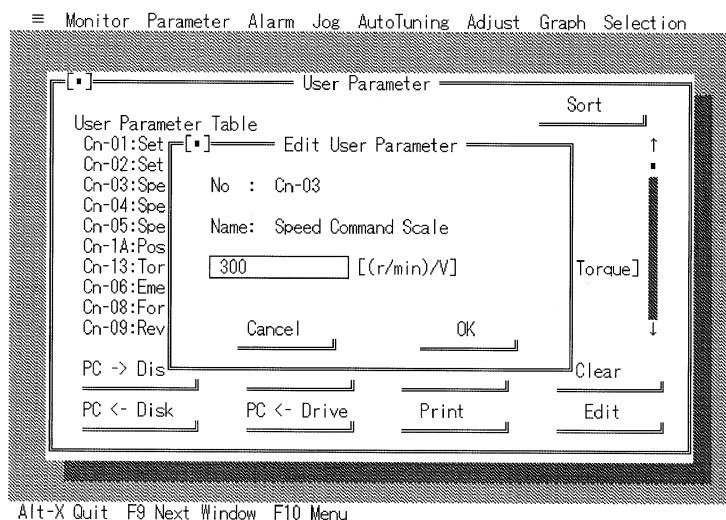
- For information on user parameter settings refer to the appropriate product operation manual.

 Double-click on the desired user parameter item setting.

 Select the [User Parameter Table] using the Tab Key. Use the Up and Down Cursor Keys to select the desired user parameter item. Press the Space Key or Return Key.

**Note** All user parameters are displayed in numerical order or in the order of contents by clicking on [Sort]. The UE model does not have this function.

Edit User Parameter window opens.



### 3. Entering the Setting and Saving to the IBM PC/AT or Compatible Memory

- Type in the setting.
- Select [Cancel] without pressing the Return Key to cancel the entered setting.
- Select [OK] or [Cancel] as follows:

 Click on [OK] or [Cancel].

 Select [OK] or [Cancel] using the Tab Key. Press the Space Key or Return Key.

Edit User Parameter window closes and the program returns to User Parameter window.

### 4. Editing Other User Parameter Numbers

### 5. Go Back to No. 2.


## 5-5-2 Transferring Parameters between IBM PC/AT or Compatible and Disk

This section explains how to save the parameters recorded in IBM PC/AT or compatible memory to disk. This section also explains how to read the disk's parameter files to the IBM PC/AT or compatible memory.

The target disk for saving and reading is set according to *Changing the Directory* in 5-3 *System Monitor*. When using a parameter file-dedicated disk or directory, select [=] - [Change Directory] before setting.


### ■ Saving from IBM PC/AT or Compatible to Disk

#### 1. Opening the User Parameter Window

  Click on or select [Parameter] - [User Parameter].

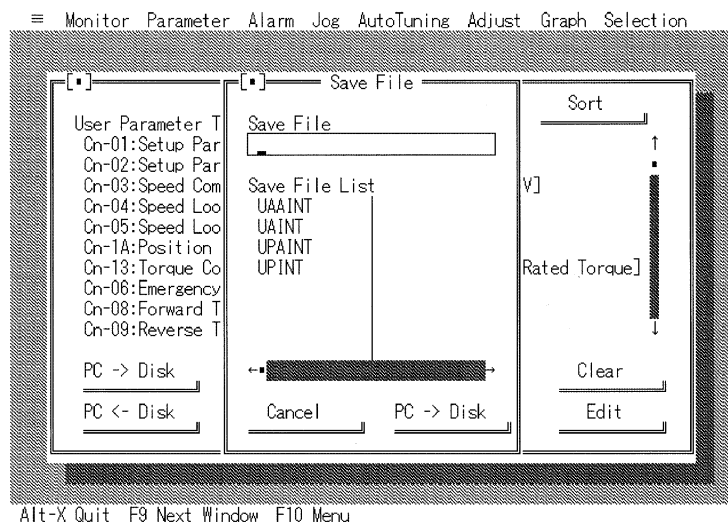
**Note** This operation is not necessary if the window is still open after setting the parameters.

#### 2. Selecting [PC→Disk]

 Click on [PC→Disk].

 Select [PC→Disk] using the Tab Key. Press the Space Key or Return Key.


Save File window opens.



#### 3. Entering (Selecting) the File Name

##### Creating a New File



- Type the File Name into the [Save File] field. Press the Return Key or select [PC→Disk].
- Select [PC→Disk] as follows:

 Click on [PC→Disk].

 Select [PC→Disk] using the Tab Key. Press the Space Key or Return Key.

**Note** When entering the File Name do not add an extension. One will be allocated automatically.

Typing Over an Existing File

-  Double-click on a file name in the [Save File List].
-  Select [Save File List] using the Tab Key. Select the file name using the Up and Down Cursor Key and press the Return Key.

Parameters are saved to disk, Save File window closes, and program returns to the User Parameter window.



## ■ Reading the Disk to the IBM PC/AT or Compatible

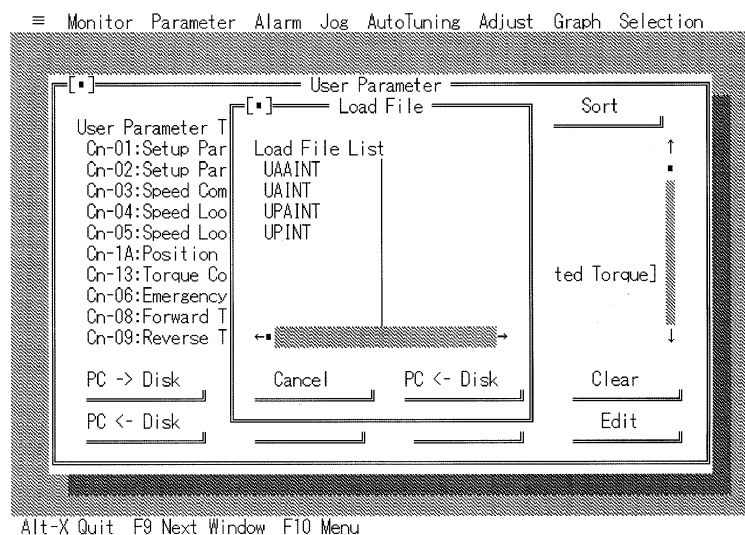
### 1. Opening the User Parameter Window

-   Click on or select [Parameter] - [User Parameter].



**Note** This operation is not necessary if the window is already open.

### 2. Selecting [PC←Disk]

-  Click on [PC←Disk].
  -  Select [PC←Disk] using the Tab Key then press the Space Key or Return Key.
- Load File window opens.



### 3. Selecting a File Name

-  Double-click on a file name in the [Load File List].
-  Select [Load File List] using the Tab Key. Select the file name using the Up and Down Cursor Keys. Press the Return Key.

Parameters are read to the IBM PC/AT or compatible, Load File window closes, and program returns to the User Parameter window.

### ● Existing Parameter Files

To speed-up the setting operation use the existing OMRON Position Control Unit-compatible parameter files in the Computer Monitor Software.

File name	Servo Driver model	Applicable Position Control Unit
UAINT	R88D-UA□□H/L	C500-NC222-E, CV500-MC221/MC421
UPINT	R88D-UP□□H/L	C200H-NC112/NC211 3G2A5-NC111-EV1
UAAINT	R88D-UA□□HA/LA	C500-NC222-E, OMNUC N115/N116, OMNUC U43/U45 CV500-MC221/MC421
UPAINT	R88D-UP□□HA/LA	C200H-NC112/NC211, 3G2A5-NC111-EV1
UTHINT	R88D-UT□□H	C200H-NC112/NC211, 3G2A5-NC111-EV1
UTHANL	R88D-UT□□H	C500-NC222-E, CV500-MC221/MC421
UTWINT	R88D-UT□□W/V	C200H-NC112/NC211, 3G2A5-NC111-EV1
UTWANL	R88D-UT□□W/V	C500-NC222-E, CV500-MC221/MC421
UEPINT	R88D-UEP□□H/L	C200H-NC112/NC211, 3G2A5-NC111-EV1

## 5-5-3 Transferring Parameters between the IBM PC/AT or Compatible and Servo Driver

This section explains how to transfer parameters stored in IBM PC/AT or compatible memory to the Servo Driver. This section also explains how to read Servo Driver parameters to the IBM PC/AT or compatible memory.

**Caution** When connecting to a **HA/LA** Servo Driver, make sure a Unit No. has been set and the Unit No. is correct before transferring parameters to the Servo Driver. Transferring an incorrect Unit No. to the Servo Driver may damage the Servo Driver and IBM PC/AT or compatible.

**Note** 1. When using multiple axis communication, a Servo Driver Unit No. of 0 or a duplicate Servo Driver Unit No. may damage the Servo Driver and IBM PC/AT or compatible.

**Note** 2. In the User Parameter window, a “----” condition in the [Unit Number]field indicates no Unit No. setting. In this condition, no parameters will be transferred to the Servo Driver.


### ■ Transferring from the IBM PC/AT or Compatible to Servo Driver

1. Opening the User Parameter Window

  Click on or select [Parameter] - [User Parameter].

**Note** This operation is not necessary if the window is already open.

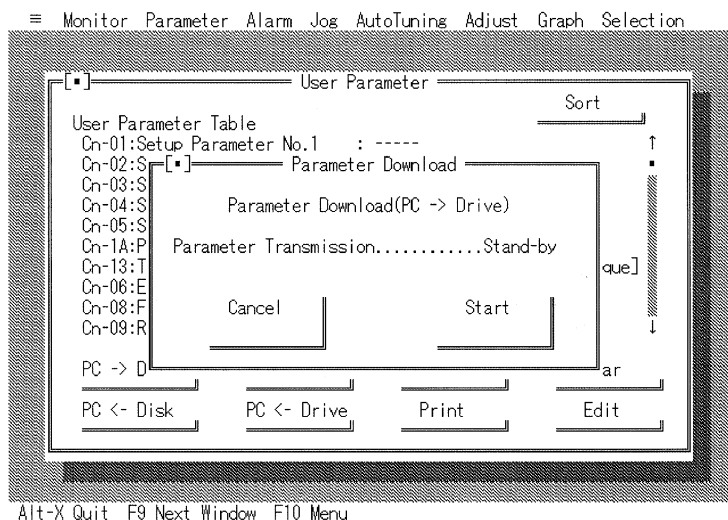
2. Selecting [PC→Drive]

 Click on [PC→Drive].

