

Panasonic[®]

INSTRUCTION MANUAL

AC SERVO AMPLIFIER MINAS SERIES

SETUP SUPPORT SOFTWARE

PANATERM[®] Ver. 3.7

(For Windows[®]98/Windows[®]Me/Windows[®]2000/Windows[®]XP)

- Thank you very much for buying setup support software PANATERM[®] for Panasonic Digital AC Servo Amplifier
- Read thoroughly instruction manual to use the software correctly. After reading, keep the manual where it is always available.
- This product is for industrial equipment. Don't use this product at general household.

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Safety Precaution

Important

Observe the following instructions without fail.

Instructions to be observed to avoid personal injury and property damage are given in the following way.

- The degree of injury and damage caused by failure in observing the instructions or improper usage is indicated in the following format.



CAUTION

Indicates a potentially hazardous situation which may result in injury or property damage



CAUTION

Do not connect the communication cable when the power is on to the amplifier or the personal computer.



Failure to follow this could result in injuries.

Do not connect or disconnect the communication cable after the software is started.



Failure to follow this could result in injuries.

After turning on or off the power to the amplifier, shut down PANATERM[®], and re-start it.



Failure to follow this could result in injuries.

Do not bring any magnetized article close to the disk containing this software. (Such as a motor. Do not bring it close to the disk.)



Failure to follow this could result in injuries.

Safety Precaution

Important



CAUTION

Avoid storing the disk containing this software in places like where the temperature is too high or too low (the storage temperature should be between 5 to 60 °C).



Failure to follow this could result in the loss of data.

Avoid storing the disk containing this software where the disk is exposed to direct sunlight.



Failure to follow this could result in the loss of data.

Avoid storing the disk containing this software in locations exposed to high humidity or liquids.



Failure to follow this could result in the loss of data.

Avoid storing the disk containing this software where much dust or strong magnetism occurs.



Failure to follow this could result in the loss of data.

1. INTRODUCTION

Checking the contents of the package

PANATERM[®] setup CD-ROM : 1pcs.

Check the following points.

(1) Check that you got the product that you had ordered.

Product No. : **DVOP4460**

(2) Make sure that the product has not been damaged by an accident during transportation.

If there are any unconformity, contact distributor where you obtained it.

Notes to Users

1. It is forbidden to use the product for lease without permission of the rightful claimant.
2. The law prohibits copying the contents of this product onto a hard disk, MO, PD and other media without permission of the creator and the rightful claimant.
3. The producer, Matsushita Electric Industrial Co., Ltd., and the rightful claimant are not liable for any accident caused by the use of this software in any case.
4. It is forbidden to copy any part of this document without permission of Matsushita Electric Industrial Co., Ltd.

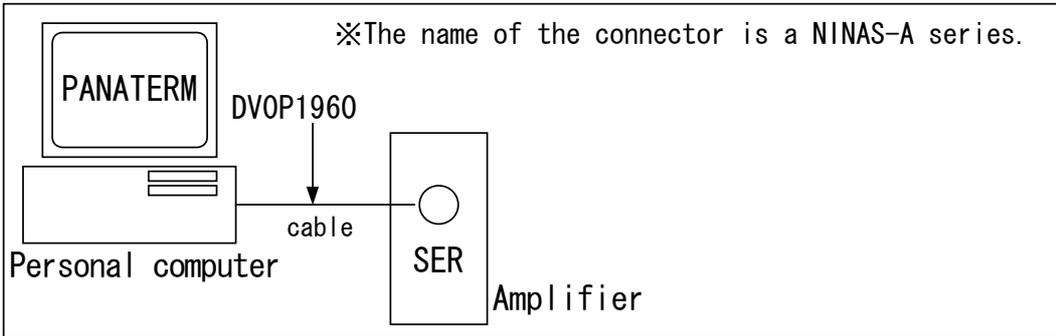
1. INTRODUCTION

Outline of PANATER

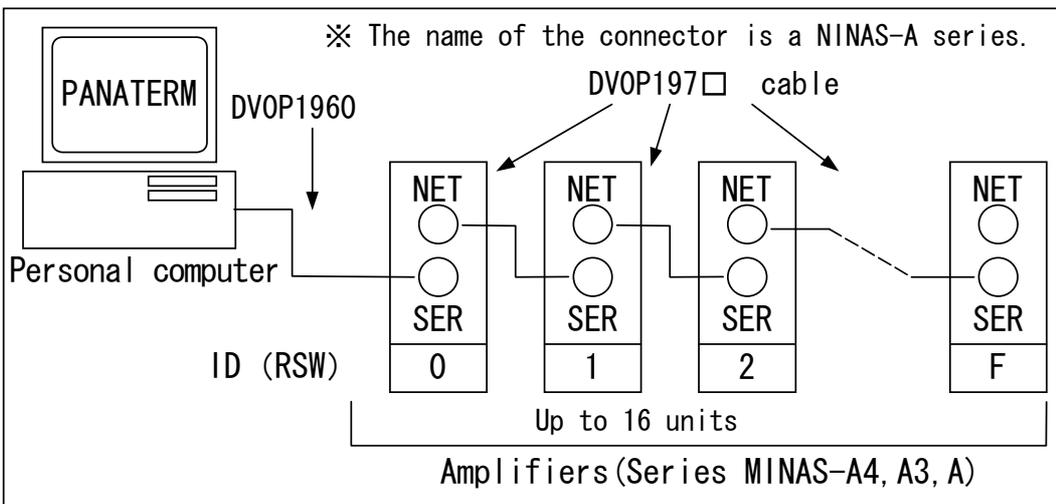
As MINAS series amplifier has a function to establish serial communication with a marketed personal computer through RS-232C, you can change parameters and monitor a control status of the amplifier on personal computer with mouse and keyboard. When several amplifiers are connected to each other through RS-485, you can change parameters and monitor a control status of the amplifiers (up to 16 amplifiers). When you use the software, please read the instruction manual of the amplifier, too.

- ◆ Microsoft® Windows® are trademarks of Microsoft Corporation in USA.
- ◆ PANATERM® is a trademark of Matsushita Electric Industrial Co.,Ltd.

When one amplifier is connected:



When several amplifiers are connected (MINAS-A4, A3, A series):



2. SYSTEM CONFIGURATION

Checking the applicable amplifiers

This software is dedicated to Panasonic Series MINAS AC servo amplifiers. It is inapplicable to other amplifiers. The product numbers of applicable amplifier series are shown below.

MINAS-A Series	:M*DA***#**
MINAS-A3 Series	:M*DC*****
MINAS-A4 Series	:M#DD*****
MINAS-A4A Series	:M#DD*****A
MINAS-A4N Series	:M#DD*****N
MINAS-A4P Series	:M#DD*****P
MINAS-A4T Series	:M#DD*****T
MINAS-B Series	:M*DB***#*D
MINAS-E Series	:M*DE*****P
MINAS-S Series	:M*DS*****

And the amplifier models can be checked by the character # of above product numbers.

(The characters in * vary depending on amplifier model.)

■ Notes:

- Please ask our sales agency if this software is for the MINAS series amplifier you try to use.

Hardware configuration

To use this software, the following devices are required. Establish a system, referring to the instruction manuals enclosed with the devices.

The software may not operate normally in operating environment not conforming to the recommended specifications.

- Personal computer
 - CPU : Pentium 100MHz or more
 - Memory : 16MB or more (32MB recommended)
 - Hard disk capacity (vacancy of 25MB or more recommended)
 - OS : Windows®98, Windows®Me, Windows®2000, Windows®XP (US version)
 - Communication speed of serial communication port : 2400bps or more
(The software may not operate normally using USB-to-Serial adapter.)
- Display
 - Resolution : 640*480 (VGA) or more (desirably 1024*768)
 - Number of colors : 256colors or more
- CD-ROM drive
 - CD-ROM drive operable on the above-mentioned personal computer

■ Notes:

- Even when there are terminals, such as COM1 and COM2, they may be unavailable for PANATERM® in the following cases.
 - When devices, such as a built-in modem, use the communication ports (See the instruction manual for personal computer.)
 - When the port amplifier software has not been set correctly (Click the “start” button, “Set”, “Control panel”, “System”, “Device manager” and “Port” successively, and the screen on which the setting can be checked will appear. For details, see the instruction manual for personal computer.)
- If you use hardware not listed, you should check for normal operation.

2. SYSTEM CONFIGURATION

Software configuration

To use this software, the following OS is required. To software may not operate on an OS not conforming to the recommended specifications.

Windows®98, Windows®Me, Windows®2000 or Windows®XP

To use this software, use the US version of Windows®.

■ Notes:

- You are asked to prepare Windows®.
- We do not guarantee the operation on another OS.
- If you use another OS, you should verify the operation.
- Use PANATERM® under the conditions set when Windows® was introduced and update to the newest version.
- PANATERM® may not operate under the influence of applications installed on your computer.
- PANATERM® is applicable to the versions of Windows®98, Me, 2000, XP (available as of Jan. 2004). It may operate differently on another version.

Communication cable

An optional cable is available to connect the connector (SER) on the amplifier front panel and the connector for RS-232C on the personal computer.

○Between personal computer and amplifier

DVOP1960 (D-SUB9-pin) (cable length : 2000[mm])

Also an optional cable is available to connect the connector (NET) on the amplifier front panel and the connector (SER) of another amplifier for establishing communication between the amplifiers through RS-485.

○Between amplifiers (Available only for MINAS-A4, A3, A series)

DVOP1970 (cable length : 200[mm])

DVOP1971 (cable length : 500[mm])

DVOP1972 (cable length : 1000[mm])

■Notes:

- The connection cable for RS-232C cannot be used for other devices.

3. SETUP

Install PANATERM[®] on the hard disk of the personal computer using setup CD-ROM. PANATERM[®] cannot be installed on the network drive. It cannot be installed or setup by any other means, such as the copy function. It cannot be started from a CD-ROM.

1 Turn on the power to the personal computer, and start Windows[®] (If any software has been started, terminate it.)

2 Insert the PANATERM[®] setup CD-ROM into the CD-ROM drive. If the autorun program starts at this time, execute operation according to the guidance, and move on to 5.

3 Start Explorer (for Explorer starting procedure, see the manual for Windows[®]), and switch to the CD-ROM drive.

4 Double-click the setup program on the CD-ROM.

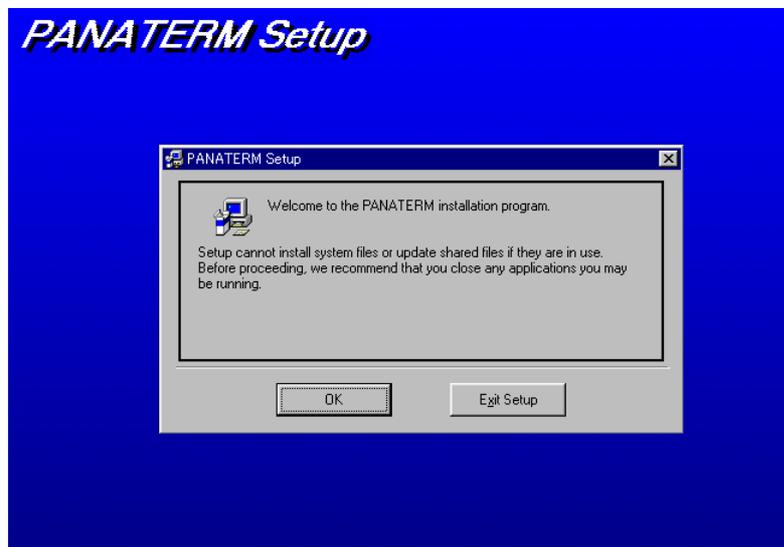
Japanese version setup is in “Japanese” directory. English version setup is in “English” directory.

Execute setup.exe on Windows[®]98, Me, 2000, and SetupXP.exe on Windows[®]XP.

(If the “Add application” menu on the control panel is used, the software may not be installed normally.)

In the middle of the procedure, you will be asked to replace the setup disk. It is not failure, so keep pushing OK button until the following screen is displayed.

5 The PANATERM[®] setup program will start.



-
- 6 To start the setup procedure, click “OK”.
 - 7 Execute operation according to the guidance given by the setup program. Follow the instructions.



- 8 Click  , and installation of PANATERM® will be started. Click “Exit Setup”, and PANATERM® will not be installed. If necessary, click “Change directory”, and specify the directory and the drive in which PANATERM® will be installed. (If they are not specified, PANATERM® will be installed in the “C: /Program Files /PANATERM” directory.)
- 9 When the message “Setup completed” appears, click “OK”. Then, the setup procedure is finished.
- 10 Close all applications, and restart Windows®, (If indows® is not restarted, PANATERM® may not be added to the program menu.)

※If any error occurs during setup, an error message is displayed. Remove the cause of the error, referring to Section “Failure in setup”(page 71).

4. BASIC OPERATION

Key notation

This document uses general key notation independent of the type of keyboard. The notation in this document may differ from that on your keyboard. Read the key names shown below for those on your keyboard.

Notation	Details
[↑][←] [↓][→]	Up, down, left and right cursor keys. Pressing these keys moves the cursor on the menu. The selected item is shown in reverse display.
Numeric (0~9)	Numeric keys. Input a desired numeric.
“ESC”	Escape key indicated on the keyboard as “Esc” or “ESC”. Use this key to return the input value to the initial value.
“ENTER”	Enter key indicated on the keyboard as “Enter”, “ENTER”, or “RETURN”. Press this key to select and execute a menu. Or press it after inputting a value.
“BS”	Backspace key indicated on the keyboard as “BS” or “Back space”. Use this key to erase a character when inputting a file name or a value.

Procedure for selecting and operating menu

Place the mouse pointer on the menu item or operation button to be selected, and click the mouse left button. Then, the selected item will be executed.

On reverse the menu item to be selected using the up, right, down or left key, and press the “Enter” key. Then, the item can be executed.

The item can be selected using “TAB” key or “SHIFT” and “TAB” keys.

Menu and window operations are the same as the general operations on Windows®. For details about these operations, see the reference manual enclosed with Windows®.

Procedure for terminating menu

When a menu contains “End”, click the mouse left button on “End”, and the menu will be terminated. Or click the  in the upper right-hand corner of the window to terminate the menu.

Inputting value

To input a value, use the numeric keys on the keyboard. To redo input, erase the input value using the “BS” key. Press the “ESC” key, and the value will return to the initial value.

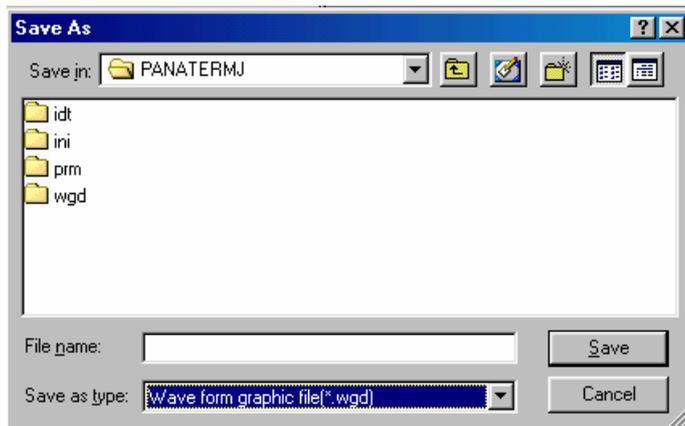
When there are incrementing and decrementing buttons (▲ and ▼) near the numeric input field, the value can be changed by clicking the mouse on these buttons.

Numeric data for changing parameters are displayed in decimal. The data can be input also in binary and in hexadecimal. Alphabetic characters in hexadecimal value can be input in uppercase or lowercase.

