Panasonic®

Operation Manual

AC servo driver MINAS series

Set up support software

PANATERM Ver. 6.0

(For Windows® 10/Windows® 11)

Please be sure to read this manual cautiously and use this product appropriately. Especially, please be sure to read “Safety Precaution (P.2 - 3)” before using this product and use this product safely.

Rev 3.25

REVISIONS

Revision History of Operation Manual

Date	Page	Rev	Description	Signed
Oct. 30, 2009		0.05	Initial version	-
Dec. 28, 2009	P9, 11, 17, 18, 22, 23, 26, 37, 40, 43, 45, 46, 49, 50, 57-59, 62, 67, 71, 73, 81	0.06	Correcting errors	
	P20		Adding the “Welcome” screen	
	P25, 27		Adding “Decimal point is displayed”	
May 10, 2010	P1, 5	0.07	Correcting errors	
Mar. 8, 2011	P7, 10	1.00	Adding Korean as a supported language	
	P36, 43, 46, 96		Adding a description on “Information”	
	P46, 54		Adding the “Parameter” tab	
	P77		Correcting a description on setting parameters of the protection function	
	P84		Adding “Auto servo on”	
	P102-108, 134		Adding an item for “Setup Wizard”	
	P109-123, 135		Adding an item for “Fit Gain”	
	P125		Adding “Cannot start PANATERM”	
	P126		Adding “The explanation of parameter is unkind”	
May 31, 2011	P1, 7, 8	1.01	Adding Windows 7	
	P7		Adding information on the MINAS-A5N series	
	P7, 10, 125		Adding a description on Windows 64-bit version	
Aug. 9, 2011	P132	1.02	Adding “Operation doesn’t reach at the speed”	
Sep. 6, 2011	P7	1.03	Adding information on the MINAS-A5E series	
	P26, 28, 128		Changing “Decimal point is displayed” to “Display - Set value description”	
June 19, 2012	P6-8, 12, 17-18, 22-30, 138-140, 142, 148,	1.04	Adding descriptions on the RS232 communication	
	P7		Adding information on the MINAS - A5NL series	
Apr. 26, 2013	P7	1.05	Adding information on the MINAS-A5II series	
	P16		Adding “Fit gain measure result file (filename.fit5)” to the list of file extensions	
	P27, 124, 158, 161, 165, 168		Changing “Fit gain screen” → “Fit gain screen (Standard)”	
	P138-154, 158, 161, 164, 165, 167, 169		Adding descriptions on the “Fit gain screen (2 degrees of freedom control)”	
July 7, 2014	P1, 8-9, 12, 14, 172	1.06	Stopping the support for Windows XP due to the end of Microsoft support for Windows XP, and starting the support for Windows 8.	
	P7, 24, 26		Adding information on the MINAS-A5B, MINAS-A5ND1, and MINAS-A5L04 (LA4) series	
	P30, 33-38		Adding the function of series definition settings to simplify the support for special products	
	P15, 28-29, 162-169, 185		Adding the object editor function	
	P174, 178-181		Adding a description on troubleshooting	
June 1, 2015	P7, 8, 20, 24, 33, 36, 37	1.09	Expansion of the scope of model codes supporting MINAS-A5B series	
Oct. 28, 2015	P1, 10, 11, 19	1.11	Changing “PANATERM Ver.5.0” to “PANATERM Ver.6.0”	
	P7, 8, 26, 27		Adding information on the MINAS-A5BL series	
	P7, 8, 24, 26, 34, 38, 64, 73, 81, 101, 151, 184		Adding information on the MINAS-A6 series	
	P15, 26, 27, 29, 30, 171-184, 188, 190, 198-202		Adding a description on added functions, which are the battery refresh, the block operation editor, and the block operation monitor	

Note) The page number (Page) is the current page number at the time of revision.

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Revision History of Operation Manual

Date	Page	Rev	Description	Signed
Dec. 11, 2015	P7, 8	2.00	Updating the dates for series	
Dec. 25, 2015	P7, 8, 27, 28	2.01	Adding information on the MINAS-A6N series	
Jan. 8, 2016	P7, 8	2.02	Updating the information on the MINAS-A5B series	
Oct. 12, 2016	P1, 9, 10	2.03	Adding a description on the support for Windows 10	
	P8		Expansion of the scope of model codes supporting MINAS-A6N series	
	P8, 25, 27, 28, 35, 38, 39		Adding information on the MINAS-A6L series	
	P16		Adding file extensions for the waveform graphic expanded function	
	P30, 31		Adding descriptions on the added functions and deterioration diagnosis information	
June 2, 2017	P4-9, 13, 16, 19, 22, 23, 27, 33, 35-42, 101, 108, 134, 143, 158, 212, 213, 215,	3.00	Adding a description on Wireless LAN	
	P7, 27, 29, 30, 46, 47, 177, 178		Adding information on the MINAS-A6B, and MINAS-A6NL series	
	P30-34, 205-211, 216-218, 220-231		A description is added on the additional function, RTEX communication setting screen.	
	P72, 101, 126, 131, 134, 136, 143, 158, 176, 184, 187, 195, 198, 205		Adding a note on the function that cannot be performed during RS232 communication	
	P85, 86, 92, 93, 98, 99, 216, 218, 221		Adding a description on the support of longer sampling cycles of waveform graphics	
	P128, 129, 224		Adding a description on the RTEX communication error counter monitoring function	
	P198-204, 227-231		Adding chapters for the screen operation of the deterioration diagnosis function and trouble shooting	
	P232		Adding a description on the post-sale service	
July 3, 2017	P7	3.01	Updating the month and year in the note	
	P39-40		Correct errors related to the wireless LAN / Driver information set-up	
Nov. 17, 2017	P7	3.02	Updating the information on the MINAS-A6B series	
May. 17, 2018	P7, 30-31	3.03	Adding information on the MINAS-A6 (V-frame) series	
	P22-25		Adding a description on the Nickname setting screen	
	P216		Adding a description on troubleshooting	
July. 31, 2018	P6-7, 30-31	3.04	Adding information on the MINAS-A5MN and MINAS-A6BL series.	
	P31, 33-37, 215-216, 221, 223, 226, 230-237		A description is added on the additional function, Magnetic pole position estimation results copying screen.	
	P31, 161-164, 168, 233		Adding descriptions on the Fit gain screen (2 degrees of freedom control)	
Oct. 26, 2018	P31, 161	3.05	Adding descriptions on the Fit gain screen (2 degrees of freedom control)	
	P146		Adding descriptions on the Fit gain screen (Standard)	
Mar. 15, 2019	P3, 26, 34, 39, 64-65, 225, 229-230, 236	3.06	Correcting errors	
	P7		Updating the month and year in the note	