 Select [PC→Drive] using the Tab Key. Press the Space Key or Return Key.



Parameter Download window opens.



### 3. Selecting [Start]



Click on [Start].



Select [Start] using the Tab Key. Press the Space Key or Return Key.

Parameters are transferred to Servo Driver, Parameter Download window closes, and program returns to the User Parameter window.

### 4. Switching the Servo Driver OFF then ON

Refer to the following.

#### Caution when Transferring Parameters to Servo Driver

- Certain parameters will be enabled when the Servo Driver is switched OFF then ON again. Once these parameters have been changed, switch OFF the parameter-loaded Servo Driver. Make sure the screen's indicator is not lit before switching ON again.  
This applies to the Setup Parameters as well as some User Parameter Numbers. For further information refer to the appropriate product operation manual.
- When connecting a R88D-UA□□HA/LA model and the Setup Parameter Cn-01 bit No. E (Encoder Selection) has been modified, switch the Servo Driver ON and restart the Computer Monitor Software or re-execute the [Servo Driver Selection]. Normally, the [12 bit Absolute Encoder Alarm Reset] is not activated.

## ■ Transferring Parameters from Servo Driver to the IBM PC/AT or Compatible

### 1. Opening the User Parameter Window




Click on or select [Parameter] - [User Parameter].

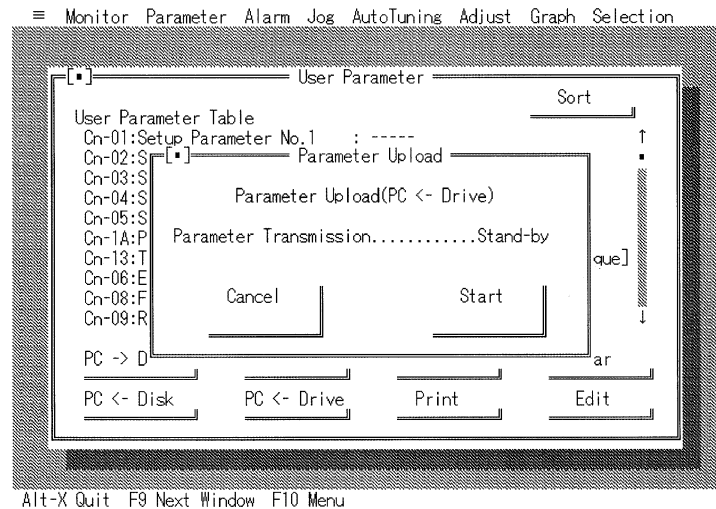
**Note** This operation is not necessary if the window is already open.

### 2. Selecting [PC←Drive]





Click on [PC←Drive].

-  Select [PC←Drive] using the Tab Key. Press the Space Key or Return Key.  
Parameter Upload window opens.



### 3. Selecting [Start]

-  Click on [Start].
-  Select [Start] using the Tab Key. Press the Space Key or Return Key.  
Parameters are transferred to IBM PC/AT or compatible, Parameter Upload window closes, and program returns to the User Parameter window.

## 5-5-4 Comparing Parameters

The user can compare the settings of user parameters in the personal computer's memory with those in the Servo Driver.


### ■ Comparing Parameters

#### 1. Opening the User Parameter Window

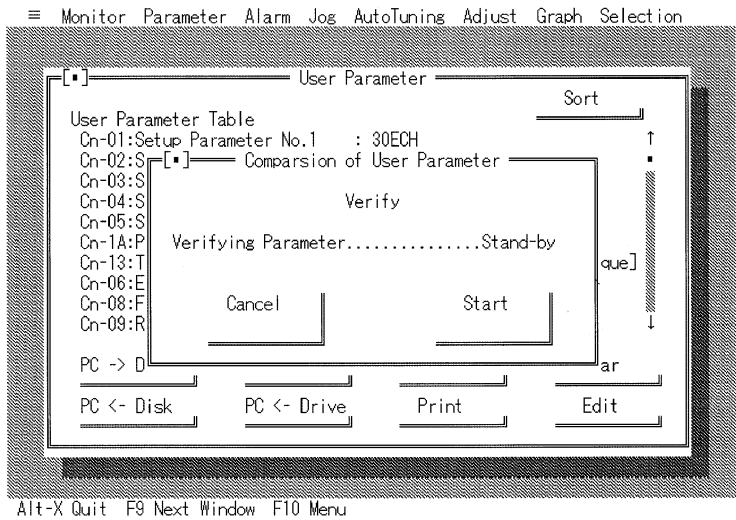
-   Click on or select [Parameter] - [User Parameter].

**Note** This operation is not necessary if the window is already open.

#### 2. Selecting [PC ☐ Servo]

-  Click on [PC ☐ Servo].
-  Select [PC ☐ Disk] using the Tab Key. Press the Space Key or Return Key.

Comparison of User Parameter window opens



3. Selecting [Start]

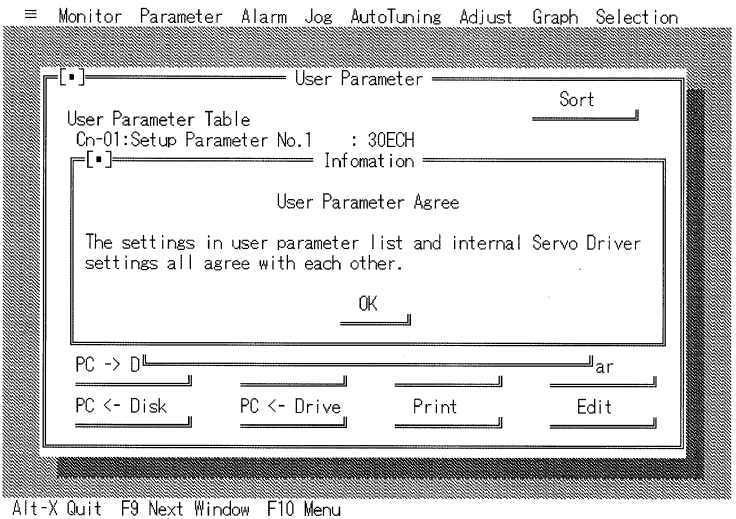
Click on [Start].

Select [Start] using the Tab Key. Press the Space Key or Return Key.

The message "Verifying Parameter...Cn-□□" appears and the set parameters are compared.

Result of comparison: All in agreement

Information window opens.



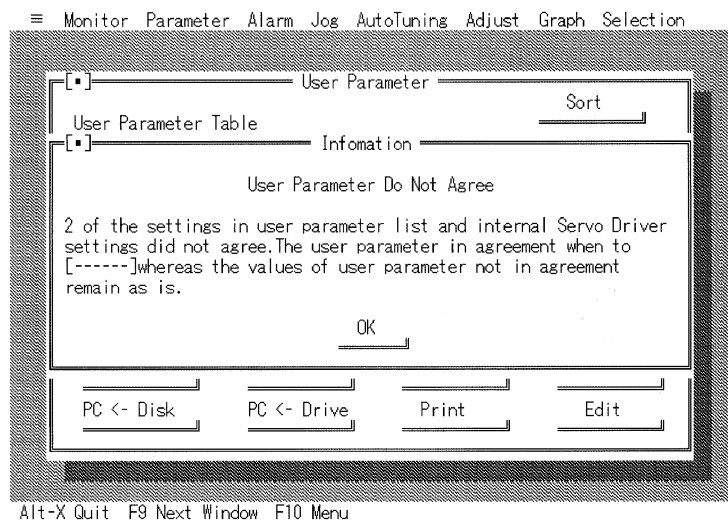
Click on [OK].

Press the Space Key or Return Key.

The Information window closes and the User Parameter window appears again.

Result of comparison: Not in agreement

Information Window opens.



- The number of user parameters not in conformity is indicated.

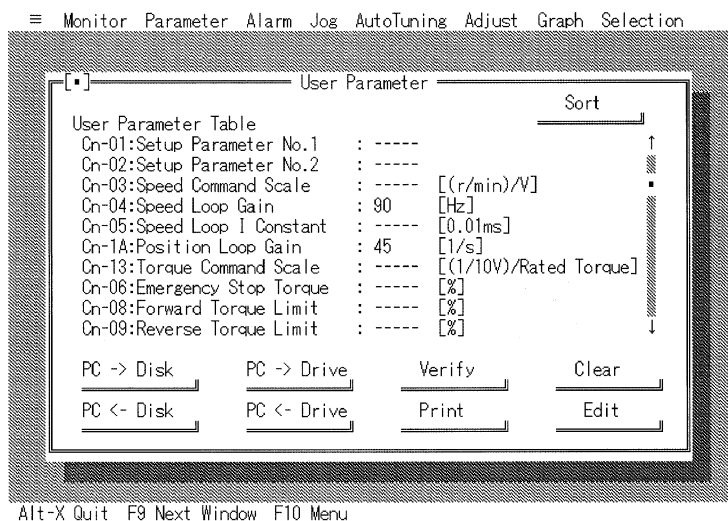


Click on [OK].



Press the Space Key or Return Key.

The Information window closes, the User Parameter Window appears, and the number of user parameters not in agreement appears.



- The settings in user parameters not in agreement remain as they are. Check these settings.

**Note** Before comparing parameters, be sure that all the parameters in the user parameter list have been set (i.e., none of the parameters indicates “-----” instead of a set value).

### 5-5-5 Clearing Parameters


This section describes how to clear all parameters stored in the IBM PC/AT or compatible memory (or revert to a “no setting entered” condition).


1. Opening the User Parameter Window

  Click on or select [Parameter] - [User Parameter].

**Note** This operation is not necessary if the window is already open.

2. Selecting [Clear]

 Click on [Clear].

 Select [Clear] using the Tab Key. Press the Space Key or Return Key.

All parameters are cleared.