An input value can be cancelled by pressing the “ESC” key.

Filing

When the file must be specified to load or save parameters, a common file dialog is displayed.



“Save in” : Specify the file location (Drive and directory). Click the ▼ mark, and the folder list will appear. Select the pertinent folder from the list.

“File name” : Specify the file name.

“Save as type” : The file type is displayed.

4. BASIC OPERATION

■Notes:

- Files to be handled by PANATERM[®] will be given extensions to identify them. Do not change the extensions. Files with changed extensions may not be handled by the program.
 - Parameter file : File name.prm
 - Parameter extraction status file : File name.prs
 - Waveform graphic measurement condition file : File name.wgc
 - Waveform graphic measurement result file : File name.wgd
 - Parameter and waveform graphic measurement result file :
File name.wgp
 - Frequency characteristic measurement condition file :
File name.fcc
 - Frequency characteristic measurement result file :
File name.fcd
 - Parameter and frequency characteristic measurement
result file : File name.fcp
 - Frequency characteristic file : File name.idt
 - Positioning parameter file : File name.ncp
- Do not delete files related to PANATERM[®]. It can disable PANATERM[®]. (If not specified, PANATERM[®] will be installed in C:/Program Files /PANATERM/ Do not delete any files in this directory. Particularly the C:/Program Files/PANATERM/ini directory contains important files for controlling the operation of PANATERM[®].)

Tool tip text

Place the mouse pointer on a displayed item, the explanation of the item will appear.



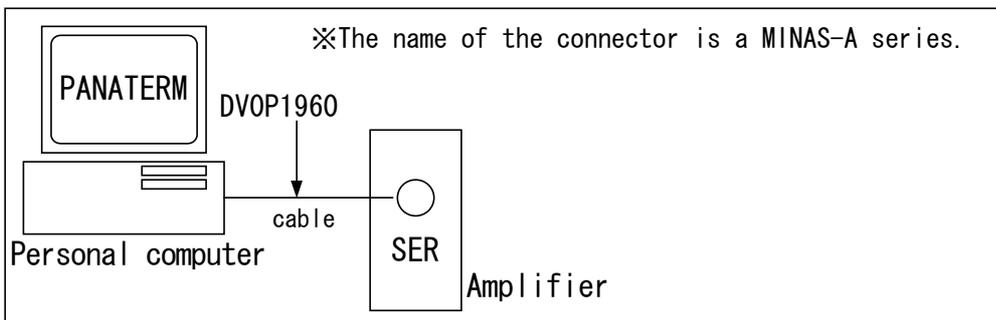
5. STARTUP AND TERMINATION

Connection

Connection of cable (DVOP1960) for RS-232C

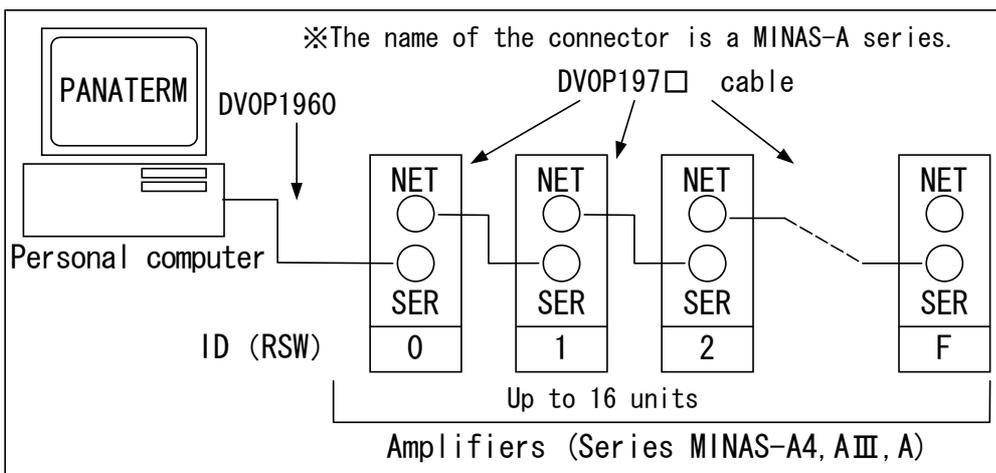
Make sure that power has been disconnected from the amplifier and personal computer. Surely insert the cable plug on the miniDIN side to the connector (EX. MINAS-A:CN SER) of the amplifier, and insert the plug on the 9- side to the RS-232C connector COM1 port of the personal computer.

For MINAS-A4, AⅢ, A series amplifier, set ID (RSW) to any of 1 to F. For connection, please read the instruction manual of the amplifier.



Connection of cable (DVOP197□) for RS-485 (MINAS-A4, A3, A series)

To connect several amplifiers, connect the connector of each amplifier as shown below. Set the ID (RSW) of the amplifier connected with the personal computer to 0, and set the other amplifier IDs (RSWs) to 1 to F, taking care not to duplicate an ID.



5. STARTUP AND TERMINATION

Startup

- 1 Turn on the power to the personal computer to start Windows®.
- 2 Turn on the power to the amplifier.
- 3 Click “Start” of Windows®.
(For “Start”, see the manual for Windows®.)
- 4 Select “PANATERM” from the “Program” menu, and click it.
(Or start Explorer, and double-click the execution file of PANATERM® (ex. C:/Program Files/PANATERM/PANATERM.exe).)
- 5 The opening splash will appear. The opening splash will be displayed for 2 seconds, and automatically change to the PANATERM® screen.

Termination

- 1 To terminate PANATERM®, click “Exit of Panaterm” in the “File” menu on the PANATERM® screen.
(Or click  at the right end on the title bar on the PANATERM® screen, and PANATERM® will be terminated in the same manner.)
- 2 A message will be displayed to confirm your intention of terminating PANATERM®.
To terminate, click “Yes”. Not to terminate, click “No”.

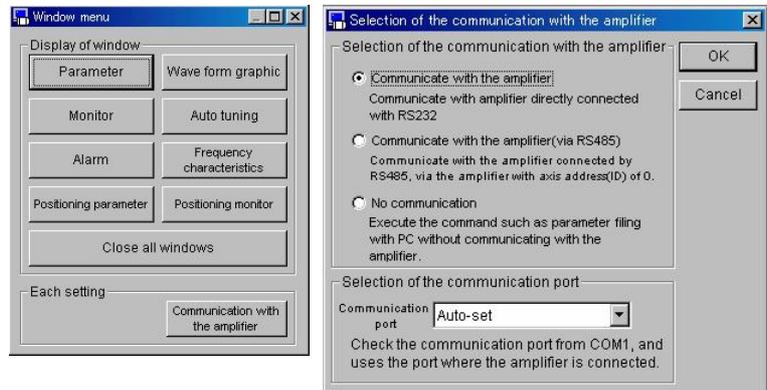
■ Notes:

- Note that all information will be lost if you terminate the program without saving set information and obtained data.

6. OPERATION

Determining whether to communicate with amplifier

After PANATERM[®] is started, a dialog will appear to determine whether to communicate with the amplifier. Also when “File”, and “Communication with the amplifier” are selected in the parent window of PANATERM[®], or when “Communication with the amplifier” on the window menu is clicked, the dialog will be displayed.



Determining whether to communicate with amplifier

“Communicate with the amplifier”

Communication with the amplifier directly connected Through RS-232C will be provided. As soon as parameters received from the amplifier are edited or set, the changed parameters will be introduced to the amplifier. The model of the connected amplifier is automatically identified.

“Communicate with the amplifier (via RS-485)”

Communication with the amplifier connected through RS-485 will be provided through the amplifier whose axis address (ID) is 0. As soon as parameters received from the amplifier are edited or set, the changed parameters will be introduced to the pertinent amplifier. The model of the connected amplifier is automatically identified.

“No communication”

Parameters saved in files can be freely edited irrespective of connection of amplifiers.

The model of the corresponding amplifier will be selected from the menu.

6. OPERATION

Communication port

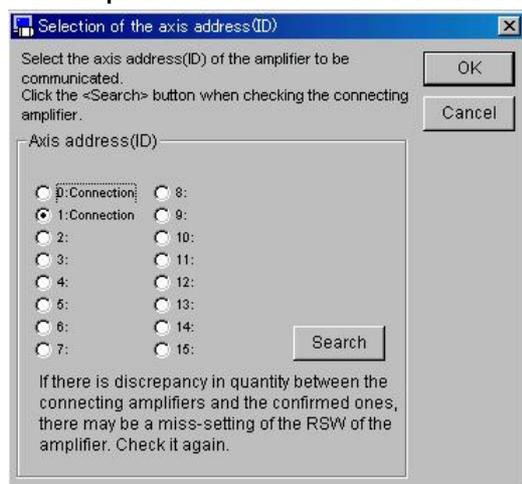
Select the communication port.

- Auto-set :The port to which the amplifier has been connected is automatically identified.
- COM1 to 16 : The specified port is used.

Selecting the axis address (ID)

When several amplifiers are connected through RS-485, select the amplifier axis address. PANATERM® will monitor the parameter setting and the status of the amplifier having the specified axis address.

Clicking “Search” searches for connected amplifiers. Click on the amplifier to be selected.



■ Notes:

- If the number of actually connected amplifiers differs from the number of amplifiers that have been proved to be connected by the search function, the IDs (RSWs) in the front panels of the amplifiers may have been set incorrectly. Make sure that the ID (RSW) of the amplifier connected to the personal computer has been set to 0 and the IDs (RSWs) of the other amplifiers have been set to 1 to F without duplication. Set the amplifier IDs (RSWs) while the power is off to all amplifiers.
- MINAS-S series, MINAS-E series and MINAS-B series have no RS-485 function. Please use communication with the amplifier directly connected through RS-232C.
- It takes approx. 1 min. to search for amplifiers.

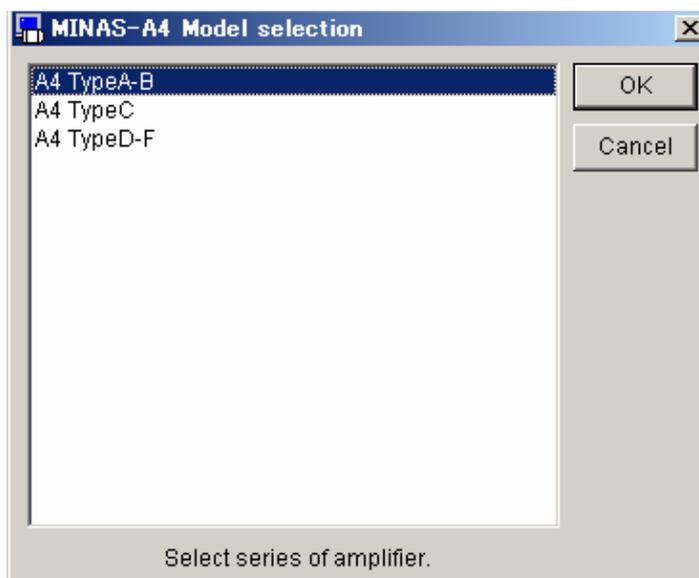
Selecting the model

Select series and model of the amplifier

- 1 Select series of the amplifier out of the list below.
Please refer to p.8 “Checking the applicable amplifiers”
for the correspondence of the amplifier product number
and the series name.



- 2 Select model of the amplifier out of the list below.



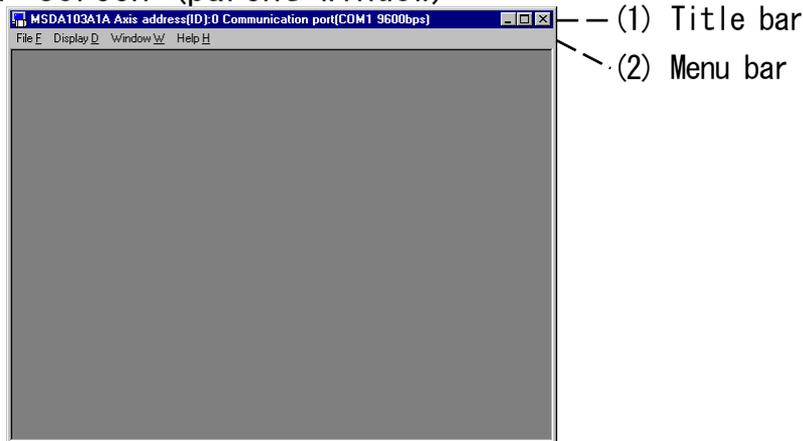
- “OK” : Validates the selection.
“Cancel” : Invalidates the selection.

6. OPERATION

PANATERM[®] screen (Parent window and window menu)

After PANATERM[®] is started, this PANATERM[®] screen (parent window) will appear. The functions of PANATERM[®] can be used by opening the function windows in this parent window. Several function windows can be simultaneously opened.

(1) PANATERM[®] screen (parent window)

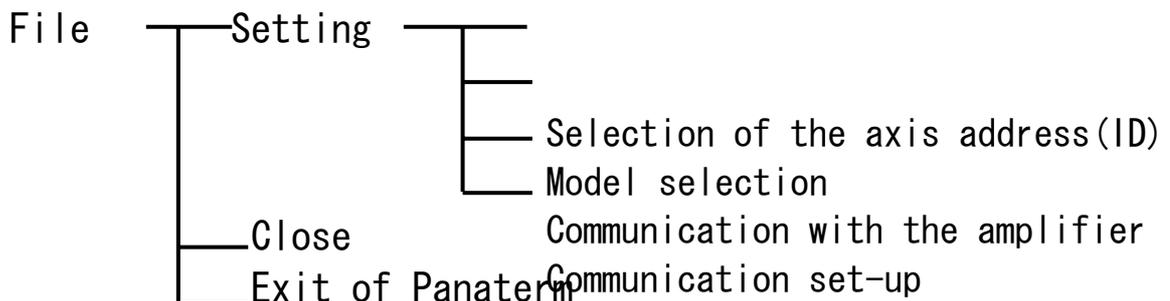


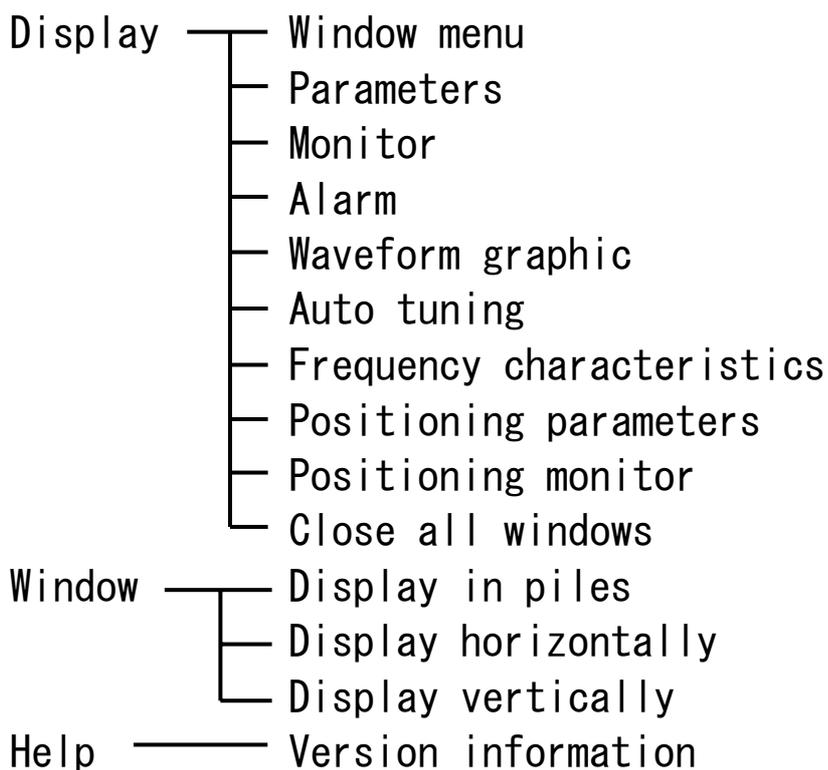
Title bar

The model code, axis address (ID) and communication port status are shown.

