

MELSOFT

Programmable Logic Controllers

Operating Manual

**GX Configurator AP Version 1
SW0D5C-AD75P-E**

• SAFETY PRECAUTIONS •

(Always read these instructions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.

The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module User's Manual.


In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the  CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Startup/Maintenance Instructions]

CAUTION

- Before performing the Original Position Return, JOG operation, positioning data or other test in the test mode, read the manual carefully, fully ensure safety, and set the PLC CPU to STOP. Not doing so can damage the machine or cause an accident due to misoperation.

REVISIONS

* The manual number is given on the bottom left of the back cover.

Print Date	* Manual Number	Revision
Mar., 1999	IB (NA)-66900-A	First edition
Jun., 2000	IB (NA)-66900-B	Correction Packing List, Section 12.8.2
Jun., 2001	IB (NA)-66900-C	The product name has been changed to GX Configurator-AP. Correction About the Generic Terms and Abbreviations, Packing List
Aug., 2001	IB (NA)-66900-D	Correction CONTENTS, About the Generic Terms and Abbreviations, Packing List, Chapter 1, Section 2.1, Section 2.2, Section 3.1, Chapter 4 to 6, Section 7.2, Section 8.2, Section 12.4.5, Section 12.11, Appendix 1, INDEX
Nov., 2001	IB (NA)-66900-E	Correction Section 8.2.3, Appendix 2.3, Appendix 2.4
Feb., 2003	IB (NA)-66900-F	New addition SOFTWARE USER REGISTRATION Correction INTRODUCTION, CONTENTS, Section 2.2, Section 4.1, Section 4.2, Section 4.3, Appendix 2.3, Appendix 2.4, INDEX

Japanese Manual Version IB-80031-F

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

— SOFTWARE USER REGISTRATION —

After agreeing to the terms of the Software License Agreement included in the package, please access the MELFANSweb Home Page (<http://www.nagoya.melco.co.jp/>) and make a software user registration. (User registration is free of charge.)

You can also make a registration by faxing or mailing the "Software Registration Card" packed with the product.

1. Software Registration

You can make a software registration by accessing the MELFANSweb Home Page or faxing or mailing the "Software Registration Card" packed with the product.

After you have made a software registration, we will register the user and send the "Software registration confirmation" together with the user ID.

We will also provide the latest information, such as the new product release, version upgrade information and event information, by direct mail.

2. Notes on Contact

Please ask questions concretely and clearly using terms listed in the manual.

When requesting us to solve a problem, provide us with detailed information for reproducing the problem.

In addition, contact the respective manufacturers when asking questions about the operating system (OS) or the other vender's software products

User registration is valid only in Japan.

INTRODUCTION

Thank you for choosing the Mitsubishi MELSOFT Series Integrated FA software.

Read this manual and make sure understand the functions and performance of MELSOFT series thoroughly in advance to ensure correct use.

CONTENTS

SAFETY PRECATIONS	A- 1
REVISIONS	A- 2
SOFTWARE USER REGISTRATION.....	A- 3
INTRODUCTION.....	A- 4
CONTENTS.....	A- 4
About Manuals	A- 8
How to Use This Manual.....	A- 9
About the Generic Terms and Abbreviations	A-11
Packing List	A-11
1. OVERVIEW	1- 1 to 1- 8
1.1 Features	1- 2
1.2 Manual Makeup.....	1- 7
2. SYSTEM CONFIGURATION	2- 1 to 2- 3
2.1 System Configuration.....	2- 1
2.2 Operating Environment.....	2- 3
3. FUNCTION LIST	3- 1 to 3- 3
3.1 Function List	3- 1
4. INSTALLATION AND UNINSTALLATION	4- 1 to 4- 8
4.1 Installation	4- 1
4.2 Uninstallation.....	4- 5
4.3 Starting GX Configurator-AP	4- 7
4.4 Ending GX Configurator-AP.....	4- 8
5. SCREEN MAKEUP AND BASIC OPERATIONS	5- 1 to 5- 4
5.1 Screen Makeup	5- 1
5.2 Basic Operations.....	5- 2

6. PROJECT CREATION	6- 1 to 6-11
----------------------------	---------------------

6.1 Creating a New Project.....	6- 2
6.2 Opening the Existing Project	6- 4
6.3 Saving the Project.....	6- 5
6.4 Deleting the Project.....	6- 6
6.5 Reading the Other Format File (Import file)	6- 7
6.5.1 Reading the SW1*-AD75P format file	6- 7
6.5.2 Reading the CSV format file	6- 8
6.6 Write to Other Format File (Export file)	6-10
6.6.1 Saving in SW1*-AD75P format file.....	6-10
6.6.2 Saving in CSV format file	6-11

7. SYSTEM CHECKING FROM PERIPHERAL DEVICE	7- 1 to 7-16
--	---------------------

7.1 Checking the AD75 Module Version (OS Information).....	7- 2
7.2 AD75P Checking Connect.....	7- 3
7.3 AD75M Servo Starting Up	7- 6
7.3.1 Servo initial check	7- 7
7.3.2 Servo model name check	7- 9
7.3.3 Servo upper/lower limit check.....	7-11
7.3.4 Servo speed check.....	7-14

8. PARAMETER SETTING	8- 1 to 8-12
-----------------------------	---------------------

8.1 Parameters.....	8- 1
8.1.1 Basic parameter 1 setting screen	8- 3
8.1.2 Basic parameter 2 setting screen	8- 4
8.1.3 Extended parameter 1 setting screen	8- 5
8.1.4 Extended parameter 2 setting screen	8- 6
8.1.5 OPR basic parameter setting screen.....	8- 7
8.1.6 OPR extended parameter setting screen.....	8- 8
8.2 Servo Parameters	8- 9
8.2.1 Servo basic parameter setting screen.....	8-10
8.2.2 Servo adjustment parameter setting screen	8-11
8.2.3 Servo extension parameter setting screen.....	8-12

9. SETTING OF POSITIONING DATA AND START BLOCK DATA	9- 1 to 9-14
--	---------------------

9.1 Positioning Data Setting.....	9- 1
9.2 Positioning Data Checking.....	9- 4
9.2.1 Error check	9- 4
9.2.2 Offline simulation.....	9- 6
9.3 Start Block Data Setting.....	9- 8
9.4 Condition Data Setting	9-10
9.5 Indirect Data Setting.....	9-12
9.6 M Code Comment Setting	9-13

10. POSITIONING MODULE DATA WRITE/READ/VERIFY	10- 1 to 10- 5
--	-----------------------

10.1 Write to AD75/Read from AD75/Verify AD75 Data.....	10- 1
10.2 Flash ROM write/read request to AD75	10- 5

11. POSITIONING DEBUGGING	11- 1 to 11-48
----------------------------------	-----------------------

11.1 Monitor.....	11- 2
11.1.1 Monitoring the positioning data/start block data.....	11- 2
11.1.2 Operation monitor (main screen).....	11- 4
11.1.3 History monitor	11- 6
11.1.4 Signal monitor.....	11- 8
11.1.5 Operation monitor (dialog)	11-11
11.1.6 Servo monitor	11-17
11.1.7 Sampling monitor	11-21
11.2 Test.....	11-23
11.2.1 Positioning data-specified operation.....	11-23
11.2.2 Start block data-specified operation	11-28
11.2.3 Positioning start test (Current value change test)	11-31
11.2.4 Speed change test	11-33
11.2.5 OPR test	11-36
11.2.6 JOG operation test.....	11-38
11.2.7 MPG operation test	11-41
11.2.8 Torque control test	11-43
11.3 Position Control Gain Adjustment	11-45
11.4 Servo Off	11-48

12. USEFUL FUNCTIONS	12- 1 to 12-41
-----------------------------	-----------------------

12.1 Useful Functions for Project Execution	12- 1
12.1.1 Verifying the project data	12- 1
12.1.2 Changing the AD75 model after data setting.....	12- 3
12.1.3 Changing the view.....	12- 4
12.2 Edit Functions for Data Setting.....	12- 5
12.2.1 Cut/copy/paste	12- 5
12.2.2 Jump	12- 9
12.2.3 Clearing the rows/columns	12-10
12.2.4 Initializing the data.....	12-11
12.3 Copying the Data	12-12
12.3.1 Copying the data on an axis basis (Axis copy)	12-12
12.3.2 Copying the data on a start block basis (Start block copy).....	12-13
12.4 Auxiliary Functions for Data Input.....	12-14
12.4.1 Parameter initializing wizard	12-14
12.4.2 Servo parameter initializing wizard.....	12-16
12.4.3 Positioning data input auxiliary function	12-18
12.4.4 Start block data input auxiliary function.....	12-19
12.4.5 Registering the servo model names.....	12-20

12.5 GX Configurator-AP Option Function.....	12-23
12.6 Printing the Project Data.....	12-25
12.6.1 Printer setting	12-25
12.6.2 Printing.....	12-26
12.7 Teaching.....	12-30
12.8 Wavy Display.....	12-32
12.8.1 Wavy display condition setting.....	12-32
12.8.2 Wavy display execution	12-34
12.9 Tracks Display.....	12-36
12.9.1 Tracks display condition setting.....	12-36
12.9.2 Tracks display execution.....	12-38
12.10 Initializing the AD75	12-40
12.11 Help	12-41

APPENDICES	Appendix- 1 to Appendix - 6
------------	-----------------------------

APPENDIX 1 SAMPLING MONITOR AND TRACE SCREEN PRINTING PROCEDURE.....	Appendix - 1
APPENDIX 2 COMPARISON OF THE AD75 VERSIONS.....	Appendix - 3
Appendix 2.1 Comparison between AD75P1/2/3 and AD75P1-S3/2-S3/3-S3	Appendix - 3
Appendix 2.2 Comparison between Older and Newer Versions of A1SD75P1-S3/P2-S3/P3-S3 and AD75P1-S3/P2-S3/P3-S3	Appendix - 4
Appendix 2.3 Comparison between Older and Newer Versions of A1SD75M1/M2/M3 and AD75M1/M2/M3	Appendix - 5
Appendix 2.4 Comparison of GX Configurator-AP Versions	Appendix - 5
APPENDIX 3 REFERENCE PROCESSING TIME FOR READ FROM/WRITE TO AD75.....	Appendix - 6

INDEX	Index - 1 to Index - 8
-------	------------------------

Index	Index - 1
Menu-based Index	Index - 6

About Manuals

The following manuals are also related to this product.
In necessary, order them by quoting the details in the tables below.


Related Manuals


Manual Name	Manual Number (Model Code)
Positioning Module Type A1SD75P1-S3/P2-S3/P3-S3, AD75P1-S3/P2-S3/P3 User's Manual Describes the system configuration, performance specifications, functions, handling, pre-operation procedure and troubleshooting of Type A1SD75P1-S3/P2-S3/P3-S3 and AD75P1-S3/P2-S3/P3-S3. (Sold separately)	IB-66716 (13J871)
Positioning Module Type A1SD75M1/M2/M3, AD75M1/M2/M3 User's Manual Describes the system configuration, performance specifications, functions, handling, pre-operation procedure and troubleshooting of Type A1SD75M1/M2/M3 and AD75M1/M2/M3. (Sold separately)	IB-66715 (13J870)
AJ65BT-D75P2-S3 Positioning Module User's Manual Describes the system configuration, performance specifications, functions, handling, pre-operation procedure and troubleshooting of Type AJ65BT-D75P2-S3. (Sold separately)	IB-66824 (13JL46)

CAUTION


- Please note that we do not guarantee the Microsoft® Windows® Operating System corresponding commercially available software products that we introduce.
- The software copyright of this product belongs to Mitsubishi Electric Corporation.
- No part of the contents of this manual may be reproduced or transmitted in any form or by any means without the permission of our company.
- Some part of the contents of this manual may not follow the revisions of the software and hardware.
- In principle, the software of this product should be purchased per computer as a set or under license.
- This product (including the manual) may only be used under the software using agreement.
- Please note that we are not responsible for any influence resulting from the operation of this product (including the manual).
- The contents of this manual are subject to change without notice.


How to Use This Manual

 **PURPOSE**
 Purpose of operation explained in each chapter, section and paragraph.


 **BASIC OPERATION**
 Operation to be performed until the actual operation screen appears.

7.1 Checking the AD75 Module Version (OS Information)

 **PURPOSE**
 Depending on the software version of the AD75 module, the parameters and some functions cannot be used.
 Before setting various data, check the software version of the module on the peripheral device.

 **BASIC OPERATION**

1. Click the [Online] → [OS information] menu.
2. Check the software version in the OS information dialog box.
3. To exit, click the "Close" button.


 **DISPLAY/SETTING SCREEN**

OS information


Current connected unit:

Current OS:

Current version:

 **DISPLAY/SETTING DATA**

Item	Description
Current connected unit	Indicates the model of the AD75 connected.
Current OS	Indicates the OS name of the AD75 connected.
Current version	Indicates the software version of the AD75 connected. The parameters and some functions cannot be used depending on the software version of the AD75. Refer to Appendix 2 for differences between the software versions of the AD75.

 **DISPLAY/SETTING SCREEN**
 Screen used to make setting or provide display for the purpose.

 **DISPLAY/SETTING DATA**
 Explains the display/setting screen items.

In addition, there are also the following explanations.



HELPFUL OPERATION

Describes application operation if there are multiple purposes and the basic operation and display/setting data do not provide enough information.




HELPFUL CORRECTIVE ACTIONS

Explains corrective actions if monitored data is abnormal or a test cannot be made.



Provides information relevant to that page, e.g. the items you should be careful of and the functions you should know.

The following table lists the symbols used in this manual and their definitions.

Symbol	Description
[]	Represents the name of the menu bar. → [] indicates a drop-down menu. Example: [Project] → [New Project] menu
()	Represents the tool button on the toolbar corresponding to the drop-down menu. Example: [Project] → [Save Project] menu ()
" "	Represents the command button in the dialog box. Example: "OK" button
<< >>	Represents the tab in the dialog box. Example: <<Basic Parameter 1>> tab

About the Generic Terms and Abbreviations

The following abbreviations and generic names for type AD75 positioning module software, type AD75 positioning modules, etc. are used in this manual.

Generic Term/Abbreviation	Description
GX Configurator-AP	Generic product name for type SW0D5C-AD75P-E and SW0D5C-AD75P-EA means a multiple license product.
SW1* -AD75P	Abbreviation for type SW11VD-AD75P positioning module software package
AD75P	Generic name for type AD75P1, AD75P2, AD75P3, A1SD75P1, A1SD75P2, A1SD75P3, AD75P1-S3, AD75P2-S3, AD75P3-S3, A1SD75P1-S3, A1SD75P2-S3, A1SD75P3-S3 and AJ65BT-D75P2-S3 positioning modules
AD75M	Generic name for type AD75M1, AD75M2, AD75M3, A1SD75M1, A1SD75M2 and A1SD75M3 positioning modules
AD75	Generic name for positioning modules that may be used with GX Configurator-AP.
Peripheral device	Generic name for personal computers on which GX Configurator-AP may be used.
AD75 User's Manual	Generic name for the following relevant manuals <ul style="list-style-type: none"> Positioning Module Type A1SD75P1-S3/P2-S3/P3-S3, AD75P1-S3/P2-S3/P3 User's Manual Positioning Module Type A1SD75M1/M2/M3, AD75M1/M2/M3 User's Manual AJ65BT-D75P2-S3 Positioning Module User's Manual
Servo amplifier	Generic name for pulse input processing drive units that may be connected to the AD75
Servo motor	Generic name for motors connected to the drive unit (servo amplifier)
Positioning system	Generic name for an equipment set which exercises positioning control, including the positioning module, servo amplifiers, servo motors and external switches
Personal computer	Abbreviation for IBM PC/AT® or compatible DOS/V personal computer
1-license product	Abbreviation for 1-license product of GX Configurator-AP
Multiple-license product	Abbreviation for multiple-license product of GX Configurator-AP

Packing List

The GX Configurator-AP consists of the following products.

Type	Product Name	Quantity
SW0D5C-AD75P-E	GX Configurator-AP Version 1 (1-license product) (CD-ROM)	1
	End-user software license agreement	1
	Software registration card	1
	License agreement	1
SW0D5C-AD75P-EA	GX Configurator-AP Version 1 (Multiple license product) (CD-ROM)	1
	End-user software license agreement	1
	Software registration card	n*1
	License agreement	1

*1 : The same number of software registration cards as that of licenses are packed with the product.

1. OVERVIEW

This manual describes the functions and operating procedures of "GX Configurator-AP" (hereinafter referred to as GX Configurator-AP). GX Configurator-AP is a positioning module software package which can perform the following functions.

- Setting of positioning data and parameters
- Read/write of data from/to positioning module
- Monitoring of positioning control status
- Test operation of positioning control
- Initial operation test of servo amplifiers and motors

GX Configurator-AP can be used with any of the following positioning modules.

Positioning Module Type	Number of control axis		
	Building block type	Compact building block type	CC-Link intelligent device station
1 axis	AD75P1, AD75P1-S3, AD75M1	A1SD75P1, A1SD75P1-S3, A1SD75M1	-
2 axis	AD75P2, AD75P2-S3, AD75M2	A1SD75P2, A1SD75P2-S3, A1SD75M2	AJ65BT-D75P2-D3
3 axis	AD75P3, AD75P3-S3, AD75M3	A1SD75P3, A1SD75P3-S3, A1SD75M3	-

1.1 Features

1

This section explains the features of GX Configurator-AP.

(1) Outstanding operability

- 1) Positioning data and start block data can be cut, copied and pasted efficiently.

[Useful drag range batch setting operation example]

Data No.	Pattern	Control method	Acc [ms]
1	1:CONT	0:No axes	0:1000
2	1:CONT	0:No axes	0:1000
3	1:CONT	0:No axes	0:1000
4	1:CONT	0:No axes	0:1000
5	0:END	0:No axes	0:1000
6	0:END	0:No axes	0:1000

Data No.	Pattern	Control method	Acc [ms]
1	1:CONT	1:ABS Line1	0:1000
2	1:CONT	0:No axes	0:1000
3	1:CONT	0:No axes	0:1000
4	1:CONT	0:No axes	0:1000
5	0:END	0:No axes	0:1000
6	0:END	0:No axes	0:1000

Data No.	Pattern	Control method	Acc [ms]
1	1:CONT	1:ABS Line1	0:1000
2	1:CONT	1:ABS Line1	0:1000
3	1:CONT	1:ABS Line1	0:1000
4	1:CONT	1:ABS Line1	0:1000
5	0:END	1:ABS Line1	0:1000
6	0:END	0:No axes	0:1000

Drag the batch setting range!

Typing "1" sets "1: ABS Line 1" in the top cell!

Pressing the Enter key batch-sets "1: ABS Line 1" in all cells in the dragged range!

- 2) Data created with Microsoft® Excel or Word can be copied and utilized as positioning data.

[Example of utilizing Excel data as positioning data]

Excel worksheet	Address [pls]
12000	12000
21000	21000
24500	24500
30000	30000
19000	19000
52000	52000
44000	44000
39000	39000
17000	17000
12000	12000

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0:1000	0:1000	12000
2	1:CONT	1:ABS Line1	0:1000	0:1000	21000
3	1:CONT	1:ABS Line1	0:1000	0:1000	24500
4	1:CONT	1:ABS Line1	0:1000	0:1000	30000
5	1:CONT	1:ABS Line1	0:1000	0:1000	19000
6	1:CONT	1:ABS Line1	0:1000	0:1000	52000
7	1:CONT	1:ABS Line1	0:1000	0:1000	44000
8	1:CONT	1:ABS Line1	0:1000	0:1000	39000
9	1:CONT	1:ABS Line1	0:1000	0:1000	17000
10	0:END	1:ABS Line1	0:1000	0:1000	12000

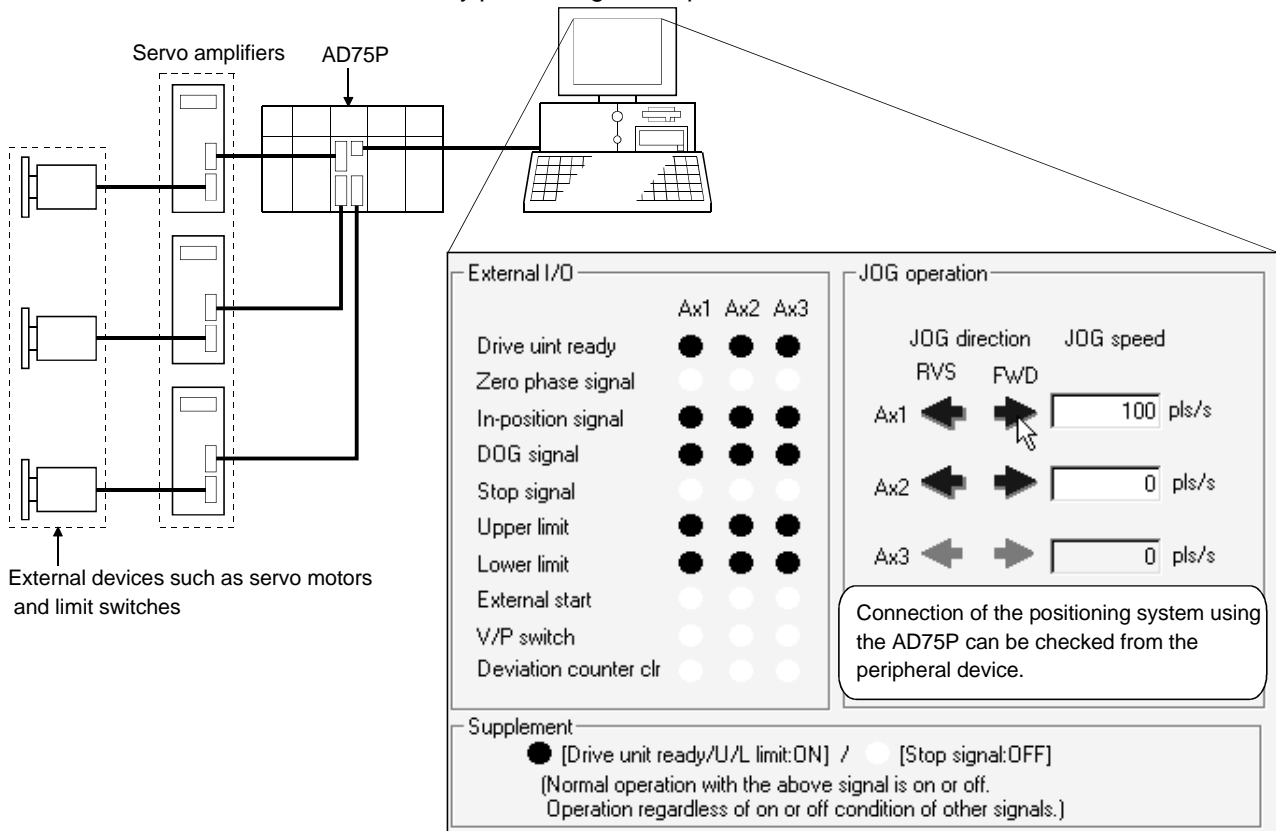
Copy the address data created with Excel !

Choose and paste the utilized data No. column!

(3) Checking connect of general-purpose servo system

In a general-purpose servo system which uses the AD75P(S3) positioning module, the checking connect function of GX Configurator-AP allows the AD75P(S3) to be initialized, I/O signals to/from external devices to be monitored, and JOG operation to be performed.

The connection of the positioning system can be checked by monitoring signals from the external devices, and the rotation directions of servo motors can be checked by performing JOG operation.

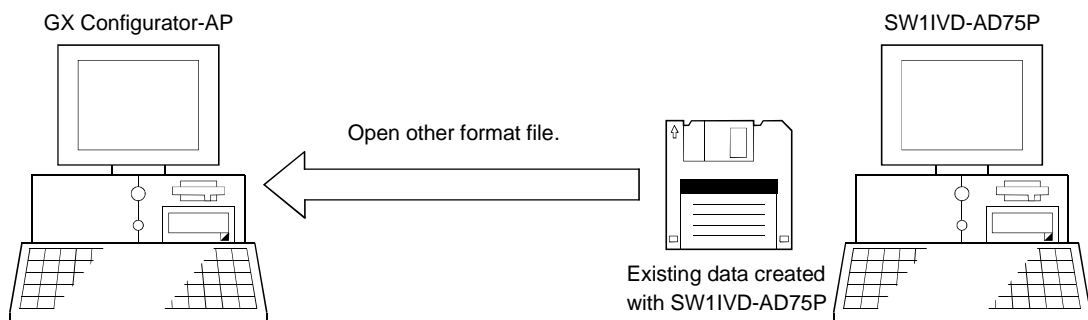


(4) Utilization of SW1RX/IVD/NX-AD75P data

Since the data created with type SW1RX/IVD/NX-AD75P positioning module software package can be utilized on GX Configurator-AP, valuable resources can be used efficiently.

GX Configurator-AP may also be saved as SW1RX/IVD/NX-AD75P format data.

[Data utilization example]



(5) Enhanced functions assist debugging and maintenance

Functions have been enhanced the offline simulation function displays a virtual positioning result which has been calculated from the addresses and command speeds set in positioning data and the monitor function is useful for debugging and maintenance of the positioning system, e.g. sampling monitor which shows the positioning module's I/O signal, external I/O signal and buffer memory states with a line graph.

[Offline simulation example]

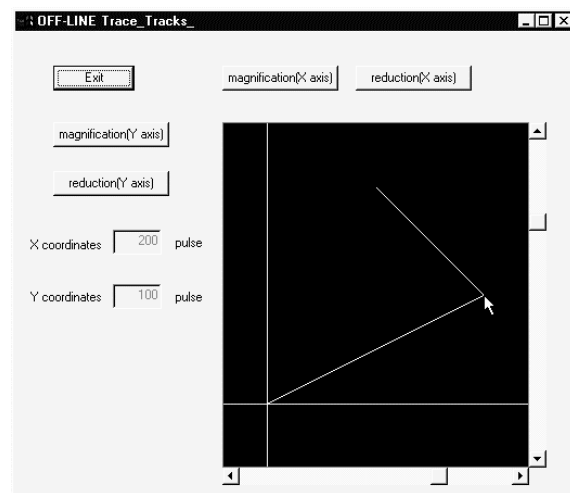
This example assumes that the following positioning data was offline simulated.

Positioning data #1

Data No.	Pattern	Control Method	Address	Command Speed
1	CONT	ABS Line 2	200	150,000 pls/s
2	END	ABS Line 2	100	150,000 pls/s

Positioning data #2

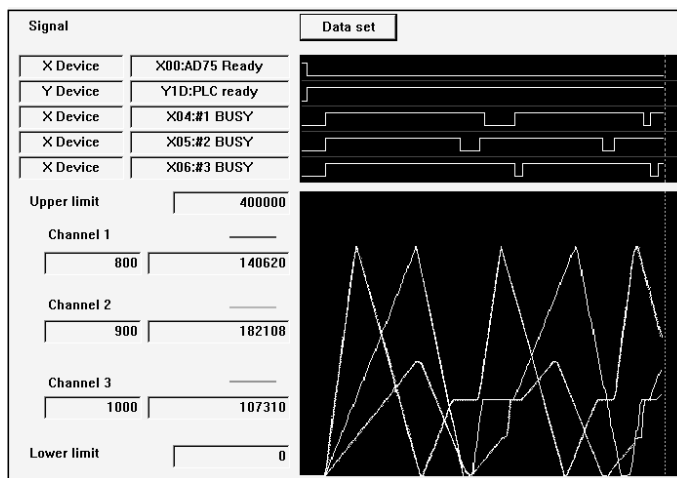
Data No.	Pattern	Control Method	Address	Command Speed
1	-	-	100	-
2	-	-	200	-



2-axis interpolation simulation screen

Locus data is displayed for 2-axis interpolation control. Waveform data of speed is displayed for 1-axis control. When positioning data is set, offline simulation allows you to pre-assume axis operation in advance, reducing debugging time.

[Sampling monitor example]



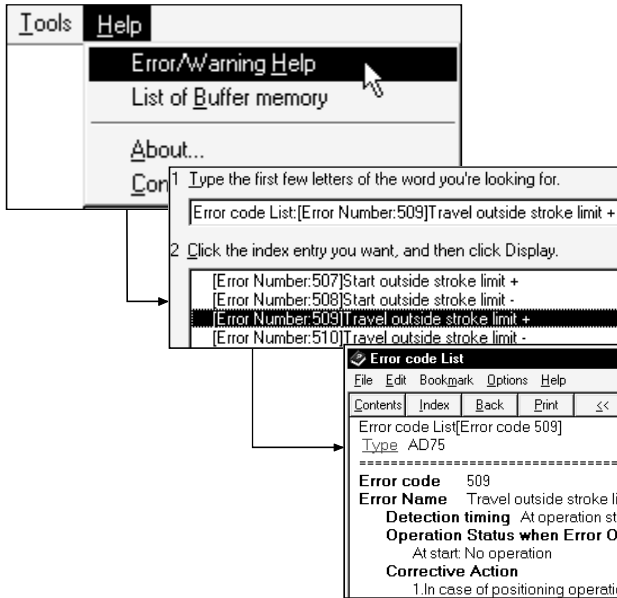
Out of AD75's I/O signals, external I/O signals and status signals, up to 5 points can be monitored.

In a line graph, up to 3 points can be monitored from buffer memory.

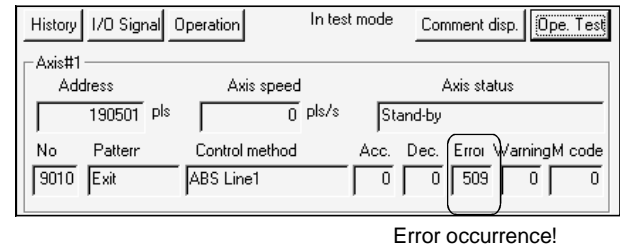
(6) Real-time checking of error and warning factors

With the online help function, you can instantaneously check the occurrence factor and corrective action of the error or warning code displayed on the operation monitor, error history monitor or other screen of the positioning system.

<Online help function>



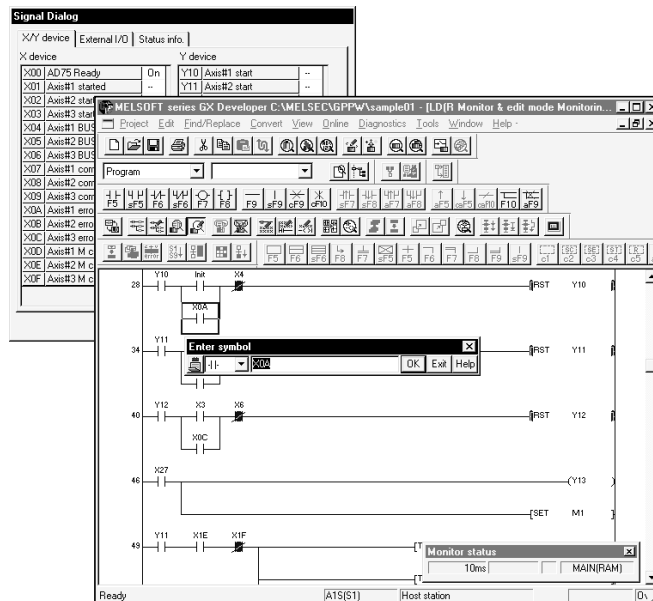
<Operation monitor>



(7) Simultaneous start of GX Configurator-AP and GX Developer

GX Configurator-AP can be started simultaneously with the GX Developer. (Two COM ports are required to make communication with the PLC CPU and positioning module at the same time.)

[Example of starting GX Configurator-AP and GX Developer simultaneously]



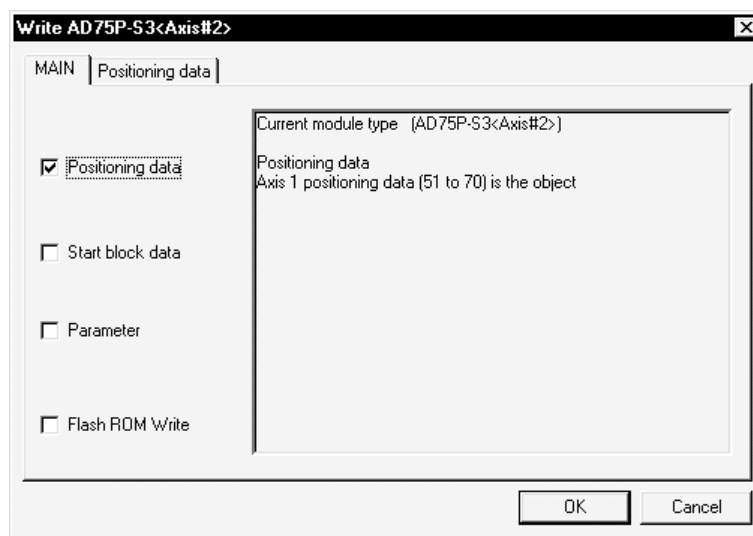
(8) Read from AD75/write to AD75/verify AD75 data can be performed axis-by-axis on a data basis

GX Configurator-AP allows each of the positioning data, start block data and parameters to be specified as the object of read from AD75/write to AD75/verify AD75 data axis-by-axis.

Further, positioning data can be specified on a data No. basis, and block No. 0 of start block data can be specified independently.

Hence, during debugging when data is written frequently for modification, wasteful waiting time is greatly reduced to improve working efficiency.

[Write range is set to 2-axis positioning data No. 51 to 70]



1.2 Manual Makeup

This manual is made up of 12 chapters and appendices.

This manual assumes that GX Configurator-AP is used to perform steps from positioning system connection checking to operation in the following procedure.

<Sequence of steps taken by the user up to positioning system operation>

Step 1: Install and wire the positioning system.	Refer To
<ul style="list-style-type: none"> • Install and wire the PLC (such as the PLC CPU, positioning module and I/O modules), servo amplifiers, motors, external switches and other external devices. 	AD75 User's Manual



Step 2: Check the GX Configurator-AP functions and learn the basic operation.	Refer To
<ul style="list-style-type: none"> • Check the system with which GX Configurator-AP can be used. 	Chapter 2
<ul style="list-style-type: none"> • Check the functions that can be performed by GX Configurator-AP. 	Chapter 3
<ul style="list-style-type: none"> • Install GX Configurator-AP in the peripheral device and start the program. 	Chapter 4
<ul style="list-style-type: none"> • Learn the GX Configurator-AP screen makeup and basic operation. 	Chapter 5



Step 3: Start operation of GX Configurator-AP.	Refer To
<ul style="list-style-type: none"> • Create a project which will be the object of operation performed on GX Configurator-AP. 	Chapter 6



Step 4: Check the connection and initial operation of the positioning system.	Refer To
<ul style="list-style-type: none"> • Check the version of the positioning module. 	Chapter 7
<ul style="list-style-type: none"> • Check connection according to the signal states from the external devices. 	
<ul style="list-style-type: none"> • Check the alarm or warning of the positioning module. 	
<ul style="list-style-type: none"> • Check the alarm or warning of the servo amplifiers (AD75M only) 	
<ul style="list-style-type: none"> • Check that the initial settings are the same on the peripheral device and servo amplifiers. (AD75M only) 	
<ul style="list-style-type: none"> • Check that the servo motors are run by JOG operation. 	
<ul style="list-style-type: none"> • Check that the upper/lower limit, DOG and zero point signals turned on/off by JOG operation. (AD75M only) 	
<ul style="list-style-type: none"> • Check that the servo motor speed does not exceed the maximum speed. (AD75M only) 	



(To the next page)

(From the preceding page)



Step 5: Set and write data to the positioning module.	Refer To
<ul style="list-style-type: none"> • Set the parameters appropriate for the positioning system and control. 	Chapter 8
<ul style="list-style-type: none"> • Set the servo parameters appropriate for the specifications of the servo amplifiers and motors used. 	
<ul style="list-style-type: none"> • Set the positioning data. 	Chapter 9
<ul style="list-style-type: none"> • Check the parameter, positioning data and start block data settings on the error check screen. 	
<ul style="list-style-type: none"> • Check the positioning data on the offline simulation (virtual positioning) screen. 	
<ul style="list-style-type: none"> • Make the corresponding setting if start block data, condition data, indirect data or M code comment is required. 	Chapter 10
<ul style="list-style-type: none"> • Write the set data to the positioning module. 	



Step 6: Perform test operation and check and adjust the settings.	Refer To
<ul style="list-style-type: none"> • Check positioning control and test on the monitor screen. 	Chapter 11
<ul style="list-style-type: none"> • Specify the positioning data and perform test operation. 	
<ul style="list-style-type: none"> • Specify the start block data and perform test operation. 	
<ul style="list-style-type: none"> • Make software limit test and error compensation by current value change, JOG operation or manual pulse generator operation. 	
<ul style="list-style-type: none"> • Perform original position return test. 	
<ul style="list-style-type: none"> • Perform speed change test to find proper speed. 	
<ul style="list-style-type: none"> • If motor torque is not proper, perform torque control test to change the setting. 	
<ul style="list-style-type: none"> • Check undershoot, settling time and oscillation width in the test of position control gain 1 of servo parameters. (AD75M only) 	

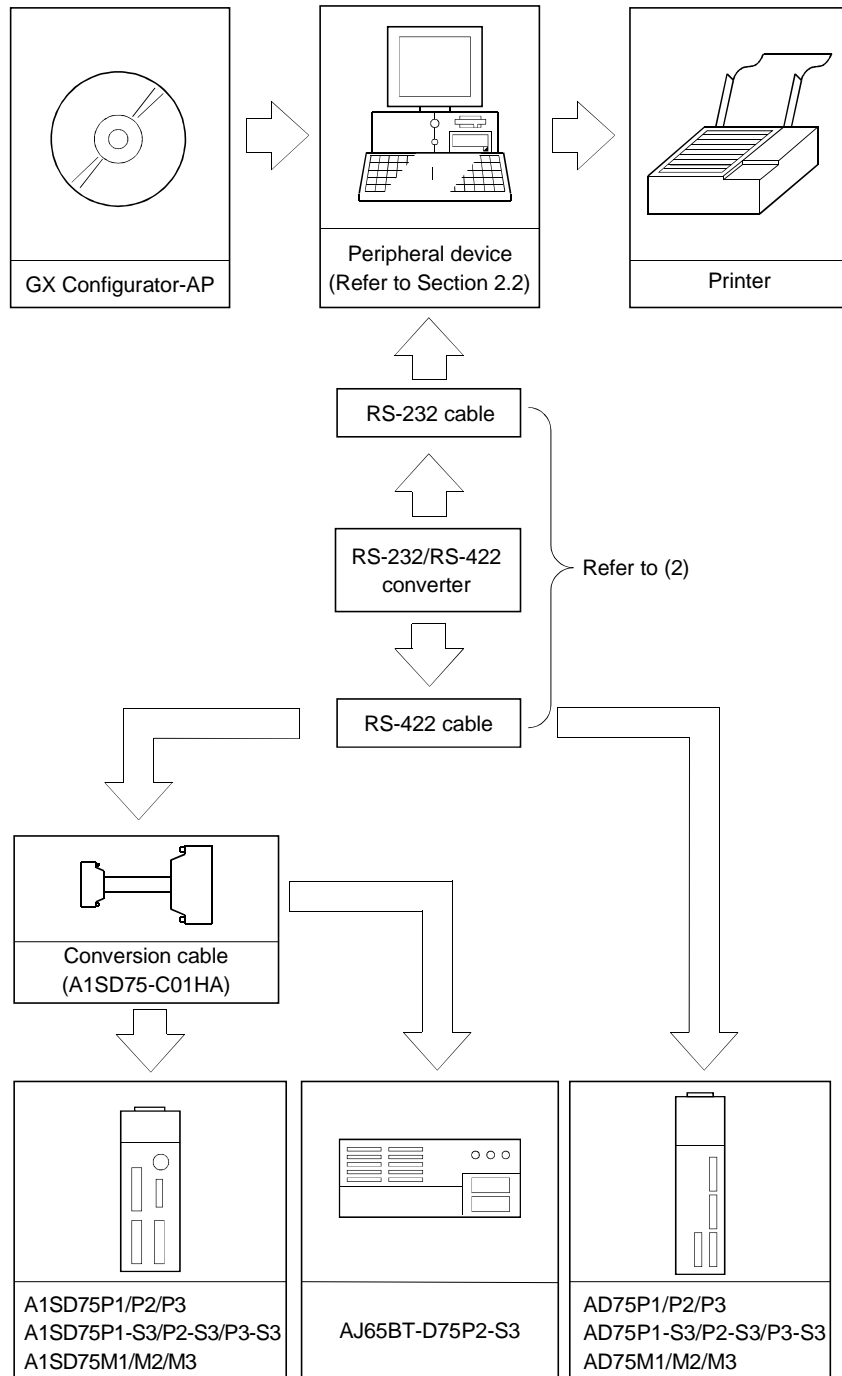


Step 7: Positioning system operation.	Refer To
<ul style="list-style-type: none"> • Operate the positioning system with the PLC CPU program. 	AD75 User's Manual

2. SYSTEM CONFIGURATION

2.1 System Configuration

(1) Overall configuration of this system



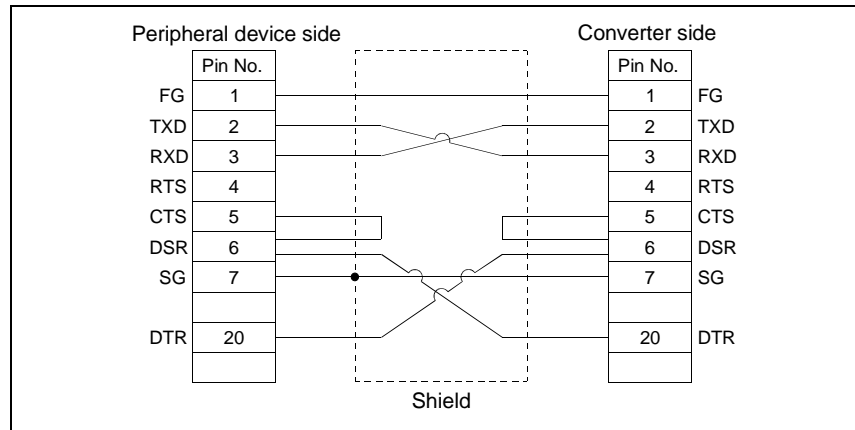
(2) About the RS-232 cable

For use of the FX-232AW(C) (Mitsubishi Electric make)



*1: A conversion connector is required if the peripheral device has a 9-pin connector.

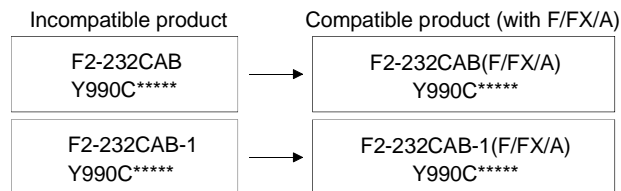
RS-232 cable wiring



The following products of RS-232 and RS-422 cables are recommended.

Cable	Maker
FX-232AW(C) (RS-232/RS-422 converter)	Mitsubishi Electric
F2-232CAB*2 (when peripheral device has D-sub 25-pin connector)	
F2-232CAB-1*2 (when peripheral device has D-sub 9-pin connector)	
FX-422CAB	

*2: To identify compatible products, check the type indicated on the cable's type label.



2.2 Operating Environment

The operating environment of GX Configurator-AP is indicated below.

Item	Description
Peripheral device	Personal computer on which Windows® operates.
Computer main unit	Refer to the following table "Used operating system and performance required for personal computer".
CPU	
Required memory	
Hard disk free space	10MB or more
Disk drive	CD-ROM disk drive
Display	800 × 600 dot or more resolution*
Operating system	Microsoft® Windows® 95 Operating System (English version) Microsoft® Windows® 98 Operating System (English version) Microsoft® Windows® Millennium Edition Operating System (English version) Microsoft® Windows NT® Workstation Operating System Version 4.0 (English version) Microsoft® Windows® 2000 Professional Operating System (English version) Microsoft® Windows® XP Professional Operating System (English version) Microsoft® Windows® XP Home Edition Operating System (English version)

*: When Windows® XP Professional or Windows® XP Home Edition is used, Large Fonts are not supported.

Used operating system and performance required for personal computer

Operating system		Performance Required for Personal Computer	
		CPU	Required memory
Windows® 95 (Service Pack 1 or more)		Pentium® 133MHz or more	32MB or more
Windows® 98		Pentium® 133MHz or more	32MB or more
Windows® Me		Pentium® 150MHz or more	32MB or more
Windows NT® Workstation 4.0 (Service Pack 3 or more)		Pentium® 133MHz or more	32MB or more
Windows® 2000 Professional		Pentium® 133MHz or more	64MB or more
Windows® XP Professional	"XP compatibility mode" and "Fast User Switching" are not supported.	Pentium® 300MHz or more	128MB or more
Windows® XP Home Edition		Pentium® 300MHz or more	128MB or more

3. FUNCTION LIST

3.1 Function List

(1) Function list

GX Configurator-AP functions are listed below mode-by-mode.

Mode	Main Screen	Function	Description	
Edit	Parameter	Parameter setting	Set the basic parameters1, basic parameters2, extended parameters1, extended parameters2, OPR basic parameters and OPR extended parameters on an axis basis.	
	Servo parameter (AD75M only)	Servo parameter setting	Set the servo basic parameters, servo adjustment parameters and servo extension parameters on an axis basis.	
	Positioning data axis #1 Positioning data axis #2 Positioning data axis #3	Positioning data setting	Positioning data setting	Set the positioning data, such as pattern, control method, accel/decel time and address, on an axis basis.
		Positioning data monitor	Positioning data monitor	Monitor the positioning data during execution on an axis basis.
		Positioning data test	Positioning data test	Perform test operation of positioning control on an axis or positioning data basis.
		Teaching	Teaching	Set the feed address of the moved axis to the address of positioning data by JOG operation or the like.
		M code comment setting	M code comment setting	Set comments to the M codes assigned to the positioning data on an axis basis.
		Offline simulation	Offline simulation	Assume axis operation from the set positioning data on an axis basis.
		Start block axis #1 Start block axis #2 Start block axis #3	Start block data setting	Start block data setting
	Start block data monitor		Start block data monitor	Monitor the point at which positioning control is being executed on an axis basis.
	Start block data test		Start block data test	Perform test operation of positioning control from the point of the specified block on an axis basis.
	Condition data setting		Condition data setting	Set the data which is used as the starting condition of the start block data on an axis basis.
	Indirect data setting		Indirect data setting	Set the positioning data numbers set to the indirect designating buffer memory of the AD75 on an axis basis.
	Monitor	Operation monitor (test)	Operation monitor (main screen)	Monitor the operating states, such as addresses, axis speeds, axis statuses and executed positioning data numbers, of all axes.
			History monitor	Monitor the error, warning, start or error-time start history of all axes.
Signal monitor			Monitor the X/Y devices, external signals or status signals of all axes.	
Operation monitor (dialog)			Monitor the control states, AD75 parameter settings or others of all axes.	
Servo monitor			Monitor the servo amplifier and servo motor states of all axes.	
Operation test			Test the positioning data number-specified start, current value change, speed change, original position return, JOG operation and manual pulse generator operation of all axes.	

3

Mode	Main Screen	Function	Description
Monitor	Sampling monitor	Sampling monitor	Monitor the specified signals and buffer memory data while simultaneously sampling them.
Diagnosis	AD75P checking connect (AD75P only)	AD75P checking connect	Display signals from external devices. Also test initial operation by JOG operation.
	AD75M servo starting up (AD75M only)	Initial check	Monitor the error/warning history of the AD75M or servo amplifiers.
		Module name check	Compare the servo parameters read from the servo amplifiers to the AD75M with the servo parameters on the peripheral device.
		Upper/lower limit check	Judge the upper and lower limit switch operations by JOG operation.
		RPM check	Display the motor speeds for JOG operation and the motor speeds set to the servo basic parameters.
AD75M position control gain (AD75M only)	AD75M position control gain	Adjust the servo motor characteristics such as response level and settling time.	
Trace*1	Wavy display	Wavy display	Trace the specified data (position instruction, servo motor speed, etc.) for a given time and display the waveform data relative to the time axis.
	Tracks displays	Tracks displays	Trace the position command or real value for a given time and display the track data of the axes.

*1 The following positioning modules do not have the trace mode.

- AD75P1/P2/P3
- A1SD75P1/P2/P3

(2) Menu list

The menu bar drop-down menus are listed below.