- Once the parameters are cleared “-----” will appear in the setting field.

### 5-5-6 Printing Parameters


This section describes how to obtain parameter printouts.


1. Opening the User Parameter Window

  Click on or select [Parameter] - [User Parameter].

**Note** This operation is not necessary if the window is already open.

2. Selecting [Print]

 Click on [Print].

 Select [Print] using the Tab Key. Press the Space Key or Return Key.

## Sample Parameter Printout

```

R88D-UT**H Series User Parameter          1996-02-14   [19:33:59]

Cn-01:Setup Parameter No.1      : 30ECH
Cn-02:Setup Parameter No.2      :
Cn-11:Number of Encoder Pulses: 8192   [P/R]
Cn-2B:Control Mode Selection    : 1
Cn-2A:Motor Selection           : 145
Cn-03:Speed Command Scale       : 300   [(r/min)/V]
Cn-04:Speed Loop Gain           : 80    [Hz]
Cn-05:Speed Loop I Constant     : 2000  [0.01ms]
Cn-1A:Position Loop Gain        : 40    [1/s]
Cn-1C:Bias Rotational Speed     : 0     [r/min]
Cn-1D:Feed-Forward Amount       : 0     [%]
Cn-17:Torque Filter Time        : 4     [100us]
Cn-28:Compensating Gain         : 0
Cn-0C:P Control SW(Torque)      : 200   [%]
Cn-0D:P Control SW(Speed)       : 0     [r/min]
Cn-0E:P Control SW(Accel)       : 0     [10(r/min)/s]
Cn-0F:P Control SW(Counter)     : 10    [Command Unit]
Cn-0A:Encoder Divider Rate      : 1000  [P/R]
Cn-24:Electronic Gear Ratio G1: 4
Cn-25:Electronic Gear Ratio G2: 1
Cn-07:Soft Start Time(Accel)    : 0     [ms]
Cn-23:Soft Start Time(Decel)    : 0     [ms]
Cn-26:Pulse Accel/Decel Time    : 0     [0.1ms]
Cn-27:Feed-Forward Gain Filter: 0     [0.1ms]
Cn-08:Forward Torque Limit      : 350   [%]
Cn-09:Reverse Torque Limit      : 350   [%]
Cn-18:Forward Current Limit     : 100   [%]
Cn-19:Reverse Current Limit     : 100   [%]
Cn-06:Emergency Stop Torque     : 350   [%]
Cn-13:Torque Command Scale      : 30    [(1/10V)/Rated Torque]
Cn-14:Speed Limit(T Cont I)     : 3000 [r/min]
Cn-2D:Output Signal Selection    : 210
Cn-0B:TGON Speed                : 20    [r/min]
Cn-29:Position Lock Speed       : 10    [r/min]
Cn-22:VCMP Output Width         : 10    [r/min]
Cn-1B:INP Output Width          : 3     [Command Unit]
Cn-1E:Counter Overflow Level    : 1024 [x256 Command Unit]
Cn-12:Brake Timing 1            : 0     [10ms]
Cn-15:Brake Command Speed       : 100   [r/min]
Cn-16:Brake Timing 2            : 50    [10ms]
Cn-10:Jog Speed                 : 500   [r/min]
Cn-1F:No.1 Internal Speed       : 100   [r/min]
Cn-20:No.2 Internal Speed       : 200   [r/min]
Cn-21:No.3 Internal Speed       : 300   [r/min]
Cn-2C:Encoder Power Voltage     : 52500 [0.1mV]



```

## 5-5-7 Adjusting Parameters

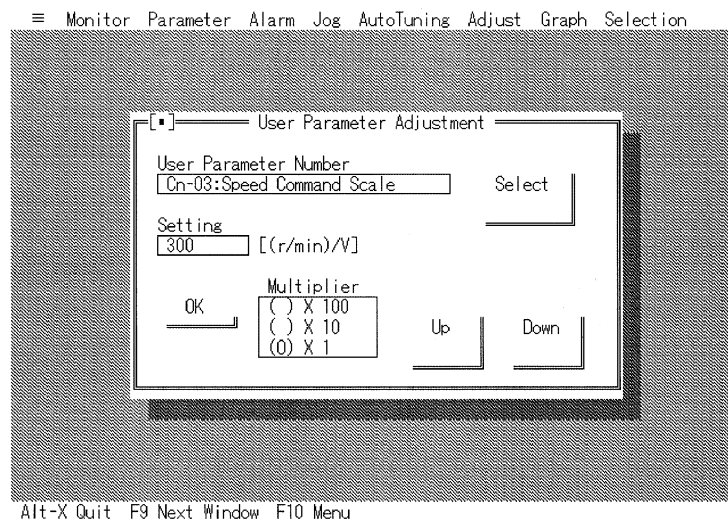
The user can make real-time changes in each user parameter. Therefore, the user parameter can be edited as if the R88A-PR02U or R88A-PR03U Parameter Unit was being used.

### ■ Adjusting Parameters

#### 1. Opening the User Parameter Adjustment Window

  Select [Parameter]-[User Parameter Adjustment].

User Parameter Adjustment window opens.



## 2. Selecting the User Parameter



Click on [Select].

The User Parameter Select window opens.

Double-click on the user parameter item to be set.

The User Parameter Adjustment window appears again.



Select [Select] using the Tab Key.

Press the Space Key or Return Key.

The User Parameter Select window opens.

Select the list of user parameters using the Tab Key.

Select the user parameter item using the Up Key or Down Key and press the Return Key.

The User Parameter Adjustment window appears again.

**Note** All user parameters are displayed in numerical order or in the order of contents by clicking on [Sort]. The UE model does not have this function.

## 3. Changing the Set Value



Select one the of multiplier values and click on it.

Click on [Up] or [Down]. By clicking on the button each time, the set value changes with the multiplier value selected.



Select [Multiplier] using the Tab Key and select one of the multiplier values using the Up Key or Down Key.

Select [Up] or [Down] using the Tab Key.

Press the Space Key or Return Key. By pressing the Space Key or Return Key each time, the set value changes with the multiplier value selected.

## 4. Closing the User Parameter Adjustment Window.



Click on the [•] mark on the upper-left part of the window.



Press the Escape Key.

**Precautions for Parameter Adjustment**

- Some user parameters are not enabled unless the Servo Driver is turned off and on after they are set. If the settings in such parameters are changed, turn off the Servo Driver, check that all indicators on the front panel are off, and turn on the Servo Driver.
- If user parameters are changed using the parameter adjustment function, no user parameters set in the personal computer's memory will be changed.



## 5-6 Alarm Display

HA/LA, UT, UE

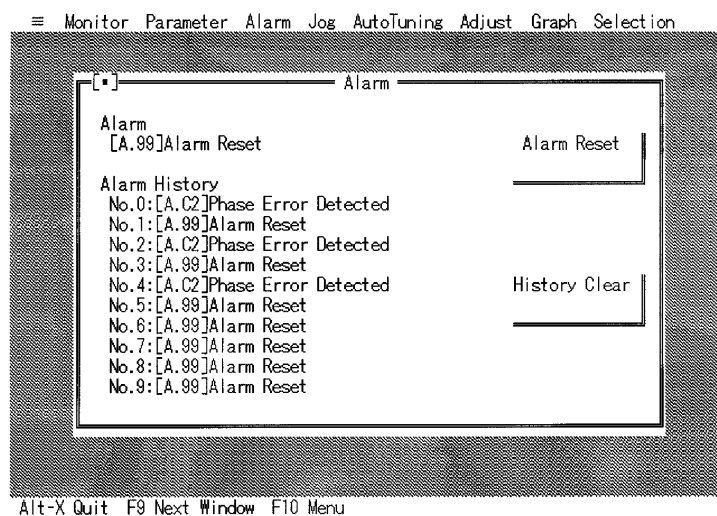
By selecting [Alarm] - [Alarm], the user can check present and past alarm conditions. It also enables the user to reset a present alarm as well as clear past alarm records. Should an A.81 or A.82 alarm condition occur when using the Absolute Encoder, select [Adjust] - [12 Bit Absolute Encoder Alarm Reset].

### ■ Checking the Alarm

#### 1. Opening the Alarm Window

  Click on or select [Alarm] - [Alarm].

Alarm window opens.



#### 2. Closing the Alarm Window

 Click on the [•] in upper-left part of the window.

 Press the Escape Key.

### ■ Resetting the Alarm

Should the Servo Driver activate an alarm, reset the alarm from the IBM PC/AT or compatible.

#### 1. Selecting [Alarm Reset]

 Click on [Alarm Reset].


 Select [Alarm Reset] using the Tab Key. Press the Space Key or Return Key.

Alarm is reset.

### ■ Clearing Alarm Records

Clears alarm condition records.

#### 1. Selecting [History Clear].

 Click on [History Clear].

 Select [History Clear] using the Tab Key. Press the Space Key or Return Key.

Alarm history is cleared and all historical data reverts to Alarm Reset.

## 5-7 Jog Operation

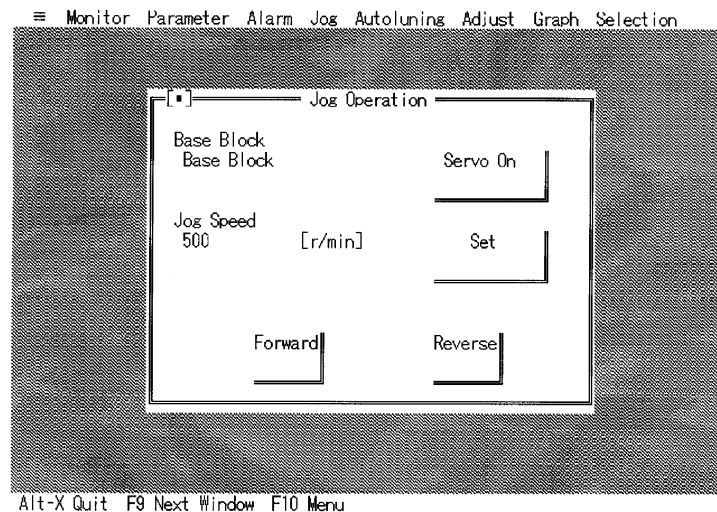
HA/LA, UT, UE

Jog speed enables normal or reverse motor rotation.