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Date	Page	Rev	Description	Signed
May 15, 2019	P5, 19, 42	3.07	Added the United States, Taiwan, and Korea as regions that can support wireless LAN.	
	P7		Updating the month and year in the note	
	P36		Correction Removed the block operation monitor described in the function that cannot be opened simultaneously during degradation diagnosis.	
	P238		Update Contact point for repairs information	
Jan. 10, 2020	P7	3.08	Updating the month and year in the note	
	P8		Correcting errors	
Mar. 11, 2020	P5, 19, 42, 43	3.09	Correct errors related to the wireless LAN / Driver information set-up	
	P7		Updating the month and year in the note	
	P41, 44		Updating the image of the wireless LAN / Driver information set-up screen	
Nov. 12, 2020	P1, 8-9	3.10	Stopping the support for Windows Vista, Windows 7 due to the end of Microsoft support for Windows Vista, Windows 7.	
	P2		Added mark description	
	P3		Added a note depending on the state of the PC	
	P7		Updating the month and year in the note	
	P8, 19, 42		Added a note about WPA	
	P8, 18, 25-31, 36, 38, 65, 67, 71, 74, 78, 82-83, 85, 89-90, 92, 96-99, 105, 109, 113, 115-116, 123, 132, 135, 142, 149, 159, 194, 200, 208, 228, 234		Correcting errors	
	P9		Update the contents of <Notes>	
	P10, 14, 16, 20-22, 25-28, 31, 34, 36-38,43, 45, 47-49, 51-53, 56-61, 68-70, 73-83, 88, 92-93, 95-96, 98, 100-101, 103-104, 111-112, 114, 116-122, 124-127, 129-131, 134-135, 137-144, 147-148, 150-152, 155-160, 162-181, 185, 189, 191, 195, 197		Fixed to the description of Windows 10	
	P11		Rename shortcut	
	P12		Added notes about installing Visual Studio 2013	
	P12, 218		Added notes about installing Microsoft Access Database Engine	
	P15		Add description of object comparison file	
	P17		Removed description of USB multi-axis connection	
	P29-30		Updated list of useable function	
	P30, 119, 229		Added content related to analysis after frequency characteristic measurement	
	P72		Added a note about control mode	
	P76		Added notes about Real time Auto Tuning Custom Setting	
	P92-94, 176-177		Change the numbering of image areas	

Note) The page number (Page) is the current page number at the time of revision.

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Date	Page	Rev	Description	Signed
Nov. 12, 2020	P116-117		Added description about operation button	
	P146, 161		Added the cautionary note about fit gain function	
	P182		Added comparison button	
	P184		Added parameter column, description of [ESC] key	
	P186		Added description of comparison function	
	P219, 221		Added items for troubleshooting	
	P226		Added annotation of M frame driver	
Mar. 10, 2021	P4-6	3.11	Added Software License Agreement	
	P12		Change the way of uninstall	
	P46		Added a note on the wireless LAN / Driver information set-up screen	
	P69		Added a note on the monitor screen	
May. 20, 2021	P10	3.12	Change needed system construction	
Jan. 6, 2022	P7	3.13	Changed the notes about wireless LAN dongle	
Apr. 28, 2022	-	3.14	Changed company name	
	P14, 211, 214		Changing ".NET Framework 3.5 SP1" to ".NET Framework 4.8"	
	P9, 30		Adding information on the MINAS-A6L (V-frame) series	
	P3, 7-10, 17, 19, 22, 23, 27, 33, 35-37, 96, 103, 130, 139, 154, 212, 214		Deleting a description on Wireless LAN	
Sep. 16, 2022	P9, 30	3.15	Adding information on the MINAS-A6ST series	
	P10-11		Stopping the support for Windows 8.1 due to the end of Microsoft support for Windows 8.1, and starting the support for Windows 11.	
	P29-P30, 32-34, 195-202, 224, 226, 236-241		Added Block operation Editor v2	
	P175		Added Set Home to Object Editor	
Apr. 1, 2023	P14, 222, 226	3.16	Added how to install .NET Framework 4.8	
	P9, 30		Adding information on the MINAS-A6BU series	
	P197-206		Changed due to improvements in "Block operation Editor v2"	
	P27		Changed due to improvements in "Select connection with drivers"	
Apr. 27, 2023	P9, 30	3.17	Adding information on the MINAS-A6BN series	
Jun. 30, 2023	P9, 17, 29-31, 34, 223-242, 265	3.18	Added Gantry	
Jan. 24, 2024	P223-245, P268	3.19	Added Twisted table compensation - Absolute precision improving	
Apr. 1, 2024	P4-6	3.20	Change Software License Agreement	
Jul. 17, 2024	P9, 30	3.21	Adding information on the MINAS-A6SC series	
Oct. 1, 2024	P9, 30	3.22	Adding information on the MINAS-A6BC series	
	P9		Correcting errors	
Jan. 6, 2025	P10, 33	3.23	Adding information on the MINAS-A6BL0C0 series	
	P10, 33		Adding information on the MINAS-A6BN0C0 series	
	P11		Change needed system construction	
	P15, 261		Deleting a note about Microsoft Visual C++ 2013 Redistributable(x86) and the Microsoft Access Database Engine	
	P18, 30-33, 35-38, 251-260, 283		Added Linear motor initial adjustment	
	P282		Added items for troubleshooting	