- Project
 - New Project
 - Open Project
 - Save Project
 - Save as Project
 - Delete Product
 - Verify Project
 - Import file
 - File reading of SW1RX/IVD/NX-AD75P
 - File reading of CSV form positioning data
 - File reading of trace data
 - Export file
 - File writing of SW1RX/IVD/NX-AD75P
 - File writing of CSV form positioning data
 - File writing of trace data
 - Change AD75 model
 - Print
 - Printer setup
 - Latest file
 - Exit
- Edit
 - Cut
 - Copy
 - Paste
 - Select all
 - Jump
 - Clear row
 - Clear column
 - Axis copy
 - Start block copy
 - Positioning data input
 - Start block data input
 - Parameter data input
 - Servo parameter
 - M code comment
 - Condition data edit
 - Indirect data edit
 - Offline simulator
- View
 - Toolbar
 - Project toolbar
 - Edit toolbar
 - Online toolbar
 - Status bar
 - Change menu
 - Move upward
 - Select Axis
 - Axis #1
 - Axis #2
 - Axis #3
 - Select start block
 - Edit property dialog
 - Large Icons
 - Small Icons
 - List view
 - Detailed view
- Online
 - Read from AD75
 - Write to AD75
 - Verify AD75 data
 - OS information
 - Flash-ROM request
 - Initialize AD75
 - Monitor
 - Monitor start
 - History monitor
 - Signal monitor
 - Operation monitor
 - Servo monitor
 - Test
 - Test start
 - Start condition
 - Operation Test
 - Teaching
 - All axis On/Off
 - Designate Off
 - Designate #1 Off
 - Designate #2 Off
 - Designate #3 Off
 - Error Reset
 - Error Reset #1
 - Error Reset #2
 - Error Reset #3
 - M code Off
 - M code #1 Off
 - M code #2 Off
 - M code #3 Off
- Tool
 - Initialize data
 - Initialize parameter
 - Initialize servo parameter
 - Register servo name
 - Error check
 - Option
- Help
 - Error/Warning Help
 - List of Buffer memory
 - About
 - Connection to MELFANSweb

4. INSTALLATION AND UNINSTALLATION

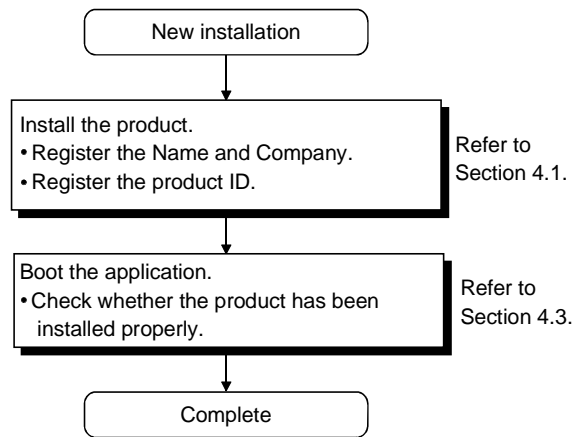
This chapter describes how to install and uninstillation of GX Configurator-AP.

4.1 Installation

This section explains the installation procedure and operation of GX Configurator-AP.

(1) Installation procedure

Install GX Configurator-AP in the following procedure.



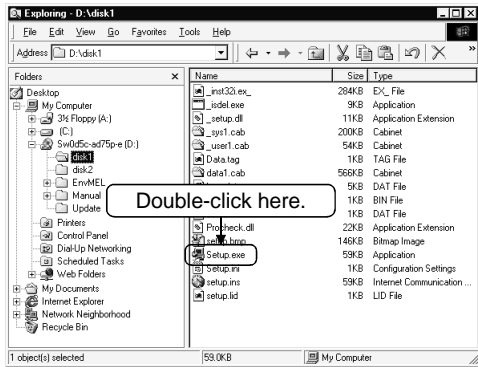
(2) Installation operation

Check the following before starting installation.

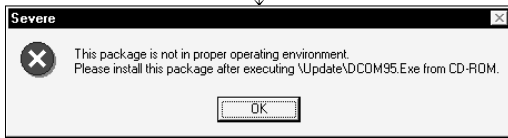


- Before starting installation, close all other applications that are running on Microsoft® Windows® Operating System.
- When using Windows® XP Professional, Windows® XP Home Edition, Windows® 2000 Professional or Windows NT® Workstation 4.0, logon as a user who has the attributes of an administrator (for computer management).

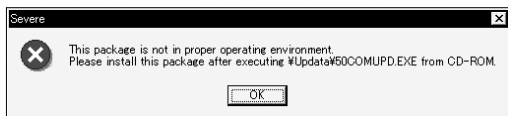
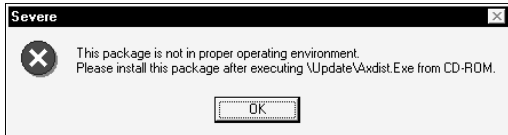
(a) Installing the product (The screen is that of Windows® 98.)



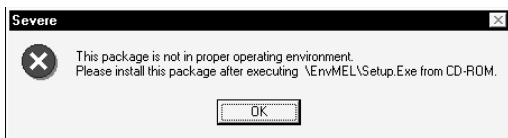
- 1) Boot Windows® Explorer and click the drive where the disk is inserted.
Double-click "Setup.exe".
To display Windows® Explorer, choose [Start] - [Programs] - [Windows Explorer].



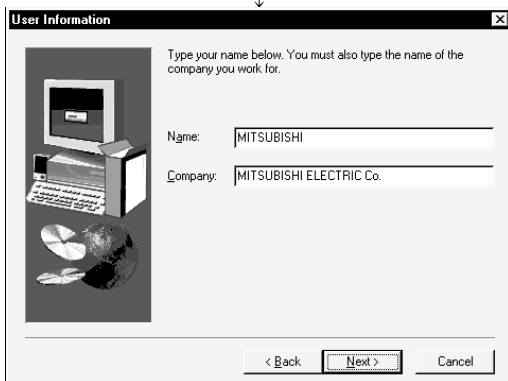
- 2) If either of the left screens appears, perform operation in accordance with the instructions given in (b).
After the operation is over, restart installation operation.



If the left screen appears, perform operation in accordance with the instructions given in (c).
After the operation is over, restart installation operation.



If the left screen appears, perform operation in accordance with the instructions given in (d).
After the operation is over, restart installation operation.



- 3) Type the name and company, and click **Next>**.
As the confirmation dialog box appears, follow the message and perform operation.

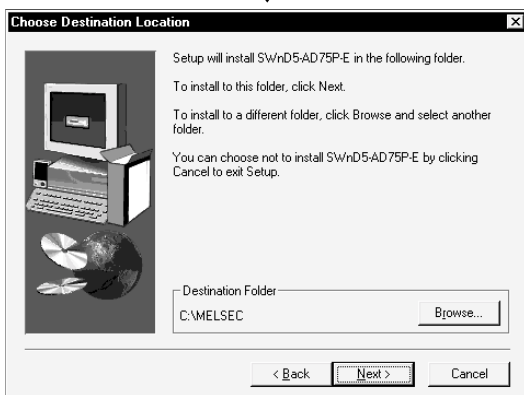
(To next page)

4

(From preceding page)



- 4) Enter the product ID and click **Next>**.
The product ID is given in the "Software Registration Card" packed with the product.



- 5) Specify the installation destination folder.
Click **Next>** if the destination folder displayed is OK.
To change the folder, click **Browse** and specify a new drive and folder.



- 6) This completes installation.
Click **OK**.

(b) Installation of dcom95.exe or Axdist.exe

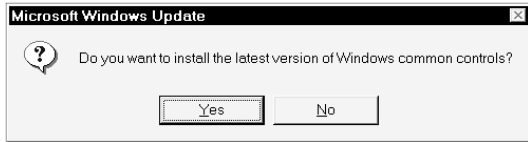
This section explains the updating operation of Windows® using "Update\dcom95.exe" or "Update\Axdist.exe" on the CD-ROM. Execute dcom95.exe or Axdist.exe provided for GX Configurator-AP. Install GX Configurator-AP after executing the exe file and restarting the IBM-PC/AT compatible. The exe file to be executed on the corresponding operating system is indicated below.

OS	File name
Microsoft® Windows® 95 Operating System	dcom95.exe
Microsoft® Windows® 98 Operating System	Axdist.exe
Microsoft® Windows NT® Workstation Operating System Version 4.0	Axdist.exe

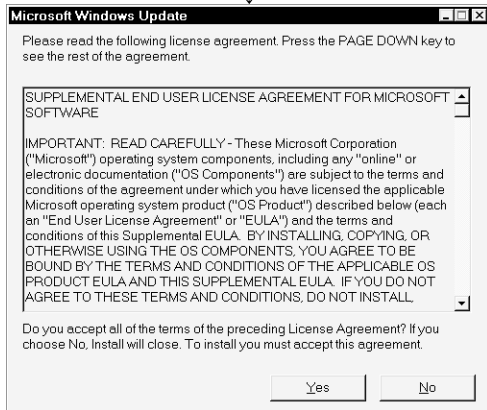
(dcom95.exe and Axdist.exe are in the "Update" folder on CD-ROM.)

(c) Installation of 50comupd.exe

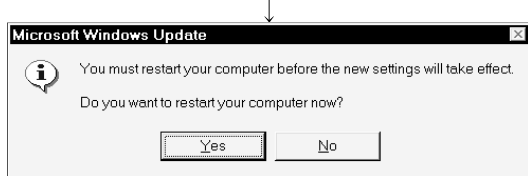
This section explains the updating operation of Windows® using "Update\50comupd.exe" on the CD-ROM.



1) Click the **Yes** button to start updating Windows.



2) Accept the agreement on the left screen and click the **Yes** button.



3) Click **Yes** to restart.
After a restart, perform the installation operation in (a).

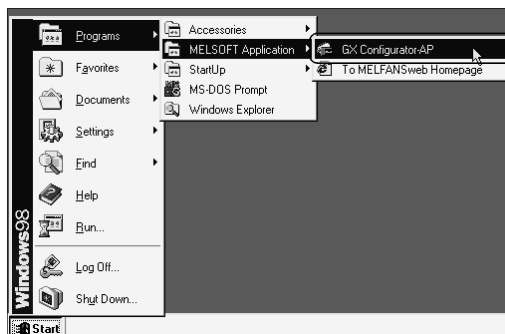
(d) Installation of EnvMEL

Execute Setup.exe in the "EnvMEL" folder on this product CD-ROM. Install GX Configurator-AP after executing the "Setup exe".

*: After executing the above exe file, install the product again. If this product is not installed properly at this time, reboot the personal computer.

(e) Registered icon

The following icon is registered by installing GX Configurator-AP.



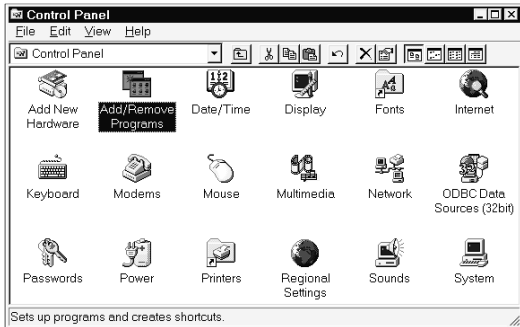
REMARK

When Windows® XP Professional or Windows® XP Home Edition is used, the icons are registered to [Start] - [All Programs] - [MELSOFT Application].

4.2 Uninstallation

This section provides the operation to delete GX Configurator-AP from the hard disk.

Uninstalling the GX Configurator-AP

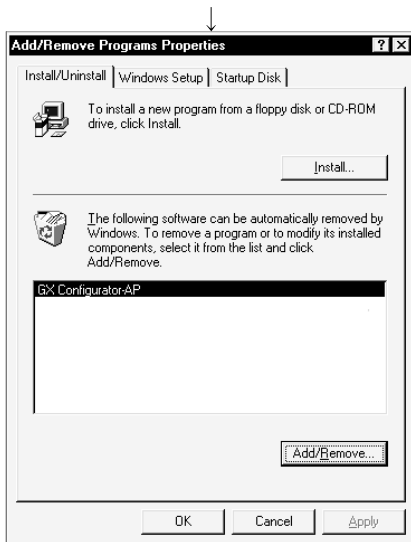


- 1) Choose and double-click "Add/Remove Programs" in the Control Panel.
To display the Control Panel, choose [Start] - [Setting] - [Control Panel].

REMARKS

When using Windows® XP Professional or Windows® XP Home Edition, choose "Add or Remove Programs" from the Control Panel.

To display the Control Panel, choose [Start] - [Control Panel].



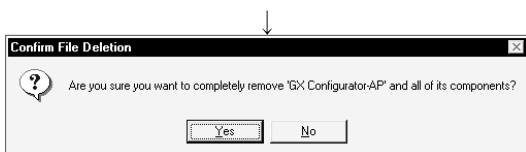
- 2) Choose "GX Configurator-AP".
After making selection, click **Add/Remove**.

REMARKS

The screen shown on the left is that of Windows® 98. The displayed screen varies with the OS.

When using Windows® 2000 Professional, Windows® XP Professional and Windows® XP Home Edition, perform the following operation.

- (a) Click "Change/Remove Programs".
- (b) Click "GX Configurator-AP".
- (c) Click the "Change/Remove".

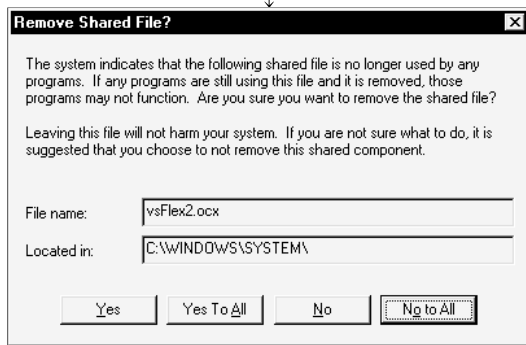


- 3) Confirm that GX Configurator-AP may be removed.
When uninstalling the program, click the "Yes" button to start uninstallation.
When not executing uninstallation, click the "No".button to return to the previous screen.

*Components indicate the installed icon files.

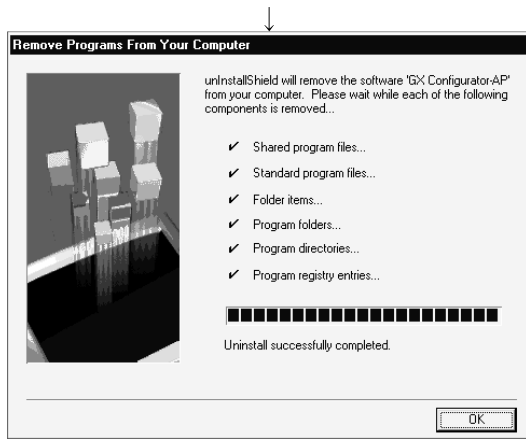
(To next page)

(From preceding page)



4) If the left screen has appeared, click the "No To All" button.

If you click the "Yes" or "Yes To All" button, the shared file of the Windows® compatible MELSOFT software is removed. Therefore, click the "No To All" button when removing GX Configurator-AP only.



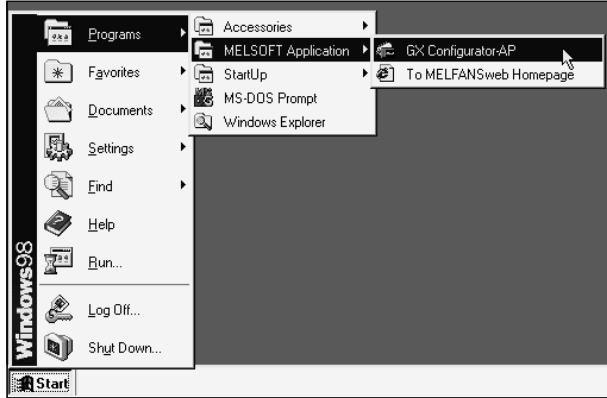
5) Click the "OK" button if the "Uninstall successfully completed" message appears.

* If a warning appears for the files that were not removed, open "Explorer", click the files, and remove unnecessary files.

Note that if you remove necessary files accidentally, the other applications may not be booted.

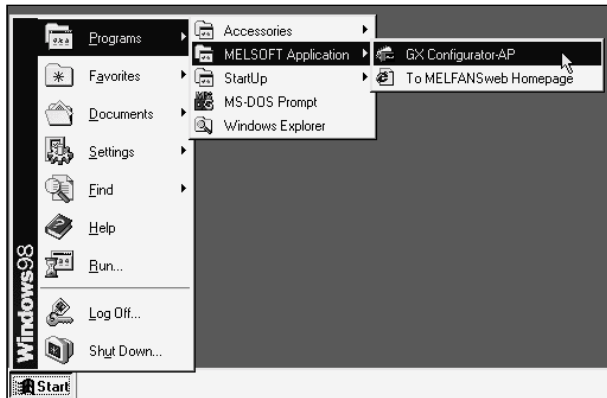
4.3 Starting GX Configurator-AP

This section provides how to start GX Configurator-AP in the start menu.

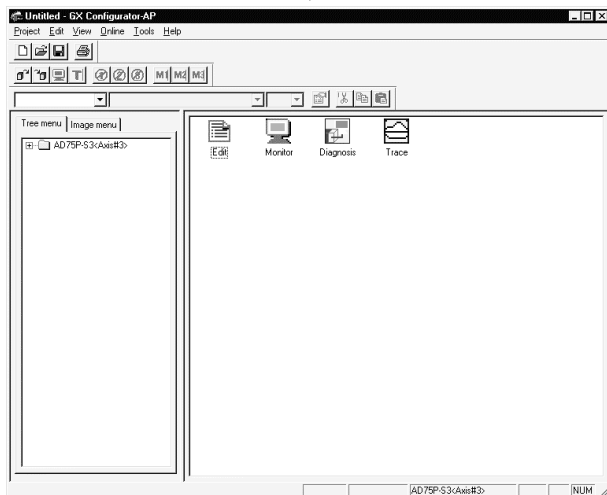


1) Click the Windows® "Start" button and move the cursor to [Programs*] → [MELSOFT application].

*: [All Programs] appears when using Windows® XP Professional or Windows® XP Home Edition.



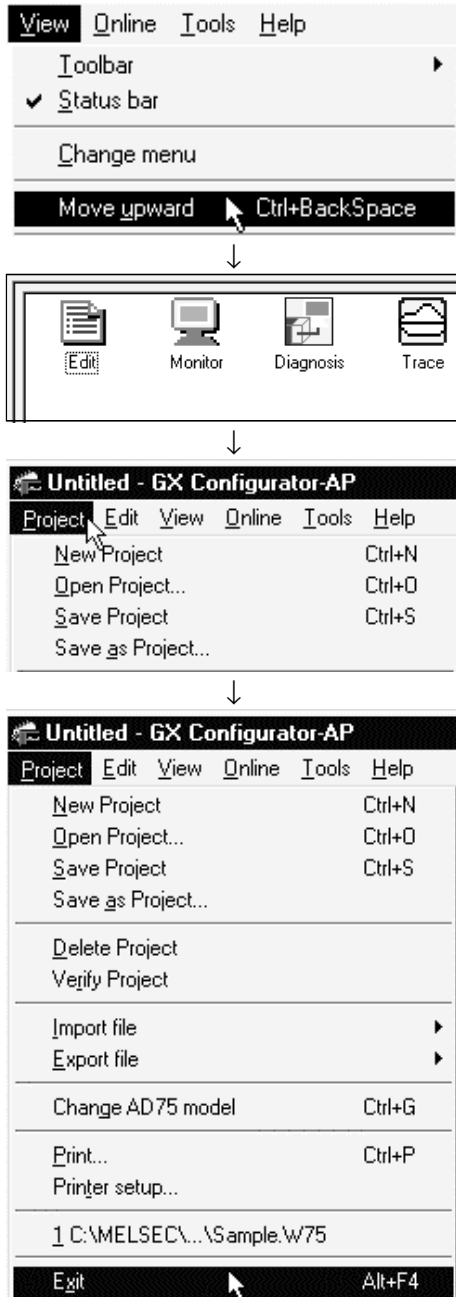
2) Click [GX Configurator-AP].



3) GX Configurator-AP starts.

4.4 Ending GX Configurator-AP

This section describes how to end GX Configurator-AP in the project menu.



1) Click the [View] → [Move upward] menu.

2) Change the main screen to the icon display status.

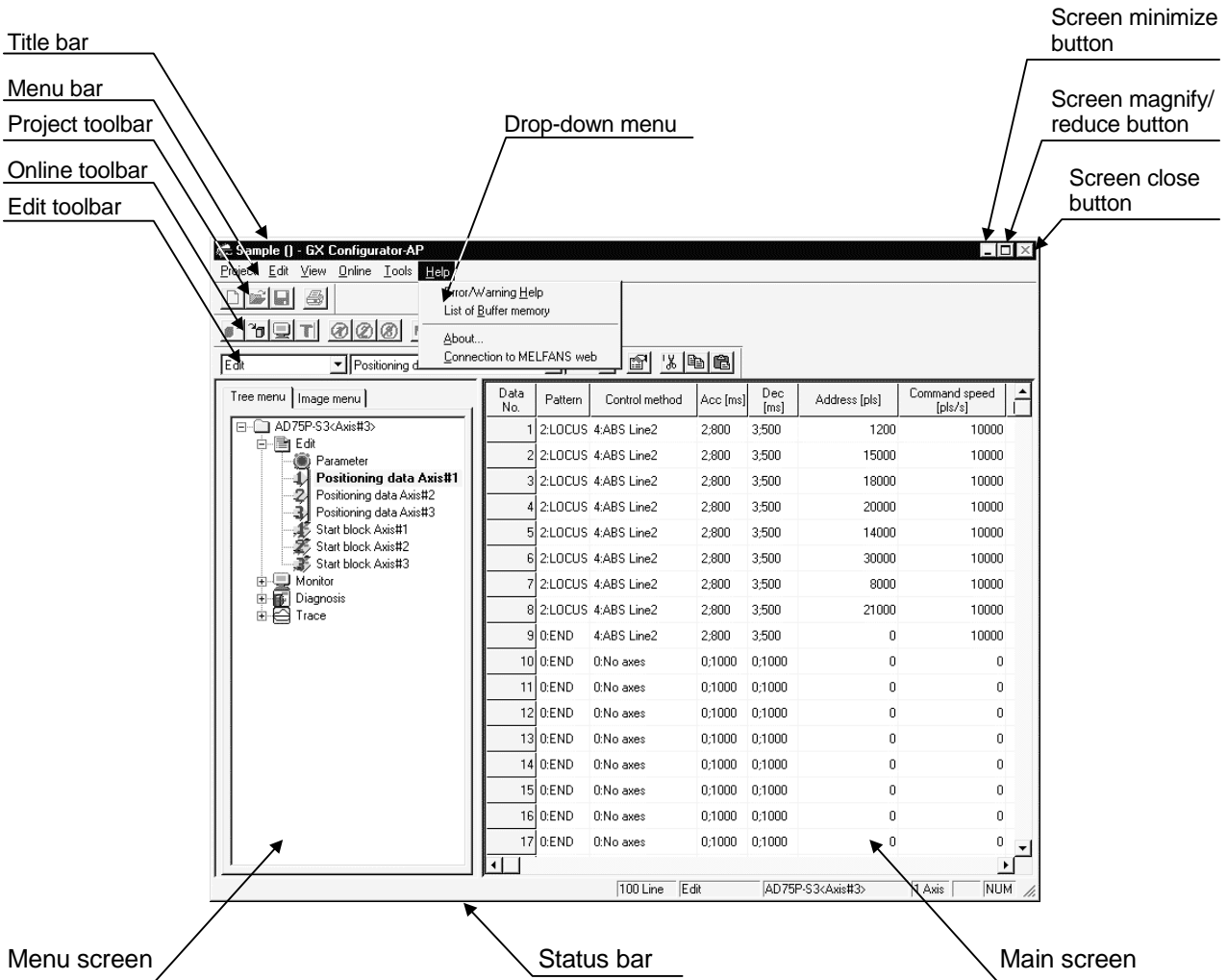
3) Click the [Project] menu on the menu bar.

4) Click the [Exit] menu.
 GX Configurator-AP ends.

5. SCREEN MAKEUP AND BASIC OPERATIONS

5.1 Screen Makeup

This section provides the screen makeup and various tools of GX Configurator-AP.

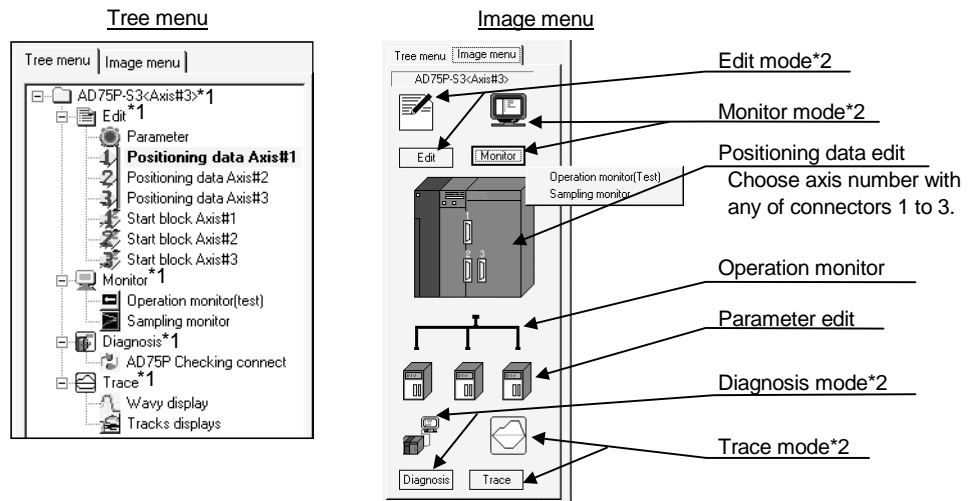


5

5.2 Basic Operations

(1) Menu screen

The menu screen is used to choose the mode and main screen type. There are tree and image menu screens, either of which can be selected by clicking the corresponding tab, <<Tree menu>> or <<Image menu>>.



5

- *1 Double-clicking the unit model name (AD75P-S3 <Axis #3> in the above example) displays the menu of the mode selected on the main screen with an icon.
- *2 Clicking the icon provides the same operation results as in *1. Displaying the command box lists the menu items of the chosen mode. The above diagram shows a display example provided when you click [Monitor].

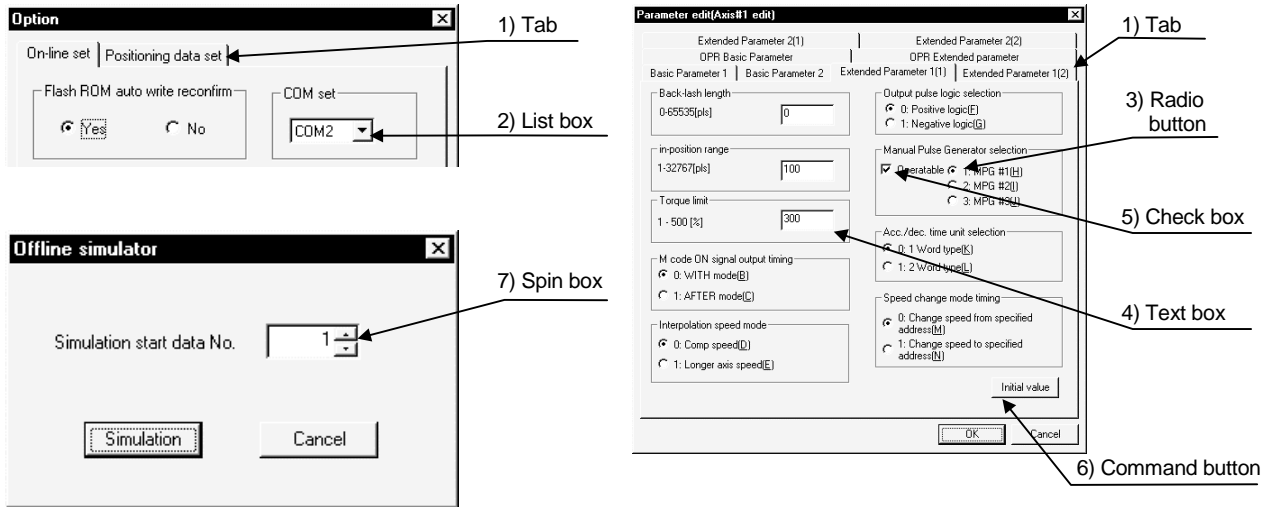
Remarks

Use the "F6" key to move the cursor from the main screen to the menu screen through the keyboard. To move the cursor from the menu screen to the main screen, move the cursor to the <<Tree menu>>/<<Image menu>> tab on the menu screen and press the "F6" key.

Point

Operations described in Chapter 6 and later are those selected from the tree menu. When performing any operation from the image menu, confirm the above explanation before starting the operation.

(2) Basic operation for dialog boxes



- 1) Tab
Click the setting item name to select.
- 2) List box
Click to list choices, then click the item to be chosen.
- 3) Radio button
Click to choose one from among more than one selection item.
- 4) Text box
Type characters.
- 5) Check box
To execute any item, click to check it off.
- 6) Command button
Click this button when executing "OK", "Cancel" or the like, or when displaying the dialog box.
- 7) Spin box
Used either to type a value directly or to change a value by clicking .
When typing a value directly, click inside the spin box and enter the value from the keyboard.
When clicking to change a value, click to increase the value, or click to decrease.










Remarks

When performing operation from the keyboard, choose the setting item with the "Tab" key.

When there are two or more choices, use the "←", "→", "↑" and/or "↓" key.

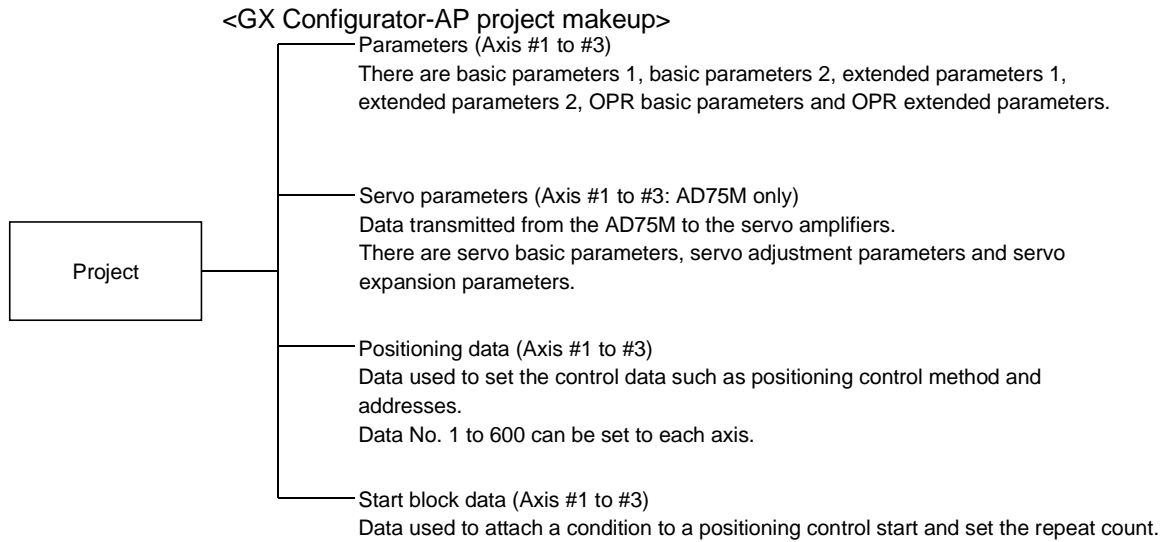
(3) Shortcut key list

The following shortcut keys can be used on GX Configurator-AP.

Shortcut Key	Function (Corresponding Menu Item)	Tool Button	Shortcut Key	Function (Corresponding Menu Item)	Tool Button
Ctrl + N	New Project		Ctrl + 1	Select Axis #1	-
Ctrl + O	Open Project		Ctrl + 2	Select Axis #2	-
Ctrl + S	Save Project		Ctrl + 3	Select Axis #3	-
Ctrl + P	Print		Ctrl + B	Select start block	-
Alt + F4	Exit	-	Ctrl + T	Write to AD75	
Ctrl + X	Cut		Ctrl + M	Monitor start	
Ctrl + C	Copy		Alt + 1	History Monitor	-
Ctrl + V	Paste		Alt + 2	Signal Monitor	-
Ctrl + A	Select all	-	Alt + 3	Operation Monitor	-
Ctrl + J	Jump	-	Alt + 4	Servo Monitor	-
Ctrl + Y	Clear row	-			
Ctrl + Backspace	Move upward	-			

6. PROJECT CREATION

A project is a collection of parameters, servo parameters (AD75M only), positioning data and start block data.

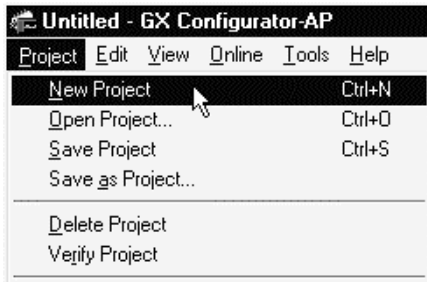


When executing "New Project" or "Save as Project", you cannot use the following characters and symbols in the project path and project name to be specified.

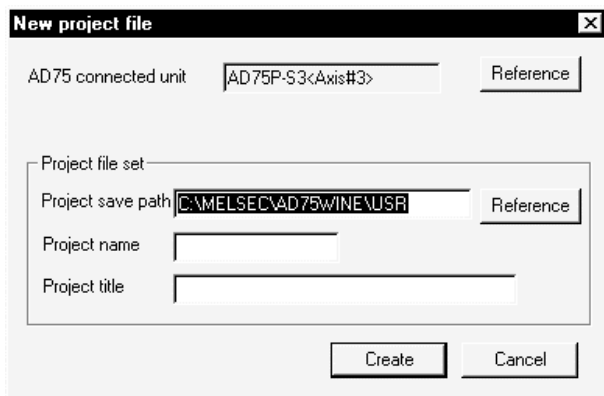
/ , : ; * " < > | \ \ COM LPT AUX CON PRN NUL CLOCK\$

6.1 Creating a New Project

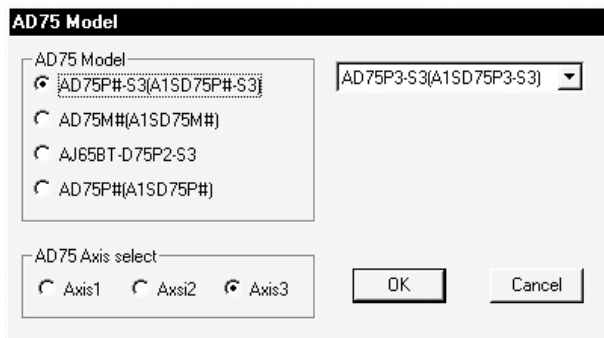
Set the AD75 model used to create a new project and the project items.



1) Click the [Project] → [New Project] menu ().

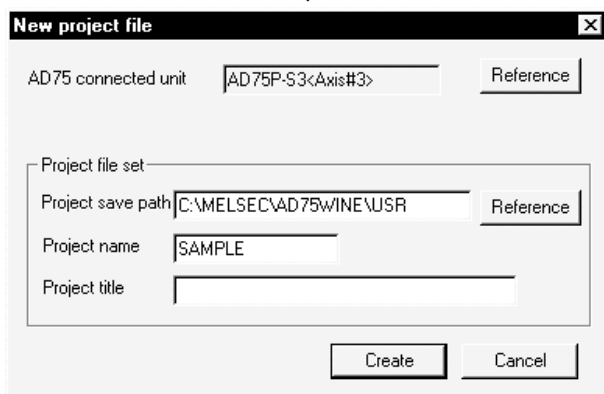


2) Click the AD75 connected unit "Reference" button in the New project file dialog box.



3) Choose the AD75 model name in the list box. The AD75 Model and AD75 Axis select radio buttons may also be used to make that selection.

4) Click the "OK" button.



- 5) Set the project save path. The project save path defaults to C:\MELSEC\AD75WINE\USR. When changing it, refer to "HELPFUL OPERATION" on the next page.
- 6) Set the project name. When specifying the project file name, you can use a total of up to 150 characters to set the project path and project name. When setting the project path and project name, the total number of characters should be within 150. This screen assumes that the project name is "SAMPLE".
- 7) Set the project title as required.
- 8) Click the "Create" button. This creates a new project.

6

Point

Project saving destination and file name

If the project save path and project name described on the preceding page are used to save the positioning data, the data is saved with the following file name and extension.

C:\MELSEC\AD75WINE\USR\SAMPLE\SAMPLE.W75

Project save path Project name File name Extension*

* The extension is fixed (W75).

HELPFUL OPERATION

You can perform the operation of changing the project save path while simultaneously checking the project tree.

In step 5) on the preceding page, click the Project file set "Reference" button.

As the following dialog box appears, choose the project save path from the project tree or type it from the keyboard.

This operation is also used to perform such operations as "Open Project", "Save Project" and "Delete Project".

1) Choose the drive.

Click the "Create" button when creating a new project save path.

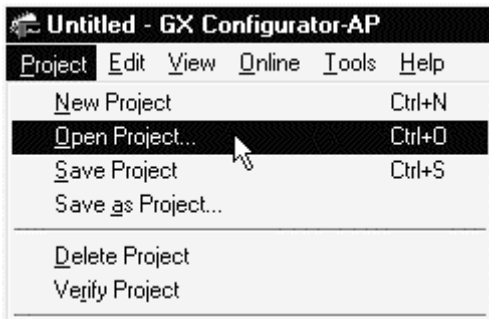
2) Choose/type a new project path.

Type a new project name.

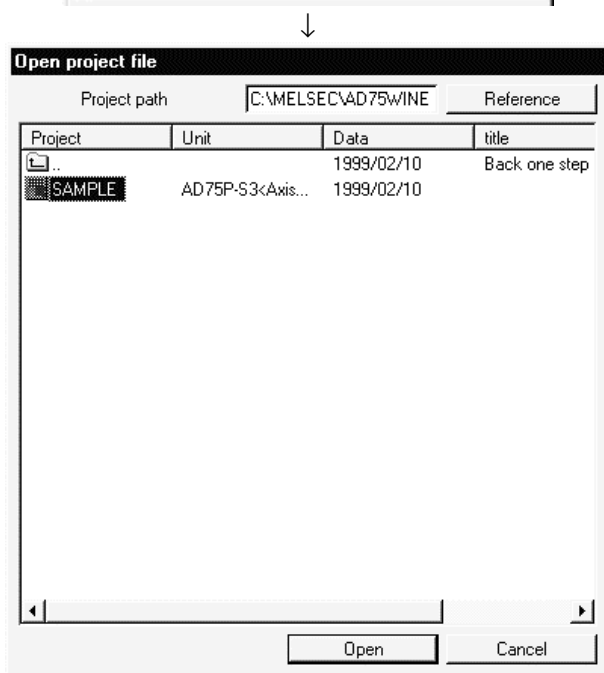
3) Click.

6.2 Opening the Existing Project

This section explains the operation of opening the saved project.

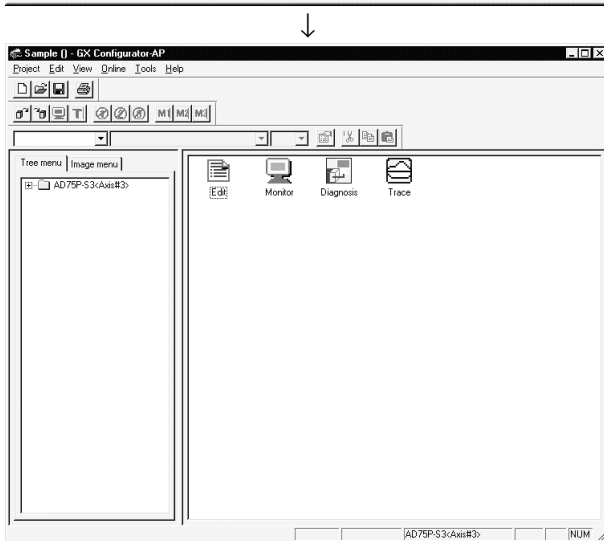


1) Click the [Project] → [Open Project] menu ().



2) Click the name of the project you will open.
For the setting operation of referring to the save path of the project to be opened, refer to "HELPFUL OPERATION" in Section 6.1.

3) Click the "Open" button.



4) The specified project opens.

6.3 Saving the Project



PURPOSE

The project file which is currently edited is saved.



BASIC OPERATION

- Save

Click the [Project] → [Save Project] menu ().

- Save as

Click the [Project] → [Save as Project] menu.

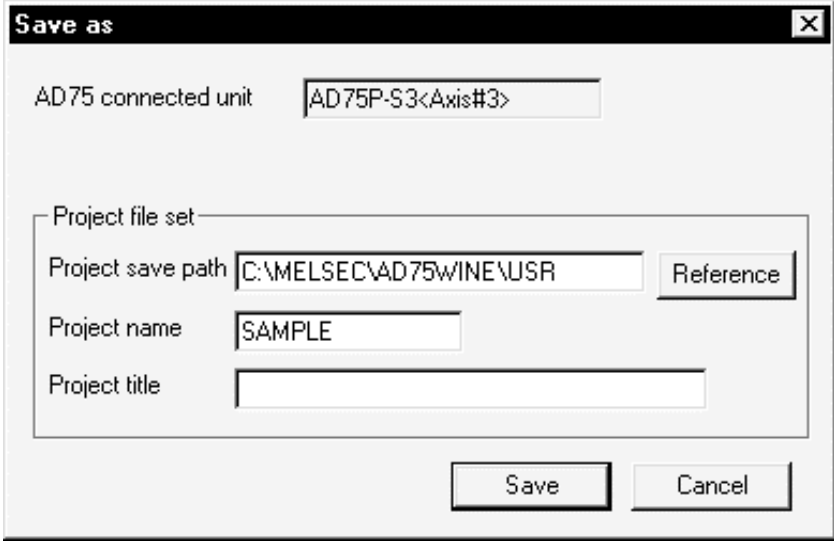
When specifying the project file name, you can use a total of up to 150 characters to set the project path and project name.

When setting the project path and project name, the total number of characters should be within 150.

For the operation of setting the project save path and project name, refer to "HELPFUL OPERATION" in Section 6.1.



DISPLAY/SETTING SCREEN



AD75 connected unit

Project file set

Project save path

Project name

Project title

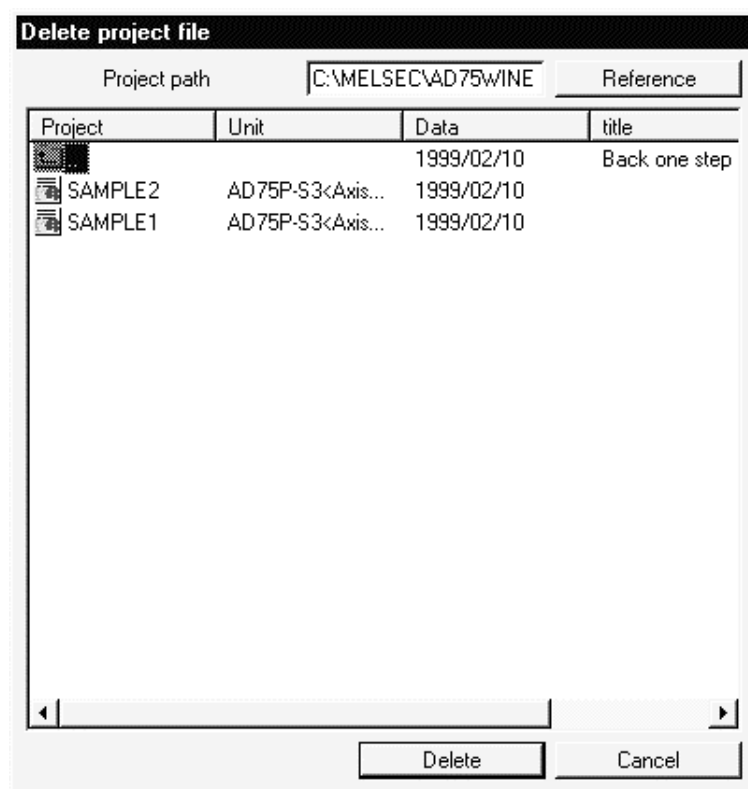
6.4 Deleting the Project

**PURPOSE**

The project is deleted from HD, FD or the like.

**BASIC OPERATION**

1. Click the [Project] → [Delete Project] menu.
2. In the Delete project file dialog box, choose the project you want to delete and click the "Delete" button.
Refer to Section 6.2 for the operation of changing the project path.
3. As the project file deletion confirmation dialog box appears, click the "Yes" button.
4. The project is deleted.

**DISPLAY/SETTING SCREEN**

6.5 Reading the Other Format File (Import file)

6.5.1 Reading the SW1*-AD75P format file



PURPOSE

The positioning data, M code comments, start block data, condition data, indirect data, parameters and servo parameters are read from the file saved on MS-DOS version SW1*-AD75P to the project of GX Gonfigurator-AP.

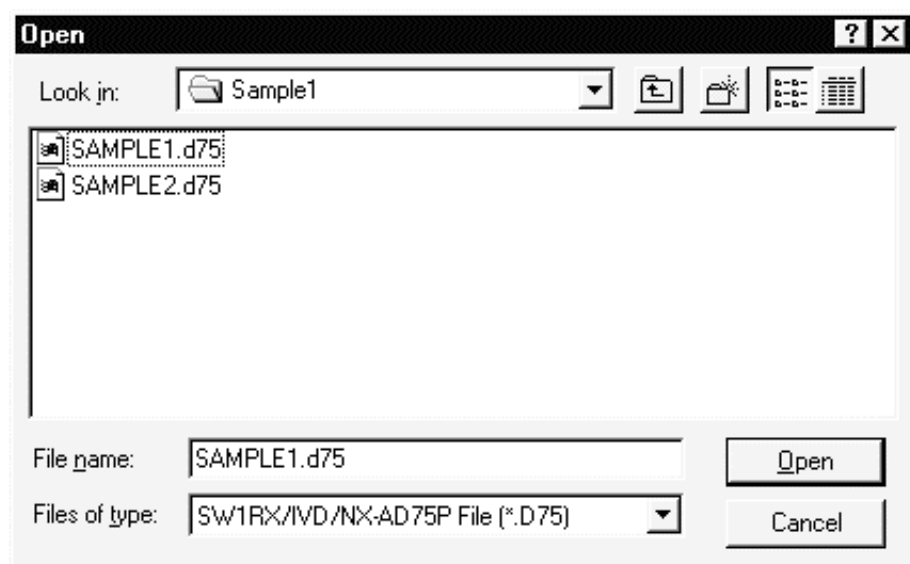


BASIC OPERATION

1. Click the [Project] → [Import file] → [File reading of SW1RX/IVD/NX-AD75P] menu.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
File, folder indication	Show the folders existing in the specified drive or folder and the corresponding type of files.
File name	Set the file name you will read.
Files of type	Select SW1RX/IVD/NX-AD75P File (*.D75).
Look in	Choose the drive or folder where the file you will read exists.
"Up one level folder" button	Click this button to show the folder one level above the currently displayed folder.
"List" button	Click this button to list files and folders.
"Details" button	Click this button to display the file and folder in detail.
"Open" button	Click this button to read the file.

6.5.2 Reading the CSV format file



PURPOSE

GX Configurator-AP allows CSV format files created with spreadsheet software or the like to be read as positioning data (axis #1 to #3). (Parameters and start block data cannot be read.)

The creating method and reading operation of CSV format data are described below.



- If all items that make up positioning data have not been entered, CSV format data cannot be read, resulting in an error.
- Since CSV format data is read axis-by-axis, create CSV format data noting which axis (#1/#2/#3) data is being created.

(1) CSV format data creating method

The following sheet indicates the items and values of CSV format data set on a column basis. It should be noted that you cannot set the interpolation axis and circular addresses for interpolation control.

<Example of data set to spreadsheet software>


	A	B	C	D	E	F	G	H	I
1	1	1	0	0	300000	0	100000	100	3
2	1	1	0	0	0	0	200000	200	2
3	1	1	0	0	1000	0	500	100	1
4	0	1	0	0	100000	0	50000	0	0
5	0	1	0	0	0	0	50000	0	0

<Data set to the above spreadsheet software was read with GX Configurator-AP >

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Arc Addr [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code
1	1:CONT	1:ABS Line1	0:1000	0:1000	300000	0	100000	100	3
2	1:CONT	1:ABS Line1	0:1000	0:1000	0	0	200000	200	2
3	1:CONT	1:ABS Line1	0:1000	0:1000	1000	0	500	100	1
4	0:END	1:ABS Line1	0:1000	0:1000	100000	0	50000	0	0
5	0:END	1:ABS Line1	0:1000	0:1000	0	0	50000	0	0

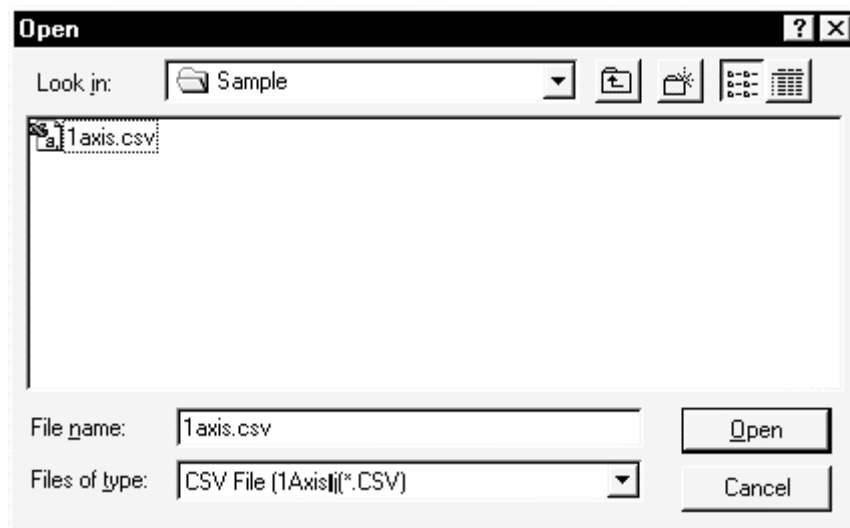
Number	Setting	Remarks
1)	Line 1 from table top is positioning No. 1 data and line 2 is positioning No. 2 data.	Refer to Section 9.1 for details of data corresponding to values and alphabets to be set.
2)	Set the positioning control pattern in column 1 from left. Set any value of 0 to 2.	
3)	Set the control method in column 2 from left. Set it with 1 to 9 and A to I.	
4)	Set the accel time in column 3 from left. Set it with 0 to 3.	
5)	Set the decel time in column 4 from left. Set it with 0 to 3.	
6)	Set the address in column 5 from left.	
7)	Set the circular address in column 6 from left.	
8)	Set the command speed in column 7 from left.	
9)	Set the dwell time in column 8 from left.	
10)	Set the M code in column 9 from left.	

