

SANMOTION

AC SERVO SYSTEMS

Q

TYPE S / TYPE C

Q-SETUP

Setup Software

Instruction Manual

SANYO DENKI

Preface

This user's manual explains the use and specifications of the Setup Software for AC servo amplifier "Q" series.

◆ Notifications on this User's Manual:

- To completely utilize all functions of the AC servo amplifier "Q" series, read this manual carefully before use to ensure proper operation.
- After reading this manual, keep it handy so that it can be referred to by anyone at anytime.
- Contact the head office or our sales departments listed on the back cover if there is incorrect collating or missing page.
- Make sure to follow the directions on safety cautions in this manual. We will not insure safety in the use other than specified in this manual or in the improper use.
- This manual content may be revised without notice because of product version up or usage additions. The changes will be noticed by revising this manual.
- Some figures in this manual may be outlined or abstract.
- Contact the head office or our sales departments listed on the back cover in case of questions or omission.

◆ Terms:

In this manual, "AC Servomotor" is sometimes abbreviated to "Servomotor" or "Motor",
"AC Servo Amplifiers" to "Servo Amps." or "Amps.",
"Wiring-saved incremental encoders" to "INC-E",
"Incremental Absolute encoders" to "ABS-E",
"Absolute encoder with request signal" to "ABS-E with request signal",
Also, both "Wiring-saved incremental encoders" and "Absolute encoders" to "Encoder",
and entire optical and resolver encoders are abbreviated to "Sensor".

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1. Installing and Uninstalling

1.1. Hardware requirements

The following system is required to utilize Q-SETUP - Setup Software.

PC	IBM PC/AT compatible machine (NEC PC-98x1 cannot be ensured to operate.)
CPU	At least Pentium133MHz (When using scroll mode of the operational trace function, CPU operational frequency of 350MHz or 800MHz at least is recommended. *1)
Memory	At least 32MB (Minimum 64Mb is recommended)
Hard disk	At least 5Mb free spaces Complete installation: At least 30MB of space area Reduced installation: At least 10MB of space capacity *Note2
Monitor resolution	At least 800 × 600
Number of colors	At least 256 colors
Others	At least one RS-232C CD-ROM drive (When installation/ For complete installer use) FD drive (When installation/ For reduced installer use) At least Internet Explorer 4.0 (Used for opening a part of operational procedure explanation file)
Corresponding OS	<ul style="list-style-type: none">● Windows® 95● Windows® 98● Windows® Me● Windows NT® 4.0● Windows® 2000 Professional● Windows® Xp Home Edition/Professional● Windows® Vista *3) , *4)● Windows® 7 *3) , *4)

*Note 1) The recommended operational conditions (CPU operational frequency) when using scroll mode of the operational trace function is as below:

- 50ms ≤ Data sampling period setting < 100ms: CPU operational frequency ≥ 800MHz
- 100ms ≤ Data sampling period setting < 200ms: CPU operational frequency ≥ 350MHz
- 200ms ≤ Data sampling period setting: CPU operational frequency ≥ 133MHz

*Note2) Due to addition of Q-Setup functions, hard disc space capacity larger than 5MB is needed for Version 0.5.0 or onward. Customers who have been using Version 0.4.7 or earlier ones and do not have space capacity enough for upgrading are kindly requested to contact our dealer or representatives.

*Note 3) Users with administrative right (computer administrator account) or equivalent use only.

*Note 4) Property setting is needed to operate Q-SETUP-Setup Software in XP-convertible mode. Refer to “1.2.3. Setting of XP-convertible mode” for the details.

1.2. How to Install

1.2.1. Installer

There are two kinds of Q-SETUP - Setup Software installers as follows. Use an appropriate one according to the customer conditions (the difference between the Complete install and the Reduced install is only with or without the system analysis function.

“***_***” corresponds to the Q-SETUP – Setup Software version).

- The Complete Installer [Setup_V***-***-Complete.exe]
The Complete Installer/ The Reduced Installer can be selected.
The Installer file size: Approximately 6.2MB
The file sizes after installed (Complete Install): Approximately 20MB
(Reduced Install): Approximately 5MB
- The Reduced Installer [Setup_V***-***-Reduced.exe]
Not selectable but the Reduced Installer
The Installer file size: Approximately 1.4MB
The file size after installed (Reduced Install): Approximately 5MB

1.2.2. How to Install

Installing process of Q-SETUP - Setup Software is as follows:

For users of an OS Windows NT ® 4.0 or their later versions, log in with the Administrator account before starting the following procedures.

1. Exit all applications that are running.
2. Insert the installation Disk into the FD drive or CD-ROM drive of PC. (Call this A drive)
3. Select “Run...” in the start menu of Windows task bar. Click “Reference (B)” and

Select “Setup_V***-***-Complete” or “Setup_V***-***-Reduced” in the “A:\Q-Setup”

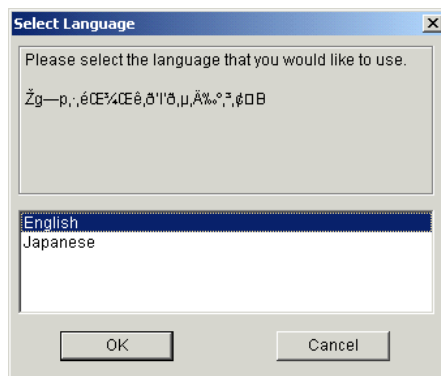
folder, and click “Open (O)” (“***-***” is corresponding to the Q-SETUP - Setup versions).

After the completion of specifying file, click “OK”. After the following screen appears, installation starts. Also, starting Explorer and double-click “Setup_V***-***-Complete”

or “Setup_V***-***-Reduced” in the “A:\Q-SETUP” folder can start installation.

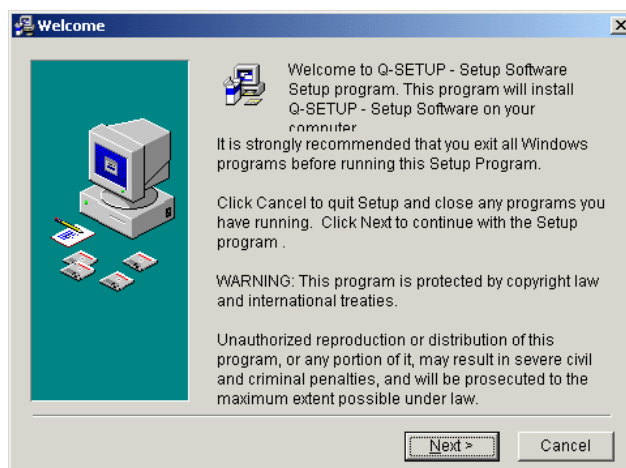


4. When the following screen appears, select the language for installing and click "OK".

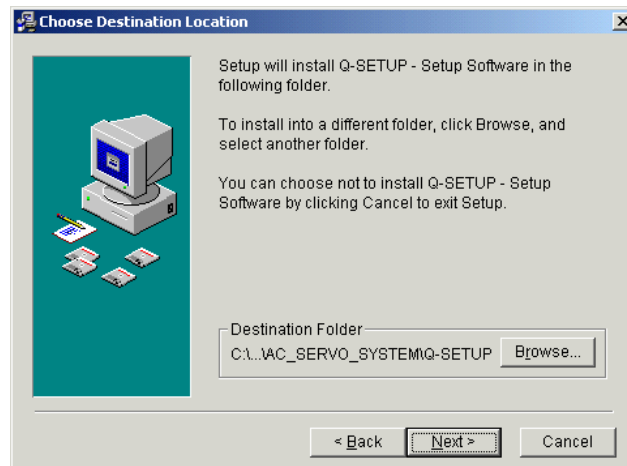


Note) If selecting "Japanese" in OS except Japanese edition, all letters in Japanese are transformed.

5. The following screen appears. After checking the contents, click "Next >".

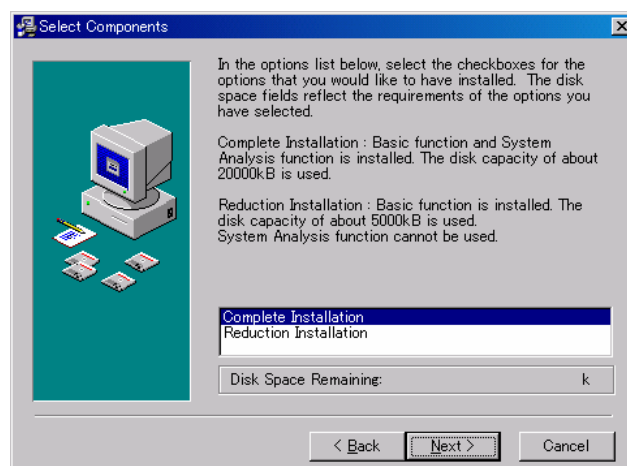


6. Select the Destination Folder. When changing the destination for default, specify the Destination Folder by clicking "Browse...". After completing it, click "Next >".

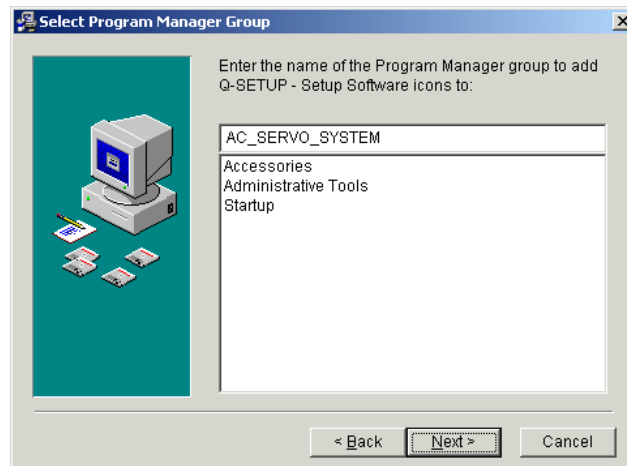


7. Select the component to be installed. The default setting is at “Complete installation”. In case that the system analysis function is not necessary and the hard disk capacity is insufficient, select “Reduced installation” (“Disk Space Remaining” indicates the disk space capacity after the Q – Setup Software installation). After the selection, click “Next >”.

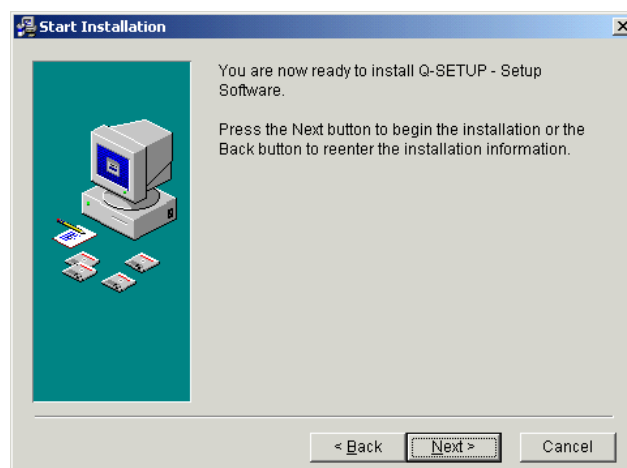
When the Reduced Installer (Setup_V***-***-Reduced) is selected, “Select Components” is invalid and always execute “the Reduced Installation”.



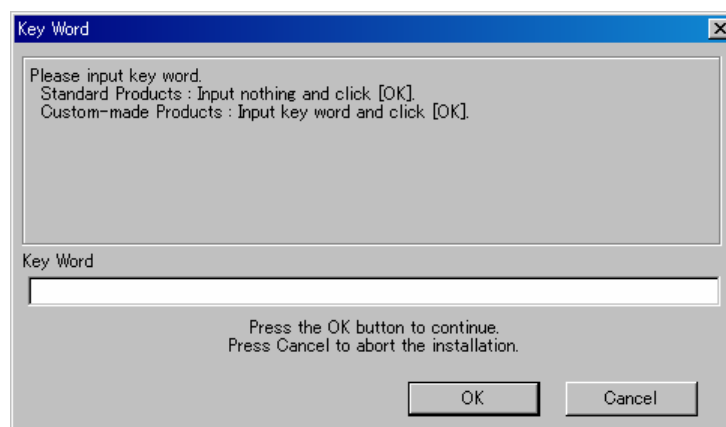
8. Select the program group to add Q-SETUP - Setup Software icons. Default setting is at “AC_SERVO_SYSTEM”. After the selection, click “Next >”.



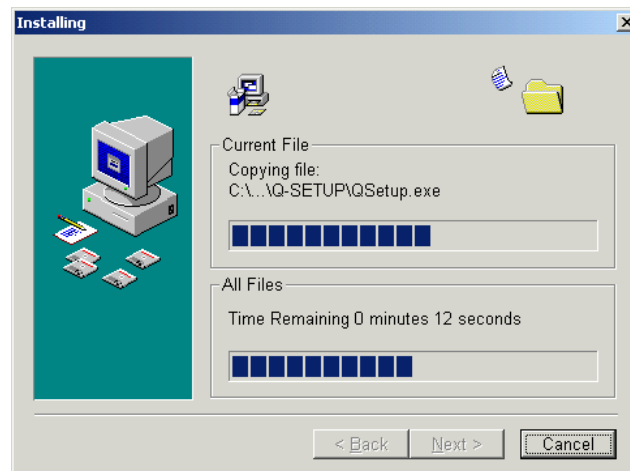
9. The following screen appears. When click “Next >”, dialog box for entering key words appears. When reset the items for installing, click “< Back”.



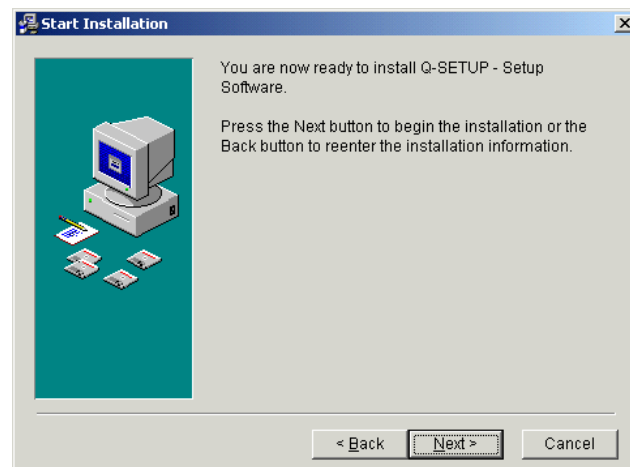
10. The following screen appears. Click [OK] without inputting anything. File copy starts. When click [cancel], installing is interrupted.



11. Start copying file and display the process.



12. When complete copying, the following screen appears. Click "Finish (F)".



1.2.3. Setting of XP-convertible mode

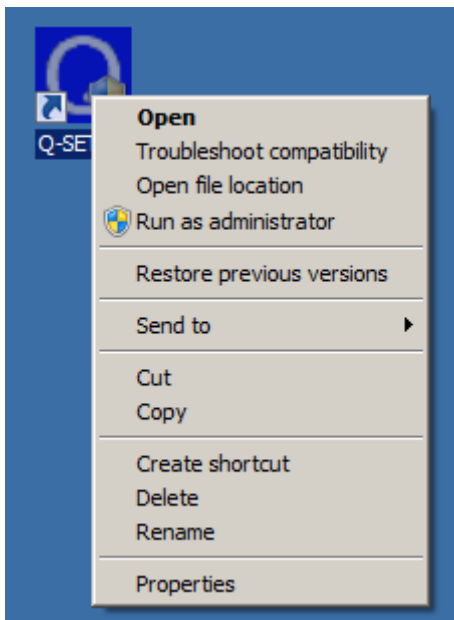
When your operating software is Windows Vista or Windows 7, Q-SETUP software needs to be operated in XP-convertible mode. Perform the setting according to the following procedures.

① Right-click the shortcut icon of Q-SETUP on your desktop to open the property.

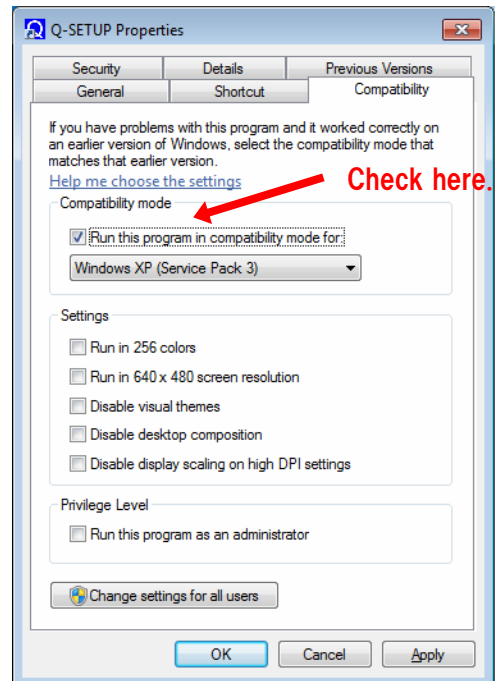
② Select convertibility-tab, and check “Run this program in convertibility mode for:”

If you use Windows7, select “Windows (Service Pack3),” and click “OK.”

(If you use Windows Vista, select “Windows XP (Service Pack 2),” and click “OK.”



Q-SETUP property on your desktop

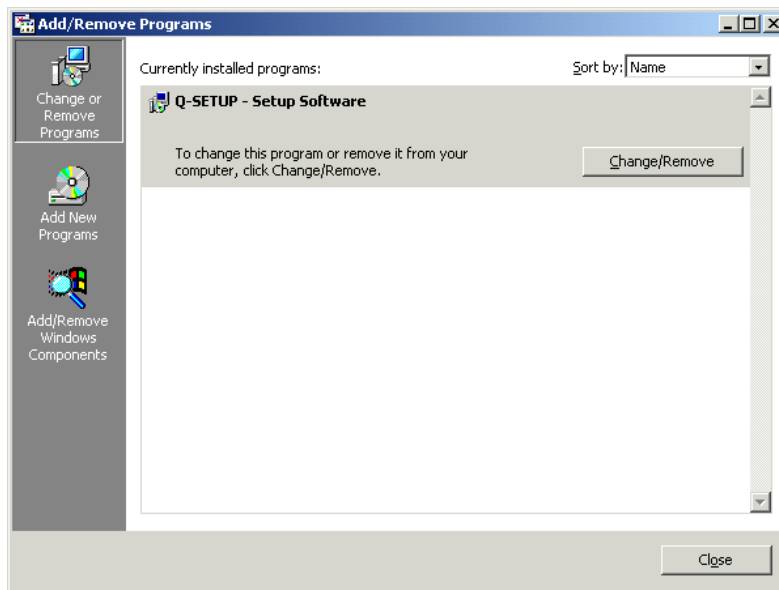


Example of selection of convertible-mode for Q-SETUP property

1.3. How to Uninstall

Uninstalling of Q-SETUP - Setup Software is as follows.

1. Select “Settings” — “Control Panel” in the start menu of Windows task bar. When double-click the icon “Add/Remove Programs”, the following screen appears.

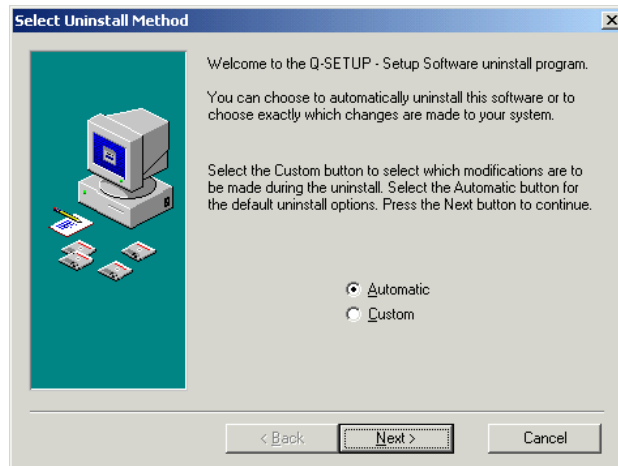


Double-clicking “Uninst.Exe” in the folder where Q-SETUP - Setup Software was installed to (Default setting is at “C:\Program files\AC_SERVO_SYSTEM\Q-setup”) can starts uninstalling as well.

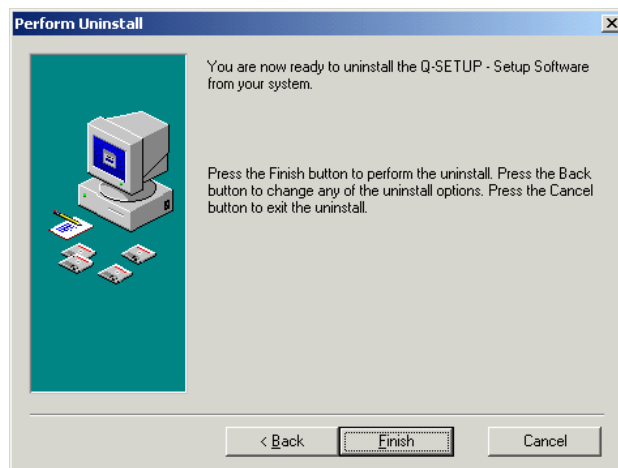
2. After select “Q-Setup - Setup Software”, click “Change/Remove”. (Or click “Add/Remove...”.) The following screen appears and uninstalling starts.



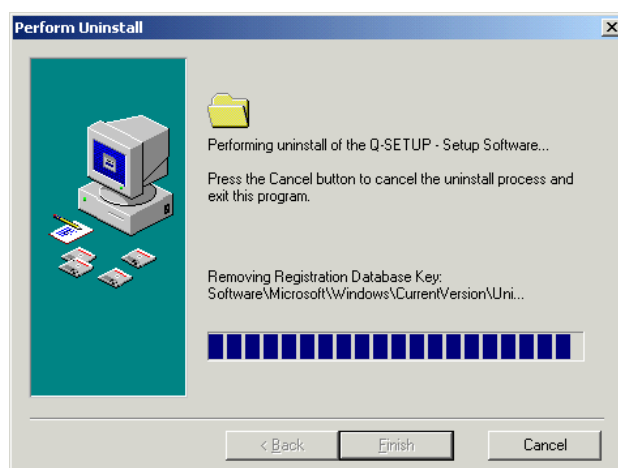
3. The following screen appears. When uninstall all the files that were installed, click “Automatic”. When select the file to be uninstalled, click “Custom” and “Next >”.



4. The following screen appears. When click “Finish”, uninstalling starts.



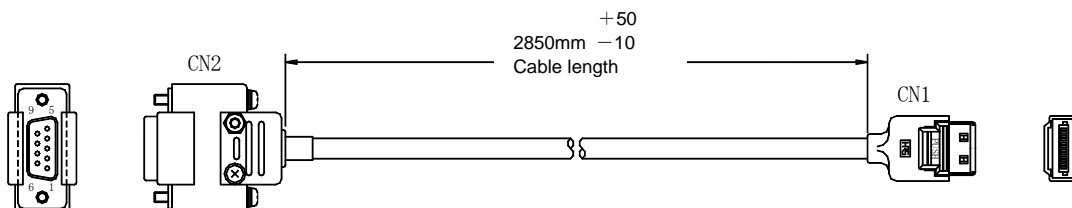
5. Uninstalling of the file starts.



2. Connecting to Servo Amplifier

2.1. Connected Cable

Exclusive cable AL-00490833-01



CN1 : 3240-12P-TO-C Without fixed hook (HIROSE ELECTRIC CO., LTD.)

CN2 : HDEB-9S(50) (Connector • HIROSE ELECTRIC CO., LTD.)

HDE-CTF(50) (Case • HIROSE ELECTRIC CO., LTD)

Note : Connector, case, and cable may be changed into the equivalents without notice.

For wiring diagram, see the appendix.

2.2. How to Connect

Connect the serial pin (COM) to PC connector of Q series servo amplifier with the exclusive cable.

3. How to Operate

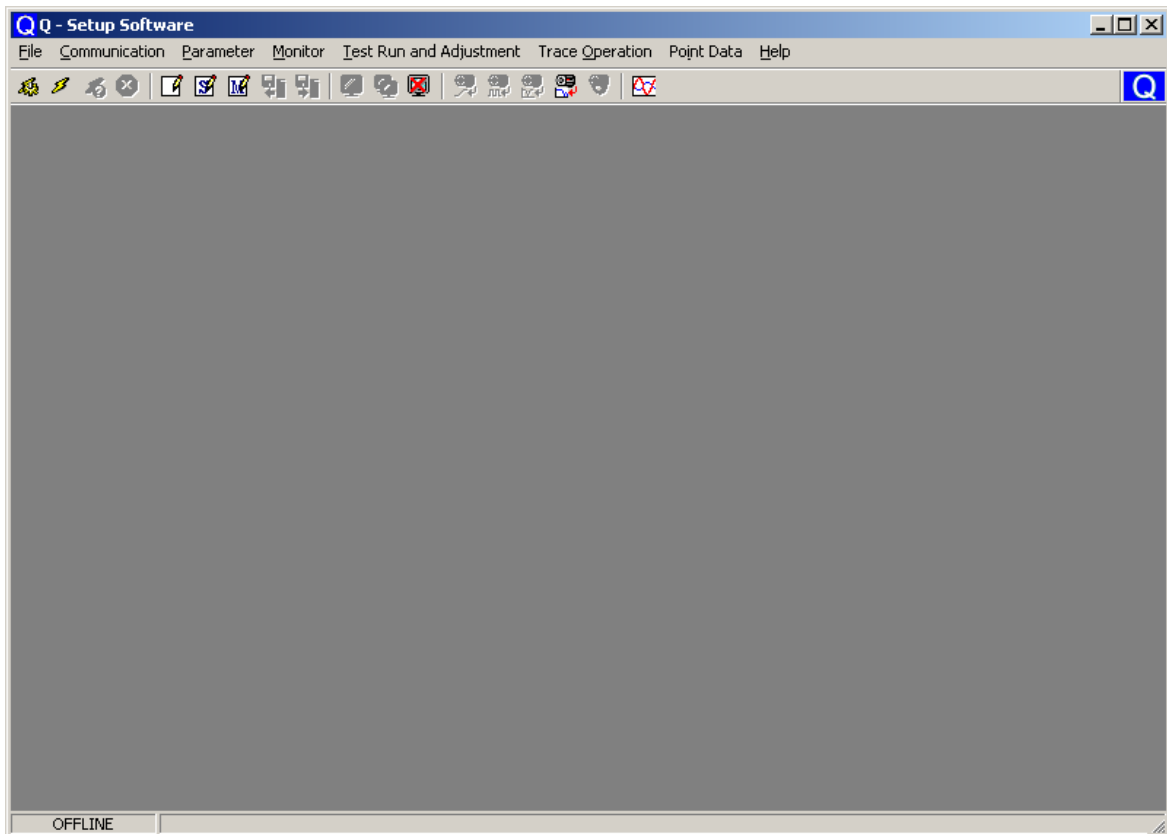
3.1. How to Activate

1. Select “Programs” — “AC_SERVO_SYSTEM” in the start menu of Windows task bar.
2. Click “Q-SETUP”. The following start screen appears.

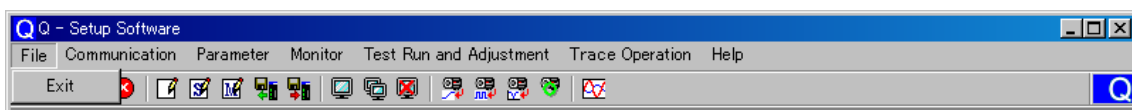


3.2. Main Screen

After activating Q-SETUP – Setup Software, the following main screen appears.

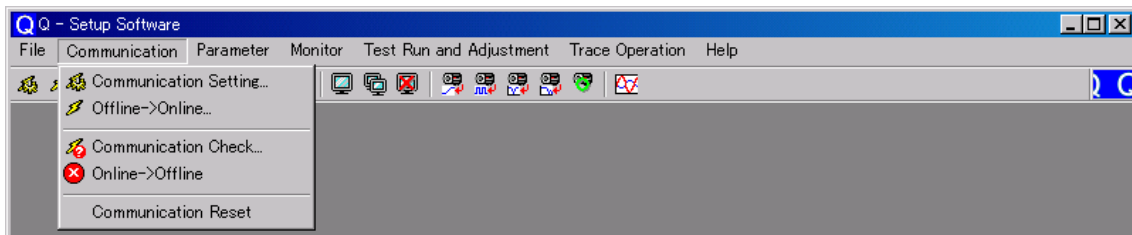


Each function of Q-SETUP – Setup Software can be accessed by selecting it in the menu bar of main screen.



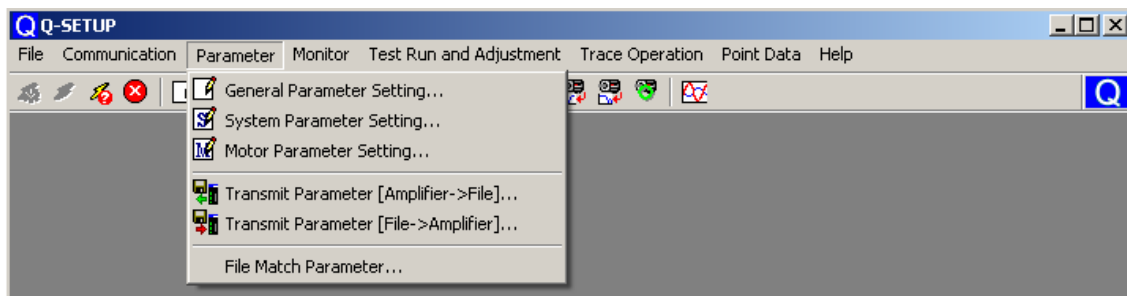
[File]

- Exit : Exit Q-SETUP - Setup Software.



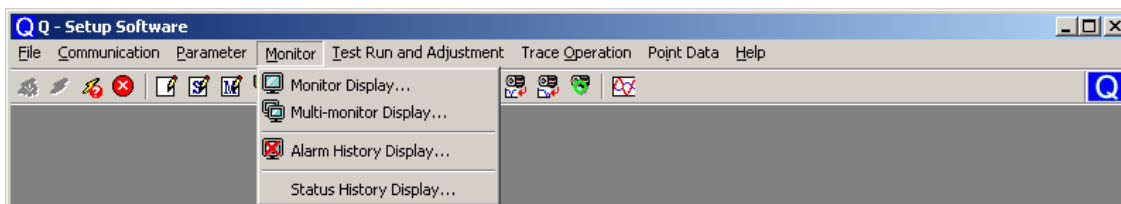
[Communication]

- Communication Settings... : Set the communication.
※Possible to select it only at offline.
- Offline->Online... : Switch from offline to online and display the confirmation dialog box of communication state.
※Possible to select it only at offline.
- Communication Check... : Check the communication state.
※Possible to select it only at online.
- Online->Offfline : Switch from online to offline
※Possible to select it only at online.
- Communication Reset : Reset the communication state. (This is used when communication can not be performed. Do not use this usually.)



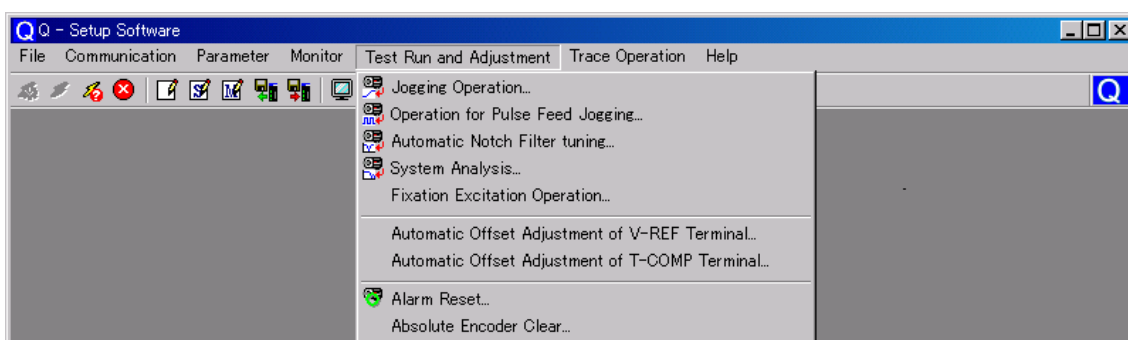
[Parameter]

- General Parameter Settings... : Set and save general parameters of servo amplifiers.
- System Parameter Settings... : Set and save system parameters of servo amplifiers.
- Motor Parameter Settings... : Set and save motor parameters of servo amplifiers.
- Transmit Parameter [Amplifier->File]... : Read all parameters of servo amplifier and save them into amplifier file together.
- Transmit Parameter [File->Amplifier]... : Write the parameters saved in amplifier file into servo amplifier together directly.
- File Match Parameter (C) (Parameter verification)... : Verifies amplifier files conformity, and then shows the verification result list.



[Monitor]

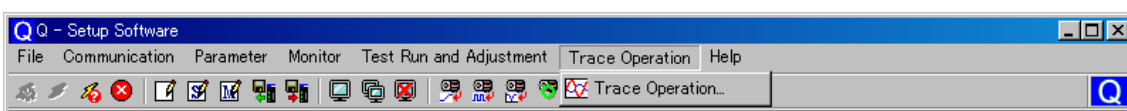
- Monitor Display... : Display a list of state and operation of servo amplifier.
※Possible to select it only at online.
- Multi-monitor Display... : Display a list of state and operation of servo amplifier.
※Possible to select it only at online.
- Alarm History Display... : Display the alarm history generated in servo amplifier.
- Status History Monitor... : Display the list of status history.
 * **This can be used only when combined with the amplifier with positioning function (Type C).**
 * **This can be selected only at online.**



[Test Run and Adjustment]

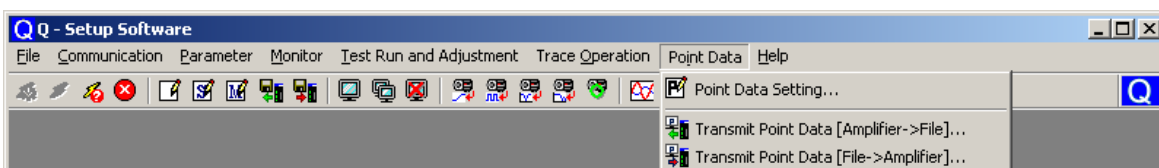
- Jogging Operation... : Run the motor in positive/negative feed at the velocity command set at jogging operation.
※Possible to select it only at online.
- Operation for Pulse Feed Jogging... : Run the motor in positive/negative feed with the number of feed pulses and movement speed at jogging operation.
※Possible to select it only at online.
- Automatic Notch Filter Tuning... : Perform automatic notch filter tuning.
※ Possible to select it only at online.
- System Analysis... : Performs system analysis.
※ Possible to select it only at online.
※ Possible to use by selecting complete installation.
- Fixation Excitation Operation... : Perform fixation excitation operation for linear motor. **※Possible to select it only at online.**

- Analog Offset Adjustment of V-REF Terminal... : Perform offset adjustment of analog velocity command/torque (force) command.
※Possible to select it only at online.
- Analog Offset Adjustment of I-COMP Terminal... : Perform offset adjustment of analog torque addition command.
※Possible to select it only at online.
- Alarm Reset... : Reset the current alarm of servo amplifier.
※Possible to select it only at online.
- Absolute Encoder Clear... : Reset the multi-revolution data of absolute encoder and the alarm in it.
※Possible to select it only at online.



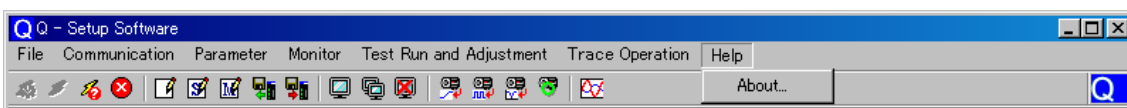
[Trace Operation]

- Trace Operation... : Display and save the trace operation data of servo amplifier.



[Point Data Setting]

- Point Data Setting... : Set and save the point data. While on line, test operation is executed for the amplifier with positioning function (Type C).
- Transmit Point Data [Amplifier->File]... : All the point data of the servo amplifier are read and saved into the file as a batch.
 * **This can be used only when combined with the amplifier with positioning function (Type C).**
 * **This can be selected only at online.**
- Transmit Point Data [File->Amplifier]... : The point data saved in the file is directly written as a batch.
 * **This can be used only when combined with the amplifier with positioning function (Type C).**
 * **This can be selected only at online.**

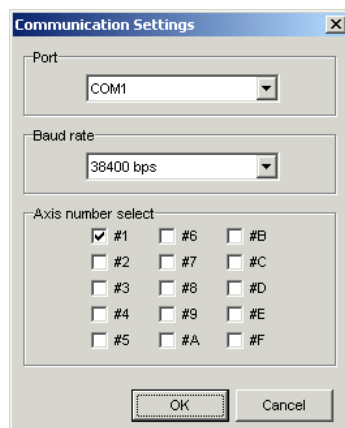


[Help]

- About... : Indicate the information about Q - Setup Software.

3.3. Communication Setting

When select “Communication” — “Communication Settings...” in the menu bar of main screen, the following screen appears. This sets communication between Q-SETUP - Setup Software and servo amplifier through serial port.



- Port (COM1 to COM6)
Select COM port.
- Baud rate
Select the communication speed to servo amplifier.
In case of changing the communication speed, change the communication setting of the servo amplifier as well.
- Axis Number Select
Give check mark(s) to the numbered axis of servo amplifier for communication. Multiple selection is possible according to the number of servo amplifiers to be connected. In case of changing the axis number select, change the communication setting of the servo amplifier as well.

3.4. Switching Communication State

3.4.1. Offline->Online

Select “Communication” — “Offline->Online...” on the menu bar in the main screen, and the connection of communication cable will be confirmed.

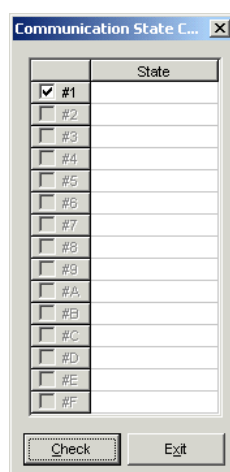
If the cable is connected correctly, confirmation dialog box of communication state will be displayed.

3.4.2. Online->Offline

Click “Online->Offline” during online state, and all the communications with the servo amplifiers currently connected by cables will terminate and switch to offline.

3.5. Communication State Check

When select “Communication” — “Offline->Online...” in the menu bar of main screen, the following dialog box appears after checking the connection of communication cable. Here starts the communication with servo amplifier connected to this cable. In case the communication already starts, update current communication state of servo amplifier.



Start the communication as follows.

1. Give the check mark to the numbered axis of servo amplifier for starting communication.
Note) As the servo amplifier of numbered axis without check mark in “Axis Number Select” of “Communication Settings” can not be used, the check mark can not be given.
2. Click [Check].
3. Display the servo amplifier state. Contents are as follows.
 - Connected : Now communicating with servo amplifier.
 - Not connected : Servo amplifier is not connected.
 - Error : Can not communicate due to communication error.
 - Overlap : The axis number of servo amplifier overlaps.
 - Not-corresponding : The type of servo amplifier differs. Or this can not be corresponded to the software of servo amplifier. Update the Q-SETUP - Setup Software version.

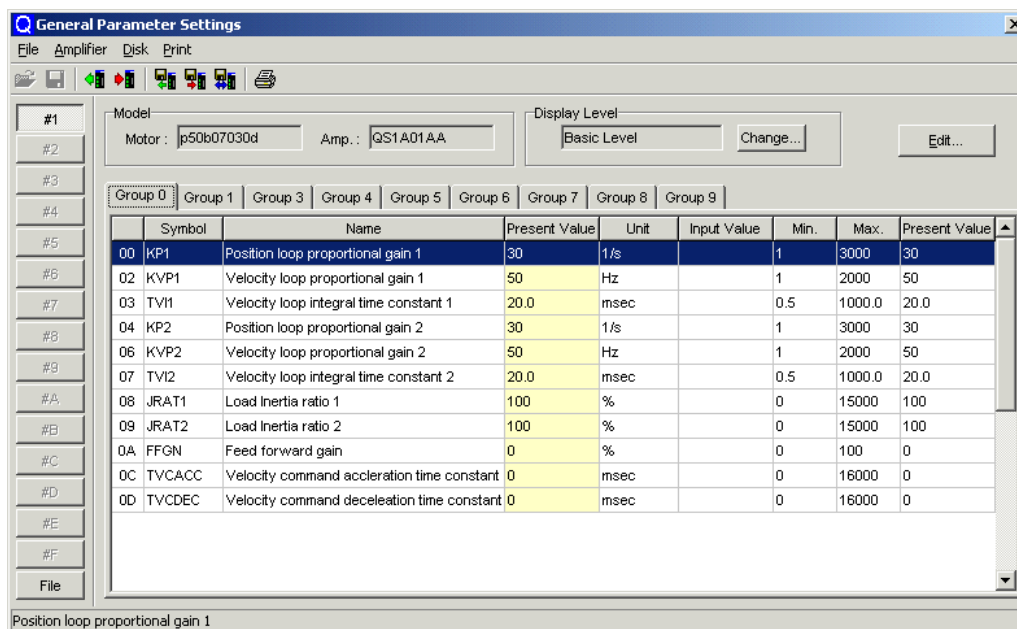
3.6. General Parameter Setting

When select “Parameter” — “General Parameter Settings...” in the menu bar of main screen, General parameter settings appears. The following can be operated.

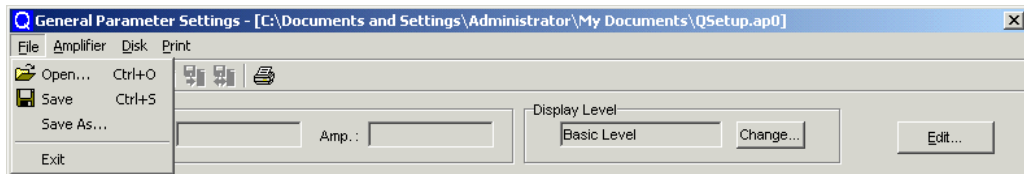
- General parameter setting of servo amplifier
- General parameter setting of amplifier file
- Saving the parameters and alarm history of the servo amplifier in the amplifier file together.
- Writing the parameters from amplifier file to servo amplifier together.
- Matching the parameters of servo amplifier with that of amplifier file
- Printing a list of parameters

When click [#1] to [#F] on left side of General parameter settings, switch to the setting of corresponding servo amplifier. When click [File], switch to General parameter settings of amplifier file.

When click tab of “Group*” above parameter list, switch the parameter group.

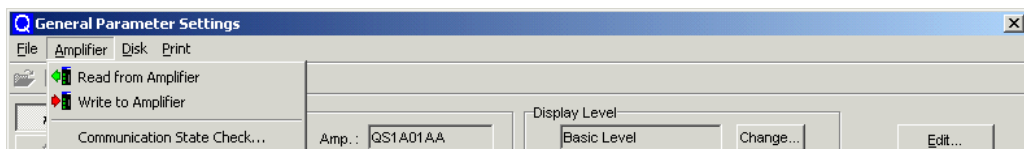


Each function of general parameter setting can be accessed by selecting it in the menu bar of General Parameter Setting.



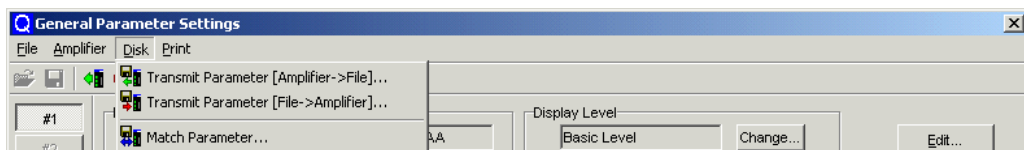
[File]

- Open... : Open the amplifier file to be edited.
 ※Possible to select it only when setting parameter of amplifier file.
- Save : Write the edited amplifier file over a file and save it.
 ※Possible to select it only when setting parameter of amplifier file.
- Save As... : Save the edited amplifier file in a file as another name.
 ※Possible to select it only when setting parameter of amplifier file.
- Exit : Exit General Parameter Settings.



[Amplifier]

- Read from Amplifier : Read the parameters from servo amplifier.
 ※Possible to select it only when setting parameter of servo amplifier.
- Write to Amplifier : Write the edited parameter to servo amplifier.
 ※Possible to select it only when setting parameter of servo amplifier.
- Communication State Check... : Check the communication state.
 ※Possible to select it only at online.

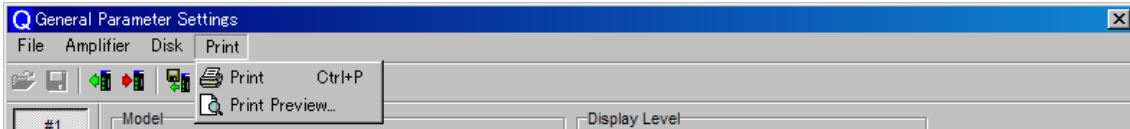


[Disk]

- Transmit Parameter [Amplifier->File]... : Read all parameters and alarm history of servo amplifier and save them in amplifier file together.
 ※Possible to select it only when setting parameter of servo amplifier.
- Transmit Parameter [File->Amplifier]... : Directly write the parameters saved in amplifier file to servo amplifier together.
 ※Possible to select it only when setting parameter of servo amplifier.
- Match Parameter... : Match the parameters of servo amplifier with that of amplifier

file and display a list of mismatch parameters.

※Possible to select it only when setting parameter of servo amplifier.

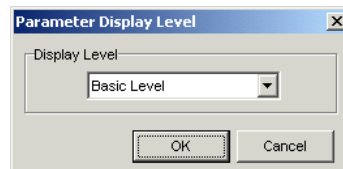


[Print]

- Print... : Print a list of parameters.
- Print Preview ... : Display the print image of parameter list.

3.6.1. Parameter Display Level

When click "Change..." of the dialog box of General Parameter Settings, the following dialog box is displayed. Here switch the parameter level displayed in general parameter settings.



[Display Level]

- Basic Level : Display only basic level parameters.
- Standard Level : Display basic level parameters and standard ones.
- Advanced Level : Display basic, standard, and advanced level parameters.

3.6.2. Parameter Setting of Servo Amplifier

When displaying the dialog box of general parameter setting at online, the following screen appears and reads the parameters from servo amplifier.