Menu bar

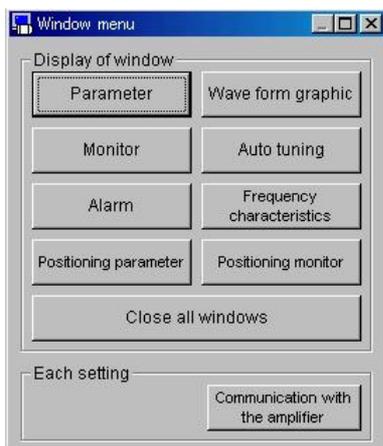
Four commands, "File", "Display", "Window" and "Help", are displayed.





(2) Window menu

You can call various function windows of PANATERM[®] from this menu. You can also call the windows from the menu bar in the parent window.



Display of window

You can call each function window. Click the mouse button on the mouse button on the item to be selected.

Setting

- Selection of the axis address (ID) :
usable when communication through RS-485 is executed
- Communication with the amplifier : Usable when communicating with the amplifier
- Model selection : Usable when communication with the amplifier is not executed

6. OPERATION

Parameters

The parameter window is designed for operations related to parameters.

You can check, rewrite and save the amplifier parameters. It is possible to extract only frequently used parameters, and edit and set them.

The parameter setting window shows parameter names and settings.

The parameter setting can be changed freely within the setting range.

■ Notes:

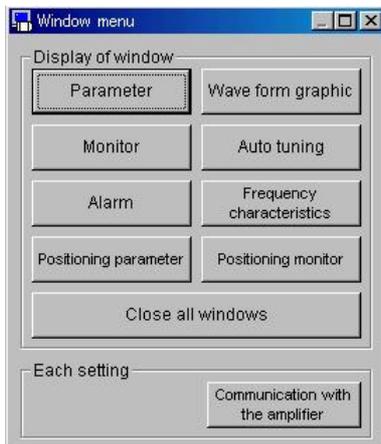
- Some parameters greatly affect the amplifier operation. Take utmost care when changing them.

Opening the parameter window

1 Start up PANATERM®.

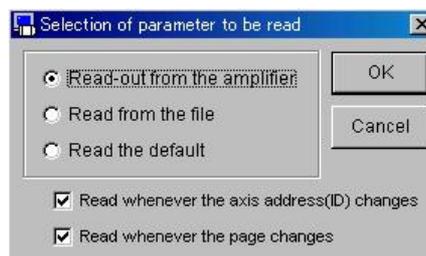
(For details, see Section 5 “Startup”.)

2 The window menu will appear on the PANATERM® screen.



3 Click “Parameter” in the window menu.

4 The window for selecting parameters to be loaded will be displayed.



5 Select and click the source of parameters.

“Read-out from the amplifier”

The computer will communicate with the connected amplifier, and load the parameters set on the amplifier. In this mode, as soon as the parameter values are changed, the changed values are introduced to the amplifier.

“Read from the file”

A parameter file (.prm) edited before will be referred to. Even if the parameters loaded from a file are changed, the changed parameters will not be introduced to the connected amplifier unless they are transmitted to the amplifier .

“Read the default”

In the same manner as when the parameters are loaded from a file, changed parameters will not be introduced to the connected amplifier unless they are transmitted to the amplifier.

※When “Read-out from the amplifier” is selected, automatic loading of parameters can be selected.

“Read from the file” and “Read the defaults” do not provide automatic loading of parameters.

6 Specify the timing of loading parameters.

“Read whenever the axis address (ID) changes”

Whenever the amplifier (axis address (ID)) to be edited changes, the parameters are read from the amplifier.

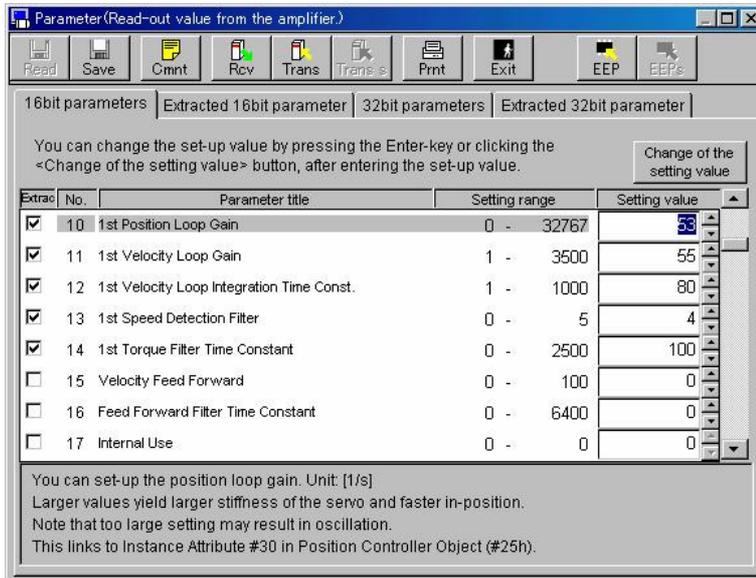
To enable or disable this mode, click on the check box.

“Read whenever the page changes”

When the parameter page to be edited changes, the parameters are read from the amplifier. To enable or disable this mode, click on the check box.

6. OPERATION

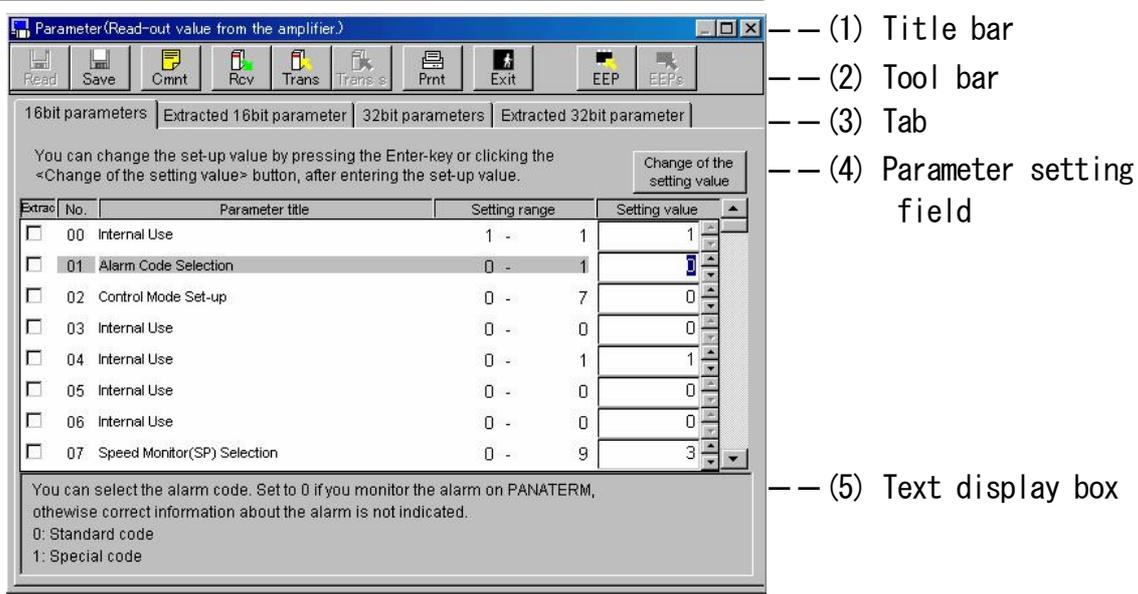
7 Click “OK” opens the parameter window.



Closing the parameter window

Click  (Exit) on the tool bar.

Parameter screen configuration

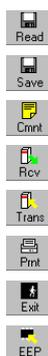


(1) Title bar: Indicates the source of parameters.
The following buttons are used to operate the window.



Maximizes the window on the screen.
Closes the window.

(2) Tool bar: Shows the basic operation commands related to parameters, such as save and load commands.



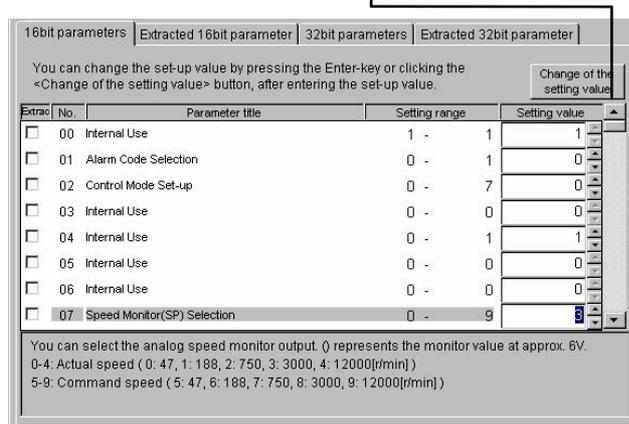
- (Read): Reads the parameters from a file (.prm).
- (Save): Writes the parameters to a file (.prm).
- (Comment): Prepares a comment to be attached to the parameter file.
- (Receive): Receives parameters from the amplifier.
- (Transmit): Transmits parameters to the amplifier.
- (Print): Prints parameters.
- (Exit): Closes the parameter window.
- (EEP): Writes parameters in the amplifier EEPROM.

6. OPERATION

- (3) Tab: Switching the parameter setting field.
- “16bit parameter”: Edits or sets all the 16bit parameters.
- “Extracted 16bit parameter”: Edits or sets the extracted parameters among all 16bit parameters.
- “32bit parameter”: Edits or sets all the 32bit parameters. (Available with some amplifiers.)
- “Extracted 32bit parameter”: Edits or sets only the extracted parameters among all 32bit parameters. (Available with some amplifiers.)

(4) Parameter setting field

In this field, parameters can be edited and set. Clicking ▲ or ▼ switches the screen.



- “Extract”:
“Setting value”:
- To determine whether to extract parameters. Parameter value. The value can be changed. Input a value directly using numeric keys, or click ▲ or ▼ to increment or decrement the value. To set the value, press the “RETURN” key, or click “Change of the setting value”.
- Pressing the “ESC” key returns the value to the initial value.

(5) Text display box

Explanation of the selected parameter is given.

■ Notes:

- For details of the function of each parameter, see the instruction manual for amplifier.
- Even when parameters have been transmitted to the amplifier, if the amplifier is turned off before the parameters are written in EEPROM, the parameters return to the values before change. When the parameters are written in EEPROM, a list of changed parameters is displayed. Check carefully the changes.
- During writing in EEPROM, do not turn off the amplifier or personal computer. If the power is disconnected during writing, the data will be lost.
- After parameters are changed, some parameters do not become effective until they are written in EEPROM and the amplifier is reset. (When you input a new value, a message to this effect is displayed. For these parameters, see the instruction manual for amplifier.

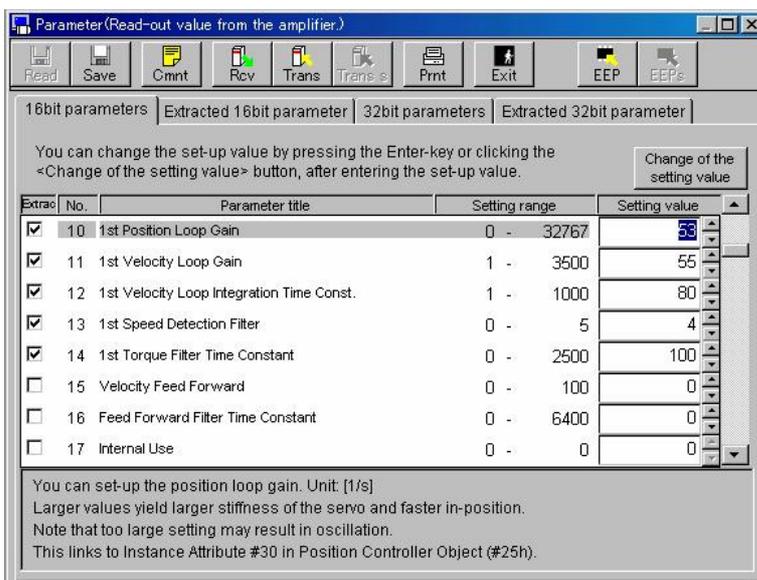
6. OPERATION

Setting and editing extracted parameters

Frequently used parameters can be specified in advance.
The extracted state can be saved in a file.

Extraction of parameters

- 1 Set the display to the “All of parameters” mode.



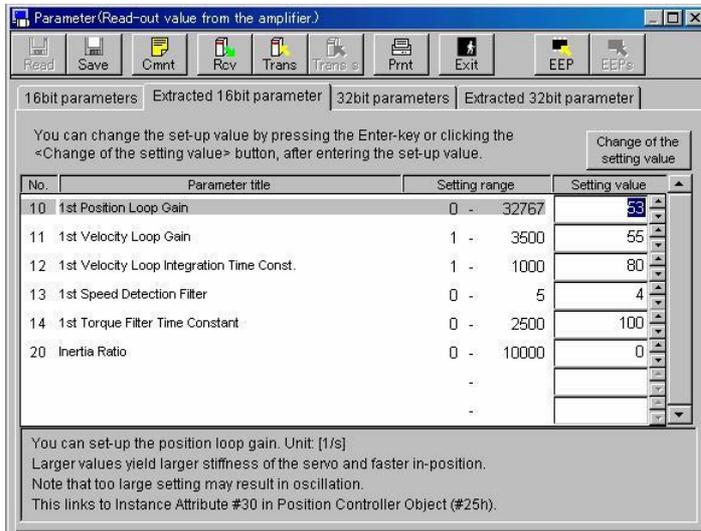
- 2 Directly click extraction box of the parameter to be extracted. Or move the cursor to the box of the parameter to be changed using the up and down keys, and press the “SPACE” key. Then, the check in the extraction box be turned on or off.

Extrac	No.	Parameter title	Setting range
<input checked="" type="checkbox"/>	10	1st. pos. loop gain	1 -

Editing the extracted parameters

Click the “Extracted parameter” tab.

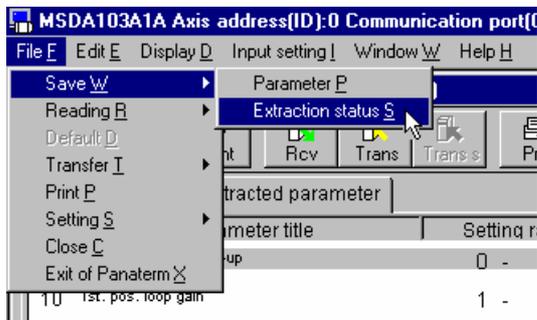
Edit and set values in the same manner as when setting and editing all of parameters.



Saving the extracted state of parameter

Click “File” on the menu bar on the PANATERM[®] screen, and click

“Save” and “Extraction status”. The file name is *****.prs**.



Reading the extracted state of parameter

Click “File” on the menu bar on the PANATERM[®] screen, and click

“Reading” and “Extraction status”. The file name is *****.prs**.