(2) CSV format file reading operation

 **BASIC OPERATION**

1. Click the [Project] → [Import file] → [File reading of CSV form positioning data] menu.

 **DISPLAY/SETTING SCREEN**



 **DISPLAY/SETTING DATA**

Item	Description
File, folder indication	Show the folders existing in the specified drive or folder and the corresponding type of files.
File name	Set the file name to be read to the project.
Files of type	Choose the read positioning data of any of the axes. <ul style="list-style-type: none"> • To read the positioning data of axis #1 CSV File(1Axis)(*.CSV) • To read the positioning data of axis #2 CSV File(2Axis)(*.CSV) • To read the positioning data of axis #3 CSV File(3Axis)(*.CSV)
Look in	Choose the drive or folder where the file you will read exists.
"Up one level folder" button	Click this button to show the folder one level above the currently displayed folder.
"List" button	Click this button to list files and folders.
"Details" button	Click this button to display the file and folder in detail.
"Open" button	Click this button to read the file.

6.6 Write to Other Format File (Export file)

6.6.1 Saving in SW1*-AD75P format file



PURPOSE

The positioning data, M code comments, start block data, condition data, indirect data, parameters and servo parameters set on GX Configurator-AP are saved in the MS-DOS version SW1* -AD75P format file.

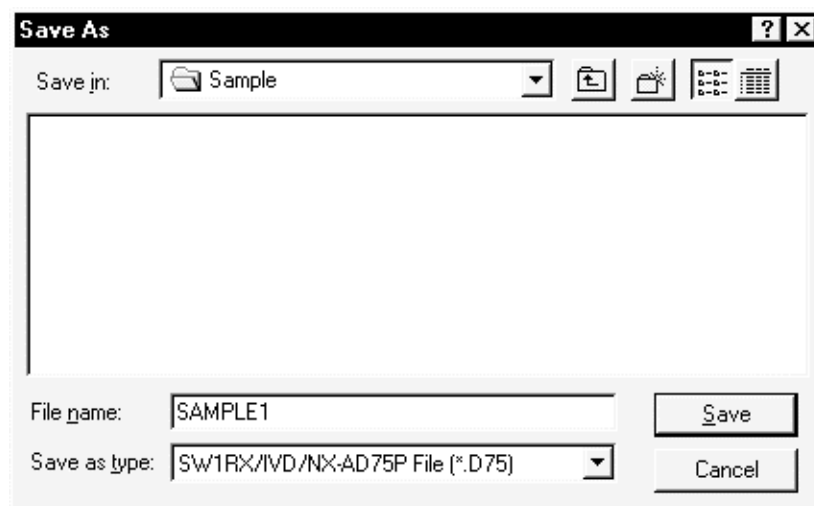


BASIC OPERATION

1. Click the [Project] → [Export file] → [File writing of SW1RX/IVD/NX-AD75P] menu.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
File, folder indication	Show the folders existing in the specified drive or folder and the corresponding type of files.
File name	Set the file name to be saved in the other format file.
Save as type	Select SW1RX/IVD/NX-AD75P File (*.D75).
Save in	Choose the drive or folder where the file will be saved.
"Up one level folder" button	Click this button to show the folder one level above the currently displayed folder.
"Create New Folder" button	Click this button to create a "new folder".
"List" button	Click this button to list files and folders.
"Details" button	Click this button to display the file and folder in detail.
"Save" button	Click this button to save the other format file.

6.6.2 Saving in CSV format file



PURPOSE

The positioning data set in the GX Configurator-AP project is saved in the CSV format file.

Refer to Section 6.5.2 for the positioning data setting items and CSV format data.

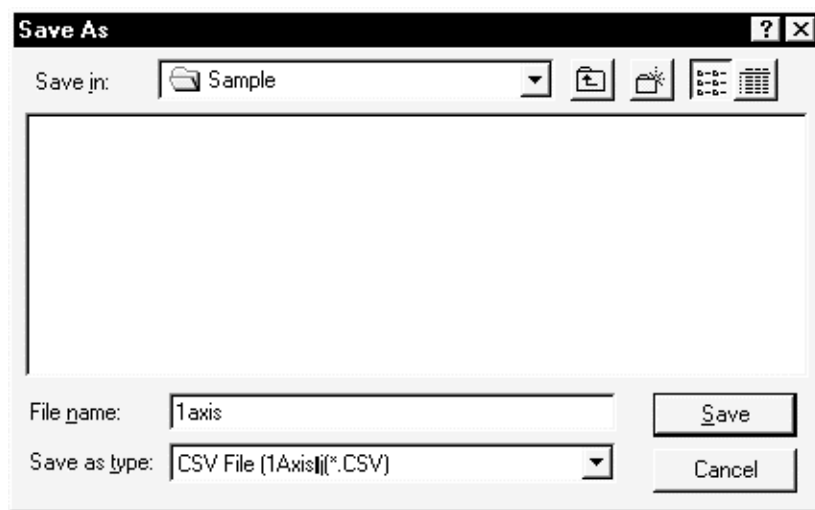


BASIC OPERATION

1. Click the [Project] → [Export file] → [File writing of CSV form positioning data] menu.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
File, folder indication	Show the folders existing in the specified drive or folder and the corresponding type of files.
File name	Set the file name to be read to the project.
Save as type	Choose the saved positioning data of any of the axes. <ul style="list-style-type: none"> • To save the positioning data of axis #1 CSV File(1Axis)(* .CSV) • To save the positioning data of axis #2 CSV File(2Axis)(* .CSV) • To save the positioning data of axis #3 CSV File(3Axis)(* .CSV)
Save in	Choose the drive or folder where you will save the data.
"Up one level folder" button	Click this button to show the folder one level above the currently displayed folder.
"Create New Folder" button	Click this button to create a "new folder".
"List" button	Click this button to list files and folders.
"Details" button	Click this button to display the file and folder in detail.
"Save" button	Click this button to save the other format file.

7. SYSTEM CHECKING FROM PERIPHERAL DEVICE

On the peripheral device, check the connection of the AD75 and external devices (servo amplifiers, servo motors, etc.) and perform the initial operation test of servo motors.

For the AD75M, operation tests can be made on the peripheral device to check the servo amplifier status and servo parameters and further to check that the servo parameters are valid.

- When the model used is the AD75P1/P2/P3, A1SD75P1/P2/P3, AD75P1-S3/P2-S3/P3-S3 or A1SD75P1-S3/P2-S3/P3/S3, perform the following operation.
Section 7.1 Checking the AD75 Module Version (OS Information)
Section 7.2 AD75P Checking Connect
- When the model used is the AJ65BT-D75P2-S3, perform the following operation.
Section 7.2 AD75P Checking Connect
- When the model used is the AD75M1/M2/M3 or A1SD75M1/M2/M3, perform the following operation.
Section 7.1 Checking the AD75 Module Version (OS Information)
Section 7.3 AD75M Servo Starting Up
 - Section 7.3.1 Servo initial check
 - Section 7.3.2 Servo model name check
 - Section 7.3.3 Servo upper/lower limit check
 - Section 7.3.4 Servo speed check



Before starting the OS information checking, AD75P checking connect or AD75M servo starting up, make COM setting using the optional function (refer to Section 12.5).

If the COM setting is incorrect, a communication error will occur.

To check the usable COM port, perform the following operation.

- 1) Click the Microsoft® Windows® Operating System "Start" button and choose [Setting] → [Control Panel].
- 2) As the control panel opens, choose "System".
- 3) As the system property dialog box opens, choose the <<Device Manager>> tab.
- 4) Choose "Ports (COM & LPT)" and check the usable COM port.

7.1 Checking the AD75 Module Version (OS Information)



PURPOSE

Depending on the software version of the AD75 module, the parameters and some functions cannot be used.

Before setting various data, check the software version of the module on the peripheral device.

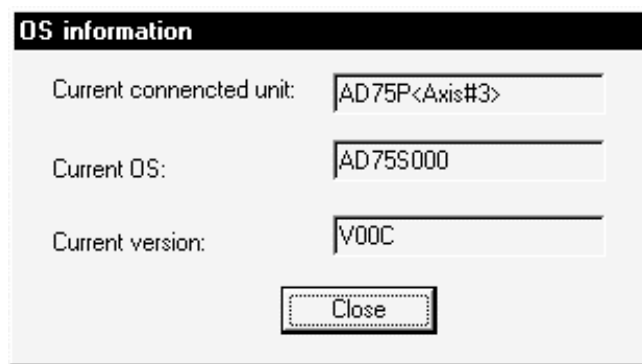


BASIC OPERATION

1. Click the [Online] → [OS information] menu.
2. Check the software version in the OS information dialog box.
3. To exit, click the "Close" button.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Current connected unit	Indicates the model of the AD75 connected.
Current OS	Indicates the OS name of the AD75 connected.
Current version	Indicates the software version of the AD75 connected. The parameters and some functions cannot be used depending on the software version of the AD75. Refer to Appendix 2 for differences between the software versions of the AD75.

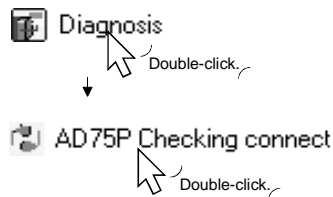
7.2 AD75P Checking Connect







**PURPOSE**

Make sure that the cables between AD75P and servo amplifiers and between servo motors, servo amplifiers and external devices are connected properly.

**BASIC OPERATION**

1. Power on the positioning system and STOP the PLC CPU.
2. Choose AD75P Checking connect.



3. The online processing (test mode shift) confirmation dialog box appears.
Click the "Initialize" button to check connection after initializing the AD75P.
Click "OK" to check connection without initializing the AD75P.
4. Make sure that the external I/O signals are in the following states on the AD75P checking connect main screen.
Drive unit ready, Upper limit, Lower limit: ● (ON)
Stop: ○ (OFF)
If any of the above states is not established, refer to "HELPFUL CORRECTIVE ACTIONS" in this section.
5. Check whether the following signals from the external devices are ON or OFF.
Stop, External start, V/P switch, Deviation counter clr
6. Set the JOG speed.
7. Choose the arrow ( ) of the JOG operation direction.
8. Move the mouse pointer () to the chosen arrow and press the left button of the mouse or press the space key on the keyboard to start JOG operation.
Hold down the mouse's left button or the space key to continue JOG operation.
9. Perform JOG operation and check the operation, rotation direction and axis speed of the servo motor.
10. Perform JOG operation and check whether Zero phase, In-position signal and DOG turn on or off and the position (feed address) where each signal turns on.
11. Perform JOG operation and check whether the upper and lower limit switches turn on or off.
Refer to Section 7.3.3 for the way of restoring an axis stop due to OFF of the upper/lower limit switch.
12. When an error has occurred, check the error code with the help function (refer to Section 12.11), then click [Online] → [Error Reset] → [Error Reset #1]()/[Error Reset #2]()/[Error Reset #3]() menu.
13. To exit, click the "OFF-LINE" button and click the "OK" button in the test mode end confirmation dialog box.



DISPLAY/SETTING SCREEN

External I/O			JOG operation		
	Ax1	Ax2	Ax3		
Drive unit ready	●	●	●	JOG direction	JOG speed
Zero phase signal	○	○	○	RVS	FWD
In-position signal	●	●	●	Ax1 ← →	100 pls/s
DOG signal	○	○	○	Ax2 ← →	0 pls/s
Stop signal	○	○	○	Ax3 ← →	0 pls/s
Upper limit	●	●	●		
Lower limit	●	●	●		
External start	○	○	○		
V/P switch	○	○	○		
Deviation counter clr	○	○	○		
Supplement					
● [Drive unit ready/U/L limit:ON] / ○ [Stop signal:OFF]					
[Normal operation with the above signal is on or off. Operation regardless of on or off condition of other signals.]					
Operation monitor					
	Feed Address	Axis speed	Error	Warning	
Ax1	1360 pls/s	99 pls/s	0	0	
Ax2	0 pls/s	0 pls/s	0	0	
Ax3	0 pls/s	0 pls/s	0	0	
				ON-LINE	OFF-LINE



DISPLAY/SETTING DATA

Item	Description
External I/O	Indicates the external I/O signal states (●: ON, ○: OFF) of the AD75P.
JOG speed	Set the speed for JOG operation.
JOG direction	Choose the arrow (← →) of the axis for JOG operation and press the mouse's left button or the space key to start JOG operation. The arrow is red during operation.
Operation monitor	Indicates the feed addresses, axis speeds, error codes and warning codes of the axes.
"OFF-LINE" button	Click this button to end the AD75P test mode and end AD75P checking connect.
"ON-LINE" button	Click this button to start the AD75P test mode and execute AD75P checking connect.

**HELPFUL CORRECTIVE ACTIONS**

Take the following corrective actions when AD75P checking connect cannot be completed properly.

Status	Corrective Action
AD75P checking connect cannot start	Check the connection of cables with the AD75P. Using the optional function (refer to Section 12.5), check whether COM setting is correct.
Drive unit ready is OFF	Check that the servo amplifier is powered.
	Check the connection of the external I/O signal connector.
Upper/lower limit is OFF	Check the connection of the external I/O signal connector.
	Check for contact of the upper/lower limit switch.
JOG operation cannot be performed.	Check that JOG speed setting is not "0".
Error/warning occurred	Check the error/warning code using [Help], and check and remove the cause.

7.3 AD75M Servo Starting Up

With the AD75M servo starting up function, check the following.

- Error/warning history read from the AD75M
- Servo parameters of the servo amplifiers and project
- Operations of the upper/lower limit switches by JOG operation
- Motor speeds set to the servo parameters

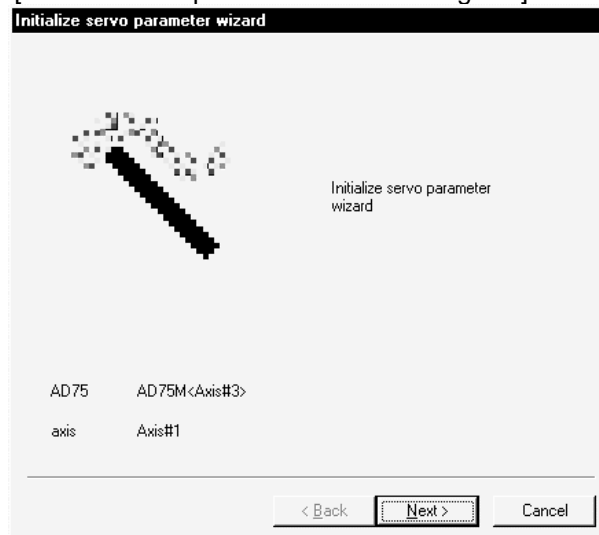
The AD75M servo starting up function requires some servo parameters to be set and write operation to AD75M to be performed in advance.

(1) Setting the servo parameters

Using the Initialize servo parameter wizard (refer to Section 12.4.2), set the servo parameters.

For the setting data of the servo parameters, refer to positioning module type A1SD75M1/M2/M3, AD75M1/M2/M3 User's Manual and the servo amplifier or servo motor installation guide and instruction manual.

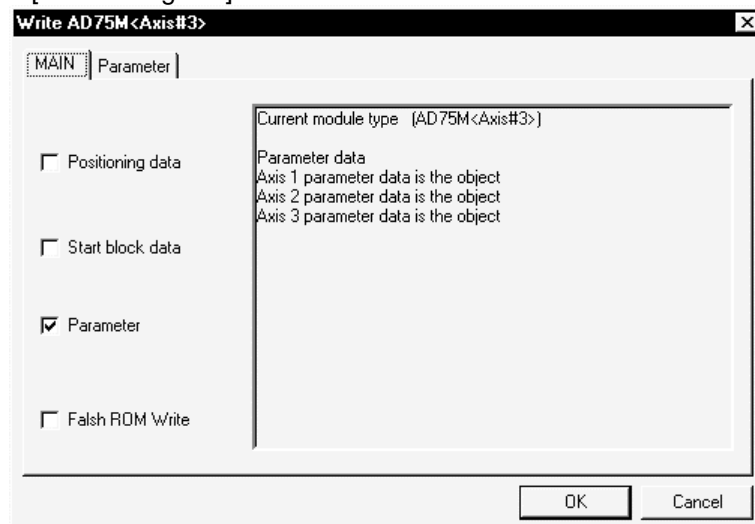
[Initialize servo parameter wizard dialog box]



(2) Writing the servo parameters to the AD75M

For write, refer to Section 10.1.

[Write dialog box]



7.3.1 Servo initial check



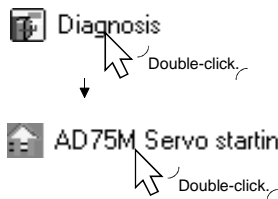
PURPOSE

The history of errors/warnings that occurred in the AD75M or servo amplifiers is read from the AD75M and checked.



BASIC OPERATION

1. Choose AD75M Servo starting up.



2. Click the "OK" button in the AD75M test mode start confirmation dialog box.
3. Click the <<Initial check>> tab on the AD75M servo starting up main screen.
4. Check for errors and warnings on the initial check screen.
If any errors and warnings have occurred, check the causes and corrective actions using the help function (refer to Section 12.11) and remove the causes.
5. To exit, click the "Servo end" button and click the "OK" button in the test mode end confirmation dialog box.



DISPLAY/SETTING SCREEN

Initial check Model name check U/L limit check RPM check						
No.	AX	Type	Source	Code	Time	Message
1	1	Error	AD75M	537	10:02:54:01	PC READY OFF s
2	1	Error	AD75M	104	14:35:36:02	H/W stroke limit
3						H/W stroke limit
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
4						

Servo end

*DISPLAY/SETTING DATA*

Item	Description
No.	Indicates the order of errors/warnings detected. Newer errors/warnings are displayed from top to bottom.
AX	Indicates the axis where an error/warning was detected.
Type	Indicates the type of the error or warning.
Source	Indicates the source of error/warning occurrence. The destination is the servo amplifier or AD75M.
Code	Indicates the error/warning code detected.
Time	Indicates the error/warning occurrence time in 100mm increments with reference to the time set to the AD75 in the sequence program. For time setting, refer to the AD75 User's Manual.
"Servo end"/"Online" button	Click the "Servo end" button to end the AD75M test mode and terminate the initial check. Click the "Online" button to place the AD75M in the test mode and read the error/warning history from the AD75M.

7.3.2 Servo model name check



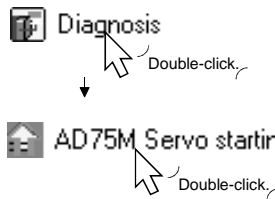
PURPOSE

The servo basic parameters of the currently open project and the servo basic parameters read from the servo amplifiers by the AD75M are displayed to make sure that their settings are the same.



BASIC OPERATION

1. Choose AD75M Servo starting up.



2. Click the "OK" button in the AD75M test mode start confirmation dialog box.
3. Click the <<Model name check>> tab on the AD75M servo starting up main screen.
4. Check whether the servo basic parameters of the servo amplifier and peripheral device are the same axis-by-axis.
5. If any servo parameter mismatch is found, write the parameters to the AD75M (refer to Section 10.1).
6. To exit, click the "Servo end" button and click the "OK" button in the test mode end confirmation dialog box.



DISPLAY/SETTING SCREEN

	Ax1 of AD75	Ax1 of peripheral	Ax2 of AD75	Ax2 of peripheral	Ax3 of AD
Servo amp. type	MR-J-B	MR-J-B	MR-J-B	MR-J-B	
Positioning method	INC	INC	INC	INC	
Regenerative brake	None Regenerative	None Regenerative	None Regenerative	None Regenerative	
Dynamic brake	Invalid	Invalid	Invalid	Invalid	
Motor type	HA-FH/HA-FF	HA-FH/HA-FF	HA-FH/HA-FF	HA-FH/HA-FF	
Motor capacity	50	50	50	50	
Motor RPM speed	3000	3000	3000	3000	
Rotation speed	FwD	FwD	FwD	FwD	
Auto tuning	Normal	Normal	Normal	Normal	

Initial check: **Model name check** | U/L limit check | RPM check

Buttons: Reload, Servo end



DISPLAY/SETTING DATA

Item	Description
Servo basic parameters	Indicates the setting items of the servo basic parameters compared on the AD75M and peripheral device. For the setting items of the servo basic parameters, refer to Positioning module type A1SD75M1/M2/M3, AD75M1/M2/M3 User's Manual.
Ax1 of AD75	Indicates the servo basic parameters of axis #1 read from the servo amplifier to the AD75M.
Ax1 of peripheral	Indicates the servo basic parameters of axis #1 set to the project on the peripheral device.
Ax2 of AD75	Indicates the servo basic parameters of axis #2 read from the servo amplifier to the AD75M.
Ax2 of peripheral	Indicates the servo basic parameters of axis #2 set to the project on the peripheral device.
Ax3 of AD75	Indicates the servo basic parameters of axis #3 read from the servo amplifier to the AD75M.
Ax3 of peripheral	Indicates the servo basic parameters of axis #3 set to the project on the peripheral device.
"Reload" button	When executing the servo starting up function, click this button to read the servo basic parameters again from the servo amplifiers.
"Servo end"/"Online" button	Click the "Servo end" button to end the AD75M test mode and terminate the model name check. Click the "Online" button to place the AD75M in the test mode and enable reread.

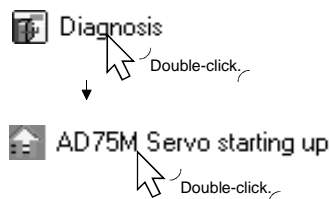
7.3.3 Servo upper/lower limit check



**PURPOSE**

Perform forward or reverse JOG operation to make sure that the upper and lower limit switches installed in the positioning system operate properly.

**BASIC OPERATION**

1. Choose AD75M Servo starting up.



2. Click the "OK" button in the AD75M test mode shift confirmation dialog box.
3. Click the <<U/L limit check>> tab on the AD75M servo starting up main screen.
4. Make sure that the signals are in the following states.
 - Servo, Ready, Upper limit, Lower limit: ● (ON)
 - Alarm, Stop: ○ (OFF)
5. Set the JOG speed.
6. Choose the arrow () of the JOG operation direction.
7. Move the mouse pointer () to the chosen arrow and press the left button of the mouse or press the space key on the keyboard to start JOG operation.
 - Hold down the mouse's left button or the space key to execute JOG operation.
8. Perform JOG operation to move the axis into contact with the upper/lower limit switch, and make sure that "OK" appears at Upper or Lower limit.
9. To exit, click the "Servo end" button and click the "OK" button in the test mode end confirmation dialog box.



DISPLAY/SETTING SCREEN

Initial check	Model name check	U/L limit check	RPM check
Servo status Ax1Ax2Ax3 Servo <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Alarm <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Ready <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Warning <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		External I/O Ax1Ax2Ax3 Upper limit <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Lower limit <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Stop signal <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Upper stroke limit Ax1 2147483647 pls Ax2 2147483647 pls Ax3		Lower stroke limit -214748364 pls -214748364 pls Upper limit Lower limit	
JOG operation Ax1 ← → Ax2 ← → Ax3 ← →		JOG speed 100 pls/s 0 pls/s 0 Acc Dec JOG speed limit 0 0 20000 pls/s 0 0 20000 pls/s 0 0	
Address Ax1 6155 pls Ax2 -1111 pls Ax3		Speed 6 pls/s 0 pls/s Error Warning 0 0 0 0 0 0	
Data clear		Servo end	






DISPLAY/SETTING DATA

Item	Description
Servo status External I/O	Indicates the states of the signals from external devices connected to the AD75M.
JOG speed	Set the speed for JOG operation.
JOG operation	Choose the arrow (← →) of the axis for JOG operation and press the mouse's left button or the space key to start JOG operation. The arrow is red during operation.
Upper limit Lower limit	"OK" appears when the upper or lower limit signal turns off during JOG operation.
JOG speed limit Acc Dec	Indicates the JOG speed limit values, JOG speed accel times and JOG speed decel times set to extended parameters 2 (refer to Section 8.1.4).
Upper stroke limit Lower stroke limit	Indicates the software stroke upper and lower limits set to extended parameters 1 (refer to Section 8.1.3).
Address Speed Error Warning	Indicates the feed addresses, axis speeds, error codes and warning codes of the axes.
"Data clear" button	When rechecking the upper or lower limit, click this button to clear the result.
"Servo end"/"Online" button	Click the "Servo end" button to end the AD75M test mode and terminate the upper/lower limit check. Click the "Online" button to place the AD75M in the test mode and start the upper/lower limit check.



HELPFUL OPERATION

When the upper/lower limit switch is turned off by JOG operation, the corresponding axis stops. To restart the axis, perform the following operation.

1. Click [Online] → [Error Reset] → [Error Reset #1]()/[Error Reset #2]()/[Error Reset #3]() menu.
2. Perform JOG operation to move the axis to within the upper or lower limit range.



HELPFUL CORRECTIVE ACTIONS

Take the following corrective actions when the upper/lower limit check cannot be made.

Status	Corrective Action
Servo signal is OFF	Check that the servo amplifier is powered.
	Check the connection of the external I/O signal connector.
Ready signal is OFF	Check that the servo amplifier is powered.
	Check the connection of the external I/O signal connector.
Alarm signal is ON	Take the corrective action given in the servo amplifier installation guide.
Upper/lower limit is OFF	Check the connection of the external I/O signal connector.
	Check for any object in contact with the upper/lower limit switch.
Stop signal is ON	Turn off the external stop signal.
JOG operation cannot be performed.	Check that JOG speed setting is not "0".
Error/warning occurred	Check the error/warning code using [Help] (refer to Section 12.11), and check and remove the cause.

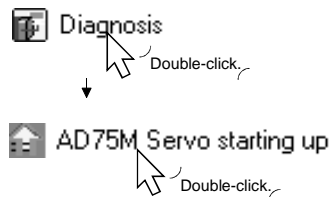
7.3.4 Servo speed check

**PURPOSE**

Perform forward/reverse JOG operation to make sure that the servo motor speed does not exceed the motor speed set in the servo parameter.

**BASIC OPERATION**

1. Choose AD75M Servo starting up.



2. Click the "OK" button in the AD75M test mode shift confirmation dialog box.
3. Click the <<RPM check>> tab on the AD75M servo starting up main screen.
4. Make sure that the signals are in the following states.
 Servo, Ready, Upper limit, Lower limit: ● (ON)
 Alarm, Stop: ○ (OFF)
5. Set the JOG speed.
6. Choose the arrow (➡ :Forward ⬅ :Reverse) of the JOG operation direction.
7. Move the mouse pointer () to the chosen arrow and press the left button of the mouse or press the space key on the keyboard to start JOG operation.
 Hold down the mouse's left button or the space key to execute JOG operation.
8. Perform JOG operation, and check that the Max. For. and Max. Rev. speeds are not more than their parameter settings.
9. To exit, click the "Servo end" button and click the "OK" button in the test mode end confirmation dialog box.



DISPLAY/SETTING SCREEN

Initial check	Model name check	U/L limit check	RPM check
Servo status Ax1Ax2Ax3 Servo <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Alarm <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Ready <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Warning <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		External I/O Ax1Ax2Ax3 Upper limit <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Lower limit <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Stop signal <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
RPM	Max For.	Max Rev.	Param.
Ax1 82.0 r/min	156.6 r/min	-156.6 r/min	3000 r/min
Ax2 0.0 r/min			3000 r/min
Ax3			0 r/min
JOG operation	JOG speed	Acc	Dec
Ax1	10000 pls/s	0	0
Ax2	0 pls/s	0	0
Ax3	0	0	0
			JOG speed limit
			20000 pls/s
			20000 pls/s
Address	Speed	Error	Warning
Ax1 180194 pls	6029 pls/s	0	0
Ax2 -1111 pls	0 pls/s	0	0
Ax3		0	0
Data clear		Servo end	



DISPLAY/SETTING DATA

Item	Description
Servo status External I/O	Indicates the states of the signals from external devices connected to the AD75M.
JOG speed	Set the speed for JOG operation.
JOG operation	Choose the arrow () of the axis for JOG operation and press the mouse's left button or the space key to start JOG operation. The arrow is red during operation.
Param.	Indicates the motor speeds set to the servo basic parameters (refer to Section 8.2.1)
RPM	Indicates the current servo motor speeds.
Max. For.	Indicates the servo motor maximum speeds in the forward direction.
Max. Rev.	Indicates the servo motor maximum speeds in the reverse direction.
JOG speed limit Acc. Dec.	Indicates the JOG speed limit values, JOG speed accel times and JOG speed decel times set to extended parameters 2 (refer to Section 8.1.4).
Address Speed Error Warning	Indicates the feed addresses, axis speeds, error codes and warning codes of the axes.
"Data clear" button	Click this button to clear the maximum forward and reverse speed values.
"Servo end"/"Online" button	Click the "Servo end" button to end the AD75M test mode and terminate the speed check. Click the "Online" button to place the AD75M in the test mode and start the speed check.

**HELPFUL CORRECTIVE ACTIONS**

Take the following corrective actions when the speed check cannot be made.

Status	Corrective Action
Servo signal is OFF	Check that the servo amplifier is powered.
	Check the connection of the external I/O signal connector.
Ready signal is OFF	Check that the servo amplifier is powered.
	Check the connection of the external I/O signal connector.
Alarm signal is ON	Take the corrective action given in the servo amplifier installation guide.
Upper/lower limit is OFF	Check the connection of the external I/O signal connector.
	Check for any object in contact with the upper/lower limit switch.
Stop signal is ON	Turn off the external stop signal.
JOG operation cannot be performed.	Check that JOG speed setting is not "0".
Error/warning occurred	Check the error/warning code using [Help] (refer to Section 12.11), and check and remove the cause.

8. PARAMETER SETTING

Set the parameters necessary to exercise positioning control.
 There are parameters required for the AD75P and AD75M and those required for the AD75M only.
 Write the set parameters to the AD75 before starting positioning operation.
 For the operation of writing data to the AD75, refer to Section 10.1.
 For the setting data, refer to the AD75 User's Manual.

8.1 Parameters



PURPOSE

There are the following four parameter types.

- Basic parameters
- Extended parameters
- OPR basic parameters
- OPR extended parameters

The basic and extended parameters are divided into parameters 1 needed for system start and parameters 2 optimized according to the connected external devices and control.

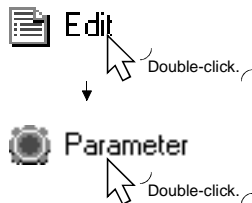
Set each parameter type in the Parameter edit dialog box.

Perform the following operation until the Parameter edit dialog box appears.



BASIC OPERATION

1. Choose Parameter.



2. Double-click any item in the column of the axis to be set on the parameter main screen.

Double-click any item in this column to set the axis #2 parameters.

Parameter	Parameter	Axis#1 parameter	Axis#2 parameter	Axis#3 parameter
Basic parameter #1	Unit	3:PULSE	3:PULSE	3:PULSE
	Pulse per revolution	20000 pulse	20000 pulse	20000 pulse
	Travel per revolution	20000 pulse	20000 pulse	20000 pulse
	Unit multiplier	1: 1 times	1: 1 times	1: 1 times

Double-click any item in this column to set the axis #1 parameters.

Double-click any item in this column to set the axis #3 parameters.

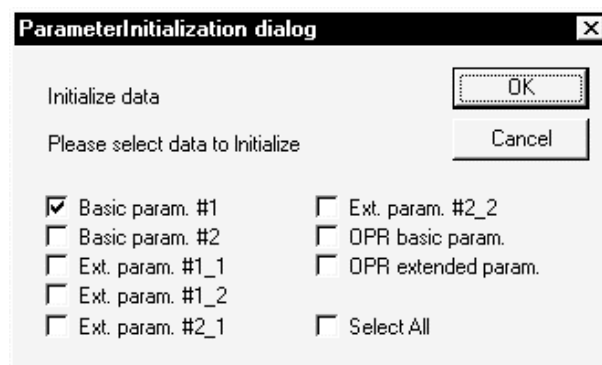
3. As the Parameter edit dialog box appears, click the corresponding tab to display the setting screen.
4. Set the screen data on the display/setting screen shown in any of Sections 8.1.1 to 8.1.6.
5. To exit, click the "OK" button.



HELPFUL OPERATION

Perform the following operation when you want to return the parameters to the initial values type-by-type to modify the positioning system.

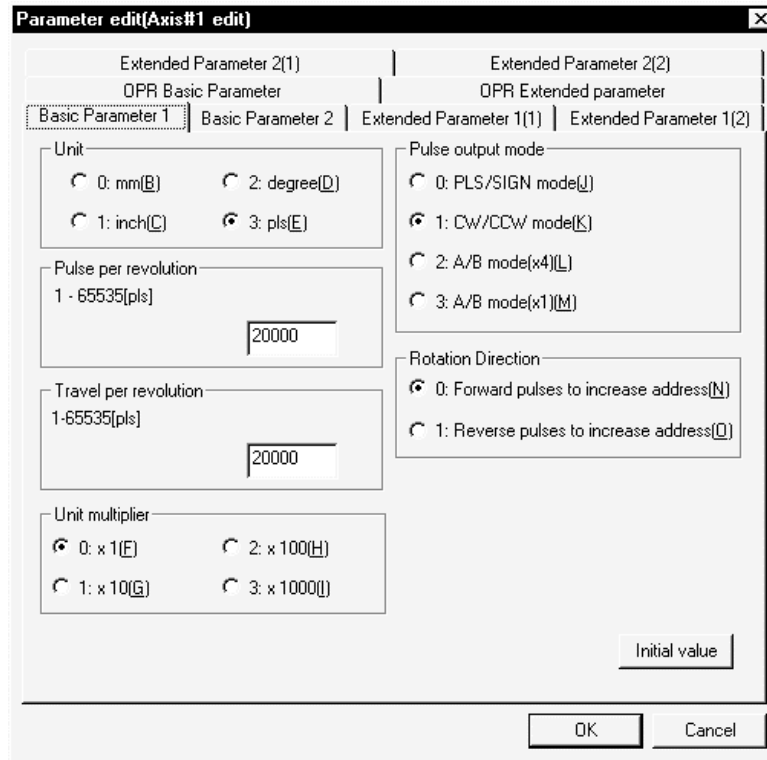
1. Perform the basic operation to display the Parameter edit dialog box.
2. Click the "Initial value" button.
3. Using the check boxes, set the parameters to be initialized on the Parameter edit dialog box tab screen basis.
4. Click the "OK" button to return the settings of the checked parameters to the initial values.



8.1.1 Basic parameter 1 setting screen



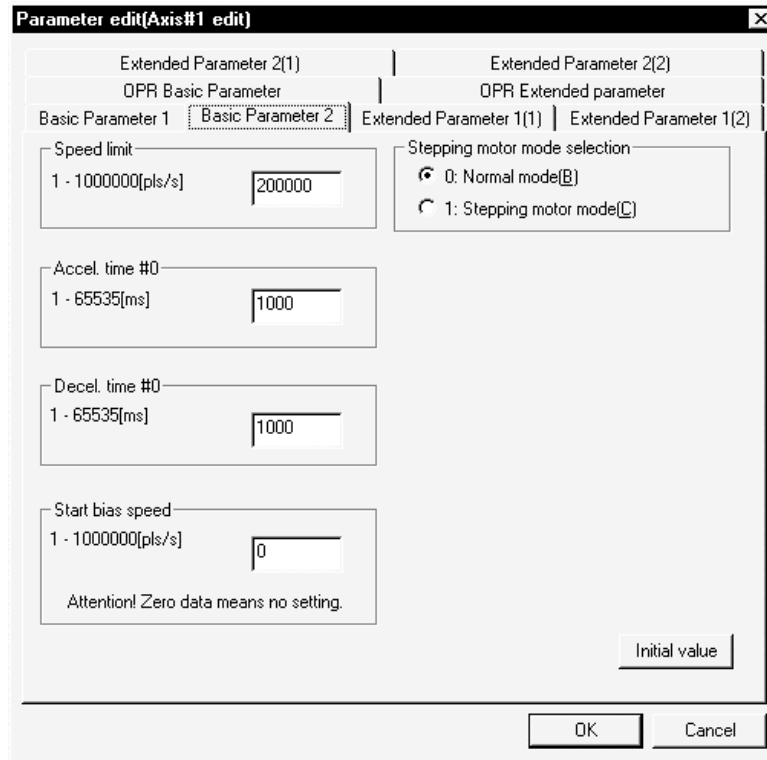
DISPLAY/SETTING SCREEN



(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)

8.1.2 Basic parameter 2 setting screen

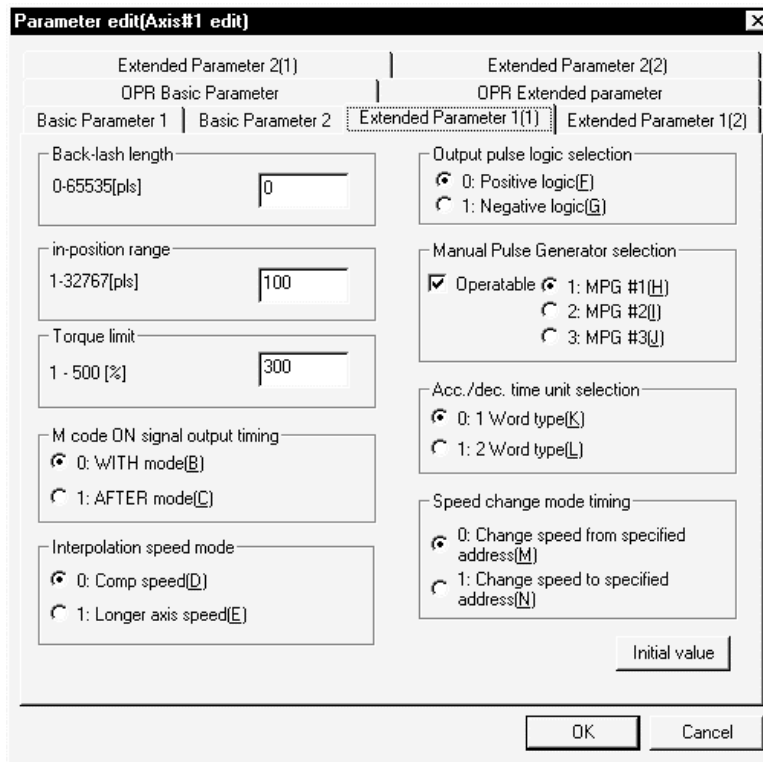
 **DISPLAY/SETTING SCREEN**



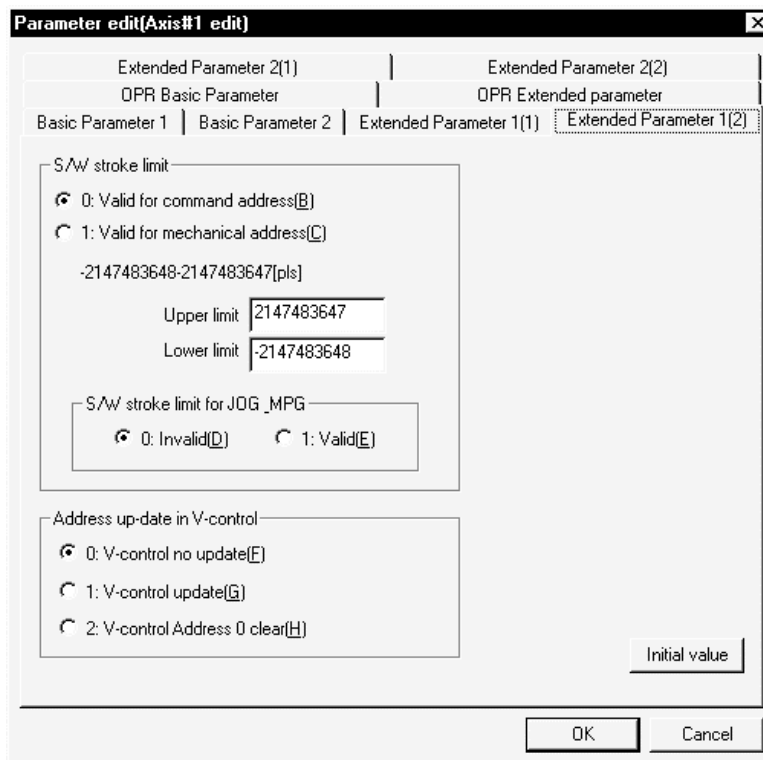
(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)

8.1.3 Extended parameter 1 setting screen

 DISPLAY/SETTING SCREEN



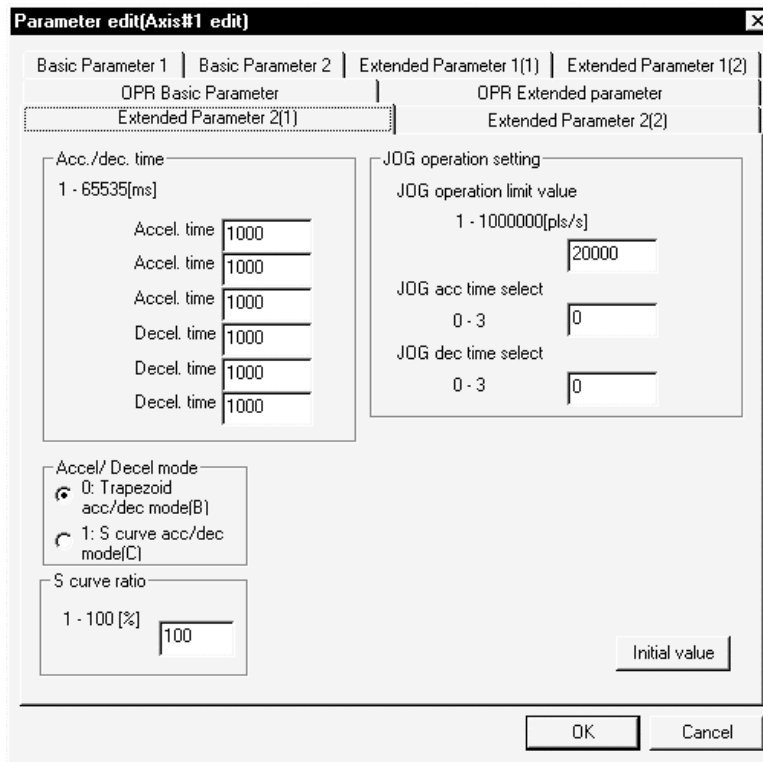
(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)



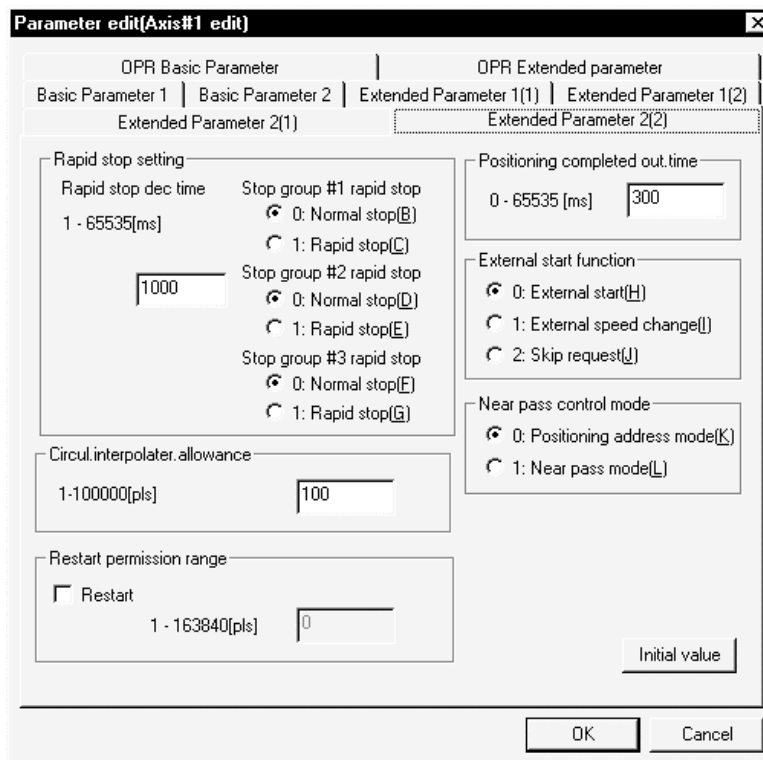
(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)

8.1.4 Extended parameter 2 setting screen

 DISPLAY/SETTING SCREEN



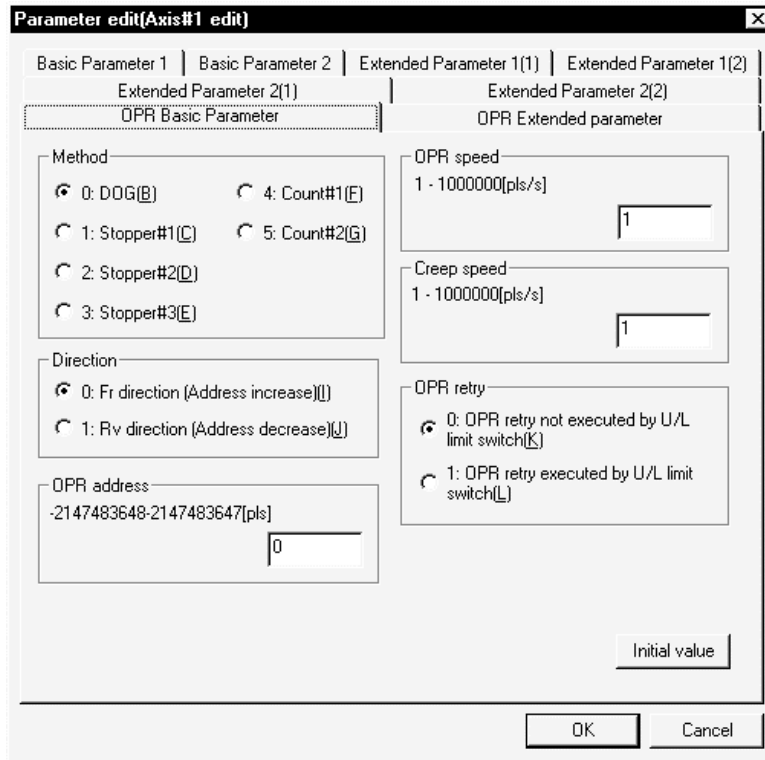
(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)



(Screen example: Screen displayed when AD75M# was selected in Change AD75 model)

8.1.5 OPR basic parameter setting screen

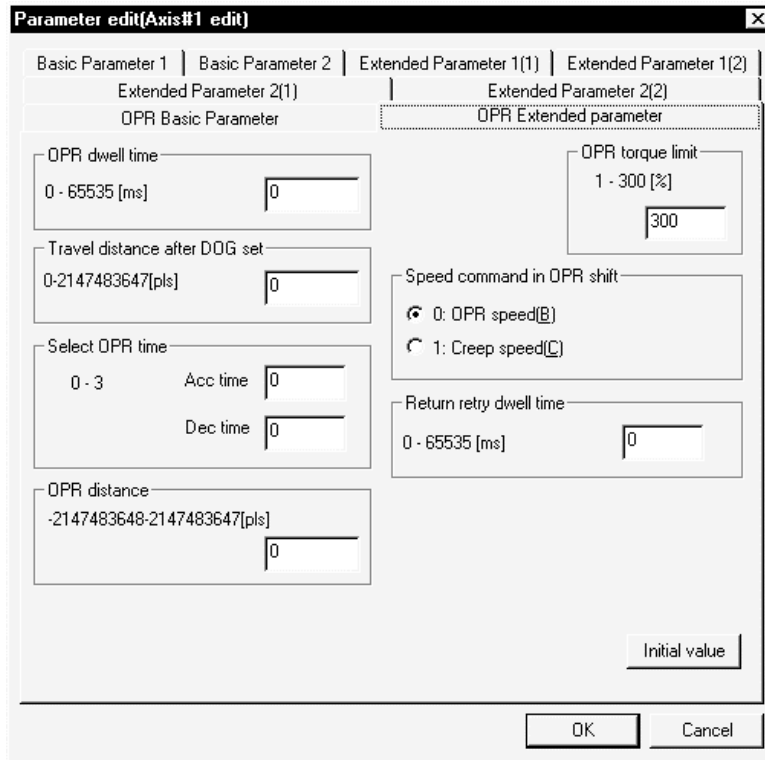
 DISPLAY/SETTING SCREEN



(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)

8.1.6 OPR extended parameter setting screen

 **DISPLAY/SETTING SCREEN**



(Screen example: Screen displayed when AD75P#-S3 was selected in Change AD75 model)

8.2 Servo Parameters



PURPOSE

Set the servo parameters transferred from the AD75M to the servo amplifiers over the SSCNET (Servo System Controller NETwork).