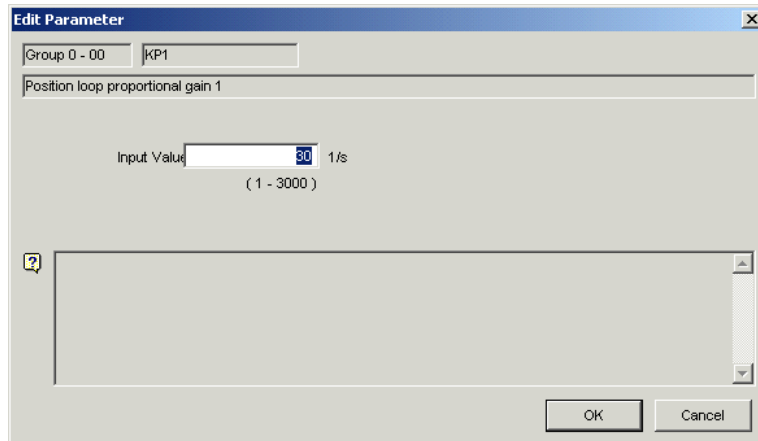
	Symbol	Name	Present Value	Unit	Input Value	Min.	Max.	Present Value
00	KP1	Position loop proportional gain 1		1/s		1	3000	30
02	KVP1	Velocity loop proportional gain 1		Hz		1	2000	50
03	TVI1	Velocity loop integral time constant 1		msec		0.5	1000.0	20.0
04	KP2	Position loop proportional gain 2		1/s		1	3000	30
06	KVP2	Velocity loop proportional gain 2		Hz		1	2000	50
07	TVI2	Velocity loop integral time constant 2		msec		0.5	1000.0	20.0
08	JRAT1	Load Inertia ratio 1		%		0	15000	100
09	JRAT2	Load Inertia ratio 2		%		0	15000	100
0A	FFGN	Feed forward gain		%		0	100	0
0C	TVCACC	Velocity command acceleration time constant		msec		0	16000	0
0D	TVCDEC	Velocity command deceleration time constant		msec		0	16000	0

When complete reading parameters from servo amplifier correctly, “Now Reading” disappears and a list of parameters to be set is displayed.

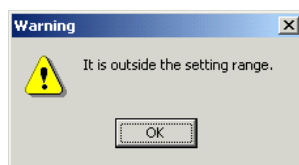
When click [Edit...] or double-click with mouse after selecting a parameter to be edited, Edit Parameter is displayed. Depending on parameter classification, the displayed screen changes.

Example 1) KP1 : When editing Position loop proportional gain 1 (Group 0 - 00)

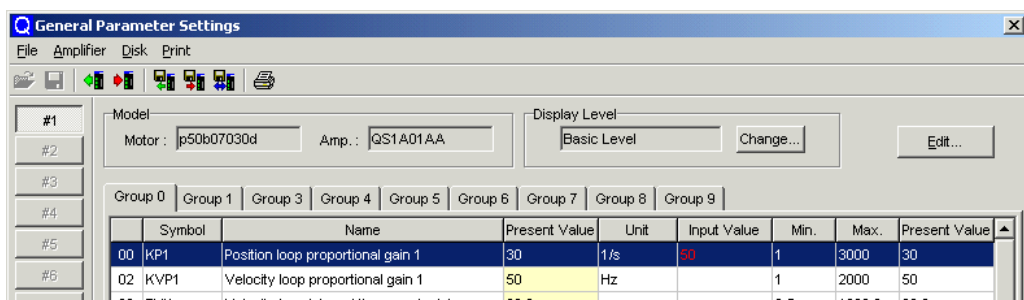
Click tab of “Group 0” of parameter setting screen to display a list of parameters of Group 0. When click [Edit...] or double-click with mouse after selecting “00 : KP1”, the following Edit Parameter screen is displayed. Enter the value to be set in “Input Value :” by keyboard.



When click [OK], the following message is indicated in case the entered value is outside the setting range. Re-enter the value within the setting range.



When the entered value is within the setting range, return to parameter setting screen. In case the entered value in "Input Value" is different from "Present Value", it is indicated in red.



Example 2) When editing GER1 : Electrical gear ratio 1 (Group 1 - 04)

Click tab of "Group 1" of parameter setting screen to display a list of parameters of Group 1. When click [Edit...] or double-click with mouse after selecting "04 : GER1", the following Edit Parameter screen is displayed. Enter the numerator and denominator in "Input Value :" by keyboard.

The 'Edit Parameter' dialog box shows the parameter 'GER1' under 'Group 1 - 04'. The parameter name is 'Electrical gear ratio 1'. The 'Input Value' field is set to '1' and is highlighted in red, indicating it is outside the valid range. The 'Present Value' field is also set to '1'. The dialog includes 'OK' and 'Cancel' buttons at the bottom right.

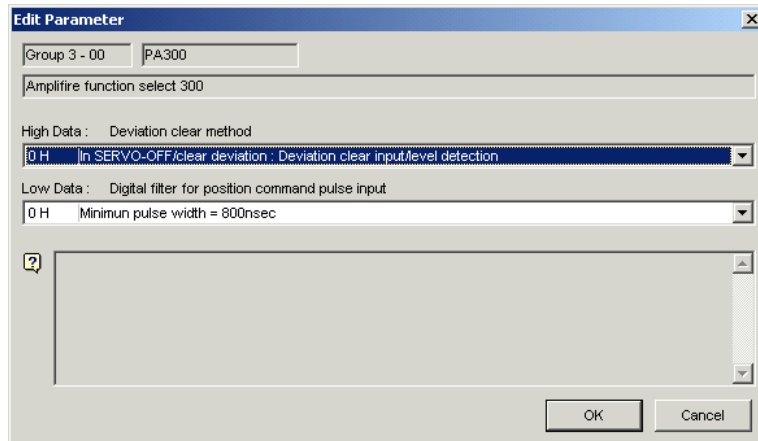
When the entered value is within the setting range, return to parameter setting screen. In case the entered value in “Input Value” is different from “Present Value”, it is indicated in red.

The 'General Parameter Settings' window displays a list of parameters. The 'GER1' parameter (Electrical gear ratio 1) is highlighted in blue. The 'Input Value' field for GER1 is red, indicating it is outside the valid range. The 'Present Value' field for GER1 is 1/1. The 'ENRAT' parameter (Dividing ratio for encoder pulse dividing output) is also highlighted in blue.

Symbol	Name	Present Value	Unit	Input Value	Min.	Max.	Present Value
00	INP Positioning finish range	100	Pulse	1	65535	100	100
01	NEAR Positioning finish neighborhood range	500	Pulse	1	65535	500	500
02	OFLV Excess deviation value	1500	x256 pulse	1	65535	1500	1500
03	PMUL Position command pulse multiplier	1		1	63	1	1
04	GER1 Electrical gear ratio 1	1/1		1/1	*	*	1/1
06	ENRAT Dividing ratio for encoder pulse dividing output	1/1			*	*	1/1

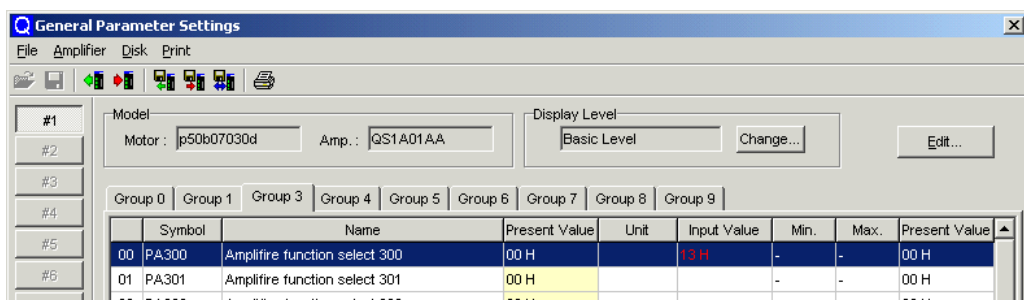
Example 3) PA300 : When edit Amplifier function select 300 (Group 3 - 00)

Click tab of “Group 3” of parameter setting screen to display a list of parameters of Group 3. When click “Edit...” or double-click with mouse after selecting “00 : PA300”, the following Edit Parameter screen is displayed. Select the upper-class data and the lower-class data to be set in the combo box respectively.



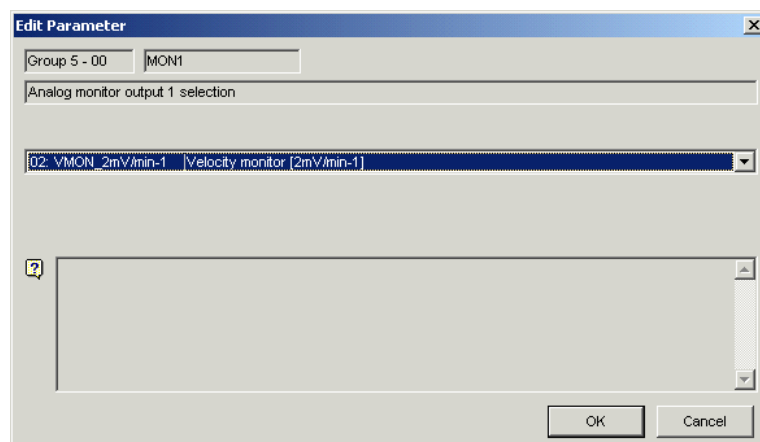
Note) When set the value outside the setting range, only “Reserve” is indicated in combo box. In this case, the value can not be changed.

When click [OK], return to parameter setting screen. In case the selected value in “Input Value” is different from “Present Value”, it is indicated in red.



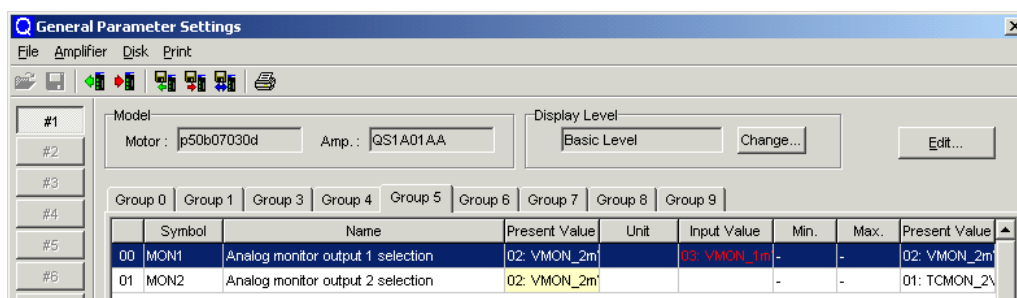
Example 4) MON1 : When editing Monitor 1 output select (Group 5 - 00)

Click tab of “Group 5” of parameter setting screen to display a list of parameters of Group 5. When click “Edit...” or double-click with mouse after selecting “00 : MON1”, the following Edit Parameter screen is displayed. Select the value to be set in the combo box.

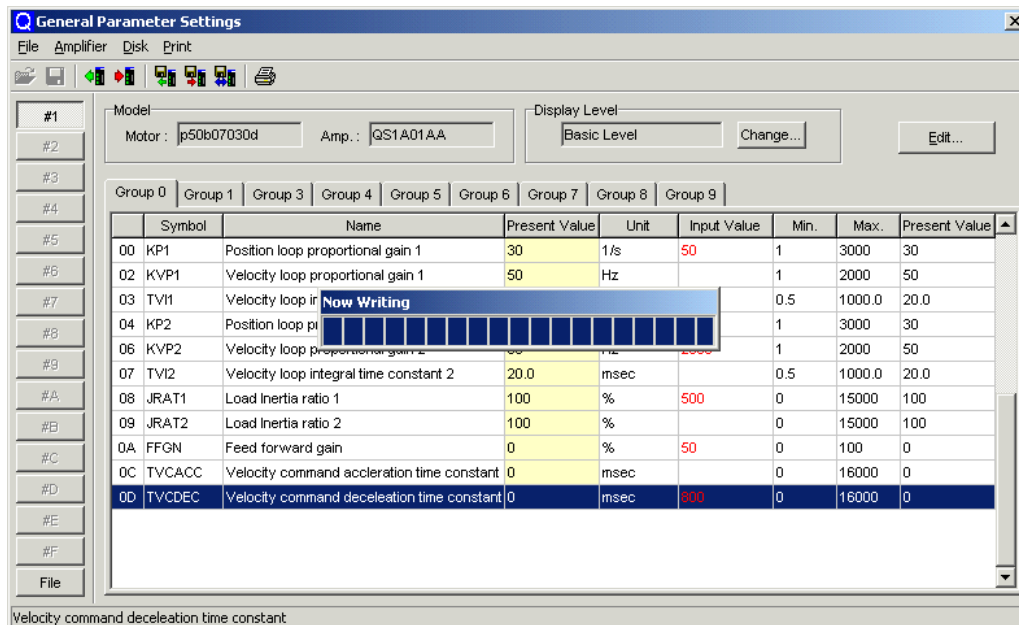


Note) When set the value outside the setting range, only “Reserve” is indicated in combo box. In this case, the value can not be changed.

When click [OK], return to parameter setting screen. In case the selected value in “Input Value” is different from “Present Value”, it is indicated in red.

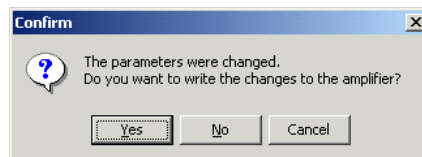


The parameters in one group can be edited together. After completing editing parameters, select “Amplifier” — “Write to Amplifier” in the menu bar of parameter setting screen. The following screen appears and writes the parameters to servo amplifier.



When complete writing parameters to servo amplifier correctly, “Now writing” disappears. The value in “Input Value” disappears and indicates the value entered in “Present Value”.

Note) If click another Group before writing to servo amplifier or switch to the setting of another servo amplifier or amplifier file after editing parameters, the following dialog box is displayed.



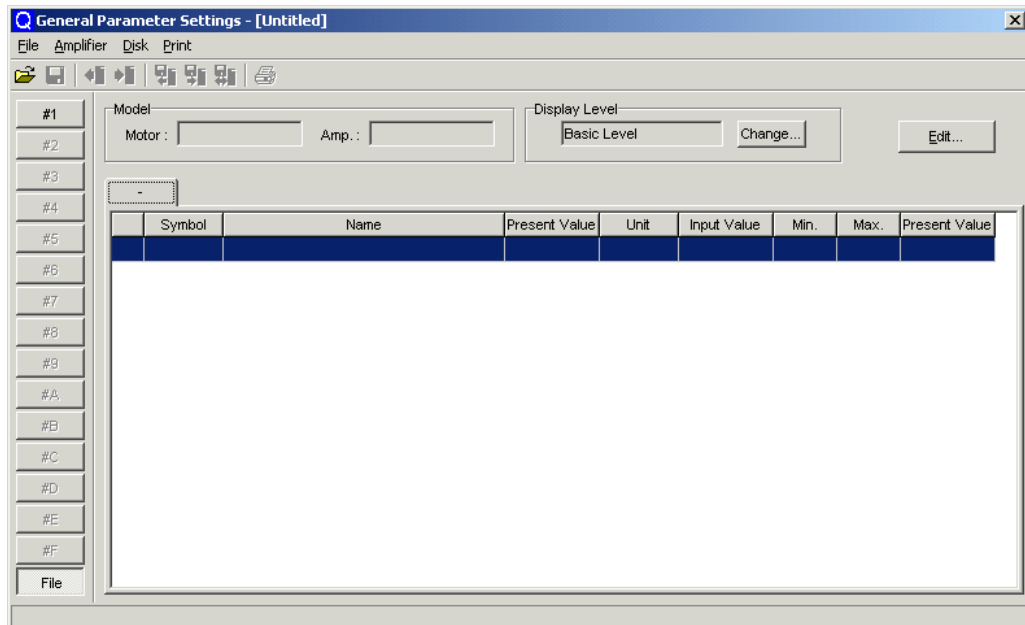
When click [Yes], switch the display to another Group or another servo amplifier after writing the edited parameters to servo amplifier which is now communicating.

When click [No], switch the display to another Group or another servo amplifier without writing the edited parameters. The entered value is cancelled.

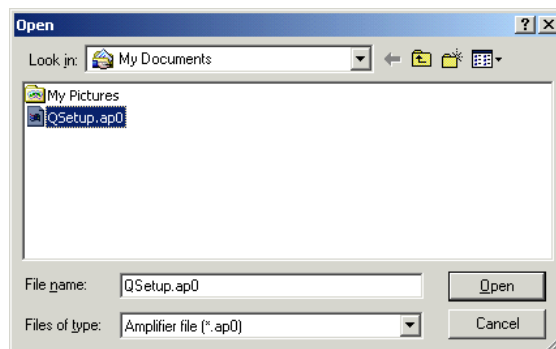
When click [Cancel], switch to another Group or another servo amplifier is not conducted.

3.6.3. Parameter Setting of Amplifier File

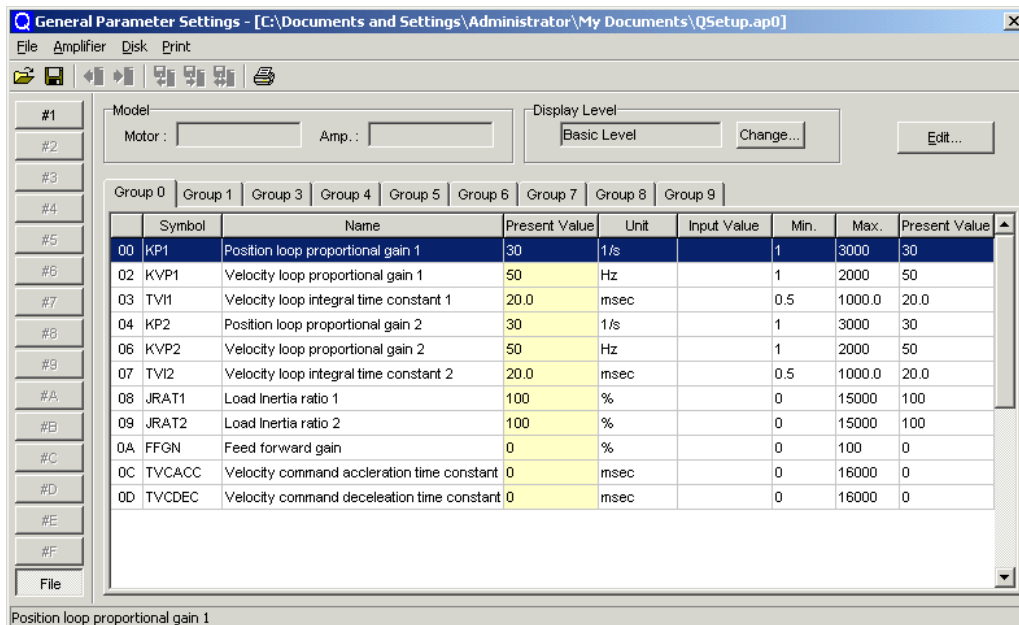
When display general parameter setting screen at offline or click [File], the following screen is displayed. Here the saved parameters of amplifier file can be set.



When select “File” — “Open...” in the menu bar of general parameter, the following file selection dialog box is displayed.



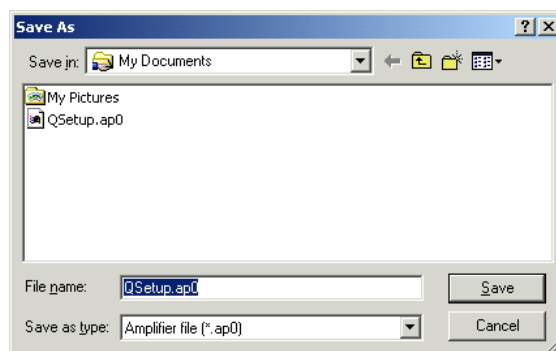
Select the amplifier file to be set and click [Open]. Display a list of parameters to be set.



Edit parameters as well as that of servo amplifier.

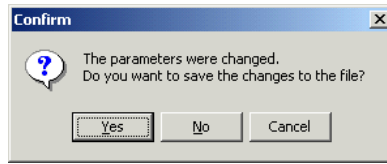
After completing editing parameters, select “File” — “Save” in the menu bar of parameter setting screen and save the edited parameters in amplifier file.

When save the edited parameters in another file which is different from the amplifier file which is now running, select “File” — “Save As...” in the menu bar. The following dialog box of saving file is displayed.



Specify the space and name of file and click [Save]. Save the amplifier file as a new name.

Note) If click another Group before saving in amplifier file or switch to the setting of another servo amplifier after editing parameters, the following dialog box is displayed.



When click [Yes], the display is switched to another Group or another servo amplifier after saving the edited parameters to servo amplifier which is now running.

When click [No], the display is switched to another Group or another servo amplifier without saving the edited parameters. The entered value is cancelled.

When click [Cancel], switch to another Group or another servo amplifier is not conducted.

3.6.4. Transmit Parameter [Amplifier->File]

“Transmit Parameter [Amplifier->File]” reads all parameters and alarm history of servo amplifier and save them in amplifier file together. In this case, the parameters are directly saved in the disk without displaying them.

For operation, see “3.9. Transmit Parameter [Amplifier->File]”

3.6.5. Transmit Parameter [File->Amplifier]

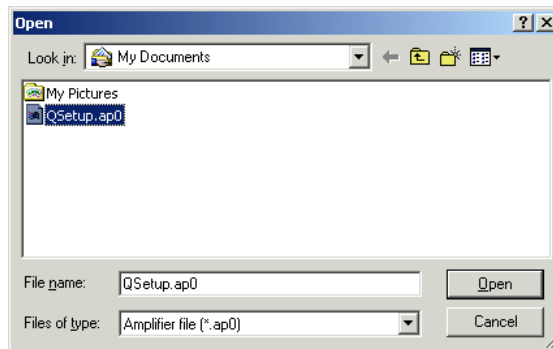
“Transmit Parameter [File->Amplifier]” directly writes the parameters saved in amplifier file to servo amplifier together.

For operation, see “3.10. Transmit Parameter [File->Amplifier]”

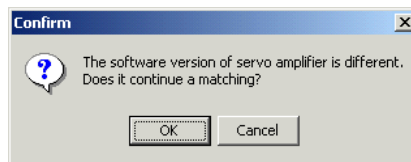
3.6.6. Match Parameter

“Match Parameter” matches the parameters of servo amplifier with that of amplifier file and indicates a list of mismatches if applicable.

When select “Amplifier” — “Match Parameter...” in the menu bar of general parameter setting, the following selection dialog box appears.



Select the amplifier file to be matched with servo amplifier and click [Open]. When there are any discrepancies on software version or hardware between the servo amplifier and amplifier file, the following dialog box is displayed.



Clicking “OK” to initiate parameter verification.

Clicking “Cancel” does not perform parameter verification.

Note) In case this dialog box appears according to the difference of software version.

There may be some parameters without interchangeability depending on the software version. Those without interchangeability are indicated in matching results (contents of difference) regardless of their setting. Here, the parameters are indicated in red as well.

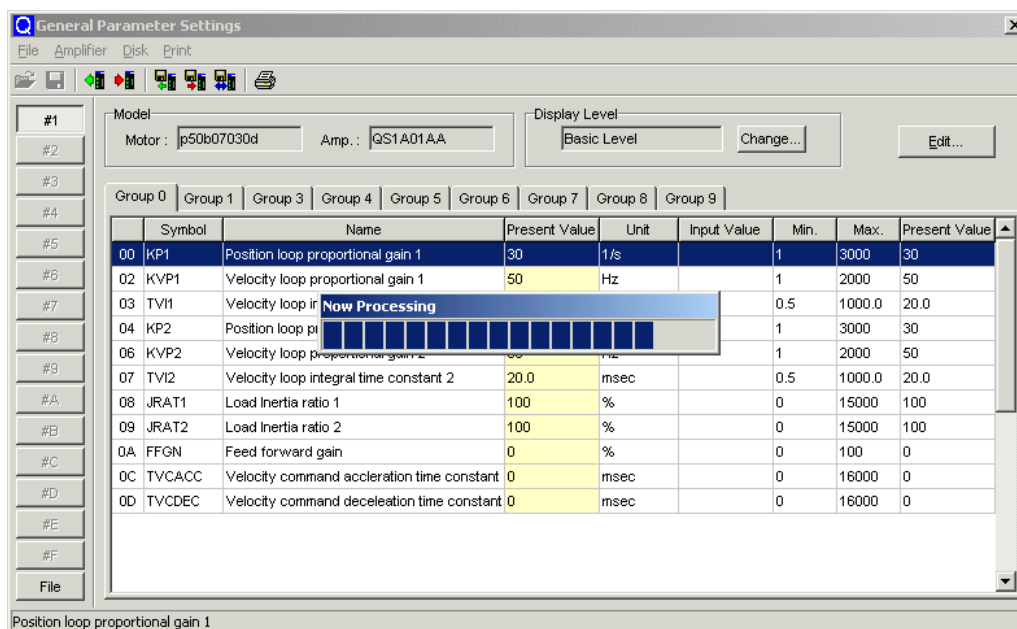
Note) In case this dialog box appears according to the difference of hardware type.

There may be some parameters without interchangeability because of the difference of encoder interface circuit. Those without interchangeability are indicated in matching results (contents of difference) regardless of their setting. Take care in using multiple hardware servo amplifiers.

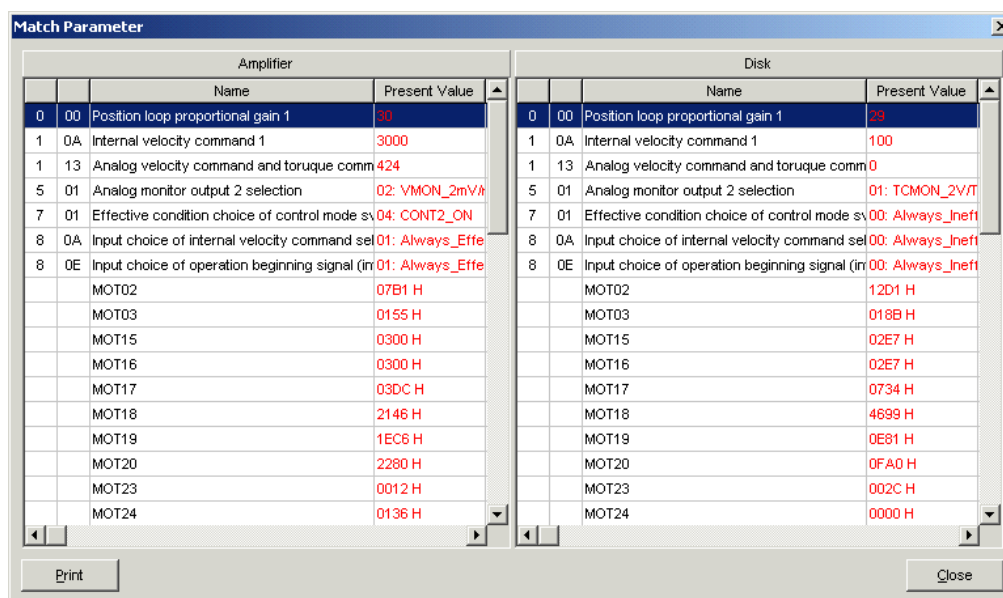
If the type of servo amplifier is different from that of amplifier file, the following dialog box is displayed, and parameter verification is not performed.



When parameter matching starts, read the parameters from servo amplifier. When complete reading parameters from servo amplifier correctly, “Now Reading” disappears and parameter matching process starts.



When completing parameter matching process, “Now Processing” disappears and the following list of parameter matching result is displayed.



If match parameters in case that the software version of servo amplifier is different from that of amplifier file, other kinds of parameters are displayed. The parameters are displayed all in red.

When click [Print], print a list of parameters being displayed.

3.7. System Parameter Setting

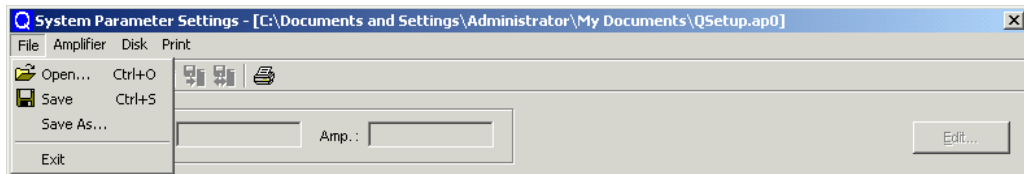
When select “Parameter” — “ System Parameter Settings...” in the menu bar of main screen, System parameter settings appears. The following can be operated.

- System parameter setting of servo amplifier
- System parameter setting of amplifier file
- Saving the parameters of servo amplifier in amplifier file together
- Writing the parameters from amplifier file to servo amplifier together.
- Matching the parameters of servo amplifier with that of amplifier file
- Printing a list of parameters

When click [#1] to [#F] on left side of System parameter settings, switch to the setting of corresponding servo amplifier. When click [File], switch to System parameter settings of amplifier file.

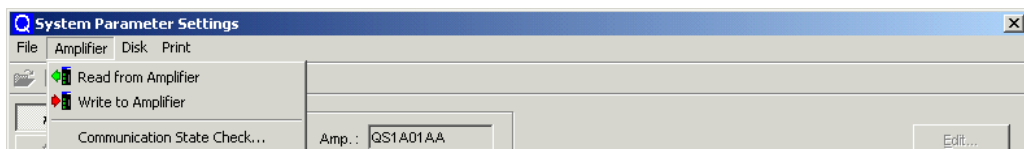
Name	Present Value	Input Value
Amplifier capacity	15A type	-----
Motor configuration	Rotary Motor	-----
Control power supply input voltage	200V Class	-----
Control power supply input type	AC Single-phase	-----
Main circuit power supply input voltage	200V Class	-----
Main circuit power supply input type	01: AC single-phase	
Motor encoder type	00: Incremental ENC	
Incremental encoder function selection	01: PP038 type	
Incremental encoder resolution(P/R)	4000	
Absolute encoder function selection	00: PA035C-2.5MH_Auto	
Absolute encoder resolution(P/R)	00: 2048 FMT	
Motor type	p50b05005d(FFFF-FFFF)	-----
Control type	05: Posi-Velo	
Position loop control mode_encoder	01: Ext.-ENC(CN2)	
External encoder resolution(P/R)	8000	
Regenerative resistor selection	00: Not connect	

Each function of system parameter setting can be accessed by selecting it in the menu bar of System Parameter Settings.



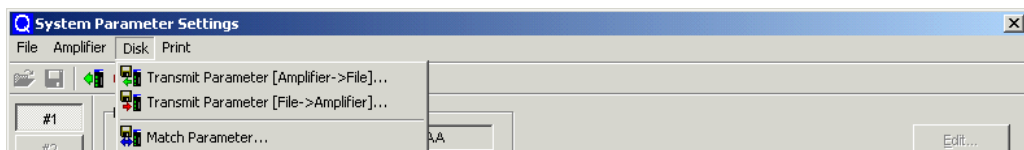
[File]

- Open... : Open the amplifier file to be edited.
 ※Possible to select it only when setting parameter of amplifier file.
- Save : Write the edited amplifier file over a file and save it.
 ※Possible to select it only when setting parameter of amplifier file.
- Save As... : Save the edited amplifier file in a file as another name.
 ※Possible to select it only when setting parameter of amplifier file.
- Exit : Exit System Parameter Settings.



[Amplifier]

- Read from Amplifier : Read the parameters from servo amplifier.
 ※Possible to select it only when setting parameter of servo amplifier.
- Write to Amplifier : Write the edited parameter to servo amplifier.
 ※Possible to select it only when setting parameter of servo amplifier.
- Communication State Check... : Check the communication state.
 ※Possible to select it only at online.

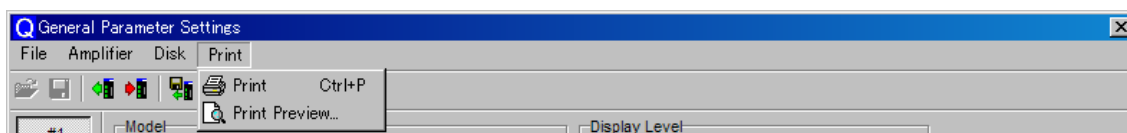


[Disk]

- Transmit Parameter [Amplifier->File]... : Read all parameters from servo amplifier and save them in amplifier file together.
 ※Possible to select it only when setting parameter of servo amplifier.
- Transmit Parameter [File->Amplifier]... : Directly write the parameters saved in amplifier file to servo amplifier together.
 ※Possible to select it only when setting parameter of servo amplifier.

- Match Parameter... : Match the parameters of servo amplifier with that of amplifier file and display a list of mismatch parameters.

※Possible to select it only when setting parameter of servo amplifier.

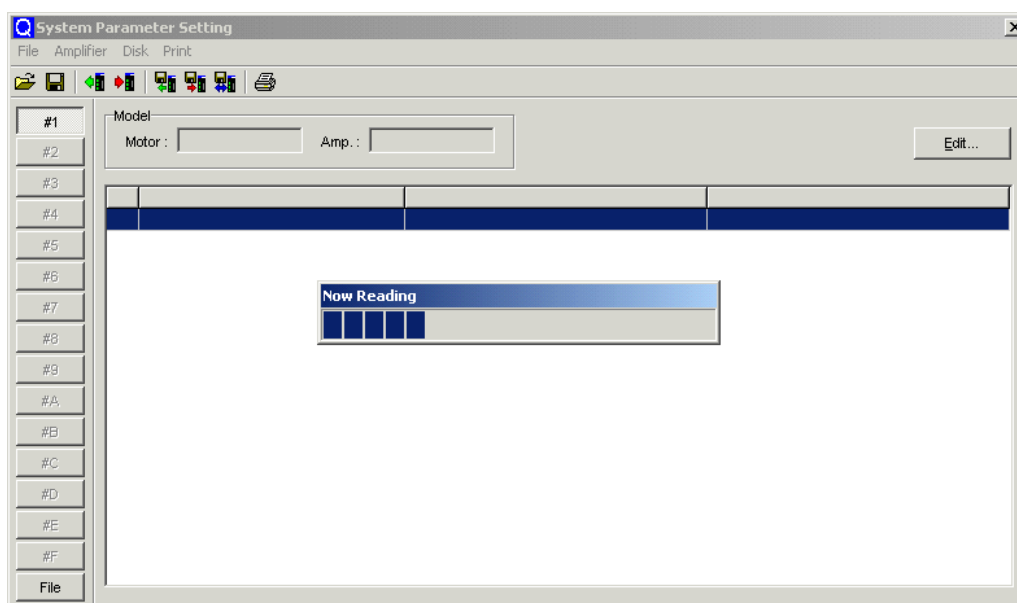


[P]rint

- Print... : Print a list of parameters.
- Print Preview ... : Display the print image of parameter list.

3.7.1. Parameter Setting of Servo Amplifier

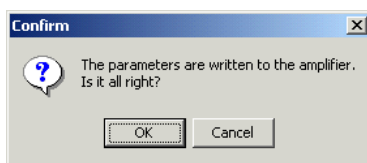
When displaying the dialog box of general parameter setting at online, the following screen appears and reads the parameters from servo amplifier.



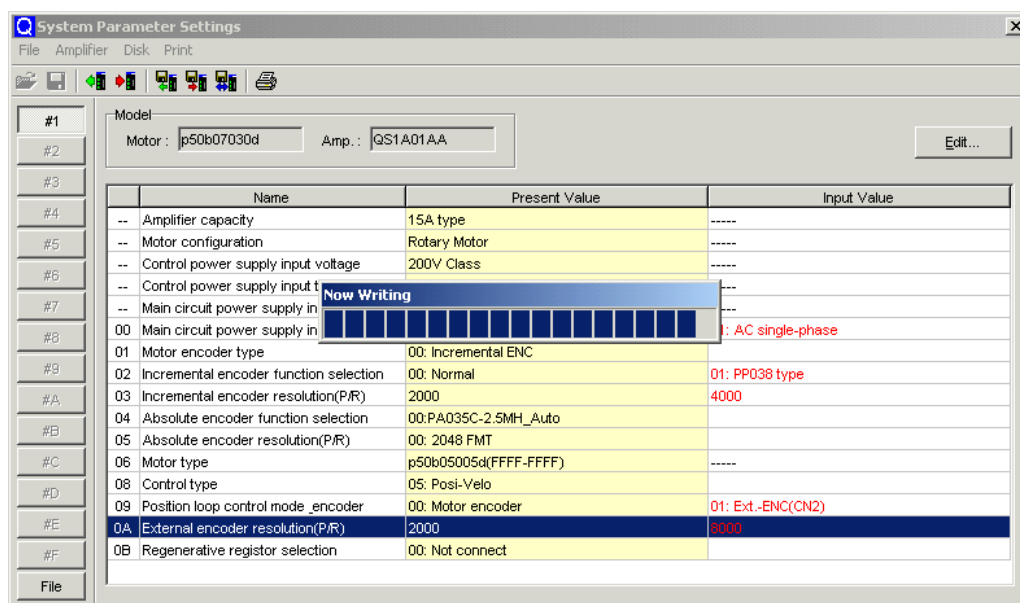
When complete reading parameters from servo amplifier correctly, "Now Reading" disappears and a list of parameters to be set is displayed.

When click [E]dit... or double-click with mouse after selecting a parameter to be edited, parameter editing screen is displayed. Depending on parameter classification, the displayed screen changes. For parameter editing, see "3.6.2 Parameter setting of servo amplifier"

After editing parameters, select “Amplifier” - “Write to Amplifier” in the menu bar of parameter setting screen. The following dialog box is displayed.

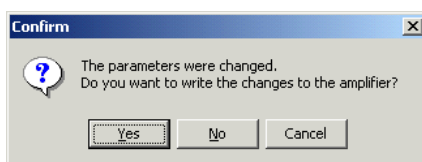


Clicking “OK” initiates parameter-writing into servo amplifier. Clicking “Cancel” does not perform parameter-writing.



When the parameter writing is complete in an orderly manner, indication “Now writing” will go out. The value shown in “Input Value” will go out, and then the value input in “Present value” is displayed.

Note) If you edit parameters, and then switch to another servo amplifier or amplifier file setting before writing the edited parameters into servo amplifier, the following dialog box is displayed.



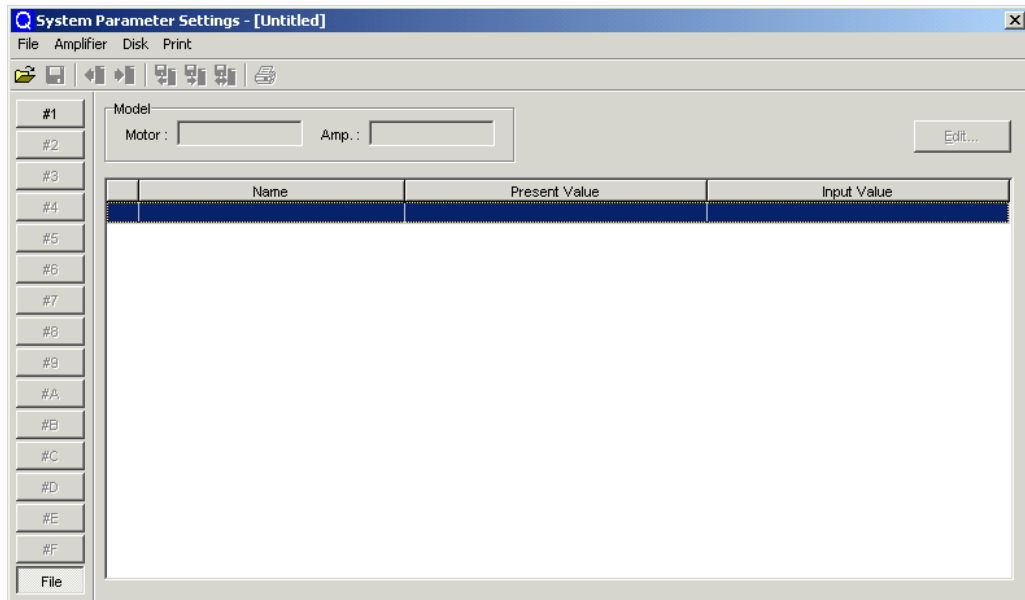
Clicking “Yes” writes the edited parameters in servo amplifier currently in communication, and then switches to display for another servo amplifier.

Clicking “No” does not write the edited parameters, and then switches to display for another servo amplifier. The entered value is discarded. Clicking “Cancel” does not switch servo amplifiers.

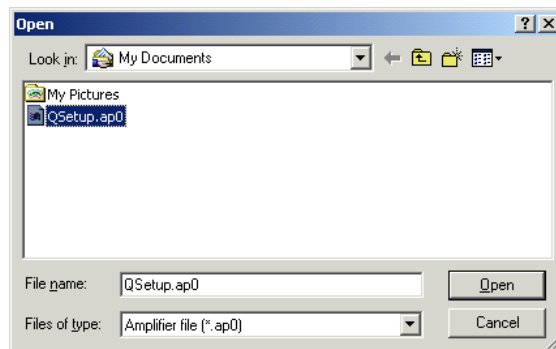
Clicking “Cancel” does not switch servo amplifiers.

3.7.2. Parameter Setting of Amplifier File

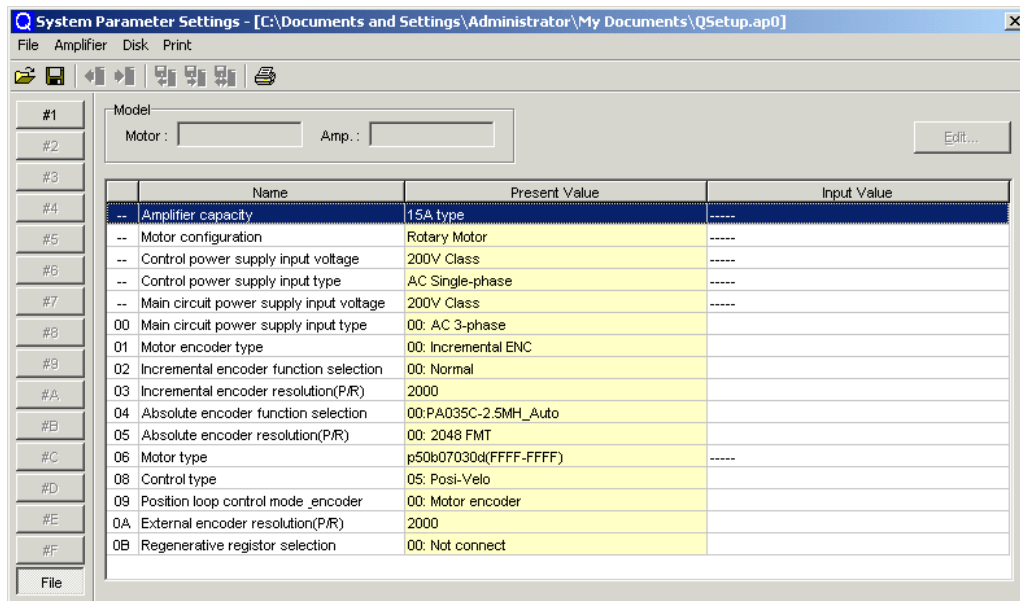
When displaying system parameter setting screen off-line, or clicking [File], the following window is displayed. With this window, parameters of amplifier file you saved can be set.



Selecting “File” - “Open...” in the menu bar of System parameter setting displays the following dialog box to select file.



Select amplifier file you will perform setting, and then click [Open]. List of settable parameters will be displayed.



Edit parameters as well as that of servo amplifier.

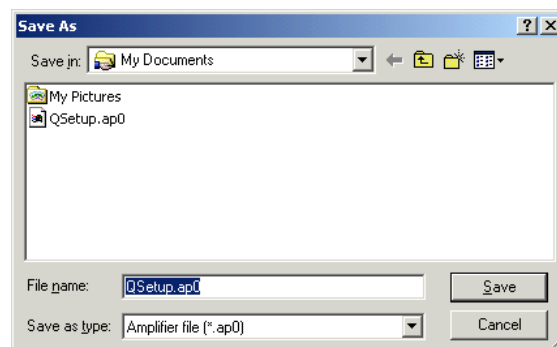
After parameter editing, select “File” — “Save” in the menu bar of parameter setting screen. The following dialog box appears.



When click [OK] to save the edited parameters in amplifier file.

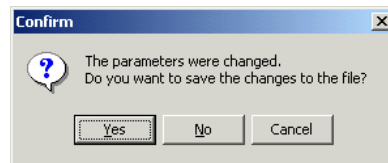
When click [Cancel], the parameters are not saved.

When save the edited parameters in another file which is different from the amplifier file which is now running, select “File” — “Save As...” in the menu bar. The following dialog box of saving file is displayed.



Specify the space and name of file and click [Save]. Save the amplifier file as a new name.

Note) If click another Group before saving in amplifier file or switch to the setting of another servo amplifier after editing parameters, the following dialog box is displayed.



When click [Yes], the display is switched to another servo amplifier after saving the edited parameters to servo amplifier which is now running.

When click [No], the display is switched to another servo amplifier without saving the edited parameters. The entered value is cancelled.

When click [Cancel], switch to another servo amplifier is not conducted.

3.7.3. Transmit Parameter [Amplifier->File]

“Transmit Parameter [Amplifier->File]” reads all parameters of servo amplifier and save them in amplifier file together. In this case, the parameters are directly saved in the disk without displaying them.

For operation, see “3.9. Transmit Parameter [Amplifier->File]”.

3.7.4. Transmit Parameter [File->Amplifier]

“Transmit Parameter [File->Amplifier]” directly writes the parameters saved in amplifier file to servo amplifier together.

For operation, see “3.10. Transmit Parameter [File->Amplifier]”.

3.7.5. Match Parameter

“Match Parameter” matches the parameters of servo amplifier with that of amplifier file and indicates a list of mismatches if applicable.

For operation, see “3. 6.6 Match parameter”.

3.8. Motor Parameter Setting

When select “Parameter” — “Motor parameter Settings...” in the menu bar of main screen, Motor parameter settings appears. The following can be operated.

- Motor parameter setting of servo amplifier
- Motor parameter setting of amplifier file
- Saving the parameters of servo amplifier in amplifier file together
- Writing the parameters from amplifier file to servo amplifier together.
- Matching the parameters of servo amplifier with that of amplifier file
- Printing a list of parameters

When click [#1] to [#F] on left side of Motor parameter settings, switch to the setting of corresponding servo amplifier. When click [File], switch to Motor parameter settings of amplifier file.