### ■ Operating Jog

#### 1. Opening the Jog Operation Window

- ☞ Click on or select [Jog] - [Jog Operation].  
Jog Operation window opens.



#### 2. Selecting [Servo On] (See note 1.)

- ☞ Click on [Servo On].
- ☞ Select [Servo On] using the Tab Key. Press the Space Key or Return Key.  
[Run] is displayed.

#### 3. Selecting Rotation Direction (Refer to the next section to change jog speed)

- ☞ Click on [Forward] or [Reverse].
- ☞ Select [Forward] or [Reverse] using the Tab Key.

#### 4. Rotating the Motor

- ☞ Click on [Forward] or [Reverse]. The mouse toggle function allows switching between Forward and Reverse.
- ☞ Select [Forward] or [Reverse], and press the Space Key. The Space Key toggle function allows switching between Forward and Reverse. When repeating the toggle function, the motor may stop momentarily. This is caused by a momentary interruption in the command input.

#### 5. Selecting [Servo Off] (See note 2.)

- ☞ Click on [Servo Off].
- ☞ Select [Servo Off] using the Tab Key. Press the Space Key or Return Key.

#### 6. Closing the Jog Operation window

- ☞ Click on [•] in the upper-left part of the window.
- ☞ Press the Escape Key.

**Note** 1. When bit No. 0 of the set up parameter No. 1 is set to “1,” there is no need to select [Servo On] because the Servo Driver is normally in servo on status. The situation is the same when the RUN signal is input (ON) from outside.

**Note 2.** Even when bit No. 0 of the set up parameter No. 1 is set to “1,” the [Servo Off] switch is valid. However, the Servo Driver will turn back ON if the Jog Operation window is closed. When the RUN signal is input (ON) from outside, the [Servo Off] switch is invalid regardless of parameter setting.

**Note 3.** When the Servo Driver is turned ON/OFF with the external signal, the [Base Block] and [Run] displayed inside the Jog Operation window may not be consistent with its real situation.

## ■ Changing Jog Speeds

### 1. Opening the Job Speed Setting Window

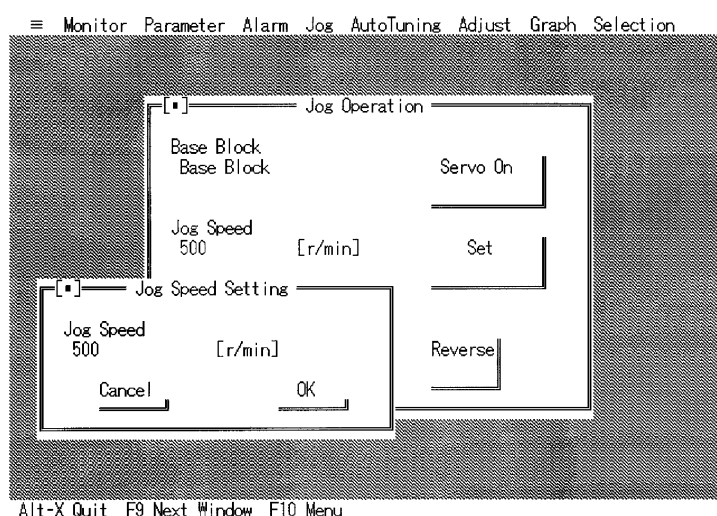


Click on [Set].



Select [Set] using the Tab Key. Press either the Space Key or Return Key.

Jog Speed Setting window opens.



### 2. Setting the Jog Speeds (See Note 1)



Click on [Jog Speed]. Type the desired jog speed setting, then press the Return Key.



Select [Jog Speed] using the Tab Key. Type the desired jog speed setting, then press the Return Key.

**Note** [OK] can be selected instead of pressing the Return Key.

Jog Speed Setting window is closed and Jog Operation window is restored.

- Confirm that the [Jog Speed] display has been changed.
- Changing the jog speed also changes user parameter of the Servo Driver. However, parameters registered on the IBM PC/AT or compatible memory will remain unchanged.

**Note 1.** The UE model cannot make jog speed changes, and the jog speed is fixed to 500 rpm.

5-8 Auto Tuning

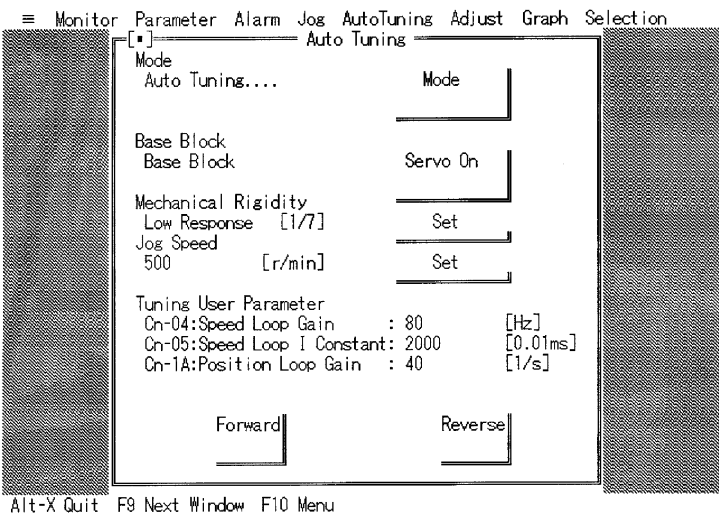
HA/LA, UT, UE

Auto tuning automatically adjusts the Servo System Gain according to set values of mechanical rigidity.

■ Auto Tuning

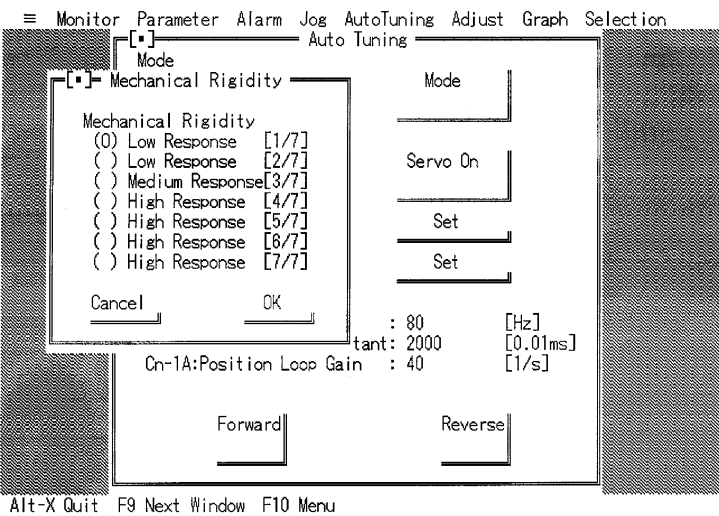
1. Opening the Auto Tuning Window

- Click on or select [Auto Tuning] - [Auto Tuning].  
Auto Tuning window opens.





2. Opening the Mechanical Rigidity Setting Window

- Click on [Set] to the right of [Mechanical Rigidity].
- Select [Set] to the right of [Mechanical Rigidity] using the Tab Key. Press the Space Key or Return Key.  
Mechanical Rigidity Setting window opens.





### 3. Setting the Mechanical Rigidity

-  Click on the desired mechanical rigidity setting. Click on [OK].
-  Select the [Mechanical Rigidity] list using the Tab Key. Select the mechanical rigidity using the Up and Down Cursor Keys, then press the Return Key.

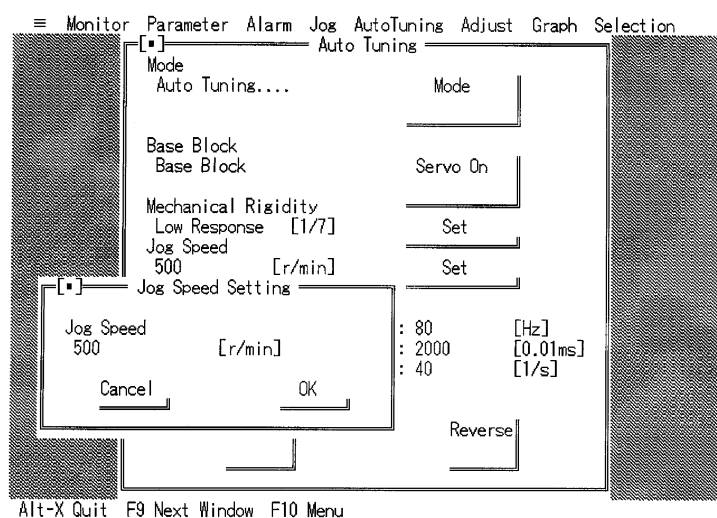
Mechanical Rigidity window closes and Auto Tuning window is restored.

### 4. Opening the Jog Speed Setting Window



-  Click on [Set] to the right of [Jog Speed].
-  Select [Set] to the right of [Jog Speed] using the Tab Key. Press the Space Key or Return Key.

**Note** The UE model cannot make jog speed changes, and the jog speed is fixed to 500 rpm.

Jog Speed Setting window opens.



### 5. Setting the Jog Speed



-  Click on [Jog Speed]. Type the desired jog speed setting, then press the Return Key.
-  Select [Jog Speed] using the Tab Key. Type the desired jog speed settings, then press the Return Key.

**Note 1.** [OK] can be selected instead of pressing the Return Key.

**Note 2.** In general, the jog speed should be at least 500 (r/min).

**Note 3.** The jog speed set here is not written to the Servo Driver's User Parameter.

### 6. Selecting the [Servo On]

-  Click on [Servo On].
-  Select [Servo On] using the Tab Key. Press the Space Key or Return Key.

**Note** When bit No. 0 of the setup parameter No. 1 is set to "1," there is no need to select [Servo On] because the Servo Driver is normally in servo on status. The situation is the same as when the RUN signal is input (ON) from outside.


Run is displayed.


### 7. Selecting Direction of Rotation

-  Move the mouse cursor to [Forward] or [Reverse].