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Date	Page	Rev	Description	Signed
Feb. 28, 2025	P60	3.24	Added a note on the monitor screen	
	P144, 159		Changed the notes about fit gain screen	
	P272		Added items for troubleshooting	
Mar. 31, 2025	P31-33	3.25	Change the function of the linear motor initial adjustment to available.	

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Contents

Safety Precaution

Please keep without fail
Instructions to be observed to avoid personal injury and property damage are given in the following way.
Please keep it without fail

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

⚠ Caution	Indicates a potentially hazardous situation which may result in injury or only property damage.

The following pictorial display explains the types of content to be protected.

	This indication shows “prohibition”.
	This indication shows “imposition” to be done.

Caution

The communication cable should not be connected or cut during the driver power supply turned on.

It may cause injury, breakdown or damage.

The communication cable should not be cut under the condition of this software turned on. Also, don't put your PC to sleep, hibernate, or screen saver.

It may cause injury, breakdown or damage.

On modifying parameters of the driver, please do it after reading the manual of the driver or technical reference carefully.

It may cause injury, breakdown or damage.

Trial Run, Z phase search, and frequency characteristics measurement accompanies motor operation. Please execute it after securing surrounding safety without fail.

It may cause injury, breakdown or damage.

Software License Agreement

[The original text of this Agreement is written in Japanese, and this translation does not have any effect, whether *de jure* or *de facto*.]

Software License Agreement

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On starting to use the Software, you will be deemed to have accepted all the terms of this Agreement. Please do not use the Software unless you accept this Agreement.

The Software may incorporate several open-source software programs in addition to proprietary computer programs in our possession or licensed to us. If open-source software programs are incorporated, please see the license statements included in the Software installation package for those programs. If there is any conflict between the license statements in the open-source software program licenses and those in this Agreement, the wording of the open-source software program licenses will prevail.

Article 1. License

We grant you a non-exclusive license to use the Software for the purpose of using our products identified in the Software manual (hereinafter referred to as the "Products") in accordance with the terms of this Agreement. You may not use the Software for the purpose of using third-party products that are not ours.

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The following acts are prohibited with regard to the Software.

(1) Altering, reverse-engineering, decompiling, or disassembling the Software, or any other act of a similar nature.
(2) Use of the Software other than by the methods prescribed in the manual provided by us or our website, or any other methods designated by us.
(3) Use of the Software for any purposes other than those prescribed in the manual provided by us or our website, or any other purposes designated by us.
(4) Distribution, renting out, leasing, loaning, or the assigning of the Software to any third party.

However, subject to the assignee's agreement to be bound by all the

conditions of this Agreement, you may assign the Software license under this Agreement together with the Products. In this case, you will deliver all the copies of the Software and its annexed documentation to the assignee, and you may not retain any copies of the Software, including backup copies.

Article 3. Disclaimer

We do not warrant the Software's merchantability, fitness for any particular purpose, or non-infringement of third-party intellectual property rights, and do not make any other warranties with regard to the Software.

2. We accept no responsibility for damage of any kind (including direct, indirect, incidental, consequential, and special damage) that results from the use of the Software, loss of its use, or any bugs, security holes, malfunctions or other glitches, or otherwise resulting from use of the Software.

Article 4. Effective term

This Agreement comes into effect when you accept it and start to use the Software.

2. If you are in breach of any of the provisions of this Agreement, we may immediately terminate this Agreement.
3. Within four weeks after this Agreement is terminated, you will return to us, or erase or destroy all of the Software and its copies at your expense.

Article 5. Compliance with export laws

You must comply with the export control laws, regulations, etc., of all countries that have jurisdiction over the parties hereto (including the Foreign Exchange and Foreign Trade Act of Japan, and export control regulations based on United Nations Security Council resolutions). If qualifications or appropriate approval by governmental agencies are required, it is prohibited to export the Software directly or indirectly to any countries without such approval. It is also prohibited to use or sell the Software directly or indirectly for military purposes.

Article 6. Ownership of copyright, etc.

Except for open-source software programs, all copyrights and other intellectual property rights to the Software are vested in us or our licensors.

Article 7. Upgrading

It is within our discretion whether or not to offer Software upgrades or updates at any point in the future. If an upgrade or update is offered, a fee may be charged.

2. If a Software upgrade or update is offered, whether on a chargeable or non-chargeable basis, this Agreement will apply as part of the Software unless otherwise specified by us when the offer is made.

Article 8. Limitation of liability

In no event will our liability associated with this Agreement or the Software exceed 10,000 yen.

Article 9. Modifications

We may modify this Agreement at any time at our discretion if

(1) the modifications to this Agreement are in conformity with your interest in general; or

(2) the modifications to this Agreement are not incompatible with the purpose of this Agreement, and are rational in light of the need for and reasonableness of the modifications, and other circumstances related to the modifications.