There are the following three servo parameter types.

- Servo basic parameters
- Servo adjustment parameters
- Servo extension parameters

Set each servo parameter type in the Servo parameter edit dialog box.

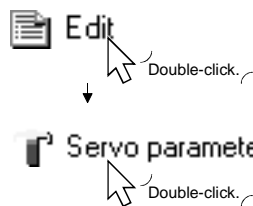
Perform the following operation until the Servo parameter edit dialog box appears.

For the setting data, refer to the installation guide or instruction manual of the servo amplifier and servo motor used.



BASIC OPERATION

1. Choose Servo parameter.



2. Double-click any item in the column of the axis to be set on the servo parameter main screen.

Double-click any item in this column to set the axis #2 servo parameters.

Parameter	Parameter	Axis#1 parameter	Axis#2 parameter	Axis#3 parameter
servo basic parameter	Servo series	0: MR_H_B	0: MR_H_B	0: MR_H_B
	Amplifier set	0: Select of abs.position invalid	0: Select of abs.position invalid	0: Select of abs.position invalid
	Regenerative	00:Regenerative brake	00:Regenerative brake	00:Regenerative brake
	External dynamic	0:No external dynamic	0:No external dynamic	0:No external dynamic
	Motor type	0000h:HA-SH(standard)	0000h:HA-SH(standard)	0000h:HA-SH(standard)
	Motor capacity	0000h	0000h	0000h

Double-click any item in this column to set the axis #1 servo parameters.

Double-click any item in this column to set the axis #3 servo parameters.

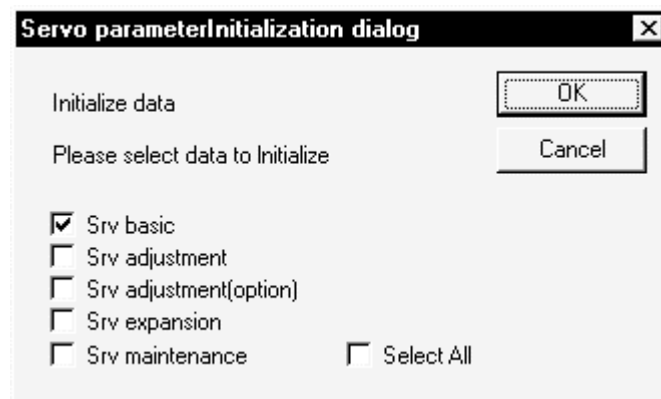
3. As the Servo parameter edit dialog box appears, click the corresponding tab to display the setting screen.
4. Set the screen data on the display/setting screen shown in any of Sections 8.2.1 to 8.2.3.
5. To exit, click the "OK" button.



HELPFUL OPERATION

Perform the following operation to return the servo parameters to the initial values type-by-type.

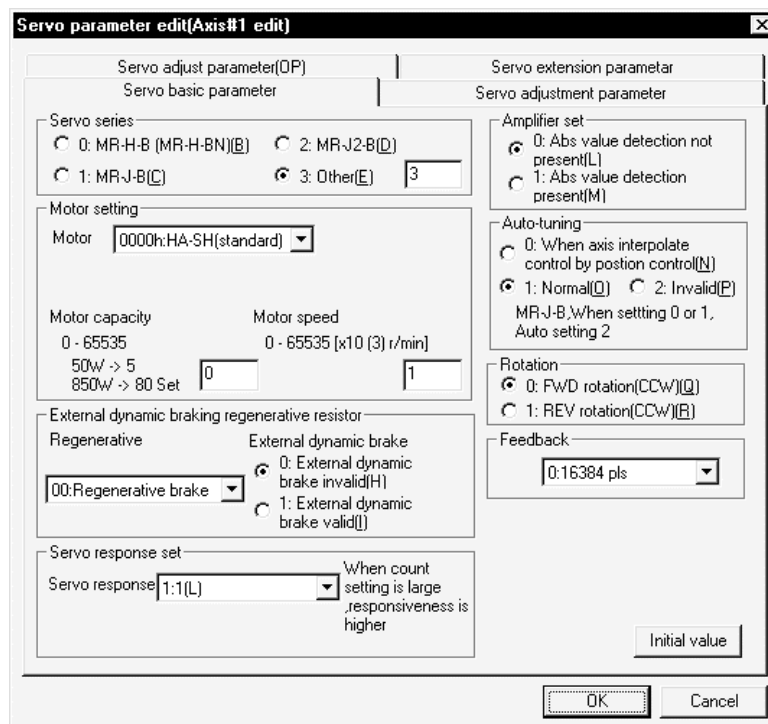
1. Clicking the "Initial value" button displays the Servo parameter Initialization dialog box.
2. Click the servo parameter type to be initialized.
3. Click the "OK" button to return the checked parameter type to the initial values.



8.2.1 Servo basic parameter setting screen



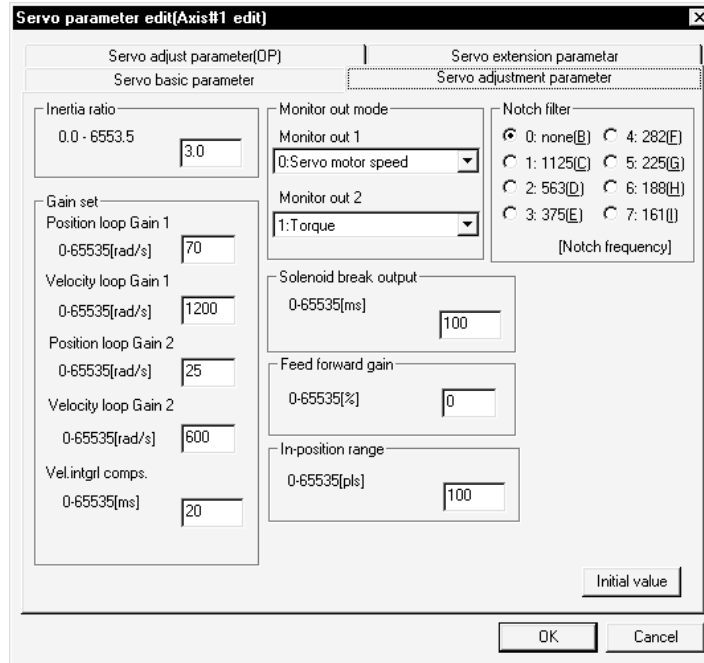
DISPLAY/SETTING SCREEN



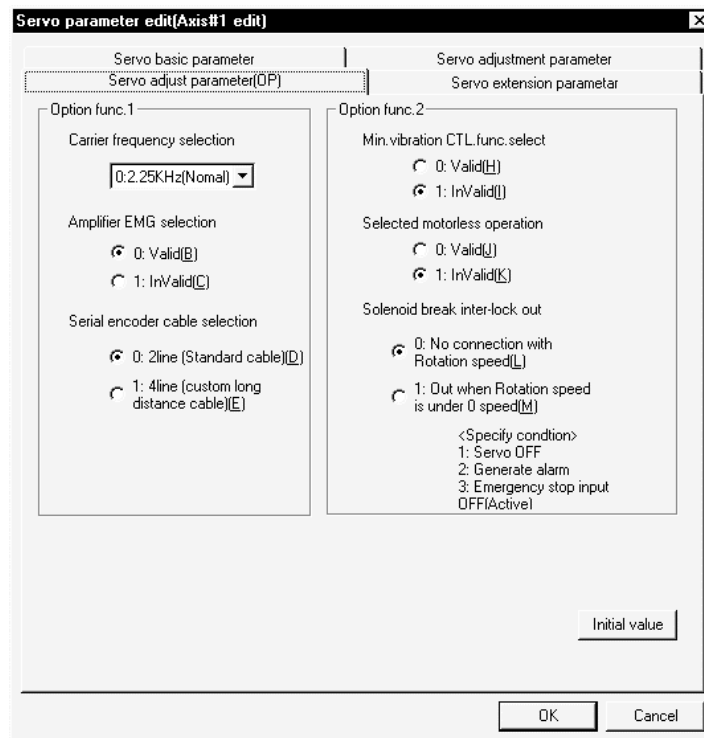
(Screen example: Screen displayed when Other was selected in Servo series)

8.2.2 Servo adjustment parameter setting screen

 DISPLAY/SETTING SCREEN



(Screen example: Screen displayed when Other was selected in Servo series)



(Screen example: Screen displayed when Other was selected in Servo series)

8.2.3 Servo extension parameter setting screen

 DISPLAY/SETTING SCREEN

Servo parameter edit(Axis#1 edit)

Servo basic parameter | Servo adjustment parameter

Servo adjust parameter(OP) | Servo extension parameter

Monitor out

Monitor out 1 offset
-32768-32767[mV] | 0

Monitor out 2 offset
-32768-32767[mV] | 0

Before-alarm data

data1 | 0: Servo motor speed

data2 | 1: Torque

Before-alarm sampling time

0: 1.77[ms] [B] 3: 14.2[ms] [E]

1: 3.55[ms] [C] 4: 28.4[ms] [F]

2: 7.11[ms] [D]

Vel.intgrl comps.

0 - 65535 | 980

Option func.5

PI-PID switching

0: Invalid [A]

1: Change, when becoming below value of PI-PID position droop at the position control. [H]

2: Always, PID control [I]

Zero speed
0-65535[r/min] | 50

Excess error alarm
0-65535[Kpls] | 80

PI-PID position droop
0-65535[pls] | 0

Initial value

OK Cancel

(Screen example: Screen displayed when Other was selected in Servo series)

9. SETTING OF POSITIONING DATA AND START BLOCK DATA

Set the positioning data, start block data, special start condition data and other data.

9.1 Positioning Data Setting



PURPOSE

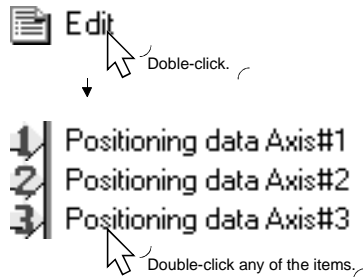
Set the positioning data such as the pattern, control method, accel time, decel time, address and command speed.

For details of the positioning data, refer to the AD75 User's Manual.



BASIC OPERATION

1. Choose the axis to which the positioning data will be set.



2. Set the data on the positioning data edit main screen.



DISPLAY/SETTING SCREEN

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Address(pola) [pls]	Arc Addr [pls]	Arc Addr(pola) [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code
1	0:END	0:No axes	0;1000	0;1000	0	0	0	0	0	0	0
2	0:END	0:No axes	0;1000	0;1000	0	0	0	0	0	0	0
3	0:END	0:No axes	0;1000	0;1000	0	0	0	0	0	0	0
4	0:END	1:ABS Line1 2:INC Line1	0;1000	0;1000	0	0	0	0	0	0	0
5	0:END	3:Feed1 4:ABS Line2	0;1000	0;1000	0	0	0	0	0	0	0
6	0:END	5:INC Line2 6:Feed2	0;1000	0;1000	0	0	0	0	0	0	0
7	0:END	7:ABS ArcMP 8:INC ArcMP	0;1000	0;1000	0	0	0	0	0	0	0
8	0:END	9:ABS ArcRGT	0;1000	0;1000	0	0	0	0	0	0	0

Note: This screen is the one where all setting items are displayed using the option function (refer to Section 12.5).

Double-click to choose from the list box.

When using the keyboard, press the "space", then "F4" key to display the list, and press the "Enter" key to choose.



DISPLAY/SETTING DATA

Item	Description
Data No.	Indicates the No. of the positioning data. The positioning data that can be set are No. 1 to 600. However, No. 1 to 100 are displayed in the initial setting. To display No. 1 to 600, make setting with the option function (refer to Section 12.5).
Pattern	Choose the pattern for positioning control. The selection range is 0 to 2. 0: END (independent positioning control) 1: CONT (Continue) (continuous positioning control) 2: LOCUS (continuous locus control)
Control method	Choose the positioning control method from among 1 to 9 and A to I. 1: ABS Line 1 (Axis #1 linear control (absolute)) 2: INC Line 1 (Axis #1 linear control (incremental)) 3: Feed 1 (Axis #1 fixed-pitch feed control) 4: ABS Line 2 (Axis #2 linear control (absolute)) 5: INC Line 2 (Axis #2 linear control ((incremental)) 6: Feed 2 (Axis #2 fixed-pitch feed control by linear interpolation) 7: ABS ArcM (Circular interpolation control by designating an auxiliary point (absolute)) 8: INC ArcM (Circular interpolation control by designating an auxiliary point (incremental)) 9: ABS ArcRGT (Circular interpolation control by designating a center point (absolute, clockwise)) A: ABS ArcLFT (Circular interpolation control by designating a center point (absolute, counterclockwise)) B: INC ArcRGT (Circular interpolation control by designating a center point (incremental, clockwise)) C: INC ArcLFT (Circular interpolation control by designating a center point (incremental, counterclockwise)) D: FWD velocity (Speed control (forward)) E: RVS velocity (Speed control (reverse)) F: FWD V/P (Speed/position switching control (forward)) G: RVS V/P (Speed/position switching control (reverse)) H: Address Change I: JUMP command When AD75P# is selected in Change AD75 model, the JUMP command is not displayed.
Acc Dec	Choose the accel time or decel time from among 0 to 3 set to the basic parameters 2 (refer to Section 8.1.2) and extended parameters 2 (refer to Section 8.1.4).
Address	Set the address for positioning control or the travel distance for speed control.
Address (pola)	Set the interpolation axis positioning address for 2-axis interpolation control.
Arc Addr	Set the address of the auxiliary point or center point designated for circular interpolation control.
Arc Addr (pola)	Set the address of the auxiliary point or center point of the interpolation axis designated for circular interpolation control.
Command speed	Set the command speed for positioning. Set the command speed to -1 to exercise control at the current speed.
Dwell	<ul style="list-style-type: none"> • Control method is other than JUMP command Set the delay time till the next positioning data start between 0 and 65535ms. • Control method is JUMP command Set any of positioning No. 1 to 600 of the JUMP destination.
M code	<ul style="list-style-type: none"> • Control method is other than JUMP command Set the M code used to perform work, process or the like in synchronization with positioning between 1 and 32767. • Control method is JUMP command Set any of the condition data No. 1 to 10 which is used as the JUMP command execution condition. Set 0 to execute the JUMP command unconditionally.



HELPFUL OPERATION (1)

GX Configurator-AP allows a comment to be set for each positioning data. When setting the positioning data comments, perform the following operation.

5. Click the [Tools] → [Option] menu.
2. Click the <<Positioning data set>> tab in the Option dialog box.
3. Click the “Positioning data comment line” check box.
4. Click the “OK” button.

Dwell [ms]DataNo.]	M code	Positioning data comment
500	1	
500	2	
500	3	
500	4	
500	5	

This item is added to the positioning data edit main screen. A single positioning data comment accepts up to 32 characters.



HELPFUL OPERATION (2)

When you want to check the setting range limiting parameters during positioning data setting, perform the following operation.

5. Click the [View] → [Edit property dialog] menu ().
2. In the Edit property dialog box, check the speed limit, interpolation speed mode, acc./dec. time unit selection and stepping motor of each axis.
When AD75M# is selected in Change AD75 model, the servo series is displayed.

Edit property				
	Speed limit	Interpolation	Acc/Dec	Stepping motor
Axis#1	50000 pulse/sec	0:Composed spe	0:1 word ty	1:Stepping motor
Axis#2	200000 pulse/se	0:Composed spe	0:1 word ty	0:Standard mode
Axis#3	200000 pulse/se	0:Composed spe	0:1 word ty	0:Standard mode

9.2 Positioning Data Checking

Check the positioning data, start block data and parameter settings for errors. Also, since operation can be checked virtually by the offline simulation of the positioning data, debugging efficiency improves. (Refer to Section 9.2.2.)

9.2.1 Error check



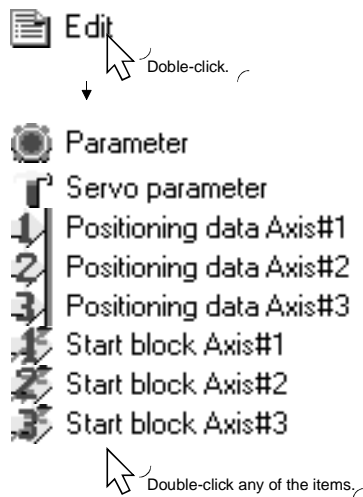
PURPOSE

Make error check to check the parameter settings, positioning data and start block data for mismatches and setting omissions. For the error check range, refer to the AD75 user's manual.



BASIC OPERATION

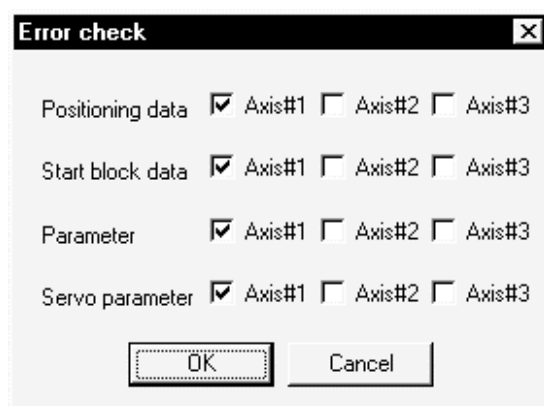
5. Choose any of the edit mode items.

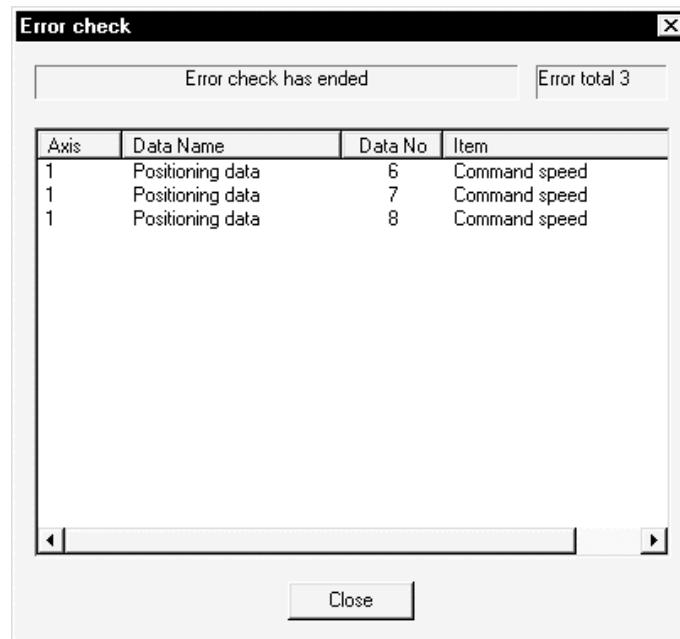


2. Click the [Tools] → [Error check] menu.



DISPLAY/SETTING SCREEN





DISPLAY/SETTING DATA

Item	Description
Positioning data	In the check box, set the positioning data of the axis on which error check will be made.
Start block data	In the check box, set the start block data of the axis on which error check will be made.
Parameter	In the check box, set the parameters of the axis on which error check will be made.
Servo parameter	In the check box, set the servo parameters of the axis on which error check will be made. Displayed only when AD75M# is selected in Change AD75 model.
“OK” button	Click this button to start error check.
Error check result	When error check is complete, the number of errors and error locations appear. On the above screen, error locations are the command speed of axis #1 positioning data No. 1 and the parameter at point No. 1 of axis #2 start block No. 0.

9.2.2 Offline simulation

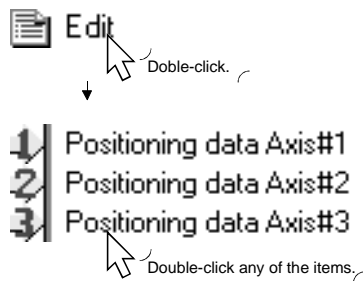
**PURPOSE**

Execute virtual positioning (offline simulation) with the set positioning data to check the operation of the axis.

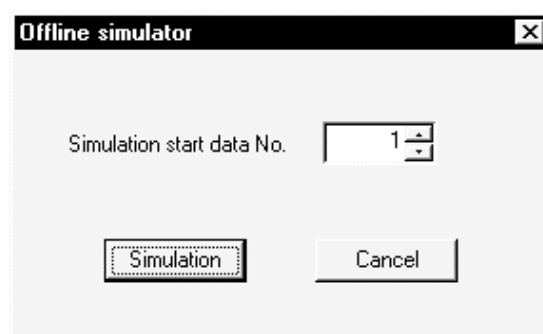
The speed is displayed as waveform data for 1-axis control or as locus data for 2-axis interpolation control.

**BASIC OPERATION**

5. Choose the positioning data of the axis on which offline simulation will be made.



2. Click the [Edit] → [Offline simulator] menu.
3. Type the positioning data No. in the Offline simulation dialog box and click the "Simulation" button.
4. Check the offline simulation result.
5. To exit, click the "Exit" button.

**DISPLAY/SETTING SCREEN**

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Address[polo] [pls]	Arc Addr [pls]	Arc Addr[polo] [pls]
1	2:LOCUS	7:ABS ArcMP	0:1000	0:1000	1000	1000	700	300
2	2:LOCUS	7:ABS ArcMP	0:1000	0:1000	2000	2000	1300	1700
3	0:END	7:ABS ArcMP	0:1000	0:1000	3000	3000	270	2300



DISPLAY/SETTING DATA

Item	Description
Simulation start data No.	Set the positioning data No. from which offline simulation starts. The positioning data where the control pattern will end is the object of offline simulation.
“Simulation” button	Click this button to start offline simulation.
Offline simulation result	Shows the offline simulation result. For 2-axis interpolation control, the reference axis (X axis) is in the horizontal direction and the interpolation axis (Y axis) is in the vertical direction. For 1-axis control, time is in the horizontal direction and the axis speed is in the vertical direction. Use the scroll bar to move the display area.
“magnification (X axis)” button	Every time you click this button, the display is magnified in the horizontal direction.
“reduction (X axis)” button	Every time you click this button, the display is reduced in the horizontal direction.
X coordinates	Shows the coordinate of the screen center in the horizontal direction.
“magnification (Y axis)” button	Every time you click this button, the display is magnified in the vertical direction.
“reduction (Y axis)” button	Every time you click this button, the display is reduced in the vertical direction.
Y coordinates	Shows the coordinate of the screen center in the vertical direction.
“Exit” button	Click this button to close the offline simulation result dialog box.

9.3 Start Block Data Setting



PURPOSE

Set the start block data of blocks: a single block ranges from the starting positioning data No. to the end positioning data No.

The start block data can be set between No. 0 and 10 for each axis.

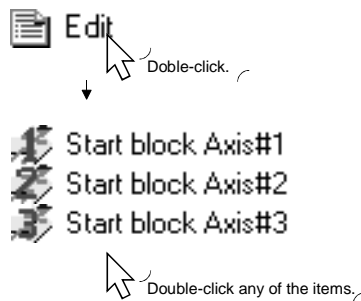
Note that only block No. 0 may be set when AD75P# is selected in Change AD75 model.

For details of the start block data, refer to the AD75 User's Manual.



BASIC OPERATION

1. Choose the axis to which the start block data will be set.



2. Set the data on the start block data edit main screen.



DISPLAY/SETTING SCREEN

Point	Mode	Data No.	Special Start	Parameter	Parameter setting data
1	1:CONT	1	1:Cond start	1	condition
2	1:CONT	10	0:Normal start	0	None
3	1:CONT	20	1:Cond start	0	None
4	1:CONT	30	2:Wait start	0	None
5	1:CONT	40	3:Simu start	0	None
6	1:CONT	50	4:Stop	0	None
7	0:END	0	5:FOR loop	0	None
8	0:END	0	6:FOR cond	0	None
9	0:END	0	7:NEXT	0	None
10	0:END	0	0:Normal start	0	None
11	0:END	0	0:Normal start	0	None

Double-click to choose from the list box.



DISPLAY/SETTING DATA

Item	Description
Point	Shows the point number 1 to 50.
Mode	Select whether positioning control is ended at the point where positioning was completed or positioning control will be continued to the next point. 0: END 1: CONT (Continue)
Data No.	Set the positioning data No. specified at the point. The setting range is positioning data No. 1 to 600.
Special Start	Choose the type of starting the positioning control per point. The selection range is 0 to 7. 0: Normal start 4: Stop 1: Cond start 5: FOR loop 2: Wait start 6: FOR cond 3: Simu start 7: NEXT For the special start information, refer to the AD75 User's Manual.
Parameter	When conditional start, wait start, simultaneous start or FOR condition has been set in Special Start, set any of the condition data (refer to Section 9.4) No. 1 to 10 as its condition. When FOR loop has been set in Special Start, set the repeat count. The setting range is 0 to 255. Setting 0 makes the repeat count limitless.
Parameter setting data	Indicates whether the parameter setting is the condition data No. or repeat count.

9.4 Condition Data Setting



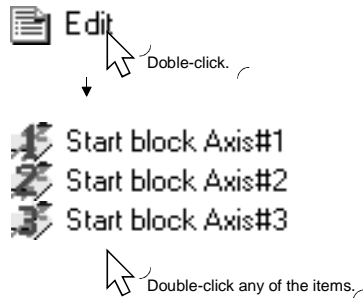
PURPOSE

Set the condition data which will be the condition of the JUMP command in the positioning data or the conditions of the conditional start, wait start, simultaneous start and FOR condition start in the start block data.



BASIC OPERATION

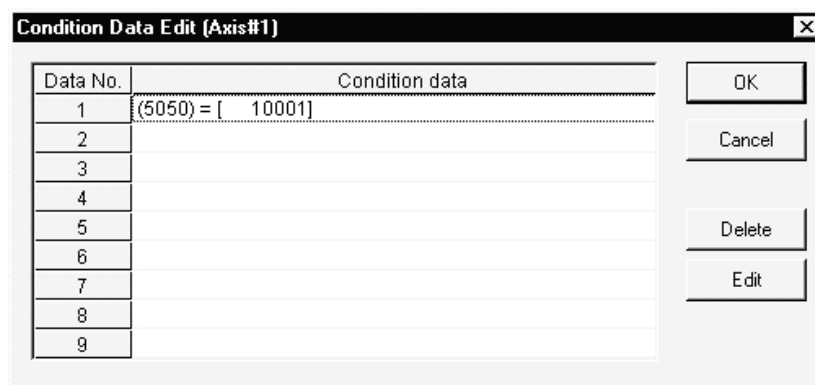
1. Choose the start block data of the axis to which the condition data will be set.

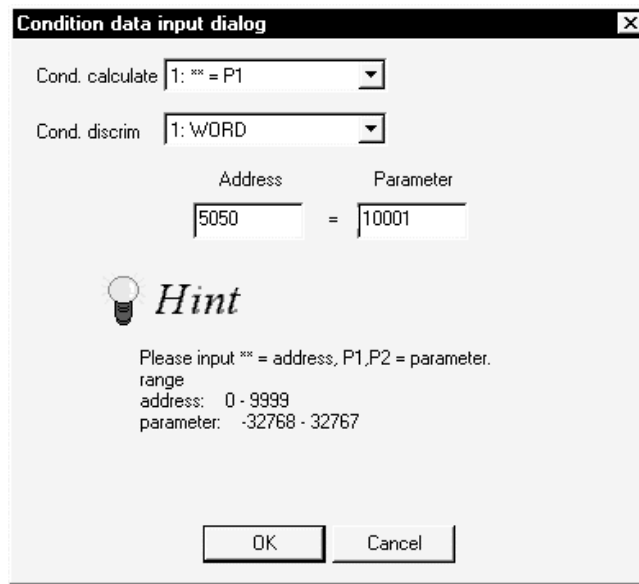


2. Click the [Edit] → [Condition data edit] menu.
3. Choose the data No. to be set in the Condition Data Edit dialog box.
4. Click the "Edit" button in the Condition Data Edit dialog box.
5. Choose the Condition calculate and Condition discrim in the Condition data input dialog box and set the condition values.
6. Click the "OK" button in the Condition data input dialog box.
7. To exit, click the "OK" button in the Condition Data Edit dialog box.



DISPLAY/SETTING SCREEN





DISPLAY/SETTING DATA

Item	Description
Data No.	Shows the condition data No.
Condition data	Shows the set condition data.
"Edit" button	Click this button to display the Condition data input dialog box.
Cond. calculate	<p>Choose the type of the condition calculate of the condition data. (Setting range 1 to 9)</p> <p>1: ** = P1 4: ** ≥ P2 7: DEV = ON 2: ** ≠ P1 5: P1 ≤ ** ≤ P2 8: DEV = OFF 3: ** ≤ P1 6: P1 ≥ **, ** ≥ P2 9: Simul. start axes</p> <p>** indicates a value stored into buffer memory. P1 and P2 indicate parameters (values set as desired). DEV indicates the X/Y device.</p>
Cond. discrim	<p>Choose the object of Condition calculate.</p> <ul style="list-style-type: none"> • If Condition calculate is any of 1 to 6, choose the size of the device. 1: WORD 2: DOUBLE WORD • If Condition calculate is 7 or 8, choose the type of the device. 1: X device 2: Y device • If Condition calculate is 9, choose the axes to be started simultaneously. 1: Axis 1 3: Axes 1, 2 5: Axes 1, 3 2: Axis 2 4: Axis 3 6: Axes 2, 3
Text box	<p>Set the condition object to Condition calculate.</p> <ul style="list-style-type: none"> • If Condition calculate is any of 1 to 6, set the buffer memory address to **. Set the value of the size set in Cond. calculate to P1/P2. • If Condition calculate is 7 or 8, set the device No. If Condition calculate is 9, set the positioning data No. of the axes to be started simultaneously.
"OK" button	<p>By clicking the "OK" button in the Condition data input dialog box, the condition data set in the text box appears in the Condition Data Edit dialog box.</p> <p>By clicking the "OK" button in the Condition Data Edit dialog box, the condition displayed is set.</p>
"Delete" button	Click this button to delete the condition data at the cursor.

9.5 Indirect Data Setting



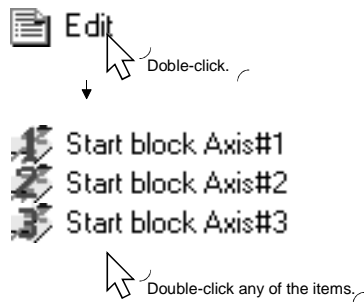
PURPOSE

Set the indirect data which is used to register the positioning data No. to the indirect data buffer memory.



BASIC OPERATION

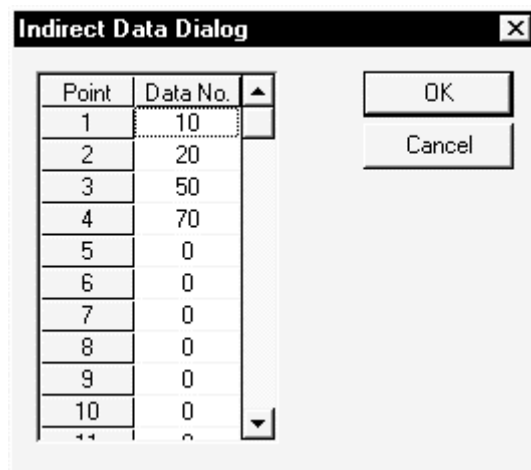
1. Choose the start block data of the axis to which the indirect data will be set.



2. Click the [Edit] → [Indirect data edit] menu.
3. Set the indirect data.
4. To exit, click the "OK" button in the Indirect data dialog box.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Point	Indicates the order of storing data into indirect data buffer memory.
Data No.	Set the positioning data No. designated indirectly.
"OK" button	Click this button to terminate the setting.

9.6 M Code Comment Setting



PURPOSE

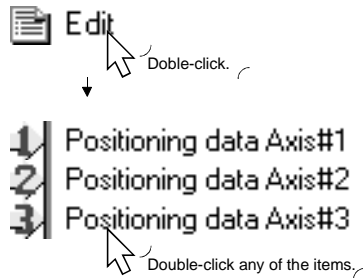
Set comments to M codes which are required for control exercised in synchronization with positioning.

M code comments are data which can be saved only on the peripheral device. Up to 50 comments can be set for each axis.



BASIC OPERATION

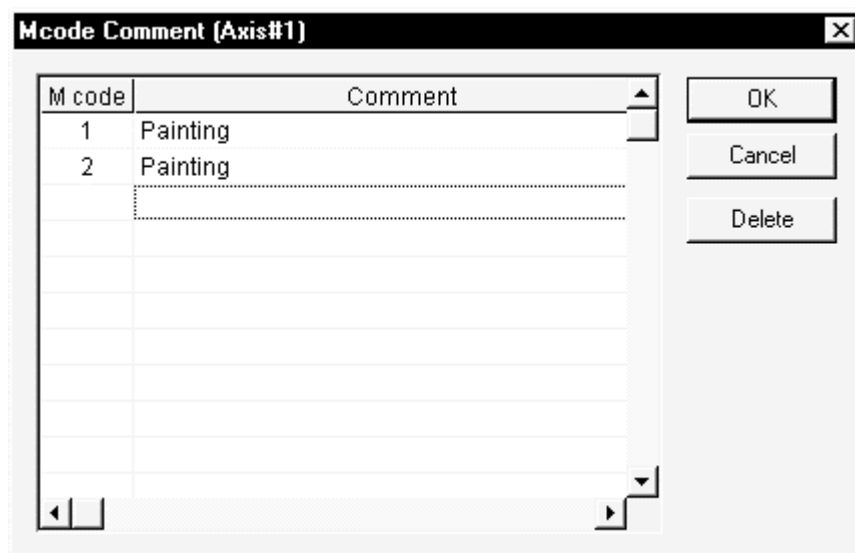
1. Choose the start block data of the axis to which the M code comments will be set.



2. Click the [Edit] → [M code comment] menu.
3. Set the M code comments.
4. To exit, click the "OK" button in the M Code Comment dialog box.



DISPLAY/SETTING SCREEN

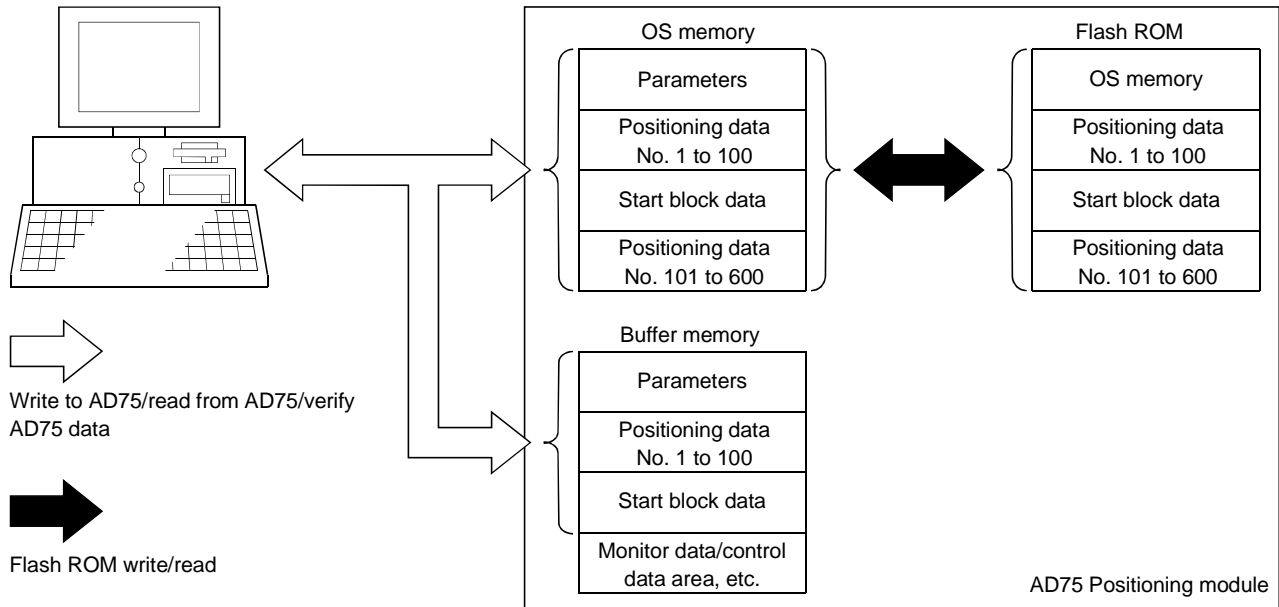


*DISPLAY/SETTING DATA*

Item	Description
M code	Set the M code No. to be commented.
Comment	Set a comment of up to 32 characters. Up to 50 comments can be set for each axis.
"OK" button	Click this button to terminate the setting.
"Delete" button	Click this button to delete the comment chosen.

10. POSITIONING MODULE DATA WRITE/READ/VERIFY

Perform write to AD75/read from AD75/verify AD75 data, and data transfer between flash ROM and OS memory in the AD75.



10.1 Write to AD75/Read from AD75/Verify AD75 Data

**PURPOSE**

On the peripheral device, write, read and verify the set data (parameters, positioning data, start block data) on an axis basis.

Read from AD75/verify AD75 data can be performed when the main screen is displaying the icons.

For write to AD75, the full range can be selected when the main screen is displaying the icons, and only the data being displayed can be written when the main screen for parameters, positioning data or start block data is being displayed.

**BASIC OPERATION**

1. Click the [Online] → [Write to AD75] ()/[Read from AD75] ()/[Verify AD75 data] menu.

If the current module type is different from the project model, the confirmation dialog box appears.

Check the current module type and the project's Change AD75 model.

2. Set the data type and range in the Write/Read/Verify dialog box.
3. Click the "OK" button to start operation.
4. For AD75 data verify, the verify result appears.



DISPLAY/SETTING SCREEN

[Write to AD75]

Write AD75M<Axis#3>

MAIN | Position data | Start block | Parameter

Positioning data
 Start block data
 Parameter
 Falsh ROM Write

Current module type (AD75M<Axis#3>)
 Position data
 Axis 1 positioning data (1 to 600) is the object
 Axis 2 positioning data (1 to 600) is the object
 Axis 3 positioning data (1 to 600) is the object
 Start block data
 Axis 1 start block data (0 block to 10 block) is the object
 Axis 2 start block data (0 block to 10 block) is the object
 Axis 3 start block data (0 block to 10 block) is the object
 Parameter data
 Axis 1 parameter data is the object
 Axis 2 parameter data is the object
 Axis 3 parameter data is the object

OK Cancel

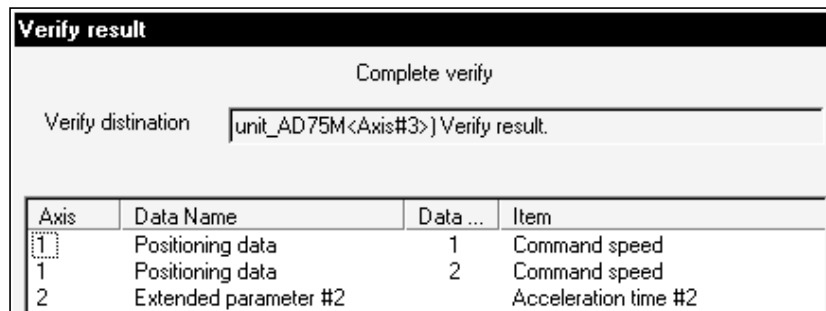
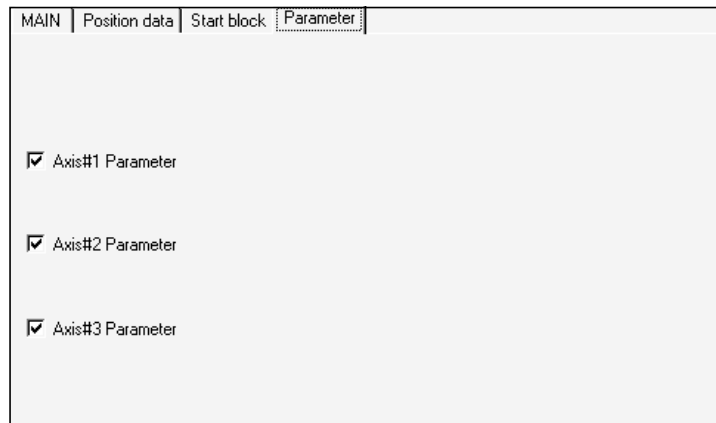
MAIN | Position data | Start block | Parameter

	Start No		End No
<input checked="" type="checkbox"/> Axis#1 Positioning Data	1	to	600
<input checked="" type="checkbox"/> Axis#2 Positioning Data	1	to	600
<input checked="" type="checkbox"/> Axis#3 Positioning Data	1	to	600

MAIN | Position data | Start block | Parameter

Start block no. selection

<input checked="" type="checkbox"/> Axis#1 Start block	<input type="radio"/> Block No.0 only	<input checked="" type="radio"/> All(All)
<input checked="" type="checkbox"/> Axis#2 Start block	<input type="radio"/> Block No.0 only	<input checked="" type="radio"/> All(All)
<input checked="" type="checkbox"/> Axis#3 Start block	<input type="radio"/> Block No.0 only	<input checked="" type="radio"/> All(All)



DISPLAY/SETTING DATA

Item	Description
Positioning data Start block data Parameter	Set the data to be written/read/verified from positioning data, start block data and parameters. Start block data includes condition data and indirect data. Parameters include servo parameters.
Flash ROM write	When performing write to AD75, set a write request from OS memory to flash ROM at the same time.
Current module type	Set the model of the AD75 connected to the peripheral device and the range of write/read/verify.
<<Position data>> tab <<Start block>> tab <<Parameter>> tab	Click the corresponding tab to display the screen on which the axes and ranges of the data to be written/read/verified are set.
<<Position data>> tab screen	Set the axes whose positioning data will be written/read/verified. Also, set the positioning data No.s in the write/read/verify range on an axis basis.
<<Start block>> tab screen	Set the axes whose start block data will be written/read/verified. Also, set the range of the write/read/verify block on an axis basis.
<<Parameter>> tab screen	Set the axes whose parameters will be written/read/verified.
"OK" button	Click this button to start write to AD75/read from AD75/verify AD75 data.
Verify result dialog box	After AD75 data verify is completed, differences between the AD75 and project appear.
Verify result	The screen example displays that the command speed of the axis #1 positioning data No. 1 differs between the AD75 and project.



- The following data are saved on the peripheral device only and cannot be written/read/verified.
 - M code comment
 - Positioning data comment
 - Register servo name
- The following parameters should be written when the PLC ready signal (Y1D) is off.
 - Basic parameter 1
 - Extended parameter 1
 - OPR basic parameter
 - OPR extended parameter

10.2 Flash ROM write/read request to AD75



PURPOSE

Using the flash ROM request function, give from the peripheral device a command to write data from the AD75's OS memory to flash ROM or a command to read data from flash ROM to OS memory.

Between OS memory and flash ROM, the full ranges of parameters (including servo parameters), positioning data and start block data (including condition data and indirect data) are batch-written/read.

The AD75 flash ROM write request can be given when the main screen is displaying the icons.

However, the request cannot be executed if the PLC ready signal (Y1D) of the AD75 is ON.

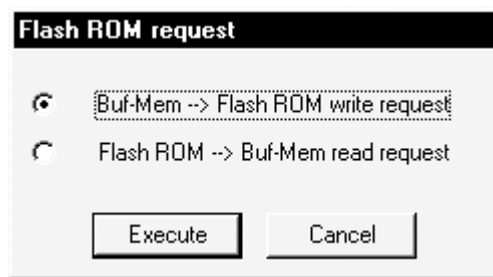


BASIC OPERATION

1. Click the [Online] → [ROM request] menu.
2. Choose Flash ROM write request or Buf-Memory read request in the Flash ROM request dialog box.
3. Click the "Execute" button to start.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Buf-Mem → Flash ROM write request	Used to write the data of OS memory to flash ROM.
Flash ROM → Buf-Mem read request	Used to read the data of flash ROM to OS memory.
"Execute" button	Click this button to give the flash ROM request to the AD75.

11. POSITIONING DEBUGGING



Debug positioning operation by monitoring the positioning operation, making test operation for positioning data, and performing various operation tests by JOG operation.



HELPFUL OPERATION (1)

If the conversion cable has come off or the PLC CPU is reset during monitoring or testing, the monitor or test mode is forced to end.




To resume the monitor or test, perform the following operation.

1. Check the cable connection, PLC CPU status, etc. and remove the cause of monitor or test suspension.
2. Click the [Online] → [Monitor] → [Monitor start] menu ().
3. To perform a test, further click the [Online] → [Test] → [Test start] menu ().



HELPFUL OPERATION (2)




If an error has occurred in the axis being monitored or tested, perform the following operation.

1. Check the axis status using operation monitor or the like.
2. When the axis status indicated is error occurrence, check the error code.
3. For the error code, confirm the error cause and its corrective action using the error/warning help.
4. Reset the error on the peripheral device.
 - If during monitoring, click the [Online] → [Error reset] → [Error reset #1] ()/[Error reset #2] ()/[Error reset #3] () menu.
 - If during testing, click the error resetting command button in the corresponding test dialog box.
5. Remove the error cause according to the corrective action.



HELPFUL OPERATION (3)

To turn off the M code during monitoring or testing, perform the following operation.

Click the [Online] → [M code Off] → [M code #1 Off] ()/[M code #2 Off] ()/[M code #3 Off] () menu.

11.1 Monitor

Monitor the positioning data and start block data execution states on an axis basis or perform extended monitor of the error histories, signal states, current values, speeds, etc. of all axes.

11.1.1 Monitoring the positioning data/start block data



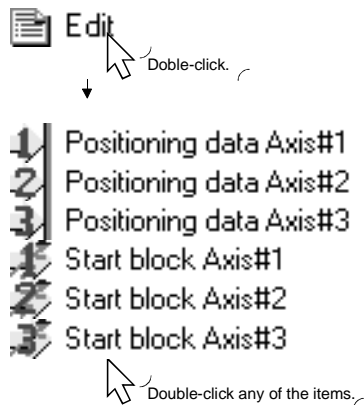
PURPOSE

From the screen of the positioning data/start block data of any axis, monitor the positioning data No.s or block No.s and point No.s being executed, and further monitor the operating status indicators such as the feed addresses, feed speeds, error/warning codes and M codes.

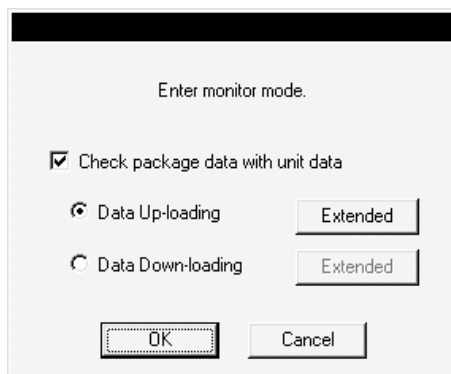


BASIC OPERATION

1. Choose the positioning or start block data to be monitored.



2. Click the [Online] → [Monitor] → [Monitor start] menu ().



3. Choose "Data Up-loading" (read from AD75) or "Data Down-loading" (write to AD75) in the monitor mode start confirmation dialog box.
4. Click the "Extended" button and set the required data and range in the Write or Read dialog box.
5. Click the "OK" button in the monitor mode start confirmation dialog box.
6. To exit, click the [Online] → [Monitor] → [Monitor start] menu ().



DISPLAY/SETTING SCREEN

[Screen example shows positioning data monitor.]