Motor Parameter Settings

File Amplifier Disk Print

Motor : p50b07030d Amp. : GS1A01AA

System

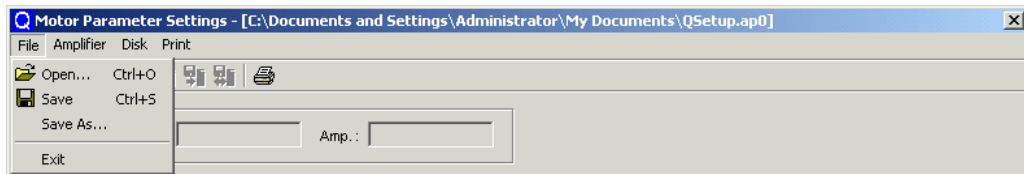
Name	Present Value
Amplifier capacity	15A type
Motor configuration	Rotary Motor
Main circuit power supply input voltage	200V Class
Motor encoder type	00: Incremental ENC
Incremental encoder function selection	00: Normal
Incremental encoder resolution(P/R)	2000
Absolute encoder function selection	00: PA035C-2.5MH_Auto
Absolute encoder resolution(P/R)	00: 2048 FMT

Motor select from list...

Motor Setting

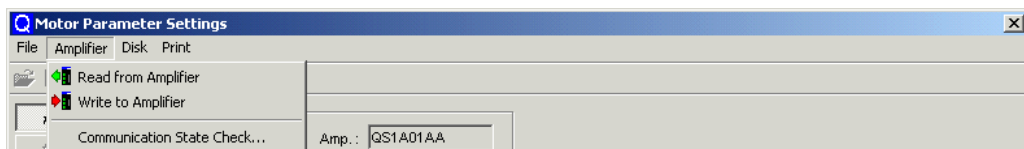
Name	Present Value	Input Value
Motor type	p50b07030d(FFFF-FFFF)	

Each function of motor parameter setting can be accessed by selecting it in the menu bar of Motor Parameter Settings.



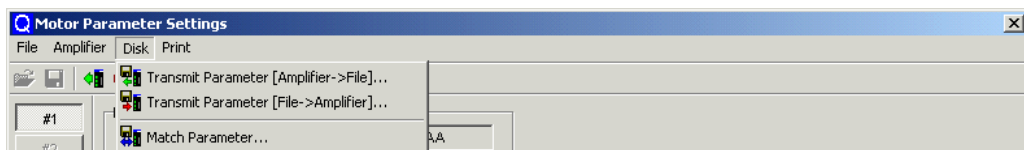
[File]

- Open... : Open the amplifier file to be edited.
 ※Possible to select it only when setting parameter of amplifier file.
- Save : Write the edited amplifier file over a file and save it.
 ※Possible to select it only when setting parameter of amplifier file.
- Save As... : Save the edited amplifier file in a file as another name.
 ※Possible to select it only when setting parameter of amplifier file.
- Exit : Exit Motor Parameter Settings.



[Amplifier]

- Read from Amplifier : Read the parameters from servo amplifier.
 ※Possible to select it only when setting parameter of servo amplifier.
- Write to Amplifier : Write the edited parameter to servo amplifier.
 ※Possible to select it only when setting parameter of servo amplifier.
- Communication State Check... : Check the communication state.
 ※Possible to select it only at online.

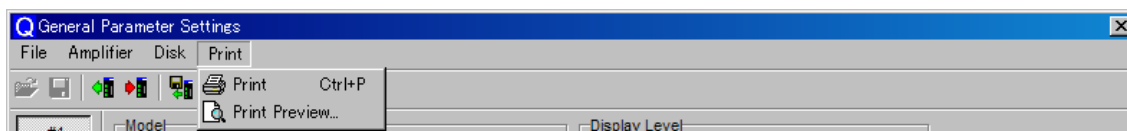


[Disk]

- Transmit Parameter [Amplifier->File]... : Read all parameters of servo amplifier and save them in amplifier file together.
 ※Possible to select it only when setting parameter of servo amplifier.
- Transmit Parameter [File->Amplifier]... : Directly write the parameters saved in amplifier file to servo amplifier together.
 ※Possible to select it only when setting parameter of servo amplifier.
- Match Parameter... : Match the parameters of servo amplifier with that of amplifier

file and display a list of mismatch parameters.

✂Possible to select it only when setting parameter of servo amplifier.

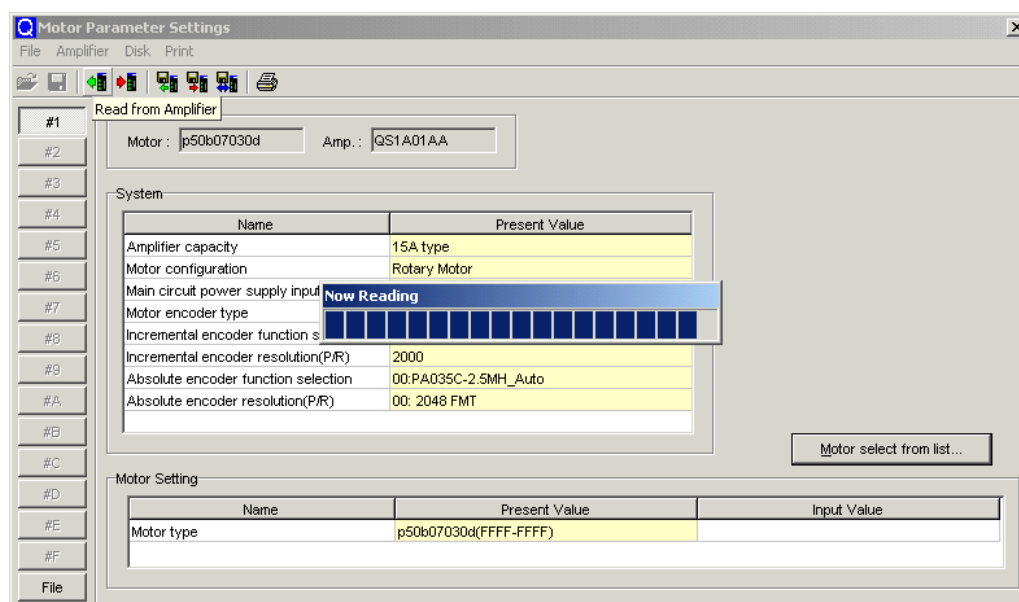


[Print]

- Print... : Print a list of parameters.
- Print Preview ... : Display the print image of parameter list.

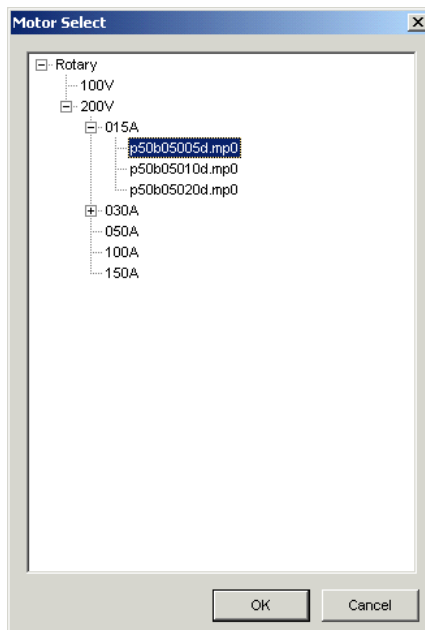
3.8.1. Parameter Setting of Servo Amplifier

When displaying the dialog box of Motor parameter setting at online, the following screen appears and reads the parameters from servo amplifier.

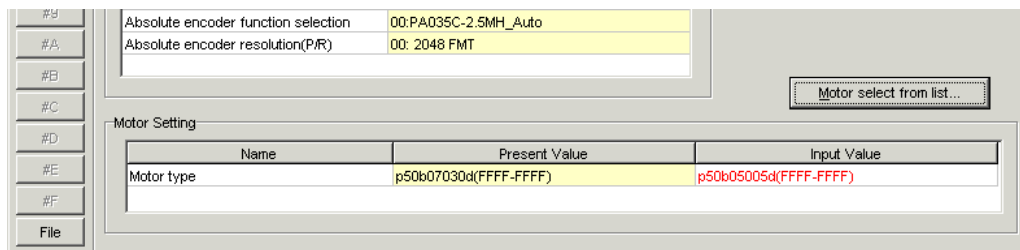


When complete reading parameters from servo amplifier correctly, "Now Reading" disappears and a list of parameters to be set is displayed.

When click [Motor select from list...] or double-click the field of "Motor Setting", a dialog box of motor selection appears.



Select the motor parameter file which writes to servo amplifier in the list. When click [OK], return to parameter setting screen. When the model name of selected motor is different from “Present Value”, the model name is indicated in “Input Value” in red.

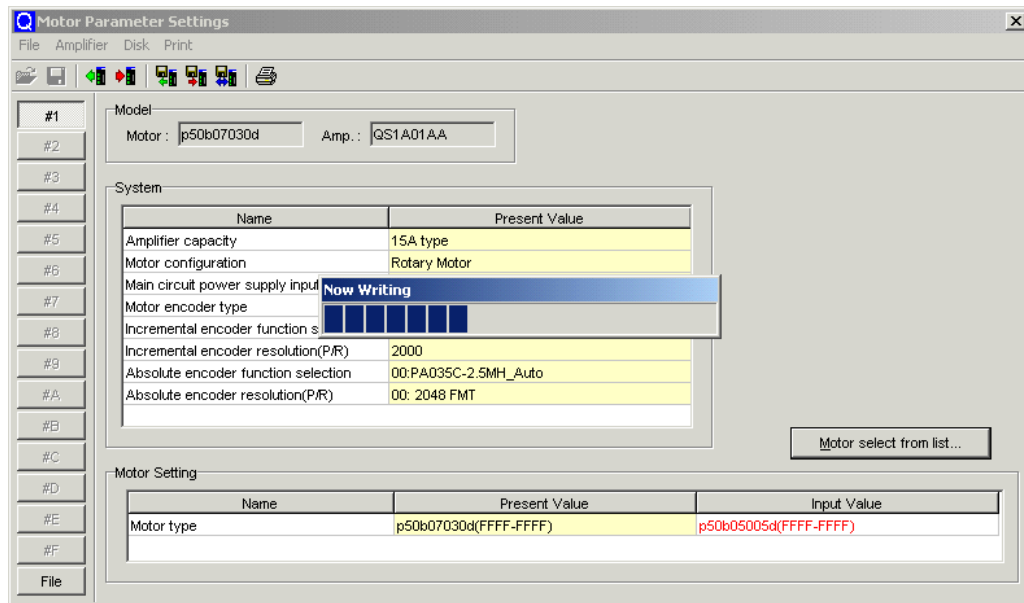


After parameter editing, select “Amplifier” — “Write to Amplifier” in the menu bar of parameter setting screen. The following dialog box appears.



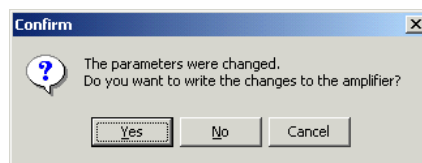
When click [OK], the parameters are written to servo amplifier.

When click [Cancel], the parameters are not written.



When complete writing parameters to servo amplifier correctly, “Now writing” disappears. The value in “Input Value” disappears and indicates the value entered in “Present Value”.

Note) If click another Group before writing to servo amplifier or switch to the setting of another servo amplifier or amplifier file after editing parameters, the following dialog box is displayed.



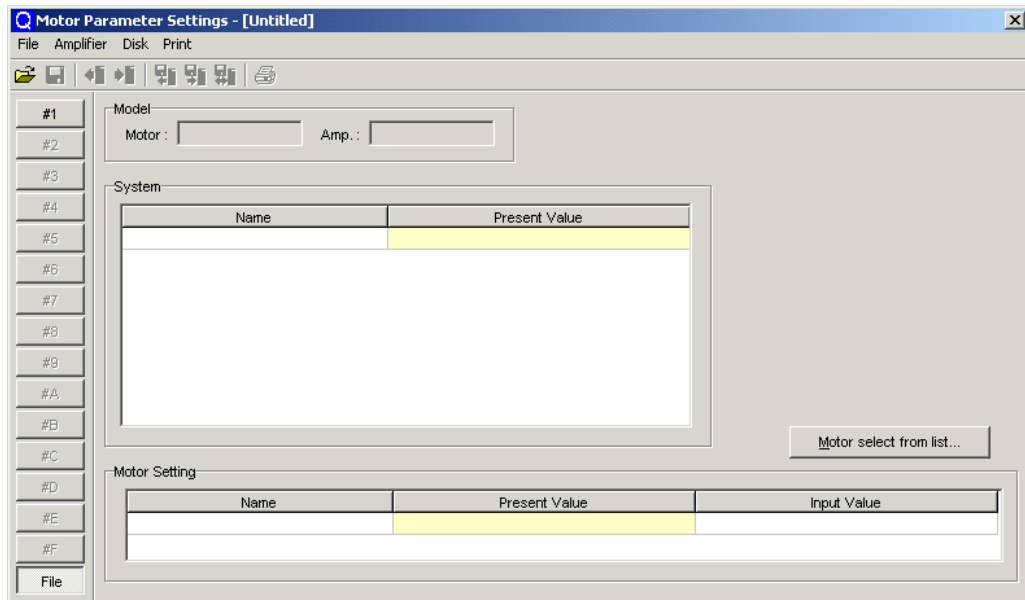
When click [Yes], the display is switched to another servo amplifier after writing the edited parameters to servo amplifier which is currently communicating.

When click [No], the display is switched to another servo amplifier without writing the edited parameters. The entered value is cancelled.

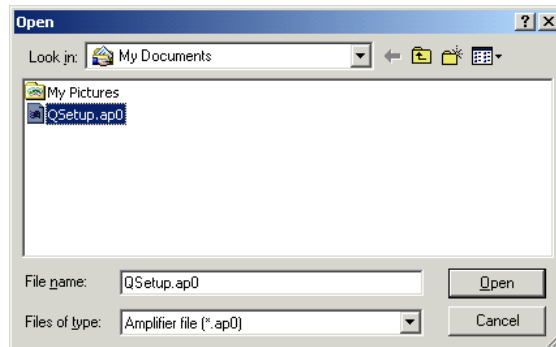
When click [Cancel], switch to another servo amplifier is not conducted.

3.8.2. Parameter Setting of Amplifier File

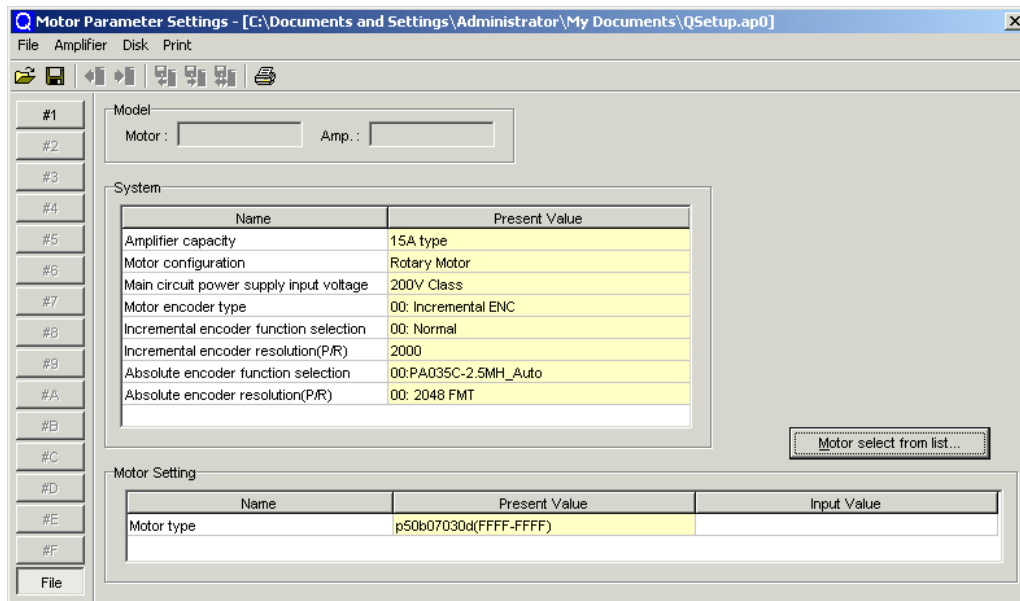
When display General parameter setting at offline or click [File], the following screen is displayed. Here the saved parameters of amplifier file can be set.



When select “File” — “Open...” in the menu bar of System parameter setting, the following file selection dialog box is displayed.



Select the amplifier file to be set and click [Open]. Display a list of parameters to be set.



Edit parameters as well as that of servo amplifier.

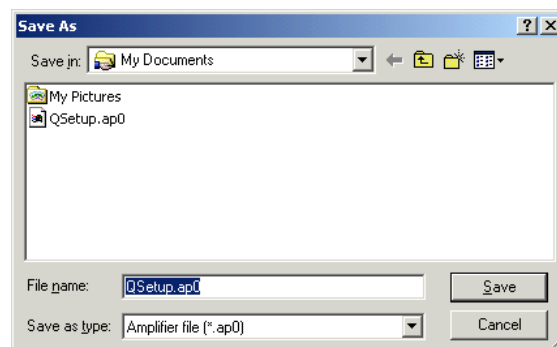
After parameter editing, select “File” — “Save” in the menu bar of parameter setting screen. The following dialog box appears.



When click [OK] to save the edited parameters in amplifier file.

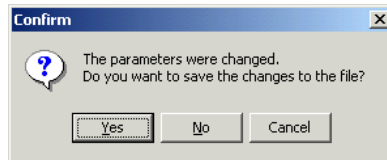
When click [Cancel], the parameters are not saved.

When save the edited parameters in another file which is different from the amplifier file which is now running, select “File” — “Save As...” in the menu bar. The following screen of saving file is displayed.



Specify the space and name of file and click [Save]. Save the amplifier file as a new name.

Note) If click another Group before saving in amplifier file or switch to the setting of another servo amplifier after editing parameters, the following dialog box is displayed.



When click [Yes], the display is switched to another servo amplifier after saving the edited parameters to servo amplifier which is currently running.

When click [No], the display is switched to another servo amplifier without saving the edited parameters. The entered value is cancelled.

When click [Cancel], switch to another servo amplifier is not conducted.

3.8.3. Transmit Parameter [Amplifier->File]

“Transmit Parameter [Amplifier->File]” reads all parameters of servo amplifier and save them in amplifier file together. In this case, the parameters are directly saved in the disk without displaying them.

For operation, see “3.9. Transmit Parameter [Amplifier->File]”.

3.8.4. Transmit Parameter [File->Amplifier]

“Transmit Parameter [File->Amplifier]” directly writes the parameters saved in amplifier file to servo amplifier together.

For operation, see “3.10. Transmit Parameter [File->Amplifier]”.

3.8.5. Match Parameter

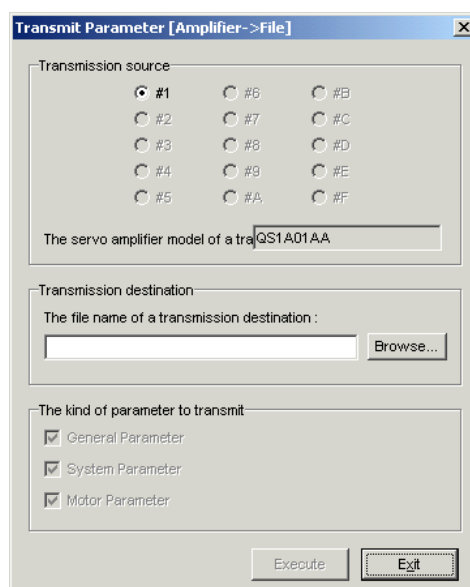
“Match Parameter” matches the parameters of servo amplifier with that of amplifier file and indicates a list of mismatches if applicable.

For operation, see “3.6.6 Match parameter”.

3.9. Transmit Parameter [Amplifier->File]

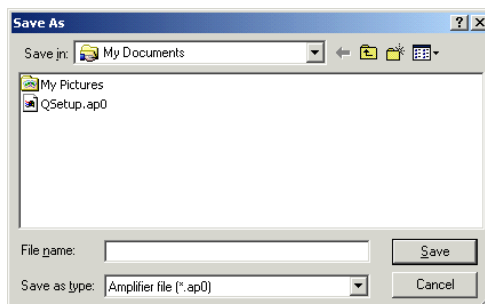
“Transmit Parameter [Amplifier->File]” reads all parameters of servo amplifier and save them in amplifier file together. In this case, the parameters are directly saved in the disk without displaying them.

When select “Parameter” — “Transmit Parameter [Amplifier->File]...” in the menu bar of main screen or select “Amplifier” — “Transmit Parameter [Amplifier->File]...” in the menu bar of General parameter settings / System parameter settings / Motor parameter settings, the following appears.



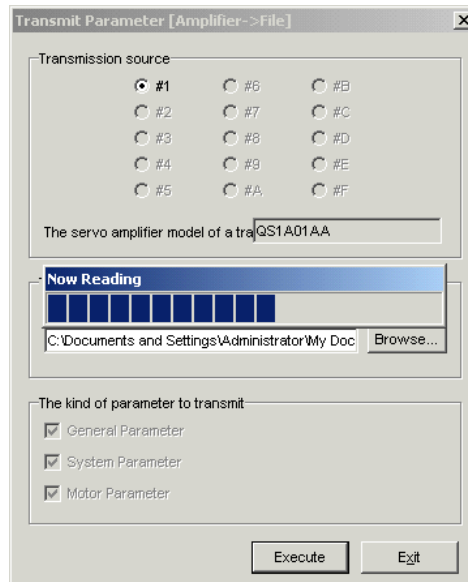
Transmit the parameters and alarm history from servo amplifier to amplifier file referring to the following procedure.

1. Select the axis number of servo amplifier which transmits parameters in “Transmission source”.
2. When click [Browse...] in “Transmission destination”, the following dialog box of saving file appears.



Specify the space and name of a file and click “Save”.

3. When click [Execute], the following appears and reads parameters and alarm history from servo amplifier.

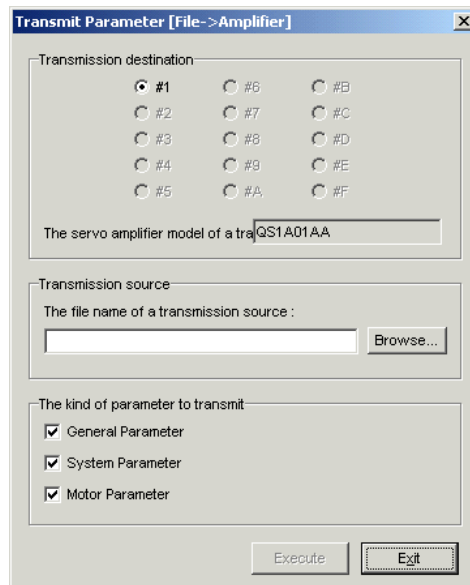


4. When complete reading parameters and alarm history to servo amplifier correctly, “Now reading” disappears and the read parameters and alarm history are saved in amplifier file.

3.10. Transmit Parameter [File->Amplifier]

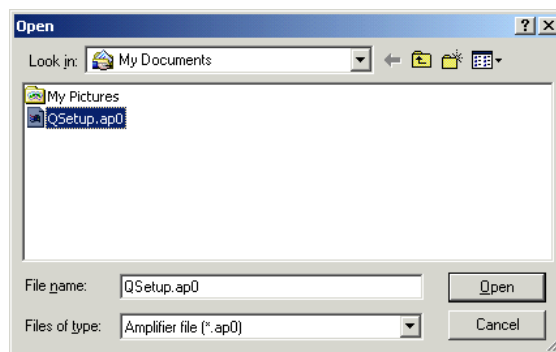
“Transmit Parameter [File->Amplifier]” directly writes the parameters saved in amplifier file to servo amplifier together.

When select “Parameter” — “Transmit Parameter [File->Amplifier]...” in the menu bar of main screen or select “Amplifier” — “Transmit Parameter [File->Amplifier]...” in the menu bar of General parameter settings / System parameter settings / Motor parameter settings, the following appears.



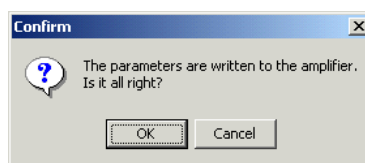
Transmit the parameters from servo amplifier to amplifier file as the following procedure.

1. Select the axis number of servo amplifier which transmits parameters in “Transmission destination”.
2. When click [Browse...] in “Transmission source”, the following dialog box of saving file appears.

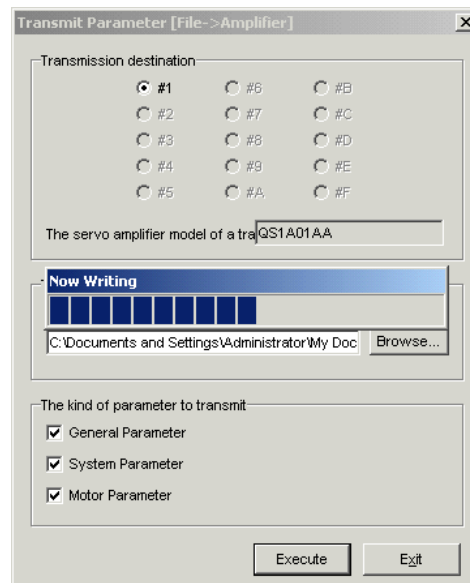


Select the amplifier file which writes to servo amplifier together and click [Open].

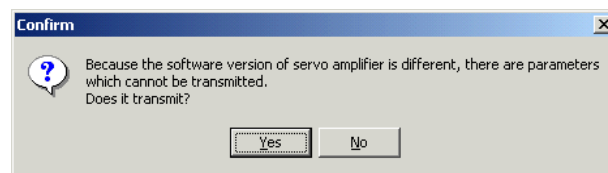
3. Select the class of parameter which is written to servo amplifier in “The kind of parameter to transmit”.
4. When click [Execute], the following dialog box appears.



When click [OK], the parameters are written to servo amplifier together.



In case the software version of servo amplifier is different from that of amplifier file or hardware differs, the following dialog box appears.

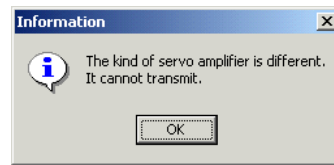


The Servo amplifier software version of the transmission source having saved the amplifier file and that of transmission destination are different, or those hardware types are different. Thus, the part of incompatible parameters may not be transmitted.

Click “Yes” , and the transmission will be executed except for the incompatible parameters. After the transmission is completed, check the parameters that have not been transmitted by “Match parameter”. Set up those parameters in manual if necessary. (For operation, see “3.6.6 Match parameter”).)

Click “No” , parameters are not transmitted.

When the kind of servo amplifier is different from that of amplifier file, parameters are not written together as the following dialog box.



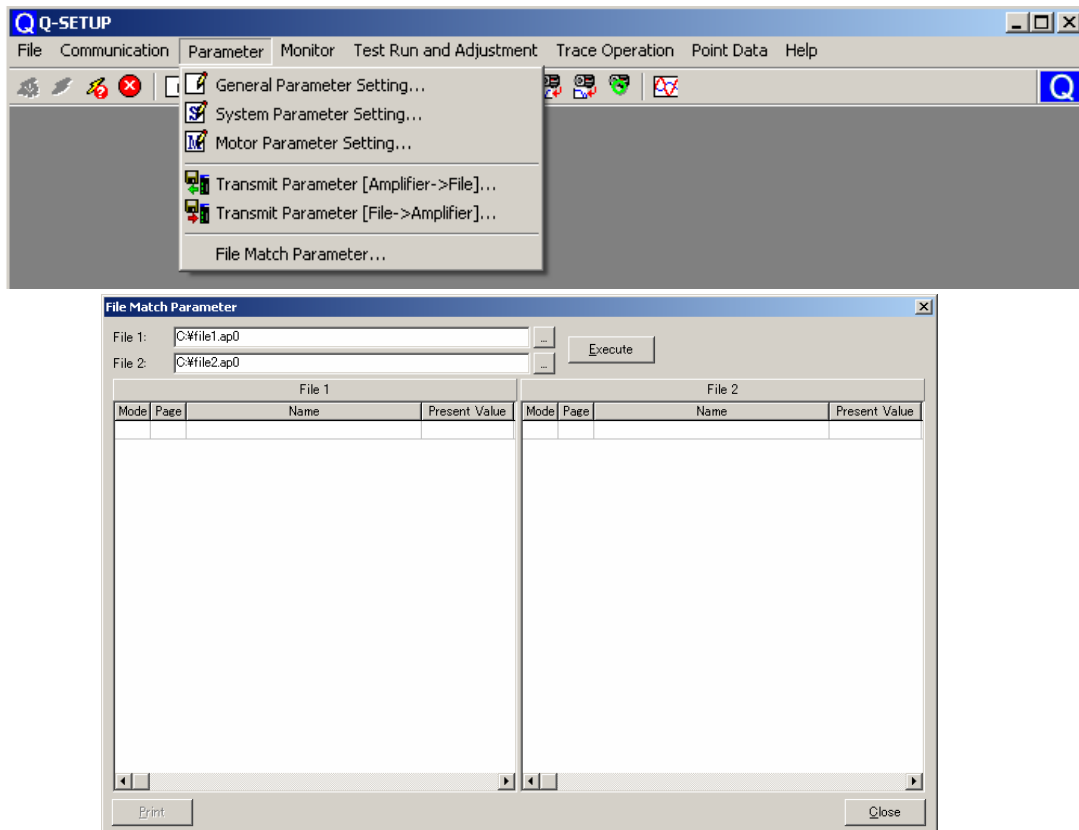
5. When complete writing together correctly, "Now Writing" disappears.

3.11. Verification of parameter file

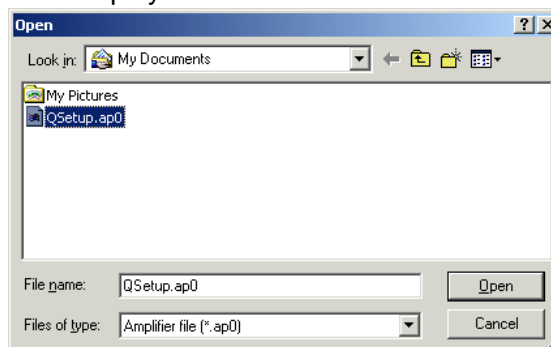
Selecting “File Match Parameter” from “Parameter” on the menu bar of main screen displays File Match Parameter window, a parameter verification window.

With this window, you can verify parameter files conformity.

To display this window, select “File Match Parameter” from “Parameter” on the menu bar of main screen.

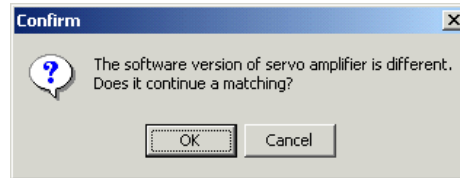


Selecting a box “...” of File 1 in File Match Parameter window, the flowing file selecting dialog box is displayed.



Click Open after selecting file you want to verify. Select a box “...” of File 2 in the same way.

If there is a difference between the software versions or hardware you selected to verify their conformity, the following dialog is displayed.



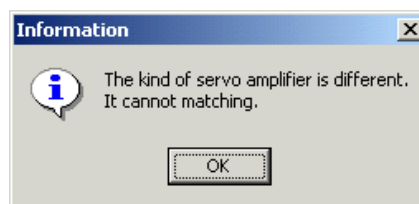
Clicking "OK" initiates parameter verification. Clicking "Cancel" does not perform verification.

Note) When this dialog displayed, several incompatible parameters may exist depending on software versions. Any incompatible parameters are displayed in verification result (differences) list, regardless of the setting contents. The incompatible parameters names are also displayed in red.

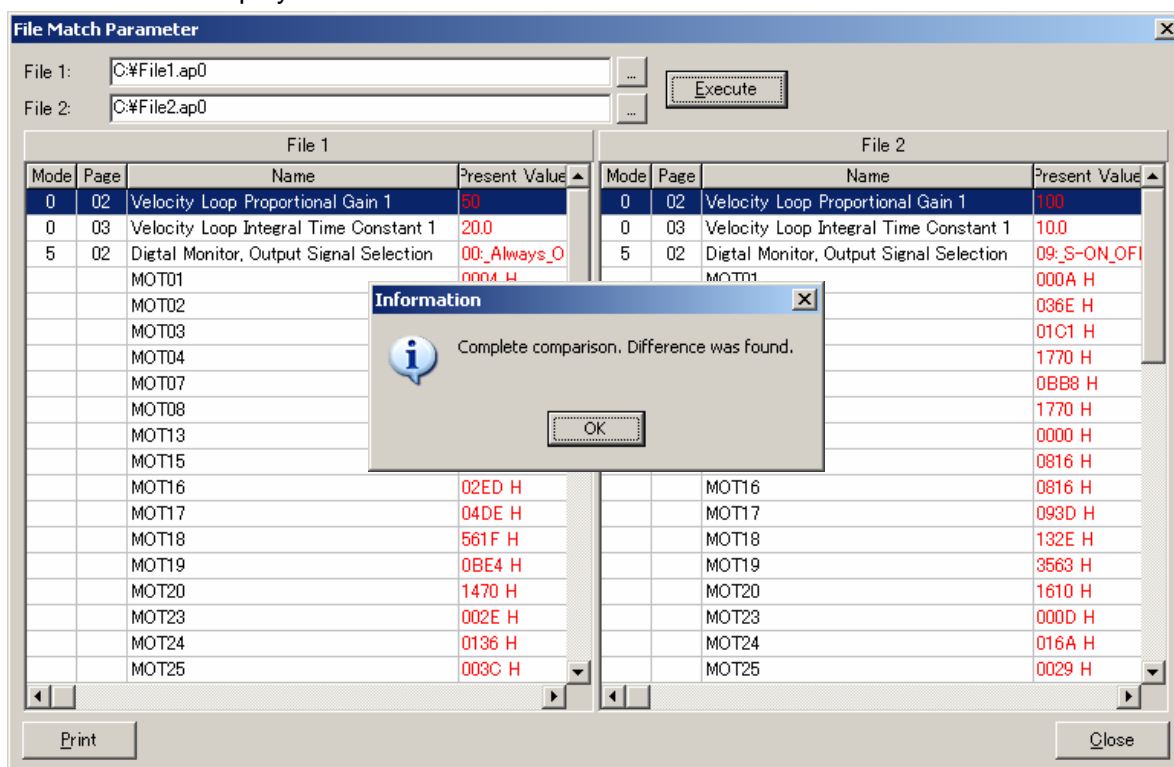
Note) When this dialog is displayed due to hardware difference.

Several incompatible parameters may exist due to hardware difference, such as difference of encoder interface circuit. Any incompatible parameters are displayed in a verification result (differences) list, regardless of the setting contents. Please carefully operate servo amplifier with multiple hardware in regard to this point.

The following dialog is displayed and then no parameter verification can be performed if different types of servo amplifiers exist between amplifier files.



When parameter verification process completed, the following parameter verification result list is displayed.

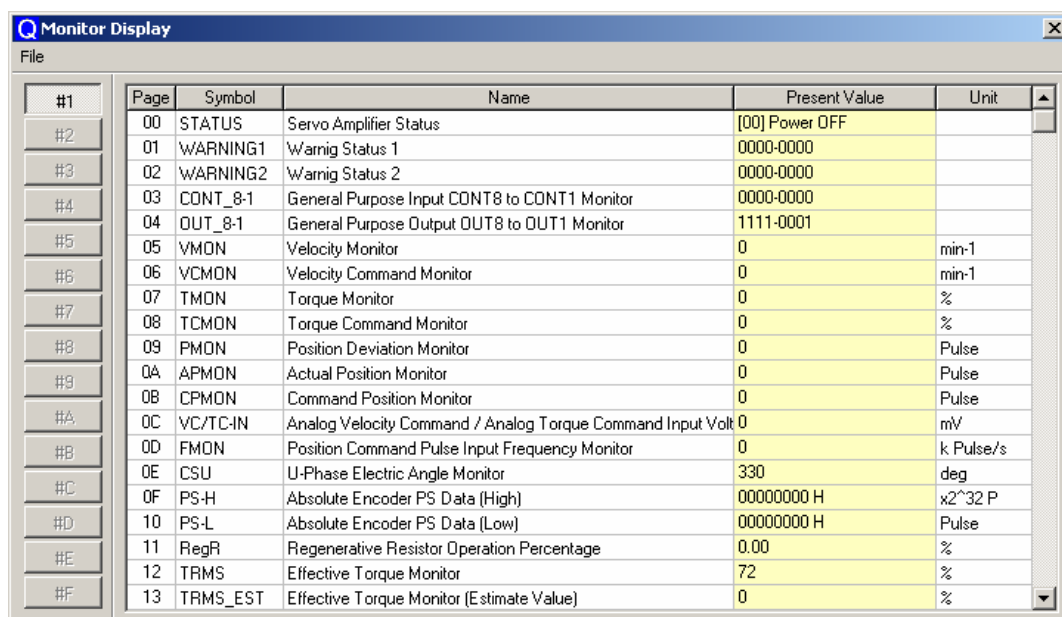


If any differences in software version, but verification have been performed, different kind of parameters is displayed all in red.

Clicking "Print" starts printing a list of parameters being displayed.

3.12. Monitor Display

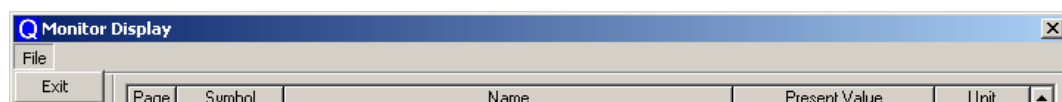
When click “Monitor” — “Monitor Display...” in the menu bar of main screen, the following screen appears. Here display a list of the status and operation of servo amplifier which is currently connected by the cable.



#	Page	Symbol	Name	Present Value	Unit
#1	00	STATUS	Servo Amplifier Status	[00] Power OFF	
#2	01	WARNING1	Warnig Status 1	0000-0000	
#3	02	WARNING2	Warnig Status 2	0000-0000	
#4	03	CONT_8-1	General Purpose Input CONT8 to CONT1 Monitor	0000-0000	
#5	04	OUT_8-1	General Purpose Output OUT8 to OUT1 Monitor	1111-0001	
#6	05	VMON	Velocity Monitor	0	min-1
#7	06	VCMON	Velocity Command Monitor	0	min-1
#8	07	TMON	Torque Monitor	0	%
#9	08	TCMON	Torque Command Monitor	0	%
#A	09	PMON	Position Deviation Monitor	0	Pulse
#B	0A	APMON	Actual Position Monitor	0	Pulse
#C	0B	CPMON	Command Position Monitor	0	Pulse
#D	0C	VC/TC-IN	Analog Velocity Command / Analog Torque Command Input Volt	0	mV
#E	0D	FMON	Position Command Pulse Input Frequency Monitor	0	k Pulse/s
#F	0E	CSU	U-Phase Electric Angle Monitor	330	deg
	0F	PS-H	Absolute Encoder PS Data (High)	00000000 H	x2^32 P
	10	PS-L	Absolute Encoder PS Data (Low)	00000000 H	Pulse
	11	RegR	Regenerative Resistor Operation Percentage	0.00	%
	12	TRMS	Effective Torque Monitor	72	%
	13	TRMS_EST	Effective Torque Monitor (Estimate Value)	0	%

When click [#1] to [#F] on the left side of Monitor Display, the status of corresponding servo amplifier which is numbered is displayed in monitor.

Each function of Monitor display can be accessed by selecting it in the menu bar of Monitor Display.



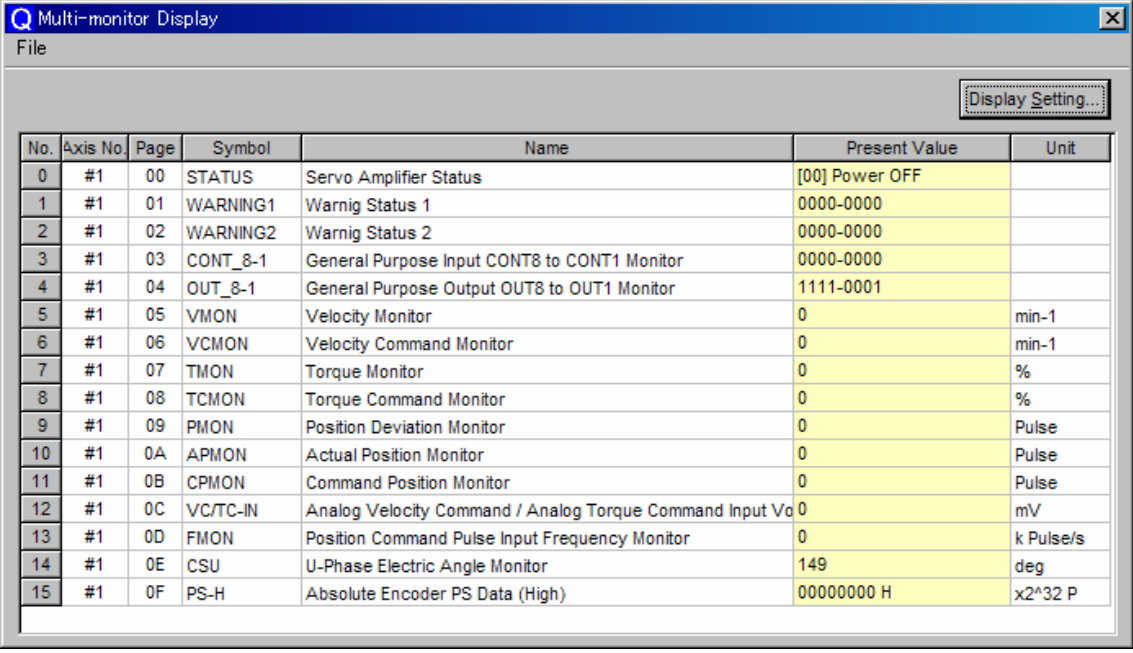
Page	Symbol	Name	Present Value	Unit

[File]

- Exit : Exit Monitor Display.

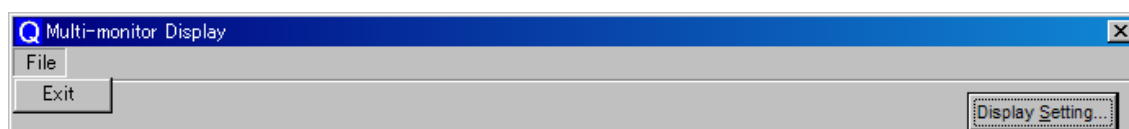
3.13. Multi-monitor Display

When click “Monitor” — “Multi-monitor Display...” in the menu bar of main screen, the following screen appears. Here displays 16 cases at maximum in the status and operation of servo amplifier which is currently connected by the cable.



No.	Axis No.	Page	Symbol	Name	Present Value	Unit
0	#1	00	STATUS	Servo Amplifier Status	[00] Power OFF	
1	#1	01	WARNING1	Warnig Status 1	0000-0000	
2	#1	02	WARNING2	Warnig Status 2	0000-0000	
3	#1	03	CONT_8-1	General Purpose Input CONT8 to CONT1 Monitor	0000-0000	
4	#1	04	OUT_8-1	General Purpose Output OUT8 to OUT1 Monitor	1111-0001	
5	#1	05	VMON	Velocity Monitor	0	min-1
6	#1	06	VCMON	Velocity Command Monitor	0	min-1
7	#1	07	TMON	Torque Monitor	0	%
8	#1	08	TCMON	Torque Command Monitor	0	%
9	#1	09	PMON	Position Deviation Monitor	0	Pulse
10	#1	0A	APMON	Actual Position Monitor	0	Pulse
11	#1	0B	CPMON	Command Position Monitor	0	Pulse
12	#1	0C	VC/TC-IN	Analog Velocity Command / Analog Torque Command Input Vo	0	mV
13	#1	0D	FMON	Position Command Pulse Input Frequency Monitor	0	k Pulse/s
14	#1	0E	CSU	U-Phase Electric Angle Monitor	149	deg
15	#1	0F	PS-H	Absolute Encoder PS Data (High)	00000000 H	x2^32 P

Each function of Multi-monitor display can be accessed by selecting it in the menu bar of Multi-monitor Display.

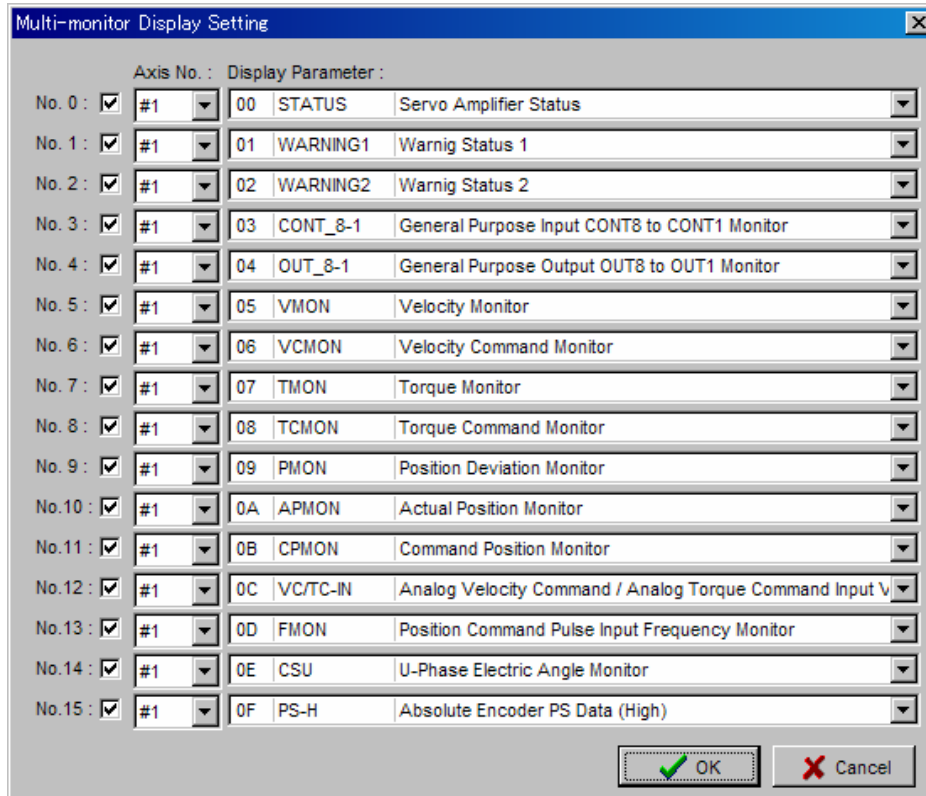


[File]

- Exit : Exit Multi-monitor Display.