2. If we modify this Agreement pursuant to the preceding paragraph, we will announce our plan to modify this Agreement, the content of the modified version of this Agreement, and the date on which the modifications will come into effect on our website no later than two weeks before the effective date of the modified version of this Agreement. However, we may effect modifications without notice to you if they are of a minor nature or are not detrimental to you. This Agreement will be modified on the date that the modifications come into effect.

Article 10. Governing law and jurisdiction

This Agreement is governed by the laws of Japan.

2. If any dispute arises in connection with this Agreement, the Osaka District Court will have exclusive jurisdiction over such dispute.

[1st Apr. 2024] Version

1. Initially

Notes for safety issues

This software runs on “Windows”, and performs communications between personal computers and MINAS series driver.
MINAS series have functions to perform communications with commercially available personal computers with USB cables. Moreover in a part of series has the function to perform RS232 communication with RS232 cable. And can set parameters of the drivers, or can monitor control situations using a PC screen and mouse. When using the device, also read the operation manuals and technical publications on the driver main unit.

2. System Construction

Confirming applicable drivers

This software is for our AC servo driver MINAS series. It is not available for other products. Applicable driver's model names and series are as below.

Series	Model name	USB	RS232
MINAS - A5 series	M * DH * * * * *	✓	✓
	M * DH * * * * * E	✓	
MINAS - A5B series	M * DH * * * * * B01 M * DH * * * * * B03 M * DH * * * * * B21 M * DH * * * * * BA1 M * DH * * * * * BA3 M * DH * * * * * BD1	✓	
MINAS - A5BL series	M * DH * * * * * B91 M * DH * * * * * BL1	✓	
MINAS - A5II series	M * DK * * * * *	✓	✓
	M * DK * * * * * E	✓	
MINAS - A5L series	M * DH * * * * * L01 M * DH * * * * * LA1	✓	✓
MINAS - A5L04(LA4) series	M * DH * * * * * L04	✓	✓
	M * DH * * * * * LA4	✓	
MINAS - A5MN series	MMDHT * * * * ND1 MMDHT * * * * N21	✓	
MINAS - A5N series	M * DH * * * * * N01 M * DH * * * * * NA1	✓	
MINAS - A5ND1 series	M * DHT * * * * ND1 M * DHT * * * * N21	✓	
MINAS - A5NL series	M * DH * * * * * N91 M * DH * * * * * NL1	✓	

(Continued on next page)

Series	Model name	USB	RS232
MINAS - A6 series	M * DL * * * SF M * DL * * * SG	✓	✓
	M * DL * * * SE	✓	
MINAS - A6L series	M * DL * * * SM	✓	✓
	M * DL * * * SL	✓	
MINAS-A6 (V-frame) series	MVDL * * * SF MVDL * * * SG	✓	✓
MINAS-A6L (V-frame) series	MVDL * * * SM	✓	✓
MINAS-A6SC series	M * DL * * * SC	✓	
MINAS - A6ST series	M * DL * * * ST	✓	✓
MINAS - A6N series	M * DL * * * NF M * DL * * * NE	✓	
MINAS - A6NL series	M * DL * * * NM M * DL * * * NL	✓	

(Continued on next page)

Series	Model name	USB	RS232
MINAS - A6B series	M * DL * * * BF M * DL * * * BE	✓	
MINAS - A6BC series	M * DL * * * BC	✓	
MINAS - A6BL series	M * DL * * * BM M * DL * * * BL	✓	
MINAS - A6BL0C0 series	M * DL * * * BM0C0 M * DL * * * BL0C0	✓	
MINAS - A6BN series	M * DL * * * BN	✓	
MINAS - A6BN0C0 series	M * DL * * * BN0C0	✓	
MINAS - A6BU series	M * DL * * * BU	✓	

Models of drivers can be identified with the character of * in the model name above.
(The characters of * are defined model by model.)

Notes 1) That is information on the day of Mar. 2025. Please check with the shop you buy from if this software is applied to the drive you use.

Needed system construction

To use this software, equipment which satisfy the conditions below are needed. Please refer to the operation manual attached to the each equipment, and then construct the system. The software may not be operated with a different environment from recommended one.

Personal Computer (PC)

Operation system	Windows 10(32bit version, 64bit version) Windows 11(64bit version) Japanese, English(US), Chinese(Simply), Korean version of the OS above
CPU	Follow operating system recommendations
Memory	Follow operating system recommendations
Hard disk	1GB or more
Communication	USB port COM port (Communication speed 2400bps - 115,200bps) Note) A COM port is required when using RS232 communication. Communication speed recommends not less than 9600 bps.

Display

Resolution	1024×768 PIXEL or more
Color number	24bit color (True Color) or more

<Notes>

- Windows is needed to be prepared by customers.
- To use different OS from ones above, customers need to check operations.
- PANATERM should be used in condition that initial setting of Windows is renewed into the newest one.
- Using with other applications, operation of PANATERM may become unstable. Please use PANATERM solely.
- All users can operate the servo driver with PANATERM. To prevent dangerous operations, do not leave the PC with PANATERM installed in a state where it can be operated by a third party.

<Notes>

- Not guaranteed with other OS.
- Please check the operation by customers when used with different system environment from ones above.
- This product is performing checking of operations by Windows 10 and Windows 11. The operation may be different on other versions.
- This product is not applied to indication on multiple displays.
- In case two or more PANATERM are running, all operations cannot be guaranteed.
- Illustrations/screens may be different from actual cases.
- In conjunction with that Microsoft has ended all support for Windows XP (United States time) April 8, 2014, we end support for PANATERM in Windows XP.
- In conjunction with that Microsoft has ended all support for Windows Vista (United States time) April 11, 2017, we end support for PANATERM in Windows Vista.
- In conjunction with that Microsoft has ended all support for Windows 7 (United States time) Jan 14, 2020, we end support for PANATERM in Windows 7.
- In conjunction with that Microsoft has ended all support for Windows 8.1 (United States time) Jan 10, 2023, we end support for PANATERM in Windows 8.1.