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code	
1	1:CONT	1:ABS Line1	2,800	3,500	12000	10000	0	0	
2	1:CONT	1:ABS Line1	2,800	3,500	15000	10000	0	0	
3	1:CONT	1:ABS Line1	2,800	3,500	18000	10000	0	0	
4	1:CONT	1:ABS Line1	2,800	3,500	20000	10000	0	0	
5	1:CONT	1:ABS Line1	2,800	3,500	14000	10000	0	0	
6	Monitor property							0	0
7								0	0
8								0	0
9	Axis#1	Feed Address	14449 pulse	Feed speed	9999 pulse/sec	Error	Warning	Operation data	
10	Axis#2	0 pulse		0 pulse/sec		0	0	1-2	
11	Axis#3	0 pulse		0 pulse/sec		0	0	0-0	
12								0	0
13								0	0



DISPLAY/SETTING DATA

Item	Description
Positioning data monitor/start block data monitor	For positioning data monitor, the positioning data in execution is highlighted. For start block data monitor, the point in execution is highlighted.
Monitor property dialog box	Automatically appears when the monitor mode is selected.
Feed Address	Shows the feed addresses of the axes.
Feed speed	Shows the feed speeds.
Error/Warning	Shows the error/warning codes when errors/warnings occur. 0 is displayed when no error/warning has occurred. The error/warning codes can be confirmed in [Help].
Operation data	For positioning data monitor, the positioning data No.s in execution appear. For start block data monitor, the block No.s and point No.s are displayed. "0-1" represents point No. 1 of block No. 0.

11.1.2 Operation monitor (main screen)



PURPOSE

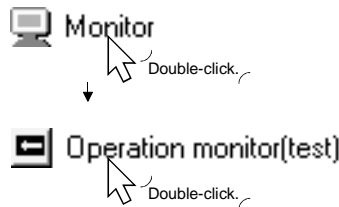
By monitoring the operation monitor main screen, monitor the address, axis speed, axis status, positioning data No. executed last, error/warning code occurring currently, and M code of each axis.

This monitor is used to confirm the axis states during operation test under positioning control.



BASIC OPERATION

1. Choose Operation monitor.



2. To exit, click the [Online] → [Monitor] → [Monitor start] menu ().



DISPLAY/SETTING SCREEN

History		I/O Signal		Operation		Monitoring		Comment disp.	
---------	--	------------	--	-----------	--	------------	--	---------------	--

Axis#1									
Address			Axis speed			Axis status			
1897 pls			0 pls/s			Stand-by			
No	Pattern	Control method		Acc.	Dec.	Error	Warning	M code	
9010	Exit	ABS Line1		0	0	0	0	0	

Axis#2									
Address			Axis speed			Axis status			
0 pls			0 pls/s			Stand-by			
No	Pattern	Control method		Acc.	Dec.	Error	Warning	M code	
0	Exit	ABS Line1		0	0	0	0	0	

Axis#3									
Address			Axis speed			Axis status			
0 pls			0 pls/s			Stand-by			
No	Pattern	Control method		Acc.	Dec.	Error	Warning	M code	
0	Exit	ABS Line1		0	0	0	0	0	

Comment display Dialog	
Ax 1	Ax 2 Ax 3
M code	1 painting
Posi comment	5 move to the center
Close	



DISPLAY/SETTING DATA

Item	Description
Address	Indicates the feed address. Buffer memory address (Axis #1): 800
Axis speed	Indicates the feed speed. Buffer memory address (Axis #1): 812
Axis status	Indicates the axis status. Buffer memory address (Axis #1): 809
No.	Indicates the positioning data No. in execution. Note that if other than the positioning data No. is specified for operation, its starting number is displayed. Buffer memory address (Axis #1): 835
Pattern	Indicates the positioning data pattern in execution. Buffer memory address (Axis #1): 838
Control method	Indicates the positioning data control method in execution. Buffer memory address (Axis #1): 838
Acc. Dec.	Indicates the acceleration and deceleration times selected in the positioning data in execution. Set the acceleration and deceleration times in basic parameters 2 and extended parameters 2. For parameter setting, refer to Section 8.1. Buffer memory address (Axis #1): 838
Error Warning	Shows the error and warning codes when an error and warning has occurred. 0 is displayed when no error/warning has occurred. The error/warning codes can be confirmed in [Help]. Buffer memory address (Axis #1): 807, 808
M code	Indicates the M code of the positioning data in execution. Buffer memory address (Axis #1): 806
Axis #2 Axis #3	Shows the operation monitor data of axis #2/#3.
"History" button "I/O Signal" button "Operation" button "Servo" button	Click the corresponding button to display the history, signal, operation or servo monitor dialog box. Refer to Section 11.1.3 for history monitor. Refer to Section 11.1.4 for signal monitor. Refer to Section 11.1.5 for operation monitor. Refer to Section 11.1.6 for servo monitor.
"Comment disp." button	Click this button to display the dialog box which shows the positioning data comment and M code comment in execution.
"Comment display" dialog box	Shows the positioning data comment and M code comment in execution.

11.1 3 History monitor



PURPOSE

Monitor the error, warning, start and error-time start histories stored in the AD75 buffer memory during operation monitor.
The error-time start history is the history of starts until when an error occurs.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to display the operation monitor main screen.
2. Click the "History" button on the operation monitor main screen.
3. Click the <<Err. hist.>>/<<Warn. hist.>>/<<Start hist.>>/<<Start with err.>> tab.
4. To exit, click the "Close" button.



DISPLAY/SETTING SCREEN

[Error history monitor]

History Dialog					
Err. hist. Warn. hist. Start hist. Start with err.					
No.	Axis	Code	Time	.	M
1	1	524	10:20:50.3	.	Control method
2	3	102	13:4:52.9	.	Drive module re
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

[Warning history monitor]

History Dialog					
Err. hist. Warn. hist. Start hist. Start with err.					
No.	Axis	Code	Time	.	M
1	2	301	13:24:35.9	.	JOG speed limit
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					



DISPLAY/SETTING DATA

Item	Description
No.	Represents the order of errors/warnings which occurred since power-on. If more than 16 errors/warnings occurred, the older ones are deleted.
Axis	Shows the axis where the error/warning occurred. Buffer memory address: 624 to 752
Code	Shows the error/warning code. Buffer memory address: 624 to 752
Time	Shows the error/warning occurrence time in 100ms increments in relation to the time set to the AD75 in the sequence program. Example: The time at error history monitor No. 1 is 10 o'clock 20 minutes 50.3 seconds. Buffer memory address: 624 to 752
Message	Shows the error/warning name.



DISPLAY/SETTING SCREEN

[Start history monitor]

History Dialog						
		Err. hist.	Warn. hist.	Start hist.	Start with err.	
No.	Axis	Start	Mode	Time	Resl	
1	1	PLC	1	9:10:44.5	OK	
2	2	PLC	1	9:10:44.5	OK	
3	3	PLC	1	9:10:44.5	OK	
4	1	Prog	1	10:15:41.1	100	
5	1	PLC	JOG	14:22:48.5	OK	
6	2	PLC	JOG	14:22:48.5	OK	
7	3	PLC	JOG	14:22:48.5	OK	
8						
9						
10						
11						
12						
13						
14						
15						
16						

[Start with error history monitor]

History Dialog						
		Err. hist.	Warn. hist.	Start hist.	Start with err.	
No.	Axis	Start	Mode	Time	Resl	
1	1	PLC	1	9:10:44.5	OK	
2	2	PLC	1	9:10:44.5	OK	
3	3	PLC	1	9:10:44.5	OK	
4	1	Prog	1	10:15:41.1	100	
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						



DISPLAY/SETTING DATA

Item	Description
No.	Represents the order of starts since power-on for the start history. Represents the order of starts after error occurrence for the error-time start history. If there are more than 16 starts, the older ones are deleted. For the error-time start history, its data is overwritten every time an error occurs.
Axis	Indicates the axis started. Buffer memory address: 462 to 622
Start	Indicates the start command destination. The command destination is the PLC CPU, peripheral device or external start. Buffer memory address: 462 to 622
Mode	Indicates the type of operation started. The positioning data No. is displayed for operation which uses the positioning data. Buffer memory address: 462 to 622
Time	Indicates the error/warning occurrence time in 100ms increments in relation to the time set to the AD75 in the sequence program. Buffer memory address: 462 to 622
Result	Shows OK for a normal start. Shows the error code when an error occurs. The error code can be confirmed in [Help]. Buffer memory address: 462 to 622

11.1.4 Signal monitor



PURPOSE

Monitor the I/O signals (X/Y devices), external I/O signals and status signals of the AD75.

For the signals, refer to the AD75 User's Manual.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to display the operation monitor main screen.
2. Click the "Signal" button on the operation monitor main screen.
3. Click the <<X/Y device>>/<<External I/O>>/<<Status info.>> tab.
4. To exit, click the "Close" button.



DISPLAY/SETTING SCREEN

[X/Y device monitor]

Signal Dialog

X/Y device | External I/O | Status info. |

X device			Y device		
X00	AD75 Ready	--	Y10	Axis#1 start	On
X01	Axis#1 started	On	Y11	Axis#2 start	On
X02	Axis#2 started	On	Y12	Axis#3 start	--
X03	Axis#3 started	--	Y13	Axis#1 stop	--
X04	Axis#1 BUSY	On	Y14	Axis#2 stop	--
X05	Axis#2 BUSY	On	Y15	All Axis servo On	--
X06	Axis#3 BUSY	--	Y16	Axis#1 FWD JOG	--
X07	Axis#1 completed	--	Y17	Axis#1 RVS JOG	--
X08	Axis#2 completed	--	Y18	Axis#2 FWD JOG	--
X09	Axis#3 completed	--	Y19	Axis#2 RVS JOG	--
X0A	Axis#1 error	--	Y1A	Axis#3 FWD JOG	--
X0B	Axis#2 error	--	Y1B	Axis#3 RVS JOG	--
X0C	Axis#3 error	--	Y1C	Axis#3 stop	--
X0D	Axis#1 M code	On	Y1D	PLC ready	On
X0E	Axis#2 M code	--	Y1E	Not for use	--
X0F	Axis#3 M code	--	Y1F	Not for use	--

(Screen example: Screen displayed when AD75M# is selected in Change AD75 model)

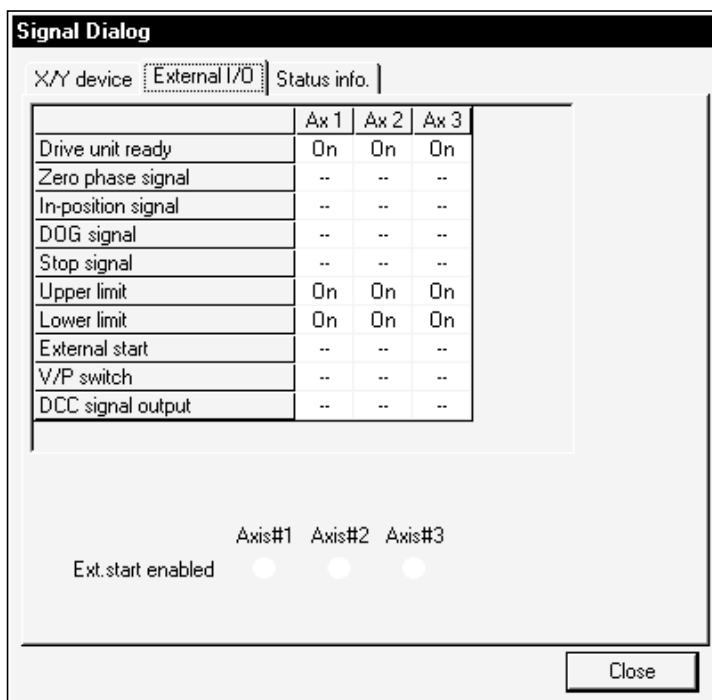


DISPLAY/SETTING DATA

Item	Description
X/Y device	Displays ON of the I/O signals of the AD75. If AD75M# is selected in Change AD75 model, Not for use is displayed at Y15.

 **DISPLAY/SETTING SCREEN**

[External I/O monitor]



(Screen example: Screen displayed when AD75P#-S3 is selected in Change AD75 model)

 **DISPLAY/SETTING DATA**

Item	Description
External I/O	Shows ON of the external I/O signals of the AD75. The types of the external I/O signals displayed depend on the model selected in Change AD75 model. Buffer memory address (Axis #1): 816
Ext. start enabled	Shows that the start made with the external start signal set in the sequence program is enabled. ● (ON) indicates that the external start is enabled. Buffer memory address (Axis #1): 1171

 **DISPLAY/SETTING SCREEN**

[Status information monitor]

Signal Dialog

X/Y device | External I/O | **Status info.**

	Ax 1	Ax 2	Ax 3
V-control	--	--	--
V/P switch latch	--	--	--
Cmd. in-position	--	--	--
OPR request	--	On	On
OPR completion	On	--	--
Axis warning	--	--	--
Speed change 0	--	--	--
OP abs. over	--	--	--
OP abs. under	--	--	--
Zero passing	--	--	--
In-position	--	--	--
Zero speed	--	--	--
Torque control flag	--	--	--

(Screen example: Screen displayed when AD75M# is selected in Change AD75 model)

 **DISPLAY/SETTING DATA**

Item	Description
Status info.	Shows ON of the status signals of the AD75. The types of the status signals displayed depend on the model selected in Change AD75 model. Buffer memory address (Axis #1): 817, 873 (AD75M only)

11.1.5 Operation monitor (dialog)



PURPOSE

Monitor the settings, states and others of the axis control data, speed/position control, original point return, JOG operation, and manual pulse generator operation during operation monitor.

With operation monitor, you can check the detailed states of operation and the settings made to the AD75 with the sequence program or peripheral device.

For each monitor item, refer to the AD75 User's Manual.



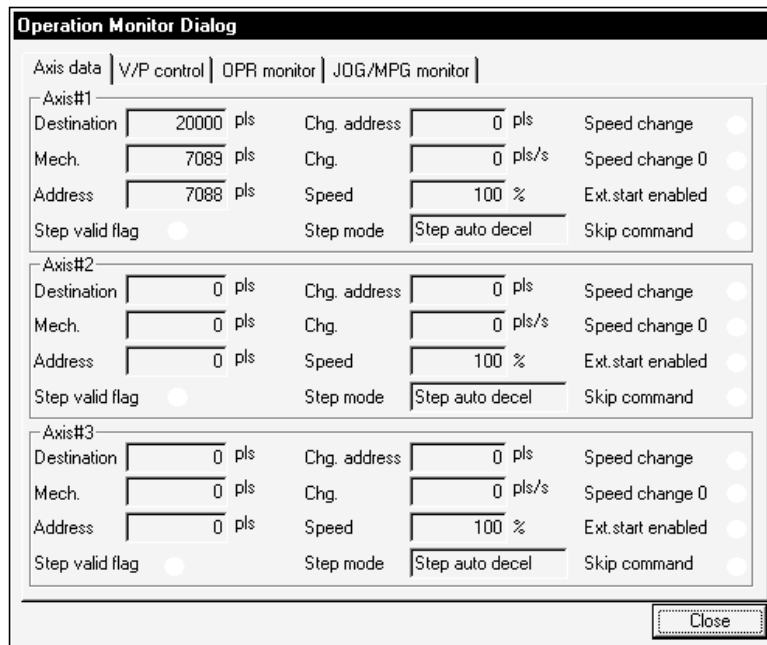
BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to display the operation monitor main screen.
2. Click the "Operation" button on the operation monitor main screen.
3. Click the <<Axis data>>/<<V/P control>>/<<OPR monitor>>/<<JOG/MPG monitor>> tab in the Operation Monitor dialog box.
4. To exit, click the "Close" button.



DISPLAY/SETTING SCREEN

[Axis data monitor]



(Screen example: Screen displayed when AD75M# is selected in Change AD75 model)



DISPLAY/SETTING DATA

Item	Description
Destination	Shows the destination for positioning control. For speed/position switching control, 0 is displayed for speed control and the destination appears for position control. 0 is shown for other operation. Buffer memory address (Axis #1): 818, 819
Mech.	Indicates the current position whose original point is the inherent position determined by the machine (mechanical coordinates). On completion of OPR, this value indicates the OPR address. Buffer memory address (Axis #1): 802
Address	Indicates the actual address found by subtracting the travel distance corresponding to deviation counter droop pulses from the feed address. Displayed only when AD75M# is selected in Change AD75 model. Buffer memory address (Axis #1): 850, 851
Step valid flag	Shows that the step operation set in the sequence program is valid. ● (ON) indicates that the step operation is valid. Buffer memory address (Axis #1): 1172
Chg. address	Shows the value of address change made with the positioning start No. 9003. Buffer memory address (Axis #1): 1154, 1155
Chg.	Shows the value of speed change made during positioning operation or JOG operation. Buffer memory address (Axis #1): 1156, 1157
Speed	Indicates the override speed set in the sequence program Buffer memory address (Axis #1): 1159
Step mode	Indicates the type of the step operation set in the sequence program. Buffer memory address (Axis #1): 1173
Speed change	Shows ● (ON) during speed changing. Buffer memory address (Axis #1): 831
Speed change 0	Shows ● (ON) when the speed is changed to 0 for speed changing. Buffer memory address (Axis #1): 817
Ext. start enabled	Shows that the start made with the external start signal set in the sequence program is enabled. ● (ON) indicates that the external start is enabled. Buffer memory address (Axis #1): 1171
Skip command	Indicates the skip command given in the sequence program. Shows ● (ON) when the skip command is given. Buffer memory address (Axis #1): 1175



DISPLAY/SETTING SCREEN

[V/P control monitor]

Operation Monitor Dialog

Axis data V/P control | OPR monitor | JOG/MPG monitor

Axis#1

Target speed <input style="width: 50px;" type="text" value="100"/> pls/s	Travel after V/P switched On <input style="width: 50px;" type="text" value="0"/> pls	V/P switch latch <input type="checkbox"/>
Axis speed <input style="width: 50px;" type="text" value="0"/> pls/s	Travel correction register <input style="width: 50px;" type="text" value="0"/> pls	Switch enabled <input type="checkbox"/>
Current <input style="width: 50px;" type="text" value="0"/> pls/s		V-control <input type="checkbox"/>

Axis#2

Target speed <input style="width: 50px;" type="text" value="0"/> pls/s	Travel after V/P switched On <input style="width: 50px;" type="text" value="0"/> pls	V/P switch latch <input type="checkbox"/>
Axis speed <input style="width: 50px;" type="text" value="0"/> pls/s	Travel correction register <input style="width: 50px;" type="text" value="0"/> pls	Switch enabled <input type="checkbox"/>
Current <input style="width: 50px;" type="text" value="0"/> pls/s		V-control <input type="checkbox"/>

Axis#3

Target speed <input style="width: 50px;" type="text" value="0"/> pls/s	Travel after V/P switched On <input style="width: 50px;" type="text" value="0"/> pls	V/P switch latch <input type="checkbox"/>
Axis speed <input style="width: 50px;" type="text" value="0"/> pls/s	Travel correction register <input style="width: 50px;" type="text" value="0"/> pls	Switch enabled <input type="checkbox"/>
Current <input style="width: 50px;" type="text" value="0"/> pls/s		V-control <input type="checkbox"/>



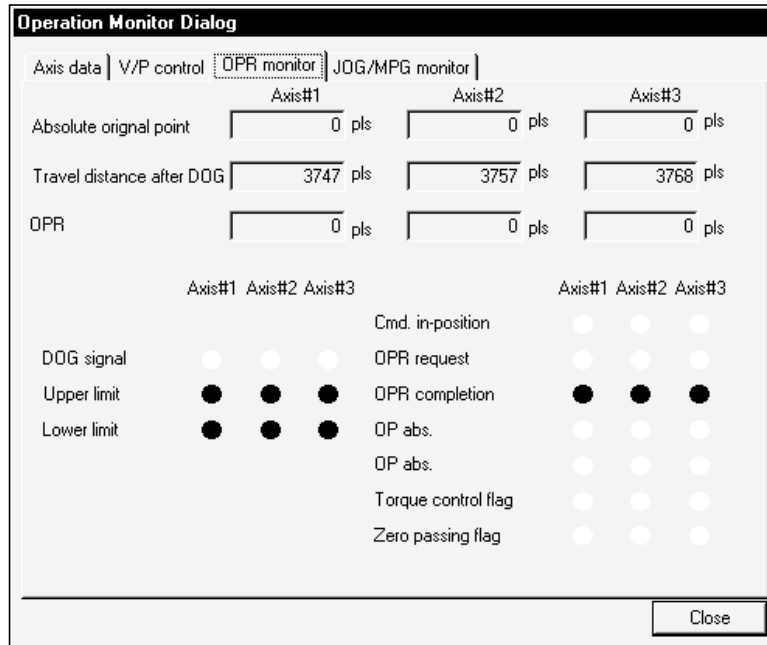
DISPLAY/SETTING DATA

Item	Description
Target speed	Indicates the target speed for positioning data operation, OPR or JOG operation. For interpolation control, the comp. speed or longer axis speed is displayed at the reference axis and 0 appears at the interpolation axis. Buffer memory address (Axis #1): 820, 821
Axis speed	Shows the speed of the axis operating actually in any operation. For interpolation control, the comp. speed or longer axis speed is displayed at the reference axis and 0 appears at the interpolation axis. Buffer memory address (Axis #1): 804, 805
Current	Indicates the current speed. For interpolation control, the comp. speed or longer axis speed is displayed at the reference axis and 0 appears at the interpolation axis. 0 represents JOG operation or MPG operation. Buffer memory address (Axis #1): 810
Travel after V/P switched ON	Indicates the travel distance under position control when speed control is changed to position control during speed/position switching control. Buffer memory address (Axis #1): 814, 815
Travel correction register	Indicates the value set to the speed/position switching control travel correction register in the sequence program. Buffer memory address (Axis #1): 1164, 1165
V/P switch latch	Indicates the speed/position switching latch flag for the status signal. Turned ● (ON) when speed control is switched to position control. Buffer memory address (Axis #1): 817
Switch	Indicates the speed/position switching enable flag set in the sequence program. ● (ON) indicates that switching by the speed/position switching signal is valid. Buffer memory address (Axis #1): 1163
V-control	Indicates the signal for differentiating between speed control and position control. ● (ON) during speed control. Buffer memory address (Axis #1): 830



DISPLAY/SETTING SCREEN

[OPR monitor]



(Screen example: Screen displayed when AD75M# is selected in Change AD75 model)



DISPLAY/SETTING DATA

Item	Description
Absolute original point	Indicates the address of the original point referenced from the feed address. On completion of OPR, the original point address set to the OPR basic parameter (refer to Section 8.1.5) is written here. Buffer memory address (Axis #1): 822
Travel distance after DOG	Indicates the travel distance of the axis during OPR from the position where the limit switch is turned on by the dog to the position where OPR is completed. Buffer memory address (Axis #1): 824, 825
OPR/ Torque limit	When AD75M# is selected in Change AD75 model, the OPR re-travel distance is displayed. When other than AD75M# is selected in Change AD75 model, the torque limit value is displayed. Buffer memory address (Axis #1): 848, 849/826
External I/O signal	Shows the external I/O signals related to OPR. ●: ON ○: OFF The external I/O signals shown depend on the model selected in Change AD75 model. Buffer memory address (Axis #1): 816
Status signal	Displays the status signals related to OPR. ●: ON ○: OFF The status signals shown depend on the model selected in Change AD75 model. Buffer memory address (Axis #1): 817, 873 (AD75M only)



DISPLAY/SETTING SCREEN

[JOG/MPG monitor]

Operation Monitor Dialog

Axis data | V/P control | OPR monitor | **JOG/MPG monitor**

<p>Axis#1 JOG operation</p> <p>RVS JOG FWD JOG speed limit</p> <p style="text-align: center;">↶ ↷ 50000 pl/s</p> <p>JOG speed Select acc/dec</p> <p style="text-align: center;">300 pl/s 0 0</p>	<p>Axis#1 MPG operation</p> <p style="text-align: right;">MPG selection</p> <p>Enab/Disab MPG #1 enable</p> <p style="text-align: center;">●</p> <p>MPG factor</p> <p style="text-align: center;">1 %</p>
<p>Axis#2 JOG operation</p> <p>RVS JOG FWD JOG speed limit</p> <p style="text-align: center;">↶ ↷ 100000 pl/s</p> <p>JOG speed Select acc/dec</p> <p style="text-align: center;">500 pl/s 0 0</p>	<p>Axis#2 MPG operation</p> <p style="text-align: right;">MPG selection</p> <p>Enab/Disab MPG #2 enable</p> <p style="text-align: center;">●</p> <p>MPG factor</p> <p style="text-align: center;">1 %</p>
<p>Axis#3 JOG operation</p> <p>RVS JOG FWD JOG speed limit</p> <p style="text-align: center;">↶ ↷ 1000000 pl/s</p> <p>JOG speed Select acc/dec</p> <p style="text-align: center;">0 pl/s 0 0</p>	<p>Axis#3 MPG operation</p> <p style="text-align: right;">MPG selection</p> <p>Enab/Disab MPG #3 enable</p> <p style="text-align: center;">●</p> <p>MPG factor</p> <p style="text-align: center;">1 %</p>

Close



DISPLAY/SETTING DATA

Item	Description
FWD JOG RVS JOG	Indicates the direction during JOG operation in the sequence program.
JOG speed	Indicates the axis speed during JOG operation in the sequence program. Buffer memory address (Axis #1): 1160, 1161
JOG speed limit	Indicates the JOG operation limit value set to the extended parameters 2 (refer to Section 8.1.4). Buffer memory address (Axis #1): 48, 49
Select acc/dec	Indicates the JOG acc. time select and JOG dec. time select set to the extended parameters 2 (refer to Section 8.1.4). Buffer memory address (Axis #1): 50/51
Enab/Disab	Indicates MPG operation Operatable and MPG selection set to the extended parameters 1 (refer to Section 8.1.3). Operatable setting in the test mode from the peripheral device is not displayed. Buffer memory address (Axis #1): 29
MPG selection	Shows the MPG selection set to the extended parameters 1 (refer to Section 8.1.3). Buffer memory address (Axis #1): 29
MPG factor	Indicates the factor per MPG output pulse set in the sequence program is multiplied to find the number of input pulses. Buffer memory address (Axis #1): 1168, 1169

11.1.6 Servo monitor



PURPOSE

Perform servo monitor, torque control/servo load monitor or servo parameter/servo parameter error monitor during operation monitor.

With servo monitor, you can check the states of the servo amplifiers and servo motors connected to the AD75M.

For monitor items, refer to positioning module type A1SD75M1/M2/M3, AD75M1/M2/M3 User's Manual or the servo amplifier and servo motor installation guides and instruction manuals.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to display the operation monitor main screen.
2. Click the "Servo" button on the operation monitor main screen.
3. Click the <<Servo moni.>>/<<Torq. moni./Servo load>>/<<Servo moni. [param./error]>> tab in the Servo Monitor dialog box.
4. To exit, click the "Close" button.



DISPLAY/SETTING SCREEN

[Servo monitor]

Servo Monitor Dialog

Servo moni. | Torq. moni./Servo load | Servo moni.(param./error)

Axis#1			
Motor speed	0.0	r / min	Servo On <input type="radio"/>
Motor curr	3.4	%	Servo ready <input type="radio"/>
Deviation counter	0	pls	Servo alarm <input type="radio"/>
			Servo warning <input type="radio"/>
Axis#2			
Motor speed	0.0	r / min	Servo On <input type="radio"/>
Motor curr	3.7	%	Servo ready <input type="radio"/>
Deviation counter	0	pls	Servo alarm <input type="radio"/>
			Servo warning <input type="radio"/>
Axis#3			
Motor speed	0.0	r / min	Servo On <input type="radio"/>
Motor curr.	0.0	%	Servo ready <input type="radio"/>
Deviation counter	0	pls	Servo alarm <input type="radio"/>
			Servo warning <input type="radio"/>

*DISPLAY/SETTING DATA*

Item	Description
Motor speed	Indicates the speed of the servo motor. The unit is the speed for 1 minute. Buffer memory address (Axis #1): 854, 855
Motor curr	Indicates the value of the current flowing to the servo motor. Buffer memory address (Axis #1): 856
Deviation counter	Indicates the difference between the axis address and actual address as the number of deviation counter pulses. Buffer memory address (Axis #1): 852, 853
Servo status signal	Shows the servo status signals. ●: ON ○: OFF Buffer memory address (Axis #1): 873



DISPLAY/SETTING SCREEN

[Torque control/Servo load monitor]

Servo Monitor Dialog

Servo moni. **Torq. moni./Servo load** | Servo moni.(param./error)

<p>Torq. Moni. Axis#1</p> <p>Torque limit <input type="text" value="300"/> %</p> <p>Torque output setting value <input type="text" value="0"/> %</p> <p>Change torque value <input type="text" value="0"/> %</p> <p>Torque limit <input type="text" value="300"/> %</p>		<p>Servo load Axis#1</p> <p>Regenerative load ratio <input type="text" value="0"/> %</p> <p>Practical load ratio <input type="text" value="0"/> %</p> <p>Peak load ratio <input type="text" value="0"/> %</p>	
<p>Torq. Moni. Axis#2</p> <p>Torque limit <input type="text" value="300"/> %</p> <p>Torque output setting value <input type="text" value="0"/> %</p> <p>Change torque <input type="text" value="0"/> %</p> <p>Torque limit <input type="text" value="300"/> %</p>		<p>Servo load Axis#2</p> <p>Regenerative load ratio <input type="text" value="0"/> %</p> <p>Practical load ratio <input type="text" value="0"/> %</p> <p>Peak load ratio <input type="text" value="0"/> %</p>	
<p>Torq. Moni. Axis#3</p> <p>Torque limit <input type="text" value="300"/> %</p> <p>Torque output setting value <input type="text" value="0"/> %</p> <p>Change torque <input type="text" value="0"/> %</p> <p>Torque limit <input type="text" value="0"/> %</p>		<p>Servo load Axis#3</p> <p>Regenerative load ratio <input type="text" value="0"/> %</p> <p>Practical load ratio <input type="text" value="0"/> %</p> <p>Peak load ratio <input type="text" value="0"/> %</p>	



DISPLAY/SETTING DATA

Item	Description
Torque limit	Indicates the torque limit value set to the extended parameters 1 (refer to Section 8.1.3). Buffer memory address (Axis #1): 24
Torque output setting value	Indicates the torque output value set in the sequence program. Buffer memory address (Axis #1): 1180
Change torque value	Indicates the torque change value set in the sequence program. Buffer memory address (Axis #1): 1176
Torque limit	Indicates the torque limit setting or torque change value valid for the running servo motor. Buffer memory address (Axis #1): 826
Regenerative load ratio	Indicates the ratio of the regenerative load to the permissible value of the regenerative resistor selected in the servo basic parameters (refer to Section 8.2.1). Buffer memory address (Axis #1): 876
Practical load ratio	Indicates the ratio of the load to the rated torque. Buffer memory address (Axis #1): 877
Peak load ratio	Indicates the ratio of the peak load to the rated torque. Buffer memory address (Axis #1): 878



DISPLAY/SETTING SCREEN

[Servo parameter/Servo parameter error monitor]

Servo Monitor Dialog

Servo moni. | Torq. moni./Servo load | Servo moni.(param./error)

Servo parameter	Axis#1	Axis#2	Axis#3
Auto tuning	Invalid	V/P	V/P
Inertia ratio	20.2	3.0	3.0
Pos. gain1	10	70	70
Pos. gain2	60	1200	1200
Vel. gain1	8	25	25
Vel. gain2	407	600	600
Intgrl comps.	334	20	20

Servo parameter error	Ax 1	Ax 2	Ax 3
1 AMS	--	--	--
2 REG	--	--	--
3 MTY	--	--	--
4 MCA	--	--	--
5 MTR	--	--	--
6 FBP	--	--	--
7 PDL	--	--	--
8 ATU	--	--	--
9 RSP	--	--	--
10 TLP	--	--	--
11 TLN	--	--	--
12 DG2	--	--	--
13 PG1	--	--	--
14 VG1	--	--	--
15 PG2	--	--	--
16 VG2	--	--	--
17 VIC	--	--	--

Close



DISPLAY/SETTING DATA

Item	Description																												
Auto tuning Inertia ratio Pos. gain 1 Pos. gain 2 Vel. gain 1 Vel. gain 2 Intgrl comps.	Indicates the type of auto tuning selected in the servo basic parameters (refer to Section 8.2.1) and the settings of load inertia ratio, control gains and speed integral compensation set to the servo extension parameters (refer to Section 8.2.2). When auto tuning is executed, the settings of the auto tuning are displayed. Buffer memory address (Axis #1): 108, 112, 113, 114, 115, 116, 117																												
Servo parameter error	Shows the servo parameter types and their error definitions. No. represents the lower 2 digits of the buffer memory address where the Axis #1 servo parameters of the AD75M are stored. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>No.</th> <th>Abbreviation</th> <th>Servo Parameter</th> <th>Buffer Memory Address where AD75M Servo Parameter Is Stored (Axis #1)</th> </tr> </thead> <tbody> <tr><td>1</td><td>AMS</td><td>Amplifier set</td><td>101</td></tr> <tr><td>2</td><td>REG</td><td>Regenerative</td><td>102</td></tr> <tr><td>3</td><td>MTY</td><td>Motor type</td><td>103</td></tr> <tr><td>4</td><td>MCA</td><td>Motor capacity</td><td>104</td></tr> <tr><td>⋮</td><td>⋮</td><td>⋮</td><td>⋮</td></tr> <tr><td>⋮</td><td>⋮</td><td>⋮</td><td>⋮</td></tr> </tbody> </table> Error definition is displayed per servo parameter item of each axis. Buffer memory address (Axis #1): 870, 871, 872	No.	Abbreviation	Servo Parameter	Buffer Memory Address where AD75M Servo Parameter Is Stored (Axis #1)	1	AMS	Amplifier set	101	2	REG	Regenerative	102	3	MTY	Motor type	103	4	MCA	Motor capacity	104	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
No.	Abbreviation	Servo Parameter	Buffer Memory Address where AD75M Servo Parameter Is Stored (Axis #1)																										
1	AMS	Amplifier set	101																										
2	REG	Regenerative	102																										
3	MTY	Motor type	103																										
4	MCA	Motor capacity	104																										
⋮	⋮	⋮	⋮																										
⋮	⋮	⋮	⋮																										

11.1.7 Sampling monitor



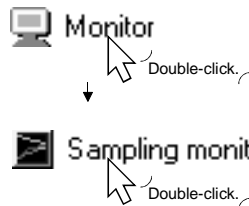
PURPOSE

Monitor the ON/OFF timings of any registered signals and the changes of the buffer memory values which are synchronized with each other.
 You can check the start, error reset and other timings in the sequence program.



BASIC OPERATION

1. Choose Sampling monitor.



2. Click the "Data set" button on the sampling monitor main screen.
3. Set the signals and buffer memory addresses to be monitored in the Sampling monitor set dialog box.
4. Click the [Online] → [Monitor] → [Monitor start] menu ().
5. Check the results displayed on the sampling monitor main screen.
6. To exit, click the [Online] → [Monitor] → [Monitor start] menu ().



DISPLAY/SETTING SCREEN

Signal		Data set
X Device	X00:AD75 Ready	
Y Device	Y1D:PLC ready	
X Device	X04:#1 BUSY	
X Device	X05:#2 BUSY	
X Device	X06:#3 BUSY	
Upper limit	400000	
Channel 1	800 140620	
Channel 2	900 182108	
Channel 3	1000 107310	
Lower limit	0	

Sampling monitor set

Signal

Signal	Status
X Device ▼	X00:AD75 Ready ▼
Y Device ▼	Y1D:PLC ready ▼
X Device ▼	X04:#1 BUSY ▼
X Device ▼	X05:#2 BUSY ▼
X Device ▼	X06:#3 BUSY ▼

Buffer Memory

Channel 1	800	<input checked="" type="checkbox"/>	Double word
Channel 2	900	<input checked="" type="checkbox"/>	Double word
Channel 3	1000	<input checked="" type="checkbox"/>	Double word

Upper Limit	Lower Limit
400000	0



DISPLAY/SETTING DATA

Item	Description
"Data set" button	Click this button to display the Sampling monitor set dialog box.
Sampling monitor	For signals, their ON/OFF states are indicated by HIGH/LOW. For buffer memory, the addresses and waveform data are displayed. Waveforms are magnified or reduced according to the main screen size. The sampling result display changes in 500ms increments and its cycle ends in 2 minutes.
Signal	Choose the types of the sampling-monitored signals from the X device, Y device, external I/O signal, status signal and servo status signal.
Status	Choose the sampling-monitored signals from the selected signal types.
Buffer memory	Set the AD75 buffer memory addresses and sizes (device sizes) to be sampling monitored. The setting range is buffer memory address No.s 1 to 1099.
Upper Limit Lower Limit	Set the upper and lower limit values of the sampling result display.
"OK" button	Click this button to close the Sampling monitor set dialog box and display the settings on the sampling monitor main screen.

11.2 Test

Place the AD75 in the test mode during positioning or start block data monitor, and perform test operation with the specified positioning data No. or start block data. Also, put the AD75 in the test mode during operation monitor and make the current value change, speed change, OPR, JOG operation, MPG operation and/or servo control operation test.

CAUTION

- Before performing the OPR, JOG operation, positioning data or other test in the test mode, read the manual carefully, fully ensure safety, and set the PLC CPU to STOP.
Not doing so can damage the machine or cause an accident due to misoperation.

11.2.1 Positioning data-specified operation




PURPOSE

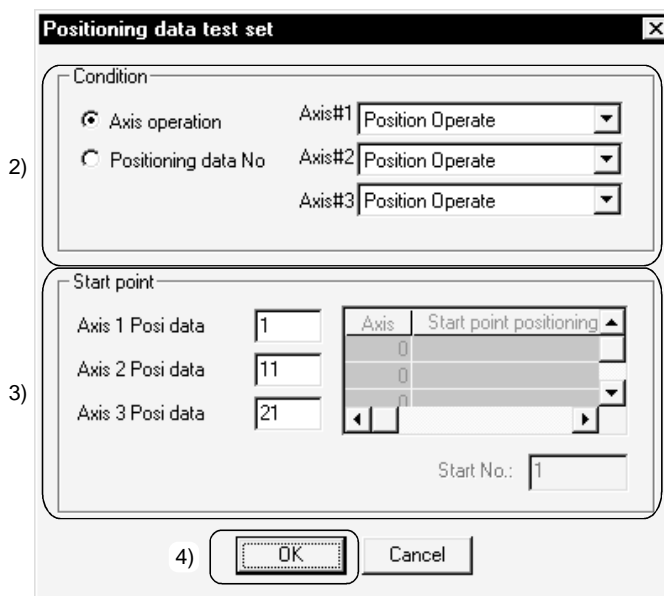
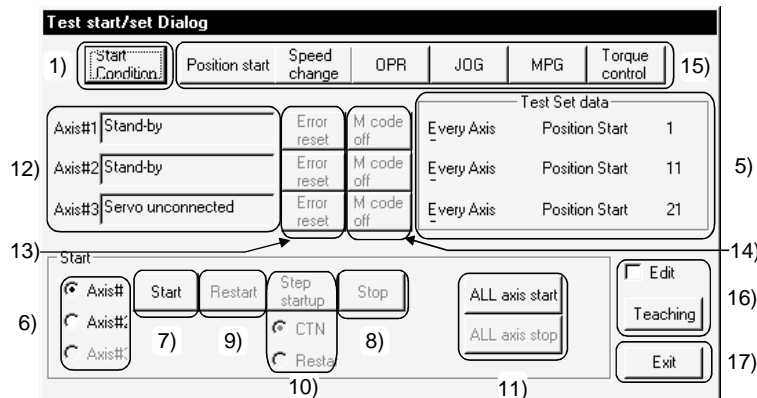
By performing test operation on an axis basis, you can check the addresses and command speeds set to the positioning data with the actual operations of the axes.



BASIC OPERATION

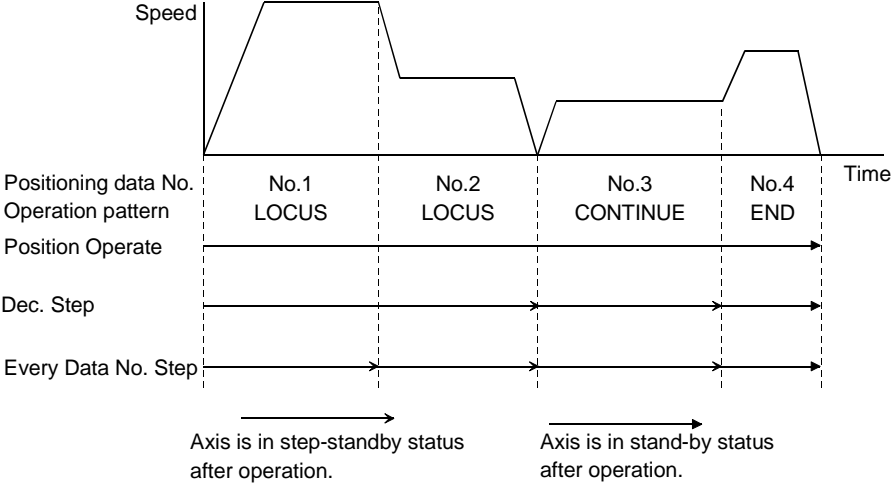
1. Perform the basic operation in Section 11.1.1 to start positioning data monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Start Condition" button in the Test start/set dialog box.
5. Set the positioning data No. of the axis to be test operated at Start point in the Position data test set dialog box.
6. Click the "OK" button.
7. Select the axis to be started in the Test start/set dialog box and click the "Start" button.
8. To end the positioning data test, click the "Exit" button.
9. Clicking the "OK" button in the test mode end confirmation dialog box returns to the positioning data monitor status.

 DISPLAY/SETTING SCREEN



 DISPLAY/SETTING DATA

No.	Item	Description
1)	"Start Condition" button	Click this button to display the Position data test set dialog box which is used to set the operating conditions and start points.
2)	Condition	<p>With the radio button, choose the axis operation or the test operation using positioning data No. The axis operation is selected in this section.</p> <p>Also, select the type of test operation axis-by-axis.</p> <ul style="list-style-type: none"> • Position Operate Test operation is performed from the specified positioning data No. to the positioning data No. where the operation pattern has been set to "END". • Dec step If this type is selected when the operation pattern is "LOCUS", test operation is performed up to the positioning data where the operation pattern is "CONTINUE" or "END". • Every Data No. step Independently of the operation pattern, operation is performed per data, starting with the specified positioning data No., and the axis stands by after operation.

No.	Item	Description
2)	Condition	<p>The following example shows the operating states of the axis according to the test operation type.</p>  <p>Positioning data No. Operation pattern: No.1 LOCUS, No.2 LOCUS, No.3 CONTINUE, No.4 END</p> <p>Position Operate</p> <p>Dec. Step</p> <p>Every Data No. Step</p> <p>Axis is in step-standby status after operation.</p> <p>Axis is in stand-by status after operation.</p>
3)	Start point	Set the positioning data No. where test operation is started.
4)	"OK" button	Click this button to end the positioning data test setting.
5)	Test set data	Shows the operating conditions and start points set in the Position data test set dialog box.
6)	Start	Select the axis to be started in positioning data test operation.
7)	"Start" button	Click this button to start test operation with the positioning data No. set to the start point.
8)	"Stop" button	Click this button to stop the selected axis. Since the axis results in an error after a stop, click the "Error reset" button.
9)	"Restart" button	Click this button to restart the axis which was stopped (resume positioning from where the axis stopped).
10)	"Step startup" button	Used when "Dec. Step" or "Every Data No. Step" was chosen in the test operation method. Choose Continue during step standby and click this button to start operation of the next positioning data No. Choose Restart during step stop and click this button to restart. operation
11)	"ALL axis start" button "ALL axis stop" button	Click the "ALL axis start" button to start test operation, beginning with the positioning data No. set to each axis. Click the "ALL axis stop" button to stop all axes being test operated.
12)	Axis status	Displays the states of the axes being tested. If an error occurred, click the "Error reset" button.
13)	"Error reset" button	Click this button to reset the error.
14)	"M code off" button	Click this button to turn off the M code ON signal (XD, XE, XF). However, the M codes stored in buffer memory are not cleared.
15)	"Position start" button "Speed control" button "OPR" button "JOG" button "MPG" button "Torque control" button	Click any button to display the corresponding test screen of the Test data set dialog box. Refer to Section 11.2.3 for the positioning start test. Refer to Section 11.2.4 for the speed change test. Refer to Section 11.2.5 for the OPR test. Refer to Section 11.2.6 for the JOG operation test. Refer to Section 11.2.7 for the MPG operation test. Refer to Section 11.2.8 for the torque control test.
16)	"Edit" check box "Teaching" button	Used for teaching. Refer to Section 12.7 for teaching.
17)	"Exit" button	Click this button to end the positioning data test.



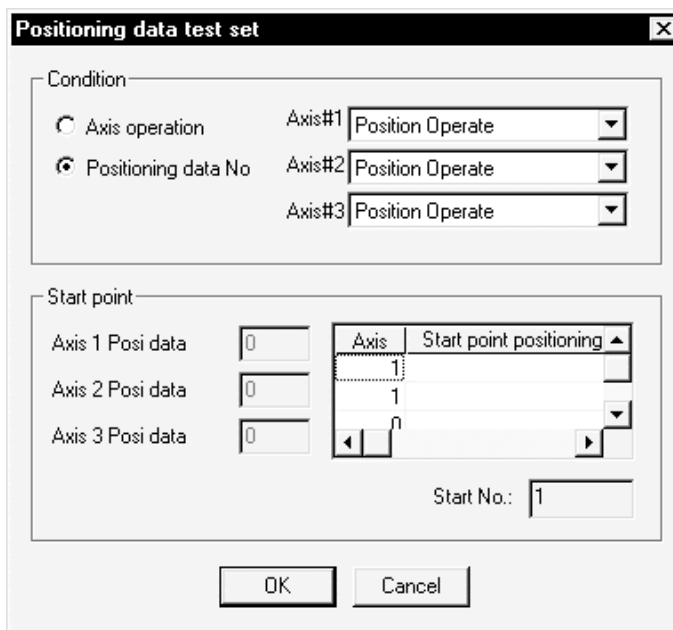
HELPFUL OPERATION (1)

To carry out the interpolation control test operation, perform the following operation.

1. Perform the basic operation steps 1 to 4 to display the Position data test set dialog box.
2. Select "Positioning data No." in Condition in the Position data test set dialog box.
3. Set the reference axis and positioning data No. of interpolation control to Start point in the Position data test set dialog box.
4. When you have set the start point, move the cursor to the top line and make sure that "1" appears in Start No.
5. Click the "OK" button.
6. Click the "Start" button in the Test start/set dialog box.

At this time, test operation is started with the positioning data No. of the axis set to Start No. "1".

7. To end the positioning data test, click the "Exit" button.

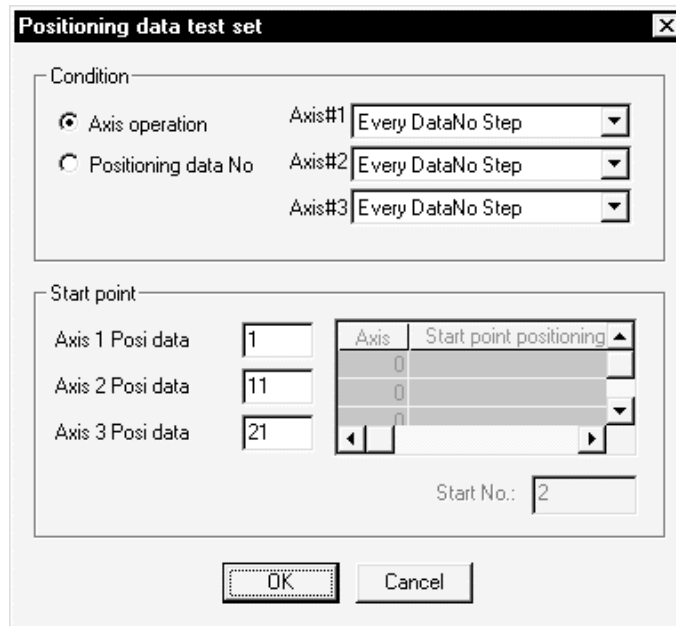




HELPFUL OPERATION (2)

To carry out operation per positioning data, perform the following operation.

1. Perform the basic operation steps 1 to 4 to display the Position data test set dialog box.
2. Choose "Every Data No. Step" in Condition in the Position data test set dialog box.
3. Set the positioning data No. axis-by-axis to Start point in the Position data test set dialog box.
4. Click the "OK" button.
5. Choose the axis to be started and click the "Start" button in the Test start/set dialog box to start operation with the positioning data No. set to Start point.
6. If the started positioning data pattern is other than "End", clicking the "Step startup" button starts operation with the next positioning data No.
7. To end the positioning data test, click the "Exit" button.



11.2.2 Start block data-specified operation



PURPOSE

Enter the test mode during start block data monitor, and perform test operation with the specified start block No. and point No.

Check the mode, point, special start condition enable and repeat count set to the start block data.