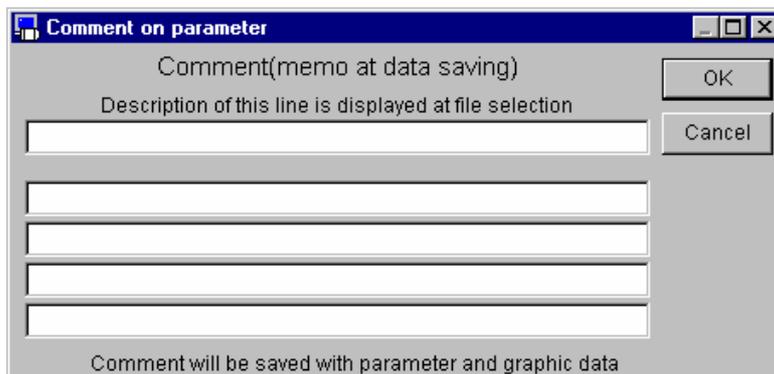
6. OPERATION

Comment

When the set parameters are saved in a file, comments can be saved together. The comments will not affect the operation of the amplifier. Commas (,) and double-quotation marks (“) cannot be used in comments. The comments are saved together with parameters and waveform graphic data.

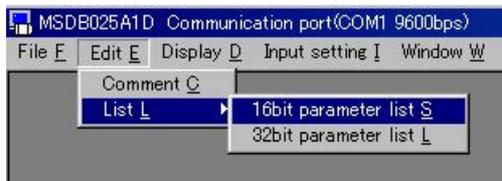
Preparing a comment

- 1 Click  (comment) on the tool bar to open the comment window.
- 2 Click the comment field, and input a comment.
- 3 After finishing inputting a comment, click “OK”.

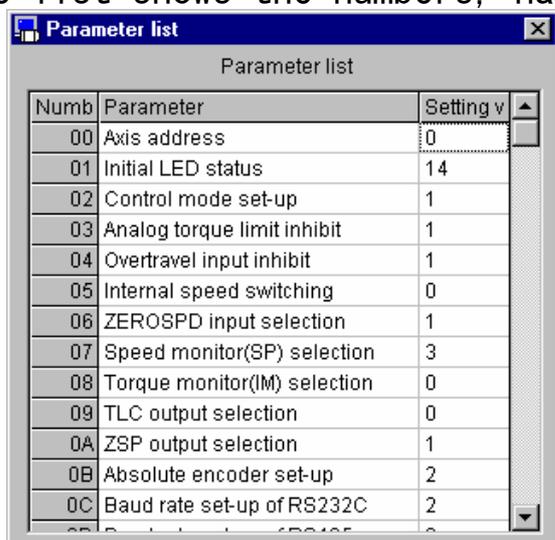


List of parameters

A list of parameters can be displayed by selecting “Edit” on the PANATERM[®] menu bar and clicking “List”.



The list shows the numbers, names and settings of parameters.

A screenshot of the 'Parameter list' dialog box. The title bar says 'Parameter list'. The dialog contains a table with three columns: 'Numb', 'Parameter', and 'Setting v'. The table lists various parameters and their current settings. A vertical scrollbar is on the right side of the table.

Numb	Parameter	Setting v
00	Axis address	0
01	Initial LED status	14
02	Control mode set-up	1
03	Analog torque limit inhibit	1
04	Overtravel input inhibit	1
05	Internal speed switching	0
06	ZEROSPD input selection	1
07	Speed monitor(SP) selection	3
08	Torque monitor(IM) selection	0
09	TLC output selection	0
0A	ZSP output selection	1
0B	Absolute encoder set-up	2
0C	Baud rate set-up of RS232C	2

Changing a parameter value

The settings can be changed. Place the cursor on the parameter value to be changed, and input a new value. (Pressing the “ESC” key returns the value to the initial value.)

Move up or down the slider on the right, and the list will be scrolled.

6. OPERATION

Monitor

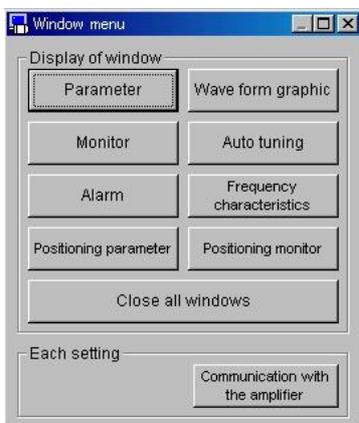
PANATERM[®] can monitor and display the signal input/output, operating status and velocity of the amplifier.

Opening the monitor window

1 Start up PANATERM[®]

(For details, see Section 5 “Startup”.)

2 The window menu will appear on the PANATERM[®] screen.



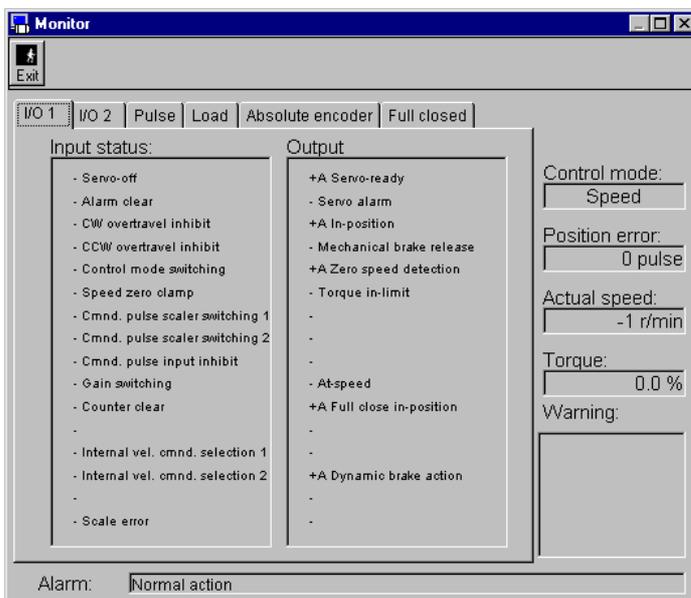
3 Click “Monitor” in the window menu.

4 The monitor window will appear.

Closing the monitor window

Click  (Exit) on the tool bar.

Monitor screen configuration



--(1) Title bar

|(2) Tool bar

|(3) Tab

|(4) Monitor display area

|(5) Current information

-
- (1) Title bar: The window can be operated.
- (2) Tool bar:
 (Exit): Closes the parameter window.
- (3) Tab Switches the item to be monitored.
- “Input/output status”:
The status of input and output signals can be monitored. This mode has two screens, “Input/output 1” and “Input/output 2”.
- “Pulse”:
Information about pulse can be monitored.
- “Load”:
Information about load can be monitored.
- “Absolute encoder”:
Information about the absolute encoder can be monitored.
- “Full closed”:
Information about full close can be monitored.
- (4) Monitor display area
Displayed data depends on the monitored item switched by the tab.
- (5) Current information
The current status is monitored at any time.
- “Control mode”:
Indicates the control mode.
- “Position error”:
Indicates the current pulse count on the error counter. The count is indicated in pulses.
- “Actual speed”:
Indicates the current speed. The unit is r/min.
• Polarity (+): Counterclockwise turn
• Polarity (-): Clockwise turn
- “Torque”:
Indicates the current torque as a ratio to the rated torque in %.
- “Warning”:
Indicates the details of warning.
- “Alarm”:
Indicates the current status of alarm.

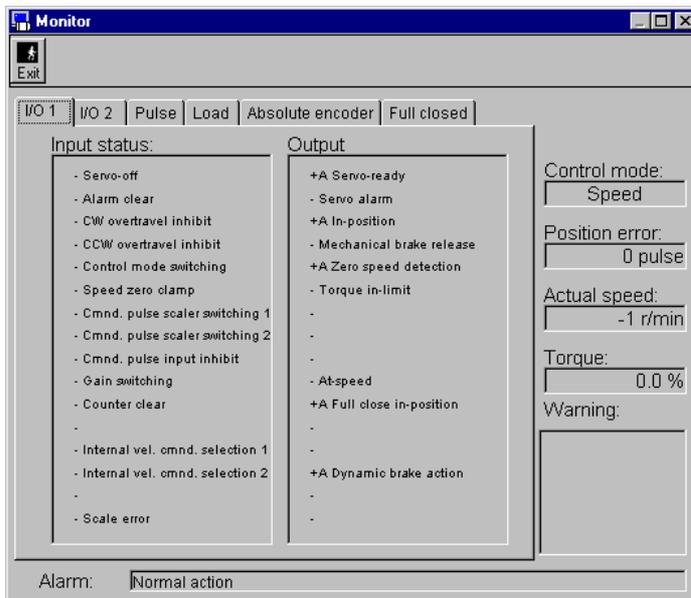
■ Notes:

- Data is transferred between the amplifier and the personal computer by serial communication through RS-232C. Owing to limitations on the communication speed, values are displayed on the screen after a little delay.
- When the polarity is positive (+), the plus sign is not displayed.
- Monitor does not provide for instrumentation. Be sure to use the speed torque data as approximations.

6. OPERATION

Input/output status

Click the “Input/output 1” or “Input/output 2” tab in the monitor display window.



<Item to be displayed by selecting input/output 1 or input/output 2>

“Input status”: Indicates the details of input and its status.

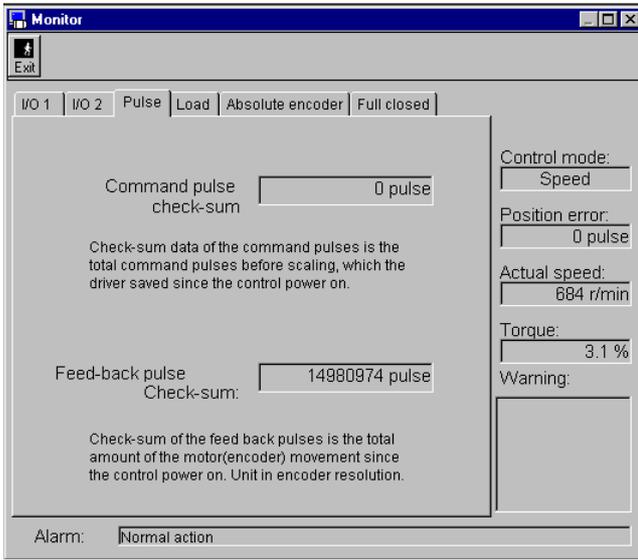
“Output status”: Indicates the details of output and its status.

+A : Active

- : Inactive

Pulse

Click the “Pulse” tab in the monitor window.



<Item to be displayed by selecting “Pulse”>

“Command pulse check-sum”:

Indicates the sum of command pulses generated after the amplifier control power is turned on.

※The sign and the unit are different according to the amplifier.

“Feed-back pulse check-sum”

Indicates the sum of feedback pulses after the amplifier control power is turned on. The unit is pulses.

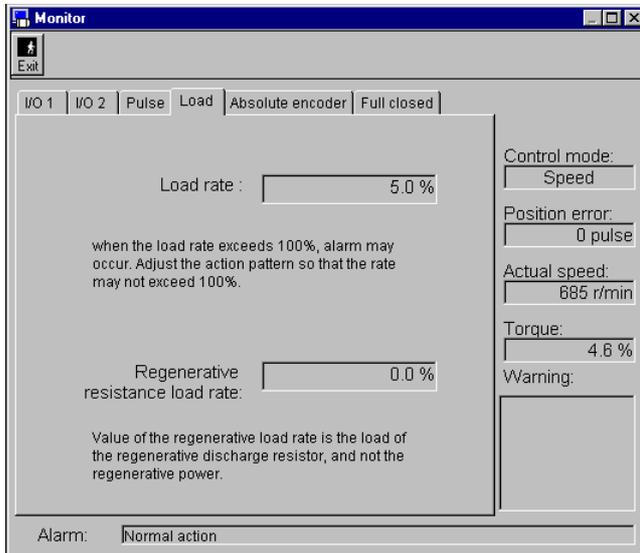
The sum of feedback pulses is the sum of movements of the motor (encoder) after the control power is turned on.

※The sum is incremented in the counterclockwise direction and is decremented in clockwise direction, when viewed from the axis end.

6. OPERATION

Load

Click the “Load” tab in the monitor window.



<Items to be displayed by selecting “Load”>

“Load rate”

Indicates the load rate.

If the load rate exceeds 100%, an alarm may occur.

In this case, adjust the operation pattern so that the load rate does not exceed 100%.

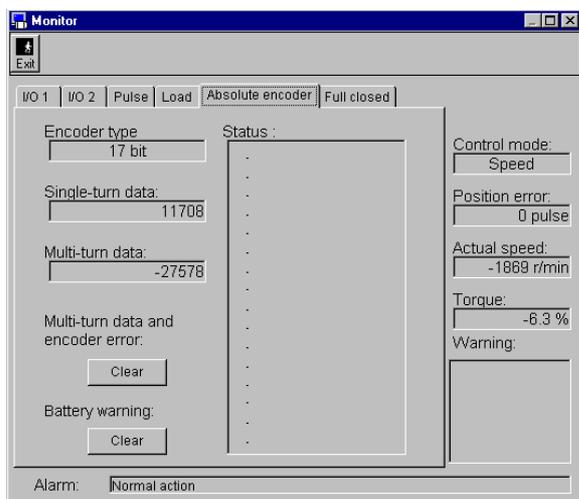
“Regenerative resistance load rate”

Indicates the regenerative resistance load rate.

Note that this monitor shows not the regenerative power, but the regenerative resistance load.

Absolute encoder

Click the “Absolute encoder” tab in the monitor window.



<Items to be displayed by selecting “Absolute encoder”>

“Encoder type”:

Indicates the type of encoder.

17bit: 17bit absolute encoder

Increment: Incremental encoder

“Status”: Indicates the status of the absolute encoder after the power is turned on to the amplifier.

“Single-turn data”:

Absolute position in one turn of the motor.

“Multi-turn data”:

Counter value for indicating the number of turns after clearing is performed.

The counter’s value is incremented when the motor turns counterclockwise.

“Multi-turn data and encoder error”:

Clicking “Clear” clears the multi-turn data and encoder error.

“Battery warning”

After mounting a battery, click “Clear”, and battery warning will be cleared.

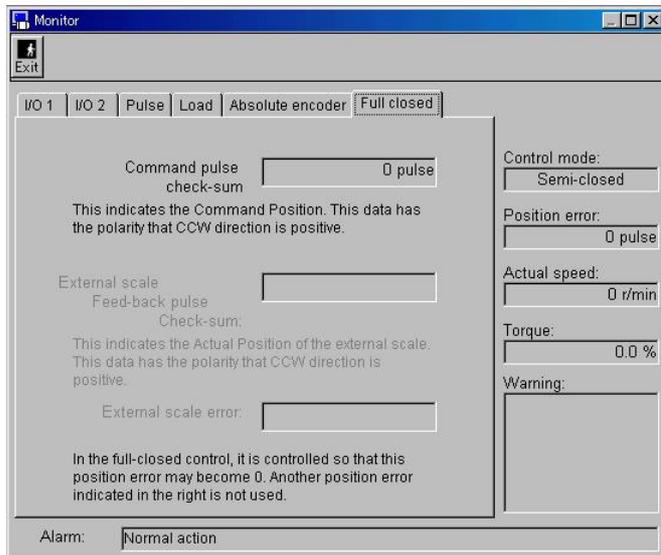
■ Notes:

- This function is effective only when the absolute encoder is used. If it is used for another encoder, only the encoder type is displayed.

6. OPERATION

Full closed

Click the “Full closed” tab in the monitor window.



<Items to be displayed by selecting “Full closed”>

“Command pulse check-sum”:

Indicates the sum of command pulses generated after the amplifier control power is turned on.

※The sign and the unit are different according to the amplifier.

“External scale Feed-back pulse check-sum”:

Indicates the sum of external scale feedback pulses. The external scale feedback pulse sum is the sum of external scale feedback pulses that the amplifier has received since the control power was turned on.

“External scale error”:

Indicates the position error of the external scale.

■Notes:

- This function is effective only when the control mode has been set to the full close, hybrid or external encoder control mode.