3. Set up

Installer construction

PANATERM installer includes the data below.

Item	Folder name after installation
PANATERM main body	PANATERM
Parameter file conversion software	ParameterConverter
Software for simulation	SimMotor
Disk driver for USB communication	USBDriver

<Notes>
Using PANATERM installer, please install it to the hard disk of the PC. It cannot be installed to the network drive. Even with copy or other measure, it cannot be installed/setup.

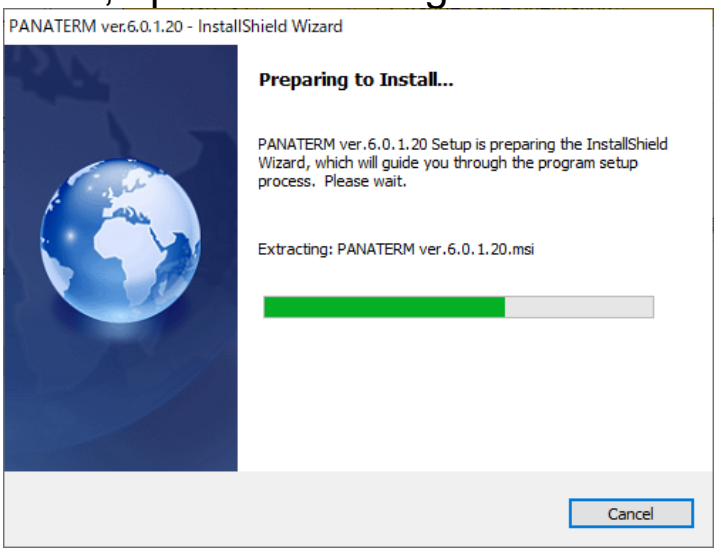
Way of installation

<Advance preparation>

1 Turn on the power supply of PC and start Windows.
(Close down other software running.)
2 Copy PANATERM installer (setup.exe) into an arbitrary folder.
3 Disconnect if the driver is connected to the PC with a USB cable.
4 Uninstall the PANATERM with the way below if PANATERM is already installed.
Select “PANATERM ver.6.0” with “Control panel” > “Programs and Features”, and click “Uninstall”.

<Start install>

1 Double - click “setup.exe”. Startup PANATERM Installer. Select the language (Japanese, English, Chinese (Simply) and Korean). And then, operate following the direction on the screen



2 After completing the install, the short cut icons below will be made on the desktop.

 PANATERM ver.6.0

 ParameterConverter

 SimMotor

■Notes

· When an error occurs during setup, an error message will be displayed. Please refer to page 261 “Set up”, and remove the cause of the error.

· Please do not turn off the power supply of the PC or start up other software before completion of the install.

· If Microsoft .NET Framework 4.8 is not installed, install .NET Framework 4.8 from the Microsoft website. Also, if you are asked to restart your computer after installation, please do so.

· Selection of language on setup is to select language of setup screen. The language selection of PANATERM can be changed with “File” > “Setting” > “Culture” on the menu bar on the condition that all function windows are closed down.

<Connection to driver (Device driver setting)>

1 When you connect using a USB cable, please refer to page 20 “Connection”, and connect the USB connector on the front of the driver and USB connector of the PC. When you connect using a RS232 cable, it is not necessary to carry out the following items.

2 When the driver’s power supply is turned on, pop-up appears on the task bar, and installing device driver automatically.

Notes 1) It is necessary to setup the device driver to each USB connector. Please setup device driver for each USB connector of using.

4. Basic Operation

Indication of keys

General Key indications which do not rely on the models of the keyboards are used in this manual, the indication may be different. Please read the indication based on the table below.

Indication	Context
[↑][←] [↓][→]	Up down and right and left are indicated. With these keys input, selected items are changed. Selected item is highlighted.
Number (0 - 9)	Number keys are indicated. Please input the objective number.
[ESC]	On keyboards, escape keys are indicated [Esc], [ESC]. They are used to turn inputted value back to the original one.
[ENTER]	Enter keys which is indicated [Enter], [ENTER], [RETURN] on keyboards are indicated. Input when each menus are selected and executed and at the end of input of values.

Section operation way of menu

Each item is executed by left - clicking the menu item or the operation button required to select.
Each items can be executed also by highlighting the menu required to select with [↑], [→], [↓], [←] keys, and pressing [ENTER] key.

Input of value

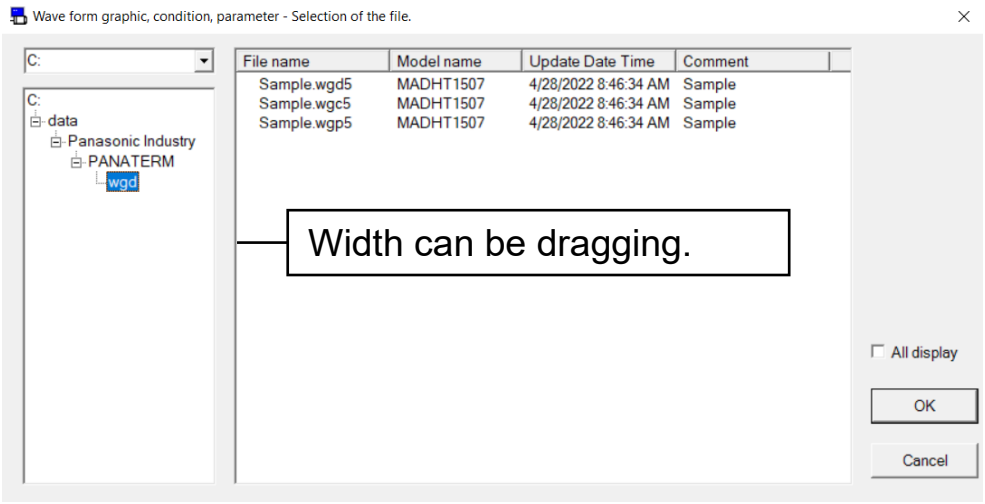
Please input them with number keys on the keyboard.
Value data of parameter changing and so on is indicated with decimal numbers. Please input them with decimal numbers. Binary numbers and hexadecimal numbers are not available.
Value input can be cancelled with [ESC] key.