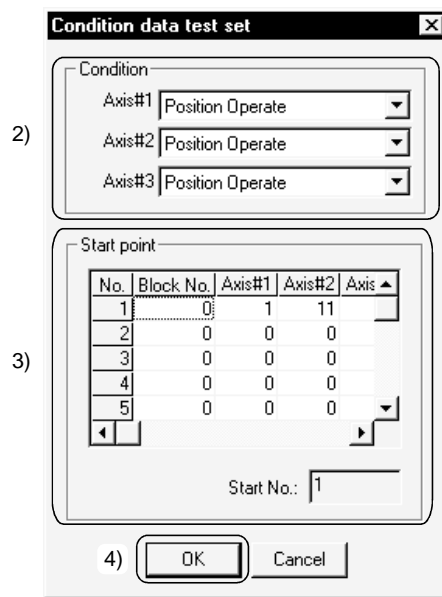
BASIC OPERATION

1. Perform the basic operation i Section 11.1.1 to start the start block data monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Start Condition" button in the Test start/set dialog box.
5. Choose the operating conditions in the Condition data test set dialog box.
6. When you have set the start point, move the cursor to the top line and make sure that "1" appears in Start No.
7. Click the "OK" button.
8. Select the axis to be started in the Test start/set dialog box and click the "Start" button.
At this time, test operation is started with the positioning data No. of the axis set to Start No. "1".
9. To end the start block data test, click the "Exit" button.
10. Clicking the "OK" button in the test mode end confirmation dialog box returns to the start block data monitor status.



DISPLAY/SETTING SCREEN

The screenshot shows the 'Test start/set Dialog' interface. At the top, there are mode selection buttons: 'Start Condition' (1), 'Position start', 'Speed change', 'OPR', 'JOG', 'MPG', and 'Torque control' (15). Below this is a table for 'Test Set data' (5) with columns for 'Axis#', 'Status', 'Error reset', 'M code off', 'Start block', 'Position Start', and 'Point No.'. The table contains three rows: Axis#1 (Stand-by, Error reset, M code off, Start block, Position Start, 0-1), Axis#2 (Stand-by, Error reset, M code off, Start block, Position Start, 0-11), and Axis#3 (Servo unconnected, Error reset, M code off, Start block, Position Start, 0-21). At the bottom, there are control buttons: 'Start' (13), 'Axis#' (6), 'Start' (7), 'Restart' (9), 'Step startup', 'Stop', 'CTN' (8), 'Rest' (10), 'ALL axis start', 'ALL axis stop' (11), 'Edit' (16), 'Teaching' (17), and 'Exit' (18).



DISPLAY/SETTING DATA

No.	Item	Description
1)	"Start Condition" button	Click this button to display the Condition data test set dialog box which is used to set the operating conditions and start points.
2)	Condition	<p>Choose the test operation type axis-by-axis.</p> <ul style="list-style-type: none"> • Position Operate Test operation is performed from the specified positioning data No. to the positioning data where the operation pattern ends. • Dec step If this type is selected when the operation pattern is "LOCUS", test operation is performed up to the positioning data where the operation pattern is "CONTINUE" or "END". • Every Data No. step Independently of the operation pattern, operation is performed per data, starting with the specified positioning data No., and the axis stands by after operation. <p>Note that if the selected operation type is different between the reference axis and interpolation axis for interpolation control, the operation method of the reference axis has precedence.</p> <p>The following example shows the operating states of the axis according to the test operation type.</p> <p>Speed</p> <p>Time</p> <p>Positioning data No. No.1 No.2 No.3 No.4</p> <p>Operation pattern LOCUS LOCUS CONTINUE END</p> <p>Position Operate</p> <p>Dec. Step</p> <p>Every Data No. Step</p> <p>Axis is in step-standby status after operation.</p> <p>Axis is in stand-by status after operation.</p>

No.	Item	Description
3)	Start point	Set the blocks and points where operation is performed in the start block data test.
4)	"OK" button	Click this button to end the condition data test setting.
5)	Test set data	Shows the start points set in the Condition data test set dialog box.
6)	Start	Select the axis for the start block data test.
7)	"Start" button	Click this button to start test operation at the point in the block set to the start point.
8)	"Stop" button	Click this button to stop the selected axis. Since the axis results in an error after a stop, click the "Error reset" button.
9)	"Restart" button	Click this button to restart the axis which was stopped (resume positioning from where the axis stopped).
10)	"Step startup" button	Used when "Dec. Step" or "Every Data No. Step" was chosen in the test operation method. Choose Continue during step standby and click this button to start operation of the next positioning data No. Choose Restart during step stop and click this button to restart. operation
11)	"ALL axis start" button "ALL axis stop" button	Click the "ALL axis start" button to start test operation, beginning with the positioning data No. set to each axis. Click the "ALL axis stop" button to stop all axes being test operated.
12)	Axis status	Displays the states of the axes being tested. If an error occurred, click the "Error reset" button.
13)	"Error reset" button	Click this button to reset the error.
14)	"M code off" button	Click this button to turn off the M code ON signal (XD, XE, XF). However, the M codes stored in buffer memory are not cleared.
15)	"Position start" button "Speed change" button "OPR" button "JOG" button "MPG" button "Torque control" button	Click any button to display the corresponding test screen of the Test data set dialog box. Refer to Section 11.2.3 for the positioning start test. Refer to Section 11.2.4 for the speed change test. Refer to Section 11.2.5 for the OPR test. Refer to Section 11.2.6 for the JOG operation test. Refer to Section 11.2.7 for the MPG operation test. Refer to Section 11.2.8 for the torque control test.
16)	"Edit" check box	Check the unchecked box to edit the start block data. The data changed is valid for the peripheral device only.
17)	"Teaching" button	Not used in the start block data test.
18)	"Exit" button	Click this button to end the start block data test.

11.2.3 Positioning start test (Current value change test)



PURPOSE

Enter the test mode during operation monitor, and make the start test and current value change test with the specified positioning data No. on an axis basis. With the positioning data start test, you can check the control method, address, command speed, etc. of the positioning data. Also, positioning starts as the object of the speed change test. With the current value change test, you can clear the feed address after JOG operation and test the software stroke limit.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to start operation monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Ope. Test" button on the operation monitor main screen.
5. Start the positioning start test or current value change test in the Test data set dialog box.
6. To end the positioning start test, click the [Online] → [Test] → [Test start] menu ().
7. Clicking the "OK" button in the test mode end confirmation dialog box returns to the operation monitor status.









DISPLAY/SETTING SCREEN

History	I/O Signal	Operation	In test mode	Comment disp.	Ope. Test
Axis#1					
Address		Axis speed		Axis status	
10000 pls		0 pls/s		Stand-by	
No	Patterr	Control method	Acc.	Dec.	Error
9003	Exit	ABS Line1	0	0	0
			Warning	M code	
			0	0	0

Test data set Dialog						
Positioning start		Speed change	OPR	JOG	MPG	
Start Position			Current value Change request			
Ax1	data No.	1	#1 Start	10000 pls	#1 Change req.	
Ax2	data No.	1	#2 Start	0 pls	#2 Change req.	
Ax3	data No.	1	#3 Start	0 pls	#3 Change req.	
All stop		#1 stop	#2 stop	#3 stop	Close	



DISPLAY/SETTING DATA

Item	Description
Start position	Set the positioning data No. to the axis on which the positioning start test will be conducted.
"#1 Start" button "#2 Start" button "#3 Start" button	Click any button to start the start test of the corresponding axis to which the positioning data No. has been set. This button is invalid for the axis on which the positioning start test is being made. This button acts as the "Restart" button during a stop made with the external stop signal.
Current value change request	Set a new current value.
"#1 Change req." button "#2 Change req." button "#3 Change req." button	Click any button to change the current value. If the corresponding axis is operating, the current value change request is invalid.
"#1 stop" button "#2 stop" button "#3 stop" button	Click the corresponding button to stop the axis on which the positioning start test is being made. Reset the error after a stop since the axis results in an "Error Occurrence" status.
"All stop" button	Click this button to stop all operating axes. Reset the error after a stop since the axis results in an "Error Occurrence" status.
"Error reset" button ( /  / )	Click any button to reset the error of the corresponding axis.
"M code Off" button ( /  / )	Click any button to turn off the M code ON signal (XD, XE, XF) of the corresponding axis.

11.2.4 Speed change test



PURPOSE

In the speed change test, speed change is made to the positioning start, OPR or JOG operation test by the operation test of GX Configurator-AP to confirm the proper speed.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to start operation monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Ope. Test" button on the operation monitor main screen.
5. Start the positioning start test in the Test data set dialog box.
6. Click the <<Speed change>> tab in the Test data set dialog box.
7. Conduct the speed change test on the axis being operated in the positioning start test.
8. To end the speed change test, click the [Online] → [Test] → [Test start] menu ().
9. Clicking the "OK" button in the test mode end confirmation dialog box returns to the operation monitor status.









DISPLAY/SETTING SCREEN

History	I/O Signal	Operation	In test mode	Comment disp.	Ope. Test
Axis#1					
Address		Axis speed		Axis status	
252317 pls		30000 pls/s		P-controlling	
No	Pattern	Control method	Acc.	Dec.	Error WarningM code
1	Continuous	ABS Line1	0	0	0 0 0

Test data set Dialog					
Positioning start		Speed change		OPR JOG MPG	
Correcting speed		Speed limit		Speed overwrite	
Ax1	30000 pls/s	#1 Req.	200000 pls/s	100 %	#1 Req.
Ax2	0 pls/s	#2 Req.	200000 pls/s	100 %	#2 Req.
Ax3	0 pls/s	#3 Req.	200000 pls/s	100 %	#3 Req.
All stop #1 stop #2 stop #3 stop					Close



DISPLAY/SETTING DATA

Item	Description
Speed limit	Shows the speed limit value set to the basic parameters 2. Refer to Section 8.1.2 for the setting of the basic parameters 2.
Correcting speed	Set a new speed to the command speed, OPR speed or JOG speed in the positioning data of the axis being operated.
"#1 Speed req." button "#2 Speed req." button "#3 Speed req." button	Click any button to change to the value set to Correcting speed.
Speed dump	Set the multiplying factor (%) of the speed overriding the command speed, OPR speed or JOG speed in the positioning data. The override value once executed is valid during the test mode. The setting range is 1 to 300%.
"#1 dump req." button "#2 dump req." button "#3 dump req." button	Click any button to write the override value to the AD75 and change the command speed, OPR speed or JOG speed in the positioning data to the speed multiplied (%) by the value set to Speed dump. Executing this function in the standby status reflects the speed from the next operation. The speed is also changed when this function is executed for the axis being operated.
"#1 stop" button "#2 stop" button "#3 stop" button	Click the corresponding button to stop the axis on which the positioning start test is being made. Reset the error after a stop since the axis results in an error occurrence status.
"All stop" button	Click this button to stop all operating axes. Reset the error after a stop since the axis results in an error occurrence status.
"Error reset" button ( /  / )	Click any button to reset the error of the corresponding axis.
"M code Off" button ( /  / )	Click any button to turn off the M code ON signal (XD, XE, XF) of the corresponding axis.



HELPFUL OPERATION

When you want to monitor the target speed and current speed during a speed change test, perform the following operation.

1. Perform steps 1 to 3 of the basic operation.
2. Click the "Operation" button on the operation monitor main screen.
3. Click the <<Speed change>> tab in the Operation Monitor dialog box.
4. Click the "Ope. Test" button in the Operation Monitor dialog box.
5. After that, perform the operation in step 5 of the basic operation.

The image shows two overlapping dialog boxes from a software interface. The top dialog is titled "Operation Monitor Dialog" and has tabs for "Axis data", "V/P control", "OPR monitor", and "JOG/MPG monitor". It is currently showing the "V/P control" tab. It contains input fields for "Axis#1" and "Axis#2" for "Target speed", "Axis speed", and "Current" (all in pl/s). There are also fields for "Travel after V/P switched On" (in pls) and "Travel correction register" (in pls). Checkboxes for "V/P switch latch", "Switch enabled", and "V-control" are present.

The bottom dialog is titled "Test data set Dialog" and has tabs for "Positioning start", "Speed change", "OPR", "JOG", and "MPG". It is currently showing the "Speed change" tab. It features a table for configuring speed parameters for three axes (Ax1, Ax2, Ax3):

Axis	Correcting speed (pls/s)	Speed limit (pls/s)	Speed overwrite (%)
Ax1	12000	200000	120
Ax2	0	200000	100
Ax3	0	200000	100

Each row in the table has a "#Req." button next to the speed values. At the bottom of the dialog, there are buttons for "All stop", "#1 stop", "#2 stop", and "#3 stop", along with a "Close" button.

11.2.5 OPR test



PURPOSE

Make the OPR test to correct the OPR basic and extended parameters and set up the original point.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to start operation monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Ope. Test" button on the operation monitor main screen.
5. Click the <<OPR>> tab in the Test data set dialog box.
6. Perform the OPR test.
7. To end the OPR test, click the [Online] → [Test] → [Test start] menu ().
8. Clicking the "OK" button in the test mode end confirmation dialog box returns to the operation monitor status.









DISPLAY/SETTING SCREEN

History		I/O Signal		Operation		In test mode		Comment disp.		Ope. Test	
Axis#1											
Address				Axis speed				Axis status			
434 pls				0 pls/s				Returning to OP			
No	Patterr	Control method		Acc.	Dec.	Error	Warning	M code			
9001	Exit	ABS Line1		0	0	0	0	0			

Test data set Dialog											
Positioning start		Speed change		OPR		JOG		MPG			
OPR return Method		Return Method		OPR		Creep speed					
Ax1	Mechanical OP	#1 req	Count#2	5000	pls/s	5000	pls/s				
Ax2		#2 req	Count#2	5000	pls/s	5000	pls/s				
Ax3		#3 req	Count#2	5000	pls/s	5000	pls/s				
All stop		#1 stop	#2 stop	#3 stop							
											Close



DISPLAY/SETTING DATA

Item	Description
Return Method OPR Creep speed	Shows the values set to the OPR basic parameters and OPR extended parameters. Refer to Section 8.1.5 for the setting of the OPR basic parameters. Refer to Section 8.1.6 for the setting of the OPR extended parameters.
OPR return Method	Choose the type of the starting method used in the OPR test. <ul style="list-style-type: none"> • Mechanical OPR OPR is made using the DOG signal or zero signal according to the OPR return method. Executed to set up the original point. • Rapid OPR Operation of positioning to the original point is performed in the travel distance calculated from the mechanical feed distance and the original point address set to the OPR basic parameters after the original point has been set up.
"#1 req." button "#2 req." button "#3 req." button	Click any button to start OPR set to OPR return Method.
"#1 stop" button "#2 stop" button "#3 stop" button	Click the corresponding button to stop the axis returning to the original point. Reset the error after a stop since the axis results in an error occurrence status.
"All stop" button	Click this button to stop all operating axes. Reset the error after a stop since the axis results in an error occurrence status.
"Error reset" button ( /  / )	Click any button to reset the error of the corresponding axis.
"M code Off" button ( /  / )	Click any button to turn off the M code ON signal (XD, XE, XF) of the corresponding axis.



HELPFUL OPERATION

Use the following operation example to set up the original point when the OPR method is the count type #2.

1. Perform steps 1 to 3 of the basic operation.
2. Click the "Operation" button on the operation monitor main screen.
3. Click the <<OPR monitor>> tab in the Operation Monitor dialog box.
4. Click the "Ope. Test" button in the Operation Monitor dialog box.
5. Click the <<OPR>> tab in the Test data set dialog box.
6. Make the OPR test in the Mechanical OPR method.
7. If the position defined as the original point in the OPR test is different from the planned position, perform JOG operation to measure the error.
Refer to Section 11.2.6 for JOG operation.
8. Correct the error to the travel distance after DOG in the OPR extended parameters.
Refer to Section 8.1.6 for the setting of the OPR extended parameters.

11.2.6 JOG operation test



PURPOSE

JOG operation allows the following tests to be made during debugging of positioning.

- Forward/reverse direction checking
- Checking of the ON/OFF of the external signals such as upper/lower limit, zero phase and DOG signals
- Speed and accel/decel operation tests
- Measurement of backlash compensation by forward or reverse operation



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to start operation monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Ope. Test" button on the operation monitor main screen.
5. Click the <<JOG>> tab in the Test data set dialog box.
6. Perform JOG operation according to the purpose.
7. To end the JOG operation test, click the [Online] → [Test] → [Test start] menu ().
8. Clicking the "OK" button in the test mode end confirmation dialog box returns to the operation monitor status.



DISPLAY/SETTING SCREEN

History		I/O Signal		Operation		In test mode		Comment disp.		Ope. Test	
Axis#1											
Address			Axis speed			Axis status					
1157 pls			499 pls/s			JOG operation					
No	Patterr	Control method		Acc.	Dec.	Error	Warning	M code			
9010	Exit	ABS Line1		0	0	0	0	0			











Test data set Dialog

Positioning start | Speed change | OPR | JOG | MPG |

	Rev JOG	Fwd JOG	JOG speed	JOG speed limit
Ax1	←	→	500 pls/s	1000000 pls/s
Ax2	←	→	1 pls/s	1000000 pls/s
Ax3	←	→	1 pls/s	1000000 pls/s

All stop | #1 stop | #2 stop | #3 stop Close

 **DISPLAY/SETTING DATA**

Item	Description
JOG speed limit	Shows the JOG operation limit value set to the extended parameters 2 (refer to Section 8.1.4).
JOG speed	Set the speed for JOG operation. You cannot set any value beyond the JOG speed limit.
Fwd JOG () Rev JOG ()	Choose the arrow ( , ) of the axis for JOG operation, move the mouse pointer to the arrow, and press the mouse's left button or the space key to start JOG operation. Hold down the mouse's left button or the space key to continue JOG operation. The arrow is red during operation.
#1 stop" button #2 stop" button #3 stop" button	Click the corresponding button to stop the axis on which the positioning start test is being made. Reset the error after a stop since the axis results in an error occurrence status. These buttons cannot be clicked during JOG operation.
"All stop" button	Click this button to stop all operating axes. Reset the error after a stop since the axis results in an error occurrence status.
"Error reset" button ( /  / )	Click any button to reset the error of the corresponding axis.
"M code Off" button ( /  / )	Click any button to turn off the M code ON signal (XD, XE, XF) of the corresponding axis.



HELPFUL OPERATION

Perform the following operation when you want to check the ON/OFF of the external I/O signals such as DOG, zero phase and in-position signals.

1. Perform steps 1 to 3 of the basic operation.
2. Click the "Operation" button on the operation monitor main screen.
3. When you want to monitor external signals, click the <<OPR monitor>> tab in the Operation Monitor dialog box.
4. Click the "Ope. Test" button in the Operation Monitor dialog box.
5. Click the <<JOG>> tab in the Test data set dialog box.
6. Set the JOG speed and start JOG operation.
7. Check the ON/OFF of the signals of the axis moved.

The image shows two software dialog boxes. The top one is the 'Operation Monitor Dialog' with tabs for 'Axis data', 'V/P control', 'OPR monitor', 'JOG/MPG monitor', and 'Ope. Test'. The 'OPR monitor' tab is active, showing data for three axes (Axis#1, Axis#2, Axis#3) including absolute original point, travel distance after DOG, and torque limit. Below this is a grid of signal status indicators (lights) for Zero signal, DOG signal, Upper limit, Lower limit, In-position signal, DCC signal output, and Cmd. in-position. The bottom dialog is the 'Test data set Dialog' with tabs for 'Positioning start', 'Speed change', 'OPR', 'JOG', and 'MPG'. The 'JOG' tab is active, showing JOG speed and JOG speed limit settings for Ax1, Ax2, and Ax3, along with Rev JOG and Fwd JOG direction controls.

11.2.7 MPG operation test



PURPOSE

MPG operation allows the following tests to be made during debugging of positioning.

- Checking of the ON/OFF of the external signals such as upper/lower limit, zero phase and DOG signals
- Measurement of backlash compensation by forward or reverse operation
- Measurement of accurate addresses and travel distances



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to start operation monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Ope. Test" button on the operation monitor main screen.
5. Click the <<MPG>> tab in the Test data set dialog box.
6. Enable MPG operation.
7. Perform MPG operation.
8. To end the MPG operation test, click the [Online] → [Test] → [Test start] menu ().
9. Clicking the "OK" button in the test mode end confirmation dialog box returns to the operation monitor status.



DISPLAY/SETTING SCREEN

The screenshot displays two overlapping windows from a CNC control software interface.







The top window, titled 'Operation', has tabs for 'History', 'I/O Signal', and 'Operation'. It shows 'In test mode' and 'Ope. Test' buttons. The main area displays 'Axis#1' with fields for 'Address' (504 pls), 'Axis speed' (0 pls/s), and 'Axis status' (MPG operation). Below this is a table with columns: No, Patter, Control method, Acc., Dec., Error, Warning, M code.

No	Patter	Control method	Acc.	Dec.	Error	Warning	M code
9011	Exit	ABS Line1	0	0	0	0	0

The bottom window, titled 'Test data set Dialog', has tabs for 'Positioning start', 'Speed change', 'OPR', 'JOG', and 'MPG'. It contains settings for 'Enab/Disab', 'Manual Pulse generator factor', and 'MPG selection' for three axes (Ax1, Ax2, Ax3). At the bottom are 'All stop', '#1 stop', '#2 stop', '#3 stop', and 'Close' buttons.



DISPLAY/SETTING DATA

Item	Description
MPG selection	Shows the data set to MPG selection of the extended parameters 1 (refer to Section 8.1.3).
Manual pulse generator factor	Set the multiplying factor per pulse input from the manual pulse generator for MPG operation.
"Enab/Disab" button	Click this button to enable/disable MPG operation.
"#1 stop" button	Click the corresponding button to disable the axis which has been enabled for MPG operation.
"#2 stop" button	Reset the error after a stop since the axis results in an error occurrence status.
"#3 stop" button	Reset the error after a stop since the axis results in an error occurrence status.
"All stop" button	Click this button to disable all axes that have been enabled for MPG operation. Reset the error after a stop since the axis results in an error occurrence status.
"Error reset" button ( /  / )	Click any button to reset the error of the corresponding axis.
"M code Off" button ( /  / )	Click any button to turn off the M code ON signal (XD, XE, XF) of the corresponding axis.

11.2.8 Torque control test



PURPOSE

Perform the torque control test to determine the appropriate torque.
 The torque control test can be made only when the AD75M# is selected in Change AD75 model.



BASIC OPERATION

1. Perform the basic operation in Section 11.1.2 to start operation monitor.
2. Click the [Online] → [Test] → [Test start] menu ().
3. Click the "OK" button in the test mode start confirmation dialog box.
4. Click the "Ope. Test" button on the operation monitor main screen.
5. Click the <<Torque>> tab in the Test data set dialog box.
6. Set the torque output value or new torque value.
7. When you have set the torque output value, click the "Output set req." button.
 When you have set a new torque value, click the "Change req." button.
8. To end the torque control test, click the [Online] → [Test] → [Test start] menu ().
9. Clicking the "OK" button in the test mode end confirmation dialog box returns to the operation monitor status.









DISPLAY/SETTING SCREEN

History				I/O Signal		Operation		Servo		Comment disp.		Ope. Test	
- Axis#1													
Address				Axis speed				Axis status					
224293 pls				0 pls/s				Stand-by					
No		Patterr		Control method		Acc.		Dec.		Error		WarningM code	
9010		Exit		ABS Line1		0		0		0		0	

Test data set Dialog													
Positioning start		Speed change		OPR		JOG		MPG		Torque		M1 M2 M3	
Torque output setting value				Change torque value				Torque limit		All Axis off			
Ax1		0 % #1 Output set req.		0 % #1 Change req.		300 %		#1 off					
Ax2		0 % #2 Output set req.		0 % #2 Change req.		300 %		#2 off					
Ax3		0 % #3 Output set req.		0 % #3 Change req.				#3 off					
All stop				#1 stop		#2 stop		#3 stop		Close			



DISPLAY/SETTING DATA

Item	Description
Torque output setting value	Set the value which actually determines the torque output and should be not more than the torque limit value.
"Output set req." button	Click this button to write to the AD75M the value set to Torque output set value.
Change torque value	Set when you want to limit other than the torque output set value. If the new torque value of other than 0 is stored into the AD75M buffer memory, it has precedence over the torque output set value. However, if it is more than the torque limit value, the torque limit value is made valid.
"Change req." button	Click this button to write to the AD75M the value set to Change torque.
Torque limit	Shows the torque limit value set to the extended parameters 1 (refer to Section 8.1.3).
"#1 off" button "#2 off" button "#3 off" button	Click any button to turn off the servo system of the corresponding axis.
"#1 stop" button "#2 stop" button "#3 stop" button	Click the corresponding button to stop the axis enabled for operation. Reset the error after a stop since the axis status results in an error occurrence status.
"All stop" button	Click this button to stop all operating axes. Reset the error after a stop since the axis status results in an error occurrence status.
"Error reset" button ( /  / )	Click any button to reset the error of the corresponding axis.
"M code Off" button ( /  / )	Click any button to turn off the M code ON signal (XD, XE, XF) of the corresponding axis.

11.3 Position Control Gain Adjustment



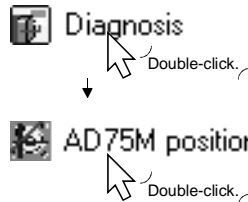
PURPOSE

To set the position loop gain 1 of the AD75M servo adjustment parameters, perform a test with the AD75M servo position gain function and determine a proper value.



BASIC OPERATION

1. Choose AD75M position control gain.



2. Click the "OK" button in the test mode start confirmation dialog box.
3. Check the external signals in the Servo Monitor diagnosis dialog box.
4. Click the "Close" button in the Servo diagnosis dialog box.
5. Set the position loop gain 1 on the AD75M servo position control gain main screen.
6. Choose the axis to be tested and click the "Change" button.
7. Clicking the "Forward gain"/"Reverse gain" button starts the test.
8. To end the AD75M servo position control gain function, click the "Servo end" button.



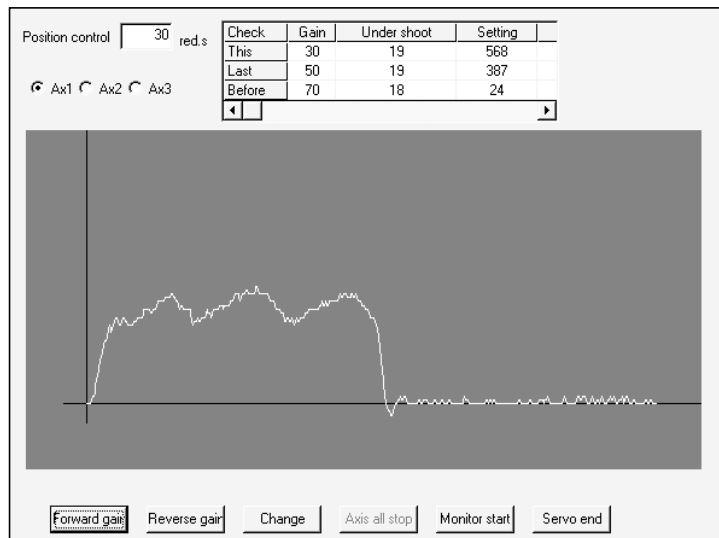
DISPLAY/SETTING SCREEN

Servo Monitor

Servo status				External I/O			
Ax1Ax2Ax3		Ax1Ax2Ax3		Ax1Ax2Ax3		Ax1Ax2Ax3	
Servo ON	<input checked="" type="checkbox"/>	Alarm	<input type="checkbox"/>	Upper limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Servo	<input checked="" type="checkbox"/>	Warning	<input type="checkbox"/>	Lower limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stop signal		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Upper stroke limit		Lower stroke limit	
Ax1	<input type="text" value="2147483647"/> pls	Ax1	<input type="text" value="-2147483648"/> pls
Ax2	<input type="text" value="2147483647"/> pls	Ax2	<input type="text" value="-2147483648"/> pls
Ax3	<input type="text"/>	Ax3	<input type="text"/>

Address	Speed	Error	Warning
Ax1	<input type="text" value="310311"/> pls/s	<input type="text" value="0"/> pls/s	<input type="text" value="0"/>
Ax2	<input type="text" value="-1111"/> pls/s	<input type="text" value="0"/> pls/s	<input type="text" value="0"/>
Ax3	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>



 **DISPLAY/SETTING DATA**

Item	Description
Servo status External I/O	Shows the servo status and external I/O signals. When the signals are in the following states, the position loop gain 1 test can be made. <ul style="list-style-type: none"> • Servo ON, Servo, Upper limit, Lower limit: ON (●) • Alarm, Stop signal: OFF (○)
Upper stroke limit Lower stroke limit	Shows the upper and lower software limits set to the extended parameters 1 (refer to Section 8.1.3). To perform the position loop gain 1 test, set the upper and lower limits to 18000pls or more in terms of pulses.
Address Speed	Indicates the feed address and feed speed of the axis. Make sure that the axis is not operating.
Error Warning	Shows the error and warning codes when an error and warning occur. For the error and warning codes, use the help function to check their causes and corrective actions.
"Close" button	Click this button to close the Servo diagnosis dialog box.
Position control	Set the value used to make the position loop gain 1 test. The set value is written to the AD75M by clicking the "Change" button. However, no value can be set when auto tuning is executed.
Ax1 Ax2 Ax3	Choose the axis used to conduct the position loop gain 1 test.
This	Shows the position loop gain 1 test results as values and waveform data.
Last Before	Shows the position loop gain 1 test results of the last time and second last time.
"Change" button	Click this button to write to the AD75M the value set to Position control.
"Forward gain" button	Click this button to perform the position loop gain 1 test in the forward direction.
"Reverse gain" button	Click this button to perform the position loop gain 1 test in the reverse direction.
"Axis all stop" button	Used to stop the axes operating in the forward or reverse direction in the position loop gain 1 test.

Item	Description
"Monitor start" button	Click this button to suspend the position loop gain 1 test and display the Servo diagnosis monitor dialog box. Used to check the servo amplifier status if an error occurs.
"Servo end" button	Click this button to end the position loop gain 1 test.



When adjusting the AD75M servo position loop gain 1, disable auto tuning in the servo basic parameters.

11.4 Servo Off



PURPOSE

Turn off the electromagnetic brake of the servo motor in the test mode of the AD75M to coast the motor.



BASIC OPERATION

1. Using any of the following functions, place the AD75M in the test mode.
 - Positioning data test (refer to Section 11.2.1)
 - Start block data test (refer to Section 11.2.2)
 - Operation test (refer to Section 11.2.3 to 11.2.8)
 - AD75M servo starting up (refer to Section 7.3.1 to 7.3.4)
 - AD75M position control gain (refer to Section 11.3)
2. When turning off the servo motor brakes of all axes at the same time, click the [Online] → [Test] → [All Axis On/Off] menu.
When turning off the servo motor brake on an axis basis, click the [Online] → [Test] → [Designate Off] → [Designate #1 Off]/[Designate #2 Off]/[Designate #3 Off] menu.
3. To turn on the servo motor brake, click the [Online] → [Test] → [All Axis On/Off] menu.

12. USEFUL FUNCTIONS

Out of the functions that can be performed on GX Configurator-AP, this chapter describes the functions and operations useful for project execution, positioning data setting, etc. and the functions which support settings.

This chapter also explains the teaching function which measures positioning addresses, the function which prints project setting data, and the trace function which displays operation results as waveform/track data.

12.1 Useful Functions for Project Execution

This section describes the functions and operations which are helpful for utilizing project data to create a project and for changing set data.

12.1.1 Verifying the project data



PURPOSE

Compare and verify the parameters, servo parameters, positioning data, M code comments, start block data and condition data of the currently open project and the saved project.

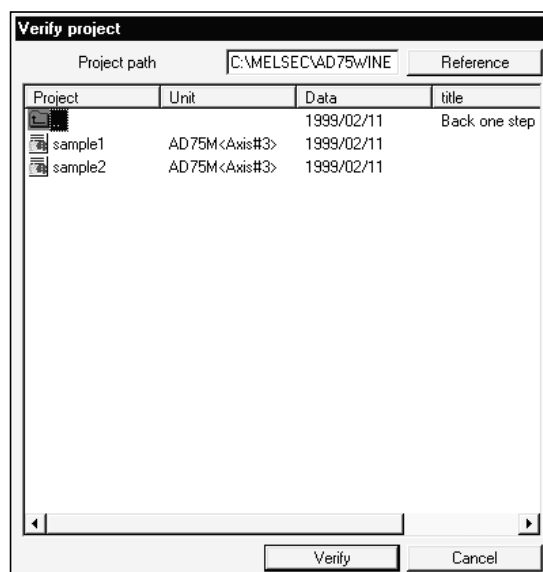


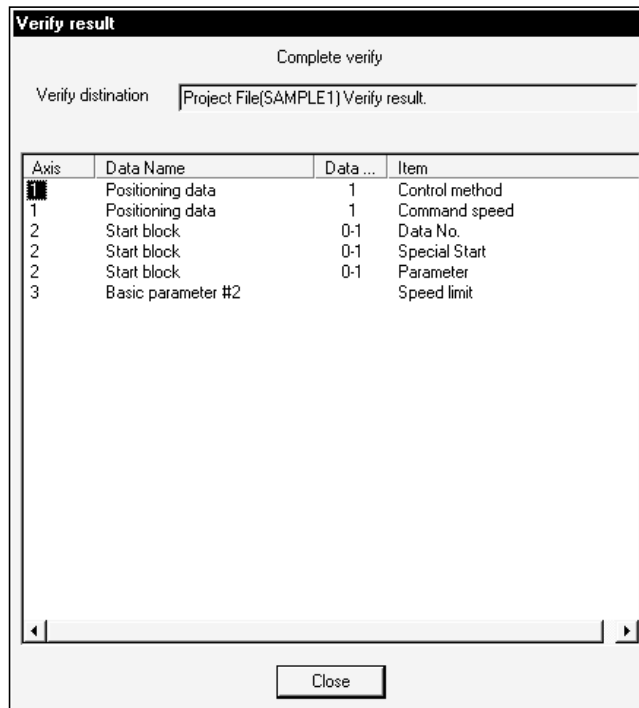
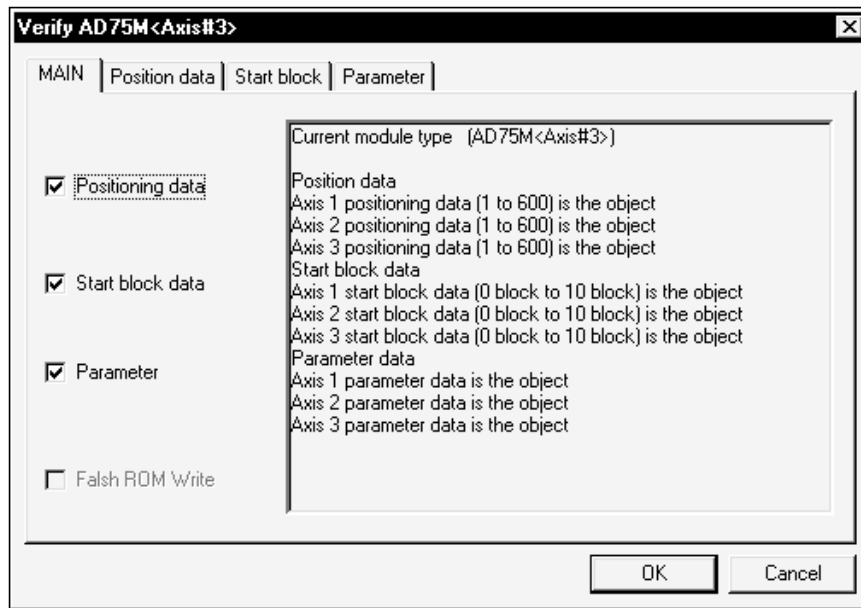
BASIC OPERATION

1. Place the main screen in the icon display status.
2. Click the [Project] → [Verify Project] menu.
3. Choose the verify destination project in the Verify Project dialog box and click the "Verify" button.
4. Set the types and ranges of the data to be verified in the Verify dialog box.
5. Check the results in the Verify result dialog box.



DISPLAY/SETTING SCREEN





 **DISPLAY/SETTING DATA**

Item	Description
Project	Click the project name of the verify destination.
Project path	Shows the project save path name of the verify destination.
"Reference" button	Click this button to display the Project tree dialog box (refer to Section 6.1).
"Verify" button	Click this button to show the Verify dialog box.
Verify dialog box	Set the types and ranges of the data to be verified.
Verify result dialog box	Shows different settings between the currently open project and the verify destination project.

12.1.2 Changing the AD75 model after data setting



PURPOSE

Change the AD75 model after setting the parameters, positioning data or other data.

When you want to utilize the project data which is different in AD75 model, change the AD75 model after reading the saved project.

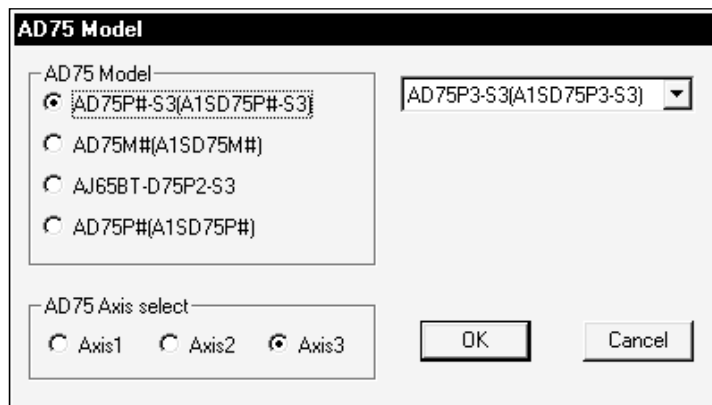


BASIC OPERATION

1. Place the main screen in the icon display status.
2. Click the [Project] → [Change AD75 model] menu.
3. Choose the model and the number of axes in the AD75 model dialog box.
4. Click the "OK" button.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
AD75 model	Choose the model series (type with the exception of the axis number) of the AD75.
AD75 Axis select	Choose the number of axes of the AD75.
List box	You can select the model series and number of axes of the AD75 at the same time.
"OK" button	Click this button to change the model of the project.

Point

Independently of the AD75 model selected for the project, all data that can be set in the edit mode are saved in the project.

In a new project whose number of axes is 1, the parameters, positioning data, start block data, etc. of undisplayed Axis 2/Axis 3 are saved. (However, the data of Axis 2/Axis 3 are initial values.)

When the project whose number of axes is 3 is saved after changing to a model for 1/2 axes, the data of Axis 3 is saved unchanged.

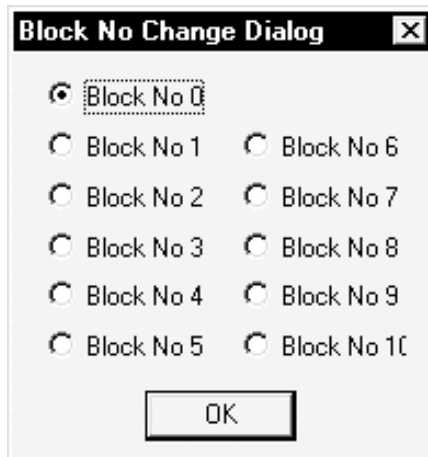
Therefore, the model can be changed without restriction on the model selected when a new project is created.

12.1.3 Changing the view

The following table lists the functions of the [View] menu which changes the view on GX Configurator-AP.

Menu Name		Description	
View	Toolbar	Project toolbar	Switches between displaying and not displaying the project toolbar.
		Edit toolbar	Edit toolbar
		Online toolbar	Switches between displaying and not displaying the online toolbar.
	Status bar	Switches between displaying and not displaying the status toolbar.	
	Change menu	Switches the menu screen to the tree menu or image menu.	
	Move upward	Moves the main screen one level higher (mode selection or function selection icon).	
	Select Axis	Axis #1	Changes the edit object of positioning data or start block data to Axis #1.
		Axis #2	Changes the edit object of positioning data or start block data to Axis #2.
		Axis #3	Changes the edit object of positioning data or start block data to Axis #3.
	Select start block*1	Changes the start block to be edited.	
	Edit property dialog	Switches between displaying and not displaying the Edit property dialog box when setting the positioning data or start block data.	
	Large Icons	Changes the main screen icons to large icons.	
	Small Icons	Changes the main screen icons to small icons.	
	List view	Lists the main screen icons.	
Detailed view	Shows the details of the main screen icons.		

*1: When you have chosen the [Select start block] menu, select the block No. in the following dialog box.



12.2 Edit Functions for Data Setting

This section explains the edit functions which can be used for positioning data or start block data setting.

12.2.1 Cut/copy/paste

These functions cut/copy and paste some part of the positioning or start block data settings.

Also these functions cut/copy the values entered in Microsoft® Excel or Word table and pastes them to the positioning data or start block data of GX Configurator-AP.

(1) Cut


Used to cut the selected range.

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0;1000	0;1000	100000
2	1:CONT	1:ABS Line1	0;1000	0;1000	120000
3	1:CONT	1:ABS Line1	0;1000	0;1000	150000
4	1:CONT	1:ABS Line1	0;1000	0;1000	180000
5	1:CONT	1:ABS Line1	0;1000	0;1000	200000



Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0;1000	0;1000	0
2	1:CONT	1:ABS Line1	0;1000	0;1000	0
3	1:CONT	1:ABS Line1	0;1000	0;1000	0
4	1:CONT	1:ABS Line1	0;1000	0;1000	0
5	1:CONT	1:ABS Line1	0;1000	0;1000	0

1) Choose the area to be cut.

2) Click the [Edit] → [Cut] menu ().


3) The values in the selected range change to initial values.

(2) Copy

Used to copy the selected range to the clipboard of Microsoft® Windows® Operating System.

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0;1000	0;1000	100000
2	1:CONT	1:ABS Line1	0;1000	0;1000	120000
3	1:CONT	1:ABS Line1	0;1000	0;1000	150000
4	1:CONT	1:ABS Line1	0;1000	0;1000	180000
5	1:CONT	1:ABS Line1	0;1000	0;1000	200000

1) Choose the area to be copied.

2) Click the [Edit] → [Copy] menu ().

(3) Paste

Used to paste the cut or copied data to the selected range.

Note that paste may not be made if:

- The control method is not set to the data of paste destination;
- The data of cut or copy destination is different in control method from the data of paste destination; or
- The item cut or copied is different from the item of paste destination.

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0;1000	0;1000	0
2	1:CONT	1:ABS Line1	0;1000	0;1000	0
3	1:CONT	1:ABS Line1	0;1000	0;1000	0
4	1:CONT	1:ABS Line1	0;1000	0;1000	0
5	1:CONT	1:ABS Line1	0;1000	0;1000	0



Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0;1000	0;1000	100000
2	1:CONT	1:ABS Line1	0;1000	0;1000	120000
3	1:CONT	1:ABS Line1	0;1000	0;1000	150000
4	1:CONT	1:ABS Line1	0;1000	0;1000	180000
5	1:CONT	1:ABS Line1	0;1000	0;1000	200000

1) Choose the paste destination (copy destination) of the data cut (copied).

2) Click the [Edit] → [Paste] menu ().

3) The values in the selected range change to the cut (copied) data.

(4) Copying and pasting from Microsoft® Excel/Word table

Used to copy values entered into the Microsoft® Excel/Word table and paste them to positioning data or start block data of GX Configurator-AP.

[Example of copying Microsoft® Excel data and pasting them to positioning data]

	A	B
1	12000	
2	21000	
3	24500	
4	30000	
5	19000	
6	52000	
7	44000	
8	39000	
9	17000	
10	12000	



Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
1	1:CONT	1:ABS Line1	0;1000	0;1000	12000
2	1:CONT	1:ABS Line1	0;1000	0;1000	21000
3	1:CONT	1:ABS Line1	0;1000	0;1000	24500
4	1:CONT	1:ABS Line1	0;1000	0;1000	30000
5	1:CONT	1:ABS Line1	0;1000	0;1000	19000
6	1:CONT	1:ABS Line1	0;1000	0;1000	52000
7	1:CONT	1:ABS Line1	0;1000	0;1000	44000
8	1:CONT	1:ABS Line1	0;1000	0;1000	39000
9	1:CONT	1:ABS Line1	0;1000	0;1000	17000
10	0:END	1:ABS Line1	0;1000	0;1000	12000

1) Choose and copy the Excel table.

2) Choose the setting range in the positioning data and click the [Edit] → [Paste] menu ().



HELPFUL OPERATION (1)

When making the same setting to two or more positioning data or start block data, perform the following operation to make batch setting in the selected range.

Note that batch setting may be made for the same item (column) only.

It cannot be made if you selected two or more items (columns).

1) Choose the batch setting range.

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]
1	0:END	0:No axes	0;1000	0;1000
2	0:END	0:No axes	0;1000	0;1000
3	0:END	0:No axes	0;1000	0;1000
4	0:END	0:No axes	0;1000	0;1000
5	0:END	0:No axes	0;1000	0;1000
6	0:END	0:No axes	0;1000	0;1000

Example:
Batch-set the control method of positioning data No. 1 to 5.

2) Entering the value from the keyboard sets it on the top row of the selected range.

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]
1	0:END	1:ABS Line1	0;1000	0;1000
2	0:END	0:No axes	0;1000	0;1000
3	0:END	0:No axes	0;1000	0;1000
4	0:END	0:No axes	0;1000	0;1000
5	0:END	0:No axes	0;1000	0;1000
6	0:END	0:No axes	0;1000	0;1000

Example:
When you type "1", "1:ABS Line 1" appears on the top row of the selected range.

3) Press the Enter key on the keyboard or click the other item with the mouse to change the other rows of the selected range to the same setting.

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]
1	0:END	1:ABS Line1	0;1000	0;1000
2	0:END	1:ABS Line1	0;1000	0;1000
3	0:END	1:ABS Line1	0;1000	0;1000
4	0:END	1:ABS Line1	0;1000	0;1000
5	0:END	1:ABS Line1	0;1000	0;1000
6	0:END	0:No axes	0;1000	0;1000

Example:
"1:ABS Line 1" is set to all rows of the selected range.



HELPFUL OPERATION (2)

Perform the following operation to cut/copy and paste all ranges of the positioning data or start block data displayed.

1. Click the [Edit] → [Select all] menu.

[Result of clicking [Select all] on the positioning data edit main screen]

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code
1	1:CONT	1:ABS Line1	2,800	3,500	12000	5000	100	1
2	1:CONT	1:ABS Line1	2,800	3,500	21000	5000	100	2
3	1:CONT	1:ABS Line1	2,800	3,500	24500	5000	100	3
4	1:CONT	1:ABS Line1	2,800	3,500	30000	5000	100	4
5	1:CONT	1:ABS Line1	2,800	3,500	19000	5000	100	5
6	1:CONT	1:ABS Line1	2,800	3,500	52000	5000	100	6
7	1:CONT	1:ABS Line1	2,800	3,500	44000	5000	100	7
8	1:CONT	1:ABS Line1	2,800	3,500	39000	5000	100	8
9	1:CONT	1:ABS Line1	2,800	3,500	17000	5000	100	9
10	1:CONT	1:ABS Line1	2,800	3,500	12000	5000	100	10
11	1:CONT	1:ABS Line1	2,800	3,500	29000	5000	100	11
12	1:CONT	1:ABS Line1	2,800	3,500	8000	5000	100	12
13	1:CONT	1:ABS Line1	2,800	3,500	13000	5000	100	13
14	1:CONT	1:ABS Line1	2,800	3,500	11000	5000	100	14
15	1:CONT	1:ABS Line1	2,800	3,500	25000	5000	100	15



- When "data No. 1 to data No. 100" has been selected in the data No. setting of GX Configurator-AP option function, positioning data No. 101 to No. 600 are not included in the selection range.
- For the start block data, only the block to be edited is the selection range.
- If data do not match between the axes, data of all ranges cannot be pasted. In that case, perform the axis copy (refer to Section 12.3.1).

12.2.2 Jump



PURPOSE

Move the cursor to the positioning data No. specified on the positioning data edit main screen.

Alternatively, move the cursor to the point No. specified on the start block data edit main screen.



BASIC OPERATION

1. Click the [Edit] → [Jump] menu.
2. Set the positioning data No. or point No. of the jump destination in the Jump dialog box.
3. Click the "OK" button.



DISPLAY/SETTING SCREEN

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms>DataNo.]	M code
1	1:CONT	1:ABS Line1	2,800	3,500	12000	5000	100	1
2	1:CONT	1:ABS Line1	2,800	3,500	21000	5000	100	2
3	1:CONT	1:ABS Line1	2,800	3,500	24500	5000	100	3
4	1:CONT	1:ABS Line1	2,800	3,500	30000	5000	100	4
5	1:CONT	1:ABS Line1	2,800	3,500	19000	5000	100	5
6	1:CONT	1: Jump			52000	5000	100	6
7	1:CONT	1: Jump data No. 50			44000	5000	100	7
8	1:CONT	1:			39000	5000	100	8
9	1:CONT	1:ABS Line1	2,800	3,500	17000	5000	100	9
10	1:CONT	1:ABS Line1	2,800	3,500	12000	5000	100	10
11	1:CONT	1:ABS Line1	2,800	3,500	29000	5000	100	11
12	1:CONT	1:ABS Line1	2,800	3,500	8000	5000	100	12
13	1:CONT	1:ABS Line1	2,800	3,500	13000	5000	100	13
14	1:CONT	1:ABS Line1	2,800	3,500	11000	5000	100	14
15	1:CONT	1:ABS Line1	2,800	3,500	25000	5000	100	15



DISPLAY/SETTING DATA

Item	Description
Jump data No.	Set the positioning data No. or the start block data point No. of the jump destination.
"OK" button	Click this button to move the cursor to the specified No.