Alarm

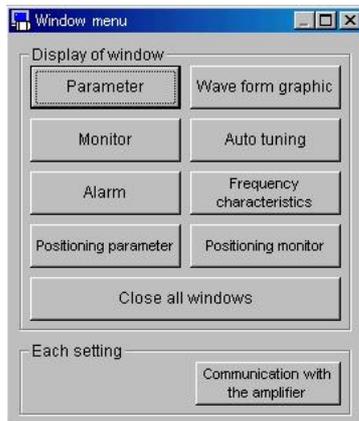
On PANATERM[®], when a LED on the amplifier front panel is flashing, the error condition, such as a motor failure, can be checked.

Opening the alarm window

1 Start up PANATERM[®]

(For details, see Section 5 “Startup”.)

2 The window menu will appear on the PANATERM[®] screen.



3 Click “Alarm” in the window menu.

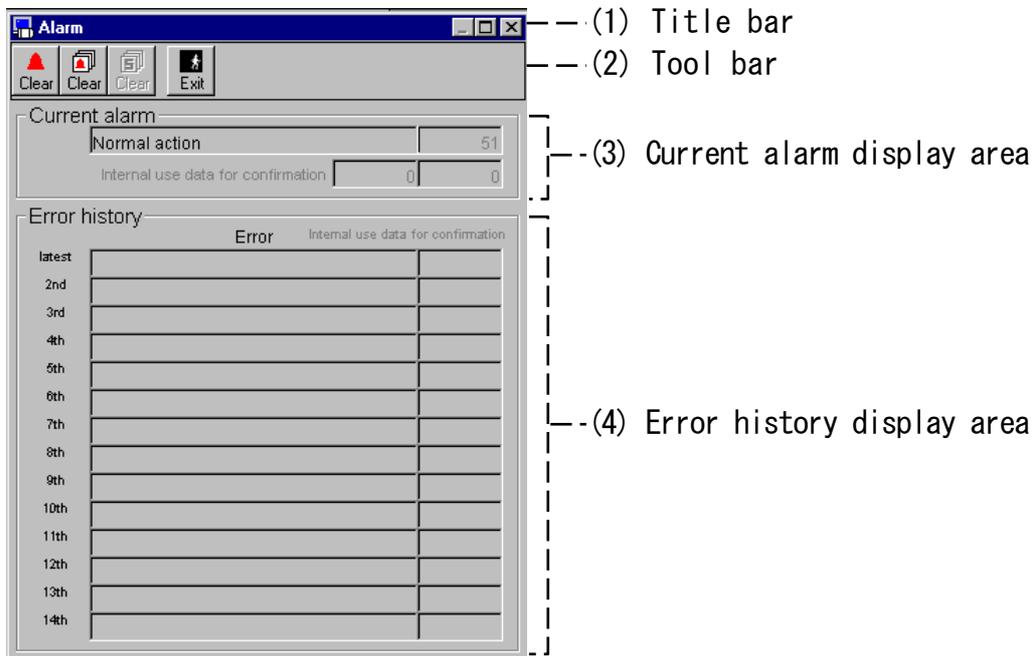
4 The alarm window will appear.

Closing the alarm window

Click  (Exit) on the tool bar.

6. OPERATION

Alarm screen configuration



(1) Title bar: The window can be operated.

(2) Tool bar:



(Clear):

Clear the current alarm.

After removing the cause, click this button, and the current alarm will be cleared, and normal operation will be restarted. However, it is impossible to clear alarm that cannot be cleared by the alarm clearing input signal from the amplifier. Turn off the power to the amplifier, remove the cause, and re-apply the power.



(Clear):

Clears the error history.



(Exit):

Closes the parameter window.

(3) Current alarm display area

The number and name of the current alarm are displayed.

(4) Error history display area

The order of occurrence of errors, alarm numbers and error names are displayed.

Notes:

- When “Undervoltage, control power”, “Undervoltage, main power” or “Overtravel inhibit input error” occurs, a trip occurs. However, these errors are not recorded in the error history.
- Up to 14 errors are stored. If the 15th error occurs, the oldest error is deleted.

Waveform graphic

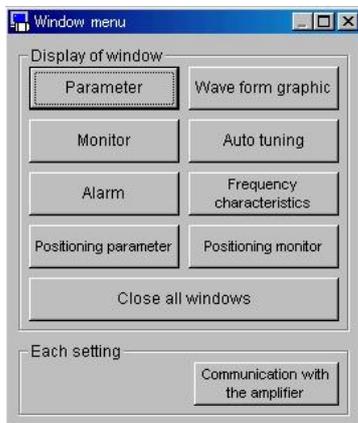
PANATERM[®] can measure the motor operation waveform, and graphically display the results. The measurement conditions, measurement results graphic can be saved in files.

Opening the waveform graphic window

1 Start up PANATERM[®]

(For details, see Section 5 “Startup”.)

2 The window menu will appear on the PANATERM[®] screen.



3 Click “Waveform graphic” in the window menu.

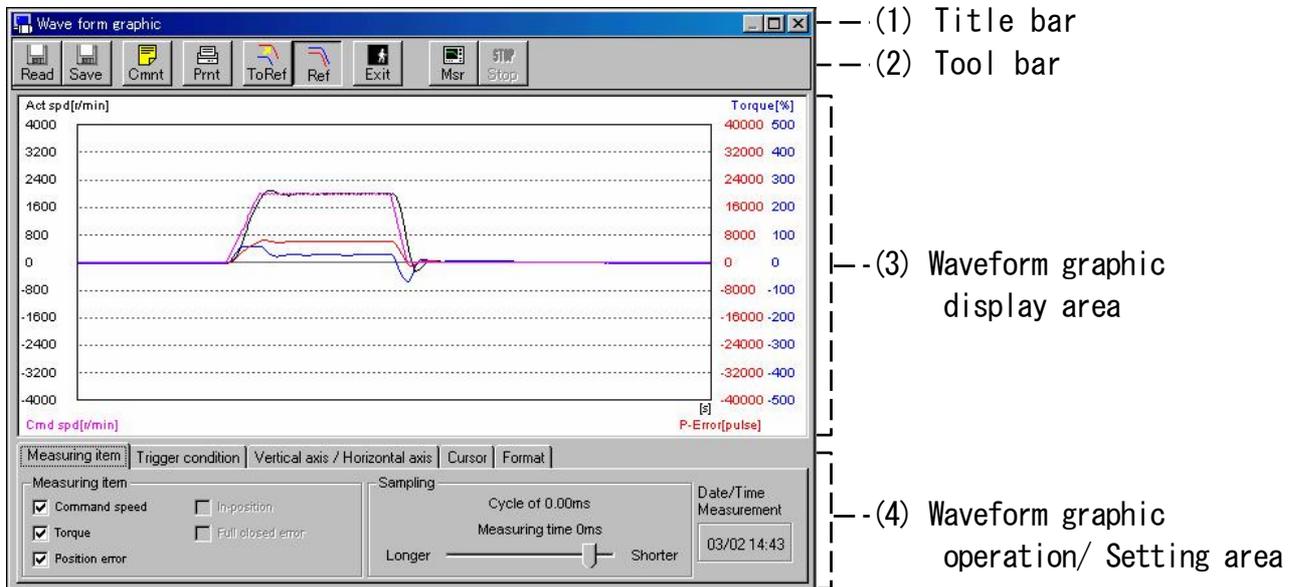
4 The waveform graphic window will appear.

Closing the alarm window

Click  (Exit) on the tool bar.

6. OPERATION

Waveform graphic screen configuration



(1) Title bar: The window can be operated.

(2) Tool bar: Shows the operation commands, such as the save, load and waveform graphic measurement commands.

- | | | |
|---|-------------|---|
|  | (Read): | Reads the file containing measurement data. |
|  | (Save): | Saves measurement data in a file. |
|  | (Comment): | A comment can be prepared. |
|  | (Print): | Prints the results of waveform graphic measurement. |
|  | (Copy ref): | Copy to reference data. |
|  | (DISP ref): | Turns on or off the reference waveform. |
|  | (Exit): | Closes the waveform graphic window. |
|  | (Measure): | Starts waveform graphic measurement. |
|  | (Pause): | Suspend waveform graphic measurement. |

(3) Waveform graphic display area

(4) Waveform graphic is displayed according to your setting in Waveform graphic operation and setting area.

When “Measuring condition” “trigger condition” “Vertical axis/Horizontal axis” tab is selected, you can zoom in and out a graph with a magnifying glass. Click the Left button of the mouse to zoom in and the right button to zoom out.



When “Measuring condition” “trigger condition” “Vertical axis/Horizontal axis” tab is selected, you can zoom in and out a graph with a magnifying glass. Click the left button of the mouse to zoom in and the right button to zoom out.



(4) Waveform graphic operation and setting area.

Specify conditions for measuring waveform graphics.

These measuring conditions can be saved in a file.

(See Section 6 “Saving and loading waveform graphic measuring conditions”.)

<Measurement items tab>

Specify condition for measurement and the sampling cycle.



“Measurement items”: You can measure any of “Command speed” , “Torque” and “Position error” even at the same time.

Some amplifiers enable any three items to be selected from the five items (commanded speed, torque, position error, positioning completion signal and full close error.)

MINAS-E series enable one item to be selected from the five items.

“Sampling”: Selects a sampling cycle.

6. OPERATION

<Trigger condition tab>

Set the trigger condition.



“Set the trigger of actual speed”: It is valid with check.

“Single trigger”: It is measured only once with check.

Without check it continues to be measured until you click “Stop”.

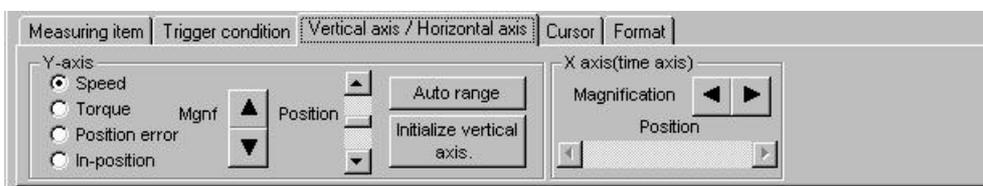
“Trigger level”: Set the actual speed to trigger. You can set plus or minus with +/- .

“Slope”: Set the slope to trigger. Select “Start” or “Finish”.

“Trigger position”: Select where to start trigger for the measuring period.

<Vertical axis/Horizontal axis tab>

Set the display condition of waveform graphic.



“Y axis”:
Set the magnification and position of “Speed”, “Torque”, “Position error” and “In-position”.

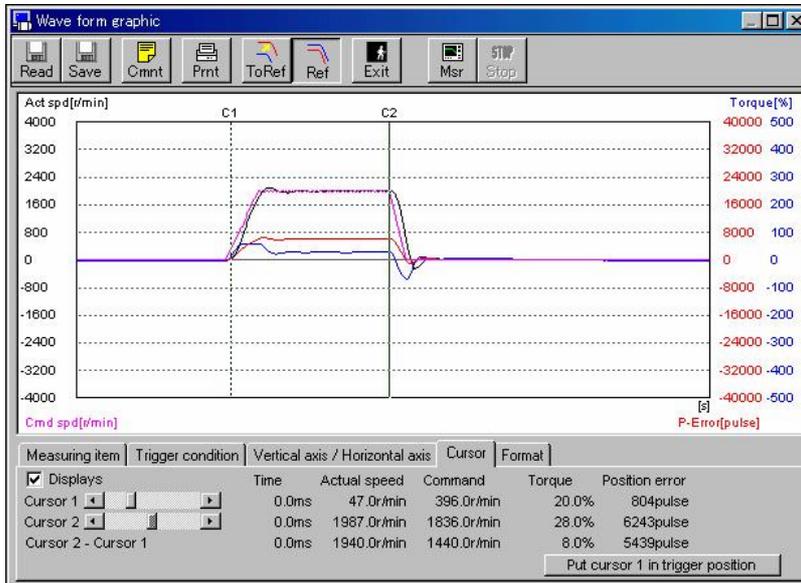
“Auto range”:
The magnification and position is automatically set optimum.

“Initialize vertical axis”:
Initialize the display position.

“X axis”:
Set the Magnification and position of horizontal axis (Time axis).

<Cursor tab>

Set the cursor.



“Display”: Display 2 cursors with check.

“Cursor 1”: Set the position of cursor 1. You can set the position with the left button of the mouse, too.
Each value of “Time”, “Actual speed”, “Command speed”, “Torque”, “Position error” is displayed.

“Cursor 2”: Set the position of cursor 2. You can set the position with the right button of the mouse, too.
Each value of “Time”, “Actual speed”, “Command speed”, “Torque”, “Position error” is displayed.

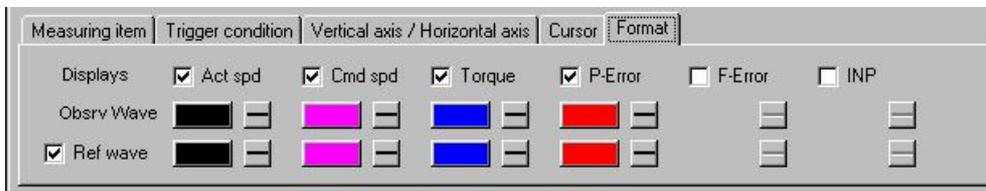
“Cursor 2- Cursor 1”:
Difference in values of cursor 1 and cursor 2 of “Time”, “Actual speed”, “Command speed”, “Torque”, “Position error” is displayed.

“Move cursor 1 to trigger position”:
Move cursor 1 to the position set in “Trigger condition”.

6. OPERATION

<Format tab>

Sets a graph display format.



“Display”: Check a box to display the target graph.

“Ref wave”: Check this box to display the reference waveform graph.

Check the boxes to change the color and line thickness of the graph.

Measuring waveform graphics

1 Specify the waveform graphic measurement items and conditions.

2 Click  (Measure) on the tool bar.

After measurement is started, the bar indicating the state of transfer will change.

※When the waveform graphic screen is closed, the measuring conditions are stored. Measurement will be performed under the same conditions when you open the window next time.

■ Notes:

- For waveform graphic measurement, the following data is used. (See the main control unit block diagram in the instruction manual for amplifier.)
 - * Command speed: In the position control mode, a value after command scaling is used, and in the velocity control mode and torque control mode, a value after acceleration or deceleration is used.
 - * Actual speed: Input value of speed detection.
 - * Torque: Value after torque limiting.
- * Position error: Value on the error counter.
- PANATERM[®] allows the measurement time to vary from 83 to 21242 ms. In addition, the maximum data storage capacity of the servo amplifier is 500 and the measurement cycle is used for data storage at the sampling time of 0.166 ms.

The measurement cycle is displayed on the monitor. The measurement cycle is 0.17 ms at the shortest measurement time of 83 ms and 42.48 ms at the longest measurement time of 21242ms. Graph display takes place in such a manner that the computed values are plotted for each measurement cycles and the time between measurement cycles linked by lines.

For this reason, continuous measurement can take place only at the minimum measurement time of 83 ms ($0.166 \text{ ms} \times 500 = 83 \text{ ms}$).
- In some sampling cycles, area sizing may occur, and the waveforms may look different from the actual ones when waveforms including especially high frequency components (Torque waveform, etc.) are displayed. In this case, set the sampling cycle shorter.
- When "Velocity command" is displayed during execution of position control, if the position loop gain has been set lower and the position error is high, part of data may be missing on the velocity command display.
- If any reset by re-applying power to the amplifier, during waveform graphic measurement, once terminate the waveform graphic screen.
- If the waveform graphic data is printed in environment in which the printer cannot be used correctly, PANATERM[®] may terminate or give no response. Before printing, carefully check the printer.
- Waveform graphic does not provide for instrumentation. Be sure to use the speed and torque data as approximations.