File operations

The following dialogue of file is displayed when files need to be appointing on “Read” or “Save” of parameters and so on.

<Read>

Use built-in dialogue box in PANATERM for read in parameter file, wave form graphic file or frequency character file.
This dialogue is only the objective file is displayed.

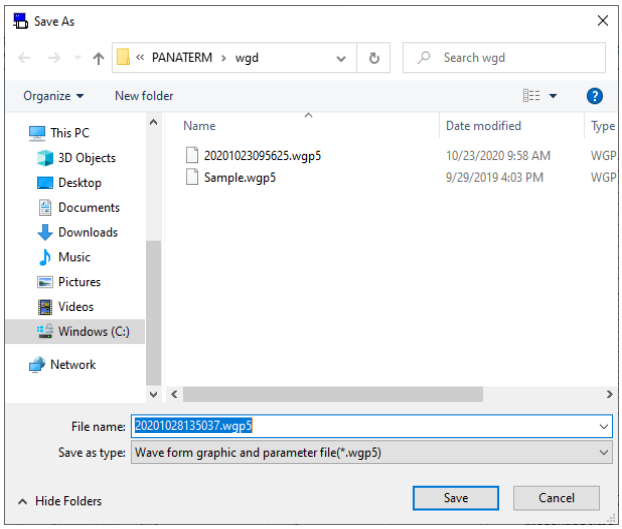


“All display” : If you checked this, files are displayed that you didn’t select series too.

Use dialogue box of Windows common dialogue box for read other file.

<Save>

Use dialogue box of Windows common dialogue box.



<Notes>
Extensions are added to files dealt with PANATERM to identify the types of each files. Please do not change the extensions. PANATERM cannot read files if their extensions are changed.

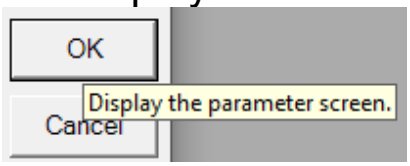
Parameter file	filename.prm5
Parameter comparison file Object comparison file Twisted table compensation adjustment results file Twisted table compensation measuring instrument data file	filename.csv
Wave form graphic measure condition file	filename.wgc5 filename.wgc6
Wave form graphic measure result file	filename.wgd5 filename.wgd6
Wave form graphic parameter and measure result file	filename.wgp5 filename.wgp6
Frequency character measure condition file	filename.fcc5
Frequency character measure result file	filename.fcd5
Frequency character parameter and measure result file	filename.fcp5
Monitor screen log file	filename.mon5
Fit gain measure result file	filename.fit5
Object data file	filename.obj5
Block parameter file	filename.obj5
Twisted table compensation file	filename.gnt5
Linear motor initial adjustment results file	filename.lms

Closing down way of each screen

Each screen are closed down clicking “Exit” with left button of the mouse when there is “Exit” button on the tool bar of the each screen. Also they can be closed down clicking right above of the screen.

Tool chip text

The explanations of the objective items are displayed if the mouse button is put on the displayed items.

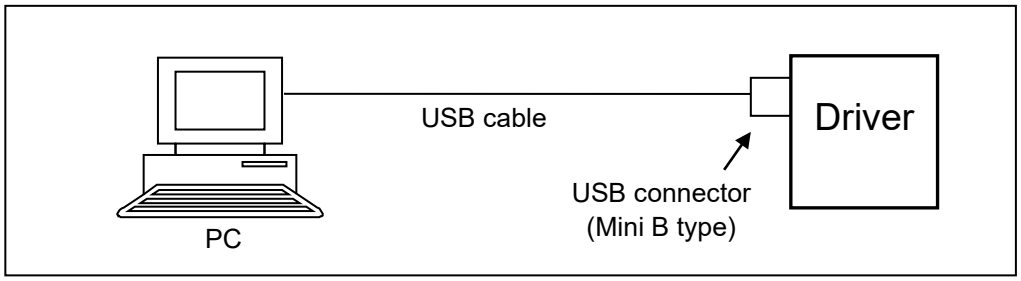


5. Start up and Close down

Connection

Connection of USB cable (Commercialized product)

Please confirm that all power supplies of the driver and PC are turned off. Please be sure to insert USB cable.
Please refer to the driver's manual or technical reference regarding connection and setting measure with the front panel.
<In case 1 driver is connected>



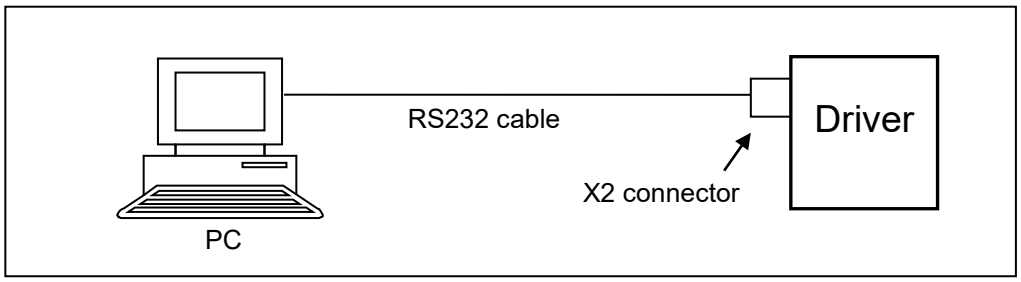
Notes 1) Regarding communication speed, it is applicable to full speed of 12 Mbps only. Actual communication speed may change largely by many causes, connection to USB equipment other than drivers, operation load condition of PC side OS, communication error caused by communication error by noise or something, driver's response speed, and so on.