12.2.3 Clearing the rows/columns



PURPOSE

Clear only the rows or columns selected on the positioning data or start block data edit main screen.



BASIC OPERATION

1. Choose the rows (columns) which you want to initialize on the positioning data or start block data edit main screen.
2. Click the [Edit] → [Clear row]/[Clear column] menu.

[Example of clearing the rows]

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code
1	1:CONT	1:ABS Line1	2,800	3,500	12000	5000	100	1
2	0:END	1:ABS Line1	2,800	3,500	21000	5000	100	2
3	0:END	0:No axes	0,1000	0,1000	0	0	0	0
4	0:END	0:No axes	0,1000	0,1000	0	0	0	0
5	0:END	0:No axes	0,1000	0,1000	0	0	0	0
6	0:END	1:ABS Line1	2,800	3,500	52000	5000	100	6

The selected rows are cleared (to the default values).

[Example of clearing the columns]

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code
1	1:CONT	1:ABS Line1	0,1000	3,500	12000	5000	100	1
2	0:END	1:ABS Line1	0,1000	3,500	21000	5000	100	2
3	0:END	1:ABS Line1	0,1000	3,500	24500	5000	100	3
4	0:END	1:ABS Line1	0,1000	3,500	30000	5000	100	4
5	0:END	1:ABS Line1	0,1000	3,500	19000	5000	100	5
6	0:END	1:ABS Line1	0,1000	3,500	52000	5000	100	6
7	0:END	1:ABS Line1	0,1000	3,500	44000	5000	100	7
8	0:END	1:ABS Line1	0,1000	3,500	39000	5000	100	8
9	0:END	1:ABS Line1	0,1000	3,500	17000	5000	100	9
10	0:END	1:ABS Line1	0,1000	3,500	12000	5000	100	10
11	0:END	1:ABS Line1	0,1000	3,500	29000	5000	100	11
12	0:END	1:ABS Line1	0,1000	3,500	8000	5000	100	12
13	0:END	1:ABS Line1	0,1000	3,500	13000	5000	100	13
14	0:END	1:ABS Line1	0,1000	3,500	11000	5000	100	14
15	0:END	1:ABS Line1	0,1000	3,500	25000	5000	100	15

The selected rows are cleared (to the default values).

12.2.4 Initializing the data



PURPOSE

Using the data initializing function, initialize the positioning data, start block data (including condition data and indirect data), parameters and servo parameters set to the project axis-by-axis.

Note that the data of the project saved are not initialized.

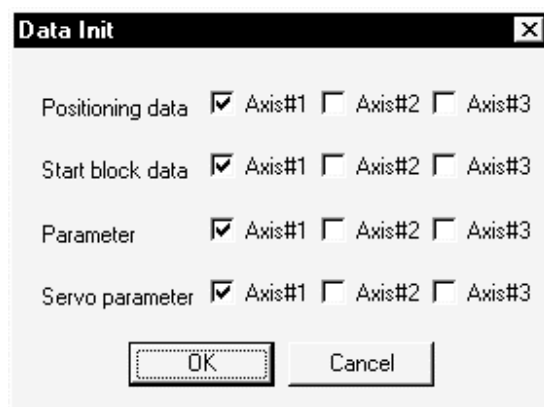


BASIC OPERATION

1. Display any of the positioning data (refer to Section 9.1), start block data (refer to Section 9.3), parameters (refer to Section 8.1) and servo parameters (refer to Section 8.2) on the main screen.
2. Click the [Tools] → [Initialize data] menu.
3. Set the types and axis of the data to be initialized in the Data Init dialog box.
4. Click the "OK" button.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Positioning data	Set the axis of the positioning data to be initialized.
Start block data	Set the axis of the start block data to be initialized.
Parameter	Set the axis of the parameters to be initialized.
Servo parameter	Set the axis of the servo parameters to be initialized. This is not displayed when other than AD75M# is selected in Change AD75 model.
"OK" button	Click this button to initialize the data.

12.3 Copying the Data

Copy the positioning data, start block data, parameters and servo parameters set to the project axis-by-axis.

Alternatively, copy the set start block data to the other block.

12.3.1 Copying the data on an axis basis (Axis copy)



PURPOSE

Using the axis copy function, copy the positioning data, start block data, parameters and servo parameters of any axis to the other axis of the same project.



When the axis copy is performed, data may not match between the axes. After performing the axis copy, make error check (refer to Section 9.2.1).

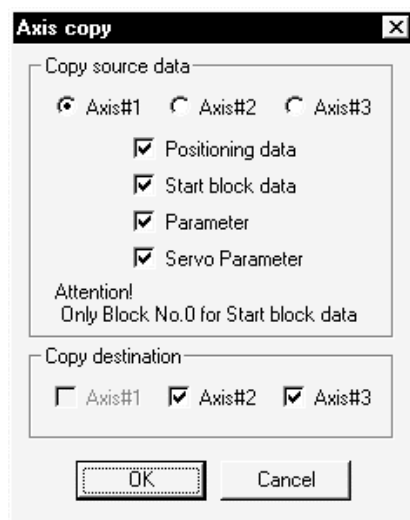


BASIC OPERATION

1. Display any of the positioning data (refer to Section 9.1), start block data (refer to Section 9.3), parameters (refer to Section 8.1) and servo parameters (refer to Section 8.2) on the main screen.
2. Click the [Edit] → [Axis copy] menu.
3. Set the axis of the copy source, the types of the data to be copied, and the axis of the copy destination.
4. Click the "OK" button.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Copy source data	Choose the axis of the copy source and set the data to be copied. The start block data includes condition data and indirect data.
Copy destination	Set the axis of the copy destination.
"OK" button	Click this button to copy the data.

12.3.2 Copying the data on a start block basis (Start block copy)



PURPOSE

Using the start block copy function, copy the start block to the other blocks. The start block copy function is performed to copy data between blocks in the same axis.

Note that if AD75P# is selected in Change AD75 model, the start block copy function cannot be performed.

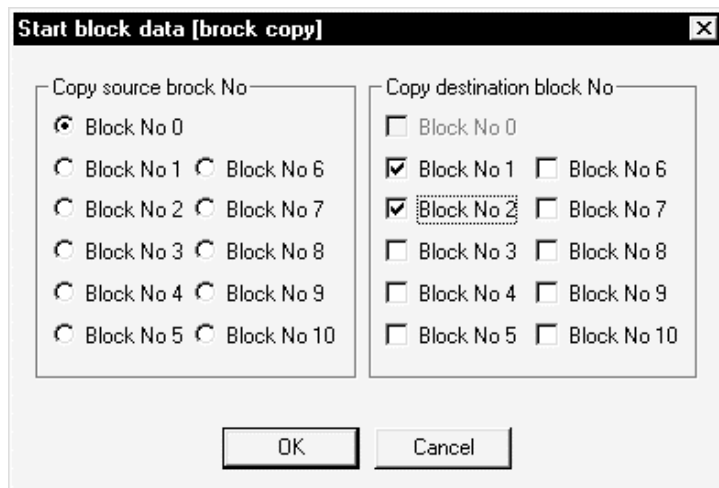


BASIC OPERATION

1. Display the start block data edit main screen (refer to Section 9.3) of the axis whose data will be copied.
2. Click the [Edit] → [Start block copy] menu.
3. Set the block No. of the copy source and the block No. of the copy destination.
4. Click the "OK" button.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Copy source block No.	Choose the block No. of the copy source.
Copy destination	Set the block No. of the copy destination. Two or more blocks can be set at the same time.
"OK" button	Click this button to copy the data.

12.4 Auxiliary Functions for Data Input

This section describes the functions which support the setting of parameters and servo parameters and the input of positioning data and start block data.

12.4.1 Parameter initializing wizard



PURPOSE

Using the parameter initializing wizard, initialize the parameters and set the axis #1 to #3 parameters.

For the wizard-driven setting, set only the most fundamental items of the basic parameters 1, OPR basic parameters and OPR extended parameters.

For parameter settings, refer to the AD75 User's Manual.



BASIC OPERATION

1. Display the parameter main screen (refer to Section 8.1).
2. Click the [Tools] → [Initialize parameter] menu.
3. Click the "Yes" button in the parameter initializing wizard start confirmation dialog box.
When making only the parameter initialization, click "No" button.
4. Set the items to be set for Axis #1 in the Parameter initializing wizard dialog box.
5. After that, make setting in accordance with the screen prompt.

When you selected 2 axes in Change AD75 model, the wizard of Axis #2 starts after the wizard of Axis #1 is completed.

When you selected 3 axes in Change AD75 model, the wizard of Axis #3 starts after the wizard of Axis #2 is completed.

When you selected AD75M# in Change AD75 model, the servo parameter initializing wizard (refer to Section 12.4.2) can be started after the parameter initializing wizards of all axes are completed.

 DISPLAY/SETTING SCREEN

Parameter initializing wizard

Initialize parameter wizard

Set parameter item

- Unit
- Pulse per revolution
- OPR basic param.
- OPR extended param.

AD75 AD75M<Axis#3>
axis Axis#1

< Back Next > Cancel

Parameter initializing wizard

Method 0:DOG

OPR Direction
 0:Forward direction (Address increase)
 1:Reverse direction (Address decrease)

OPR Address
-2147483648-2147483647[pls]

4:Count#1
 5:Count#2
 6:Data set

AD75 AD75M<Axis#3>
axis Axis#1

< Back Next > Cancel

Parameter initializing wizard

Unit

- mm
- inch
- degree
- PULSE

AD75 AD75M<Axis#3>
axis Axis#1

< Back Next > Cancel

Parameter initializing wizard

Travel distance after DOG 0-2147483647[pls]

OPR distance -2147483648-2147483647[pls]

OPR dwell time 0-65535[ms]

OPR speed 1-1000000[pls/s]

Creep speed 1-1000000[pls/s]

AD75 AD75M<Axis#3>
axis Axis#1

< Back Next > Cancel

Parameter initializing wizard

Pulse per revolution 1-65535[pluse]

Travel per pulse(A) 20000

Travel per revolution 1-65535[pls]

Unit multiplier 20000

Unit multiplier
 x1 x100
 x10 x1000

AD75 AD75M<Axis#3>
axis Axis#1

< Back Next > Cancel

Parameter initializing wizard

Exit parameter setting

Parameter	Parameter value
Unit	3:PULSE
Stepping motor mode selection	0:Standard n
Pulse per revolution	20000 pulse
Travel per revolution	20000 pulse
Unit multiplier	1: 1 times
Method	0:Dog
Direction	0:Forward di
Address	0 pulse
OPR dwell time	0 ms
Travel distance after DOG	0 pulse
OPR distance	0 pulse
Return speed	1 pulse/sec

AD75 AD75M<Axis#3>
axis Axis#1

< Back Finish > Cancel

(Continues to the parameter initializing wizards of Axis #2 and #3.)

12.4.2 Servo parameter initializing wizard



PURPOSE

When you selected AD75M# in Change AD75 model, use the servo parameter initializing wizard to initialize the servo parameters and set the axis #1 to #3 servo parameters.

For the wizard-driven setting, set only the most fundamental items of the servo basic parameters.

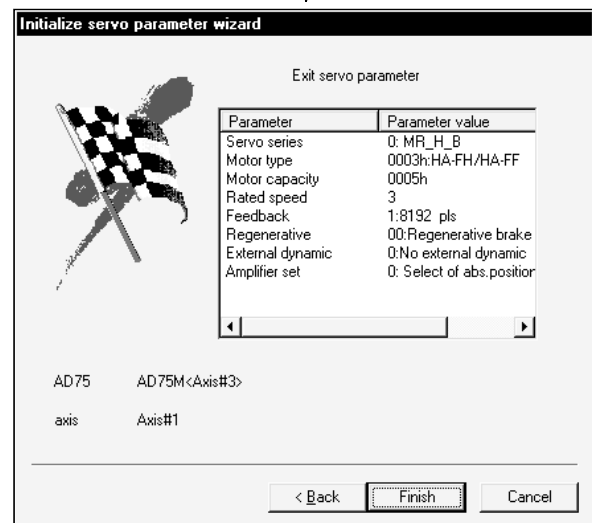
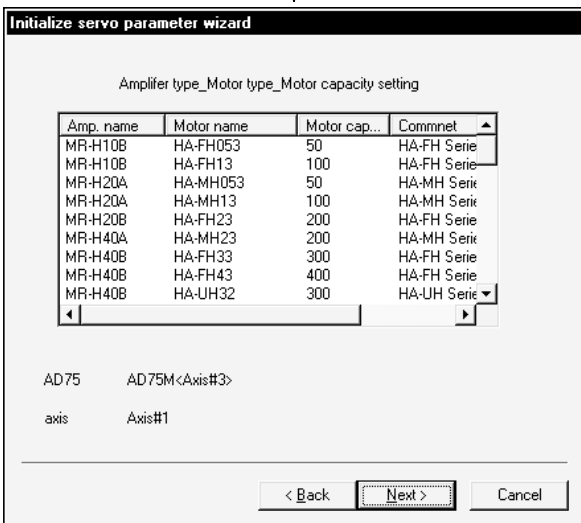
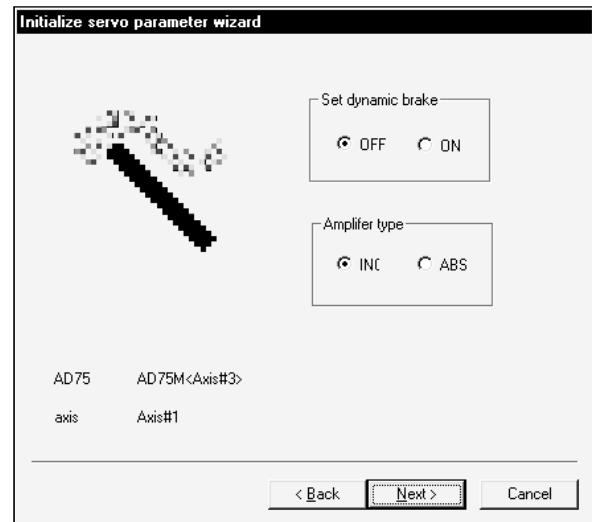
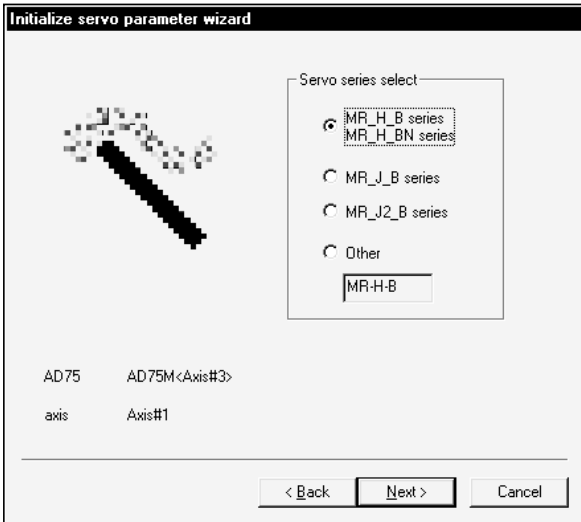
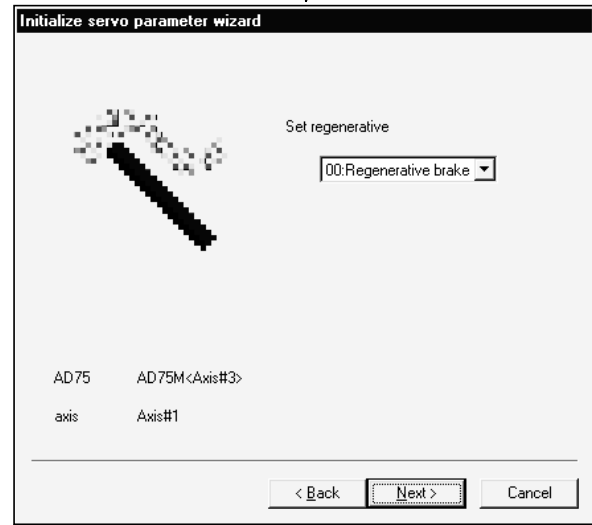
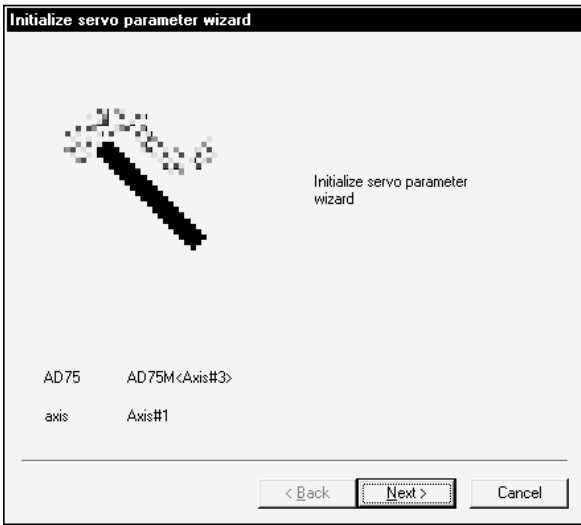
For servo parameter settings, refer to type A1SD75M1/M2/M3, AD75M1/M2/M3 positioning module User's Manual or the servo amplifier and servo motor installation guides and instruction manuals.



BASIC OPERATION

1. Display the servo parameter main screen (refer to Section 8.2).
2. Click the [Tools] → [Initialize servo parameter] menu.
3. Click the "Yes" button in the servo parameter initializing wizard start confirmation dialog box.
When making only the servo parameter initialization, click "No" button.
4. Set the items to be set for Axis #1 in the Initialize servo parameter wizard dialog box.
5. After that, make setting in accordance with the screen prompt.
When you selected AD75M2 in Change AD75 model, the wizard of Axis #2 starts after the wizard of Axis #1 is completed.
When you selected AD75M3 in Change AD75 model, the wizard of Axis #3 starts after the wizard of Axis #2 is completed.

 DISPLAY/SETTING SCREEN



(Continues to the servo parameter initializing wizards of Axis #2 and #3.)

12.4.3 Positioning data input auxiliary function



PURPOSE

Using the input auxiliary function for positioning data setting, display the setting and selection range on an item-by-item basis and enter data one by one.



BASIC OPERATION

1. Display the positioning data edit main screen (refer to Section 9.1).
2. Click the [Edit] → [Positioning data input] menu.
3. Set the positioning data in the Positioning data input dialog box.
4. To exit, click the "Exit" button.



DISPLAY/SETTING SCREEN

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]	M code
1	1:CONT	1:ABS Line1	2,800	3,500	12000	5000	100	1
2	1:CONT	1:ABS Line1	2,800	3,500	21000	5000	100	2
3	0:END	1:ABS Line1	0,1000	3,500	24500	5000	0	0
4	0:END						0	0
5	0:END						0	0
6	0:END						0	0
7	0:END						0	0
8	1:CONT						0	0
9	1:CONT						0	0
10	1:CONT						0	0
11	1:CONT						0	0
12	1:CONT						0	0
13	1:CONT						0	0
14	1:CONT						0	0
15	1:CONT						0	0

Positioning data input dialog

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]
3	0:END	1:ABS Line1	0,1000	3,500	24500

Hint Operation pattern input
 0: Positioning end
 1: Positioning Continue
 2: Positioning Locus setting.

M code comment

Prev data Next data Exit



DISPLAY/SETTING DATA

Item	Description
Positioning data	Shows the positioning data on a No. basis.
Hint	Displays the setting, selection range and caution for the selected item.
"Next data" button	Click this button to advance to the positioning data of the next No.
"Prev data" button	Click this button to return to the positioning data of the previous No.
"M code comment" button	Click this button to display the M code comment dialog box (refer to Section 9.6).

12.4.4 Start block data input auxiliary function



PURPOSE

Using the input auxiliary function for start block data setting, display the setting and selection range on an item-by-item basis and enter the points one by one.



BASIC OPERATION

1. Display the start block data edit main screen (refer to Section 9.3).
2. Click the [Edit] → [Start block data input] menu.
3. Set the start block data in the Start block data input dialog box.
4. To exit, click the "Exit" button.



DISPLAY/SETTING SCREEN

Point	Mode	Data No.	Special Start	Parameter	Parameter setting data
1	1:CONT	1	1:Cond start	1	condition
2	1:CONT	11	1:Cond start	2	condition
3	0:END	0	0:Normal start	0	None
4	0:END	0	0:Normal start	0	None

Start block data input dialog [X]

Point	Mode	Data No.	Special Start	Parameter	Parameter se data
3	0:END	0	0:Normal start	0	None

Hint Start mode input
0:End
1:Continue setting

Condition Data



DISPLAY/SETTING DATA

Item	Description
Start block data	Shows the start block data on a point No. basis.
Hint	Displays the setting, selection range and caution for the selected item.
"Next data" button	Click this button to advance to the next point No.
"Prev data" button	Click this button to return to the previous point No.
"Condition data" button	Click this button to display the Condition data edit dialog box (refer to Section 9.4).

12.4.5 Registering the servo model names



PURPOSE

When setting the unregistered servo amplifier and servo motor names, such as new models, to the servo parameters of the AD75M, additionally register the model names to the GX Configurator-AP system. Alternatively, delete the registered model names.



BASIC OPERATION

1. Display the servo parameter main screen (refer to Section 8.2).
2. Click the [Tools] → [Register servo name] menu.
3. Choose "Others" in Srv series select in the Servo entry/delete dialog box.
4. Click the "Create" button.
5. Set the servo series, amplifier name, etc. in the Servo Amplifier set/motor entry dialog box, and click the "OK" button.
6. When deleting the servo name, choose the name to be deleted in the Servo entry/delete dialog box, and click the "Delete" button.



DISPLAY/SETTING SCREEN

Servo entry/Delete

Srv series select

- MR-H-B series
- MR-H-BN series
- MR-J-B series
- MR-J2-B series
- Other

Amp. name	Motor name	Motor cap...	Co
MR-H10B	HA-FH053	50	HA
MR-H10B	HA-FH13	100	HA
MR-H20A	HA-MH053	50	HA
MR-H20A	HA-MH13	100	HA
MR-H20B	HA-FH23	200	HA
MR-H40A	HA-MH23	200	HA
MR-H40B	HA-FH33	300	HA
MR-H40B	HA-FH43	400	HA
MR-H40B	HA-UH32	300	HA
MR-H60B	HA-MH43	400	HA
MR-H60B	HA-FH63	600	HA

Buttons: Create, Delete, Extended, Exit

Servo Amplifier set/motor entry

Srv series: Set value:

Amp type:

Motor type: Motor type name:

Motor name:

Regenerative: Set value (1 - 0xFFFFFFFF)

Capacity:

Rated:

Feedback: Feedback value:

Comment: Comment MAX.20 letters

Buttons: auto set, Special set, OK, Cancel



DISPLAY/SETTING DATA

Item	Description
Srv series select	Choose the servo series. When you selected "Others", choose the servo series in the list box. This lists the registered amplifier names of the selected servo series.
"Create" button	Click this button to display the Servo amplifier set/motor entry dialog box where the names will be entered.
"Delete" button	Click this button to delete the name selected in the list.
"Extended" button	Click this button to show the detailed data of the name selected in the list.
Srv series	Set the servo series.
Set value	Shows the value assigned to the servo series created.
Amp type	Set the servo amplifier model name.
Motor type	Set the servo motor type. To set it, enter any of the following values which represent the types. 00: HA-SH standard 05: HA-MH 0A: HA-FF 01: HA-LH low-inertia 07: HC-SF 0B: HC-MF 02: HA-UH flat 08: HC-RF 80: Automatic setting 03: HA-FH 09: HC-UF FF: Special motor
Motor type name	Shows the type name of the servo motor set to the motor type.
Motor name	Set the servo motor model name.
Regenerative	Set the type of the regenerative resistor. To set it, enter any of the following values which represent the types in hexadecimal. 00: Regenerative brake 08: MR-RB30 01: FR-RC, FR-BU 09: MR-RB50 02: MR-RB013 0B: MR-RB31 03: MR-RB033 0C: MR-RB51 04: MR-RB064×2 0E: Standard + Fan 05: MR-RB32 0F: MR-RB064 06: MR-RB34 10: MR-RB032 07: MR-RB54 11: MR-RB012
Capacity	Set the servo motor capacity.
Rated	Set the rated speed of the servo motor.
Feedback	Set the number of feedback pulses. To set it, enter any of the following values. 0: 16384 2: 12000 4: 4000 6: 32768 1: 8192 3: 8000 5: 1048567 7: 131072 For details of the setting, refer to the servo amplifier and servo motor installation guides and instruction manuals.
Feedback value	Shows the set number of feedback pulses.
Comment	Set when you want to comment the servo model name.
"auto set" button	Click this button to automatically set the motor type, motor model name, capacity, speed and feedback.
"Special set" button	Click this button to choose special motor settings for the motor type, motor model name, capacity, speed and feedback pulse.
"OK" button	Click this button to register the set amplifier and motor model names.

12.5 GX Configurator-AP Option Function



PURPOSE

Set the option function of GX Configurator-AP.
 The option function is used to choose the port used with the peripheral device and set the display items for positioning data setting, for example.

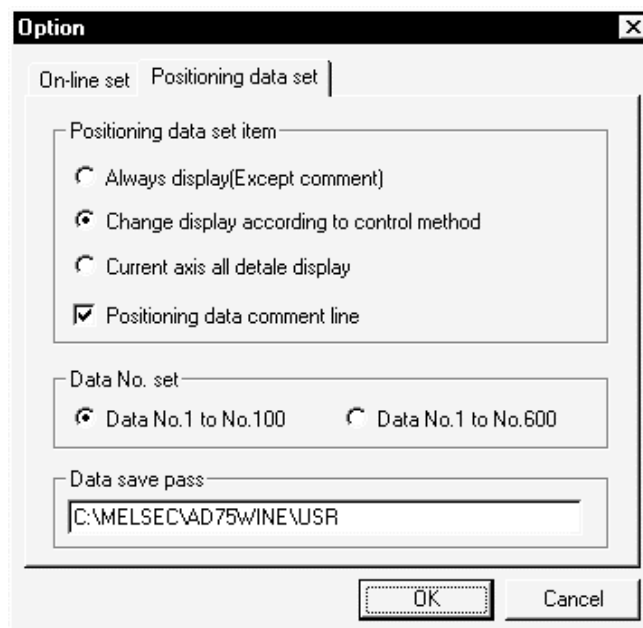
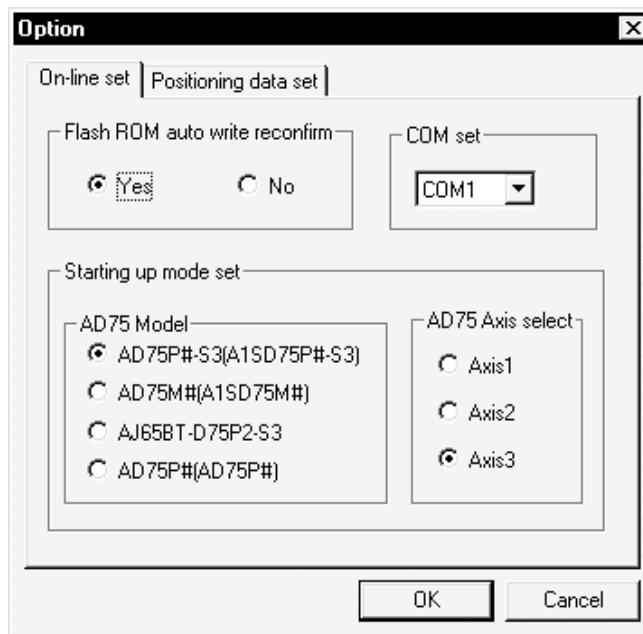


BASIC OPERATION

1. Click the [Tools] → [Option] menu.
2. Make settings in the Option dialog box.
3. To exit, click the "OK" button.



DISPLAY/SETTING SCREEN



**DISPLAY/SETTING DATA**

Item	Description
Flash ROM auto write reconfirm	<p>Select whether data will be written to flash ROM or not in the initial setting for write to AD75.</p> <ul style="list-style-type: none"> • Yes Choose Yes to make the initial setting that data will be written to flash ROM when write to AD75 is performed. • No Choose No to make the initial setting that data will not be written to flash ROM when write to AD75 is performed.
COM set	Choose the COM port used with the peripheral device.
Starting up mode set	<p>Make the initial setting for AD75 model when creating a new project. When creating a new project, the model selected in Starting up mode set is used.</p>
Positioning data set item	<p>Set the item to be displayed on the positioning data edit main screen.</p> <ul style="list-style-type: none"> • Always display (Except comment) Shows all items including those that need not be set according to the control method, with the exception of the positioning data comment. • Change display according to control method Shows the items which must be set according to the control method. • Current axis all delete display Shows all items of the current axis only. (Interpolation address for interpolation control is not displayed.) <p>By clicking the check box, the positioning data comment is added to the display item.</p>
Data No. set	<p>Choose the range of the positioning data No. to be displayed on the positioning data edit main screen.</p> <ul style="list-style-type: none"> • Data No. 1 to No. 100 Shows positioning data No. 1 to 100. • Data No. 1 to No. 600 Shows positioning data No. 1 to 600.
Data save set	Set the default save destination when a new project is created or the project is saved with a new name.
"OK" button	Click this button to determine the setting data.



When you selected data No. 1 to No. 600 in data No. setting, it will take longer to show the positioning data edit main screen.
When positioning data No. 101 and more are not required for each axis, choose data No. 1 to No. 100. (The positioning data No. defaults to data No. 1 to No. 100.)

12.6 Printing the Project Data

Print the positioning data, start block data and parameters set to the project.

12.6.1 Printer setting



PURPOSE

Choose the printer connected to the peripheral device, paper and printing orientation.

For printer setting, refer to the Windows® manual.

Also, for the printer properties, refer to the printer manual as they depend on the printer driver of Windows® used.

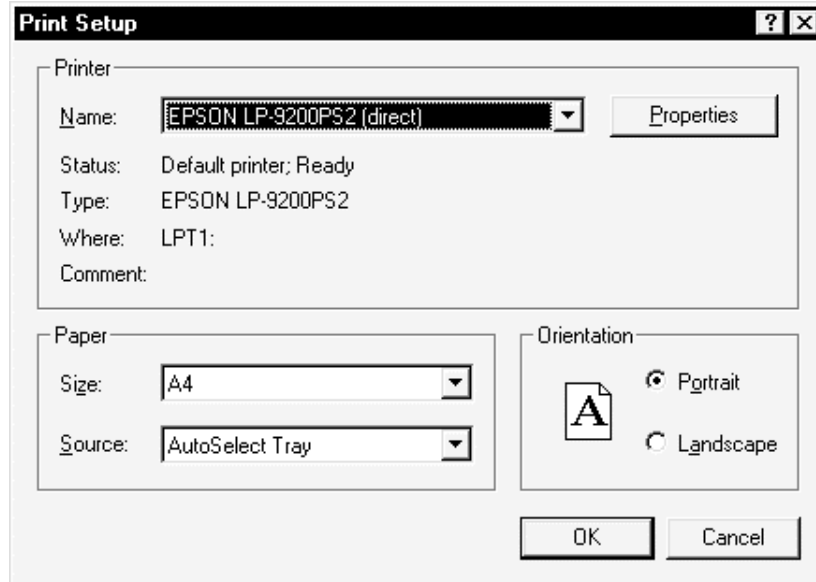


BASIC OPERATION

1. Place the main screen in the icon display status.
2. Click the [Project] → [Printer setup] menu.
3. Set the printer, etc.
4. To exit, click the "OK" button.



DISPLAY/SETTING SCREEN



(The screen shows the setting for Windows® 95.)

12.6.2 Printing



PURPOSE

Print the positioning data, start block data (including condition data) and parameters set to the project.

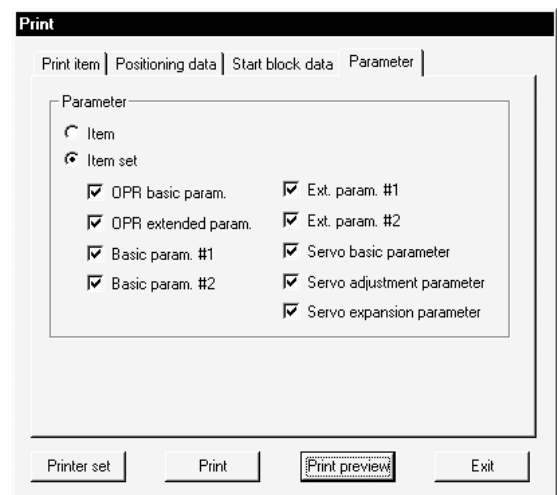
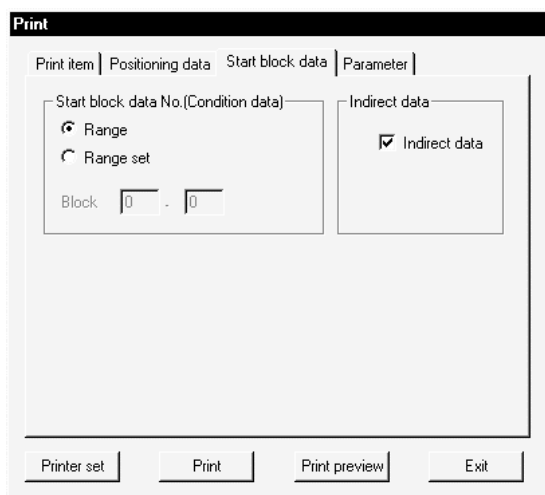
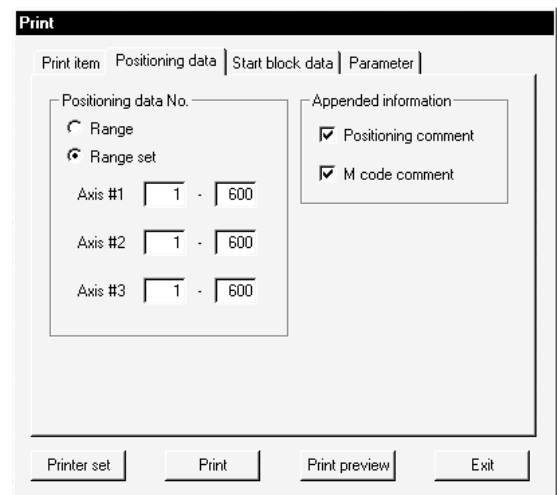
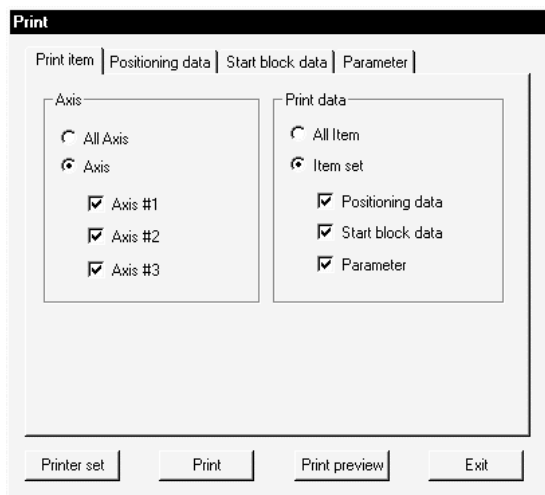


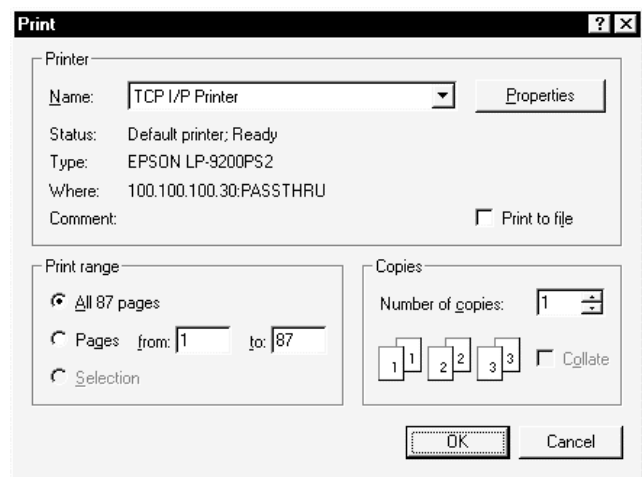
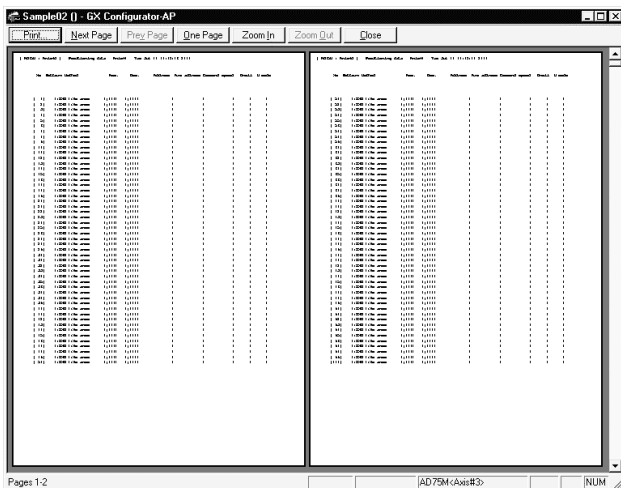
BASIC OPERATION

1. Place the main screen in the icon display status.
2. Click the [Project] → [Print] menu.
3. Set the object of printing in the Print dialog box.
4. Click the "Print preview" button.
5. Clicking the "Print" button shows the Print dialog box.
6. Click the "OK" button in the Print dialog box to start printing.



DISPLAY/SETTING SCREEN





 **DISPLAY/SETTING DATA**

Item	Description
Axis	Set the axes whose data will be printed.
Print data	Set the types of data to be printed.
Positioning data No.	Set the printing ranges of positioning data.
Appended information	Set whether positioning data and M code comments will be appended to the positioning data.
Start block data No. (Condition data)	Set the printing range of start block data. When AD75P# is selected in Change AD75 model, only the full range may be set.
Indirect specify data	Set whether indirect data is printed or not.
Parameter	Set the parameter types to be printed.
"Printer set" button	Click this button to display the Print Setup dialog box (refer to Section 12.6.1).
"Print" button	Click this button to shows the Print dialog.
"Print preview" button	Click this button to display the Print preview dialog box.
"Next Page" button "Prev Page" button	Click the corresponding button to preview the next or previous page.
"One Page/Two Page" button	Click this button to switch the preview between 1 page display and 2 page display.
"Zoom In" button "Zoom Out" button	Click the "Zoom In" button to magnify the preview display. Click the "Zoom Out" button to reduce the preview display.
Printer	Select the printer name.
"Properties" button	Click this button to display the printer property dialog box. For the printer properties, refer to the printer manual.
Print range	Set the range of printing.
Copies	Set the number of copies printed.
"OK" button	Click this button to start printing.

[Positioning data print example]

[AD75P-S3 .F Axis#3] Positioning data Axis#1 Wed Mar 03 15:21:30 1999

No	Pattern	Method	Acc.	Dec.	Address	Arc address	Command speed	Dwell	M code
[1]	2:LOCUS	7:ABS ArcMP	0:1000	0:1000		0	250	1000	500 0
	Positioning comment: move to the center								
	M code comment:								
[2]	2:LOCUS	7:ABS ArcMP	0:1000	0:1000	1000		500	1000	0 1
	Positioning comment: move to the position1								
	M code comment: paint								
[3]	2:LOCUS	7:ABS ArcMP	0:1000	0:1000		0	500	1000	500 0
	Positioning comment: move to the center								
	M code comment:								
[4]	2:LOCUS	7:ABS ArcMP	0:1000	0:1000		0	250	1000	0 1
	Positioning comment: move to the position2								
	M code comment: paint								

[Start block data print example]

[AD75P-S3 .F Axis#3] Start block Block No. 0 Axis#1 Wed Mar 03 15:21:30 1999

Point	Mode	Data	Special Start	Parameter	Condition data
[1]	1:CONT	1	2:Wait start	1	(5050) .. [1000]
[2]	1:CONT	9	2:Wait start	2	(5051) .. (999)
[3]	1:CONT	13	3:Simu start	3	[Axis#2/3] Axis#2 No.[50] / Axis#3 No.[50]
[4]	1:CONT	29	5:FOR loop	10	
[5]	1:CONT	0	7:NEXT	0	
[6]	0:END	0	0:Normal start	0	

[Parameter print example]

[AD75P-S3 .F Axis#3] Parameter Basic parameter #1 Axis#1 Wed Mar 03 15:21:31 1999

No Parameter name

Valid range

[1] Unit	0:mm 1:inch 2:degree 3:pulse 3:PULSE]
Value : [
[2] Pulse per revolution	1 to 65535 [pls]
Value : [20000 pulse]
[3] Travel per revolution	1 to 65535 [pls]
Value : [20000 pulse]
[4] Unit multiplier	1:X1 10:X10 100:X100 1000:X1000
Value : [1: 1 times]

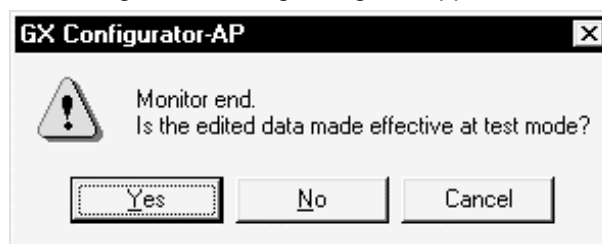
12.7 Teaching

**PURPOSE**

Enter the feed address of the axis moved by JOG or MPG operation into the address of the positioning data.

**BASIC OPERATION**

1. Perform the basic operation steps 1 to 3 in Section 11.2.1 to display the Test start/set dialog box.
2. Click the "JOG"/"MPG" button in the Test start/set dialog box to show the Operation test dialog box.
3. Perform JOG operation (refer to Section 11.2.6) or MPG operation (refer to Section 11.2.7) to move the axis.
4. Click the "Close" button in the Operation test dialog box.
5. Click the "Edit" button in the Test start/set dialog box.
6. Set the control method on the positioning data edit main screen, and move the cursor to the item (address, address (interpolation), arc address, arc address (interpolation)) of the positioning data No. where the feed address will be entered.
7. Clicking the "Teaching" button in the Test start/set dialog box sets the feed address in the item where the cursor is located.
8. To continue teaching by moving the axis, click the "Edit" check box in the the Test start/set dialog box to uncheck.
9. Repeat the basic operation steps 2 to 7 to continue teaching.
10. To end teaching, click the "Exit" button.
11. Clicking the "OK" button in the test mode end confirmation dialog box returns to the positioning data monitoring status.
12. By clicking the [Online] → [Monitor] → [Monitor start] menu to terminate monitoring, the following dialog box appears.



Click the "Yes" button.

 **DISPLAY/SETTING SCREEN**

Data No.	Pattern	Control method	Acc [ms]	Dec [ms]	Address [pls]	Command speed [pls/s]	Dwell [ms/DataNo.]
1	0:END	1:ABS Line1	0;1000	0;1000	5497	0	0
2	0:END	0:No axes	0;1000	0;1000	0	0	0
3	Monitor property						
4	Test						
5		Feed Address	Feed speed	Error	Warning	Operation data	
6	Axis#1	5497 pulse	0 pulse/sec	0	0	9010	
7	Axis#2	0 pulse	0 pulse/sec	0	0	0	
8	Axis#3	0 pulse	0 pulse/sec	0	0	0	
9	Test start/set Dialog						
10	<input type="button" value="Start Condition"/> <input type="button" value="Position start"/> <input type="button" value="Speed change"/> <input type="button" value="OPR"/> <input type="button" value="JOG"/> <input type="button" value="MPG"/>						
11	Test Set data						
12	Axis#1	Stand-by	Error reset	M code off	no setting		
13	Axis#2	Stand-by	Error reset	M code off	no setting		
14	Axis#3	Stand-by	Error reset	M code off	no setting		
15	Start <input type="radio"/> Axis#1 <input type="button" value="Start"/> <input type="button" value="Restart"/> <input type="button" value="Step startup"/> <input type="button" value="Stop"/> <input type="button" value="ALL axis start"/>						
16	<input type="radio"/> Axis#2 <input type="button" value="Continue"/> <input type="button" value="ALL axis stop"/>						
17	<input type="radio"/> Axis#3 <input type="button" value="Restart"/> <input type="button" value="Exit"/>						
18	<input checked="" type="checkbox"/> Edit						
19	Teaching						
20	Exit						
21	0:END	0:No axes	0;1000	0;1000	0	0	0

 **DISPLAY/SETTING DATA**

No.	Item	Description
1)	"JOG" button "MPG" button	Click either button to display the Operation test dialog box. Use the Operation test dialog box to perform JOG or MPG operation.
2)	"Edit" check box	Click this box to enable positioning data setting.
3)	"Teaching" button	Click this button to set the feed address of the axis to the address at the cursor on the positioning data edit main screen.
4)	Address	Choosing the address or arc address sets the feed address. Choosing the address (interpolation) or arc address (interpolation) for interpolation control sets the feed address of the corresponding interpolation axis. This address cannot be set if the control method has not been set.
5)	"Exit" button	Click this button to end the test mode.

12.8 Wavy Display

Using the wavy display function in the trace mode, show the position command, motor speed, speed command and other data for positioning operation as waveform data. When you selected AD75P# in Change AD75 model, you cannot choose the trace mode.

12.8.1 Wavy display condition setting



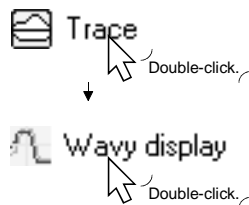
PURPOSE

To execute the wavy display, set the trace starting conditions and the data to be traced.



BASIC OPERATION

1. Choose Wavy display.



2. Click the "Trace Cond." button on the wavy display main screen.
3. Set the trace intervals, trigger condition, data type to be traced, etc. in the Trace condition dialog box.
4. Click the "OK" button in the Trace condition dialog box.
5. For the tracing operation after that, refer to Section 12.8.2.



DISPLAY/SETTING SCREEN

Trace condition [X]

Trace: (1-256)

Trigger: ▼

Trace stop: ▼ (1-8192)

	AX No.	Data
Data1	1:#1	2:Motor speed
Data2	1:#1	3:Motor curr.
Data3	1:#1	4:Speed inst.
Data4	1:#1	5:Pos. droop



DISPLAY/SETTING DATA

Item	Description
Trace	Set the trace intervals within the range 1 to 256.
Trigger	Choose the actual trace starting condition. <ul style="list-style-type: none"> • Unconditional Trace starts at the start request of the peripheral device. • Busy ON Trace starts actually when the started signal (X1/X2/X3) turns on after the start request from the peripheral device. • PC trigger ON Trace starts actually when 1 is written to the buffer memory address 5050 of the AD75 under the control of the sequence program after the start request from the peripheral device.
Trace stop	Choose the trace stopping condition. <ul style="list-style-type: none"> • Buffer full Trace stops when the trace data area becomes full. • Endless Trace stops at the stop request of the peripheral device. • Error stop Trace stops when an error occurs. • Trace point Trace stops when the number of trace points reaches the specified value.
Data 1 Data 2 Data 3 Data 4	Represents the trace data No. When AD75P#-S3 or AJ65BT-D75P2-S3 is selected in Change AD75 model, only data 1 and data 2 may be traced.
Axis No.	Choose the axis whose data will be traced.
Data	Choose the data type to be traced. <ul style="list-style-type: none"> • Pos. inst Feed address given from the AD75 to the servo amplifier. • Motor speed Speed at which the servo motor actually runs. • Motor curr. Value of servo motor current relative to the rated current of 100%. • Speed inst. Feed speed given from the AD75M to the servo amplifier. • Pos. droop Error of the actual address in relation to the position command from the AD75M. When AD75P#-S3 or AJ65BT-D75P2-S3 is selected in Change AD75 model, the traceable data is the position command only.
"OK" button	Click this button to close the Trace condition dialog box and display the axis numbers and data types on the wavy display main screen.

12.8.2 Wavy display execution



PURPOSE

Execute wavy display after setting the trace conditions in accordance with Section 12.8.1.