3.13.1. Multi-monitor Display Setting

When click “Display Setting” in multi-monitor display screen, the following screen appears. The parameters performing monitor display in multi-monitor display are selected in the servo amplifier which is currently connected.



The dialog box titled "Multi-monitor Display Setting" contains a table for configuring display parameters. Each row represents a parameter number (No. 0 to No. 15). Each row has a checkbox, a dropdown for "Axis No.", a dropdown for "Display Parameter", and a text field for the parameter name. All checkboxes are checked, and all "Axis No." dropdowns are set to "#1". The "Display Parameter" dropdowns are set to various values, and the text fields contain the corresponding parameter names.

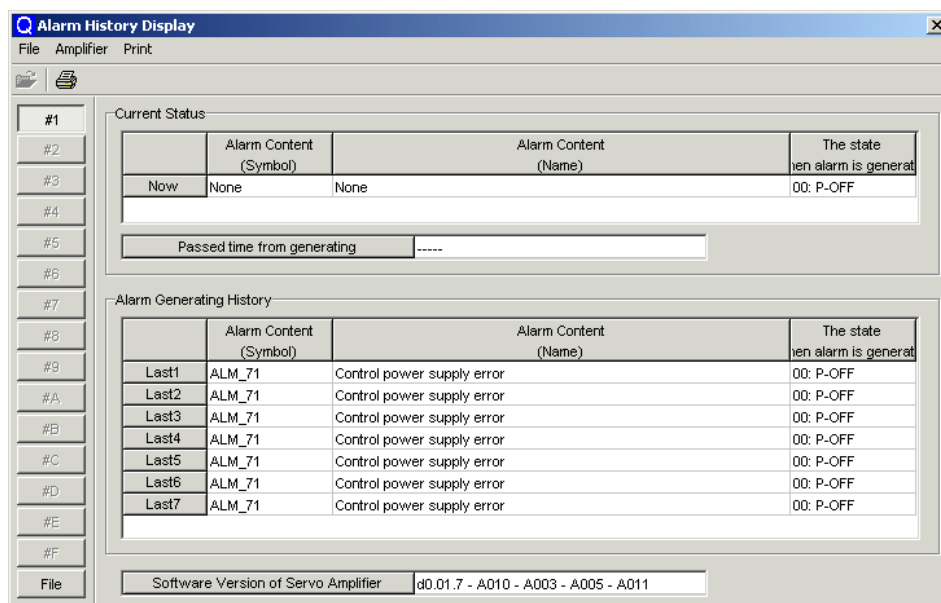
No.	Axis No.	Display Parameter	Parameter Name
No. 0	#1	00	STATUS
No. 1	#1	01	WARNING1
No. 2	#1	02	WARNING2
No. 3	#1	03	CONT_8-1
No. 4	#1	04	OUT_8-1
No. 5	#1	05	VMON
No. 6	#1	06	VCMON
No. 7	#1	07	TMON
No. 8	#1	08	TCMON
No. 9	#1	09	PMON
No. 10	#1	0A	APMON
No. 11	#1	0B	CPMON
No. 12	#1	0C	VC/TC-IN
No. 13	#1	0D	FMON
No. 14	#1	0E	CSU
No. 15	#1	0F	PS-H

At the bottom right, there are two buttons: "OK" (with a green checkmark icon) and "Cancel" (with a red X icon).

Give check mark(s) on either one(s) from No. 0 to No. 15 in which multi-monitor display is desired to select axis number and display parameter.

3.14. Alarm History

When click "Monitor" — "Alarm History Display..." in the menu bar of main screen, the following screen appears. Here displays an alarm history generated in servo amplifier which is currently connected by a cable.

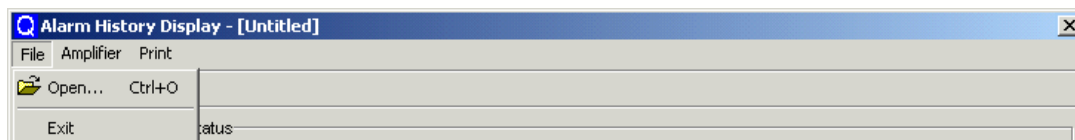


When click [#1] to [#F] in the left of Alarm History Display, the alarm of the corresponding numbered servo amplifier is displayed. When click [File], switch to Alarm History saved in amplifier file.

In order to save the information of servo amplifier alarm history in a file, execute "Transmit Parameter [Amplifier->File]". Refer to "3.9 Transmit Parameter [Amplifier->File]" for the procedure.

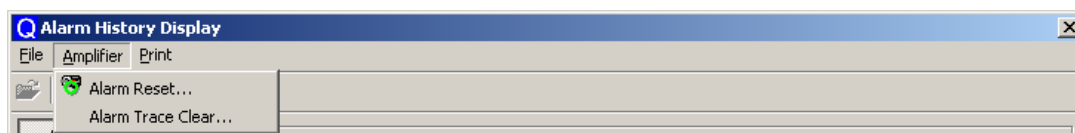
- **Current State**
Display the alarm which is currently generated, the state of servo amplifier (current state in case of "No alarm"), and the passed time from generating.
- **Alarm Generating History**
Display last seven alarms. This history is updated at any time.
- **Software Version of Servo Amplifier**
Display the software version of servo amplifier.

Each function of alarm history display can be accessed by selecting it in the menu bar of Alarm History Display.



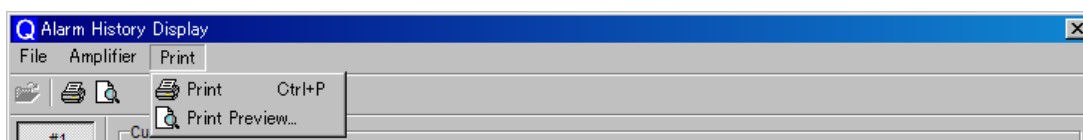
[File]

- Open... : Open an amplifier file displaying alarm history.
※Possible to select it only at displaying an alarm history of amplifier file.
- Exit : Exit Alarm History Display.



[Amplifier]

- Alarm Reset : Reset the current alarm of servo amplifier.
※Possible to select it only at displaying an alarm history of servo amplifier.
- Alarm Trace Clear : Clear the servo amplifier's data of alarm which was generated in the past.
※Possible to select it only at displaying an alarm history of servo amplifier.



[Print]

- Print... : Print a list of alarm history.
- Print Preuiew ... : Display the print image of parameter list.

3.14.1. Alarm Reset

For “Alarm Reset”, reset the current alarm of servo amplifier.

For how to operate, see “3.20. Alarm Reset”.

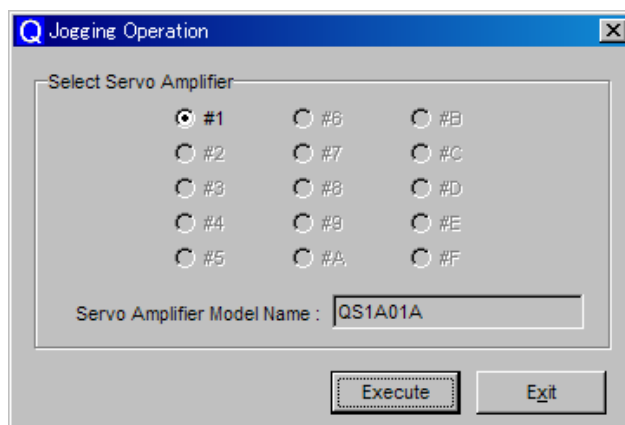
3.14.2. Alarm Trace Clear

For “Alarm Trace Clear”, clear the servo amplifier’s data of alarm which was generated in the past. Refer to “3.22. Alarm Trace Clear” for the procedure.

3.15.Jogging Operation

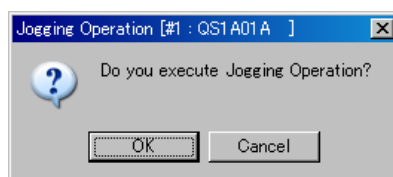
Jogging operation can test the servo amplifier and servomotor easily. This function runs the servomotor. Secure the safety of the surroundings. When the alarm generates during jogging operation, motor excitation becomes OFF. Prepare the control equipments which can be readily used.

When select “Test Run and Adjustment” - “Jogging operation” in the menu bar of main screen, the following appears. Here runs the motor in positive/negative directions with the velocity command set by jogging operation.

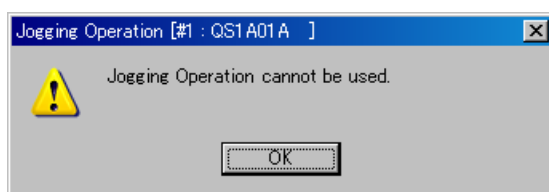


Jogging operation is performed as follows.

1. Select the axis number of servo amplifier performing jogging operation in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

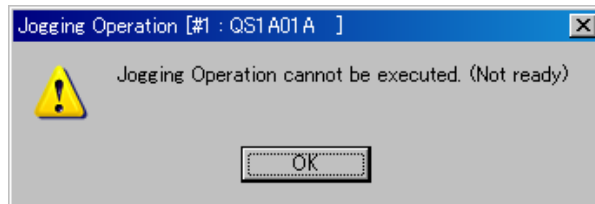


For the servo amplifier which jogging operation is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not use jogging operation.

When servo amplifier is not ready, the following dialog box appears.

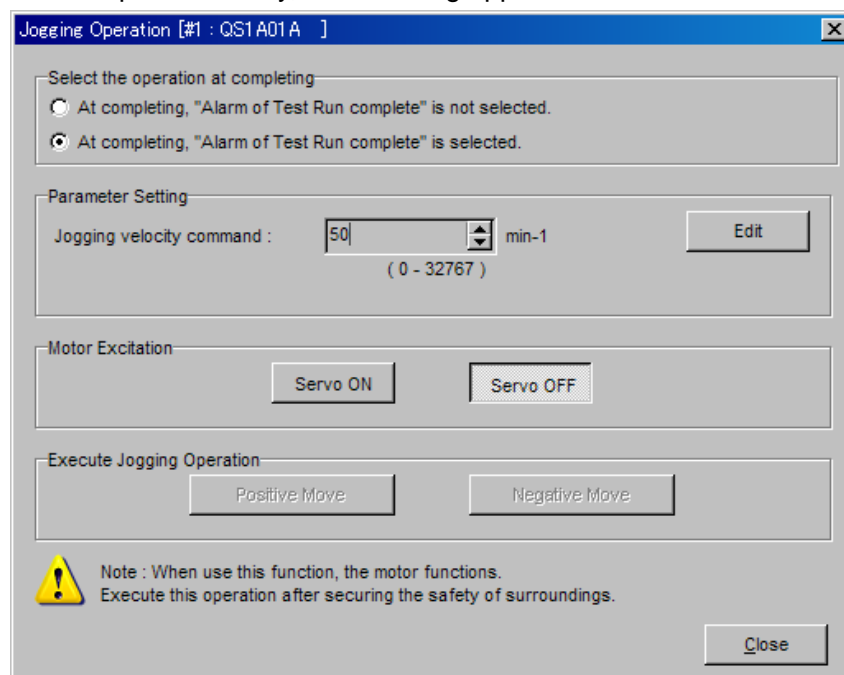


Jogging operation is not ready.

In case servo amplifier is in alarm state, main power is not supplied, or "Test Run and Adjustment" is executed with digital operator, jogging operation is not ready.

When confirming that jogging operation can be used, click "Execute" again.

In case servo amplifier is ready, the following appears.



3. Select the operation at completing and set the jogging velocity command.

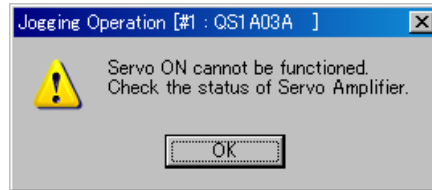
When generate "Alarm of Test Run complete" at completing jogging operation, click 'At completing, "Alarm of Test Run complete" is selected'. In case of the opposite, click 'At completing, "Alarm of Test Run complete" is not selected'.

When changing jogging velocity command, click "Edit" and switch to editing mode. Enter the value in keyboards and click "Write".

4. In case of generating alarm, the following dialog box appears when click "Servo ON".



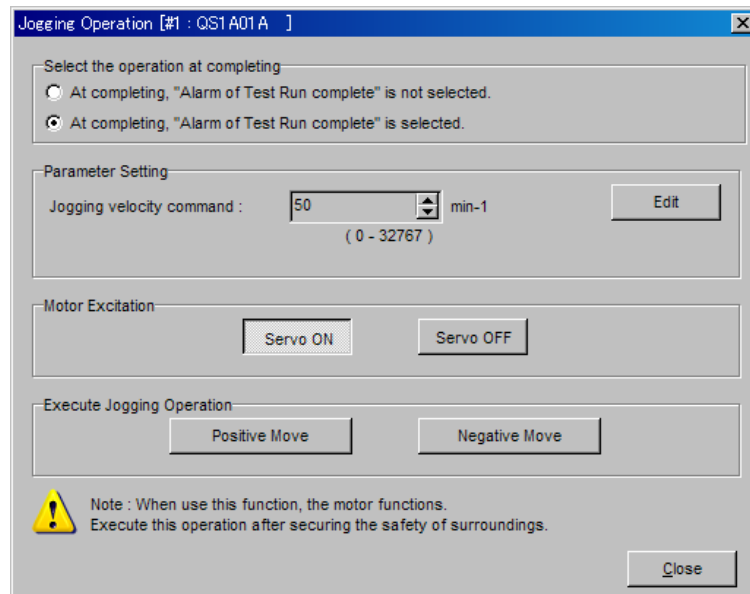
In case servo amplifier can not function Servo ON, the following dialog box appears.



When confirming that Servo ON can be used, click "Servo ON" again.

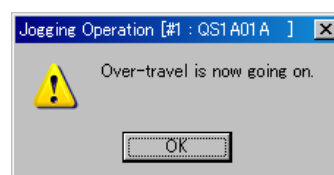
In case of Servo ON, "Positive move" and "Negative move" buttons can be used.

While editing velocity command, "Positive move" and "Negative move" buttons can not be used. After click "Write", complete the editing.



5. While continue to click "Positive move" or "Negative move", jogging operation is being executed.

While Over-travel is confirmed, the following dialog box appears.



While editing velocity command, the following appears. When click “Write”, complete the editing by updating the set value. When click “Edit Cancel”, complete the editing without updating the set value.

The screenshot shows a software window titled "Jogging Operation [#1 : QS1A01A]". It contains several sections: "Select the operation at completing" with two radio button options, "Parameter Setting" with a velocity command input field set to 50, "Motor Excitation" with Servo ON/OFF buttons, and "Execute Jogging Operation" with Positive/Negative Move buttons. A warning note and a Close button are at the bottom.

Jogging Operation [#1 : QS1A01A]

Select the operation at completing

☐ At completing, "Alarm of Test Run complete" is not selected.

☒ At completing, "Alarm of Test Run complete" is selected.

Parameter Setting

Jogging velocity command : min-1

(0 - 32767)

Edit Cancel

Write

Motor Excitation

Servo ON

Servo OFF

Execute Jogging Operation

Positive Move

Negative Move

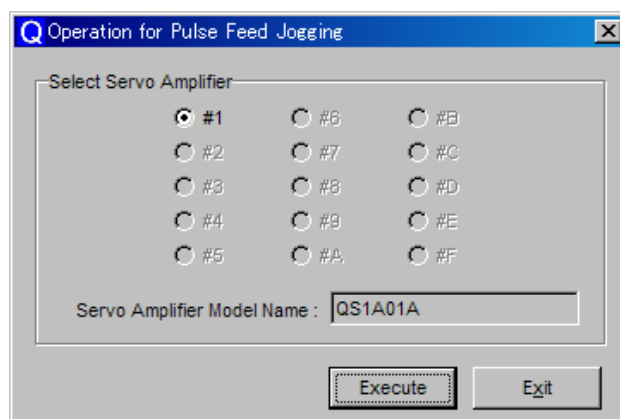
Note : When use this function, the motor functions.
Execute this operation after securing the safety of surroundings.

Close

3.16.Operation for Pulse Feed Jogging

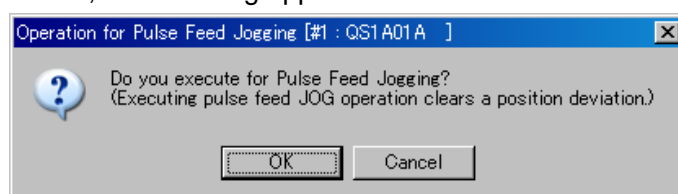
Operation for Pulse Feed Jogging can test the servo amplifier and servomotor easily. This function runs the servomotor. Secure the safety of the surroundings. When the alarm generates during operation for feed Jogging operation, motor excitation becomes OFF. Prepare the control equipments which can be readily used.

When select “Test Run and Adjustment” - “Operation for Pulse Feed Jogging” in the menu bar of main screen, the following appears. Here runs the motor in positive/negative directions with the number of feed pulses and movement speed set by jogging operation.

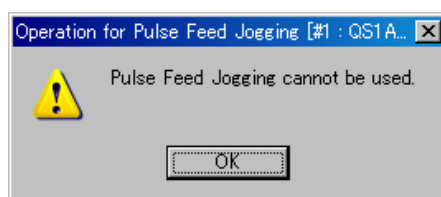


Operation for pulse feed jogging is performed as follows.

1. Select the axis number of servo amplifier performing jogging operation in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

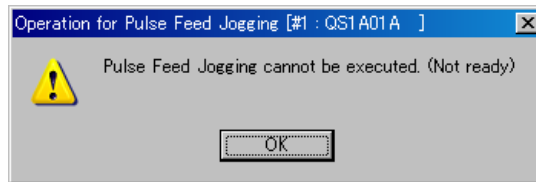


For the servo amplifier which pulse feed jogging operation is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not use jogging operation.

When servo amplifier is not ready, the following dialog box appears.

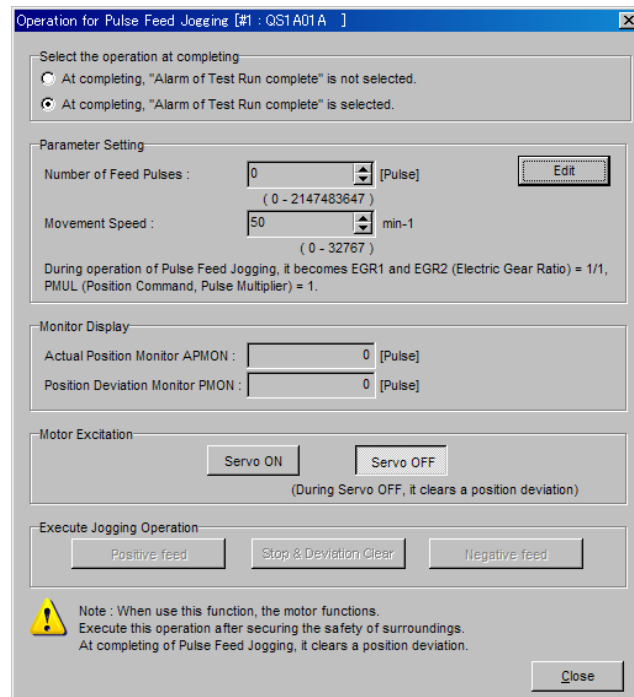


Jogging operation is not ready.

In case servo amplifier is in alarm state, main power is not supplied, or "Test Run and Adjustment" is executed with digital operator, jogging operation is not ready.

When confirming that jogging operation can be used, click "Execute" again.

In case servo amplifier is ready, the following appears.

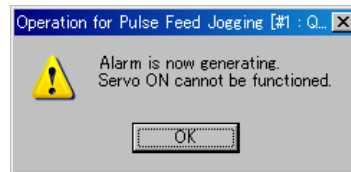


3. Select the operation at completing and set the number of feed pulses and movement speed.

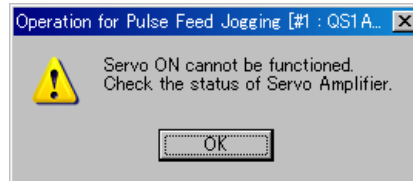
When generate "Alarm of Test Run complete" at completing pulse feed jogging operation, click 'At completing, "Alarm of Test Run complete" is selected'. In case of the opposite, click 'At completing, "Alarm of Test Run complete" is not selected'.

When changing the number of feed pulses and movement speed, click "Edit" and switch to editing mode. Enter the value in keyboards and click "Write".

4. In case of generating alarm, the following dialog box appears when click “Servo ON”.

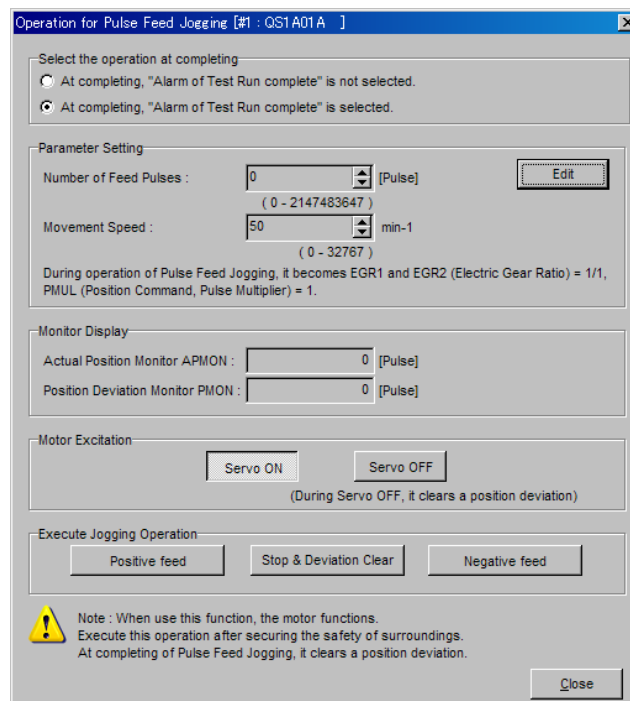


In case servo amplifier can not function Servo ON, the following dialog box appears.



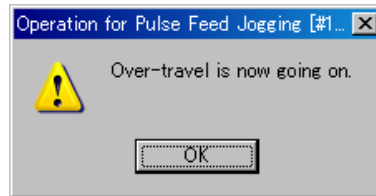
In case of Servo ON, “Positive move” and “Negative move” buttons can be used.

In case of Servo ON, “Positive Feed”, “Negative Feed”, and “Stop & Deviation Clear” buttons are enabled. While editing the number of feed pulses and movement speed, “Positive Feed”, “Negative Feed”, and “Stop & Deviation Clear” buttons can not be used. After click “Write”, complete the editing.

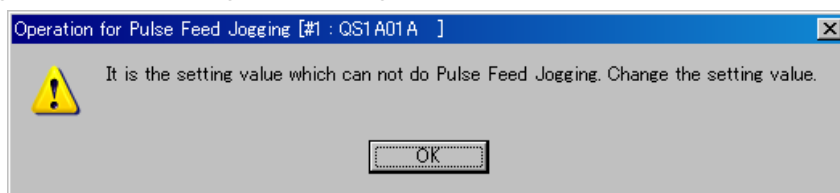


5. When click “Positive feed” or “Negative feed”, move the number of feed pulses to be set. In case of stopping before moving the number of feed pulses to be set, click “Stop & Deviation Clear”.

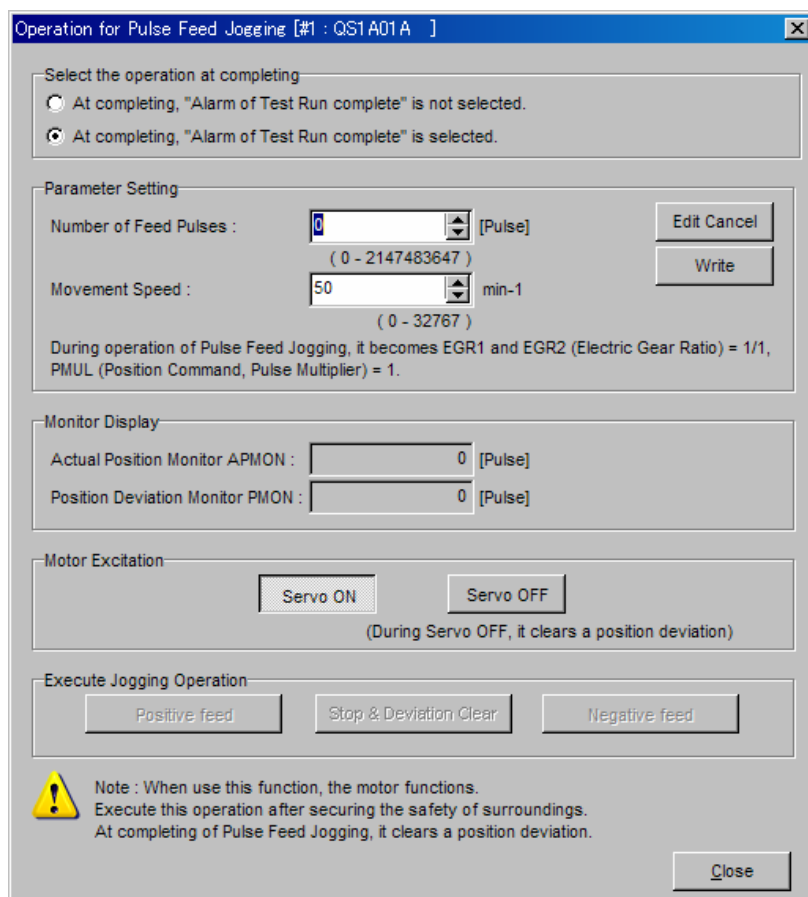
While Over-travel is confirmed, the following dialog box appears.



When the setting of number of feed pulses or movement speed is inadequate, the following appears. Change the setting.



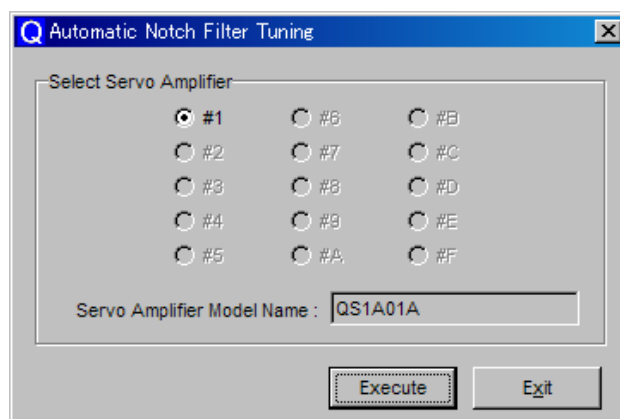
While editing the number of feed pulses or movement speed, the following appears. When click “Write”, complete the editing by updating the set value. When click “Edit Cancel”, complete the editing without updating the set value.



3.17. Automatic Notch Filter Tuning

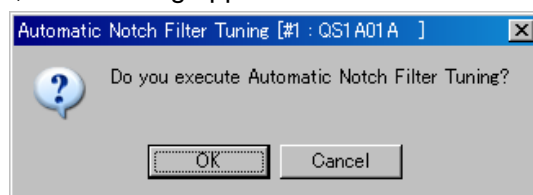
Automatic notch filter tuning can readily find the resonance frequency by running servo amplifier and servomotor for a short period. In case resonance frequency exists, set the frequency at command notch filter A (TCNFILA) automatically. This function runs the servomotor. Secure the safety of surroundings. During execution, the holding torque becomes small. At the weight axis and so on, do not use this function.

When select “Test Run and Adjustment” - “Automatic Notch Filter Tuning” in the menu bar of main screen, the following appears. Here executes automatic notch filter tuning.

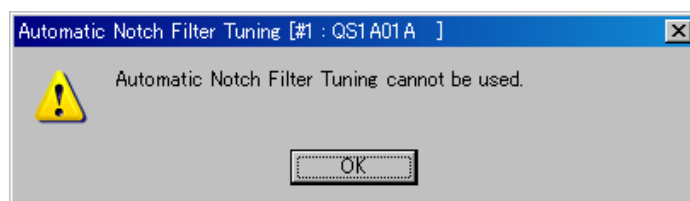


Automatic notch filter tuning is performed as follows.

1. Select the axis number of servo amplifier performing automatic notch filter tuning in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

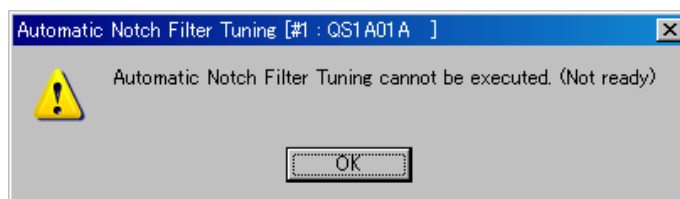


For the servo amplifier which automatic notch filter tuning is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not perform automatic notch filter tuning.

When servo amplifier is not ready, the following dialog box appears.

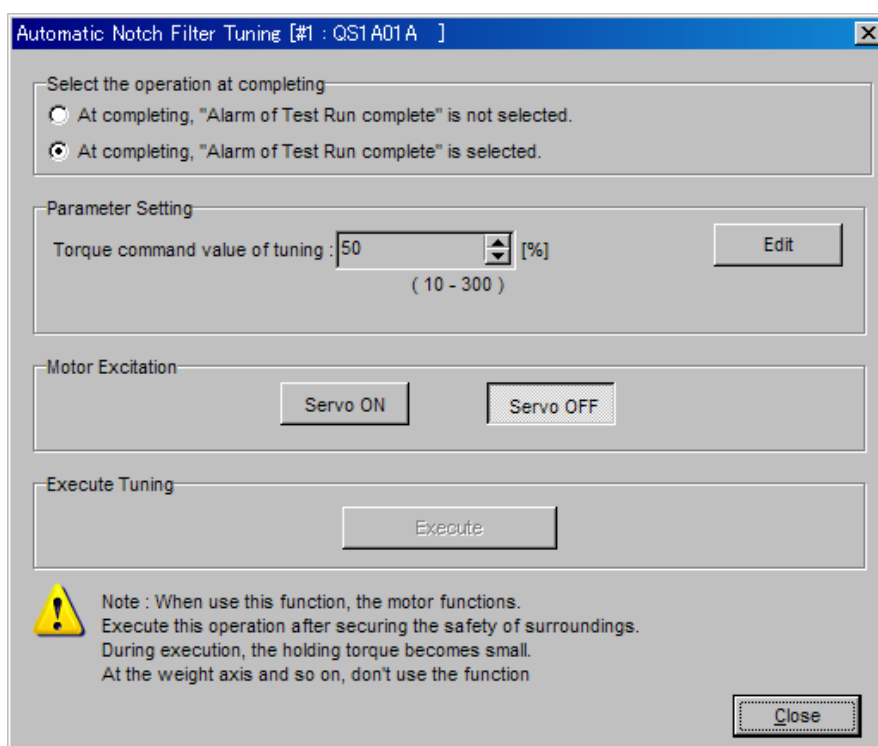


Automatic notch filter tuning is not ready.

In case servo amplifier is in alarm state, main power is not supplied, or "Test Run and Adjustment" is executed with digital operator, jogging operation is not ready.

When confirming that automatic notch filter tuning can be used, click "Execute" again.

In case servo amplifier is ready, the following appears.



3. Select the operation at completing and set the torque command value of tuning.

When generate "Alarm of Test Run complete" at completing automatic notch filter tuning, click 'At completing, "Alarm of Test Run complete" is selected'. In case of the opposite, click 'At completing, "Alarm of Test Run complete" is not selected'.

When changing the torque command value of tuning, click "Edit" and switch to editing mode. Enter the value in keyboards and click "Write".

4. In case of generating alarm, the following dialog box appears when click “Servo ON”.

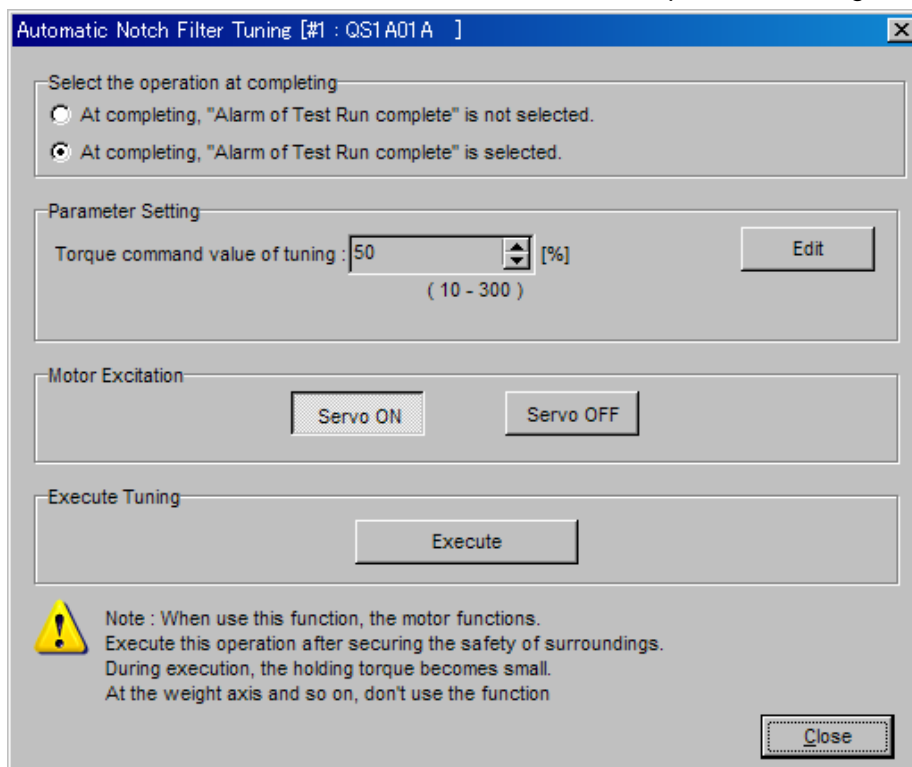


In case servo amplifier can not function Servo ON, the following dialog box appears.

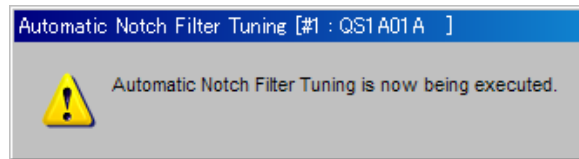


In case of Servo ON, “Positive move” and “Negative move” buttons can be used.

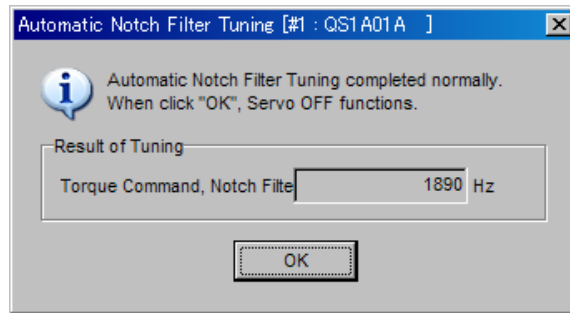
In case of Servo ON, “Execute”, button is enabled. While editing torque command value, “Execute” button can not be used. After click “Write”, complete the editing.



5. When click “Execute”, the following appears and execute automatic notch filter tuning.

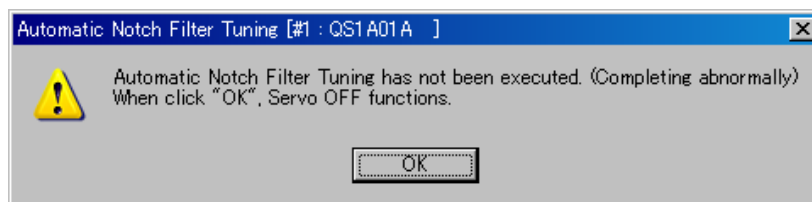


6. When automatic notch filter tuning completes normally, "Execute" disappears and the following dialog box of tuning result appears.

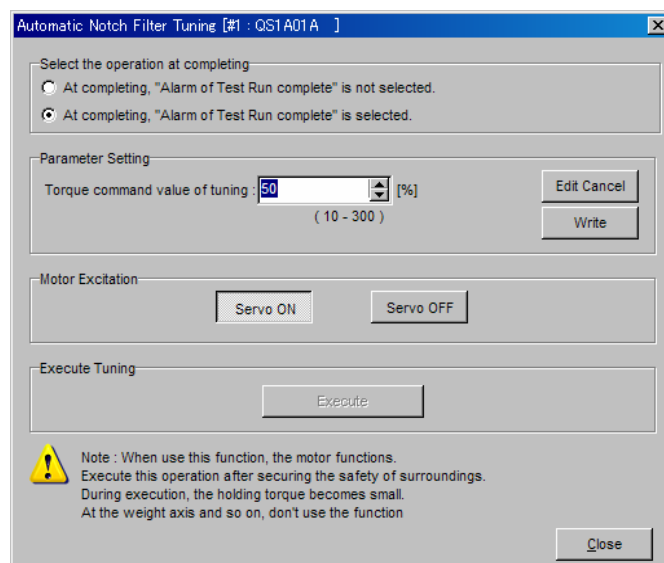


This tuning result is saved in command notch filter A (TCNFILA).

When automatic notch filter tuning can not complete normally, the following dialog box appears.



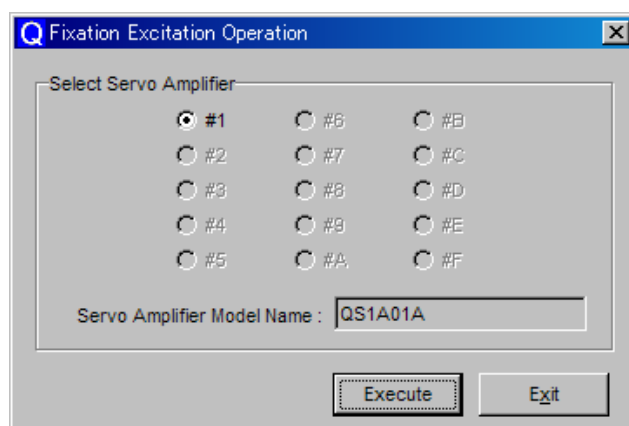
During editing torque command, the following appears. When click "Write", complete the editing by updating the setting value. When click "Edit Cancel", complete the editing without updating the setting value.



3.18. Fixation Excitation Operation

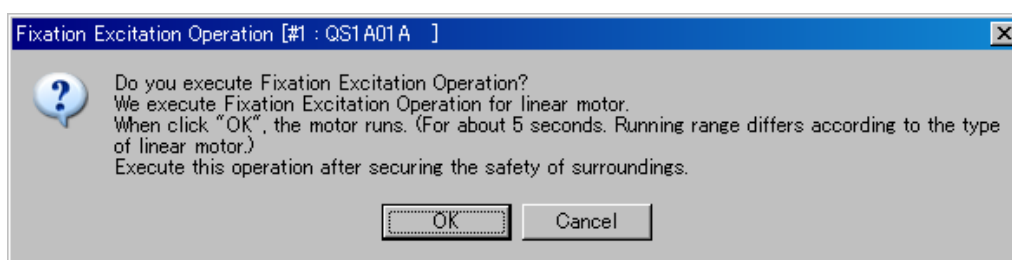
This functions fixation excitation operation for linear motor. This function runs servomotor. Secure the safety of surroundings.

When select “Test Run and Adjustment” - “Fixation Excitation Operation” in the menu bar of main screen, the following appears. Here executes fixation excitation operation for linear motor.

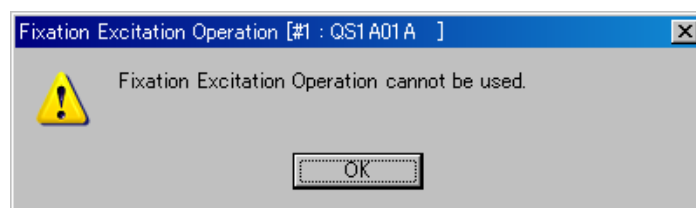


Fixation Excitation Operation is performed as follows.

1. Select the axis number of servo amplifier performing fixation excitation operation in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.



For the servo amplifier which fixation excitation operation is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not execute fixation excitation operation.

When servo amplifier is not ready, the following dialog box appears.

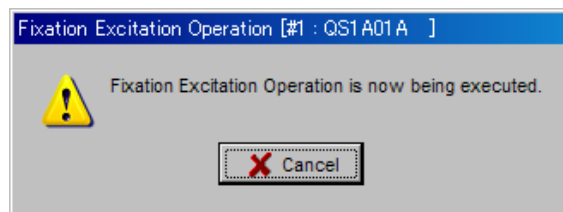


Fixation Excitation Operation is not ready.

In case servo amplifier is in alarm state, main power is not supplied, or “Test Run and Adjustment” is executed with digital operator, jogging operation is not ready.

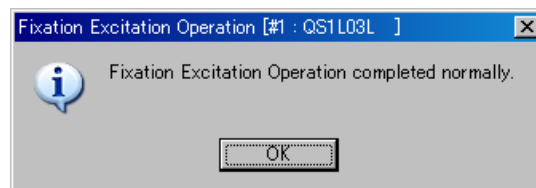
When confirming that fixation excitation operation can be used, click “Execute” again.

When servo amplifier is ready, the following dialog box appears and execute fixation excitation operation.

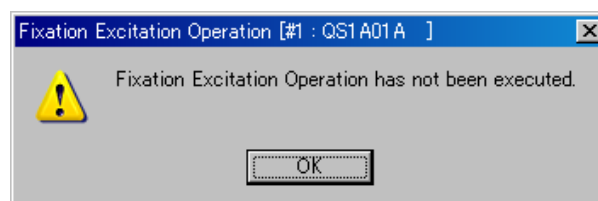


When click “Cancel”, fixation excitation operation is cancelled.

3. When fixation excitation operation completes normally, “Now executing” disappears and the following dialog box appears.



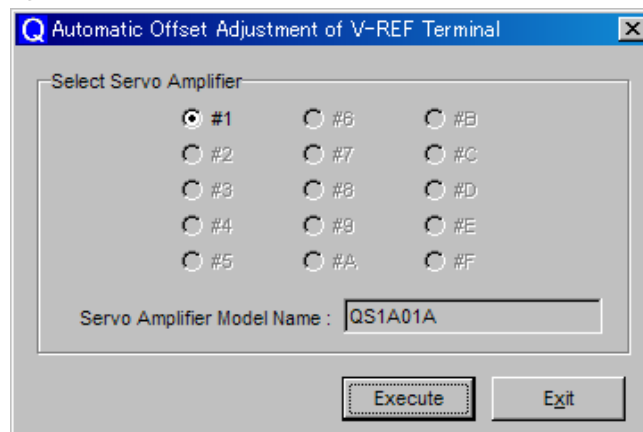
When fixation excitation operation can not complete normally, the following dialog box appears.



3.19. Automatic Offset Adjustment of V-REF Terminal

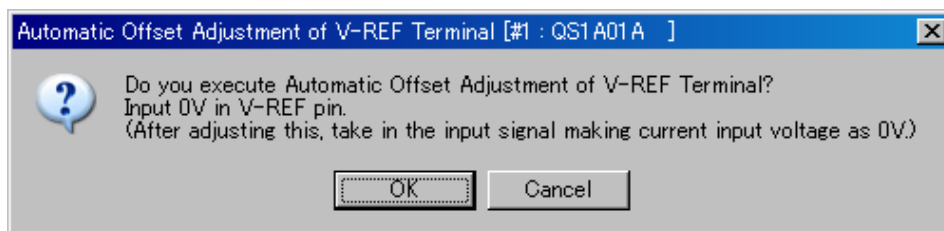
This is the function for offset adjustment of analog velocity command input terminal (V-REF).

When select “Test Run and Adjustment” - “Automatic Offset Adjustment (V-REF)” in the menu bar of main screen, the following appears. Here performs automatic offset adjustment of analog velocity command/torque command.

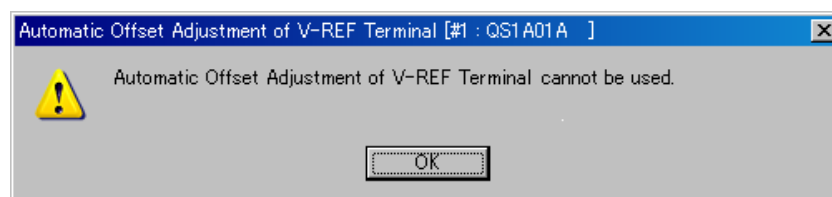


Automatic offset adjustment of analog velocity command/torque command is performed as follows.

1. Select the axis number of servo amplifier performing automatic offset adjustment of analog velocity command/torque command in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.



For the servo amplifier which automatic offset adjustment of analog velocity command/torque command is not functioned, the following dialog box appears when click “OK”.



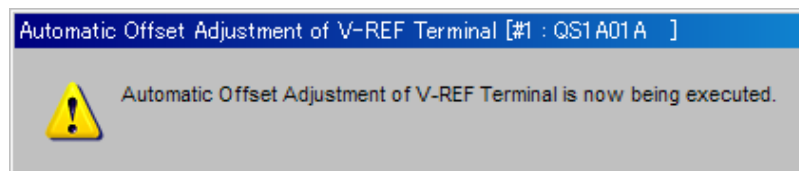
This servo amplifier can not execute automatic offset adjustment of analog velocity command/torque command.

When servo amplifier is not ready, the following dialog box appears.

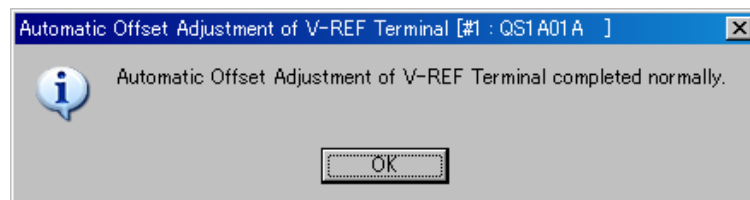


Automatic offset adjustment of analog velocity command/torque command is not ready.
In case "Test Run and Adjustment" is executed with digital operator, automatic offset adjustment of analog velocity command/torque command is not ready.
When confirming that automatic offset adjustment of analog velocity command/torque command is enabled, click "Execute" again.