Notes 2) USB cables are not prepared by our company. Please use commercialized USB cables applied to USB2.0 with shield and ferrite core for anti - noise.

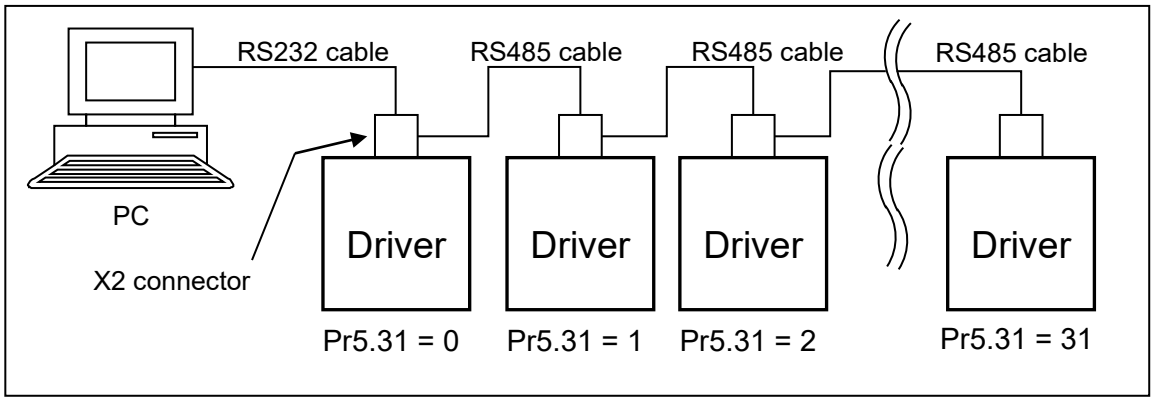
Notes 3) When two or more systems are connected simultaneously in parallel the operation of PANATERM cannot be guaranteed.

Connection of RS232 cable

Please confirm that all power supplies of the driver and PC are turned off. Please be sure to insert RS232 cable.
In connecting two or more drivers, it connects driver with a PC by RS232 communication. It connects by RS485 communication between each driver.
Please refer to the driver's manual or technical reference regarding connection and setting measure with the front panel.
<In case 1 driver is connected>



<In case 2 or more drivers are connected>



Notes 1) About RS232 cable and RS485 cable, it is not preparing at our company. Please prepare the cable.

Notes 2) Pr5.31 is set as the axis address (ID). Please set the axis address (ID) of the driver linked to a PC as 0. The other drivers set the axis address (ID) from 1 to 31. Please do not overlap the axis address (ID).

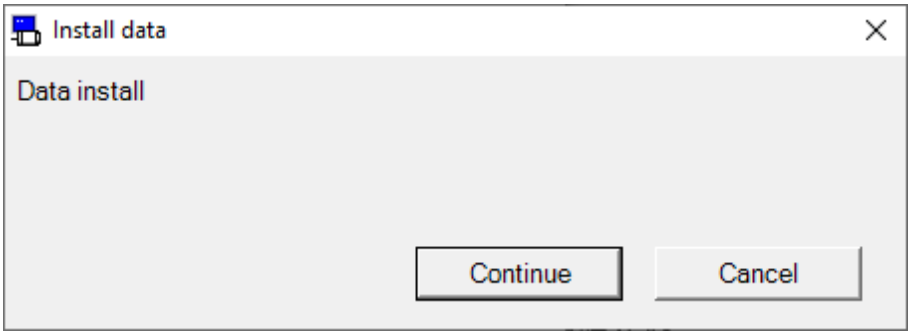
Notes 3) When you connect two or more drivers, please set up so that the communicate speed of each driver becomes the same.

Notes 4) Driver is not connectable with PC by RS485 communication.

Start up of PANATERM

1 Turn on the PC, and start up Windows.
2 Turn on the driver.
3 Click the shortcut of “PANATERM ver.6.0” made on the desktop on the installation.
In case of no shortcut on the desktop, select the group of “start” > “PANATERM” of Windows, and click “PANATERM ver.6.0” among them.
4 PANATERM main screen is displayed.

Note) When PANATERM starts up for the first time, the indication below is displayed to copy sample data of wave form graphic or something saved in PANATERM into “My document”. Choose “Continue”.



Close down of PANATERM

1 To close down PANATERM, click “File” > “Exit of PANATERM” on the menu of PANATERM screen.
(Clicking right end of the title bar on PANATERM screen is also same operation as “Exit of PANATERM”)
2 A message to confirm closing down PANATERM is displayed.
To close down, click “Yes”, to continue PANATERM operation, click “No”.