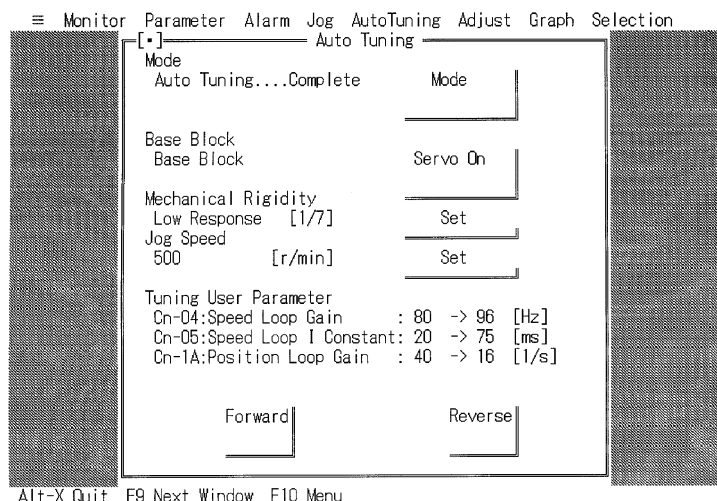
 Select [Forward] or [Reverse] position using the Tab Key.

## 8. Carrying out Auto Tuning

 Keep pressing the mouse button over [Forward] or [Reverse]. When auto tuning is complete, the [Mode] column will display [Auto Tuning ..... Complete]. When [Complete] is displayed, release the button.

 Keep pressing the Space Key over [Forward] or [Reverse]. When the motor stops, release the Space Key. When the Space Key is released, the [Mode] column will display [Auto Tuning ..... Complete].

Gain that has been changed is displayed in the [Tuning User Parameter] selection.



## 9. Do You Want to Perform Auto Tuning Again?

### a) Closing the Auto Tuning Window

 Click on [•] in the upper-left part of the window.

 Press the Escape Key.

### b) Selecting the Mode

 Click in [Mode].

 Select [Mode] using the Tab Key. Press the Space Key or Return Key. [Auto Tuning .....] appears in the [Mode] column.

## 10. Return to 2. Opening the Mechanical Rigidity Setting Window.

**Note 1.** Auto tuning can be performed only when the [Auto Tuning .....] message appears in the [Mode] column.

**Note 2.** Refer to operation manuals of relevant products for the mechanical rigidity setting criteria.

**Note 3.** Even when bit No. 0 of the setup parameter No. 1 is set to "1," if the [Mode] column displays [Auto Tuning .....], the [Servo Off] switch is valid. However, when the Auto Tuning window is closed, the Servo Driver is turned back ON. When the RUN signal is input (ON) from outside, the [Servo Off] switch will become invalid regardless of parameter setting.

**Note 4.** When Servo Driver is turned ON/OFF by the external signal, the [Base Block] and [Run] displayed in the [Base Block] column may not be consistent with its real situation.

## 5-9 Adjustment

HA/LA, UT

Adjustment is used for analog input. This function is not used for pulse-train inputs.

Adjustment can be used for the following models.

Speed Command Automatic Zero Adjustment

HA/LA UT

Speed Command Manual Zero Adjustment

HA/LA UT

12 bit Absolute Encoder Set Up

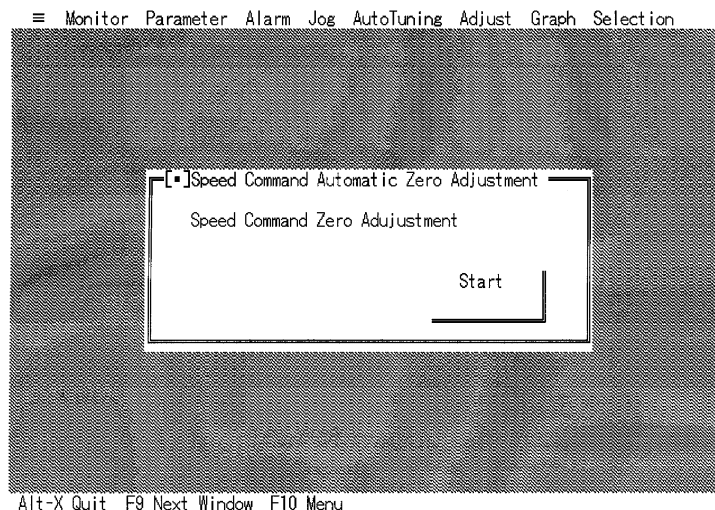
HA/LA

### ■ Speed Command Automatic Zero Adjustment Method HA/LA, UT

#### 1. Opening the Speed Command Automatic Zero Adjustment Window

  Click on or select [Adjust] - [Speed Command Automatic Zero Adjustment].


Speed Command Automatic Zero Adjustment window opens.



#### 2. Setting the Voltage of Speed Command Input to 0 V

- Type the voltage of speed command input (REF) with which the number of rotations becomes zero (normally 0 V).

#### 3. Selecting [Start]

 Click on [Start].

 Press the Space Key or Enter Key.

Makes an automatic zero adjustment and displays [Complete] upon completion.

- If [Speed Command Zero Adjust .....Complete] appears, the adjustment has been completed.

#### 4. Closing the Speed Command Zero Adjustment Window

 Click on [\*] in the upper-left part of the window.

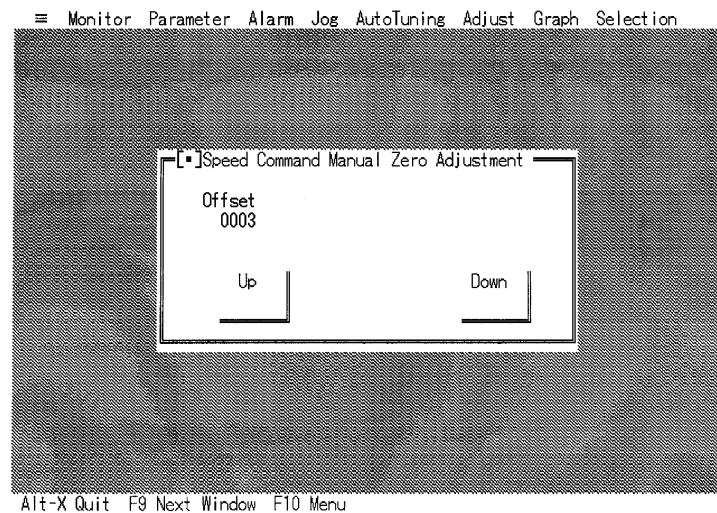
 Press the Escape Key.

### ■ Speed Command Manual Zero Adjustment Method HA/LA, UT

#### 1. Opening the Speed Command Manual Zero Adjustment Window

  Click on or select [Adjust] - [Speed Command Manual Zero Adjustment].

Speed Command Manual Zero Adjustment window opens.



## 2. Turning the Servo ON

- Input the Run signal (ON). When bit No. 0 of setup parameter No. 1 is set to “1,” this operation is not required.

## 3. Setting the Voltage of Speed Command Input to 0 V

- Type voltage of speed command input (REF) with which the number of rotations becomes zero (normally 0 V).

## 4. Setting the Direction that Provides Offset

- Select [Up] (providing offset on positive side) or [Down] (providing offset on negative side).



Move the mouse cursor over [Up] or [Down].



Select [Up] or [Down] using the Tab Key.

## 5. Adjusting Offset

- Adjust the offset so that motor or machine stops completely.



Click on [Up] or [Down]. The offset value increases or decreases by 1 for every click.



Press the Space Key. The offset value increases or decreases by 1 each time the Space Key is pressed.

## 6. Closing the Speed Command Manual Zero Adjustment Window



Click on [•] in the upper-left part of the window.



Press the Escape Key.



## ■ 12 bit Absolute Encoder Setup Method HA/LA

This function is used to reset alarms (A.81, A.82) relating to the Absolute Encoder. In addition, it is valid when the following conditions are met.

Servo Driver model is R88-UA□□HA/LA

Starting of the Computer Monitor Software or Servo Driver selection.

Selection is performed under condition that the Absolute Encoder has been set for the setup parameters.

**Caution** When 12 bit Absolute Encoder Alarm Reset is performed, never fail to reset to the home position. Otherwise, injury or machine damage may occur.

**Note** 1. When 12 bit Absolute Encoder Alarm Reset is performed, the number of rotations of the Absolute Encoder is reset to 0. If the machine system is operated without resetting its home position, it will be positioned at a location different than originally intended. This situation, therefore, is very dangerous.



**Note** 2. 12 bit Absolute Encoder Alarm Reset is used for resetting the following events from the IBM PC/AT or compatible:

A.81 Encoder Backup Alarm

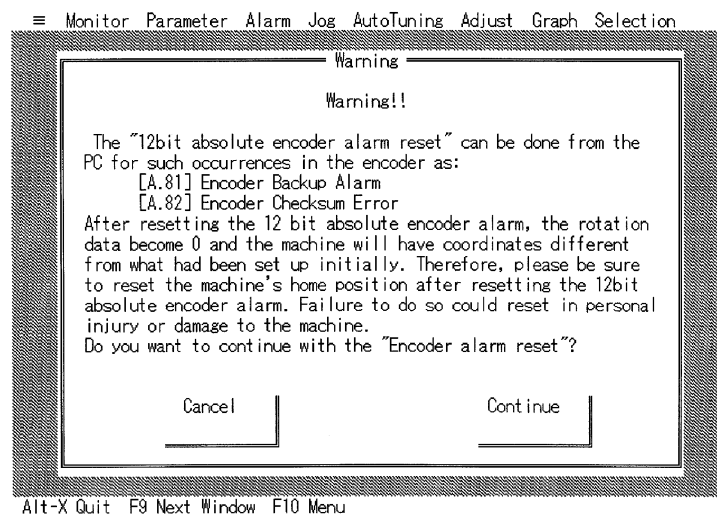
A.82 Encoder Checksum Error

These events originate from the Encoder.

### 1. Selecting [Adjust] - [12 bit Absolute Encoder Alarm Reset]


  Click on or select [Adjust] - [12 bit Absolute Encoder Alarm Reset].

Warning window opens.



### 2. Do You Want to Perform Setup?


a) Select [Cancel]


 Click on [Cancel].

 Press the Escape Key.