When servo amplifier is ready, the following dialog box appears and executes automatic offset adjustment of analog velocity command/torque command.



3. When automatic offset adjustment of analog velocity command/torque command completes normally, "Now executing" disappears and the following dialog box appears.



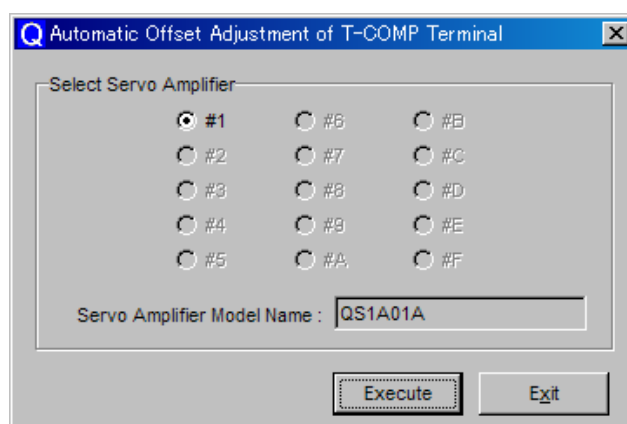
When automatic offset adjustment of analog velocity command/torque command can not complete normally, the following dialog box appears.



3.20. Automatic Offset Adjustment of T-COMP Terminal

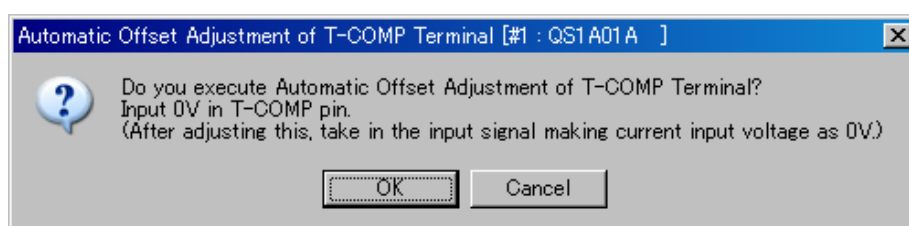
This is the function for offset adjustment of analog torque addition command input terminal (T-COMP).

When select “Test Run and Adjustment” - “Automatic Offset Adjustment (T-COMP)” in the menu bar of main screen, the following appears. Here performs automatic offset adjustment of analog torque addition command.

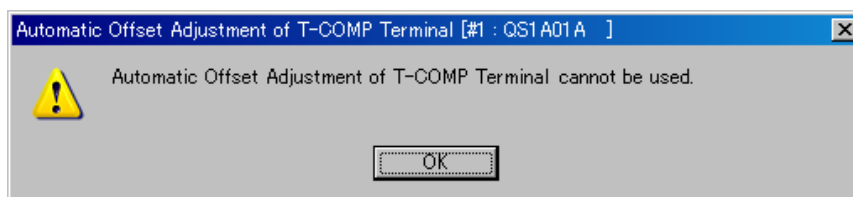


Automatic offset adjustment of analog torque addition command is performed as follows.

1. Select the axis number of servo amplifier performing automatic offset adjustment of analog torque addition command in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

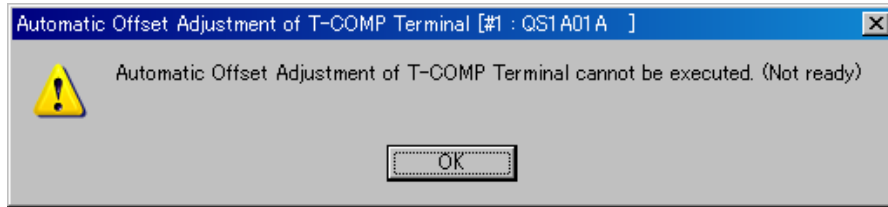


For the servo amplifier which automatic offset adjustment of analog torque addition command is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not execute automatic offset adjustment of analog torque addition command.

When servo amplifier is not ready, the following dialog box appears.

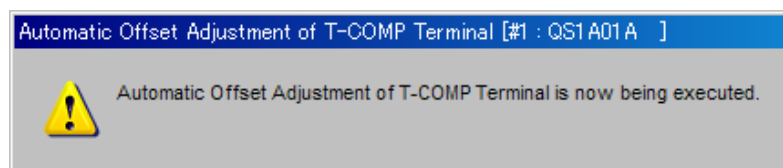


Automatic offset adjustment of analog torque addition command is not ready.

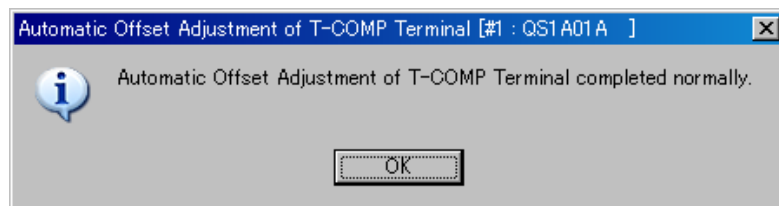
In case "Test Run and Adjustment" is executed with digital operator, automatic offset adjustment of analog velocity command/torque command is not ready.

When confirming that automatic offset adjustment of analog torque addition command is enabled, click "Execute" again.

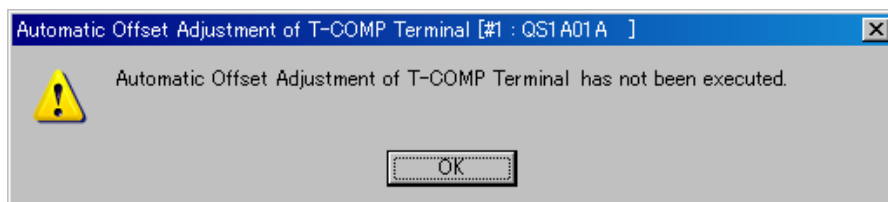
When servo amplifier is ready, the following dialog box appears and execute automatic offset adjustment of analog torque addition command.



3. When automatic offset adjustment of analog torque addition command completes normally, "Now executing" disappears and the following dialog box appears.



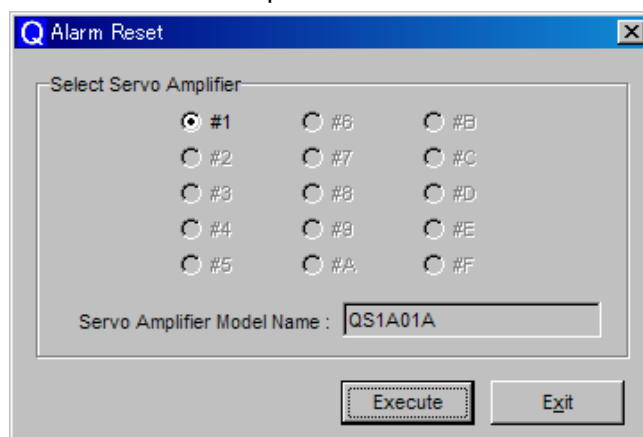
When automatic offset adjustment of analog torque addition command can not complete normally, the following dialog box appears.



3.21.Alarm Reset

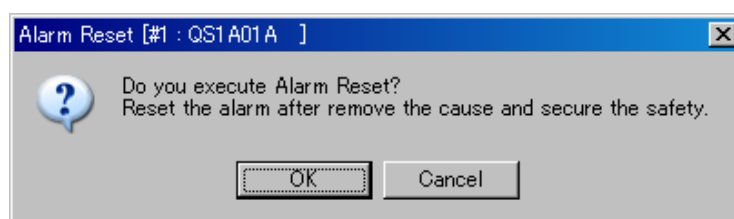
This is the function for resetting alarm state of servo amplifier. This function is equivalent to Alarm Reset (AL-RST) with general purpose input terminal. Some alarm may not be reset.

When select “Test Run and Adjustment” - “Alarm Reset” in the menu bar of main screen or select “Amplifier” and “Alarm Reset” in the menu bar of alarm history, the following appears. Here resets the current alarm of servo amplifier.

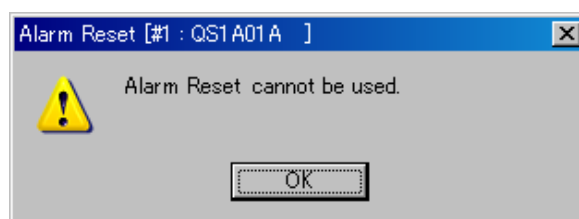


Alarm reset is performed as follows.

1. Select the axis number of servo amplifier performing alarm reset in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

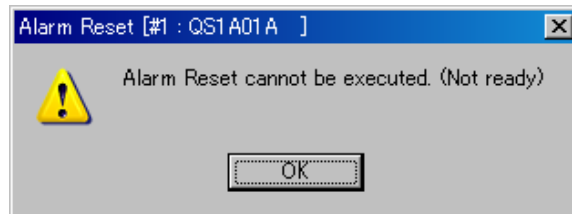


For the servo amplifier which alarm reset is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not execute alarm reset.

When servo amplifier is not ready, the following dialog box appears.



Alarm reset is not ready.

In case "Test Run and Adjustment" is executed with digital operator, alarm reset is not ready.

When confirming that alarm reset is enabled, click "Execute" again.

When servo amplifier is ready, the following dialog box appears and execute alarm reset.



3. When alarm reset completes normally, "Now executing" disappears and the following dialog box appears.



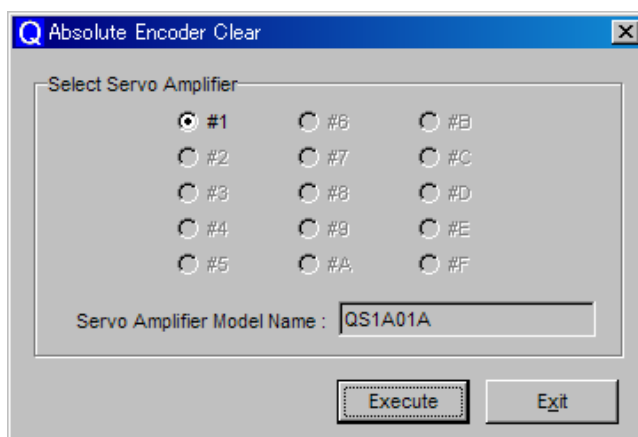
When alarm reset can not complete normally, the following dialog box appears.



3.22.Absolute Encoder Clear

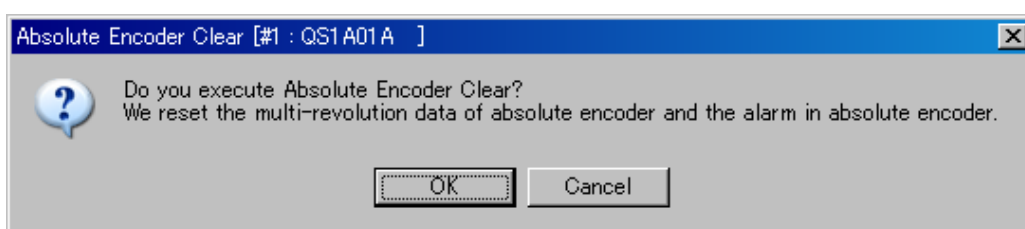
This is a function for absolute encoder clear. This is equivalent to absolute encoder clear (ECLR) function.

When select “Test Run and Adjustment” - “Absolute Encoder Clear” in the menu bar of main screen, the following appears. Here resets the multi-revolution data and the alarm in absolute encoder.

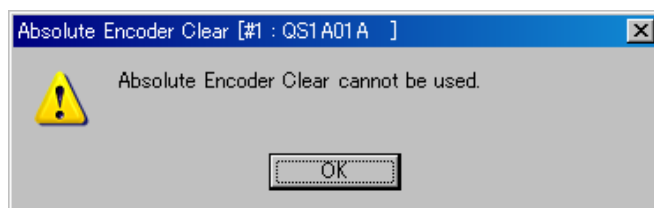


Absolute encoder clear is performed as follows.

1. Select the axis number of servo amplifier performing absolute encoder clear in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

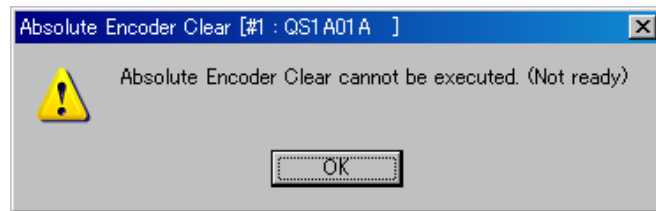


For the servo amplifier which absolute encoder clear is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not execute absolute encoder clear.

When servo amplifier is not ready, the following dialog box appears.

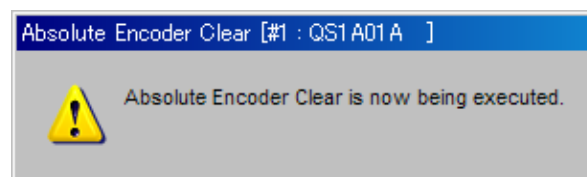


Absolute encoder clear is not ready.

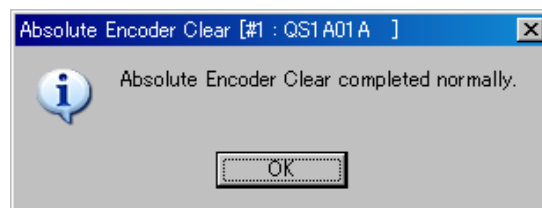
In case "Test Run and Adjustment" is executed with digital operator, alarm reset is not ready.

When confirming that absolute encoder clear is enabled, click "Execute" again.

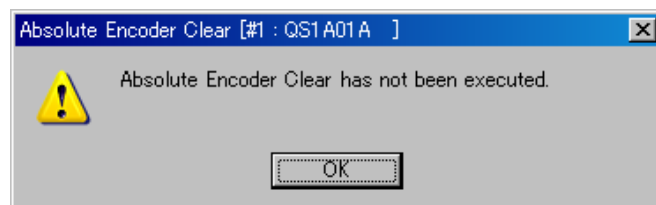
When servo amplifier is ready, the following dialog box appears and execute absolute encoder clear.



3. When absolute encoder clear completes normally, "Now executing" disappears and the following dialog box appears.



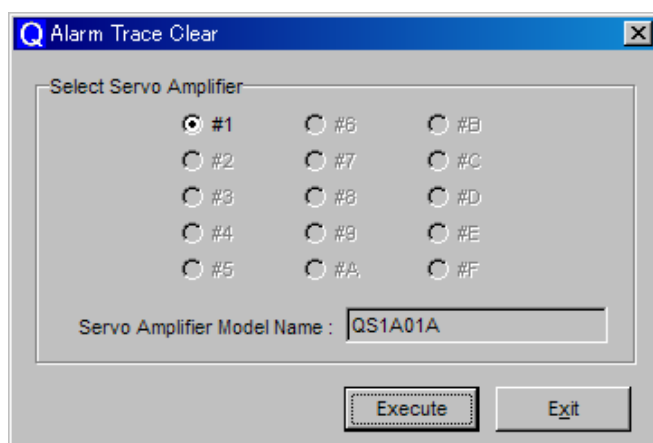
When absolute encoder clear can not complete normally, the following dialog box appears.



3.23.Alarm Trace Clear

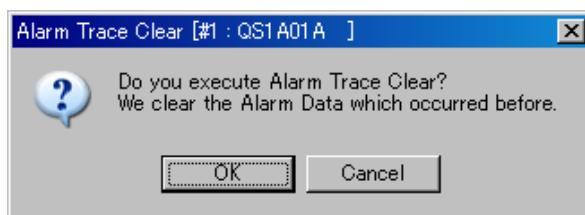
This is a function for deleting the past alarm saved in servo amplifier.

When select “Amplifier” - “Alarm Trace Clear” in the menu bar of alarm history, the following appears. Here clears the past alarm generated in servo amplifier.



Alarm trace clear is performed as follows.

1. Select the axis number of servo amplifier performing alarm trace clear in “Select Servo Amplifier”.
2. When click “Execute”, the following appears.

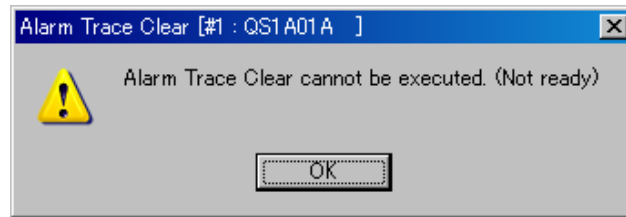


For the servo amplifier which alarm trace clear is not functioned, the following dialog box appears when click “OK”.



This servo amplifier can not execute alarm trace clear.

When servo amplifier is not ready, the following dialog box appears.

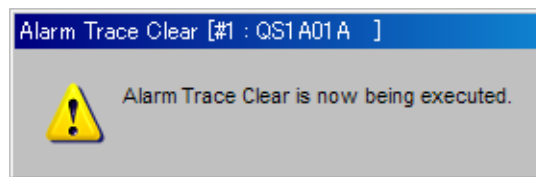


Alarm trace clear is not ready.

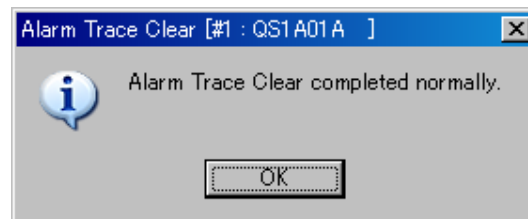
In case "Test Run and Adjustment" is executed with digital operator, alarm reset is not ready.

When confirming that alarm trace clear is enabled, click "Execute" again.

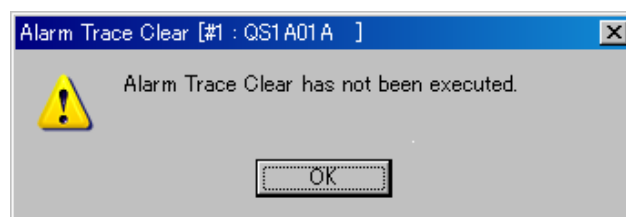
When servo amplifier is ready, the following dialog box appears and execute absolute encoder clear.



3. When alarm trace clear completes normally, "Now executing" disappears and the following dialog box appears.

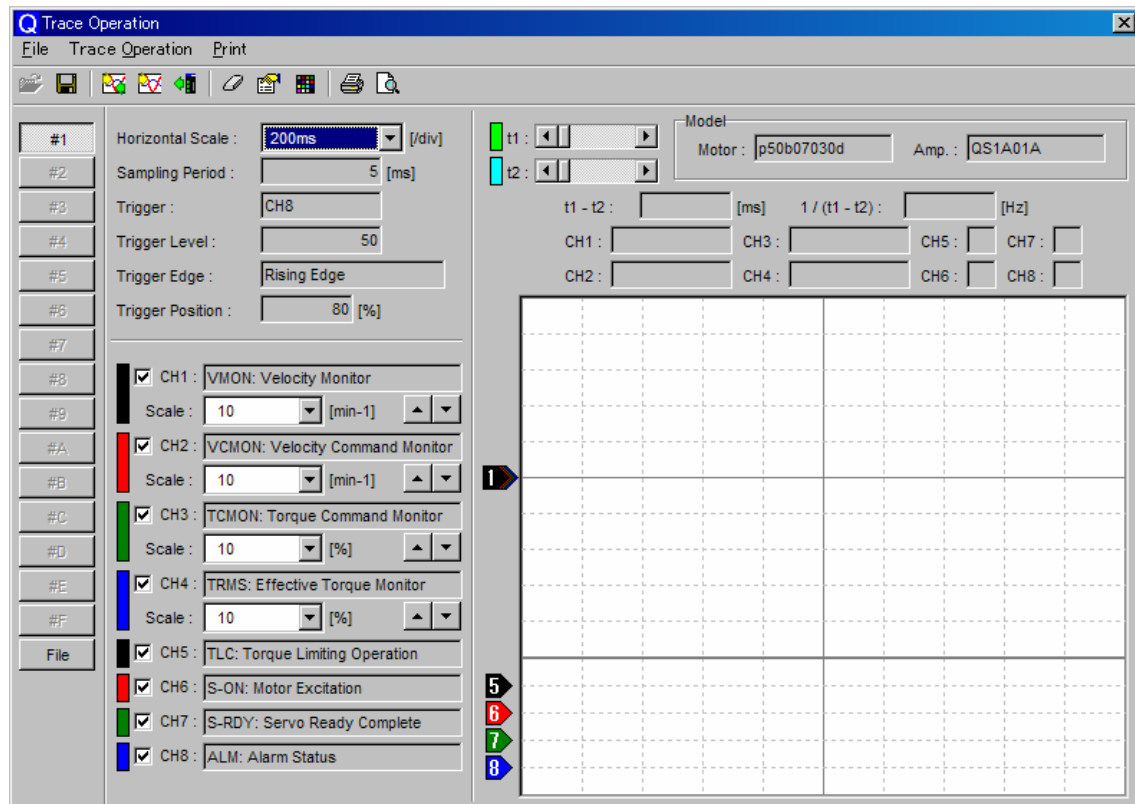


When alarm trace clear can not complete normally, the following dialog box appears.



3.24.Trace Operation

When select “ Trace Operation” - “Trace Operation” in the menu bar of main screen, the following appears. Here displays and saves the trace operation data.



Click either one from [#1] to [#F] in the left of Trace Operation, and the corresponding servo amplifier is displayed. Click [File], and the screen switches to trace operation data saved in the file.

There are two different usages in Trace Operation. There are two changeable modes by trace operation setting.

- Trace mode: Saved data in the servo amplifier is read and displayed in waveform.
- Scroll mode: Data is periodically read from the servo amplifier and displayed in waveform.

- Horizontal scale

Indicates the horizontal setting of the displayed data. The horizontal setting of the displayed data can be changed.

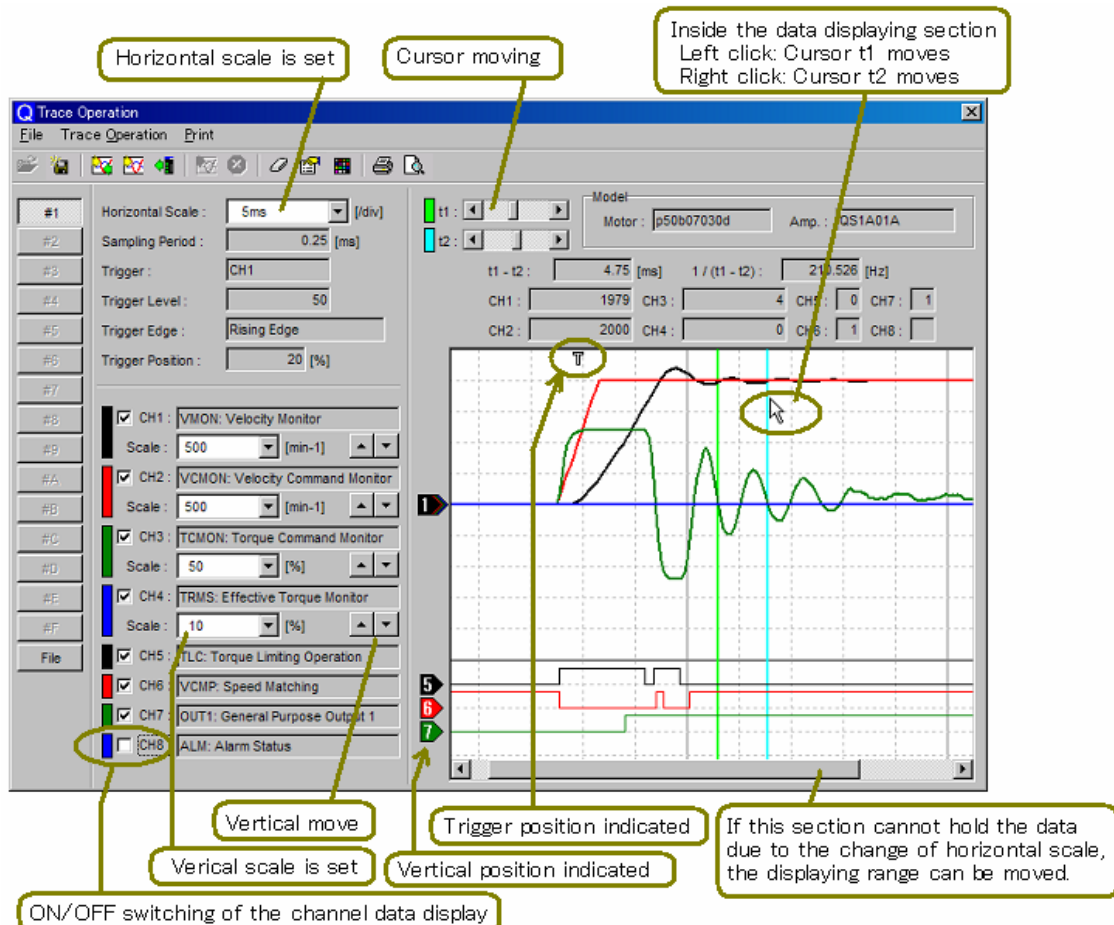
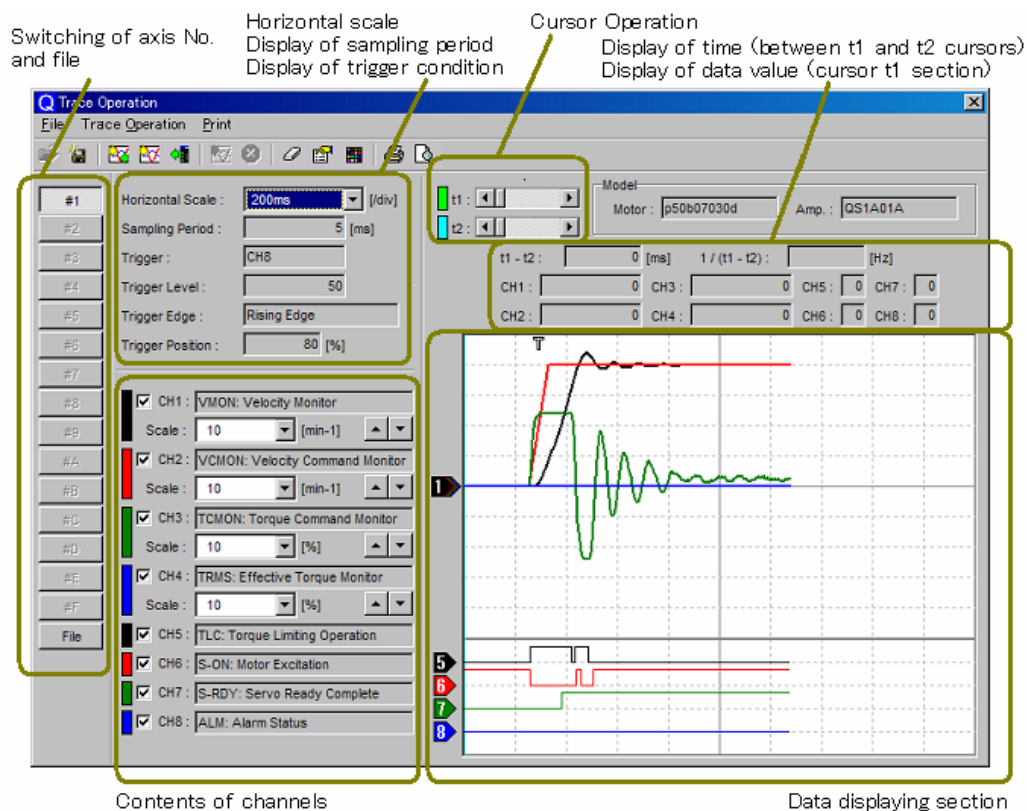
- Sampling period

Indicates sampling period setting of displayed data.

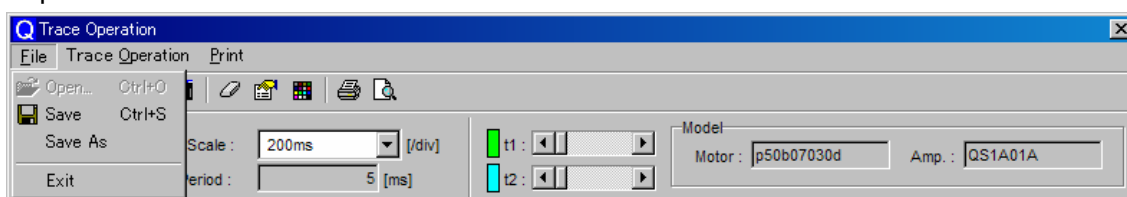
- Trigger
Indicates trigger signal (trigger channel) setting of displayed data.
- Trigger level
Indicates the trigger level setting of displayed data.
- Trigger edge
Indicates the trigger edge setting of displayed data.
- Trigger position
Indicates the trigger position of displayed data.

- CH1, CH2, CH3, CH4
Indicates the data contents, vertical scale, and displayed color per channel.
Vertical scale, vertical position, and data display ON/OFF per channel can be changed.
- CH5, CH6, CH7, CH8
Indicates the data contents and displayed color per channel.

- t1
Indicates the displayed color and horizontal position of t1 cursor.
t 1 cursor can be moved by scroll bar. (When left-click on the data, t1 cursor moves to its position.)
- t2
Indicates the displayed color and horizontal position of t2 cursor.
t 2 cursor can be moved by scroll bar. (When left-click on the data, t2 cursor moves to its position.)
- t1 and t2
Indicates the duration between t1 and t2 cursors.
- 1/ (t1 and t2)
Indicates the reciprocal number of the duration between t1 and t2 cursors.
- CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8
Indicates the data of t1 cursor in value.
- ※ In scroll mode, horizontal scale is fixed by sampling period setting.
- ※ In scroll mode, trigger related contents will not be displayed.
- ※ While monitoring scroll mode, there is no numerical display of cursor operation and cursor position.

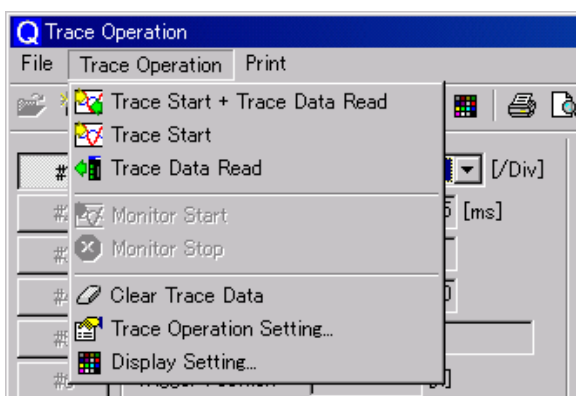


Each function of trace operation can be accessed by selecting it in the menu bar of Trace Operation.

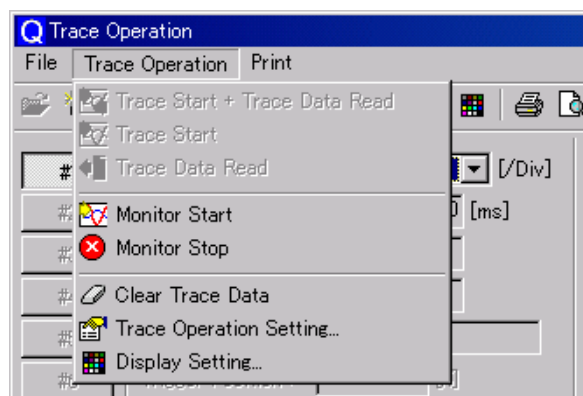


[File]

- Open : Open the trace operation data stored in the file.
 ※Possible to select it only at displaying trace operation data saved in a file.
- Save : Save the trace operation data which is now being displayed.
- Save As: Save the trace operation data which is now being displayed as the other name in a file.
- Exit: Exit trace operation.



Left) In Trace mode



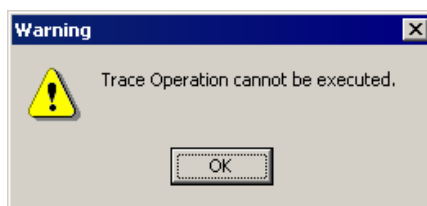
Right) In Scroll mode

[Trace Operation (F)]

- Trace Start + Trace Data Read : Directs the trace start (data sampling start) to servo amplifier. Monitors data sampling status of servo amplifier. When completing sampling, read the trace operation data from servo amplifier and indicate it.
 ※Possible to select it only at displaying trace operation data of servo amplifier.
 ※Possible to select only at “Trace Mode” for trace mode select in trace operation setting of servo amplifier.
- Trace Start : Directs the trace start (data sampling start) to servo amplifier.
 ※Possible to select it only at displaying trace operation data of servo amplifier.
 ※Possible to select only at “Trace Mode” for trace mode select in trace operation setting of servo amplifier.

- Trace Data Read : Monitors data sampling status of servo amplifier. When completing sampling, read the trace operation data from servo amplifier and indicate it. If data sampling keeps, continues to monitor it.
 ※Possible to select it only at displaying trace operation data of servo amplifier.
 ※Possible to select only at “Trace Mode” for trace mode select in trace operation setting of servo amplifier.
- Monitor Start : Reads data continuously from the servo amplifier and starts displaying scroll mode data.
 ※Possible to select it only at displaying trace operation data of servo amplifier.
 ※Possible to select only at “Scroll Mode” for trace mode select in trace operation setting of servo amplifier.
- Monitor Stop : Stops displaying scroll mode data (Stops updating the display).
 ※Possible to select it only at displaying trace operation data of servo amplifier.
 ※Possible to select only at “Scroll Mode” for trace mode select in trace operation setting inside the servo amplifier.
- Clear Trace Data : Deletes the trace operation data in servo amplifier. Deletes the trace operation data which is being displayed.
 ※Possible to select it only at displaying trace operation data of servo amplifier.
- Trace Operation Setting : Sets the trace operation for servo amplifier.
 ※Possible to select it only at displaying trace operation data of servo amplifier.
- Display Setting : Sets the trace operation and the color at printing.

Note: Some servo amplifiers do not apply to the trace operation function depending on the type and the version. In those not applying, the following screen appears when selecting “Trace Start + Trace Data Read”, “Trace Start”, “Monitor Start”, and “Trace Operation Setting”.



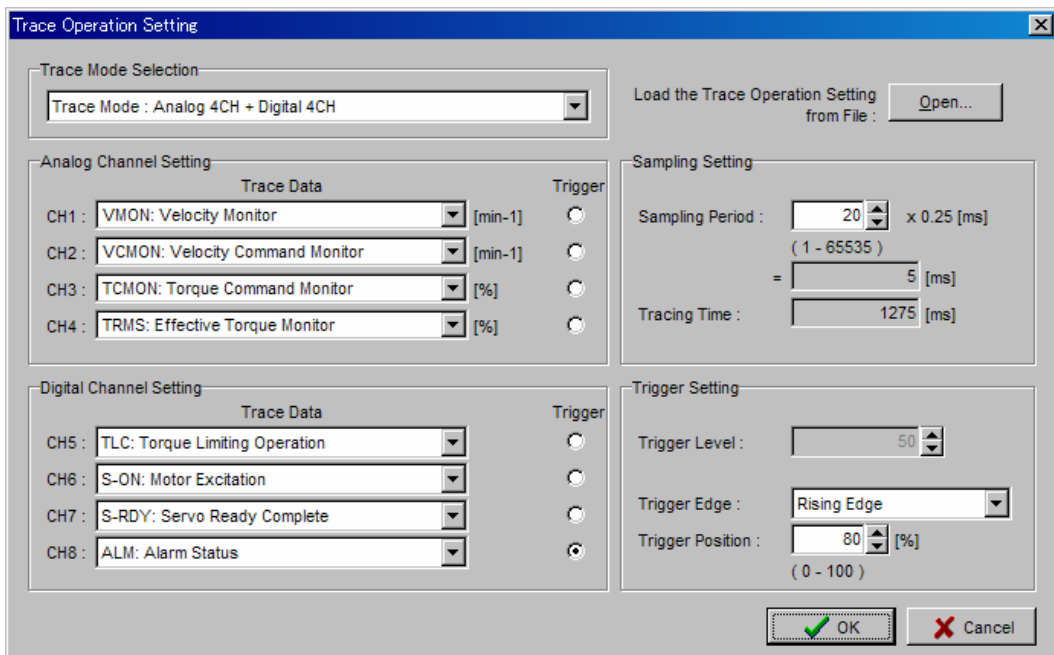


[Print]

- Print : Print the trace operation data which is being displayed.
※Impossible to select it when the trace operation data is not displayed.
- Print Preuiew : Indicates the print image of trace operation data which is now being displayed.
※Impossible to select it when the trace operation data is not displayed.

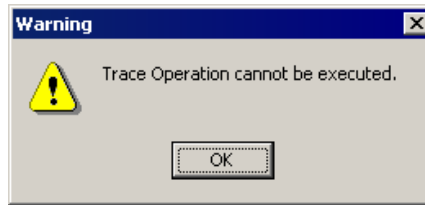
3.24.1. Trace Operation Setting

When click “Trace Operation” and “Trace Operation Setting (E)”, the following appears. Here sets the contents of trace operation.



When click “OK” after entering the contents, update them and start the trace. Click “Cancel” in case the setting is not updated.

When executing trace setting for the servo amplifiers that do not apply to the trace operation function, the following screen appears. Trace operation function cannot be used.



- Access the setting condition.
Click "Open" and select the stored trace operation data file. Read the stored trace operation data.
- Select the trace mode.
Select the trace operation mode among the following.
 - Scroll mode :
2 channel analog data and 2 channel digital data can be monitored by scroll mode. Possible to obtain 1000 data per channel at the minimum sampling period of 50ms. (Minimum sampling period may be different depending on the servo amplifier type.)
 - Trace mode : Analog 4CH + Digital 4CH
Trace the analog and digital data of 4 channel. 256 data per channel can be obtained.
 - Trace mode : Analog 2CH + Digital 2CH
Trace the analog and digital data of 2 channel. 512 data per channel can be obtained.
 - Trace mode : Analog 1CH + Digital 1CH
Trace the analog and digital data of 1 channel. 1,024 data per channel can be obtained.
- Analog setting
Selects the data contents of CH1 to CH4. Selects the trigger signal.
Analog data is classified under two kinds according to its data length.
 - 2Byte type (In normal font)
 - 4Byte type (In thick font)
4Byte type consumes the memory for 2 channels. Therefore, there are some channels that cannot be set. (In case of setting prohibited, setting contents will be displayed in pale color.) When select the 4Byte type data in CH1 to CH3, the next channel can not be used. (E.g. When selects 4Byte type in CH2, CH3 can not be used.)
 - Cannot set to the largest numbered channel of each mode.
Setting to CH4 prohibited at "Trace Mode : Analog 4CH + Digital 4CH".
Setting to CH2 prohibited at "Trace Mode : Analog 2CH + Digital 2CH".
Setting to CH2 prohibited at "Scroll Mode".
 - 4Byte type data cannot be designated at "Trace Mode : Analog 1CH + Digital 1CH".

- Digital setting
Select the data contents of CH5 to CH8. Selects the trigger signal.
- Sampling setting
Sets the sampling period. Product of the base time and the set value (multiple) becomes the sampling period. The duration enabling trace is displayed according to trace mode selection contents and sampling period setting.
- Trigger condition setting
Set the trigger condition.
 - Trigger level : In case the trigger signal is digital data, the setting is not required.
 - Trigger edge
 - Trigger position

3.24.2. Select Contents of Trace Operation Setting

The table below is the explanation of select contents for standard servo amplifier. Select contents may be different from the ones below depending on the amplifier type.

- Trace mode select

Trace mode	Number of monitor channels		Data points at file save (per channel)	Trigger setting	Sampling period setting	Notes
	Analog data	Digital data				
	Note 3				Note 4	
Scroll Mode	2 (CH1, CH2)	2 (CH5, CH6)	1000points	Not possible	50ms or more	Note 1
Trace Mode : Analog 4CH + Digital 4CH	4 (CH1, CH2, CH3, CH4)	4 (CH5, CH6, CH7, CH8)	256points	Possible	0.25ms or more	Note 2
Trace Mode : Analog 2CH + Digital 2CH	2 (CH1, CH2)	2 (CH5, CH6)	512points	Possible	0.25ms or more	Note 2
Trace Mode : Analog 1CH + Digital 1CH	1 (CH1)	1 (CH5)	1024points	Possible	0.25ms or more	Note 2

Note 1. Possible to select at the servo amplifier software version P0.01.2 or onward.

Data is periodically read from the servo amplifier and waveform is updated. When sampling period is set to blow 200ms, the following environment (CPU operation frequency) is recommended.

Data sampling period setting = 50ms or above, below 100ms.: CPU operation frequency 800MHz or above.

Data sampling period setting = 100ms or above, below 200ms.: CPU operation frequency 350MHz or above.

Data sampling period setting = 200ms or above. : CPU operation frequency 133MHz or above.

Even if recommended environment is met, display sometimes becomes abnormal. This abnormality may be resolved by reducing the load of PC, such as by terminating other applications or stopping some resident program.

Note 2. Possible to select at the servo amplifier software version P0.01.0 or onward.

Data is temporarily saved in the servo amplifier. After trigger generation or sampling stop, data is read and

waveform is displayed.

Note 3. The number of monitor channels of analog data is that for monitoring 2Byte type signals. Monitoring 4Byte type signals consumes twice as much the memory for 2Byte type signals (for 2 channels), therefore, the number of monitor channels becomes less. (For details, see the previous page.)

Note 4. The range of sampling period setting may be different depending on the servo amplifier type.

● Analog CH select contents

Select contents Note 2	Data type (Data length)	Data range Note 3	Unit Note 4	Notes
VMON: Velocity Monitor	2Byte	-32768 ~ 32767	min-1 [mm/s]	
VCMON: Velocity Command Monitor	2Byte	-32768 ~ 32767	min-1 [mm/s]	
TMON: Torque Monitor [TMON: Force Monitor]	2Byte	-32768 ~ 32767	%	
TCMON: Torque Command Monitor [TCMON: Force Command Monitor]	2Byte	-32768 ~ 32767	%	
PMON: Position Deviation Monitor	4Byte	-2147483648 ~ 2147483647	Pulse	
APMON: Actual Position Monitor	4Byte	-2147483648 ~ 2147483647	Pulse	
CPMON: Command Position Monitor	4Byte	-2147483648 ~ 2147483647	Pulse	
FMON : Position Command Pulse Monitor (Position Command Pulse Input Frequency)	2Byte	-32768 ~ 32767	Pulse	
Sine U	2Byte	-32768 ~ 32767	--	Note 5
PS-H: Absolute Encoder PS (High)	4Byte	0 ~ 4294967295	x2^32 P	
PS-L: Absolute Encoder PS (Low)	4Byte	0 ~ 4294967295	Pulse	
RegR: Regenerative Resistor Operation Ratio	2Byte	0 ~ 65535	0.01%	
TRMS: Effective Torque Monitor [TRMS: Effective Force Monitor]	2Byte	0 ~ 65535	%	
JRAT_MON : Control Loop Parameter_Load Inertia Moment Ratio Monitor [JRAT_MON : Control Loop Parameter_Load Mass Ratio Monitor]	2Byte	0 ~ 65535	%	
TLMON_EST: Load Torque (Estimated Value) [TLMON_EST: Load Force (Estimated Value)]	2Byte	-32768 ~ 32767	%	
PMON_S: Position Deviation Monitor (2Byte)	2Byte	-32768 ~ 32767	Pulse	Note 6

Note 1. The select contents above show when the standard type servo amplifier is combined with Q-Setup.
For details of each signal, refer to "Explanation of Parameter" in the Servo Amplifier Instruction Manual.

Note 2. Words in parentheses are for linear system.

Note 3. Data range in this table shows the range where waveform display is possible.

If servo amplifier deals with smaller range than the above, display is only within the range that servo amplifier can deal with.

Note 4. Unit equivalent to 1LSB.

Units in parentheses are for linear system.

Note 5. Outputs Sin U (U phase electric angle).

When U phase electric angle = 0 deg., monitor data = 0.

When U phase electric angle = 90 deg., monitor data = 32767 (Peak at positive direction of sine waveform)

When U phase electric angle = 270 deg., monitor data = -32767 (Peak at negative direction of sine waveform)

Note 6. Selectable at the servo amplifier software version P0.01.2 or onward.

When position deviation becomes -32768 or below, data always show -32768.

When position deviation becomes 32767 or above, data always show 32767.

● Digital CH select contents

Select contents	Explanation of signal	Notes
Note 1		
CONT1: General Purpose Input1	Indicates input signal state of general purpose input (CONT1~8) terminal. "High" • Input photo coupler ON (CONT1~6) • During negative logic signal input (CONT7,8) "Low" • Input photo coupler OFF (CONT1~6) • During positive logic signal input (CONT7,8)	
CONT2: General Purpose Input2		
CONT3: General Purpose Input3		
CONT4: General Purpose Input4		
CONT5: General Purpose Input5		
CONT6: General Purpose Input6		
CONT7: General Purpose Input7		
CONT8: General Purpose Input8		
OUT1: General Purpose Output1	Indicates the state of general purpose output (OUT1~8) terminal. "High" • Output transistor OFF "Low" • Output transistor ON	Note 2
OUT2: General Purpose Output2		
OUT3: General Purpose Output3		
OUT4: General Purpose Output4		
OUT5: General Purpose Output5		
OUT6: General Purpose Output6		
OUT7: General Purpose Output7		
OUT8: General Purpose Output8		
INP: In-Positioning	"High" during positioning complete state.	
NEAR: In-Position Near	"High" during near range state.	
VCMP: Speed Matching	"High" during velocity conformity state.	
TLC: Torque Limiting Operation [TLC: Force Limiting Operation]	"High" during torque (force) limit operation.	
VLC: Velocity Limiting Operation	"High" during velocity limit operation.	
S-ON: Motor Excitation	"High" during motor excitation.	
S-RDY: Servo Ready Complete	"High" during operation ready complete.	
CMD-ACK: Command Can be Accepted	"High" during command receive permit state.	
PCON-ACK : During Velocity Loop Proportional Control	"High" during velocity loop proportional integration control state.	
GC-ACK: During Electric Gear Switching	"High" during electric gear switching state.	
WNG-OFW: Following Warning	"High" during excessive deviation warning.	
WNG-OLW: Over Load Warning	"High" during over load warning.	
ALM: Alarm State	"High" during alarm state.	