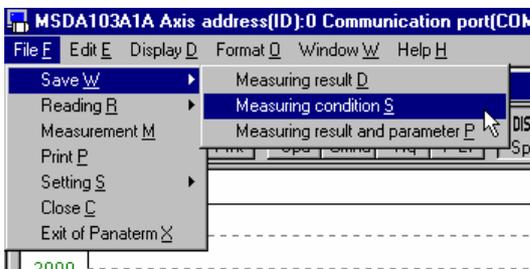
6. OPERATION

Saving and reading results of waveform graphic measurement and parameters

It is possible to save the specified measuring conditions in a file, and to perform measurement under the same conditions. The waveform graphic measuring condition file name is `***.wgc`.

Saving the waveform graphic measuring conditions

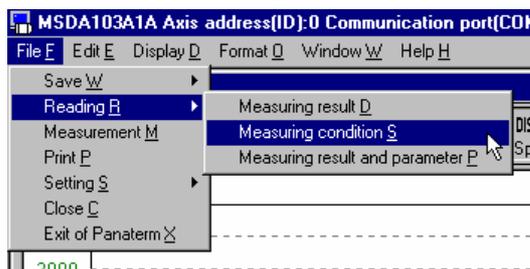
- 1 Select “File” on the PANATERM[®] menu bar, and click “Save” and “Measuring condition”.



- 2 Specify the file name to be saved in the file dialog window.
- 3 Click “Save”.

Reading the waveform graphic measuring conditions

- 1 Select “File” on the PANATERM[®] menu bar, and click “Reading” and “Measuring condition”.



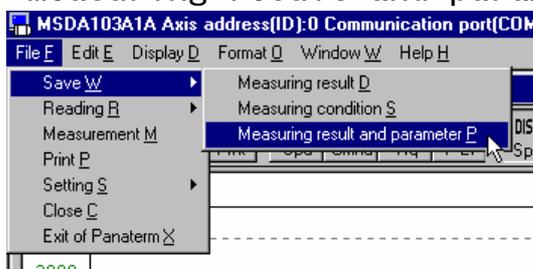
- 2 Specify the file name to be loaded in the file dialog window.
- 3 Click “OK”.

Saving and reading results of waveform graphic measurement and parameters

It is possible to save the measurement results and the parameter settings used for the measurement in a file, and to refer to them later. The waveform graphic measurement result file name is *****.wgp**.

Saving the results of waveform graphic measurement and parameters

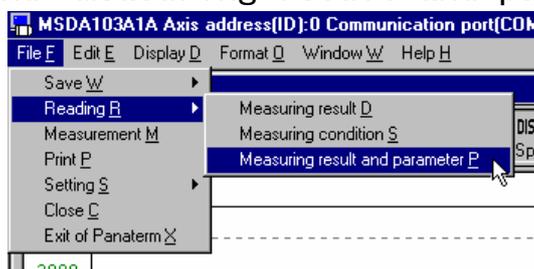
- 1 Select “File” on the PANATERM[®] menu bar, and click “Save” and “Measuring result and parameter”.



- 2 Specify the file name to be saved in the file dialog window.
- 3 Click “Save”.

Reading the results of waveform graphic measurement and parameters

- 1 Select “File” on the PANATERM[®] menu bar, and click “Reading” and “Measuring result and parameter”.



- 2 Specify the file name to be loaded in the file dialog window.
- 3 Click “OK”.

6. OPERATION

Auto tuning

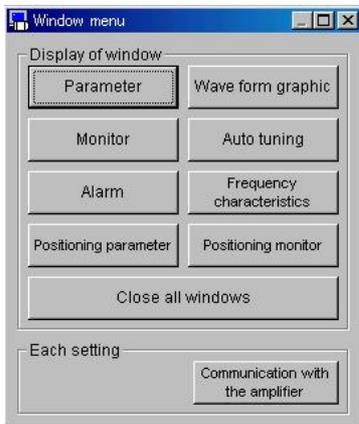
The gains can be automatically adjusted.
Before using the auto tuning function, fully understand the scope of application and instructions stated in the instruction manual for amplifier.

Opening the auto tuning window

1 Start up PANATERM[®]

(For details, see Section 5 “Startup”.)

2 The window menu will appear on the PANATERM[®] screen.



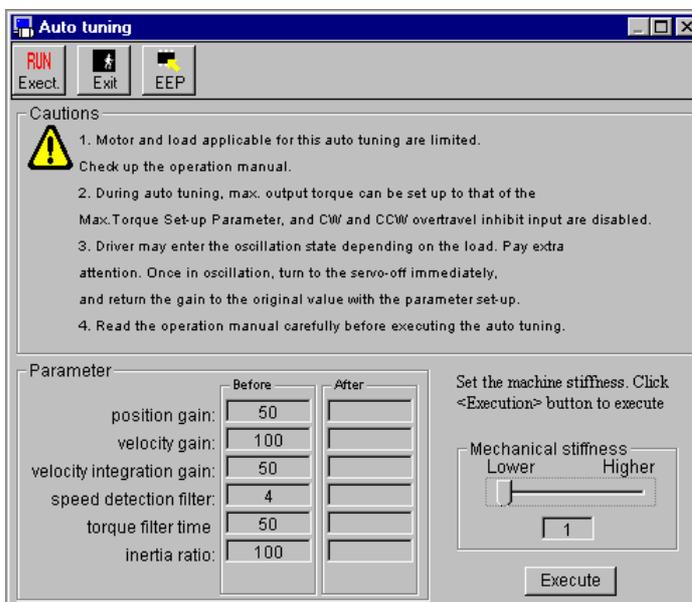
3 Click “Auto tuning” in the window menu.

4 The Auto tuning window will appear.

Closing the auto tuning window

Click  (Exit) on the tool bar.

Auto tuning screen configuration



(1) Title bar

(2) Tool bar

(3) Caution display area

(4) Parameter display area

(5) Specification of stiffness and execution

(1) Title bar: The window can be operated.

(2) Tool bar: Shows the operation commands, such as the auto tuning execution command.



(Execute): Executes auto tuning.



(Exit): Closes the auto tuning window.



(EEP): Writes the parameters in the amplifier EEPROM.

(3) Caution display area

Cautions related to auto tuning area displayed.

Start operation after carefully reading the cautions.

(4) Parameter display area

Parameters related to auto tuning are shown. The parameters before and after application are displayed. Carefully check the values.

(5) Specification of stiffness and execution

Specify the stiffness required for the loop in the range from 1 to 9. Set the stiffness starting from a lower value.

■ Notes:

- Application of the auto tuning function is restricted to some kinds of motors and loads.
- During auto tuning, the motor output torque is allowed to rise to the max. output torque set as a parameter.
- The motor may enter the oscillating state depending of load condition. Take great care of safety. If the motor has entered the oscillating state, immediately turn off the servo, and return the gains to their defaults on the parameter setting screen.
- During auto tuning, the motor will make two counterclockwise turns and two clockwise turns. Therefore, move the load to a position where it will not be damaged when the motor makes two clockwise and counterclockwise turns.
- It is displayed on this screen only the first gain and Inertia ratio. The other parameter is changed according to the amplifier model, so please refer to the manual of amplifier.

6. OPERATION

Frequency characteristics

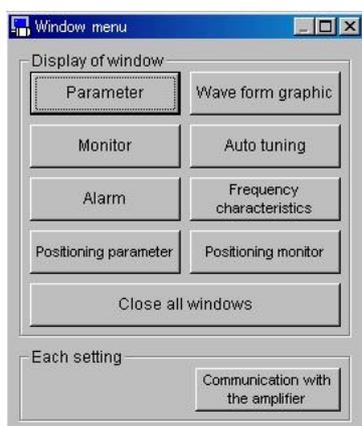
You can measure the resonance point of a machine, measure the frequency characteristics including a load, and display the bode chart. The results of measurement can be saved in file.

Opening the Frequency characteristics window

1 Start up PANATERM[®]

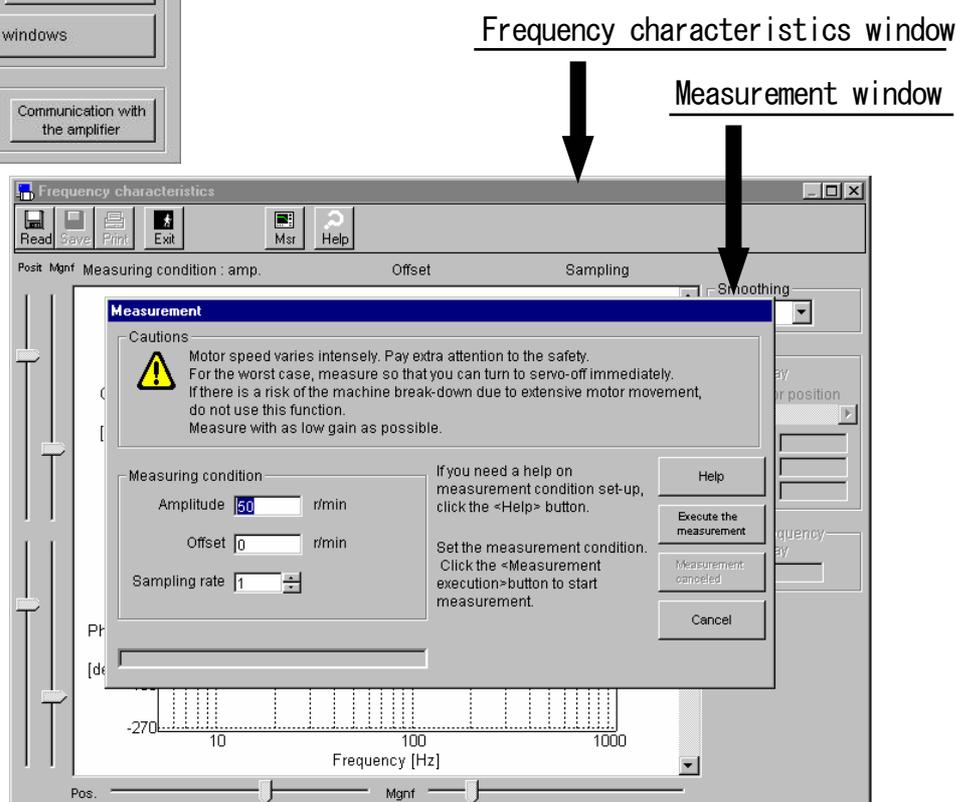
(For details, see Section 5 “Startup”.)

2 The window menu will appear on the PANATERM[®] screen.



3 Click “Frequency characteristics” in the window menu.

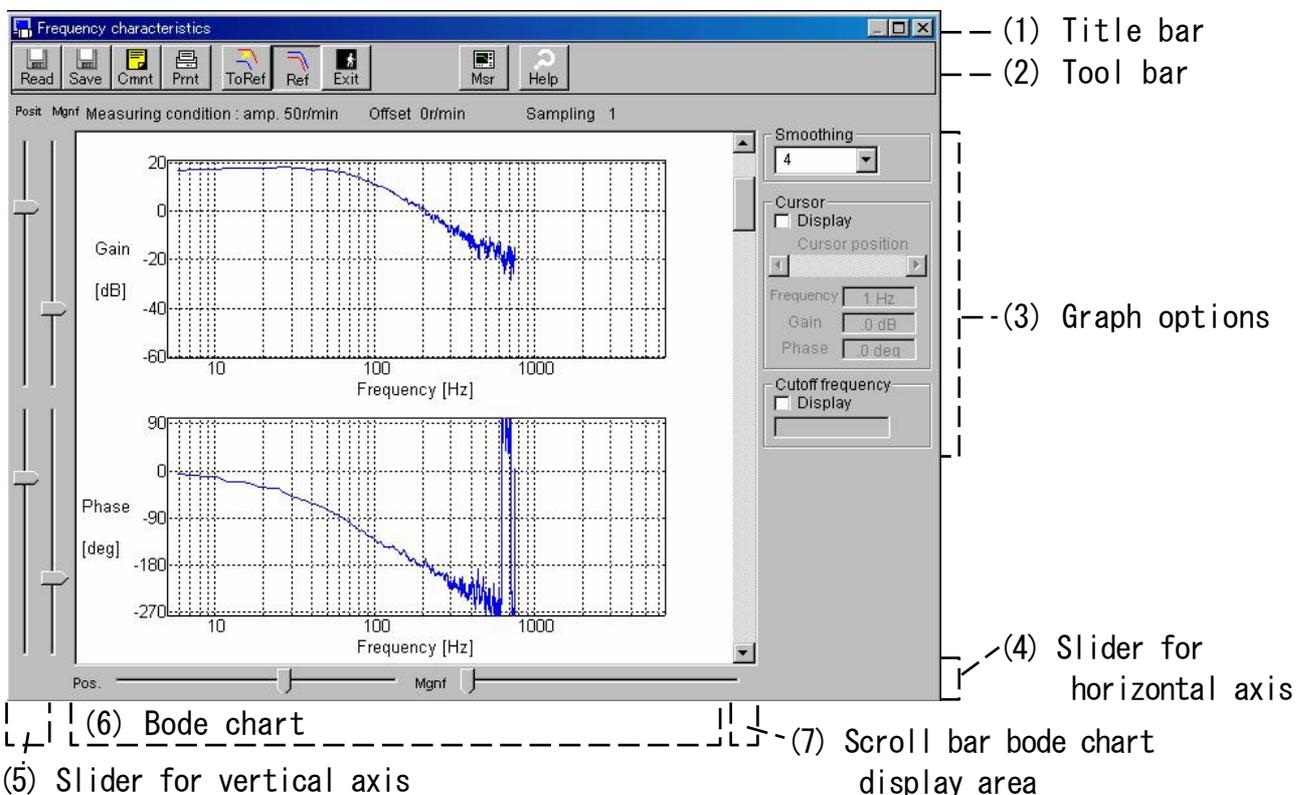
4 The Frequency characteristics window and the measurement window will open.



Closing the Frequency characteristics window

Click  (Exit) on the tool bar.

Frequency characteristics screen configuration



(1) Title bar: The window can be operated.

(2) Tool bar: Shows the operation commands, such as the Frequency characteristic measurement command.

-  (Read): Reads frequency characteristic data.
-  (Save): Saves frequency characteristic data in a file (***.idt).
-  (Print): Outputs the bode chart to the printer.
-  (Copy ref): Copy to reference data.
-  (DISP ref): Turns on or off the reference waveform.
-  (Exit): Closes the frequency characteristic window.
-  (Measure): Measures frequency characteristics.
-  (Explanation): Displays explanation of frequency characteristics.

6. OPERATION

(3) Graph options: Setting item related to display and operation of graph.

“Smoothing”: Set the degree of smoothing.

“Cursor” Switches to the cursor display or non-display mode. The cursor will move to a position on which you click the mouse button.

“Cutoff frequency” Switches to the cutoff frequency display or non-display mode.

(4) Slider for horizontal axis, (5) Slider for vertical axis
The position and magnification of the horizontal or vertical axis the bode chart displayed in Item (6) are changed.