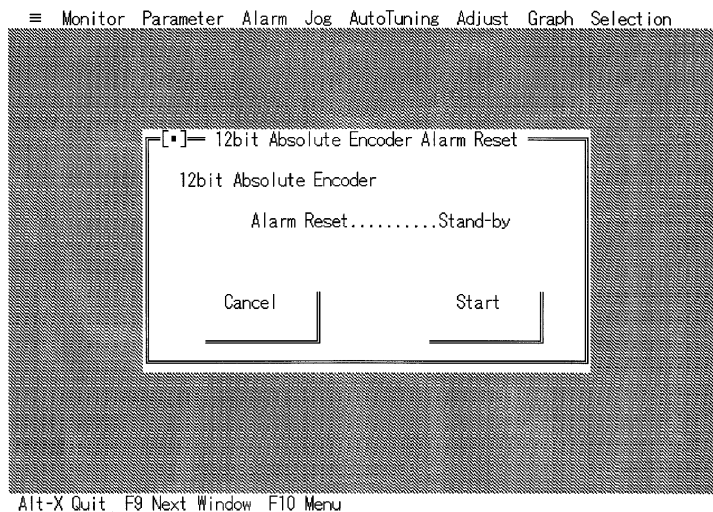
Warning window closes.

b) Select [Continue]


 Click on [Continue].


 Press the Space Key or Return Key.

[Alarm Reset ..... Stand-by] is displayed.



3. Select [Start]

 Click on [Start].

 Press the Space Key or Return Key.

[Alarm Reset ..... Resetting] is displayed.

[Alarm Reset ..... Complete] is displayed.

12 bit Absolute Encoder Alarm Reset window closes.

## 5-10 Graph

## HA/LA, UT, UE

This function retrieves and displays time series data such as torque command, speed command, speed feedback, and position deviation.

This function retrieves and displays the ON/OFF status of I/O signals as time series data.

It enables the storage of retrieved data on a disk or reading of data from a disk.

It can be used for sending a graph to the printer.

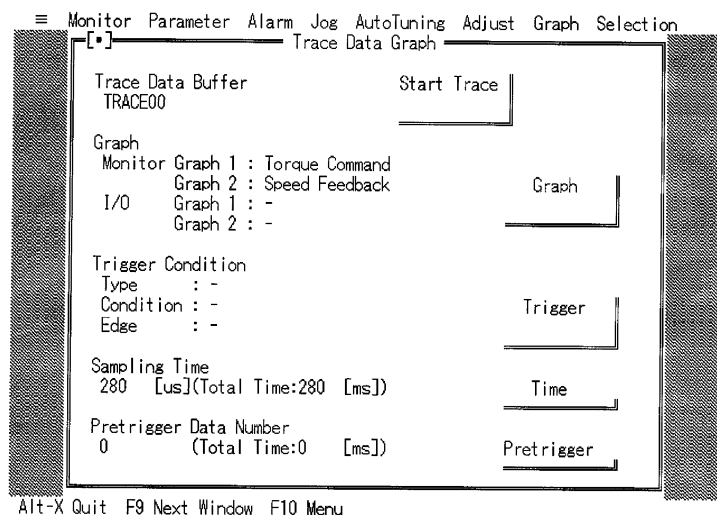
The disk and directory for Save/Read is set in *Changing the Directory in 5-3 System Monitor*. When a disk or directory is used for a data graph, select [=] - [Directory Change] and set it up in advance.

## 5-10-1 Trace Data Graph

## 1. Opening the Trace Data Graph Window

  Click on or select [Graph] - [Trace Data].

Trace Data Graph window opens.



## 2. Setting Up Trace Data Buffer


- Trace data buffer refers to the filename to which the data graph is saved to.

 Click on [Trace Data Buffer]. Type the file name from the keyboard.

 Select [Trace Data Buffer] using the Tab Key, then type the file name from the keyboard.

3. Selecting the Graph (If there is no need to select Graph, go to the next step, *Selecting the Trigger*)

- Data which can be displayed consists of the data graph (2 types) and ON/OFF data of the I/O signal (2 types).
- Either Torque Command or Speed Command can be selected for Graph 1 of the data graph. Either Speed Feedback or Position Deviation (in case of pulse-train inputs) can be selected for Graph 2.
- (0) refers to data selected for Graphs 1 and 2, and [X] refers to data selected for the I/O.

 Click on [Graph] to open the Selection of Graph window. Click on the data to be displayed. When the setting is finished, click on [OK].

Selection of Graph window closes and Trace Data Graph window is restored.



Select [Graph] using the Tab Key.

Press the Space Key or Return Key. The Selection of Graph window opens.

Select [Graph 1] using the Tab Key, then select the data using Up and Down Cursor Keys.

Select [Graph 2] using the Tab Key, then select the data using Up and Down Cursor Keys (for analog inputs, the cursor moves to the next I/O table).

Move the cursor to the I/O table using the Tab Key and select the I/O to be displayed. Move the cursor using Up and Down Cursor Keys and select the I/O by pressing the Space Key.

[X] is a selected I/O.

If the Space Key is pressed again while the cursor is at [X], this [X] changes to [ ] and the selection is cancelled.

Select [OK] when setting is complete.

Selection of Graph window closes and Trace Data Graph window is restored.

#### 4. Selecting the Trigger (If there is no need to select Trigger, go to the next step, *Setting the Time*.)



Click on [Trigger]. The Trigger Conditions Setting window opens. Click on [Set] to the right of the item to be set.



Select [Trigger] using the Tab Key. Press the Space Key or Return Key.

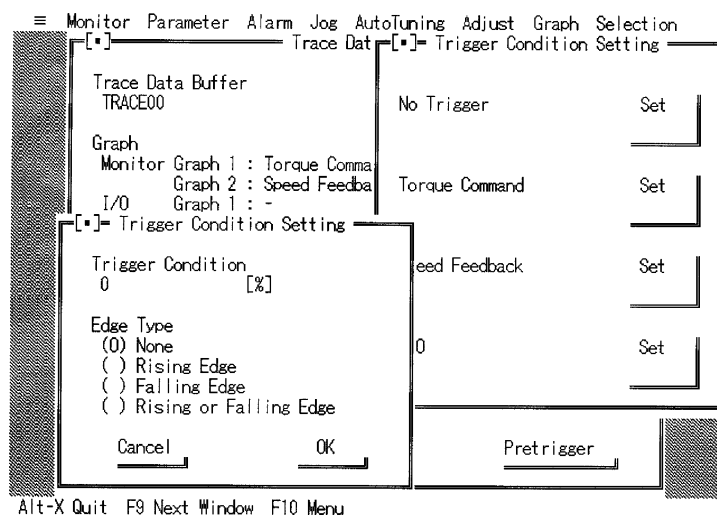
The Trigger Condition Setting window opens. Select [Set] displayed to the right of the item to be set using the Tab Key.

#### In Case of No Trigger

- Trigger Condition Setting window is closes and Trace Data Graph window is restored.
- All [Trigger Condition] columns become “-”.

#### When Torque Command is Used as Trigger

- Trigger Condition Setting window for torque opens.




Click on [Trigger Condition] and type its numerical value.

Click on one from among the [Edge Type].

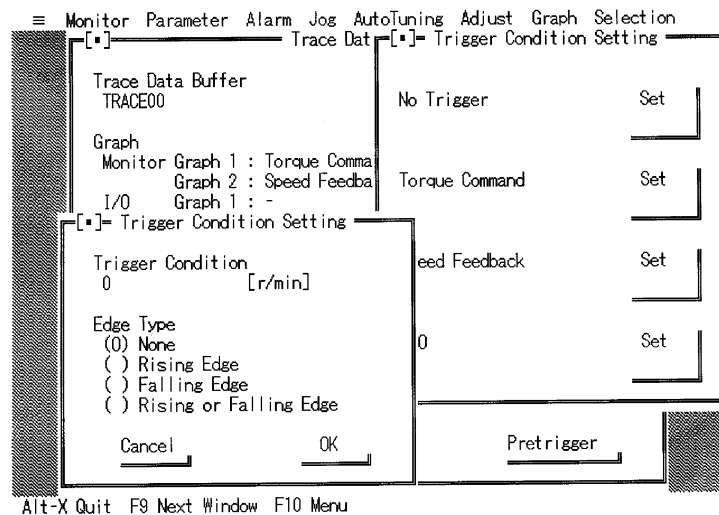
Click on [OK].



Trigger Condition Setting window for torque and Trigger Condition Setting window close. Trace Data Graph window is restored.

-  Select [Trigger Condition] using the Tab Key and type its numerical value.
- Select the [Edge Type] list using the Tab Key and select an edge type using the Up and Down Cursor Keys.
- Select [OK] using the Tab Key, then press the Space Key or Return Key.
- Trigger Condition Setting window for torque and Trigger Condition Setting window close. Trace Data Graph window is restored.

#### When Speed Feedback is Used as Trigger

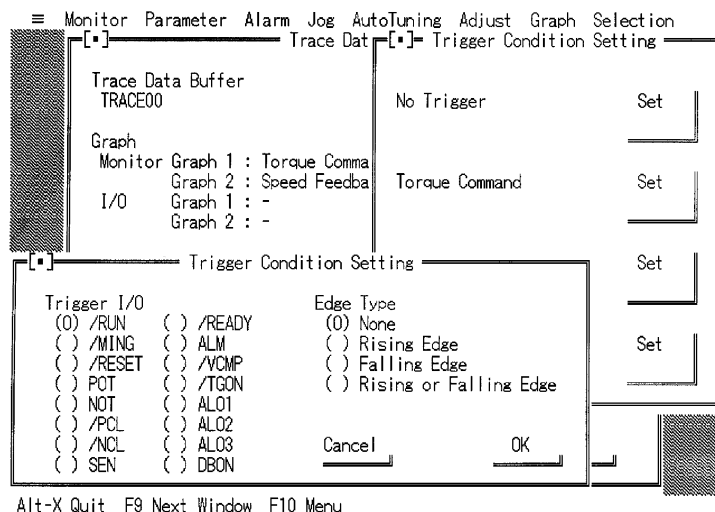
- The Trigger Condition Setting window for Speed Feedback opens.