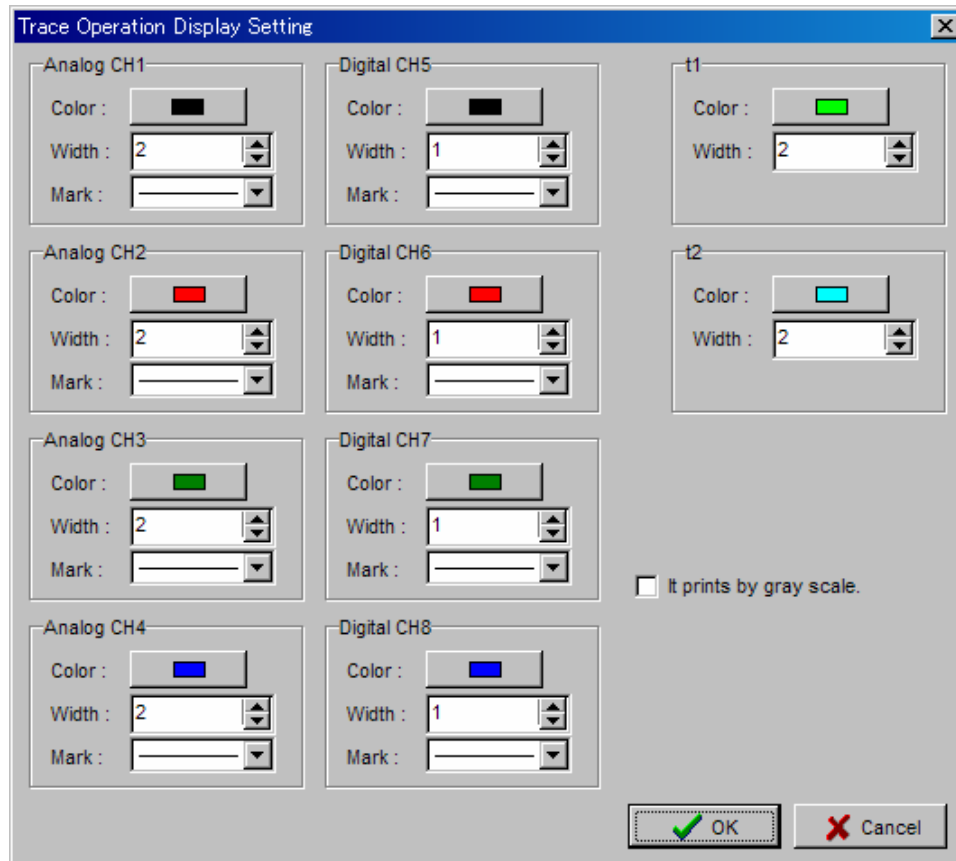
Note1. The select contents above show when the standard type servo amplifier is combined with Q-Setup.

Note2. Logic is reverse to the monitor display (monitor display page 04 of Q-Setup).

State of output transistor	Q-SETUP	
	Trace Operation digital data OUT*: General Purpose Output*	Monitor Display page 04 OUT8-1: General Purpose Output OUT8~1Monitor
Output transistor OFF	"High"	"0"
Output transistor ON	"Low"	"1"

3.24.3. Trace Operation Display Setting

When click “Trace Operation” - “Display Setting”, the following appears. Here sets the data display of trace operation.



When click “OK” after entering the contents, update them and start the trace. Click “Cancel” in case the setting is not updated.

- Analog CH1 to Digital CH8
Select the color, width, and mark in data display.
- t1, t2
Select the color and width in cursor display.
- Print by gray scale.
When check this, display all colors in the tone of black/white at printing.

3.24.4. How to Use Trace Mode of Trace Operation Function

This section explains how to use trace mode of trace operation function.

1. Set the trace operation.

Open the trace operation setting by selecting “Trace Operation” - “Trace Operation Setting (E)” in the menu bar of trace operation. Select “Trace Mode : . . .” at “Trace Mode Select”. Set others as necessary. After inputting, click “OK” to update the setting.

2. Start the trace. (In case of using “Trace Start” and “Trace Data Read”)

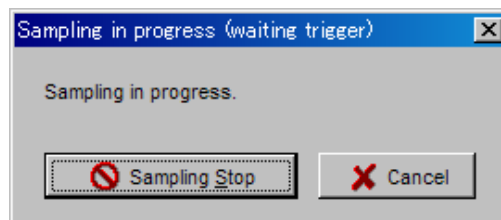
When select “Trace Operation” - “Trace Start” in the menu bar of trace operation, start the trace. Although servo amplifier starts sampling, the display of setup software remains unchanged.

Once servo amplifier starts sampling, it continues until trigger is generated or the control power is shut off. (Sampling continues even after terminating the setup software or cutting off the cable.) After trigger generation, the data can be read by using “Trace Data Read...”.)

3. Read the data and display it. (In case of using “Trace Start” and “Trace Data Read”)

When select “Trace Operation” - “Trace Data Read” in the menu bar of trace operation, read the trace data.

- In case of sampling in progress (waiting trigger), the following appears.



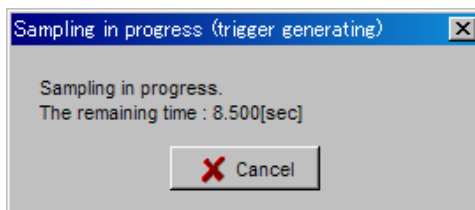
Servo amplifier is sampling the data while waiting the trigger.

When click “Sampling Stop”, stops sampling. (This detects the trigger falsely.)

When click “Cancel”, this dialog box is closed. Even if click “Cancel”, servo amplifier continues sampling.

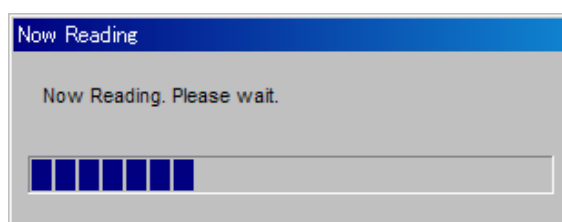
When the trigger is detected, switch to the dialog box after trigger is generating.

- When sampling in progress (after trigger generating), the following appears.



Servo amplifier is sampling the data. “The remaining time” displays that of sampling. When the remaining time is 0 [sec], switch to “Now Reading”.

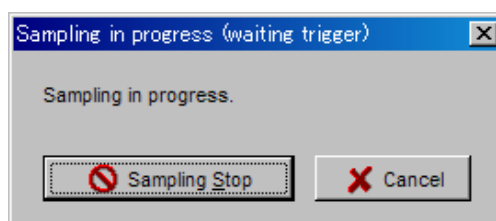
- When sampling is completed, the following appears.



Reading the sampling data from servo amplifier. When the reading is completed normally, “Now Reading” disappears and trace operation data is displayed.

4. Execute Trace Start and Trace Data Read continuously. (When use “Trace Start+Trace Data Read”)

When select “Trace Operation” - “Trace Start+Trace Data Read ” in the menu bar of trace operation, start the trace. When the trace starts, the following appears.



Servo amplifier is sampling the data while waiting trigger generation.

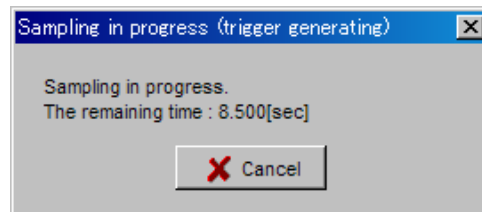
When click “Sampling Stop”, stops sampling. (This detects the trigger falsely.)

When click “Cancel”, this dialog box is closed. Even if click “Cancel”, servo amplifier continues sampling.

Once servo amplifier starts sampling, it continues until trigger is generated or the control power is shut off. (Sampling continues even after terminating the setup software or cutting off the cable.)

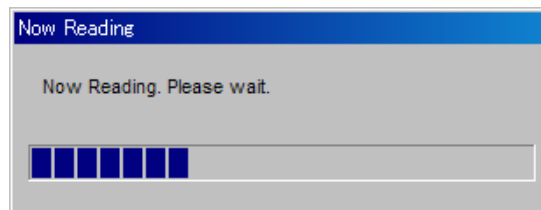
After trigger generation, the data can be read by using “Trace Data Read”.)

When the trigger is detected, the following dialog box appears.



Servo amplifier is sampling the data.

“The remaining time” displays the period until the sampling completes. When the remaining time is 0[sec], the following dialog box appears.



Reading the sampling data from servo amplifier. When the reading is completed normally, “Now Reading” disappears and trace operation data is displayed.

5. Trace operation data display in progress

When trace operation data read is complete and the data is displayed on the screen, following operations are possible.

- Saving trace operation data.
- Cursor Operation.
- Expanding horizontal range.
- Changing vertical axis range for each channel. ON/OFF of the vertical and data.

3.24.5. How to Use Scroll Mode of Trace Operation Function

This section explains how to use scroll mode of trace operation function.

1. Set the trace operation setting.
Open the trace operation setting by selecting “Trace Operation” - “Trace Operation Setting (E)” in the menu bar of trace operation. Select “Scroll Mode” at “Trace Mode Select”. Set others as necessary. After inputting these, click “OK” to update the setting.
2. Select “Trace Operation” – “Monitor Start...” in the menu bar of trace operation to start the monitor. Read the data for each sampling period from the servo amplifier and update the data displaying screen. Monitoring operation (data read, updating data displaying screen) continues until monitoring stops or any stop occurs due to communication error.

During monitoring operation, following operations are possible.

- Changing vertical axis range for each channel. ON/OFF of the vertical and data.

Depending on the sampling period setting, data display on the screen may be broken. This phenomena occurs when communication or displaying transaction is not in time for the sampling period setting. Reduce the load of PC by terminating other applications or stop resident program. If not improved by these measures, change the sampling period setting. When broken display (data missing) occurs very frequently, monitoring may stop. Note that display is broken when menu bar is opened during monitor operation.

3. Select “Trace Operation” – “Monitor Stop” to stop monitoring.

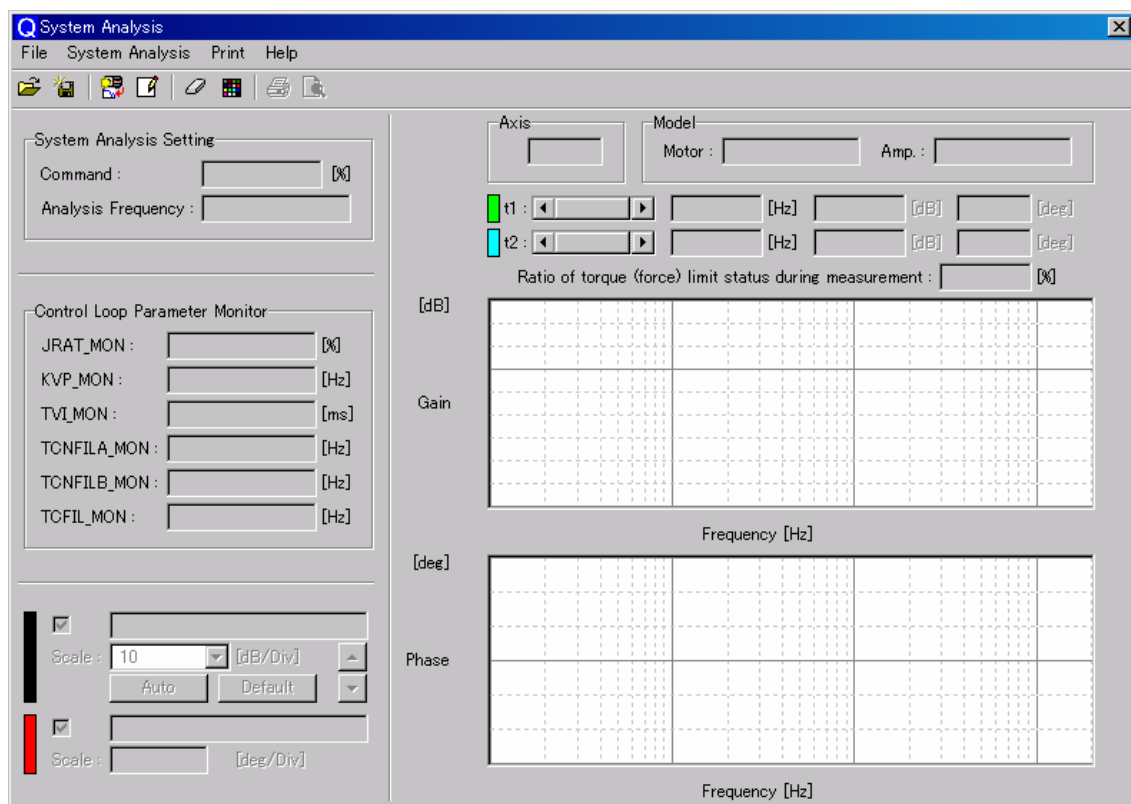
During monitor stop, following operations are possible.

- Saving trace operation data.
- Cursor operation.
- Changing vertical axis range for each channel. ON/OFF of the vertical and data.

3.25. System Analysis

In the system analysis, system can be easily analyzed by operating servo amplifier and servomotor for the duration from hundreds ms to tens seconds. This function operates the servomotor, therefore, take care for safety.

Click “Trial Operation and Adjustment” – “System Analysis...” in the menu bar of main screen, and the following system analysis screen appears. System analysis data is displayed and saved here.



- **System analysis setting**
Displays measurement conditions when analysis data now on display is obtained.
- **Control loop parameter monitor**
Displays contents of control loop parameter when analysis data now on display is obtained.
- **Range**
Indicates vertical axis range for Gain and Phase.
Gain can change vertical axis and the vertical. “Auto” and “Default” can automatically adjust the vertical axis range and the vertical.
“Auto” : Adjusts the vertical axis range and the vertical to appropriate setting.
“Default” : Returns the vertical axis range and the vertical to initial setting.

- t 1

Indicates the color of t1 cursor and the horizontal.

When data is displayed, t1 cursor can be moved by scroll bar. (Left click on the data moves the t1 cursor to the position.) There is numerical display for t1 cursor position data (frequency, gain and phase) at the right of t1 scroll bar.

- t2

Indicates the color of t2 cursor and the horizontal.

When data is displayed, t2 cursor can be moved by scroll bar. (Right click on the data moves the t2 cursor to the position.) There is numerical display for t2 cursor position data (frequency, gain and phase) at the right of t2 scroll bar.

- Generation ratio of torque (thrust) limit state while measuring

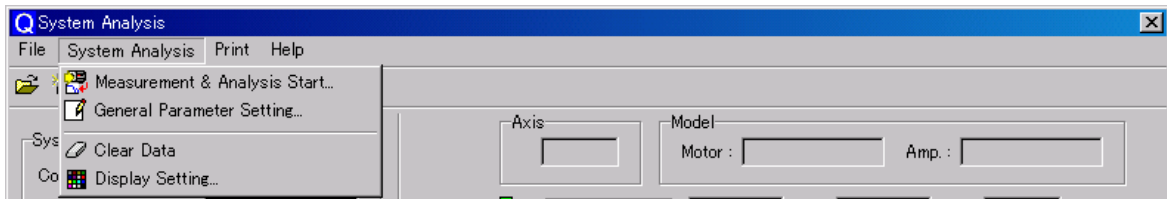
Indicates the generation ratio of torque (thrust) limit state when obtaining analysis data. If this ratio is high, there is a possibility that result of analysis may be different from actual system.

Each function of the system analysis can be accessed by selecting one in the menu bar of system analysis.



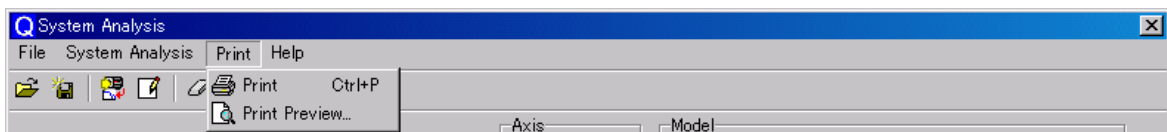
[File]

- Open... : Opens and displays system analysis data file.
- Clear... : Clears the data while system analysis data file is displayed.
 ※ Possible to select only when system analysis data file is displayed.
- Save As (A)... : Saves the displayed data in the file.
 ※ Possible to select only when analysis result data or system analysis data file is displayed.
- Exit (X) : Exits the system analysis.



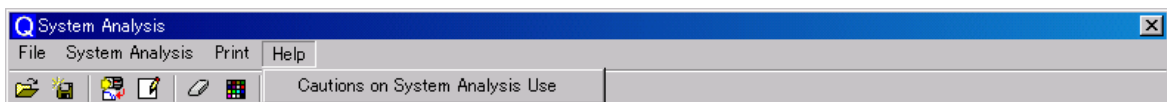
[System Analysis]

- Start Data Measurement & Analysis... : Starts data measurement and analysis.
 - ※ **Possible to select only at online.**
 - ※ **In the reduction installed Q-Setup, selection is possible, however, data measurement/analysis cannot be performed.**
- General Parameter Setting... : Can set general parameters. For procedures, refer to “3.6. General Parameter Setting”
 - ※ **Possible to select only at online.**
- Data Clear : Clears the data on the screen while displaying analysis result.
 - ※ **Possible to select only when analysis result is displayed.**
- Display Setting : Sets the system analysis screen and the color for printing.



[Print]

- Print : Prints the displayed system analysis data.
 - ※ **Do not select this unless system analysis data is displayed on the screen.**
- Print Preview (V) : Displays the image of the displayed system analysis data.
 - ※ **Do not select this unless system analysis data is displayed on the screen**

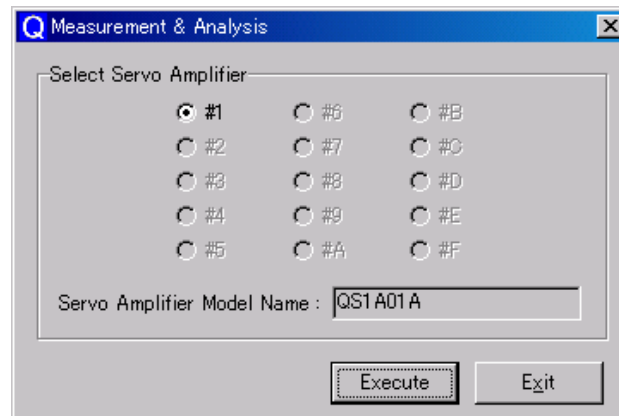


[Help]

- Cautions : Opens a file describing cautions on using the system analysis.
 - ※ **This file is html type, which can be opened where Internet Explorer 4.0 or above is installed.**

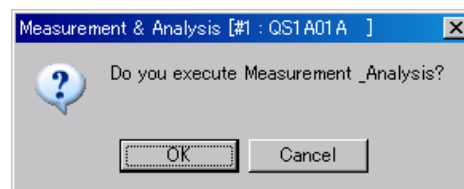
3.25.1. Data Measurement & Analysis Start

Click “System Analysis” – “Data Measurement & Analysis Start...”, and the following screen appears. The motor operates in positive/negative move to measure the data for analysis. After data measurement, analysis can start.

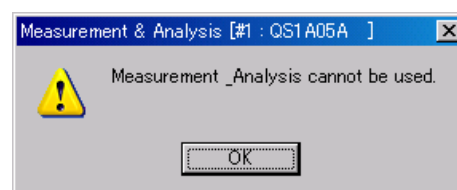


See the following procedure for Data Measurement & Analysis Start.

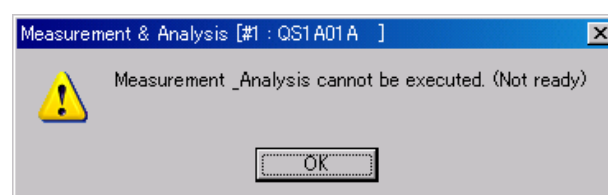
1. Select the axis number for which data measurement & analysis is to be executed in “Servo Amplifier Select”.
2. Click [Execute], and the following screen appears.



Click [OK], and the following screen appears if the servo amplifier does not apply to the system analysis function. In this servo amplifier, system analysis function cannot be used.



When the servo amplifier is not in ready complete state, the following screen appears.



It is not ready for data measurement for system analysis.

Ready not complete state occurs when servo amplifier is in alarm state, when the main circuit power is not supplied, or when “Trial Operation and Adjustment” is being executed by digital operator. When data measurement becomes ready, click [Execute] again.

When servo amplifier is in ready complete state, the following screen appears.

Measurement & Analysis [#1 : QS1A01A]

Select the operation at measurement completing:

☐ At completing, "Alarm of Test Run complete" is not selected.

☒ At completing, "Alarm of Test Run complete" is selected.

System Analysis Setting

Torque (Force) Command : 25 [%] (0 - 200)

Measurement Frequency : 10.0 to 2000 [Hz]

Control Loop Parameter Monitor

JRAT_MON : 100 [%]

KVP_MON : 50 [Hz]

TVI_MON : 20.0 [ms]

TCNFILEA_MON : 2000 [Hz]

TCNFILEB_MON : 2000 [Hz]

TCFIL_MON : 600 [Hz]

Motor Excitation

Servo ON Servo OFF

Execute Measurement

Execute

Note: When use this function, the motor functions.
Execute this operation after securing the safety of surroundings.

Close

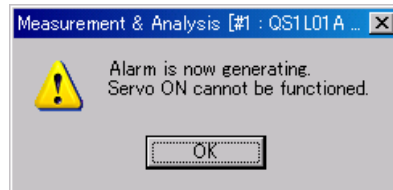
3. Set options at the end of data measurement and system analysis.

If “Trial Operation End Alarm” is to be generated when data measurement ends (when analysis starts), click “Trial Operation End Alarm at End”, and if not, click “No Trial Operation End Alarm at End”.

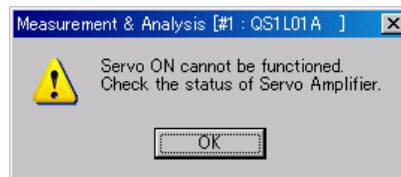
In system analysis setting, torque (thrust) command at data measurement and frequency range to be analyzed are selected.

4. Confirm the control loop parameter that its value is as targeted. (If not, exit “Data Measurement & Analysis Start” once and change the value by general parameter setting.)

- Click [Servo ON], and the following screen appears during alarm generation.

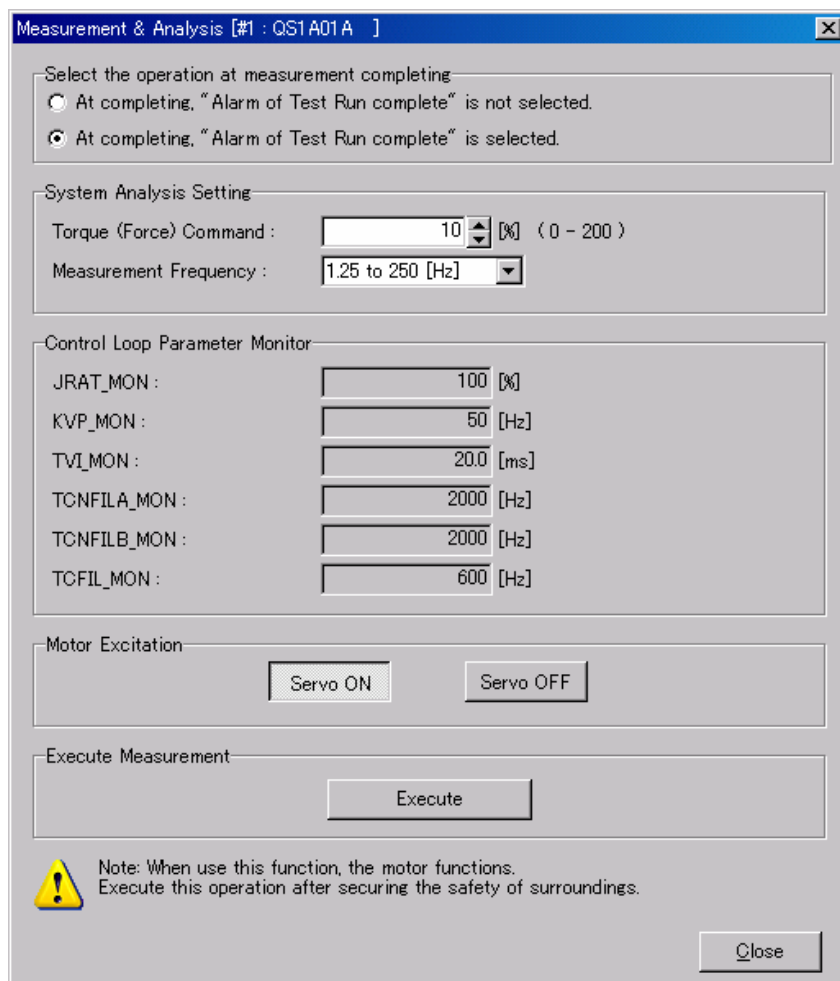


If servo amplifier cannot become Servo ON, the following appears.

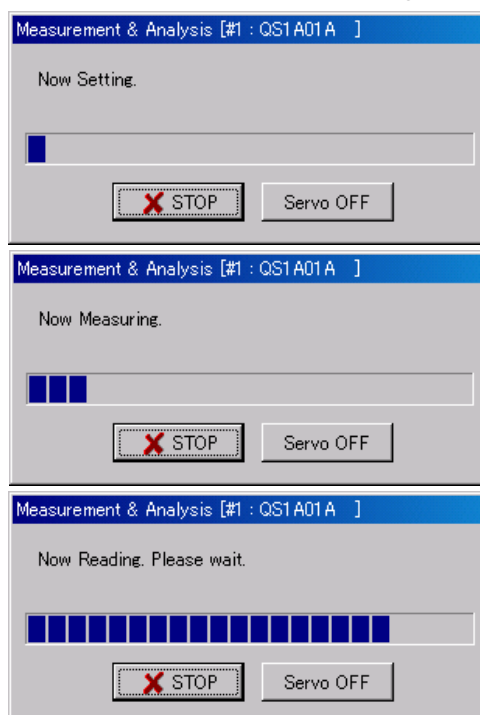


After making it possible, click [Servo ON] again.

At Servo ON state, [Execute] button can be used.



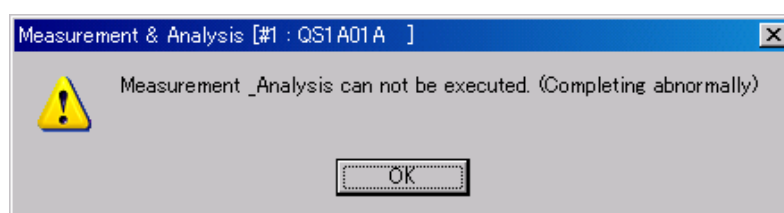
6. Click [Execute], and the followings are displayed and data measurement is executed. Depending on the selected measurement frequency range, data measurement time varies. Therefore, display of “Data measurement in progress” sometimes lasts long.



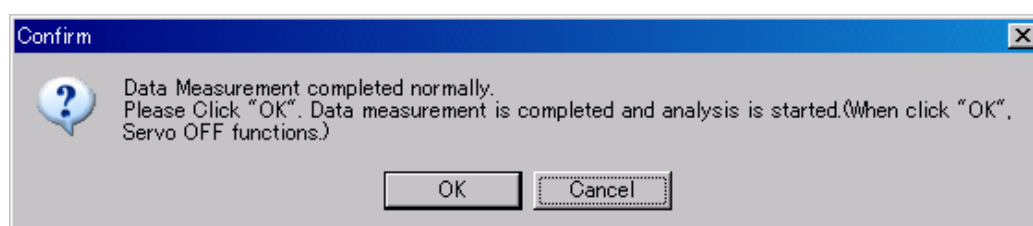
Click [Stop], and the measurement stops with Servo ON state remaining.

Click [Servo OFF], and the measurement stops with Servo OFF.

When data measurement cannot be executed properly due to overtravel generation, the following appears. After removing the cause, execute data measurement again.



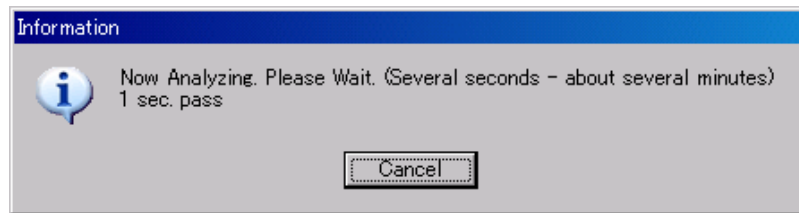
7. When data measurement ends normally, the following appears.



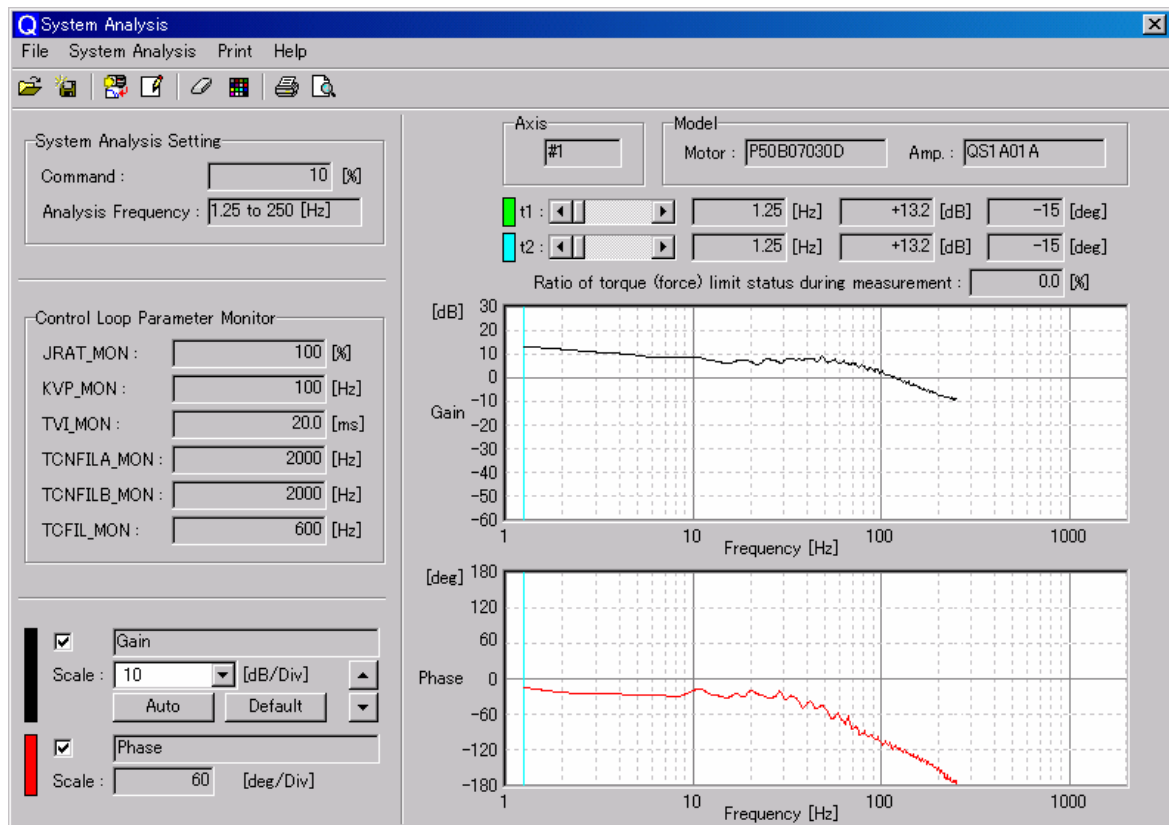
Click [OK], and the following appears and analysis starts with Servo OFF.

Click [Cancel], and the measured data is canceled to return to the state before data

measurement is executed (Servo ON state).



8. When analysis ends normally, the following result is displayed.

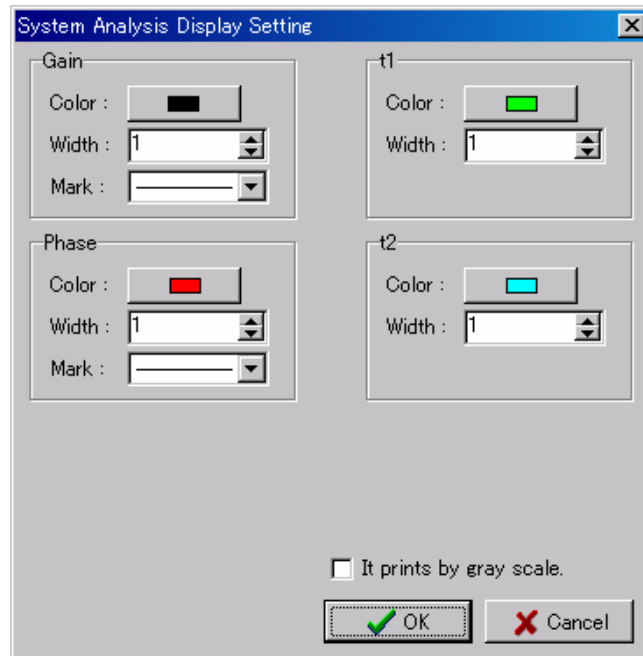


3.25.2. General Parameter Setting

Select “System Analysis” – “General Parameter Setting...”, and the general parameter setting screen appears. Here, general parameter can be set without closing system analysis screen. For the procedure, refer to “3.6. General Parameter Setting”.

3.25.3. Display Setting

Click “System Analysis” – “Display Setting...”, and the following screen appears. Trace operation data display is set here.



Click [OK] after inputting every setting, and the contents are updated and data is displayed again. If the setting is not to be updated, click [Cancel].

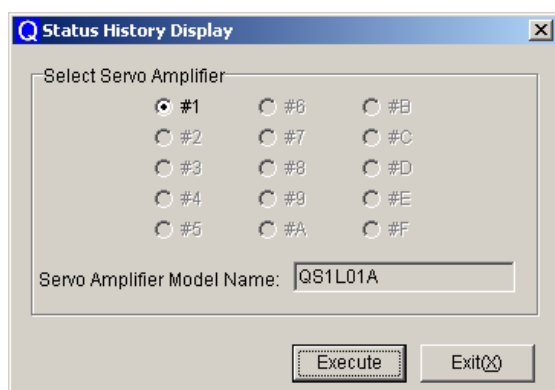
- Gain, Phase
Color of data display, line width and mark are selected.
- t1, t2
Color and line width for cursor display are selected.
- Print in gray scale
At the time of checking and printing, all the colors are displayed in black/white tone.

3.26. Status History Monitor

This function can monitor the status history recorded in the servo amplifier.

It is used only when combined with the servo amplifier with positioning function (Type C).

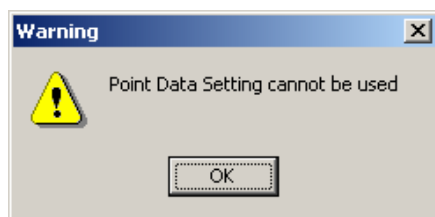
Select “Monitor – Status History ...” from the menu bar on the main screen, and the following screen appears.



The status history is displayed according to the following procedure.

1. Select the axis number of the servo amplifier whose status history is to be displayed from “Servo Amplifier Selection”.
2. Click [Execute].

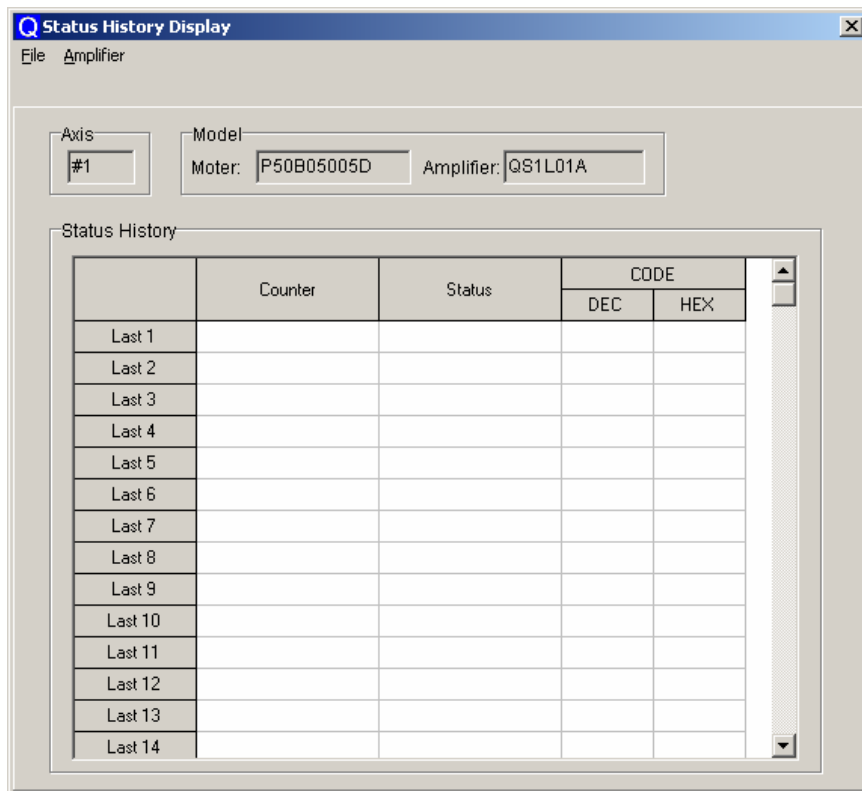
When the target amplifier is not corresponding to the status history monitoring function or ready is not yet complete, the following screen appears.



If the target amplifier is the one with positioning function (Type C) and corresponding to the status history monitoring function, wait for a few seconds and click [Execute] again.

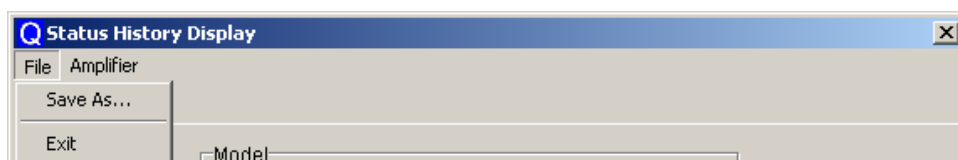
Also the state of ready not complete occurs when “Test Operation and Adjustment” is being executed from the digital operator.

When the servo amplifier is in the ready complete status, the following screen appears.



- **Axis**
Display of the axis number of the amplifier whose status history is being displayed.
- **Model**
Display of the model numbers of the motor and amplifier.
- **Status History**
Display of the status history. The data is read from the amplifier every few seconds and the contents are automatically updated.
* If the amplifier status changes while the data is being read from the amplifier, wrong contents may be displayed. (Check the counter alignment to confirm that the contents are right.)

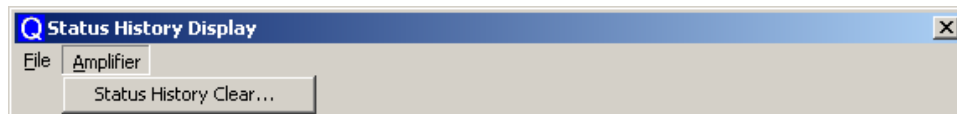
Functions of status history display can be accessed from the menu bar in the status history display screen.



[File]

- **Save As....:** Save the displayed status history in a text file.
- The saved text file cannot be opened in the Q-SETUP set-up software. Use other application corresponding to text file (*.txt) to open it.

- Exit : Exit status history display screen.

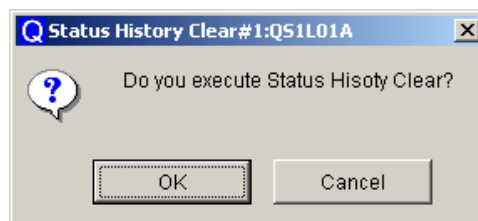


[Amplifier]

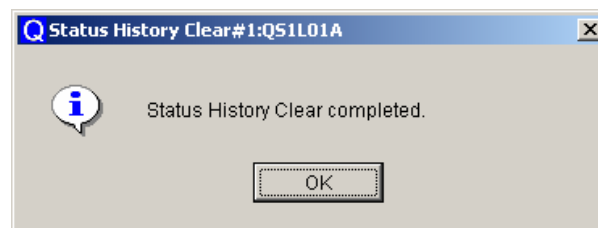
- Status History Clear...: Clear the status history information recorded in the servo amplifier.

3.26.1. Status History Clear

Click “Amplifier” – “Status History Clear...” in the status history display screen, and the following screen appears. Status history is erased here.



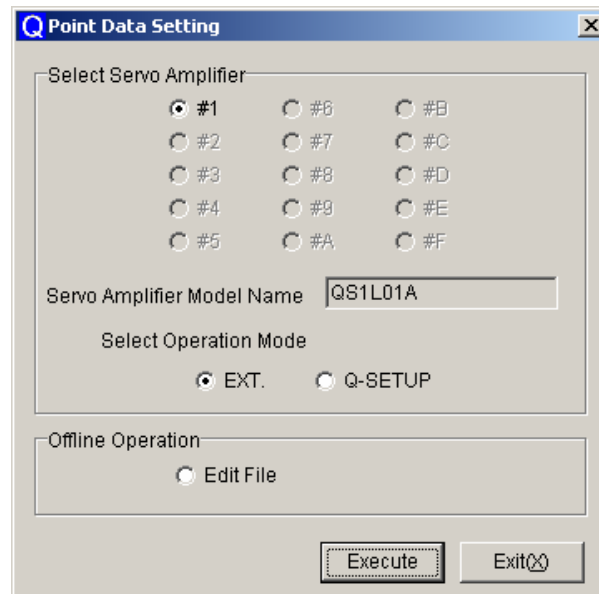
Click [OK], and the status history information is erased and the following screen appears.



Click [OK] to go back to the status history display screen. If the display contents have been automatically updated, the erased status history will be displayed.

3.27. Point Data Setting

Select “Point Data (S)” – “Point Data Setting.....”, and the point data setting screen will appear. Specify the target to be edited and operated in this screen.



- File edit mode
Refer to 3.26.1 File Edit Mode for details.
Select “File Edit” and click [Execute]. Point data file can be created and edited.
- EXT. mode
Refer to 3.26.2 EXT Mode. Select 1 axis from “#1” to “#F”, specify “EXT.” in OPERATE selection and click [Execute]. The point data of the servo amplifier on line can be edited. This is possible even while operated from the upper device.
* This can be used when combined with the amplifier with positioning function (Type C).
* This can be selected only while on line.
- Q-SETUP mode (Servo amplifier selection + “Q-SETUP” selection)
Refer to 3.26.3 Q-SETUP Mode, 3.26.4 Test Run (Q-SETUP Mode) and 3.26.5 Point Move (Q-SETUP Mode).
Select 1 axis from “#1” to “#F”, specify “Q-SETUP” in OPERATE selection and click [Execute]. The point data editing and point function test run of the servo amplifier on line can be executed. This is not possible while operated from the upper device.
* This can be used when combined with the amplifier with positioning function (Type C).
* This can be selected only while on line.

3.27.1. File Edit Mode

Select “Point Data (S)” – “Point Data Setting...” from the menu bar of main screen, and the point data setting screen appears. Select “File Edit”, click [Execute], and the following screen appears. Point data file can be created and edited.

Point No.	Feed Rate	Position	Operation Pattern						Accel	Time_of_S_Shaped	Current_Limit	M Output					
			MODE1	MODE2	MODE3	ABS/INC	Norm/Striking	Stop/Continue				Type	Delay	Code	IP/JIP	Dwell_Time	Repetition
	Pulse/s	Pulse							Uw/ms	ms	%		Pulse			ms	
0																	
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	

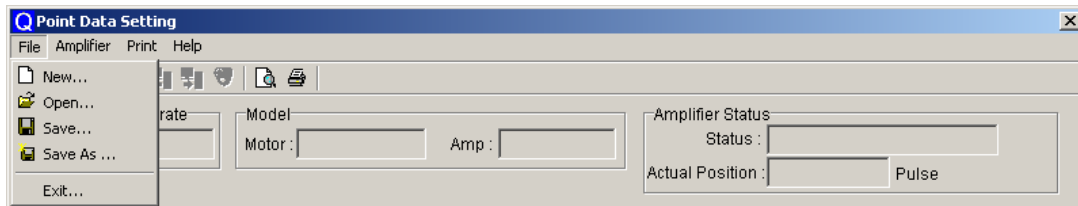
- Setting
File: File edit mode
- Model Number
The servo amplifier model number and combined motor when file was saved.
* Display is only for the file in which the point data read form the servo amplifier is saved, not for a new file created by “File Edit”.
- OPERATE, Amplifier status
No display in File Edit Mode.
- Point data
The set value can be directly input at the cursor marked in yellow. (“Point Number” cannot be edited.) Edited point data will be displayed in red. Once saved in the file, the point data will be black again.
* If file is not open, point data cannot be edited.
- Point number search
Input the point number to be searched and click [Search]. The cursor will move to the specified point number.

- Copy

Point data can be copied to that of other point number.

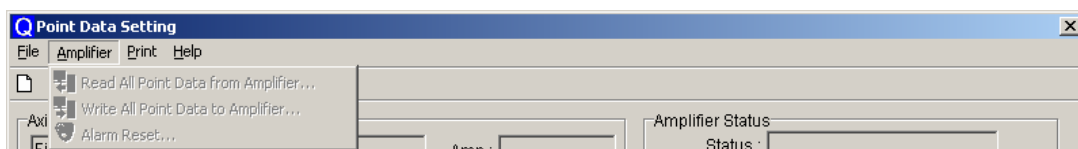
* Refer to 3.26.8 Copy (Q-SETUP / EXT. / File Edit Mode) for details.

Functions of point data setting (File edit mode) can be accessed from the menu bar of the point data setting screen.



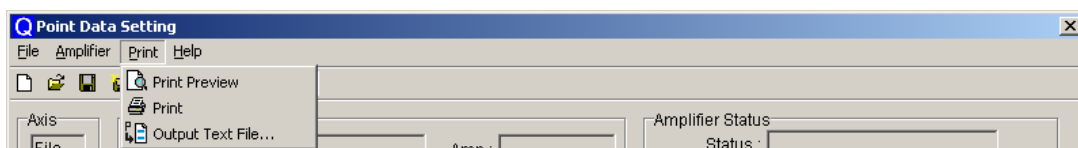
[File]

- New File....: Create a new point data file.
* Refer to 3.26.9 New file (File Edit Mode) for details.
- Open.....: Open the point data file.
- Save.....: Save the point data being edited in the file.
- Save As.....: Save the point data being edited into a file with another name.
- Exit : Exit the point data setting screen.