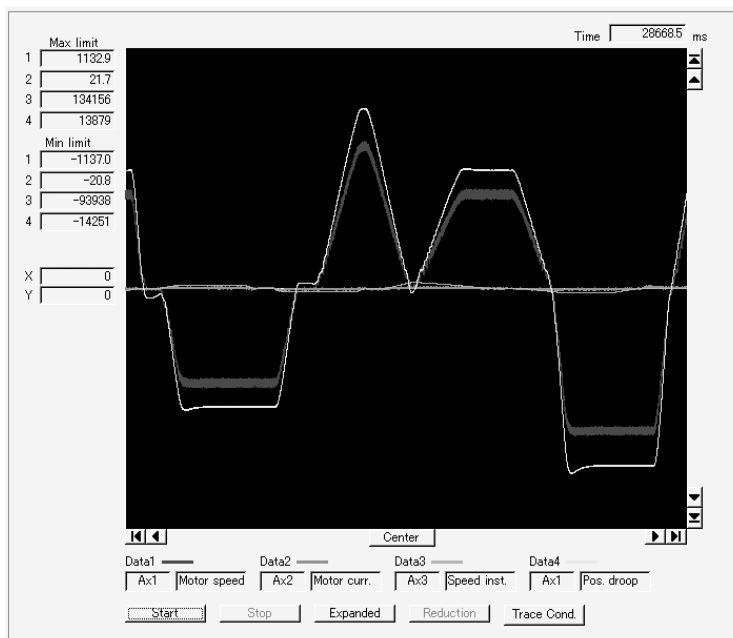


BASIC OPERATION

1. Perform the basic operation in Section 12.8.1 to set the trace conditions.
2. Click the "Start" button on the wavy display main screen.
3. Click the "Stop" button.
4. Check the AD75 control results from the displayed trace results.



DISPLAY/SETTING SCREEN





DISPLAY/SETTING DATA

Item	Description
"Start" button	Click this button to request the AD75 to start trace. If the trigger condition is "Unconditional", trace starts. If the trigger condition is other than "Unconditional", trace starts actually when the trigger condition holds.
"Stop" button	Click this button to stop trace and show the trace results. If the stop type is Buffer full, Error stop or Trace point, clicking the "Stop" button stops trace and shows the trace results available at that point.
"Expanded" button	Click this button to expand the waveform data in the horizontal (X axis) direction.
"Reduction" button	Click this button to reduce the waveform data in the horizontal (X axis) direction.
Waveform data	Shows the trace results. The X axis indicates time. The Y axis represents the value of the traced data. Clicking beneath the display or on the right of the display moves the center of the display. Note that the center line does not move. Clicking <input type="text" value="Center"/> Center aligns the trace starting position with the left of the screen.
Max Min	Show the maximum and minimum values during tracing of each data.
Time	Shows the tracing time.
X Y	Shows the coordinates where the displayed waveform data is moved with ,
Data 1 Data 2 Data 3 Data 4	Shows the axes and data types set in the Trace condition dialog box.
"Trace cond." button	Click this button to display the Trace condition dialog box.



HELPFUL OPERATION

Clicking the [Project] → [Export file] → [File writing of trace data] menu saves the trace data and trace conditions.

To read the trace data file, perform the following operation.

1. Using Change AD75 model (refer to Section 12.1.2), choose the same model as the one at the time of write.
2. Display the wavy display main screen.
3. Click the [Project] → [Import file] → [File reading of trace data] menu.
4. Click the "OK" button in the on-screen trace data overwrite confirmation dialog box.
5. Choose the file location and file name in the file opening dialog box and click the "Open" button to show the saved waveform data and trace conditions.



The tracks display file cannot be read during wavy display.

12.9 Tracks Display

Using the tracks display function in the trace mode, show the axes for interpolation control and simultaneous start as track data.

When you selected AD75P# in Change AD75 model, you cannot choose the trace mode.

12.9.1 Tracks display condition setting



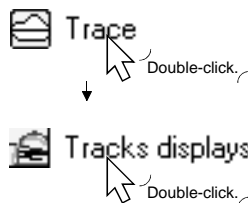
PURPOSE

To execute the tracks display, set the trace starting conditions and the data to be traced.



BASIC OPERATION

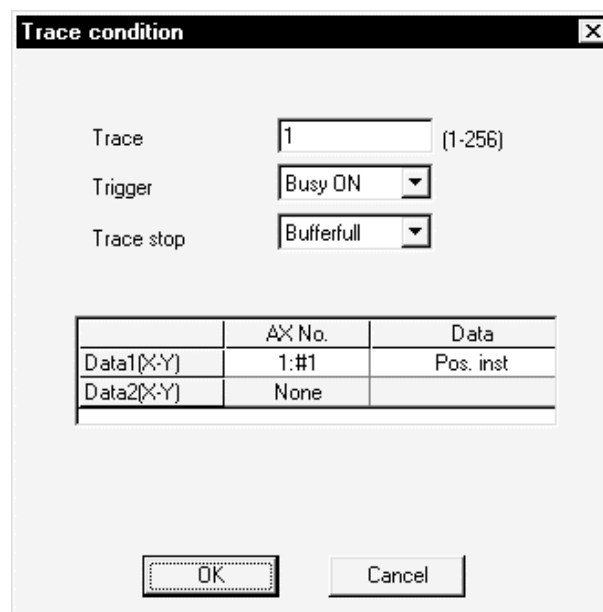
1. Choose Tracks display.



2. Click the "Trace Cond." button on the tracks display main screen.
3. Set the trace intervals, trigger condition, data type to be traced, etc. in the Trace condition dialog box.
4. Click the "OK" button in the Trace condition dialog box.
5. For the tracing operation after that, refer to Section 12.8.2.



DISPLAY/SETTING SCREEN





DISPLAY/SETTING DATA

Item	Description
Trace	Set the trace intervals within the range 1 to 256.
Trigger	Choose the actual trace starting condition. <ul style="list-style-type: none"> • Unconditional Trace starts at the start request of the peripheral device. • Busy ON Trace starts actually when the started signal (X1/X2/X3) turns on after the start request from the peripheral device. • PC trigger ON Trace starts actually when 1 is written to the buffer memory address 5050 of the AD75 under the control of the sequence program after the start request from the peripheral device.
Trace stop	Choose the trace stopping condition. <ul style="list-style-type: none"> • Buffer full Trace stops when the trace data area becomes full. • Endless Trace stops at the stop request of the peripheral device. • Error stop Trace stops when an error occurs. • Trace point Trace stops when the number of trace points reaches the specified value.
Data 1 Data 2	Represents the trace data No. When AD75P#-S3 or AJ65BT-D75P2-S3 is selected in Change AD75 model, only data 1 may be traced.
Axis No.	Choose the axis combination whose data will be traced. In the track data of the trace results, the first axis number indicates the X axis and the second the Y axis.
Data	Choose the data type to be traced. <ul style="list-style-type: none"> • Pos. inst Feed address-based track data given from the AD75 to the servo amplifier. • Real value Track data based on the actual address of the AD75M. When AD75P#-S3 or AJ65BT-D75P2-S3 is selected in Change AD75 model, the traceable data is the speed command only.
"OK" button	Click this button to close the Trace condition dialog box and display the axis numbers and data types on the tracks display main screen.

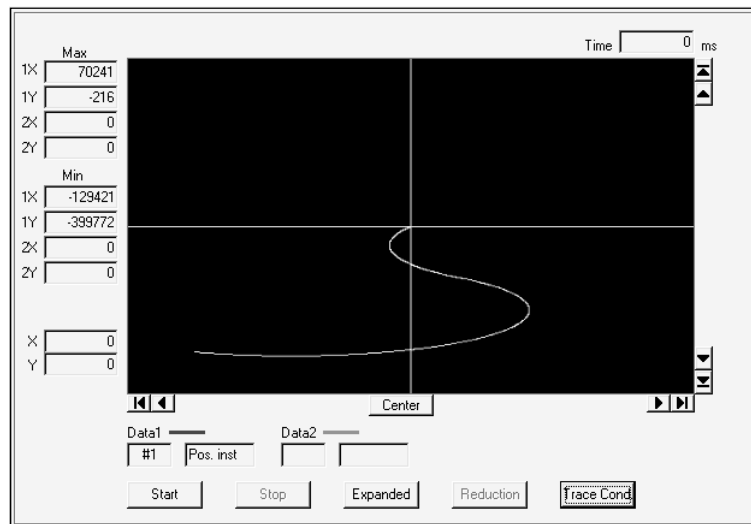
12.9.2 Tracks display execution

**PURPOSE**

Execute tracks display after setting the trace conditions in accordance with Section 12.9.1.

**BASIC OPERATION**

1. Perform the basic operation in Section 12.9.1 to set the trace conditions.
2. Click the "Start" button on the tracks display main screen.
3. Click the "Stop" button.
4. Check the AD75 control results from the displayed trace results.

**DISPLAY/SETTING SCREEN**



DISPLAY/SETTING DATA

Item	Description
"Start" button	Click this button to request the AD75 to start trace. If the trigger condition is "Unconditional", trace starts. If the trigger condition is other than "Unconditional", trace starts actually when the trigger condition holds.
"Stop" button	Click this button to stop trace and show the trace results. If the stop type is Buffer full, Error stop or Trace point, clicking the "Stop" button stops trace and shows the trace results available at that point.
"Expanded" button	Click this button to expand the track data.
"Reduction" button	Click this button to reduce the track data.
Track data	Shows the trace results. The X and Y axes indicate the respective addresses (travel distances) of the axis numbers set in trace condition setting. (When #1-2 is selected as the axis number to be traced, the X axis is Axis #1 and the Y axis is Axis #2.) Clicking beneath the display or on the right of the display moves the center of the display. Note that the center line does not move. Clicking Center aligns the X-Y axis coordinates of 0 with the center of the screen.
Max Min	Show the maximum and minimum values during tracing of each data.
Time	Shows the tracing time.
X Y	Shows the coordinates where the displayed track data is moved with ,
Data 1 Data 2	Shows the axes and data types set in the Trace condition dialog box.
"Trace cond." button	Click this button to display the Trace condition dialog box.



HELPFUL OPERATION

Clicking the [Project] → [Export file] → [File writing of trace data] menu saves the trace data and trace conditions.

To read the trace data file, perform the following operation.

1. Using Change AD75 model (refer to Section 12.1.2), choose the same model as the one at the time of write.
2. Display the tracks display main screen.
3. Click the [Project] → [Import file] → [File reading of trace data] menu.
4. Click the "OK" button in the on-screen trace data overwrite confirmation dialog box.
5. Choose the file location and file name in the file opening dialog box and click the "Open" button to show the saved track data and trace conditions.



The tracks display file cannot be read during wavy display.

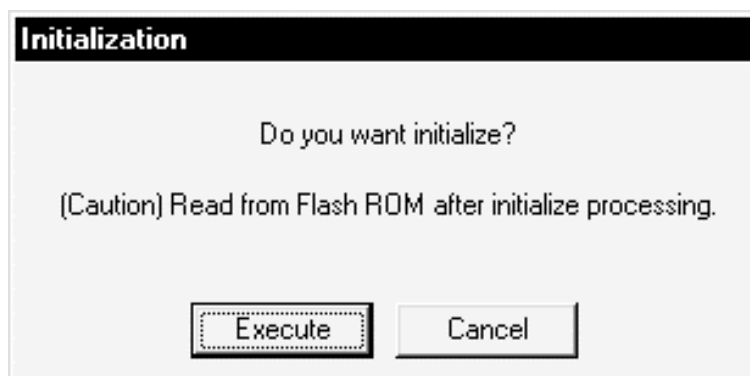
12.10 Initializing the AD75

**PURPOSE**

Initialize the flash ROM and buffer memory of the AD75 to return to the factory settings.

**BASIC OPERATION**

1. Place the main screen in the icon display status.
2. Set the PLC CPU to STOP.
3. Click the [Online] → [Initialize AD75] menu.
4. Click the "Execute" button in the Initialization dialog box.

**DISPLAY/SETTING SCREEN**

12.11 Help



PURPOSE

With the help function, you can check the following.

- Error/warning help
Causes and corrective actions indicated by the error/warning codes
- Buffer memory address list
Buffer memory name and address No. of the AD75
- Product information
Version of GX Configurator-AP and the person and company names registered at the time of installation
- Connection to MELFANSweb



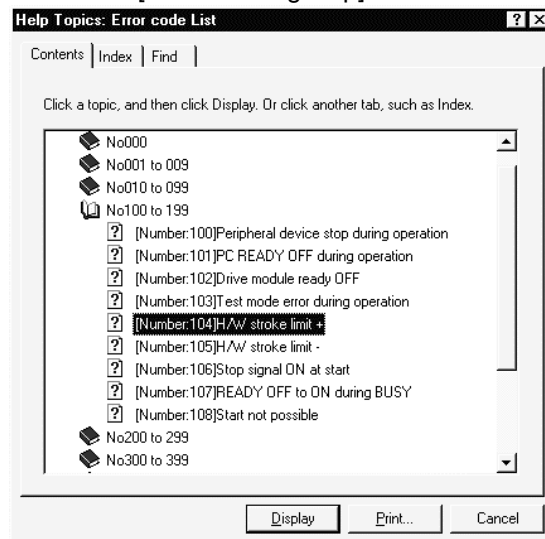
BASIC OPERATION

1. Click the [Help] → [Error/Warning Help]/[List of Buffer memory]/[About]/[Connection to MELFANSweb] menu.

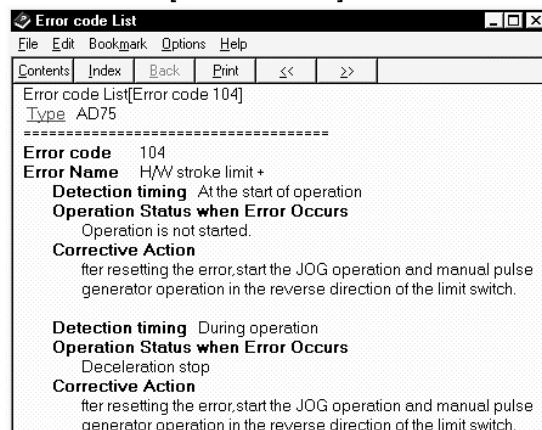


DISPLAY/SETTING SCREEN

[Error/warning help]



[Error code list]

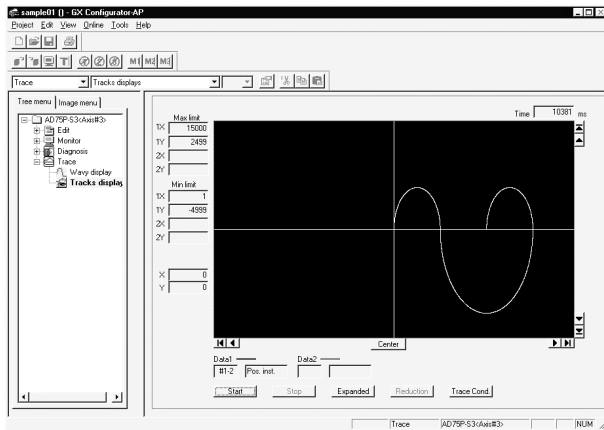


APPENDICES

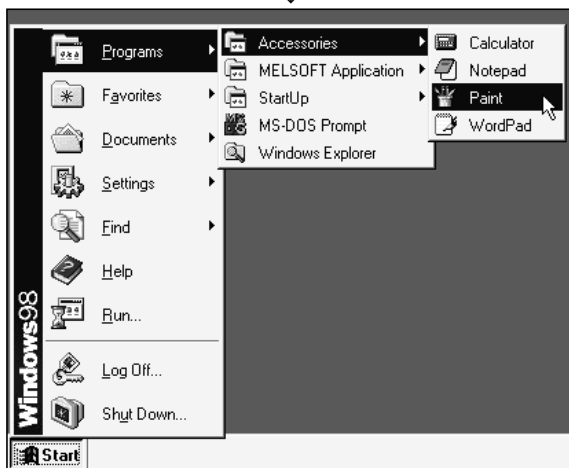
APPENDIX 1 SAMPLING MONITOR AND TRACE SCREEN PRINTING PROCEDURE

This section explains how to print the sampling monitor or trace screen.

APP

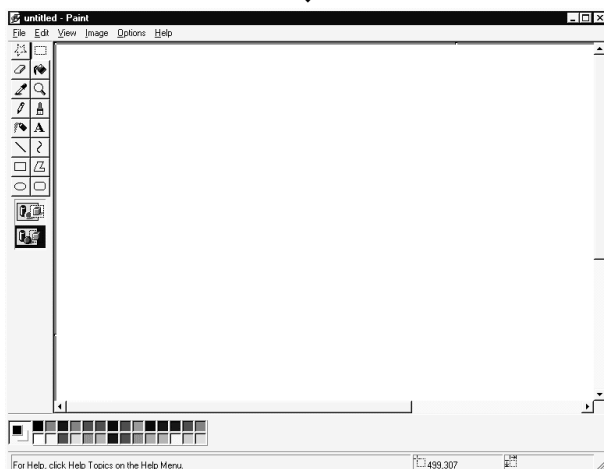


- 1) Press the Alt key + Print Screen key on the screen you want to print.



- 2) Click the Microsoft® Windows® Operating System "Start" button and move the cursor to the [Programs] → [Accessories] menu.

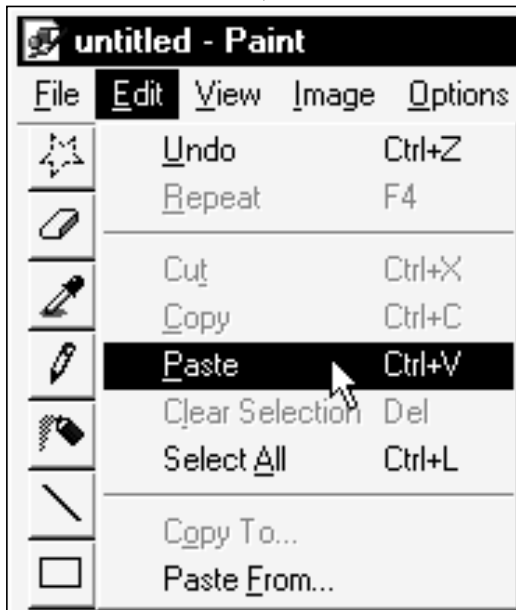
- 3) Click the [Paint] menu.



- 4) Paint starts.

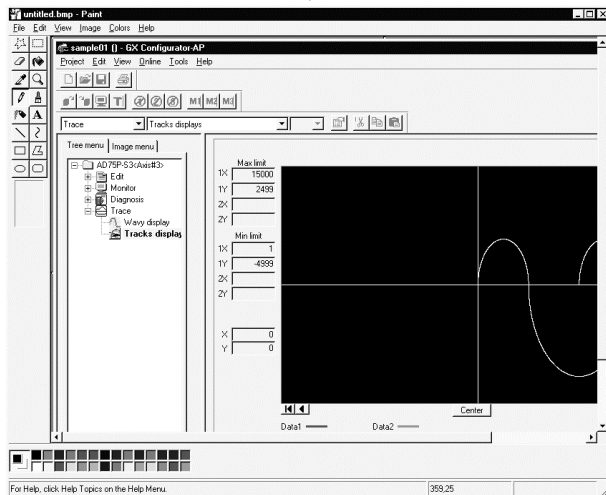
↓
(To the next page)

(From the preceding page)



5) Click the [Edit] → [Paste] menu.

APP



6) The screen is pasted.

7) Using the print function of Paint, print the pasted screen.

APPENDIX 2 COMPARISON OF THE AD75 VERSIONS

Appendix 2.1 Comparison between AD75P1/2/3 and AD75P1-S3/2-S3/3-S3

The following table compares the A1SD75P1/2/3 and AD75P1/2/3 with the A1SD75P1-S3/2-S3/3-S3 and AD75P1-S3/2-S3/3-S3.

Item	A1SD75P1-S3/2-S3/3-S3 AD75P1-S3/2-S3/3-S3	A1SD75P1/2/3, AD75P1/2/3	
		Version R or later	Version Q or earlier
Pulse output logic selection	Possible (select positive or negative logic)	Not possible (positive logic)	
Block transfer of positioning data	Possible	Not possible	
Accel/decel time setting	Selection between 1 to 65635ms and 1 to 8388608ms possible	1 to 65635ms	
JUMP instruction	Available	Not available	
Continuous operation suspension function	Available	Not available	
Starting bias speed setting	Possible	Possible	Not possible
Stepping motor mode selection	Possible	Possible	Not possible
Selection of operating speed for original point shift	Possible	Possible	Not possible
Dwell time setting for OPR retry function	Possible	Possible	Not possible
Accel/decel time changing function for speed change	Possible	Possible	Not possible
Current value clearing function for speed/position switching control	Possible	Possible	Not possible

Appendix 2.2 Comparison between Older and Newer Versions of A1SD75P1-S3/P2-S3/P3-S3 and AD75P1-S3/P2-S3/P3-S3

The following tables list the comparison between the older and newer versions of A1SD75P1-S3/P2-S3/P3-S3 and AD75P1-S3/P2-S3/P3-S3, and the buffer memory addresses for added functions.

(1) Function comparison

Item		Version	
		"F" or later	"E" or earlier
Locus control in interpolation operation	Positioning address passage mode	Available	Available
	Near passage mode	Available	Not available
Parameter initialization function		Possible	Not possible

(2) Additional buffer memory addresses

Buffer Memory Address			Name	Function Used
Axis 1	Axis 2	Axis 3		
66	216	366	Locus control near passage selection	Locus control in interpolation operation
1136			Parameter initialization request	Parameter initialization function

Appendix 2.3 Comparison between Older and Newer Versions of A1SD75M1/M2/M3 and AD75M1/M2/M3

The following tables list the comparison between the older and newer versions of A1SD75M1/M2/M3 and AD75M1/M2/M3, and the buffer memory addresses for added functions.

(1) Function comparison

Item		Version				
		"W" or later	"Q" or later	"G" or later	"F" or earlier	
Restart at servo OFF → ON		Possible	Possible	Possible	Not possible	
Locus control in interpolation operation	Positioning address passage mode	Available	Available	Available	Available	
	Near passage mode	Available	Available	Available	Not available	
Parameter initialization function		Possible	Possible	Possible	Not possible	
Axis monitor	Regenerative load ratio	Possible	Possible	Possible	Not possible	
	Practical load ratio	Possible	Possible	Possible	Not possible	
	Peak load ratio	Possible	Possible	Possible	Not possible	
	Auto tuning	Setting values of servo amplifier are stored always.	Possible	Possible	Not possible	Not possible
	Load inertia ratio		Possible	Possible	Not possible	Not possible
	Position loop gain1		Possible	Possible	Not possible	Not possible
	Speed loop gain1		Possible	Possible	Not possible	Not possible
	Position loop gain2		Possible	Possible	Not possible	Not possible
	Speed loop gain2		Possible	Possible	Not possible	Not possible
Speed integral compensation	Possible		Possible	Not possible	Not possible	
OPR method	Near-point dog method 2)		Possible	Possible	Not possible	Not possible
	Count method 3)	Possible	Possible	Not possible	Not possible	
Absolute position restoration mode switching function		Possible	Not possible	Not possible	Not possible	
Encoder output pulse function for use of MR-J2S-B servo amplifier, slight vibration suppression function enable/disable selection		Possible	Not possible	Not possible	Not possible	

(2) Additional buffer memory addresses

Buffer Memory Address			Name	Function Used
Axis 1	Axis 2	Axis 3		
64	214	364	Restart permission range	Restart at servo OFF → ON
65	215	365		
66	216	366	Locus control near passage selection	Interpolation operation
91	241	391	Absolute position restoration selection	Absolute position restoration mode switching function
138	288	438	Encoder output pulses	Encoder output pulse function *
149	299	449	Servo parameter transmission setting	Encoder output pulse function * Slight vibration suppression function *
876	976	1076	Regenerative load ratio	Axis monitor
877	977	1077	Practical load ratio	
878	978	1078	Peak load ratio	
880 to 883	980 to 983	1080 to 1083	FeRAM access counts	
1139			Parameter initialization request	Parameter initialization function

*: Indicates the function of the MR-J2S-B servo amplifier.

Appendix 2.4 Comparison of GX Configurator-AP Versions

The following table indicates the comparison of functions between the GX Configurator-AP versions.
 (The version can be confirmed using Product information in "Section 12.11 Help".)

Item	Version			
	"1.12N" or later	"1.11M" or later	"1.10L" or later	"07H" or earlier
Compatibility with "Microsoft® Windows® 2000 Professional Operating System" and "Microsoft® Windows® Millennium Edition Operating System"	Available	Available	Available	Not available
Function to select whether "AD75P initialization" will be executed or not in execution of "AD75P Checking Connect"	Available	Available	Available	Not available
Function to set "7: Near-point dog method 2)" or "8: Count method 3)" in the OPR Basic Parameter "OPR method" when "AD75M# (A1SD75M#)" is selected for "Change AD75 model"	Available	Available	Not available	Not available
Compatibility with "Microsoft® Windows® XP Professional Operating System" and "Microsoft® Windows® XP Home Edition Operating System"	Available	Not available	Not available	Not available
Addition of "Absolute position restoration selection" to "OPR Extended parameter" when "AD75M# (A1SD75M#)" is selected for "Change AD75 model"	Available	Not available	Not available	Not available

APPENDIX 3 REFERENCE PROCESSING TIME FOR READ FROM/WRITE TO AD75

The processing times listed below assume that read from/write to AD75 was performed under the following conditions.

- Peripheral device specifications

Item	Description
CPU	Pentium® 200MHz
System software	Microsoft® Windows® 95 Operating System
Main memory capacity	48MB

Read/Write Range	Axis #1/#2/#3 Positioning Data No. 1 to 600	Axis #1 Positioning Data No. 1 to 600
Operation	Axis #1/#2/#3 Start Block Data (Block No. 0 to 10)	Axis #1 Start Block Data (Block No. 0 to 10)
	Axis #1/#2/#3 Parameters	Axis #1 Parameters
Read from AD75 (AD75 → personal computer)	1 minute 2 seconds	Approx. 21 seconds
Write to AD75 (Personal computer → AD75)	1 minute 11 seconds	Approx. 30 seconds

* Processing time for read from/write to AD75 changes with the used device and circumstances.

INDEX

- [1]
 Axis #1
 Changing the edit object to 12- 4
 Error reset of
7-13, 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 Turning off the M code ON signal of
 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 Turning off the servo motor brake..... 11-44, 48
- [2]
 Axis #2
 Changing the edit object to 12- 4
 Error reset of
7-13, 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 Turning off the M code ON signal of
 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 Turning off the servo motor brake..... 11-44, 48
- [3]
 Axis #3
 Changing the edit object to 12- 4
 Error reset of
7-13, 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 Turning off the M code ON signal of
 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 Turning off the servo motor brake..... 11-44, 48
- [A]
 About..... 12-40
 AD75
 Changing model 12- 3
 Checking the version 7- 2, App- 3, 4, 5
 Initialization 12-40
 Model 6- 2
 Read from 10- 1
 Verify data 10- 1
 Write to..... 10- 1
 AD75M
 Adjusting the servo position loop gain ... 11-47
 Checking the servo basic parameters 7- 6
 All axis on/off 11-48
 Application
 Ending of..... 4- 8
 Starting of..... 4- 7
- Auxiliary function
 Positioning data input..... 12-18
 Start block data input 12-19
 Axis copy 12-12
- [B]
 Buffer memory list 12-41
- [C]
 Cable 2- 2
 Check box 5- 3
 Column clearing 12-10
 COM
 Checking of 7- 1
 Setting of 12-24
 Command button 5- 3
 Comment
 M code 9-13
 Positioning data 9- 3
 Condition data edit 9-10
 Copy
 of selected range 12- 5
 of start block. 12-13
 on an axis basis. 12-12
 CSV form positioning data
 File reading of..... 6- 9
 File writing of 6-11
 Cut 12- 5
- [D]
 Deletion
 of project..... 6- 6
 of servo model name 12-20
 Detailed view 12- 4
 Drop-down menu 5- 1

[E]

- Edit property dialog 9- 3, 12- 4
- Edit toolbar..... 5- 1
- Entering the current value to the address .. 12-30
- Error
 - Check..... 9- 4
 - Monitoring the history 11- 6
 - Monitoring the starting history at occurrence of 11- 7
 - Resetting
 -7-13, 11- 1, 25, 30, 32, 34, 37, 39, 42, 44
 - /warning help 12-41
- Existing
 - Opening project 6- 4
 - Utilizing data 6- 7
- Exit
 - of application..... 4- 8
 - of monitor 11- 2, 4
 - of test 11-23, 28, 31, 33, 36, 38, 41, 43

[F]

- Flash ROM
 - Initialization of 12-40
 - Request..... 10- 5

[H]

- History monitor 11- 6

[I]

- Icons
 - Changing the view 12- 4
 - Display status 4- 8
- Indirect data setting 9-12
- Information
 - Version of AD75 7- 2
 - Version of GX Configurator-AP 12-41
- Initialization (Clear)
 - of AD75 12-40
 - of data 12-11
 - of parameters..... 12-14
 - of parameters type-by-type 8- 2
 - of servo parameters 12-16
 - of servo parameters type-by-type 8-10
 - on a column basis..... 12-10
 - on a row basis..... 12-10
- Initialization of data..... 12-11
- Installation..... 4- 1

[J]

- JOG operation
 - Monitoring..... 11-16
 - Performing 7- 3, 11, 14, 11-38
- Jump..... 12- 9

[L]

- Large icons..... 12- 4
- List
 - Buffer memory address 12-41
 - Error/warning code..... 12-41
 - Function..... 3- 1
 - Menu..... 3- 3
 - Shortcut key..... 5- 4
 - View 12- 4
- List box 5- 3
- Locus/track data
 - Simulation using 9- 6
 - Trace using..... 12-36

[M]	
Main screen	5- 1
Manual pulse generator operation	
Monitoring	11-16
Performing	11-41
M code	
Comment edit	9-13
Turning off ON signal	11- 1, 25, 30, 32, 34, 37, 39, 42, 44
Menu	
Bar	5- 1
List	3- 3
Screen	5- 1
Select	12- 4
Model	6- 2
Monitor	
AD75 (error-time) starting history	11- 7
AD75 error/warning history	11- 6
AD75M and servo error history	7- 7
Auto tuning results	11-20
Axis address	11- 4
Axis control status	11-11
Axis speed	11- 4, 13
Axis status	11- 4
of buffer memory	11-21
of external I/O signals	11- 9, 21
of JOG operation	11-16
of motor speed	11-17
of motor torque	11-19
of MPG operation	11-16
of OPR	11-15
of servo load ratio	11-19
of servo status signals	11-22, 45
of speed/position switching control	11-14
of status signals	11-10, 21
of X/Y devices	11- 8, 21
On/off	11- 1, 2, 4, 21
Positioning data in execution	11- 2
Restart of	11- 1
Start block data in execution	11- 2
Move	
Cursor to the menu/main screen	5- 2
Cursor to the specified data No	12- 9
Upward	12- 4
Move upward	12- 4
MS-DOS version software package	
Reading from file	6-10
Writing to file	6- 7

[N]	
New project	6- 2
[O]	
Offline simulation	9- 6
Online toolbar	5- 1, 12- 4
Opening	
CSV file	6- 9
Project	6- 4
SW1RX/IVD/NX-AD75P file	6- 7
Trace data file	12-35
Operation	
Displaying the result as locus data	12-38
Displaying the result as waveform data ..	12-34
Monitoring the status	11- 4
Test on a positioning data basis	11-23
Test on a start block data basis	11-28
Operation	
Monitor	11-11
Test	11-31, 33, 36, 38, 41, 43
Option	12-23
OS information	7- 2
[P]	
Parameters	
Edit	8- 1
Error check of	9- 4
Initialization of	8- 2
Initialize wizard	12-14
Paste	12- 6
Positioning data	
Data input	12-18
Display item of	12-24
Display of comment	11- 4, 12-23
Error check of	9- 4
Number of data displayed	12-24
Setting of	9- 1
Setting of comment	9- 3
Preview	12-26
Print	12-26
Printer setting	12-25
Project	6- 1
Project toolbar	5- 1
Project save path	
Changing of	6- 3
Initial setting of	12-23

[R]	
Radio button	5- 3
Read	
From AD75	10- 1
From flash ROM to buffer memory	10- 5
From HD/FD	6- 4
From SW1RX/IVD/NX-AD75P form file	6- 7
of trace data	11-36, 40
Row clearing	12-10
[S]	
Sampling monitor	11-21
Save	6- 5
Save	
Data to flash ROM of AD75	10- 5
Project	6- 5
Save as	6- 5
Select all	12- 8
Select axis	12- 4
Selecting	
Axis to be edited	12- 4
Block to be edited	12- 4
Menu screen	12- 4
Servo	
Checking the rotation rotation of motor	
.....	7- 3, 11
Checking the speed of motor	7-14
Coasting the motor	11-48
Monitor	11-17
Name registration	12-20
Off command	11-48
Starting up	7- 6
Servo parameters	
Error check of	9- 4
Initialization of	8-10
Initialize wizard	12-16
Project and AD75M	7- 9, 11-20

Setting	
of basic parameters	8- 3, 4
of condition data	9-10
of extended parameters	8- 5, 6
of indirect data	9-12
of M code comment	9-13
of OPR parameters	8- 7, 8
of positioning data	9- 1
of printer	12-25
of print range	12-27
of selected range in batch	12- 7
of servo parameters	8- 9
of start block data	9- 8
option	12-23
Setting conditions	
of test operation	11-23, 28
of trace start	12-32, 36
Shortcut key	5- 4
Signal monitor	11- 8
Small icons	12- 4
Spin box	5- 3
Spreadsheet software data	
Copying from	12- 7
Reading	6- 9
Writing to	6-11
Start block	
Copy	12-13
data input	12-19
Select	12- 4
Start block data	
Error check of	9- 4
Setting of	9- 8
Starting	
of application	4- 7
of monitor	11- 1, 2
of test	11-23, 28, 31, 33, 36, 38, 41, 43
Starting conditions	11-23, 28
Starting up initial setting change	12-23
Status bar	5- 1
SW1RX/IVD/NX-AD75P	
File reading of	6- 7
File writing of	6-10

[T]	
Tab.....	5- 3
Teaching.....	12-30
Test	
by JOG operation	11-38
by MPG operation.....	11-41
Current value change	11-31
external I/O signal on/off	7- 3, 11-40
Motor gain	11-45
Motor rotation direction.....	7- 3, 11
Motor speed.....	7-14
of positioning data	11-23
of start block data	11-28
on/off	11-23, 28, 31, 33, 36, 38, 41, 43
OPR	11-36
Restart of	11- 1
Speed change	11-33
Torque limit change.....	11-43
Text box.....	5- 3
Title bar	5- 1
Toolbar.....	5- 1, 12- 4
Trace	
Displaying the result of.....	12-35, 38
Setting the conditions of.....	12-32, 36
Trace data	
File reading of	12-35, 39
File writing of.....	12-35, 39
[U]	
Uninstallation	4- 5
[V]	
Verify	
of project	12- 1
with AD75.....	10- 1
Version	
of AD75	7- 2, App- 3, 4
of GX Configurator-AP	12-41
View	
Bar.....	12- 4
Edit property dialog.....	9- 3, 12- 4
Icon	12- 4
Operation monitor during test.....	11-35
Virtual positioning	9- 6

[W]	
Warning	
Checking the code definition.....	12-41
Monitoring the history.....	11- 6
Waveform data	
Sampling by.....	11-21
Simulation by.....	9- 6
Trace by.....	12-34
Wizard	
Initialize servo parameter.....	12-16
Parameter initializing.....	12-14
Write	
Initial setting at	12-23
in SW1RX/IVD/NX-AD75P form file	6-10
of traced data	11-35, 40
to AD75.....	10- 1
to flash ROM	10- 5
to HD/FD.....	6- 5

MENU-BASED INDEX

[Online] menu

[Write to AD75]	10- 1
[Read from AD75].....	10- 1
[Verify AD75 data]	10- 1
[OS information].....	7- 2
[Flash-ROM request]	10- 5
[Initialize AD75].....	12-40

[Monitor]

[Monitor start].....	11- 1, 2, 4, 21
[History monitor].....	11- 6
[Signal monitor].....	11- 8
[Operation monitor].....	11-11
[Servo monitor]	11-17

[Test]

[Test start]	11-23, 28, 31, 33, 36, 38, 41, 43
[Start condition].....	11-23, 28
[Operation Test].....	11-31, 33, 36, 38, 41, 43
[Teaching]	12-30
[All axis On/Off].....	11-48

[Designate Off]

[Designate #1 Off].....	11-48
[Designate #2 Off].....	11-48
[Designate #3 Off].....	11-48

[Error Reset]

[Error Reset #1]	7-13, 11- 1
[Error Reset #2]	7-13, 11- 1
[Error Reset #3]	7-13, 11- 1

[M code Off]

[M code #1 Off]	11- 1
[M code #2 Off]	11- 1
[M code #3 Off]	11- 1

[Tool] menu

[Initialize data].....	12-11
[Initialize parameter].....	12-14
[Initialize servo parameter].....	12-16
[Register servo name]	12-20
[Error check]	9- 4
[Option]	12-23

[View] menu

[Toolbar]

[Project toolbar]	12- 4
[Edit toolbar]	12- 4
[Online toolbar]	12- 4

[Status bar]

[Change menu]	12- 4
---------------------	-------

[Move upward]

.....	4- 8, 12- 4
-------	-------------

[Select Axis]

[Axis #1]	12- 4
[Axis #2]	12- 4
[Axis #3]	12- 4

[Select start block]

.....	12- 4
-------	-------

[Edit property dialog]

.....	9- 3, 12- 4
-------	-------------

[Large Icons]

.....	12- 4
-------	-------

[Small Icons]

.....	12- 4
-------	-------

[List view]

.....	12- 4
-------	-------

[Detailed view]

.....	12- 4
-------	-------

[Project] menu

[New Project]

.....	6- 2
-------	------

[Open Project]

.....	6- 4
-------	------

[Save Project]

.....	6- 5
-------	------

[Save as Project]

.....	6- 5
-------	------

[Delete Project]

.....	6- 6
-------	------

[Verify Project]

.....	12- 1
-------	-------

[Import file]

[File reading of SW1RX/IVD/NX-AD75P]...6- 7	
---	--

[File reading of CSV form positioning data]

.....	6- 9
-------	------

[File reading of trace data]

.....	12-35, 39
-------	-----------

[Export file]

[File writing of SW1RX/IVD/NX-AD75P]...6-10	
---	--

[File writing of CSV form positioning data]

.....	6-11
-------	------

[File writing of trace data]

.....	12-35, 39
-------	-----------

[Change AD75 model]

.....	6- 2, 12- 3
-------	-------------

[Print]

.....	12-26
-------	-------

[Printer setup]

.....	12-23
-------	-------

[Exit]

.....	4- 8
-------	------

[Edit] menu

[Cut]	12- 5
[Copy].....	12- 5
[Paste].....	12- 5
[Select all]	12- 8
[Jump]	12- 9
[Clear row]	12-10
[Clear column]	12-10
[Axis copy]	12-12
[Start block copy].....	12-13
[Positioning data input].....	12-18
[Start block data input]	12-19
[Parameter data input].....	8- 1
[Servo parameter].....	8- 9
[M code comment].....	9-13
[Condition data edit]	9-10
[Indirect data edit]	9-12
[Offline simulator]	9- 6

[Help] menu

[Error/Warning Help]	12-41
[List of Buffer memory]	12-41
[About].....	12-41
[Connection to MELFANSweb].....	12-41

Microsoft, Windows, Windows NT are registered trademarks of Microsoft Corporation in the United States and other countries.

Pentium is either a trademark or registered trademark of Intel Corporation in the United States and other countries.

Other company and product names herein may be either trademarks or registered trademarks of their respective owners.

VS-FLEX

Copyright(C) 1997 VideoSoft Corporation

HEADQUARTERS

MITSUBISHI ELECTRIC EUROPE B.V. EUROPE
Gothaer Straße 8
D-40880 Ratingen
Phone: +49 (0) 21 02 / 486-0
Fax: +49 (0) 21 02 / 4 86-11 20
e mail: megfamail@meg.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. FRANCE
25, Boulevard des Bouvets
F-92741 Nanterre Cedex
Phone: +33 1 55 68 55 68
Fax: +33 1 55 68 56 85
e mail: factory.automation@fra.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. UK
Travellers Lane
GB-Hatfield Herts. AL10 8 XB
Phone: +44 (0) 1707 / 27 61 00
Fax: +44 (0) 1707 / 27 86 95

MITSUBISHI ELECTRIC EUROPE B.V. ITALY
Via Paracelso 12
I-20041 Agrate Brianza (MI)
Phone: +39 039 6053 1
Fax: +39 039 6053 312
e mail: factory.automation@it.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. SPAIN
Carretera de Rubí 76-80
E-08190 Sant Cugat del Vallés
Phone: +34 9 3 / 565 3131
Fax: +34 9 3 / 589 2948
e mail: industrial@sp.mee.com

MITSUBISHI ELECTRIC CORPORATION JAPAN
Office Tower "Z" 14 F
8-12,1 chome, Harumi Chuo-Ku
Tokyo 104-6212
Phone: +81 3 6221 6060
Fax: +81 3 6221 6075

MITSUBISHI ELECTRIC AUTOMATION USA
500 Corporate Woods Parkway
Vernon Hills, IL 60061
Phone: +1 847 / 478 21 00
Fax: +1 847 / 478 22 83

EUROPEAN REPRESENTATIVES

GEVA AUSTRIA
Wiener Straße 89
A-2500 Baden
Phone: +43 (0) 2252 / 85 55 20
Fax: +43 (0) 2252 / 488 60
e mail: office@geva.at

TEHNIKON BELARUS
Oktjabrskaya 16/5, Ap 704
BY-220030 Minsk
Phone: +375 (0) 17 / 22 75 704
Fax: +375 (0) 17 / 22 76 669
e mail: tehnikon@belsonet.net

Getronics b.v. BELGIUM
Control Systems
Pontbeeklaan 43
B-1731 Asse-Zellik
Phone: +32 (0) 2 / 467 17 51
Fax: +32 (0) 2 / 467 17 45
e mail: infoautomation@getronics.com

TELECON CO. BULGARIA
4, A. Ljapchev Blvd.
BG-1756 Sofia
Phone: +359 (0) 2 / 97 44 05 8
Fax: +359 (0) 2 / 97 44 06 1
e mail: —

INEA CR d.o.o. CROATIA
Drvinje 63
HR-10000 Zagreb
Phone: +385 (0) 1 / 36 67 140
Fax: +385 (0) 1 / 36 67 140
e mail: —

AutoCont CZECHIA
Control Systems s.r.o.
Nemocnicni 12
CZ-702 00 Ostrava 2
Phone: +420 59 / 6152 111
Fax: +420 59 / 6152 562
e mail: consys@autocont.cz

louis poulsen DENMARK
industri & automation
Geminivej 32
DK-2670 Greve
Phone: +45 (0) 43 / 95 95 95
Fax: +45 (0) 43 / 95 95 91
e mail: lpia@lpmail.com

UTU Elektrotehnika AS ESTONIA
Pärnu mnt.160i
EE-11317 Tallinn
Phone: +372 (0) 6 / 51 72 80
Fax: +372 (0) 6 / 51 72 88
e mail: utu@utu.ee

Beijer Electronics OY FINLAND
Ansatie 6a
FIN-01740 Vantaa
Phone: +358 (0) 9 / 886 77 500
Fax: +358 (0) 9 / 886 77 555
e mail: info@beijer.fi

PROVENDOR OY FINLAND
Teljänkatu 8 A 3
FIN-28130 Pori
Phone: +358 (0) 2 / 522 3300
Fax: +358 (0) 2 / 522 3322
e mail: —

UTECO A.B.E.E. GREECE
5, Mavrogenous Str.
GR-18542 Piraeus
Phone: +302 (0) 10 / 42 10 050
Fax: +302 (0) 10 / 42 12 033
e mail: uteco@uteco.gr

Meltrade Automatika Kft. HUNGARY
55, Harmat St.
H-1105 Budapest
Phone: +36 (0)1 / 2605 602
Fax: +36 (0)1 / 2605 602
e mail: office@meltrade.hu

EUROPEAN REPRESENTATIVES

MITSUBISHI ELECTRIC EUROPE B.V. IRELAND
Irish Branch
Westgate Business Park
IRL-Dublin 24
Phone: +353 (0) 1 / 419 88 00
Fax: +353 (0) 1 / 419 88 90
e mail: sales.info@meir.mee.com

SIA POWEL LATVIA
Lienes iela 28
LV-1009 Riga
Phone: +371 784 / 22 80
Fax: +371 784 / 22 81
e mail: utu@utu.lv

UAB UTU POWEL LITHUANIA
Savanoriu pr. 187
LT-2053 Vilnius
Phone: +370 (0) 52323-101
Fax: +370 (0) 52322-980
e mail: powel@utu.lt

INTEHSIS SRL MOLDOVA, REPUBLIC OF
Cuza-Voda 36/1-81
MD-2061 Chisinau
Phone: +373 (0)2 / 562 263
Fax: +373 (0)2 / 562 263
e mail: intehsis@mdl.net

Getronics b.v. NETHERLANDS
Control Systems
Donauweg 2 B
NL-1043 AJ Amsterdam
Phone: +31 (0) 20 / 587 67 00
Fax: +31 (0) 20 / 587 68 39
e mail: info.gia@getronics.com

Beijer Electronics AS NORWAY
Teglværksveien 1
N-3002 Drammen
Phone: +47 (0) 32 / 24 30 00
Fax: +47 (0) 32 / 84 85 77
e mail: info@beijer.no

MPL Technology Sp. z o.o. POLAND
ul. Sliczna 36
PL-31-444 Kraków
Phone: +48 (0) 12 / 632 28 85
Fax: +48 (0) 12 / 632 47 82
e mail: krakow@mpl.pl

Sirius Trading & Services srl ROMANIA
Bd. Lacul Tei nr. 1 B
RO-72301 Bucuresti 2
Phone: +40 (0) 21 / 201 7147
Fax: +40 (0) 21 / 201 7148
e mail: sirius_t_s@fx.ro

ACP Autocomp a.s. SLOVAKIA
Chalupkova 7
SK-81109 Bratislava
Phone: +421 (02) / 5292-22 54, 55
Fax: +421 (02) / 5292-22 48
e mail: info@acp-autocomp.sk

INEA d.o.o. SLOVENIA
Stegne 11
SI-1000 Ljubljana
Phone: +386 (0) 1-513 8100
Fax: +386 (0) 1-513 8170
e mail: inea@inea.si

Beijer Electronics AB SWEDEN
Box 426
S-20124 Malmö
Phone: +46 (0) 40 / 35 86 00
Fax: +46 (0) 40 / 35 86 02
e mail: info@beijer.se

ECONOTEC AG SWITZERLAND
Postfach 282
CH-8309 Nürensdorf
Phone: +41 (0) 1 / 838 48 11
Fax: +41 (0) 1 / 838 48 12
e mail: info@econotec.ch

EUROPEAN REPRESENTATIVES

GTS TURKEY
Darülaceze Cad. No. 43 KAT: 2
TR-80270 Okmeydani-Istanbul
Phone: +90 (0) 212 / 320 1640
Fax: +90 (0) 212 / 320 1649
e mail: gts@turk.net

CSC Automation Ltd. UKRAINE
15, M. Raskova St., Fl. 10, Office 1010
UA-02002 Kiev
Phone: +380 (0) 44 / 238-83-16
Fax: +380 (0) 44 / 238-83-17
e mail: csc-a@csc-a.kiev.ua

AFRICAN REPRESENTATIVE

CBI Ltd SOUTH AFRICA
Private Bag 2016
ZA-1600 Isando
Phone: +27 (0) 11 / 928 2000
Fax: +27 (0) 11 / 392 2354
e mail: cbi@cbi.co.za

MIDDLE EAST REPRESENTATIVE

TEXEL Electronics LTD. ISRAEL
Box 6272
IL-42160 Netanya
Phone: +972 (0) 9 / 863 08 91
Fax: +972 (0) 9 / 885 24 30
e mail: texel_me@netvision.net.il

EURASIAN REPRESENTATIVE

AVTOMATIKA SEVER RUSSIA
Krapivnij Per. 5, Of. 402
RU-194044 St Petersburg
Phone: +7 812 / 1183 238
Fax: +7 812 / 3039 648
e mail: pav@avtsev.spb.ru

CONSYS RUSSIA
Promyshlennaya St. 42
RU-198099 St Petersburg
Phone: +7 812 / 325 36 53
Fax: +7 812 / 325 36 53
e mail: consys@consys.spb.ru

ELEKTROSTYLE RUSSIA
Ul Garschina 11
RU-140070 Moscovskaja Oblast
Phone: +7 095 / 261 3808
Fax: +7 095 / 261 3808
e mail: —

ICOS RUSSIA
Industrial Computer Systems Zao
Ryazanskij Prospekt 8a, Office 100
RU-109428 Moscow
Phone: +7 095 / 232 - 0207
Fax: +7 095 / 232 - 0327
e mail: mail@icos.ru

NPP Uralelektra RUSSIA
Sverdlova 11a
RU-620027 Ekaterinburg
Phone: +7 34 32 / 53 27 45
Fax: +7 34 32 / 53 27 45
e mail: elektra@etel.ru

STC Drive Technique RUSSIA
Poslannikov Per. 9, str.1
RU-107005 Moscow
Phone: +7 095 / 786 21 00
Fax: +7 095 / 786 21 01
e mail: info@privod.ru