-  Click on [Trigger Condition], then type its numeral value.
- Click on one from among the [Edge Type].
- Click on [OK].
- Trigger Condition Setting window for speed feedback and Trigger Condition Setting Window close. Trace Data Graph window is restored.
-  Select [Trigger Condition] using the Tab Key and type its numerical value.
- Select the [Edge Type] list using the Tab Key and select an edge type using the Up and Down Cursor Keys.
- Select [OK] using the Tab Key, then press the Space Key or Return Key.
- Trigger Condition Setting window for speed feedback and Trigger Condition Setting window close. Trace Data Graph window is restored.

When I/O is Used as Trigger

- The Trigger Condition Setting window for I/O opens.



Click on the I/O to be used as trigger.

Click on one from among the [Edge Type].

Click on [OK].

Trigger Condition Setting window for I/O and the Trigger Condition Setting window close. Trace Data Graph window is restored.



Select [Trigger I/O] using the Tab Key, then select the I/O to be used as a trigger by using the Cursor Keys.

Select the [Edge Type] list using the Tab Key, then select an edge type using the Up and Down Cursor Keys.

Select [OK] using the Tab Key, then press the Space Key or Return Key.

Trigger Condition Setting window for I/O and Trigger Condition Setting window close. Trace Data Graph window is restored.

## 5. Setting the Time (If there is no need to set Time, go to the next step, *Setting the Pretrigger*.)

- Setting the sampling time
- Sampling time can be set arbitrarily in units of 250  $\mu$ s.



Click on [Time].

The Sampling Time Setting window opens.

Click on [Up] or [Down]. The sampling time increases or decreases by 250  $\mu$ s with each click.

Click on [OK].

Sampling Time Setting window closes and Trace Data Graph window is restored.



Select [Time] using the Tab Key, then press the Space Key or Return Key.

The Sampling Time Setting window opens.

Select [Up] or [Down] using the Tab Key.

Press the Space Key.

The sampling time increases or decreases by 250  $\mu$ s with every click.

Select [OK] using the Tab Key, then press the Space Key or Return Key.

Sampling Time Setting window closes and Trace Data Graph window is restored.

6. Setting the Pretrigger (If there is no need to set Pretrigger, go to the next step, *Starting the Trace*.)

- Pretrigger setting sets how much data is to be stored prior to the trigger.



Click on [Pretrigger].

The Pretrigger Setting window opens.

Click on one from among the multipliers.

Click on [Up] or [Down]. The number of data items increases or decreases by the number set by [Multiplier] with each click.

Click on [OK].

Pretrigger Setting window closes and Trace Data Graph window is restored.



Select [Pretrigger] using the Tab Key, then press the Space Key or Return Key.

The Pretrigger Setting window opens.

Select [Multiplier] using the Tab Key, then select the multiplication rate using the Up and Down Cursor Keys.

Select [Up] or [Down] using the Tab Key.

Press the Space Key.

The number of data items increases or decreases by the number set by [Multiplier] each time the Space Key is pressed.

Select [OK] using the Tab Key, then press the Space Key or Return Key.

Pretrigger Setting window closes and Trace Data Graph window is restored.

7. Starting the Trace



Click on [Start Trace]. The Data Trace window opens.

Click on [Start]. The program is in [Trigger Wait] status.



Select [Start Trace] using the Tab Key, then press the Space Key or Return Key.

The Data Trace window opens.

Press the Space Key or Return Key.

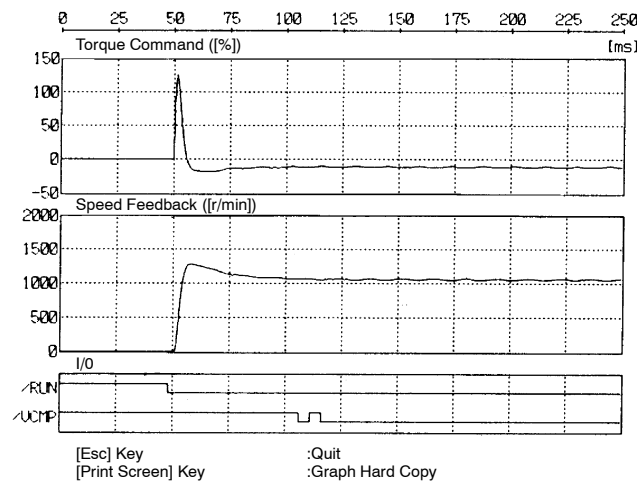
The machine is in [Trigger Wait] status.

**Note** 1. If a trigger has not been found, the program remains in the trigger wait status. In this case, press the Escape Key.

Data Trace window closes and Trace Data Graph window is restored.

**Note** 2. If a trigger has been found, [Data Trace .... Data Transmitting] is displayed and data is transmitted from the Servo Driver to the IBM PC/AT or compatible.

Graph is displayed.



- To print this graph, press the Print Screen Key of the IBM PC/AT or compatible.

#### 8. Exiting the Graph Display

- Press the Escape Key.

#### 9. Do You Want to Save the Data Graph?

- Select [Save]
- Select [Cancel]

#### 10. Closing the Trace Data Graph Window

Click on [•] in the upper-left part of the window.

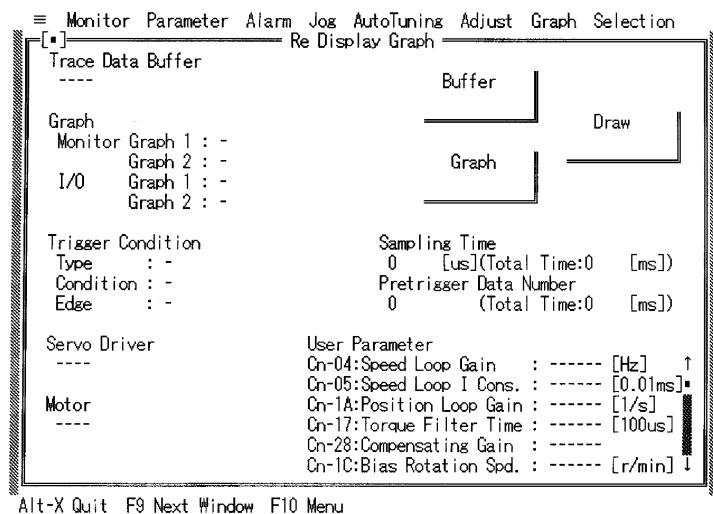
Press the Escape Key.

## 5-10-2 Re Display Graph

#### 1. Opening the Re Display Graph Window

Click on or select [Graph] - [Re Display Graph].

The Re Display Graph window opens.





## 2. Selecting the Trace Buffer



Click on [Buffer].

The Graph Buffer Load window opens.

Double-click on the file name of the data to be displayed (or after clicking on the file name, click on [PC←Disk]).

Data is read from the disk and Re Display Graph window is restored.



Select [Buffer] using the Tab Key, then press the Space Key or Return Key.

The Graph Buffer Load window opens.

Select [Trace Data Buffer] using the Tab Key, then select the file name using the Up and Down Cursor Keys, and press the Return Key (or select the file name, then select [PC←Disk] and press the Space Key or Return Key).

Data is read from the disk and the Re Display Graph window is restored.

## 3. Selecting the Graph (If there is no need to select Graph, go to the next step, *Displaying the Graph.*)

- The I/O data to be displayed can be set again.



Click on [Graph].

The Selection of Graph window opens.

Click on the I/O to be displayed.

[X] is a selected I/O. Click on [X] deselects it and changes [X] to [ ].

Click on [OK].

Selection of Graph window closes and Re Display Graph window is restored.



Select [Graph] using the Tab Key, then press the Space Key or Return Key.

The Selection of Graph window opens.

Select the [I/O (Up to 2)] list using the Tab Key, then select the I/O using the Cursor Keys and press the Space Key.

[X] is a selected I/O.

[X] is a selected I/O. Pressing the Space Key changes [X] to [ ] and deselects the corresponding I/O.

Select [OK], then press the Space Key or Return Key.

Selection of Graph window closes and Re Display Graph window is restored.

## 4. Displaying the Graph

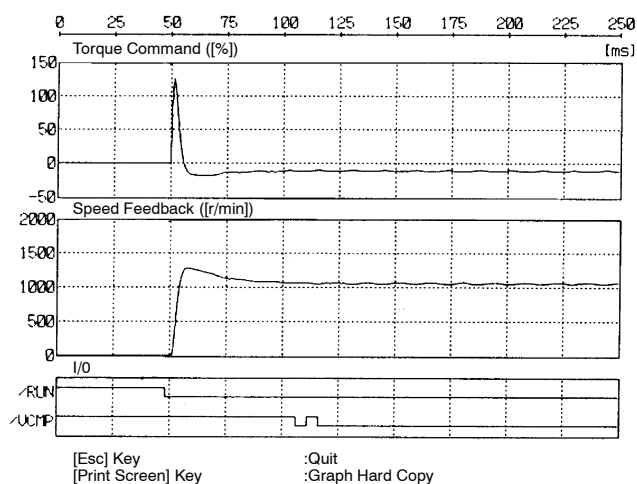


Click on [Draw].



Select [Draw] using the Tab Key, then press the Space Key or Return Key.

Graph is displayed.



- To print this graph, press the Print Screen Key of the IBM PC/AT or compatible.

#### 5. Exiting the Graph Display

- Press the Escape Key.

#### 6. Closing the Re Display Graph Window



Click on [•] in the upper-left part of the window.



Press the Escape Key.