(6) Baud chart

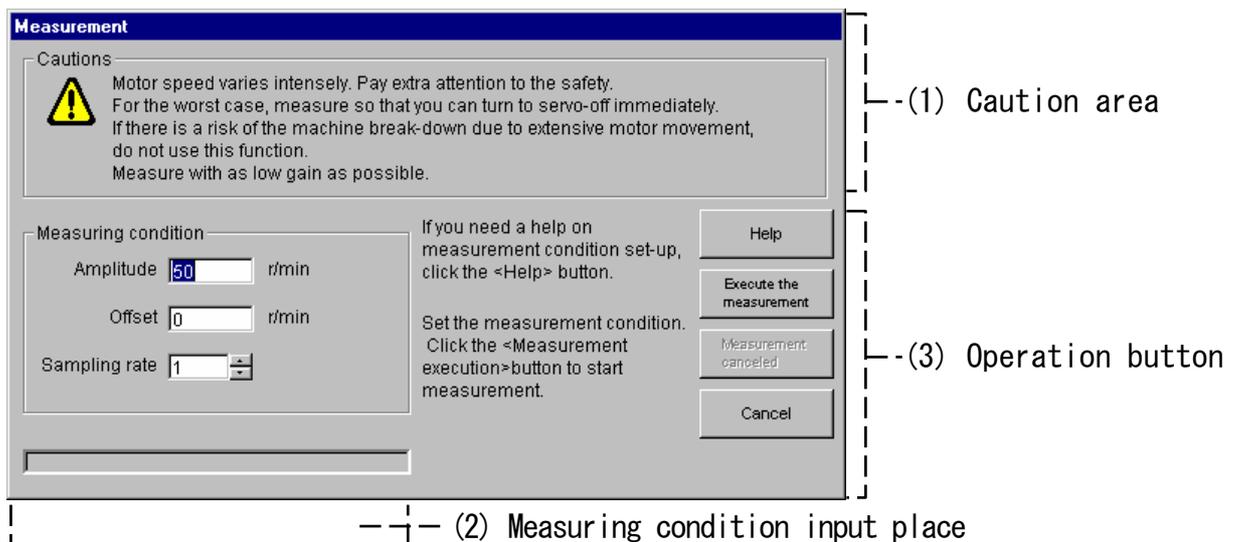
Measured frequency characteristic data is displayed in the form of a bode chart.

(7) Scroll bar for bode chart display area

The display area of the bode chart (6) is scrolled.

Measuring frequency characteristics

1 Open the frequency characteristic window, or click “Measure” in the frequency characteristic window, and the measurement window will open.



2 Carefully read the cautions given in the caution area (1).

3 Specify the measuring conditions in the field (2).

4 Click “Execute the measurement” in the operation button area (3), and frequency measurement will be started.

■ Notes:

- Execute measurement in such a state that the servo can be turned off immediately in case of emergency.
- When measuring the machine resonance, reduce the gains close to the min. level. (Reduce the values of “Position loop gain” and “Velocity loop gain”, and increase the value of “Velocity loop integration time constant”.)
- If the frequency characteristic data is printed in environment in which the printer cannot be used correctly, PANATERM[®] may terminate or give no response. Before printing, carefully check the printer.
- When frequency characteristic data is saved, the parameters, such as the amplifier gains, are not saved. You are recommended to load (receive) the parameter from the amplifier and save them in a file when saving the frequency characteristic data.

<Measuring conditions>

“Amplitude”:
The amplitude is limited to the range in which the sum of amplitude and offset does not exceed the max. rotational speed.

* Setting the amplitude higher increases the measuring accuracy. However if the amplitude is set too high, the torque will be saturated, and the accuracy will lower. Set the amplitude starting from a lower value, and gradually increase it, checking the measurement results.

“Offset”:
The offset is limited to the range in which the sum of amplitude and offset does not exceed the max. rotational speed.

* During measurement, the set offset is used as an average velocity command. When the polarity is positive, the motor turns counterclockwise, and when the polarity is negative, the motor turns clockwise. When the offset is set higher than the amplitude setting so that the motor is always in a certain direction, acceptable measurement result can be obtained. If the moving range is narrow, the motor may overrun the moving limit. The approximate amount of turn of the motor during measurement can be obtained by the following formula. Before starting the measurement, make sure that the motor will not overrun the moving limit.

Approximate amount of turn = Offset[r/min]*0.017*(sampling rate+1)

“Sampling rate”:
* If the sampling rate is set higher, the measuring accuracy will be improved in a low frequency band, but the measuring time will be increased. On the contrary, if the sampling rate is set lower, the measuring accuracy will be improved in a high frequency band. Set the sampling rate starting from 1, and adjust it, checking the measurement results.

* If you have any question about measuring condition setting, click “Help” in the area (3).

6. OPERATION

Positioning Parameter

(Available with MINAS-A4P series)

MINAS-A4P series allow positioning parameter manipulation (checking, rewriting and saving of amplifier positioning parameters) on the positioning parameter window. The positioning parameter names and settings are displayed on the positioning parameter setup window. Settings can be made freely in the parameters within the ranges.

■ Notes:

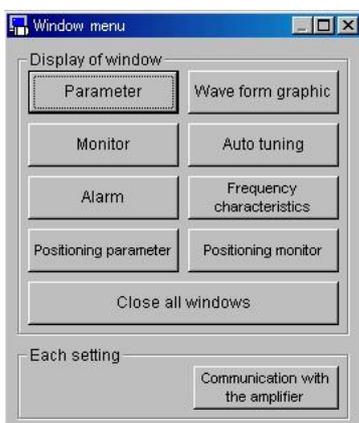
- Special care should be taken because some positioning parameters significantly affect the amplifier operations.

Opening the Positioning Parameter Window

1 Start up PANATERM[®].

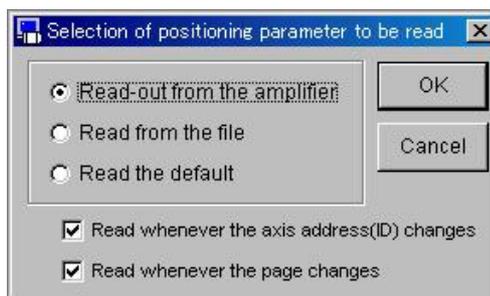
(For details, see Section 5 “Startup” in this manual)

2 The window menu will appear on the PANATERM[®] screen.



3 Click “Positioning parameter” on the window menu.

4 The window for selecting parameters to be read will be displayed.



5 Select and click the source of parameters.

“Read-out from the amplifier”

The computer will communicate with the connected amplifier, and read the positioning parameters set on the amplifier. In this mode, if the positioning parameter values are changed, the changed values will be effective on the amplifier immediately.

“Read from the file”

A previously edited positioning parameter file (.ncp) is referenced. Even if the positioning parameters read from this file are changed, the changed parameters will not be effective on the connected amplifier unless they are transmitted to the amplifier. “Read the default”

In the same manner as when the positioning parameters are read from the file, the changed parameters are not effective unless they are transmitted to the amplifier.

- * When “Read-out from the amplifier” is selected, positioning parameters are read automatically. When “Read from the file” and “Read the default” are selected, they are not read automatically.

6 Specify the timing of loading positioning parameters.

“Read whenever the axis address (ID) changes”

Whenever the amplifier (axis address (ID)) to be edited changes, the positioning parameters are read from the amplifier. To enable or disable this mode, click on the check box.

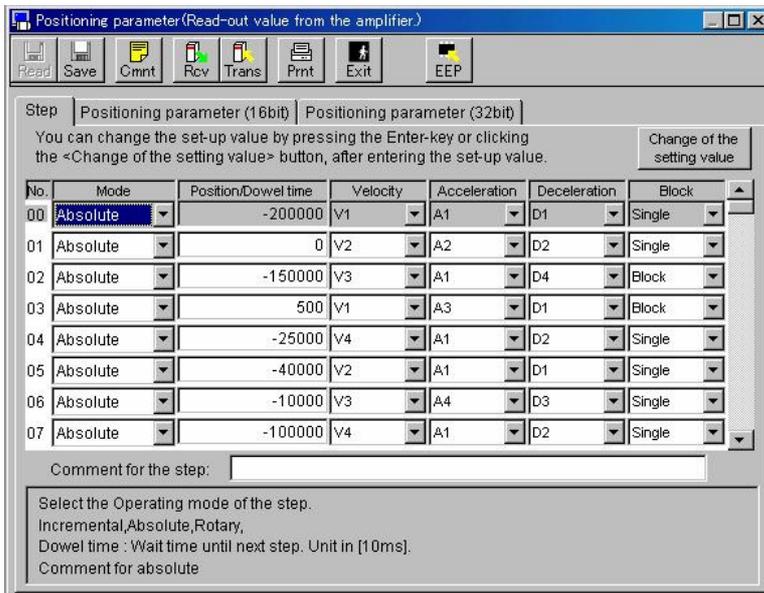
“Read whenever the pages changes”

When the positioning parameter page to be edited changes, the parameters are read from the amplifier.

To enable or disable this mode, click on the check box.

6. OPERATION

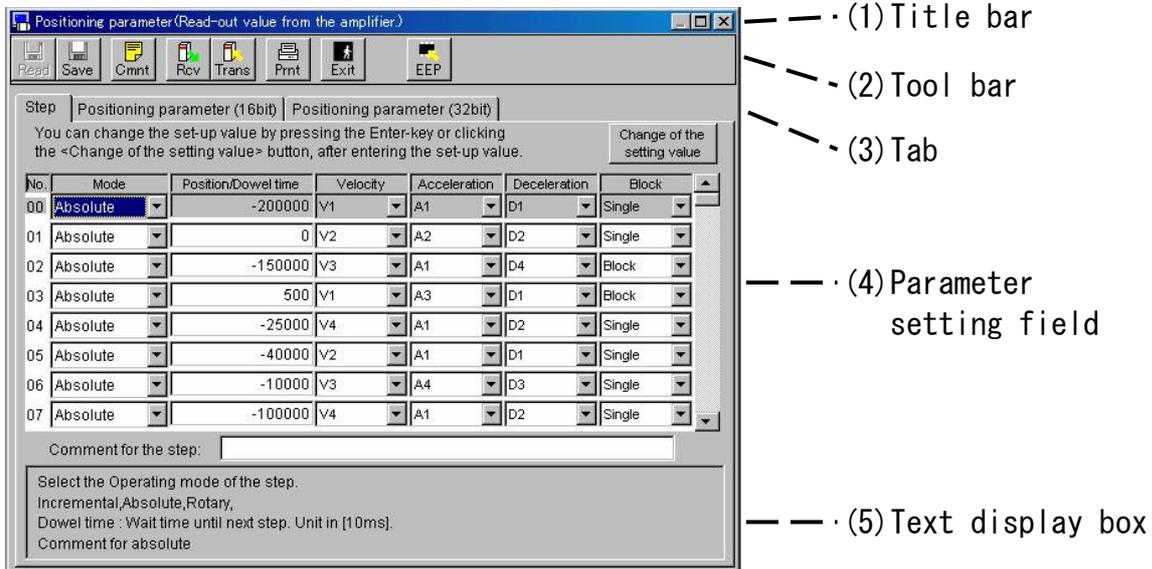
7 Click “OK” to display the positioning parameter window.



Closing the Positioning Parameter Window

Click  (Exit) on the tool bar.

Positioning Parameter Screen Configuration



- (1) Title bar Indicates the sources of the positioning parameters.
The following buttons are used to operate the window.



Maximizes the window on the screen.



Closes the window.

- (2) Tool bar Lists the basic operation commands related to the positioning parameters, such as read and save commands.



(Read) Reads the positioning parameters from a file (.ncp).



(Save) Writes the positioning parameters to a file (.ncp).



(Comment) Prepares the comment to be attached to a positioning parameter file.



(Receive) Receives the positioning parameters from the amplifier.



(Transmit) Transmits the positioning parameters to the amplifier.



(Print) Prints the positioning parameters.



(Exit) Closes the positioning parameter window.



(EEP) Writes the positioning parameters to the EEPROM of the amplifier.

6. OPERATION

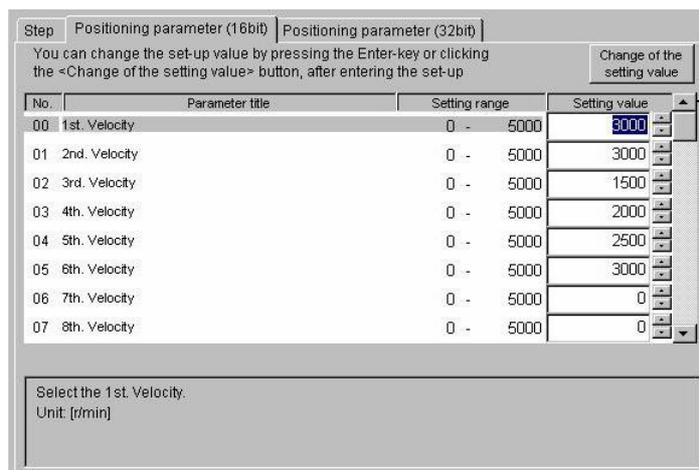
(3) Tab Switching the positioning parameter setting fields

- “Step” Edits or sets positioning data.
- “Positioning parameter” (16bit) Edits or sets all the 16bit positioning parameters.
- “Positioning parameter (32bit)” Edits or sets all the 32bit positioning parameters.

(4) Parameter setting field (16bit/32bit positioning parameter):

Edits or sets 16bit or 32bit positioning parameters.

Click a black triangle (**▲** or **▼**) at the rightmost scroll bar to switch the screens.



- “Setting value” Parameter value. This setting value can be changed. Enter a numeric value directly or click a black triangle (**▲** or **▼**) to increment or decrement the value for editing. To set the value, press the Enter key or click **Change of the setting value** (for changing the setting value). Press the ESC key to restore the previous value.

(5) Text display box

Displaying a brief description of the selected positioning parameter.

■ Notes:

- For details of the function of each positioning parameter, see the instruction manual for your amplifier.
- Even if positioning parameters have been transmitted to the amplifier, they return to the value before change when the amplifier is turned off because they are not written in the EEPROM. When positioning parameters have been written in the EEPROM, a change list of positioning parameters is displayed. Check it carefully.
- While positioning parameters are written in the EEPROM, do not turn off the amplifier and personal computer. If ignored, the data may be lost.
- After positioning parameters have been changed, some of them do not become effective unless they are written in the EEPROM and the amplifier is reset. (At entering parameter value, a warning message is displayed. For these parameters, see the instruction manual for your amplifier.)

6. OPERATION

Positioning Monitor (Available with MINAS-A4P series)

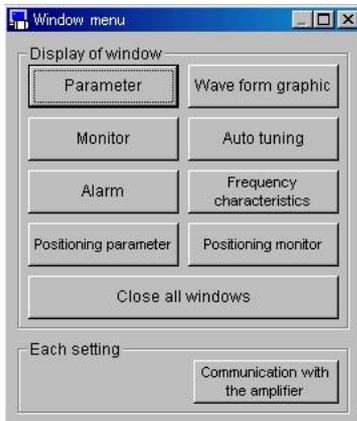
PANATERM® can monitor the I/O, operating status and speed of each signal of some amplifiers having a positioning capability.

Opening the Positioning Monitor Window

1 Start PANATERM®.

(For details, see Section 5 “Startup” in this manual.)

2 The window menu is displayed in the PANATERM® screen.



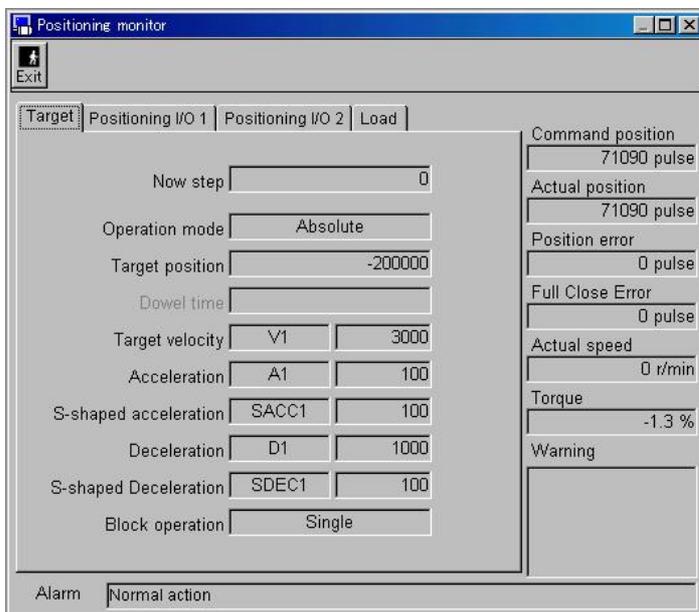
3 Click “Positioning Monitor” in the window menu.