[Amplifier]

Cannot be selected in File Edit Mode.



[Print]

- Print Preview.....: Displays the point data print image.
- Print.....: Print the point data.
- Text output.....: Point data is output as a text file (*.txt).

* The saved text file cannot be opened in the Q-SETUP setup software. Use other applications corresponding to text file (*.txt) to open it.



[Help]

Descriptions for point data setting.

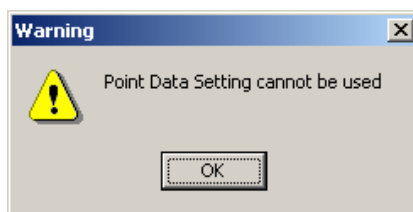
3.27.2. Ext. Mode

Select “Point Data (S)” – “Point Data Setting...” from the menu bar of the main screen, and point data setting screen appears. Select 1 axis from “#1” to “#F”, specify “EXT.” in OPERATE selection, and click [Execute], and then the following screen appears. Point data in the servo amplifier can be edited. This is possible even while operated from the upper device.

Point No.	Feed Rate	Position	Operation Pattern						Accel	Time_of_S_Shaped	Current_Limit	M Output					
			MODE1	MODE2	MODE3	ABS/INC	Norm./Striking	Stop/Continue				Type	Delay	Code	IP/JP	Dwell_Time	Repetition
	mm/s	mm							Uw/ms	ms	%		mm			ms	
0																	
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	

Point No.:0

If the target servo amplifier is not applicable to point data setting function, or in the state of ready not complete, the following screen appears.



If the target amplifier is the one with positioning function (Type C) and applicable to point data setting function, wait for a few seconds and click [Execute] again.

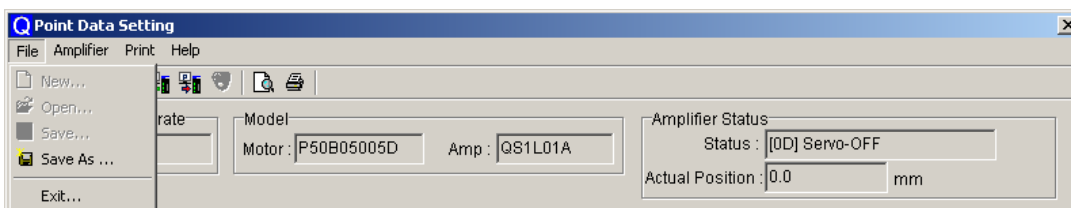
Also the state of ready not complete occurs when “Test Run and Adjustment” is being executed from the digital operator.

- Axis
The servo amplifier axis number whose point data is being edited.
- OPERATE
EXT. : EXT. mode.
- Model number
Servo amplifier model number and combined motor.
- Amplifier status
Amplifier status and actual position.
- Point data
The set value can be directly input at the cursor marked in yellow. (“Point Number” cannot be edited.) Edited point data will be displayed in red. Once read in the servo amplifier, the display will be black again.
* Point data cannot be edited unless executing [Amplifier] – [Read All Point Data from Amplifier].
- Point number search
Input the point number to be searched and click [Search]. The cursor will move to the specified point number.
- Copy
Point data can be copied to that of other point number.
* Refer to 3.26.8 Copy (Q-SETUP / EXT. / File Edit Mode) for details.
- Teaching
This can be set to the data of the point number which specifies actual position.
* Refer to 3.26.7 Teaching (Q-SETUP / EXT. Mode) for details.
- Write
The point data with the cursor in is written into the servo amplifier. Only one point data can be written.

* When not executing [Amplifier] – [Read All Point Data from Amplifier], all the point data being edited are in Original status. If “Write” is executed in this status, “0” is written in the target point data.

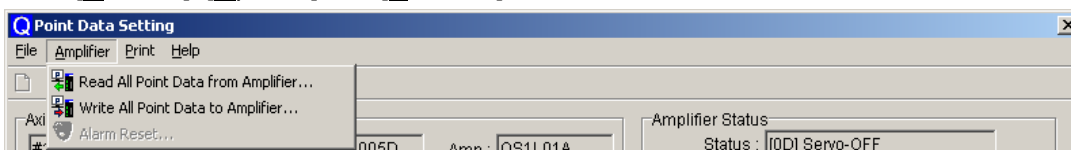
* When the servo amplifier is in busy status (while the point data of the target is being executed), writing is not possible.

Functions of point data setting (EXT. Mode) can be accessed from the menu bar on the point data setting screen.



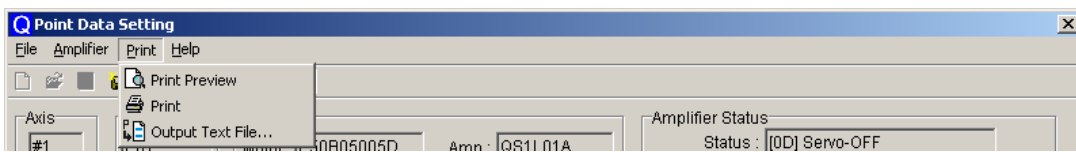
[File]

- Save As...: Point data being edited is saved in a file.
 - Exit : Exit the point data setting screen.
- * [New ...], [Open...] and [Save ...] cannot be used in the EXT. mode.



[Amplifier]

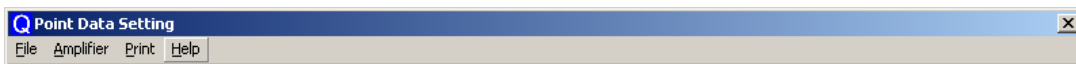
- Read All Point Data from Amplifier...: Read the point data from the servo amplifier as a batch.
 - Write All Point Data to Amplifier...: Write the point data being edited to the servo amplifier as a batch.
- * [Write All Point Data to Amplifier] cannot be used unless executing [Amplifier] – [Read All Point Data from Amplifier]
- * When the servo amplifier is in busy status (while point data of the target is being executed), writing is not possible.
- * [Alarm Reset...] cannot be used in the EXT. mode.



[Print]

- Print Preview...: Display of point data print image.
- Print : Print the point data.
- Text Output...: Point data is output as text file (*.txt)

* The saved text file cannot be opened in the Q-SETUP setup software. Use other applications corresponding to text file (*.txt) to open it.



[Help]

Descriptions are displayed about setting contents of point data.

3.27.3. Q-Setup Mode

Select [Point Data (S)] – [Point Data Setting...]” from the menu bar on the main screen, and point data setting screen appears. Select 1 axis from “#1” to “#F”, specify “Q-SETUP” in OPERATE selection, and click [Execute], and then the following screen appears. Point data in the servo amplifier can be edited and test run for pointing functions can be executed. This is not possible while operated from the upper device.

Point Data Setting

File Amplifier Print Help

Axis: #1 Operate: Q-SETUP Model: P50B05005D Amp: QS1L01A

Amplifier Status: Status: [0D] Servo-OFF Actual Position: 0.0 mm

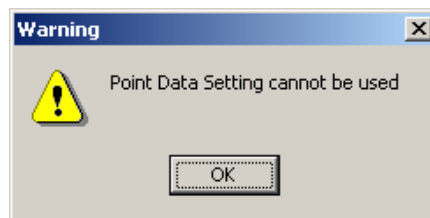
Point Data Test Run Move Point

Point No. Search Search Copy Teaching Data Write

Point No.	Feed Rate	Position	Operation Pattern						Accel	Time_of_s_Shaped	Current_Limit	M Output			Dwell_Time	Repetition	
			MODE1	MODE2	MODE3	ABS/INC	Norm./Striking	Stop/Continue				Type	Delay	Code			
	mm/s	mm							Uw/rms	ms	%		mm			ms	
0																	
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	

Point No.:0

If the target servo amplifier is not applicable to point data setting function, or in the state of ready not complete, the following screen appears.



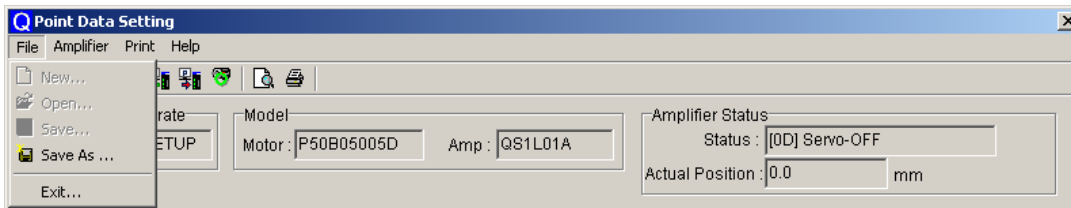
If the target amplifier is the one with positioning function (Type C) and applicable to point data setting function, wait for a few seconds and click [Execute] again.

Also the state of ready not complete occurs when “Test Run and Adjustment” is being executed from the digital operator.

- Axis
Servo amplifier axis number whose point data is being edited.
- OPERATE
Q-SETUP : Q-SETUP mode.
- Model number
Servo amplifier model number and combined motor.

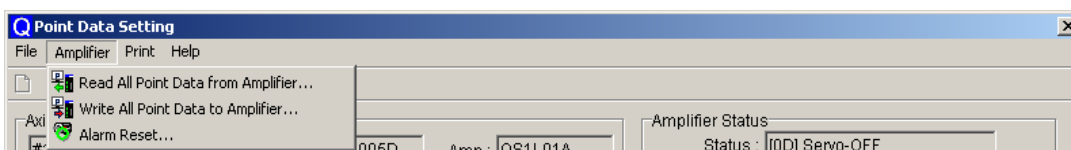
- Amplifier status
Servo Amplifier status and actual position.
- Point data
The set value can be directly input at the cursor. Edited point data will be displayed in red. Once the point data is written in the servo amplifier, the display will be black again.
* Point data cannot be edited unless executing [Amplifier] – [Read All Point Data from Amplifier].
- Point number search
Input the point number to be searched and click [Search]. The cursor will move to the specified point number.
- Copy
Point data can be copied to that of other point number.
* Refer to 3.26.8 Copy (Q-SETUP / EXT. / File Edit Mode) for details.
- Teaching
This can be set to the data of the point number which specifies the actual position.
* Refer to 3.26.7 Teaching (Q-SETUP / EXT. Mode) for details.
- Write
The point data with the cursor in is written into the servo amplifier. Only one point data can be written.
* When not executing [Amplifier] – [Read All Point Data from Amplifier], all the point data being edited are in Original status. If “Write” is executed in this status, “0” is written in the target point data.
* When the servo amplifier is in busy status (while the point data of the target is being executed), writing is not possible.
- Tab [Test Run]
Click Tab [Test Run], and the test run screen appears. Test Run can be executed.
- Tab [Point Move]
Click Tab [Point Move] , and the point move screen appears. Point move can be executed. Refer to 3.26.5 Point Move (Q-SETUP mode) for details.

Functions of point data setting (Q-SETUP Mode) can be accessed from the menu bar on the point data setting screen.



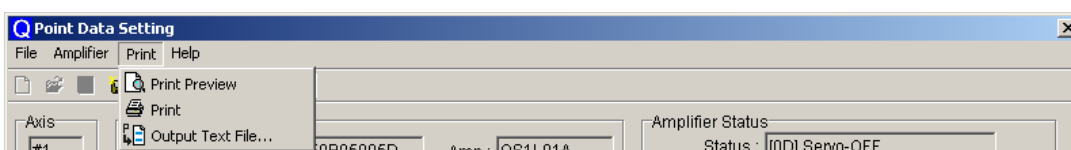
[File]

- Save As...: Point data being edited is saved in a file.
- Exit : Exit the point data setting screen.
- * [New], [Open...] and [Save] cannot be used in the Q-SETUP mode.



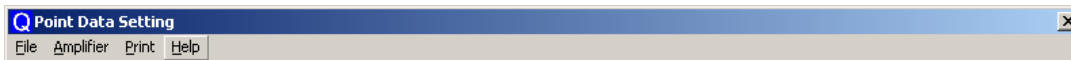
[Amplifier]

- Read All Point Data from Amplifier...: Read the point data from the servo amplifier as a batch.
- Write All Point Data to Amplifier...: Write the point data being edited to the servo amplifier as a batch.
- * [Write All Point Data to Amplifier] cannot be used unless executing [Amplifier] – [Read All Point Data from Amplifier]
- * When the servo amplifier is in busy status (while point data of the target is being executed), writing is not possible.
- Alarm Reset...: Order the amplifier to reset the alarm.
Refer to 3.26.6 Alarm Reset for details.



[Print]

- Print Preview...: Display of point data print image.
- Print : Print the point data.
- Text Output...: Point data is output as text file (*.txt)
- * The saved text file cannot be opened in the Q-SETUP setup software. Use other applications corresponding to text file (*.txt) to open it.



[Help]

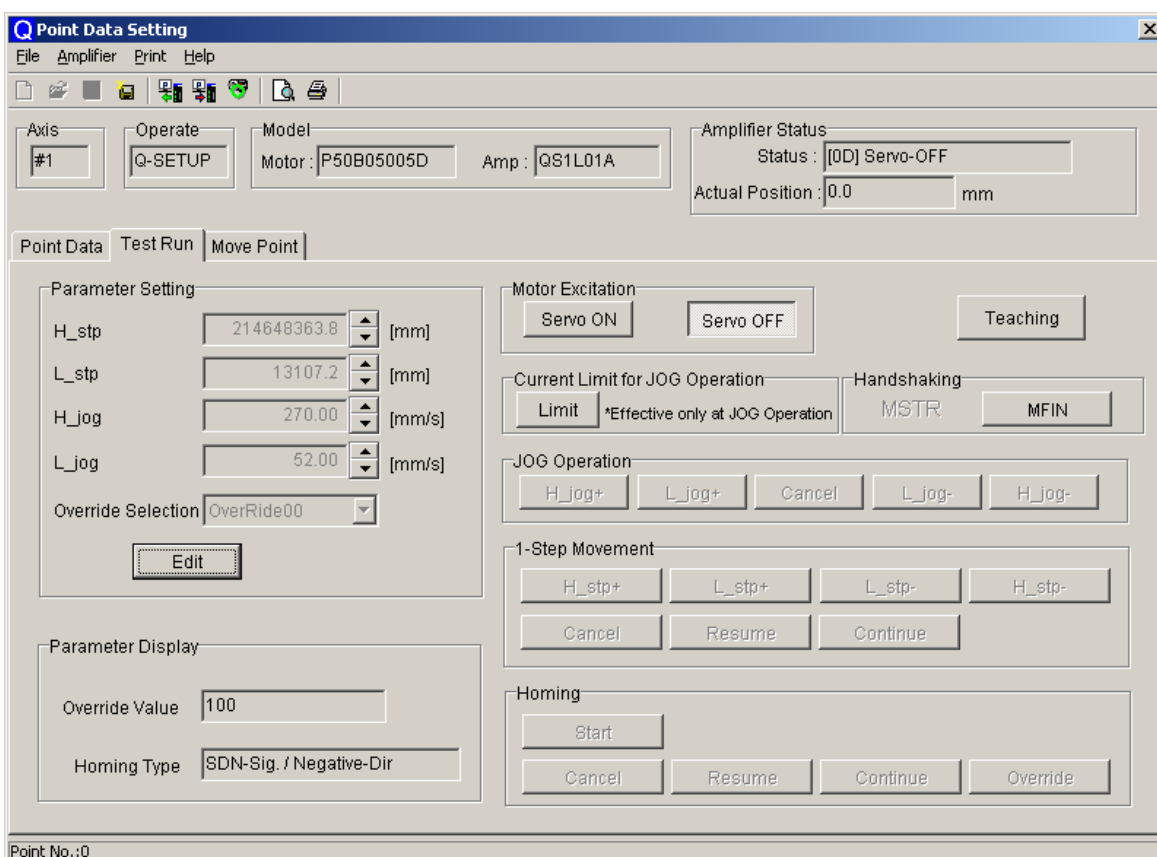
Descriptions are displayed about setting contents of point data.

3.27.4. Test Run (Q-Setup Mode)

Click the tab [Test Run], and the following screen appears. Servo amplifier JOG operation, 1 Step move and homing operation can be executed here.

* Take precautions for safety, since the motor operates in Test Run. If an alarm is issued during Test Run, motor excitation turns OFF. Fully prepare the control device or others prior to Test Run.

* Depending on the amplifier status or setting, the motor cannot stop even if functions of “Stop”, “Cancel” or “Resume” are clicked on. Preparation is necessary prior to operation in order that emergency stop can quickly be implemented by shutting off the power of amplifier main circuit.



1) Parameter setting

Clicking [Edit] enables an input to each parameter (during parameter editing).

Clicking [Edit cancel] aborts the value and returns to initial status.

Clicking [Write] writes the input value into the servo amplifier and returns to initial status.

* During test run, parameter setting cannot be changed.

* During parameter editing, test run cannot start, or switching the tab into [Point Data] or [Point Move] is impossible.

* “High speed 1 step move”, “Low speed 1 step move”, “High speed jogging speed” and “Low speed jogging speed” are the same parameters as the ones included in the general parameters with the same names. Change of settings here is reflected in the general parameter.

Initial status

The 'Initial status' dialog box, titled 'Parameter Setting', contains four numeric input fields with up/down arrows: 'H_stp' (214648363.8 [mm]), 'L_stp' (13107.2 [mm]), 'H_jog' (270.00 [mm/s]), and 'L_jog' (52.00 [mm/s]). Below these is a dropdown menu for 'Override Selection' set to 'OverRide00'. At the bottom is a single button labeled 'Edit'.

[Edit] ↓ [Edit Cancel] ↑ [Write] ↑

During parameter editing

The 'During parameter editing' dialog box, titled 'Parameter Setting', has the same fields as the initial status. However, the 'Edit' button has been replaced by two buttons: 'Edit Cancel' and 'Write'.

2) Parameter display

Contents of setting for override value and homing type are displayed

3) Handshaking

“MSTR” : The status of amplifier output signal MSTR is displayed.

[MFIN] : The same function as amplifier input signal MFIN. However, the status of external signal MFIN cannot be monitored.

4) Motor excitation

Clicking [Servo ON] starts the motor excitation.

Clicking [Servo OFF] cuts the motor excitation.

* When the servo amplifier is in the status of not ready (motor cannot excite), this automatically changes to [Servo OFF].

5) Jog current limit

If jogging operation is executed while current limit is being selected by clicking [current limit], the output current is limited by pre-set limit value. Clicking [current limit] again releases the limit.

6) Jog operation execution

[High speed +] : Starts forward jogging operation at high jogging speed.

[Low speed +] : Starts forward jogging operation at low jogging speed.

[Low speed -] : Starts backward jogging operation at low jogging speed.

[High speed -] : Starts backward jogging operation at high jogging speed.

Clicking [Cancel] cancels the jogging operation.

* During servo off, jogging operation cannot be executed.

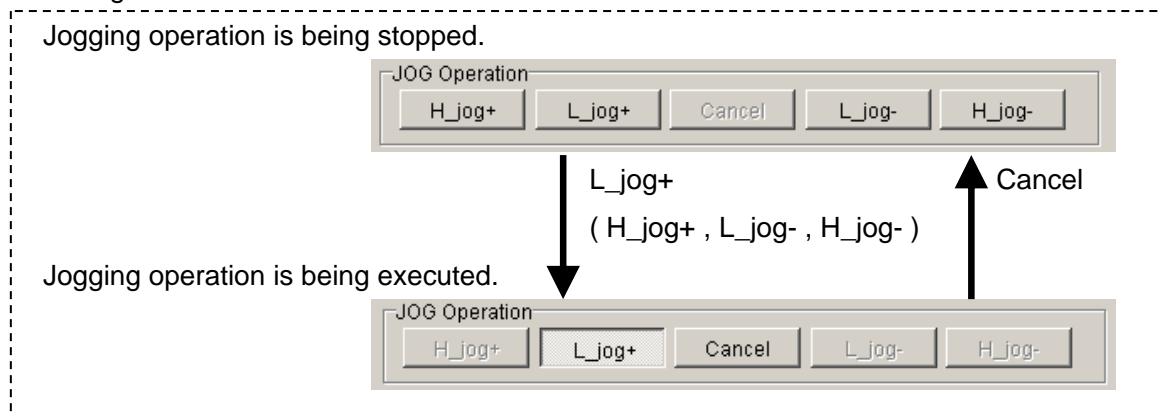
* During parameter editing or execution of other test run, jogging operation cannot start.

* During jogging operation execution, parameter editing or other test run cannot be used.

Switching the tab into [Point data] or [Point move], or selecting a menu is impossible.

* When servo turns OFF due to alarms or others during jogging operation execution, the jogging operation stops into the servo OFF status.

During Servo ON



7) 1 Step move

[High speed +] : Starts forward 1 step move at high jogging speed.

[Low speed +] : Starts forward 1 step move at low jogging speed.

[Low speed -] : Starts backward 1 step move at low jogging speed.

[High speed -] : Starts backward 1 step move at high jogging speed.

Clicking [Cancel] cancels the 1 step move.

Clicking [Resume] suspends the 1 step move.

Clicking [Continue] releases the suspension and resumes the move.

When the specified move is complete, it returns to stop status.

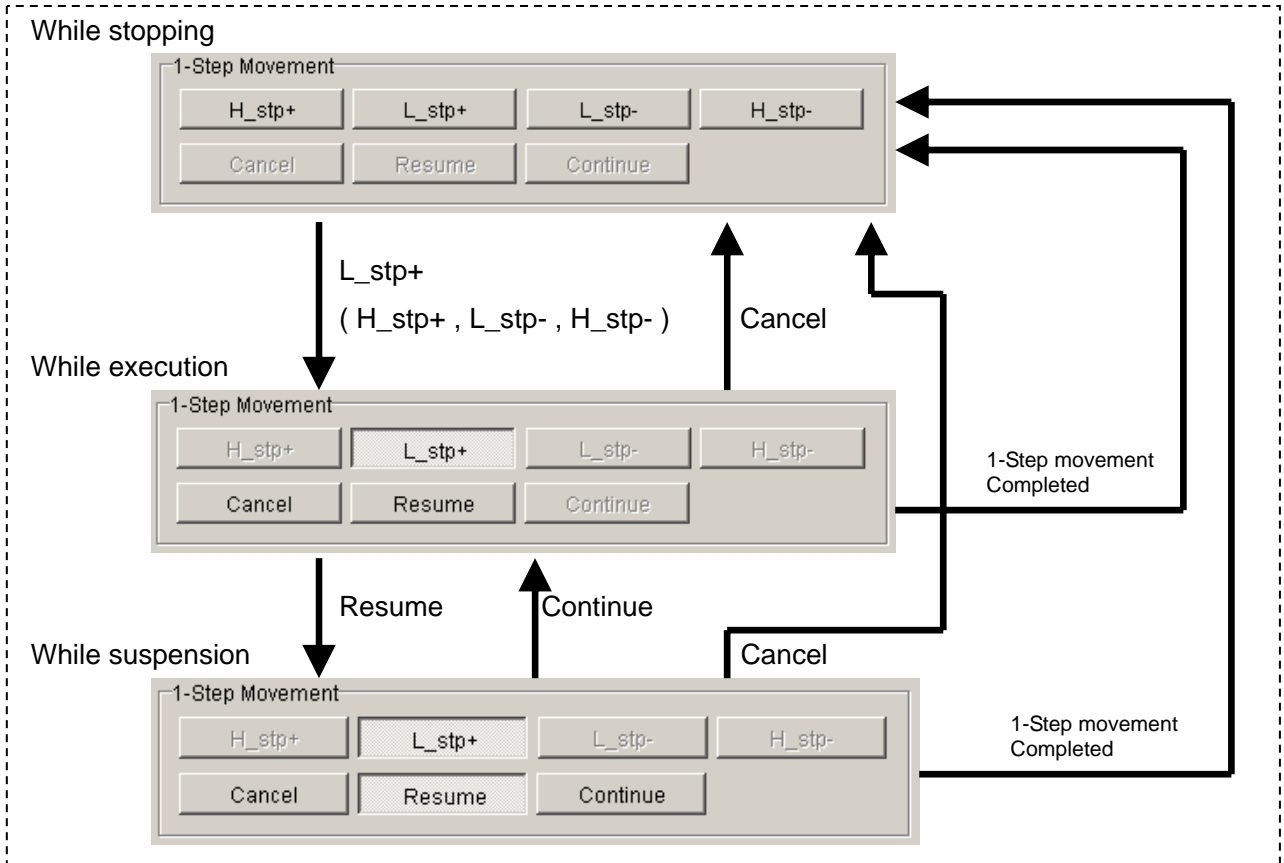
* During servo OFF 1 step move cannot be executed.,

* During parameter editing and other test run, 1 step move cannot start.

* While 1 step move is being executed or during suspension, parameter editing and other test run cannot be used. Switching the tab into [Point data] or [Point move], or selecting a menu is impossible.

* When servo turns OFF due to alarms or others during execution, the operation stops into the servo OFF status.

During Servo ON



8) Homing

Clicking [Start] starts the homing operation.

Clicking [Cancel] stops the homing operation.

Clicking [Resume] suspends the homing operation.

Clicking [Continue] releases the suspension and resumes the homing operation.

While clicking [Override], the move speed changes by the specified override ratio.

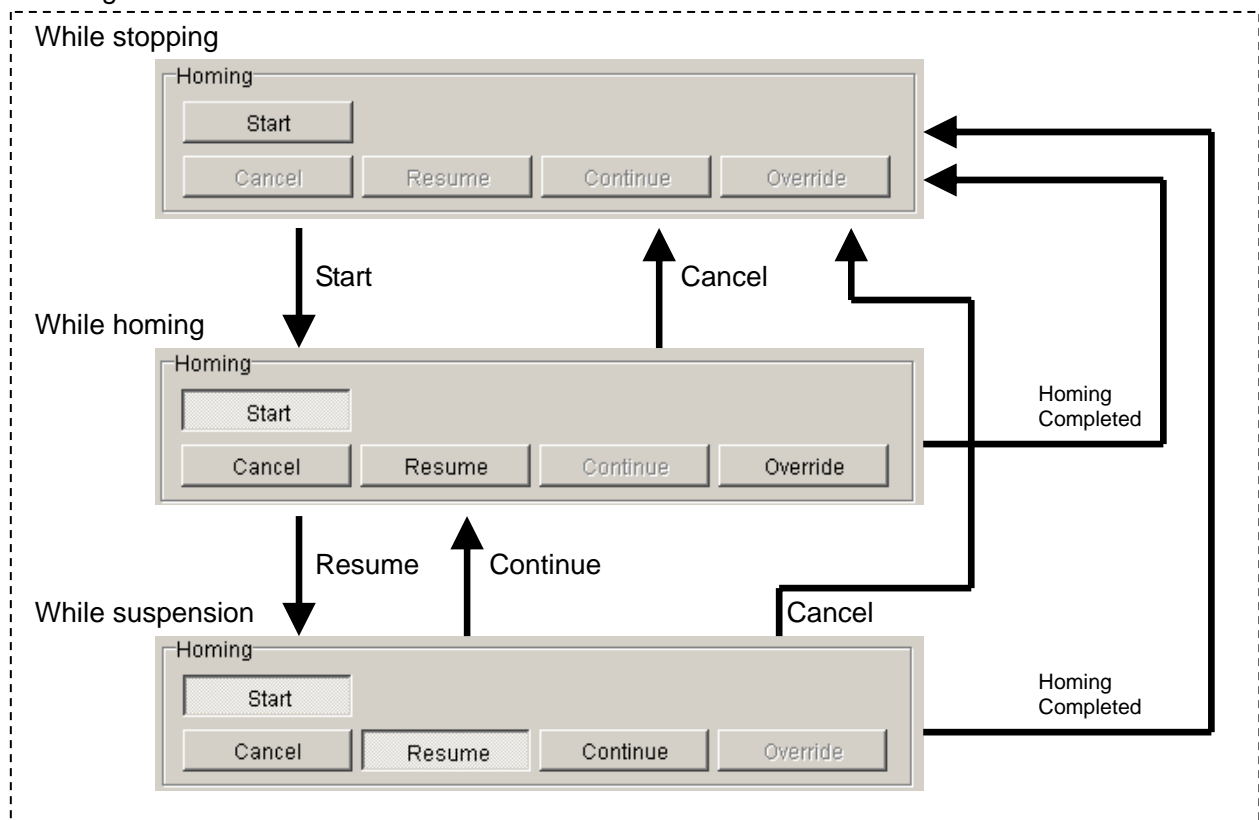
* During servo OFF, homing cannot be executed.

* During parameter editing and other test run, homing cannot start.

* While homing is being executed or during suspension, parameter editing and other test run cannot be used. Switching the tab into [Point data] or [Point move], or selecting a menu is impossible.

* When servo turns OFF due to alarms or others during execution, the operation stops into the servo OFF status.

During servo ON



3.27.5. Move Point (Q-Setup Mode)

Click the tab [Move Point] while Q-SETUP mode is being executed, and the following screen appears. Servo amplifier point and home position setting are executed here.

* Take precautions for safety, since the motor operates in Move Point operation. If an alarm is issued during operation, motor excitation turns OFF. Fully prepare the control device or others prior to execution.

* Depending on the amplifier status or setting, the motor cannot stop even if functions of “Stop”, “Cancel” or “Resume” are clicked on. Preparation is necessary prior to operation in order that emergency stop can quickly be implemented by shutting off the power of amplifier main circuit.

Counter	Status	Code	
		DEC	HEX
13	[0C] SV_OFF	997	03E5

1) Setting

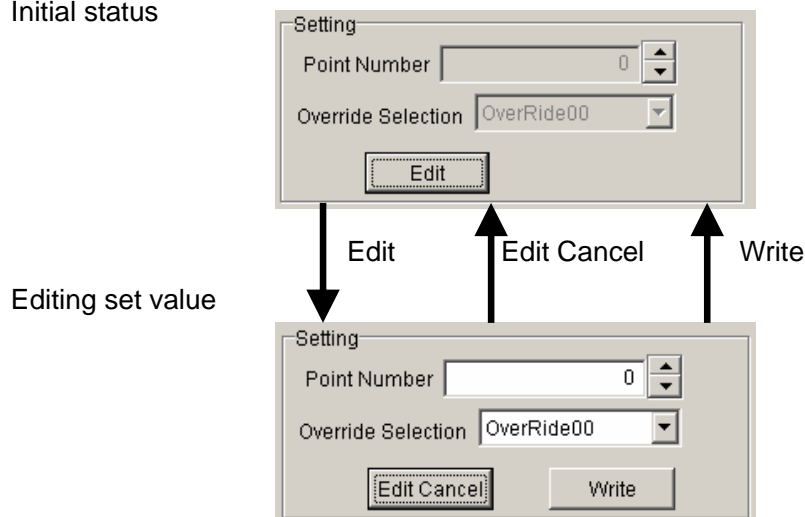
Clicking [Edit] enables an input of set value to each item (during set value editing).

Clicking [Edit Cancel] aborts the input value and returns to initial status.

Clicking [Write] writes the input value into the servo amplifier and returns to initial status.

- * During point execution, the set value cannot be changed.
- * While the set value is being edited, point execution cannot start. Switching the tab into [Point Data] or [Test Run] is impossible.

Initial status



2) Parameter display

Operation contents during test run : Parameters are displayed.

3) History monitor

The latest information of status history recorded in the servo amplifier (Last1) is displayed.

4) Handshaking

“MSTR” : The status of amplifier output signal MSTR is displayed.

[MFIN] : The same function as amplifier input signal MFIN. However, the status of external signal MFIN cannot be monitored.

5) Motor excitation

Clicking [Servo ON] starts the motor excitation.

Clicking [Servo OFF] cuts the motor excitation.

* When the servo amplifier is in the status of not ready (motor cannot excite), this automatically changes to [Servo OFF].

6) Point execution

Clicking [Start] starts the point execution.

Clicking [Cancel] cancels the point execution.

Clicking [Resume] suspends the point execution.

Clicking [Continue] releases the suspension and resumes the point execution.

While clicking [Override], the move speed changes by the specified override ratio.

* During servo OFF, point execution is impossible.

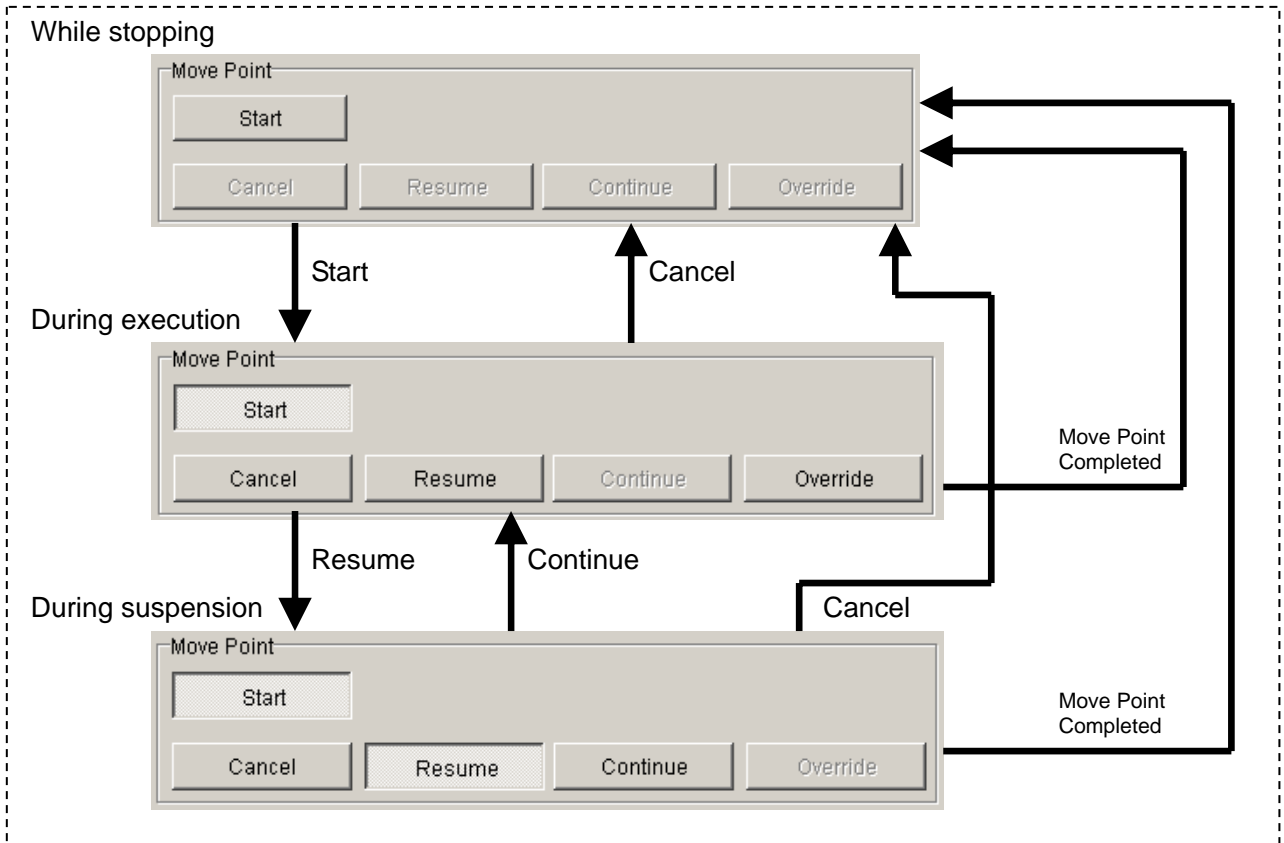
* During set value editing, point execution cannot start.

* While pointing is being executed, editing the set value or other test run cannot be used.

Switching the tab into [Point data] or [Test Run], or selecting a menu is impossible.

* When servo turns OFF due to alarms or others during point execution, it stops into the servo OFF status.

During servo ON



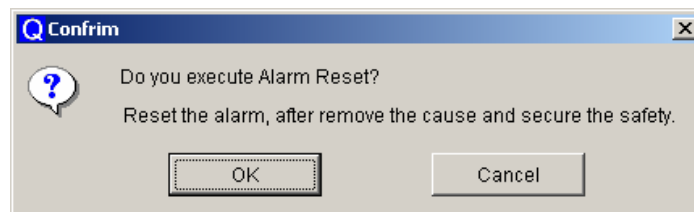
7) Home position setting

Clicking [Start] executes the home position setting.

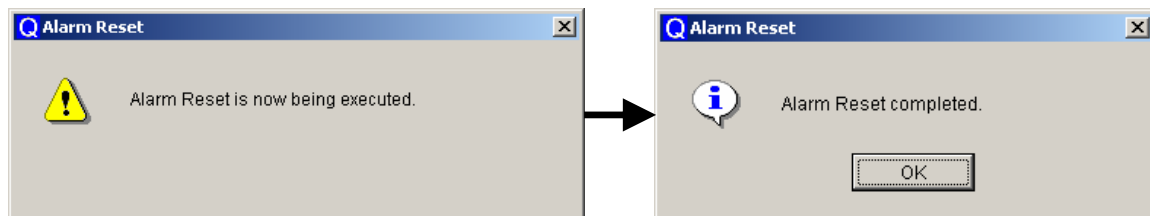
* Home position setting can only be selected during servo ON.

3.27.6. Alarm Reset (Q-Setup Mode)

Select “Amplifier” – “Alarm Reset...” from the menu bar of the point data setting screen, and alarm reset can be executed.



Click “Yes”, and alarm reset is executed.

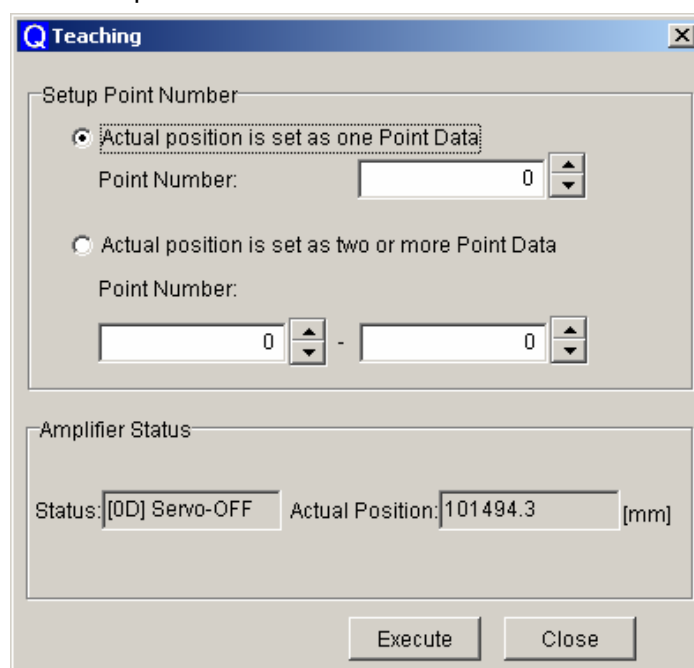


* The display above also appears when there are alarms that cannot be reset. However, the alarm status remains in the servo amplifier side.

3.27.7. Teaching (Q-Setup / EXT. Mode)

Click [Teaching] in the tab [Point Data] or [Test Run], the following screen appears.

Actual position can be set at point data.



1) Point number

When actual position is to be set at only 1 point data, select “Actual Position is set as one point data” and specify the point number of the destination.

When actual position is to be set at multiple point data, select “Actual position is set as two or more point data”, and specify the point numbers of the destination. Point numbers in consecutive areas can be specified. (There must be the smallest point number in the left and the biggest in the right.)

2) Amplifier status

Servo amplifier status and actual position are displayed. This actual position is set. (If the motor is not stopped completely, there may be a slight difference between the motor actual position, display of actual position and the value set by teaching.)

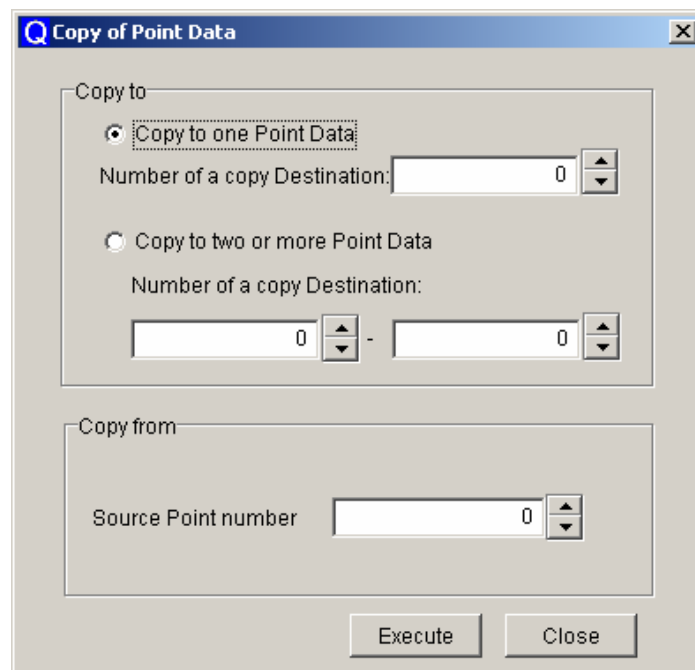
3) Execution

Click [Execute], and actual position is set. The only data to be set is the position in the point data.

3.27.8. Copy (Q-Setup / EXT. / File Edit Mode)

Click [Copy] in the tab [Point Data], the following screen appears.

Point data can be copied to other point data.



1) Copy destination

When the set value of copy source is to be set at only one point data, select “Copy to one point data”, and specify the point number of copy destination. When the set value of copy source is to be set at two or more point data, select “Copy to two ore more data”, and specify the point numbers of the destination. Point numbers in consecutive areas can be specified. (There must be the smallest point number in the left and the biggest in the right.)

2) Copy source

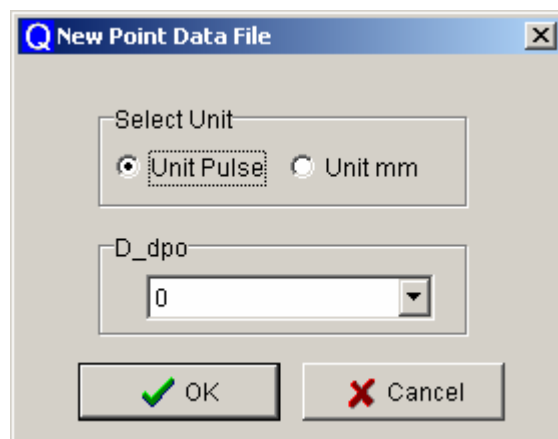
Specify the point number of the point data to be copied from.

3) Execution

Click [Execute], and the point data is copied. All the set values including speed, position and move mode are copied.

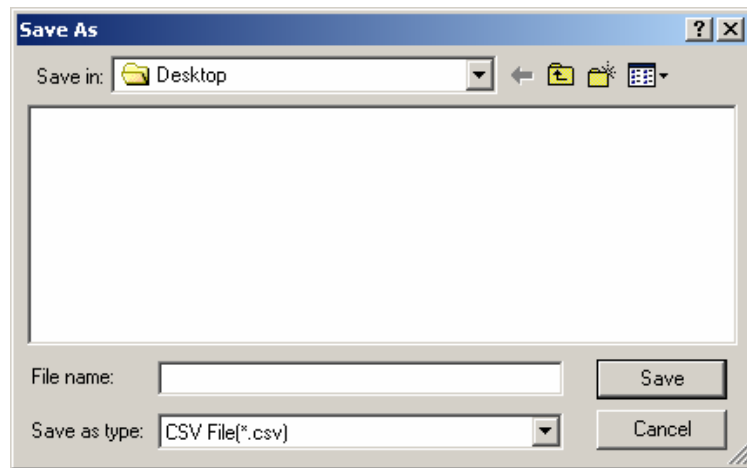
3.27.9. New (File Edit Mode)

Select “File” – “New....” From the menu bar of the point data setting screen, and a new point data file can be created in OFF line status.



- Select Unit: Select the unit from “Unit Pulse” and “Unit mm”.
- D_dpo (Number of decimal places of position and speed): Set the number of decimal places of the position and the speed set at point data.

Click [OK], and the following screen appears. Input a new file name and click [Save], and point data of the new file can be edited.

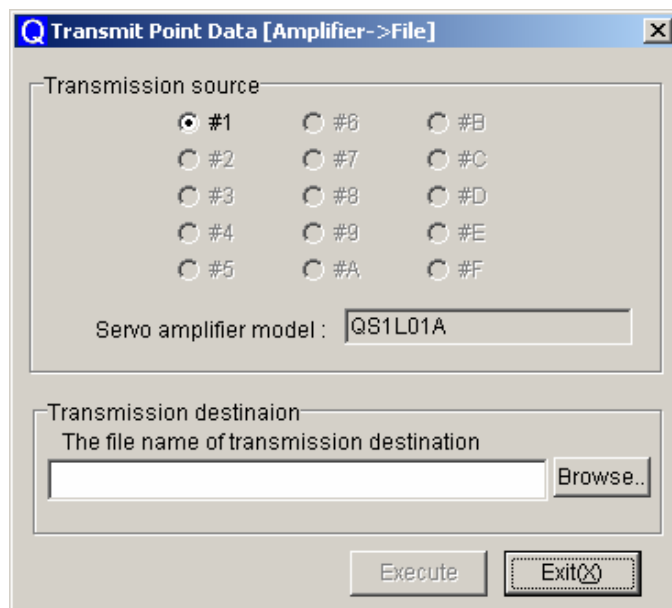


* Only a file name is specified here. A new file will be formally created by executing [Save] or [SaveAs] on the point data setting screen.

3.28. Transmit Point Data [Amplifier -> File]

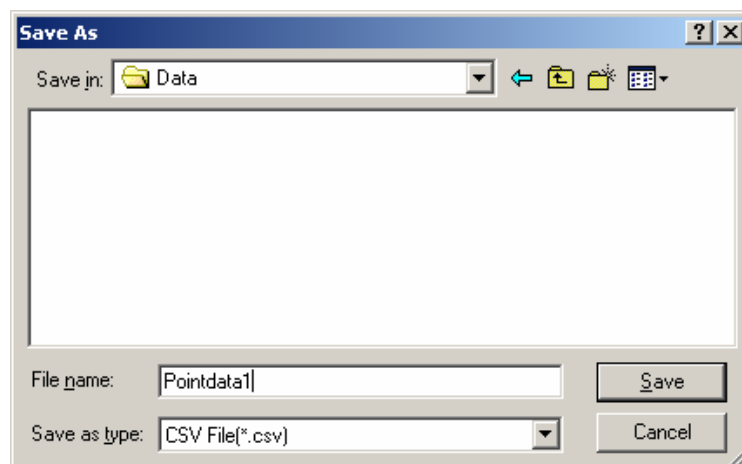
At “Transmit Point Data [Amplifier -> File]”, all the point data of the amplifier are read and saved in a file as a batch.