## 5-11 Servo Driver Selection

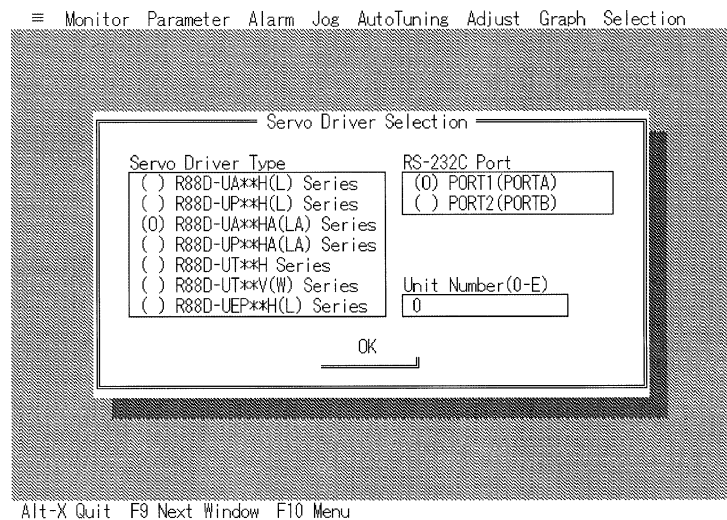
H/L HA/LA UT

The Servo Driver, set when the Computer Monitor Software was started, can be changed.



## 1. Opening the Servo Driver Selection window

-   Click on or select [Selection] - [Servo Driver Selection].



The Servo Driver Selection window opens.





## 2. Selecting the Servo Drive Type

-  Click on the Servo Drive type desired.
-  Select [Servo Driver Type] using the Tab Key, then select the Servo Driver using the Up and Down Cursor Keys.

## 3. Selecting the RS-232C Port

-  Click on the port desired.
-  Select [RS232C Port] using the Tab Key, then select the port using the Down Cursor Key.

## 4. Setting the Unit No. for HA/LA and UT

-  Click on [Unit Number].  
Type the Unit No. from the keyboard, then press the Return Key (or click on [OK] instead of pressing the Return Key).
-  Select [Unit Number] using the Tab Key.  
Type the Unit No. from the keyboard, then press the Return Key (or instead of pressing the Return Key, select [OK] using the Tab Key and then press the Space Key or Return Key).

**Note** No unit number setting is available for H/L or UE. (Multiple axis communication is not possible.)

Monitor display screen appears.

- The monitor display screen appears if the power supply of the Servo Driver has been turned ON, and the selected Servo Driver type matches the connected Servo Driver type.

- When the power supply of the Servo Driver has been turned ON, but the Servo Driver type does not match, an error message is displayed.
- The Servo Driver type is not discriminated between the R88D-UA□□H(L) and R88D-UP□□H(L), and the Servo Driver Select window is ignored.
- When the power supply of the Servo Driver has been turned OFF, the off line edit described in the following section can be performed.

## 5-12 Off Line Edit

H/L, HA/LA, UT, UE

Off line edit is used for editing U-series parameters or creating a Re Display Graph under condition that the power supply of Servo Driver is OFF or that the Servo Driver is not connected to an IBM PC/AT or compatible.

1. Start the Computer Monitor Software after switching the Servo Driver's power supply OFF or disconnecting the Servo Driver from an IBM PC/AT or compatible.

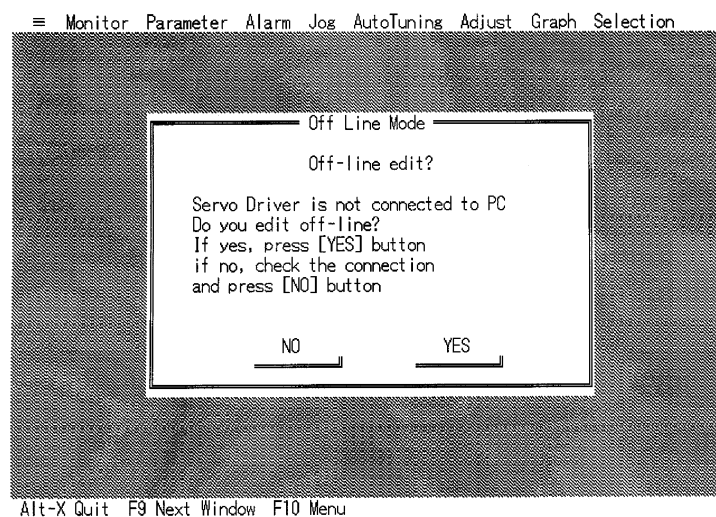
The Servo Driver Selection window opens.

2. Selecting the Servo Driver Type

Click on the Servo Driver desired.  
Click on [OK].

- Select [Servo Driver Type] using the Tab Key, then select the Servo Driver desired using the Up and Down Cursor Keys.  
Select [OK] using the Tab Key.  
Press the Space Key or Return Key.

The Off Line Mode window opens.



3. Selecting Off Line Edit

Click on [YES].

- Press the Space Key or Enter Key. (With [YES] selected).

- When the R88D-UT□□W/V (conforming to EN standards) is selected, the Control Type Selection window is displayed. Select one of the two shown below:

[Speed/Torque Control]

[Position Control]

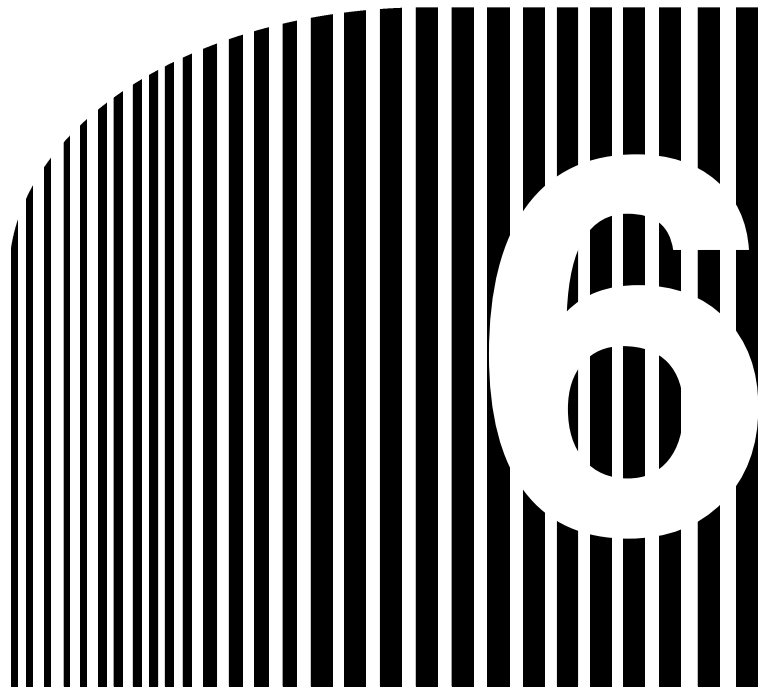
Click on the [Control Type] desired.  
Click on [OK].

- Select [Control Type] using the Tab Key, then select the control type using the Up and Down Cursor Keys.  
Select [OK] using the Tab Key.  
Press the Space Key or Return Key.

**4. Performing the Off Line Edit**

Functions which can be used for the off line edit are shown below:

- Parameter Setting
  - Editing Parameters ..... See section 5-5-1
  - Transferring Parameters  
(Between IBM PC/AT or Compatible and Disk) ..... See section 5-5-2
  - Clearing Parameters ..... See section 5-5-5
  - Printing Parameters ..... See section 5-5-6
- Re Display Graph ..... See section 5-10-2
- Servo Driver Selection ..... See section 5-11



## **Chapter 6**

### **• Error Processing •**

Error information is displayed when there is a mistake in selecting an item or when communications abnormalities occur.

Since error information appears in various circumstances, take the necessary measures according to the displayed content.

Typical error information is shown below.

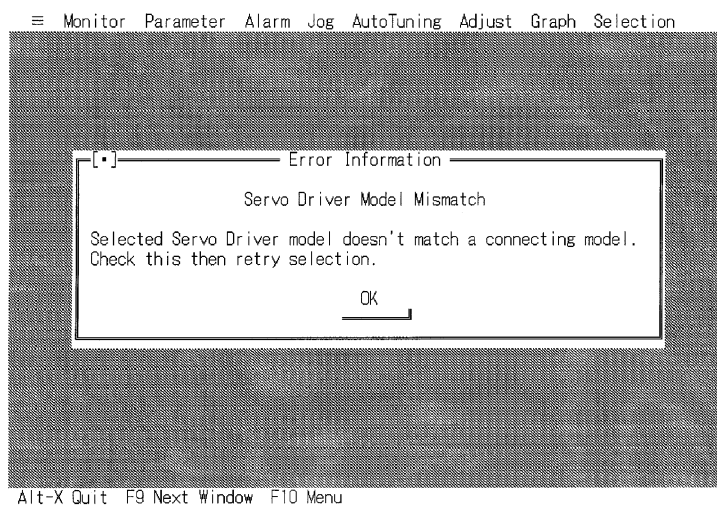
Information requiring program confirmation:

Error in selecting items or in entering data, etc.

Information requiring program exit or confirmation and measures:

Communications interruptions, etc.

## ■ Example of Error Information Requiring Confirmation and Measures

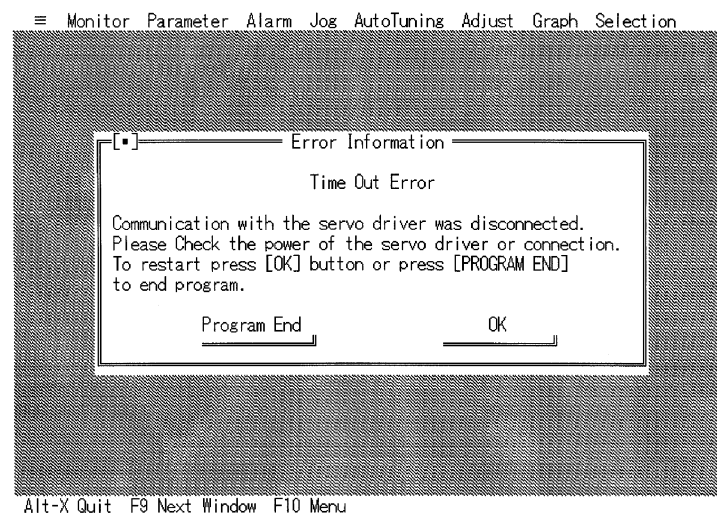


Click on [OK].



Press the Space Key or Return Key.

## ■ Example of Error Information Requiring Program Exit or Confirmation and Measures



Click on the processing required.



Select the processing using the Tab Key, then press the Space Key or Return Key.