4 The positioning monitor window is displayed.

Closing the Positioning Monitor Screen

Click  (Exit) on the tool bar.

Positioning Monitor Window Configuration



- (1) Title bar
- (2) Tool bar
- (3) Tab

- | (4) Monitor display area
- | (5) Current information

(1) Title bar Providing for window operation.

(2) Tool bar



(Exit)

Closing the parameter window.

(3) Tab Switching the items to be monitored.

“Target”	Monitors the current positioning status.
“Positioning Input/output status”	Monitors the status of input and output signals. This information comprises two windows: I/O 1 and I/O 2.
“Load”	Monitors load-related information.

(4) Monitor display area

Displaying different data according to the monitor item switched by the tab.

(5) Current information

Monitoring the current status at any time

“Command position”	Indicates the sum of command pulses generated after the amplifier Control power is turned on.
“Actual position”	Indicates the position due to feedback pulse of the amplifier. The unit is pulse.
“Position error”	Indicates the current cumulative pulse count on the error counter. The unit is pulse.
“Full close error”	Indicates the cumulative pulse count at full close control. The unit is pulse.
“Actual speed”	Indicates the current speed. The unit is r/min. • Polarity (+): Counterclockwise turn • Polarity (-): Clockwise turn
“Torque”	Indicates the current torque as a ratio to the rated torque. The unit is %.
“Warning”	Indicates the details of a warning.
“Alarm”	Indicates the current status of an alarm.

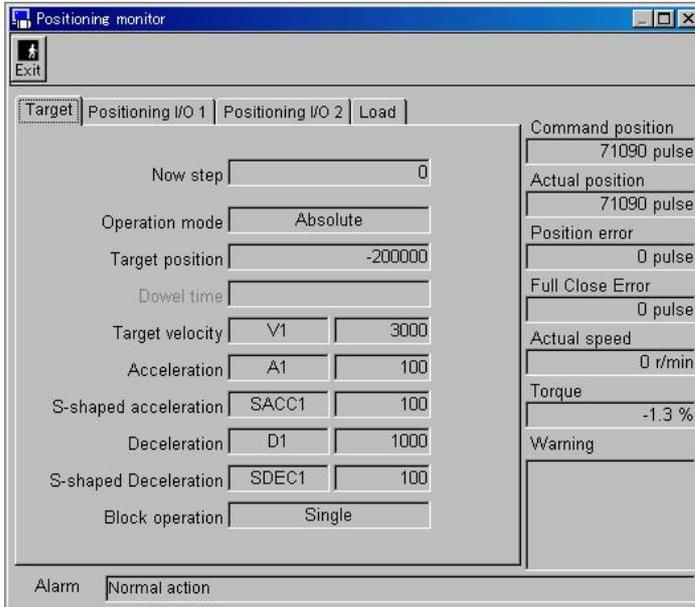
■ Notes:

- Data is transferred between the amplifier and the personal computer via the RS-232 serial communication port. Owing to the communication speed, values are displayed on the screen with a little delay.
- When the polarity is positive (+), its symbol is not displayed.
- Monitor does not provide for instrumentation. Be sure to use the speed and torque indications as approximations.

6. OPERATION

Target

Click the Target tab on the positioning monitor window.



— (1) Title bar

— (2) Tool bar

— (3) Tab

| (4) Monitor data display area | (5) Current information

<Display Items by Target>

“Now step”

Indicates the step number of the current operation (or the last operation).

“Operation mode”

Indicates the details of the current operation (or the last operation).

“Target position”

Indicates the position information of the current step. The unit is pulse.

“Dowel time”

Indicates the wait time when the operation mode is wait time. The unit is 10 ms.

“Target Velocity”

“Acceleration”

“S-shaped acceleration”

“Deceleration”

“S-shaped deceleration ”

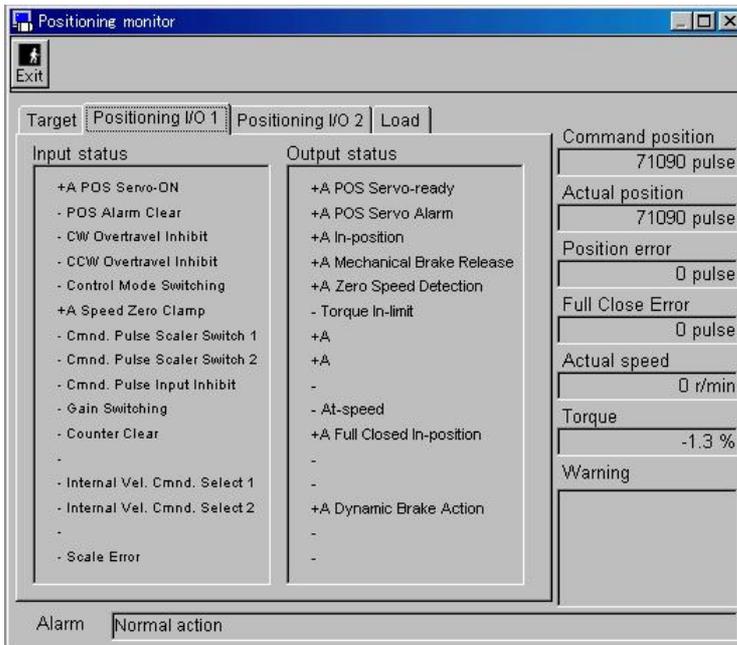
Indicates the parameters and setting values of the current operation (or the last operation).

“Block operation”

Indicates the block operation information of the current operation (or the last operation).

Positioning I/O Status

Click the tab “Positioning I/O 1” or “Positioning I/O 2” on the positioning monitor window.



<Display Items by Positioning I/O 1 and Positioning I/O 2>

“Input status” Indicates the details of input and its status.

“Output status” Indicates the details of output and its status.

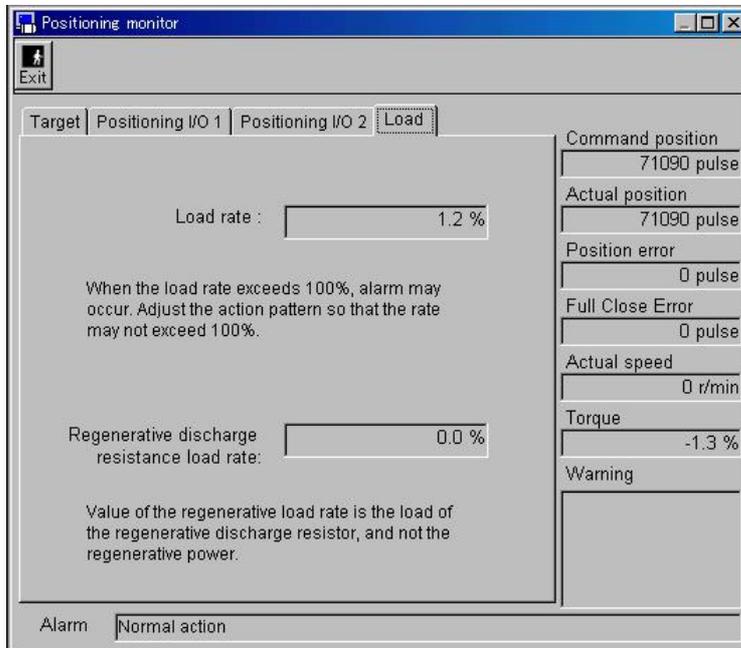
+A: Active

-: Inactive

6. OPERATION

Load

Click the tab “Load” on the positioning monitor window.



<Display Items by “Load”>

“Load rate” Indicates a load rate.

When this rate exceeds 100%, alarm may occur. In this case, adjust the action pattern so that the rate may not exceed 100%.

“Regenerative resistance load rate”

Indicates the regenerative resistance load rate. Note that this monitor shows not the regenerative power, but the regenerative resistance load.

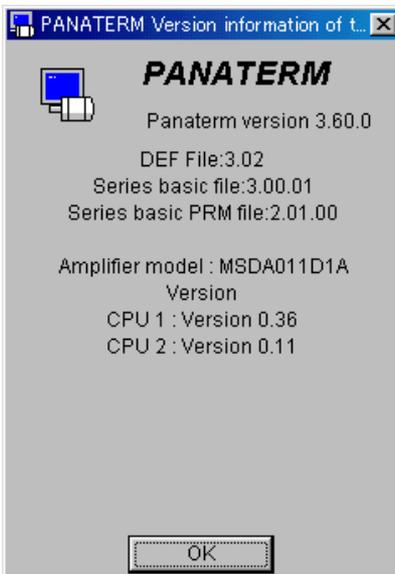
Version

The version of PANATERM[®] is displayed.

1 select “Help” on the PANATERM[®] menu bar, and click “Version information”.



2 The version window will appear.



3 To end the display, click “OK”.

6. OPERATION

Communication setting

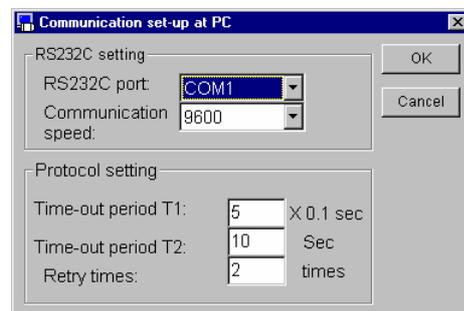
You can set the condition for communication between PANATERM[®] and the amplifier. Note that the conditions are effective only on the personal computer and are not introduced to the amplifier.

■Notes:

- Usually, use PANATERM[®] with the initial setting.

Communication set-up

1 Click “File” on the PANATERM[®] menu bar, and click “Setting” and “Communication set-up”.



- 2 The communication window will appear. Click the input area of the item to be set.
- 3 Input or select the setting.
- 4 To enable the setting, click “OK”.

<RS232C setting>

MINAS-A4 series cannot use this setting.

“RS232C port”: Select a communication port to be used from COM1 to COM16.

“Communication speed”: Select communication speed in the range from 2400 bps to 9600 bps.

■Notes:

- When the communication speed has been changed, communication cannot be established unless the communication speed on the amplifier is set to the same value.

<Protocol setting>

“Time-out period T1”: Specify the time-out time T1 between characters in 0.1second units.

“Time-out period T2”: Specify the time-out time T2 between protocols in second.

“Retry times”: Specify the number of communication retries. The setting range is 1 to 8.

7. TROUBLESHOOTING

Failure in setup

The setup sequence is suspended.

- After restarting Windows®, restart the setup program.
- Clean the CD-ROM drive.
- Ensure that the hard disk in which PANATERM® will be installed has enough vacant capacity.
(The recommended capacity is 15MB.)
- Copy all the files of the PANATERM® setup CD-ROM into the same folder on the hard disk. Then, start installation using a setup program “setup.exe ” or “setupXP.exe” in the folder.

Although PANATERM® was installed, it has not been registered in the start menu/program.

- After the setup sequence is finished, restart Windows®.

You can not start installing with “It has been already installed.” displayed.

- Use “Start” “Control panel” “Add and eliminate program” and uninstall PANATERM® to start setup program again.

PANATERM® does not start.

“PANATERM® has started already.” is displayed, and it does not start.

- PANATERM® has started already. Select PANATERM® on the task bar.
- The PANATERM® file has been destroyed. Uninstall PANATERM® using the “Add application” and “Delete application” function on the control panel in the “Set” item in the “Start” menu, and set up PANATERM® again. (Saved parameter files may be lost. Make backup copies of the files in advance.)

7. TROUBLESHOOTING

Failure in communication

When automatic setting or one of COM1 to COM16 is selected on the model selection screen after PANATERM[®] is started, PANATERM[®] does not give any response.

When the model selection screen or one of COM1 to COM16 is selected after PANATERM[®] is started, the “Amplifier or communication port cannot be detected.” message is displayed, and communication cannot be made.

- The amplifier software of the COM port has not been set properly.
(Select “Set” in the “Start” menu, click “Control panel”, “System” and “Device manager”, and open “Port”. Make sure that the port to be used has been set properly. For details, see the instruction manual for personal computer.)
- The COM port of the personal computer is used by another device, such as the built-in modem. (See the instruction manual for personal computer.)
- Apply power to the amplifier.
- Check that the communication cable is not loose, the cable is not.

Failure printing

Printing cannot be performed.

- Make sure that the printer is connected correctly.

Print is incorrect. Lines are broken.

- Change the printer setting. (Select “Printer property”, “Details”, “Printer setting” and “Device option”, and change the print quality from “Draft” to “Formal”.)
* See “Printer setting” at the back of this document.

PANATERM[®] can not be uninstalled.

PANATERM[®] cannot be uninstalled.

- When your private files exist in PANATERM[®] directory, PANATERM[®] directory can not be eliminated to protect them. Please uninstall PANATERM[®] after you get rid of your private files with "Explorer".

PANATERM[®] malfunctions.

Frequency characteristics cannot be measured. Measurement results are incorrect.

- Redo measurement.

PANATERM[®] responds slowly. It operates slowly.

- Close unused windows. (On the alarm and monitor screens, the computer always communicates with the amplifier, even if the screens are hidden under other windows.)

PANATERM[®] does not respond.

- Press "CTRL", "ALT" and "DEL" keys to call the forced termination screen of the program, and terminate PANATERM[®].

PANATERM[®] suddenly terminated.

- Restart PANATERM[®].

The window is difficult to see because the window overflows the screen.

- On a personal computer having a resolution of 640-by-480.

The window does not open.

- Memory runs short. Quit PANATERM[®] once, terminate applications not in use and restart PANATERM[®].

7. TROUBLESHOOTING

Failure in axis setting

The number of connected amplifiers is different from the number of amplifiers found by the search function.

- Make sure that the ID (RSW) of the amplifier connected to the personal computer is 0 and the IDs (RSWs) of other amplifiers are 1 to F and there is no duplicated ID. Before switching any amplifier ID (RSW), disconnect power from all amplifiers.
- Check that the communication cable is not loose, the cable is not broken, the proper cable is used and the cable is connected.

Supplement

<Printer setting>

Please change the printer setting by using the control of Windows.[®]

Use the printer under the standard setting conditions specified by the printer manufacturer.

If the following printer is used, some tables and charts cannot be printed under the standard printer amplifier setting conditions. Before using the printer, change the amplifier setting.

Canon LBP-2030

- (1) Select “Main” from the property menu of LBP-2030.
 - “Print object” → Set to “Image 3”.

When the following printer is used, part of data will not be printed.

The printer model and unprintable data are shown below.

Canon LBP-220

When frequency characteristics are printed, the cutoff and the cursor cannot be printed.

After-Sale (Repair)

Repair

Consult to a dealer from whom you have purchased the product for details of repair.

When the product is incorporated to the machine or equipment you have purchased, consult to the manufacturer or the dealer of the machine or equipment.

Technical information

Electric data of this product (Instruction Manual, CAD data) can be downloaded from the following web site.

http://industrial.panasonic.com/ww/ie/25000/motor_fa_e/motor_fa_e.html

MEMO (Fill in the blanks for reference in case of inquiry or repair.)

Data of purchase		Model No.	DVOP4460
Dealer			
	Tel: () —		

Motor Company

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7-1-1 Morofuku, Daito, Osaka, 574-0044, Japan

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