Select “Point Data (S)” – “Transmit Point Data [Amplifier -> File] (E) ...”, and the screen of transmit point data [Amplifier -> File] appears.

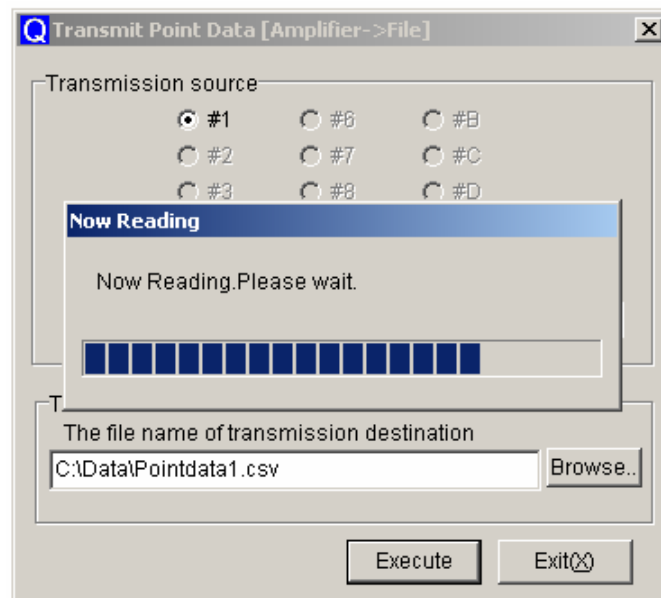


See the following procedure of data transmission from the servo amplifier to the point data file.

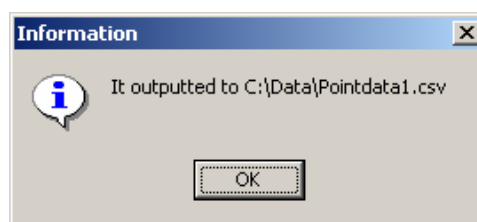
1. Select the axis number of the transmission source servo amplifier from “Transmission source”.
2. Click [Browse] in “Transmission destination”, and the following file saving dialog appears.
Specify the place to save in and file name, then click [Save].



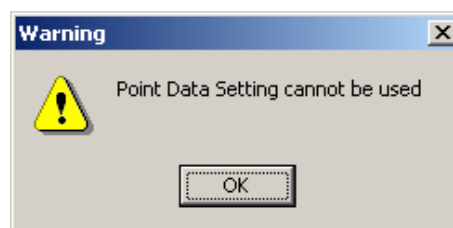
3. Click [Execute], and the following screen appears. The point data is read from the servo amplifier.



4. When point data reading from the amplifier is complete normally, the display of “Now Reading” disappears and the following screen appears. The read point data of the servo amplifier is saved in the file.



If the target amplifier does not correspond to the point data setting function, or in the status of ready not complete, the following screen appears.

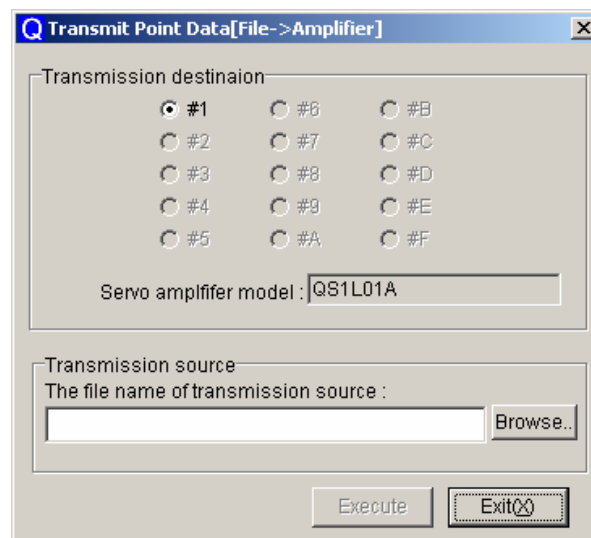


If the target amplifier is the one with positioning function (Type C) and applicable to point data setting function, wait for a few seconds and click [Execute] again.
Also the state of ready not complete occurs when “Test Run and Adjustment” is being executed form the digital operator.

3.29. Transmit Point Data [File -> Amplifier]

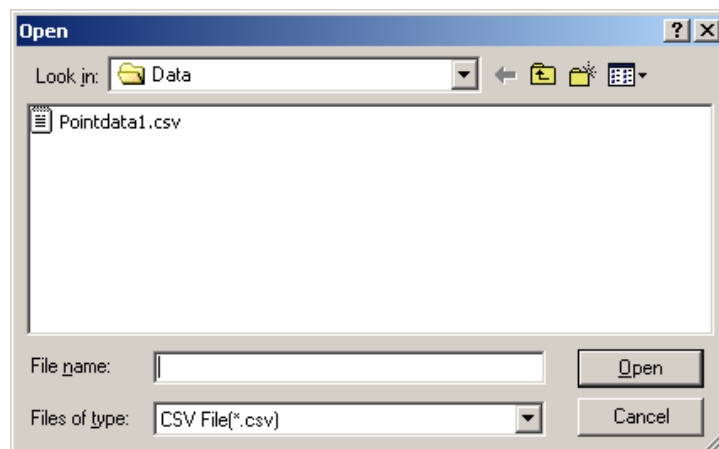
At “Transmit Point Data [File -> Amplifier]”, the point data saved in the file are directly written in the servo amplifier as a batch.

Select “Point Data (S)” – “Transmit Point Data [File -> Amplifier] (A) ...”, and the following screen appears.



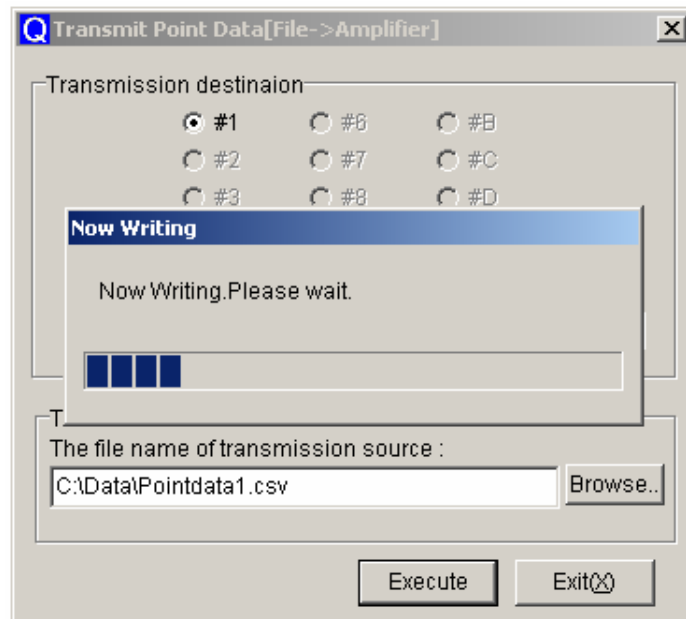
See the following procedure of point data transmission from file to servo amplifier.

1. Select the axis number of the transmission destination servo amplifier from “Transmission destination”.
2. Click [Browse] in “Transmission source”, and the following file selecting dialog appears.
Specify the place to save in and file name, then click [Save].

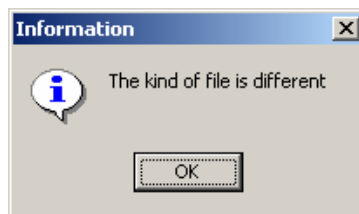


Select the file whose point data is to be read in the servo amplifier, and click [Open].

3. Click [Execute], and point data batch writing starts.

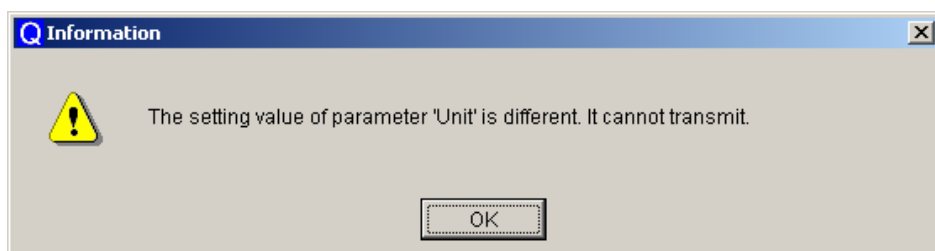


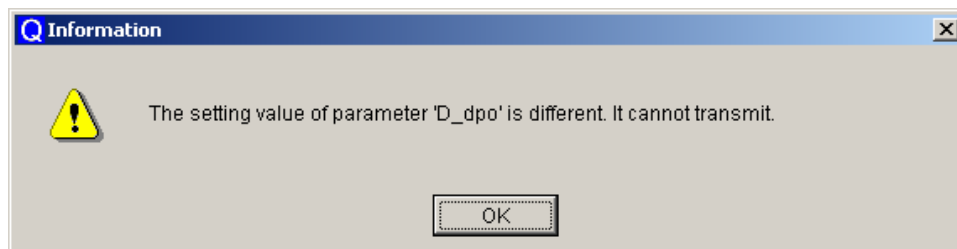
If the specified file is not a point data file, the following screen appears.
In this case, point data transmission cannot be executed.



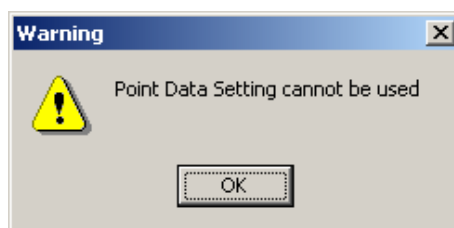
If the settings of file and the servo amplifier are different, the following screens appear.
In these cases, point data transmission cannot be executed.

* Modify the servo amplifier settings (for unit, speed, decimal places for position) to make them the same as the file settings, and then transmit again.





If the target amplifier does not correspond to the point data setting function, or in the status of ready not complete, the following screen appears.

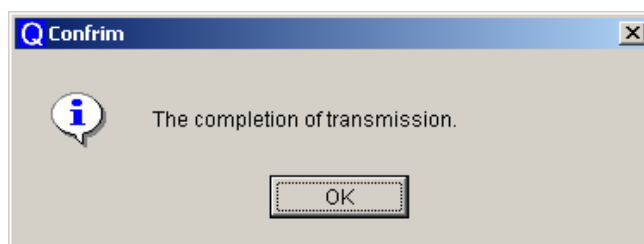


If the target amplifier is the one with positioning function (Type C) and applicable to point data setting function, wait for a few seconds and click [Execute] again.

Also the state of ready not complete occurs when “Test Run and Adjustment” is being executed from the digital operator.

When the servo amplifier is in busy status (while the target point data is being executed), the following screen appears. In this case, writing is impossible.

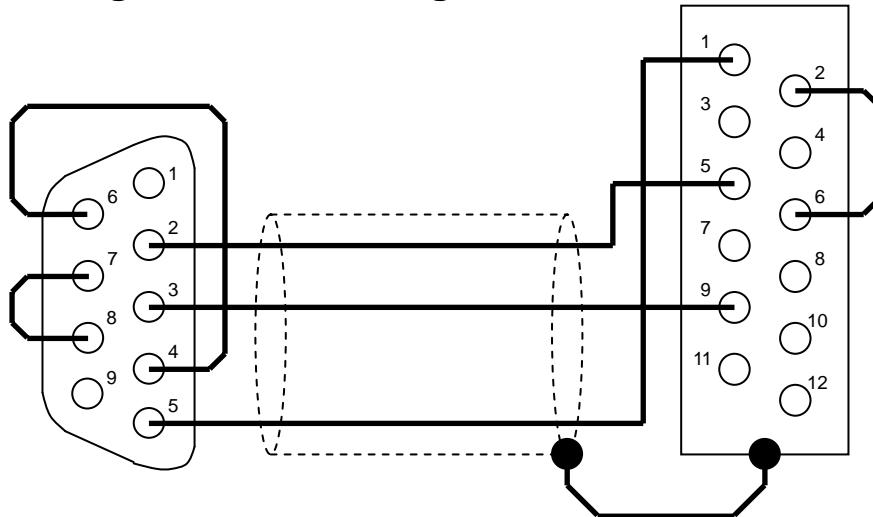
4. When writing as a batch is complete normally, the display “Now Writing” disappears and the following screen appears.



4 Appendix

4.1 Wiring

4.1.1 Wiring when Connecting 1 Unit



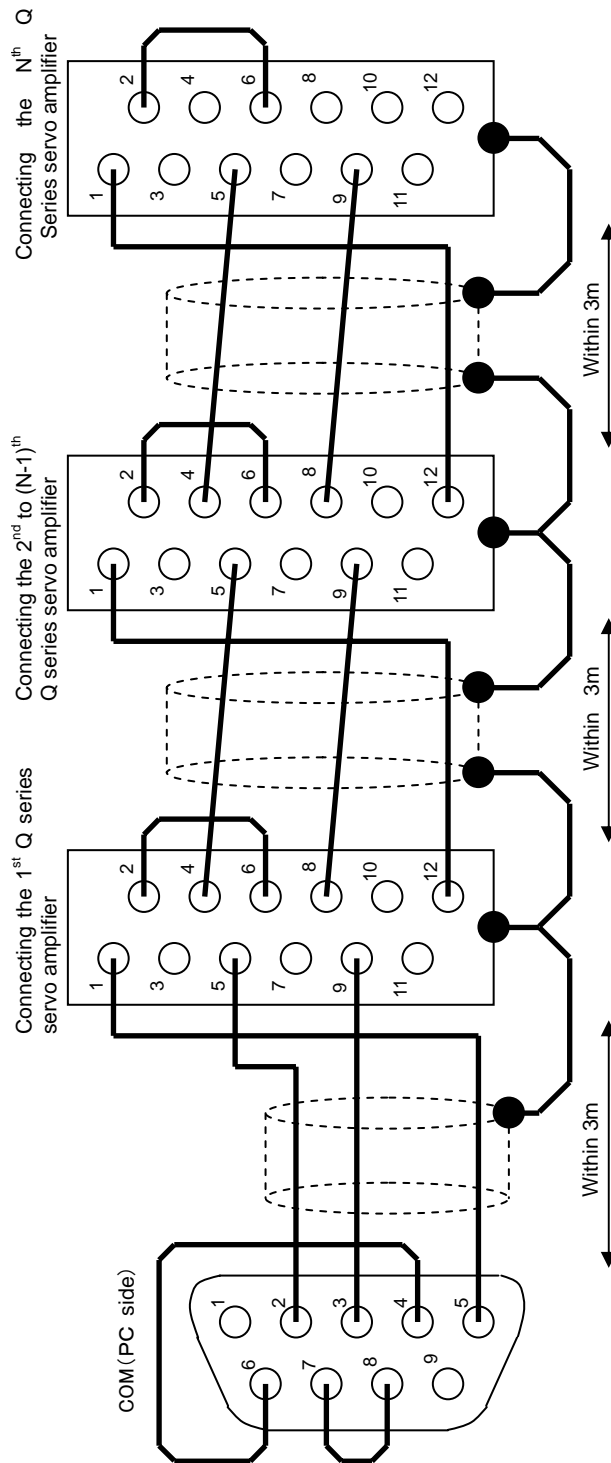
COM(PC side)	
D-Sub9 pin (hollow)	
Pin number	Signal name
1	DCD
2	RD
3	TD
4	DTR
5	SG
6	DSR
7	RS
8	CS
9	RI

Q series Servo amplifier			
3240-12P-TO-C (Hirose Electric Co., Ltd.)			
Pin number	Signal name	Pin number	Signal name
1	SG	2	S-OUT
3	NC	4	RXD1
5	TXD0	6	S-IN
7	NC	8	TXD1
9	RXD0	10	NC
11	NC	12	SG
Case	Connect to SG through the resistor.		

- Use shield wire for the cable.
- The shield wire of the cable must be connected to the case of amplifier connector. Do not connect to the case of PC connector (D-Sub9 pin).
- Connect wires only to the pins for which destination is specified in the wiring diagram.

4.1.2 Wiring when Connecting Some Units

The following is a wiring diagram when connecting 3 units. In case of connecting 4 or more units, add “the 2nd unit to the (N-1)th unit” for the number of units. The last servo amplifier must be as “the Nth connection”. (15 units at maximum can be connected.)



- Each cable length must be within 3m.
 - Use shield wire for the cable.
 - The shield wire of the cable must be connected to the case of amplifier connector.
- Do not connect to the case of PC connector (D-Sub9 pin).
- Wire only pins for which the connecting destination is specified in the wiring diagram.

4.2 Version List

List of Q series servo amplifier and its corresponding Q—SETUP - setup software.

Q Series Servo Amplifier		Q-SETUP - Setup Software Version							Notes
Type	Software Version	0.1.7 – 0.008 Release 2	0.2.1 – 0.01.2	0.3.1 – 0.01.4	0.4.7 – 0.03.0	0.4.7 – 0.04.7	0.5.3 – 0.11.4		
Type S	P0.00.2	○	—	—	—	—	—		Note1
	P0.00.5	—	○	○	○	○	○		Note2
	P0.01.0	—	—	○	○	○	○		Note3
	P0.01.2	—	—	—	○	○	○		
	P0.01.4	—	—	—	—	○	○		
	P0.01.5								
	P0.01.6	—	—	—	—	○	○		
Type C		—	—	—	—	—	○		

“○” means that application is possible.

“—” means that application is not possible.

Note 1) The communication procedure between Servo amplifier and PC for Servo amplifier software version P0.00.2 is different from that of P0.00.5 and onward. Therefore, this can not be combined with any other version, than the Version 0.1.7-0.00.8 Release 2

Note 2) In case servo amplifier software version is P0.00.5, some functions such as Trace operation and Pulse Feed Jogging functions can not be used.

Note 3) In case that the Servo amplifier software version is before P0.01.0, some functions such as Trace operation and System analysis functions can not be used.

4.3 Instruction Manual Revision History

Revision/ Revised Date	Revised contents
B Revision 2003/2/15	Update the contents. 3.15. "Operation for Pulse Feed Jogging" is added. 3.23. "Trace Operation" is added. 4.2. "Version List" is added. 4.3. "Instruction Manual Revision History" is added. Others: Revise details, mistakes, item umbers, and so on.
C Revision 2003/8/4	Update the contents. 3.23.5."Scrolling mode function of Trace operation" is added. 3.24. "System analysis function" is added. 4.4 "Trouble shooting" is added. 4.5 "Communication setting for Servo amplifier" is added. Others: Revise details, mistakes and so on.
D Revision 2005/02/01	Update the contents. 3.25 Status history display function is added. 3.26 Point data setting function is added. 3.27 Point data transmission is added. 3.28 Point data transmission is added. 4.4 Troubleshooting description is added. Others: Revise details, mistakes and so on.
E Revision 2006/03/09	3.26.9 New (File Edit Mode) is revised. 4.2. Version List is added. 4.4.1 No4 Troubleshooting description is added. 4.4.2 No3 Troubleshooting description is added.
F Revision 2007/07/11	3.23.2 Select Contents of Trace Operation Setting Digital CH select contents are revised.(PCON-ACK)
G Revision 2009/12/14	Added the operating system "Windows Vista" to the OS support list in 1.1 Operating Environment. Added the explanatory note to the installation process and corrected minor errors in 1.2.2 How to Install.
H Revision 2010/11/4	1.1 Hardware requirements 1.2 Windows 7 added as an applicable OS. 3.11 Verification on parameter files Minor corrections to the others
J Revision 2011/7/13	1.1 Hardware requirements Setting of XP-convertible mode added as Note4. 1.2.3 Setting of XP-convertible mode added. 4.4.2 Countermeasure when Setting for XP-convertible mode not performed added.

4.4 Trouble Shooting

4.4.1 Troubles when connecting to the Servo Amplifier (During communication status check)

No.	Abnormal operation/ Message	Major cause	Check/ Corrective measures
1	"The communication port cannot be used. (COM*)"	Setting error of the communication port	Check if the "communication port" connecting with cable (PC side) matches to the one set by "Communication Setting (S)".
		Communication port can not be used for Q-SETUP.	Check if the "communication port" connecting with cable (PC side) has been used for other applications. Check if more than two Q-SETUP have been activated.
		Abnormal operation of communication port	Check if the "communication port" connecting with cable (PC side) operates correctly.
2	"The communication cable is not connected"	Connecting failure of the communication cable (PC side)	Check if the communication cable (PC side/ D-sub 9 pin) is connected correctly.
			Check if the communication cable has any breakage.
3	The communication status check results in "Not connected".	Connecting failure of the communication cable (Amplifier side)	Check if control power is supplied to the Servo amplifier.
			Check if the communication cable (Amplifier side) is connected to the Amplifier correctly.
			Check if the communication cable has any breakage.
		Setting error of the communication relations.	Check if the communication baud rate setting of the Servo amplifier conforms to the one set by "Communication Setting (S)". *Note 1
			Check if the communication axis number setting of the Servo amplifier conforms to the "Axis number select" set by "Communication Setting (S)". *Note 1
		Setting error of the communication port	Check if the "communication port" connecting with cable (PC side) matches to the one set by "Communication Setting (S)".
4	The communication status check results in "Error".	Wrong operation due to the setting failure.	Check if the communication baud rate setting of the Servo amplifier conforms to the one set by "Communication Setting (S)". *Note 1
		Version mismatch	Check if the Servo amplifier software version is before P0.00.2. *Note 4
		Failure of control power	Check if control power is supplied to the Servo amplifier. This abnormality occurs when the control power supply is a low voltage.
		Wrong operation due to noise.	*Note 2
5	The communication status check results in "Overlap" *Note 3	Setting error of the communication relations (when plural Amplifiers are connected).	Check if the communication axis number settings overlap among connected Amplifiers. *Note 1
		Wrong operation due to noise.	*Note 2
6	The communication status check results in "Not-corresponding".	Version mismatch	The Q - SETUP is not corresponding to the Servo amplifier software version. Install the latest version Q – SETUP.

*Note 1 The communication axis number and the communication baud rate of the Servo amplifier can be set at parameter PA402. Refer to the Appendix "4.5 Communication Setting of the Servo Amplifier" for the details. Note that the setting procedure is different or the setting can not be changed depending upon Amplifier types.

*Note 2 In case that the communication can not be executed correctly due to noise, the noise influence should be reduced by the countermeasures as follows:

- Ground the Servo amplifier and PC appropriately.
- Keep the Servo amplifier and PC away from the noise cause.
- Install noise filter

*Note 3 In case that "Overlap" remains after countermeasures are implemented, take one of the following measures:

- Turn off the control power of the Servo amplifier and turn it on.

- Plug off the communication cable (Amplifier side) and reconnect it.
- Execute "Communication (C)" and "Communication Reset (R)".

*Note 4 In case that the Servo amplifier software version is before P0.00.2, they can be combined with only the Q - SETUP Version 0.1.7-0.00.8 Release 2. Refer to the Appendix "4.2 Version List" for details.

4.4.2 Troubles in use

No.	Abnormal operation/ Message	Major cause	Check/ Corrective measures
1	"The communication port cannot be used. (COM*)"	Communication port can not be used for Q-SETUP.	Check if the "communication port" connecting with cable (PC side) has been used for other applications.
		Abnormal operation of communication port	Check if more than two Q-SETUP have been activated.
2	"The communication cable is not connected"	The communication cable (PC side) is not connected.	Check if the "communication port" connecting with cable (PC side) operates correctly.
			Check if the communication cable (PC side/ D-sub 9 pin) is connected correctly.
3	"Communication is abnormal (Axis number [#*].)"	Failure of control power	Check if the communication cable has any breakage.
		Connecting failure of the communication cable.	Check if control power is supplied to the Servo amplifier. This abnormality occurs when the control power supply is a low voltage.
			Check if the communication cable (PC side/ D-sub 9 pin) is connected correctly.
			Check if the communication cable (Amplifier side) is connected to the Amplifier correctly.
		"Parameter lock function" by pass ward is set.	Check if the communication cable has any breakage.
		Setting for XP-convertible mode not performed.	When using the following functions under the Parameter lock function setting (editing parameter is prohibited), communication error occurs and the communication will be shut down. <ul style="list-style-type: none"> • "Write to Amplifier" of "General/ System/ Motor parameter setting" • "Transmit parameter [File->Amplifier]" • Functions of "Test running and adjustment" • "Operational Trace" • "Alarm Reset" "Alarm Trace Clear"
4	"Communication timeout (Axis number [#*])"	Wrong operation due to noise.	If you use Windows Vista or Windows 7, set Q-SETUP software to XP-convertible mode. Refer to "1.2.3. Setting of XP-convertible mode" for the details of setting procedure.
		Failure of control power	*Note 2
		Connecting failure of the communication cable (Amplifier side)	Check if control power is supplied to the Servo amplifier.
5	"The axis number overlaps (Axis number [#*])" *Note 3	Connecting failure of the communication cable (Amplifier side)	Check if the communication cable (Amplifier side) is connected to the Amplifier correctly.
		Wrong operation due to the setting failure.	Check if the communication cable has any breakage.
		Wrong operation due to noise.	Check if the communication baud rate setting of the Servo amplifier conforms to the one set by "Communication Setting (S)". *Note 1
		Others	*Note 2
6	"The Servo amplifier that can communicate does not exist."	The online Amplifier does not exist.	This error may occur depending on the PC hardware. Try another PC. *Note 4
			After taking measures, execute "Turn off and on again the control power of the Servo amplifier" or "Communication reset". Communication can be reset by selecting "Communication (C)" – "Communication Reset (R)" from menu bar of the main screen.
7	"The amplifier file has broken."	The Amplifier file to be operated (*.ap0) has broken.	There is no communicable online Servo amplifier due to communication error or timeout. Execute "Communication status check".
			The contents of the Amplifier file to be operated (*.ap0) has broken. The file cannot be opened.

- *Note 1 The communication axis number and the communication baud rate of the Servo amplifier can be set at parameter PA402. Refer to the Appendix "4.5 Communication Setting of the Servo Amplifier" for the details. Note that the setting procedure is different or the setting can not be changed depending upon Amplifier types.
- *Note 2 In case that the communication can not be executed correctly due to noise, the noise influence should be reduced by the countermeasures as follows:
- Ground the Servo amplifier and PC appropriately.
 - Keep the Servo amplifier and PC away from the noise cause.
 - Install noise filter
- *Note 3 In case that "Overlap" remains after countermeasures are implemented, take one of the following measures:
- Turn off the control power of the Servo amplifier and turn it on.
 - Plug off the communication cable (Amplifier side) and reconnect it.
 - Execute "Communication (C)" and "Communication Reset (R)".
- *Note 4 This abnormality can sometimes be improved, depending on the type of PC, by checking "Disable FIFO buffer" from " Use FIFO buffer" in the setting of communication port.

4.4.3 Transmit Parameter [File->Amplifier] Alarm

No.	Alarm Contents/ Message	Explanation/ Corrective Measures
1	"Because the software version of servo amplifier is different, there are parameters which cannot be transmitted. Dose it transmit?"	<p>The Servo amplifier software version of the transmission source having saved the amplifier file and that of transmission destination are different, or those hardware types are different. Thus, the part of incompatible parameters may not be transmitted.</p> <p>Click "Yes", and the transmission will be executed except for the incompatible parameters. After the transmission is completed, check the parameters that have not been transmitted by "Match parameter". Set up those parameters in manual if necessary.</p>
2	"The kind of servo amplifier is different. It cannot transmit."	The Servo amplifier software version of the transmission source having saved the amplifier file and that of transmission destination are different. Because of the low compatibility between them, the parameter transmission can not be executed.

4.4.4 Parameter Matching Alarm

No.	Alarm Contents/ Message	Explanation/ Corrective Measures
1	"The software version of servo amplifier is different. Dose it continue a matching?"	<p>The Servo amplifier software version of the transmission source having saved the amplifier file and that of transmission destination are different, or those hardware types are different. For this reason, non-compatible parameter may exist.</p> <p>Click "Yes", and match parameter starts including the incompatible parameters. Those incompatible parameters, regardless of its setting values, will be indicated their names in red as "not matching".</p>
2	"The kind of servo amplifier is different. It cannot match."	The Servo amplifier software version of the transmission source having saved the amplifier file and that of transmission destination are different. Because of the low compatibility between them, the parameter transmission can not be executed.

4.4.5 Test Operation and Adjustment/ Alarm Trace Clear Message

No.	Alarm Contents/ Message	Explanation/ Corrective Measures
1	"JOG Operation cannot be used."	<p>[JOG Operation] , [Pulse Feed JOG] , [Automatic Notch Filter Tuning] , [System Analysis] , [Fixation Excitation Operation] , [Automatic Offset Adjustment of Analog Velocity Command/ Torque Command] , [Automatic Offset Adjustment of Analog Torque Additional Command] , [Alarm Reset] , [Absolute Encoder Clear] , [Alarm Trace Clear]</p> <p>The Servo amplifier is not corresponding to the functions and those functions in Q-SETUP can not be used.</p> <p>The functions that can be used in the "Test Operation and Adjustment" of Q-SETUP differs depending upon the Servo amplifier software version and the Servo amplifier types.</p>
	"Pulse Feed JOG cannot be used."	
	"Automatic Notch Filter Tuning cannot be used."	
	"Measurement & Analysis cannot be used." [System Analysis Function]	
	"Fixation Excitation Operation cannot be used."	
	"Automatic Offset Adjustment of V-REF Terminal cannot be used."	
	"Automatic Offset Adjustment of T-COMP Terminal cannot be used."	
	"Alarm Reset cannot be used."	
	"Absolute Encoder Clear cannot be used."	
2	"Jogging Operation cannot be executed. (Not ready)"	<p>[JOG Operation] , [Pulse Feed JOG] , [Automatic Notch Filter Tuning] , [System Analysis] , [Fixation Excitation Operation]</p> <p>The Servo amplifier is not ready and those functions can not be executed.</p> <p>Check the followings:</p> <ul style="list-style-type: none"> • if in the alarm status, • if the main circuit power is supplied, • if "Test Operation and Adjustment" and "Alarm Trace Clear" are implemented from digital operator. • if in the control mode switching, (Note7) • For the linear system without hole sensor, test runs other than the fixed excitation operation cannot be used unless fixation excitation operation is executed,
	"Pulse Feed Jogging cannot be executed. (Not ready)"	
	"Automatic Notch Filter Tuning cannot be executed. (Not ready)"	
	"Measurement & Analysis cannot be executed. (Not ready)" [System Analysis Function]	
	"Fixation Excitation Operation cannot be executed. (Not ready)"	
3	"Automatic Offset Adjustment of V-REF Terminal cannot be executed. (Not ready)"	<p>[Automatic Offset Adjustment of Analog Velocity Command/ Torque Command] , [Automatic Offset Adjustment of Analog Torque Additional Command] , [Alarm Reset] , [Absolute Encoder Clear] , [Alarm Trace Clear]</p> <p>The Servo amplifier is not ready and those functions can not be executed.</p> <p>Check if "Test Operation and Adjustment" and "Alarm Trace Clear" are implemented from digital operator.</p>
	"Automatic Offset Adjustment of T-COMP Terminal cannot be executed. (Not ready)"	
	"Alarm Reset cannot be executed. (Not ready)"	
	"Absolute Encoder Clear cannot be executed. (Not ready)"	
	"Alarm Trace Clear cannot be executed. (Not ready)"	
4	"This function cannot be used in Q-SETUP by which reduced installation was carried out." [System Analysis Function]	<p>[System Analysis]</p> <p>In the reduced installed Q-SETUP, the system analysis function shall not be used. Use a complete version installer and implement the complete installation.</p>
5	"Over-travel is now going on."	<p>[JOG Operation] , [Pulse Feed JOG]</p> <p>Over-travel occurs in the JOG operational direction.</p>

No.	Alarm Contents/ Message	Explanation/ Corrective Measures
6	"The setting value will not allow Pulse Feed Jogging. Change the setting value."	<p>[Pulse Feed JOG]</p> <p>Correct feed pulse value and setting value of travel velocity.</p> <p>Appropriate setting range (Note 1) Feed pulse value: 1 to 214748364 pulse Travel velocity: 1 to approx. 1000min⁻¹ (Rotary) 1 to approx. 200mm/s (Linear)</p>
7	<p>"Automatic Notch Filter Tuning has not been executed. (Completing abnormally)"</p> <p>Click "OK", and turning to Servo OFF.</p>	<p>[Automatic Notch Filter Tuning]</p> <p>Tuning process has been interrupted (abnormal termination). Check the causes as follows:</p> <ul style="list-style-type: none"> • Over-travel has occurred. • After Servo OFF → Servo ON, tuning is implemented during holding brake release delay time (BOFFDLY). (Note2) • Torque limitation is effective. (Note 3) • Alarm has occurred. (Note 4) • The main circuit power has not been supplied.
8	<p>"Measurement & Analysis can not be executed. (Completing abnormally)"</p> <p>[System Analysis Function]</p>	<p>[System Analysis]</p> <p>Data measurement process has been interrupted (abnormal termination).</p> <p>Check the causes as follows:</p> <ul style="list-style-type: none"> • Over-travel has occurred. • After Servo OFF → Servo ON, tuning is implemented (or started) during holding brake release delay time (BOFFDLY). (Note2) • Alarm has occurred. (Note4) • The main circuit power has not been supplied.
9	"It is not a system analysis file."	<p>[System Analysis]</p> <p>The specified file is not a system analysis data file.</p>
10	"Fixation Excitation Operation has not been executed."	<p>[Fixation Excitation Operation]</p> <p>The Fixation Excitation Operation can not be implemented normally.</p> <p>Check the causes as follows:</p> <ul style="list-style-type: none"> • Rotary Servo system. (Note5) • Alarm has occurred. (Note4, Note6) • The main circuit power has not been supplied.
11	"Automatic Offset Adjustment of V-REF Terminal has not been executed."	<p>[Automatic Offset Adjustment of Analog Velocity Command/ Torque Command] ,</p> <p>[Automatic Offset Adjustment of Analog Torque Additional Command]</p> <p>Automatic Offset Adjustment can not be executed normally.</p> <p>Check the cause as follows:</p> <ul style="list-style-type: none"> • Voltage of over ±4V has been implied into analog input terminal.
	"Automatic Offset Adjustment of T-COMP Terminal has not been executed."	
12	"Alarm Reset has not been executed."	<p>[Alarm Reset]</p> <p>Alarm can not be reset normally.</p> <p>Check the causes as follows:</p> <ul style="list-style-type: none"> • The alarm that can not be reset has occurred. • Since the alarm cause has not been removed, the alarm cannot be reset.

- *Note 1 The maximum travel velocity that can be set in the Pulse Feed JOG function differs depending upon the encoder resolution (if resolution is higher, the maximum travel velocity setting value shall be lower). The maximum travel velocity setting value in general encoder is as follows: (when setting beyond the over-speed setting value of the motor, over-speed error occurs.) Take extra care since JOG operation in the high speed is dangerous.
- Rotary Servo System
- Incremental Encoder (2000PPR) :32767min-1
 - Wiring-saved Absolute Encoder (131072FMT) :2746min-1
- Linear Servo System
- Incremental Encoder (10000P/mm) :600mm/s
 - Incremental Encoder (1000P/mm) :6000mm/s
- *Note 2 Tuning/ data measurement can not be implemented normally during holding brake release time. After Servo OFF → Servo ON, wait holding brake release time (BOFFDLY) process. And then click "Execute".
- *Note 3 In the status of torque limitation, tuning can not be executed normally. Enlarge the setting value of the torque limitation, or lower the tuning torque command.
- *Note 4 In case that the "Test operation complete alarm (ALM_DF)" occurs, this is a secondary alarm occurring due to the function failure and is not a cause of the "Test Operation and Adjustment" function failure.
- *Note 5 In the Rotary Servo System, the Fixation Excitation Function can not be used.
- *Note 6 In case that the "Fixation Excitation Error (ALM_44)" occurs, this is a secondary alarm occurring due to the function failure and is not a cause of the "Fixation Excitation" operational failure.
- *Note 7 While the control mode is being switched using the control mode switching function, some of the test operations cannot be executed.

4.4.6 Trace Operation Message

No.	Alarm Contents/ Message	Explanation/ Corrective Measures
1	"Trace Operation cannot be executed."	The Servo amplifier is not corresponding to the Trace Operation Function and this function can not be used. It differs depending upon the Servo amplifier software version and the Servo amplifier types if the Servo amplifier is corresponding to the Trace Operational Function.
2	"It is not an operational trace file."	The specified file is not an operational trace data file.
3	"A sampling period is outside the setting range." "A trigger level is outside the setting range." "A trigger position is outside the setting range."	[Operational Trace Setting] The set value is out of specification.
4	"In the now baud rate and communication environment, the set-up sampling period is unrealizable."	[Scroll Mode] This alarm occurs in case of high frequency of the display interruption (data elimination). The following causes are considered: <ul style="list-style-type: none"> • Menu bar opens during monitoring operation. (Note 1) • The relation between the sampling period setting value and CPU operational frequency are not appropriate. (Note 2) • Other application operates in the background. • The application with large load exists. Lower the load on PC. If no improvement, readjust the sampling period setting value.

- *Note 1 Data update stops during the menu bar opens. When this data update stop becomes long, the alarm will occur and monitor will stop.
- *Note 2 The recommended conditions (CPU operational frequency) when using scroll mode of the Trace Operational Function are as follows:
- 50ms ≤ Data sampling period < 100ms :CPU operational frequency ≥ 800MHz
 - 100ms ≤ Data sampling period < 200ms :CPU operational frequency ≥ 350MHz
 - 200ms ≤ Data sampling period :CPU operational frequency ≥ 133MHz

4.4.7 Point Data Setting / Status History Monitor Message

No.	Alarm Contents/ Message	Explanation/ Corrective Measures
1	"Point Data Setting cannot be used."	The target servo amplifier is not corresponding to the point data function. Therefore, functions of point data and status history cannot be used. *Point data function can be used when combined with Type C amplifier (with positioning function).
		Depending on the timing, point data setting function sometimes cannot be used. Wait for a few seconds and then execute point data setting again.
2	"Since the state of Servo Amplifier changed, cannot continue Point Data Setting."	<p>This alarm is displayed when communication stops temporarily caused by PC side. See the possible causes below:</p> <ul style="list-style-type: none"> • Depending on the processing ability, this alarm may be displayed when Help or Print is executed in Point Data Setting. In this case, execute Help or Print in the File Operation Mode (Off line status). • While other applications are being operated in the background. • An application with large load is staying.
3	"The kind of file is different. "	The specified file is not a point data file. Or the file is broken.
4	"The setting value of parameter "Unit" is different. It cannot transmit."	When executing Transmit Point Data [File -> Amplifier], the file setting needs to match the amplifier setting value. Use the general parameter setting to match them.
	"The setting value of parameter "F_dpo" is different. It cannot transmit."	
	"The setting value of parameter "D_dpo" is different. It cannot transmit."	

4.5 Communication Setting of Servo Amplifier

4.5.1 Parameter

Communication setting of the Servo amplifier can be changed by operating “Amplifier Function Select 402 (PA402)” of the Servo amplifier parameter. By making this parameter setting identical with the communication setting of the Q-SETUP (“Communication (C)”- “Setting communication (S)” in the menu bar of the main screen), communication can be executed at the objective setting.

The default settings are as follows:

Servo amplifier; PA402 standard setting as ex-factory: 51H (38400bps / #1)

Q - Setup Software; Communication setting after installation:

Communication baud rate 38400bps

Axis number select #1

Amplifier Function Select 402 (PA402) [Group4-Page02]

Upper: Set up Software Communication Baud Rate

Select Value		Remarks
0H	1200 bps	
1H	2400 bps	
2H	4800 bps	
3H	9600 bps	
4H	19200 bps	
5H	38400 bps	Standard setting value at ex-factory.

Lower: Set up Software Communication Axis Number

Select Value		Remarks
1H	#1	Standard setting value at ex-factory.
2H	#2	
3H	#3	
4H	#4	
5H	#5	
6H	#6	
7H	#7	
8H	#8	
9H	#9	
AH	#A	
BH	#B	
CH	#C	
DH	#D	
EH	#E	
FH	#F	

Note 1) Depending upon the Amplifier types, “initial value/ ex-factory setting value may differ,” or “setting procedure may differ,” or “the setting value may not be able to change.” Refer to the individual Instruction Manual or Specifications.

Note 2) In case of changing Amplifier Function Select 402 (PA402) setting, the setting change will be valid by turning ON the Amplifier control power again.

4.5.2 Communication Setting Procedure by Digital Operator

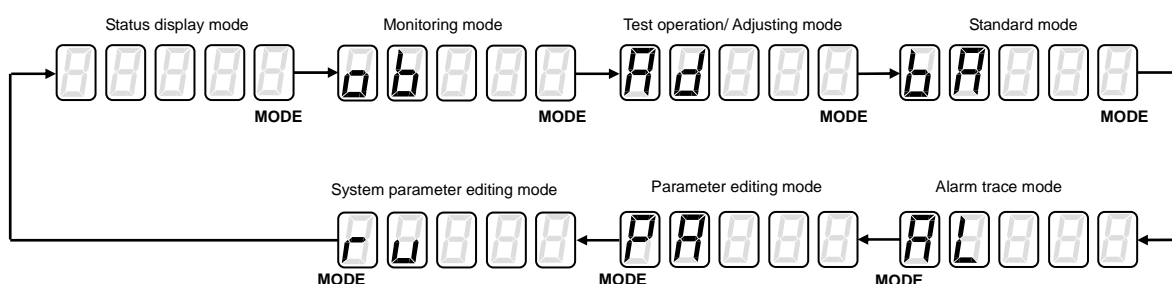
Communication setting of the Servo amplifier (Amplifier Function Select 402) can be checked and changed by using digital operator in the following procedure:

Note that “setting procedure may differ” or “the setting value may not be able to change” depending upon the Amplifier types. Refer to the individual Instruction Manual or Specifications.

1. Switching digital operator mode.

- (1) Turn ON the control power. Then the digital operator is in the status display mode.
- (2) Press the MODE Key 5 times until parameter editing mode.
- (3) When turning into the parameter editing mode, the display shows “PA.” or “PA0.00” (the underlined part is flashing).

To start the operation from the control power ON status, press MODE key several times. When the display turns into “PA.” or “PA0.00”, switching to the parameter editing mode is completed. The digital operator mode changes by pressing MODE key as follows:



2. Select Parameter PA 402.

Underlined part indicates the number is flashing.

Procedure	Display	Explanation/ Operation
(1)	“PA <u>0</u> .00”	Group0–Page00 parameter is selected. Press ▲ Key 4 times, and the display will be (2).

Procedure	Display	Explanation/ Operation
(2)	"PA4. <u>00</u> "	Group4-Page00 parameter is selected. Shortly (shorter than one second) press WR/> Key 2 times, and the cursor will move and the display will be (3).
(3)	"PA4. 0 <u>0</u> "	Group4-Page00 parameter is selected. Press ▲ Key 2 times, and the display will be (4).
(4)	"PA4. 0 <u>2</u> "	Group4-Page02 parameter is selected. Press WR/> Key 1 time for a long (longer than one second), and selected parameter will be established and PA402 contents will be displayed.
(5)	" 51H"	Group4-Page02 parameter contents is displayed ("51H" shows an example of parameter contents). <ul style="list-style-type: none"> • In case of setting check only, press MODE key 2 times to go back to the status display mode. • In case of setting modification, execute "3. Change Parameter PA402 Setting."

Note) When the display differs in the procedure (1), use ▲, ▼ and WR/> keys to show (4) display.

3. Change Parameter PA402 Setting.

Example for setting change from "51" (38400bps / #1) to "32H" (9600bps / #2) .

Underlined parts indicate the numbers are flashing.

Procedure	Display	Explanation/ Operation
(1)	" 51H"	Group4-Page02 parameter contents are displayed. Shortly (shorter than one second) press WR/> Key 1 time, and the display will be (2).
(2)	" 5 <u>1</u> H"	Group4-Page02 parameter editing status. Press ▼ key 2 times, and the display will be (3).
(3)	" 3 <u>1</u> H"	Group4-Page02 parameter editing status. Shortly (shorter than one second) press WR/> Key 1 time, and the cursor will move and the display will be (4).
(4)	" 3 <u>1</u> H"	Group4-Page02 parameter editing status. Press ▲ key 1 time, and the display will be (5).

Procedure	Display	Explanation/ Operation
(5)	“ 32H”	Group4-Page02 parameter editing status. Press WR/> Key 1 time for a long (longer than one second), and inputted value will be established and PA402 setting will be changed.
(6)	“ 32H”	Group4-Page02 parameter is establishing. Inputted value is flashing for approximately one second, and then the flashing will stop and the display will be (7).
(7)	“ 32H”	Group4-Page02 parameter has been changed. The parameter setting change has been completed. Turn ON the control power again to update the communication settings (the Parameter PA402 will be valid after turning the control power ON again).

Release	
Revision A	Nov. 2002
Revision B	Feb. 2003
Revision C	Sep. 2003
Revision D	Oct. 2005
Revision E	Mar. 2006
Revision F	Jul. 2007
Revision G	Dec. 2009
Revision H	Oct. 2010
Revision J	Jul. 2011

Precautions For Adoption

Cautions

The possibility of moderate or minor injury and the occurrence of physical damage are assumed when the precautions at right column are not observed. Depending on the situation, this may cause serious consequences. Be sure to follow all listed precautions.

Cautions

- Be sure to read the instruction manual before using this product.
- Take sufficient safety measures and contact us before applying this product to medical equipment that may involve human lives.
- Contact us before adapting this product for use with equipment that could cause serious social or public effects.
- The use of this product in high motion environments where vibration is present, such as in vehicles or shipping vessels, is prohibited.
- Do not convert or modify any equipment components.

* Please contact our Business Division for questions and consultations regarding the above.

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