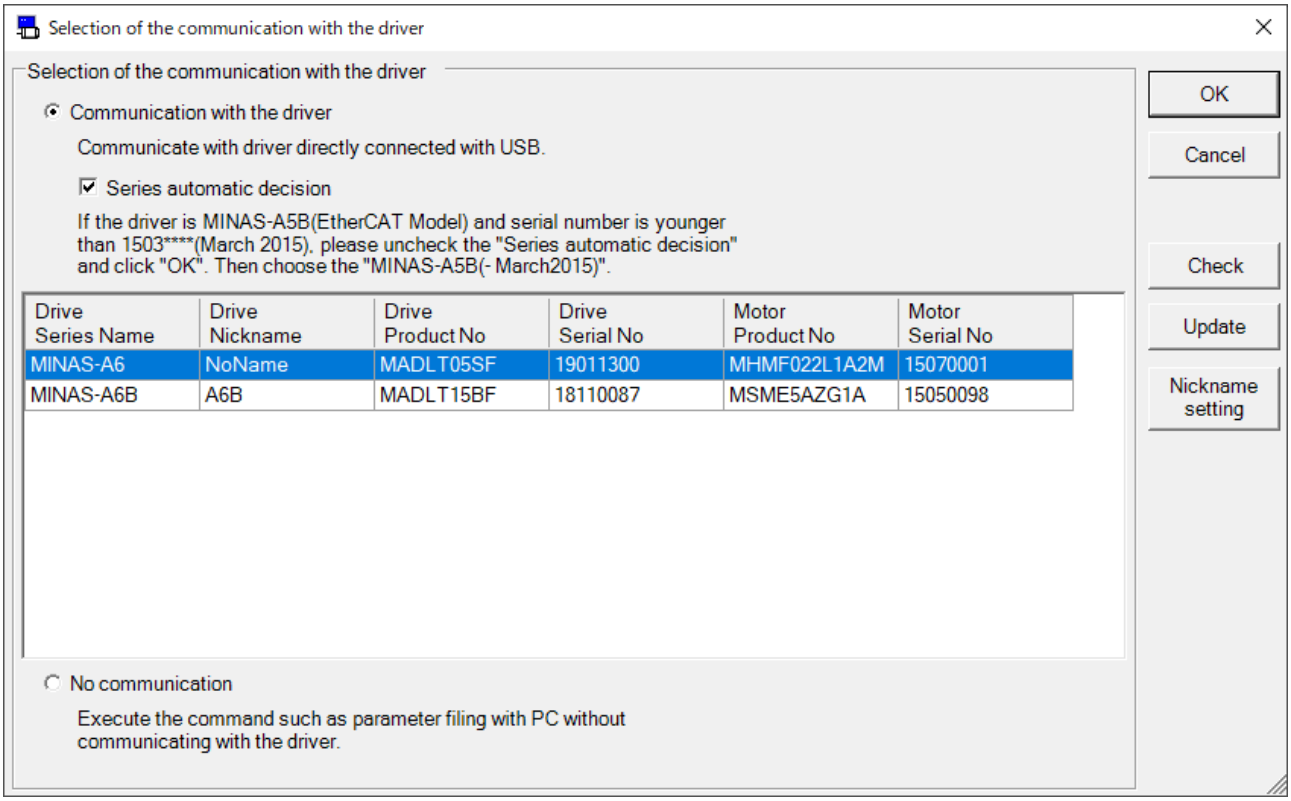
Note) Please note that if programs are closed down without saving information set or data obtained, all information would be lost.

6. Screen Operation

Select connection with drivers

Starting PANATERM displays a dialog box asking if you want to start communication with a driver. Different screens are displayed depending on whether the communication method used is USB or RS232. The dialog box also appears when you click “Connect” from the tool bar of the main screen or when you select “File” > “Setting” > “Communication with the driver” from the menu bar of the main screen.

<When USB communication is used>



Selection of the communication with the driver

□“Communication with the driver”
Communication with the driver connected by USB is done. The list of the drivers and motors model names and serial numbers are displayed. Please select the driver connected, among them.

□“Series automatic decision”
The series automatic decision function of driver is set up. Usually, please put in a check and validate it.

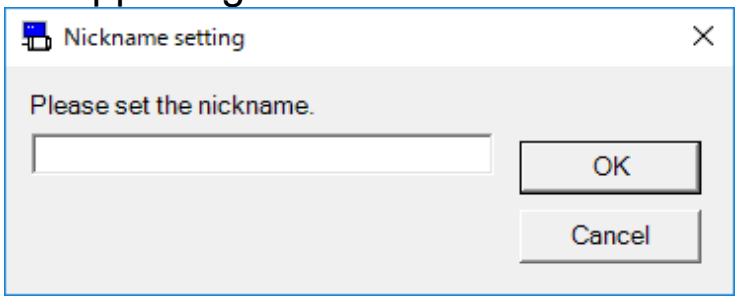
□“No communication”
Without communication with drivers, edition of parameter etc. saved in files can be available freely.

“OK”	: Determine the context selected.
“Cancel”	: Make the selected context invalid.
“Check”	: Selected driver’s front panel LED blinks. (Only “Communication with the driver” is selected.)
“Update”	: A list of the driver connected is updated.
“Nickname setting”	: Selected driver’s nickname setting is changed. (Only “Communication with the driver” is selected.)

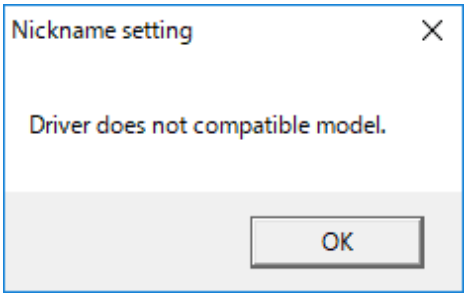
Nickname setting

When “Nickname setting” is clicked on the Communication with the driver screen, Nickname setting screen will be displayed for models which support nicknames. An error dialog will be displayed for models which do not support nicknames

< Supporting models >



< Non-supporting models >

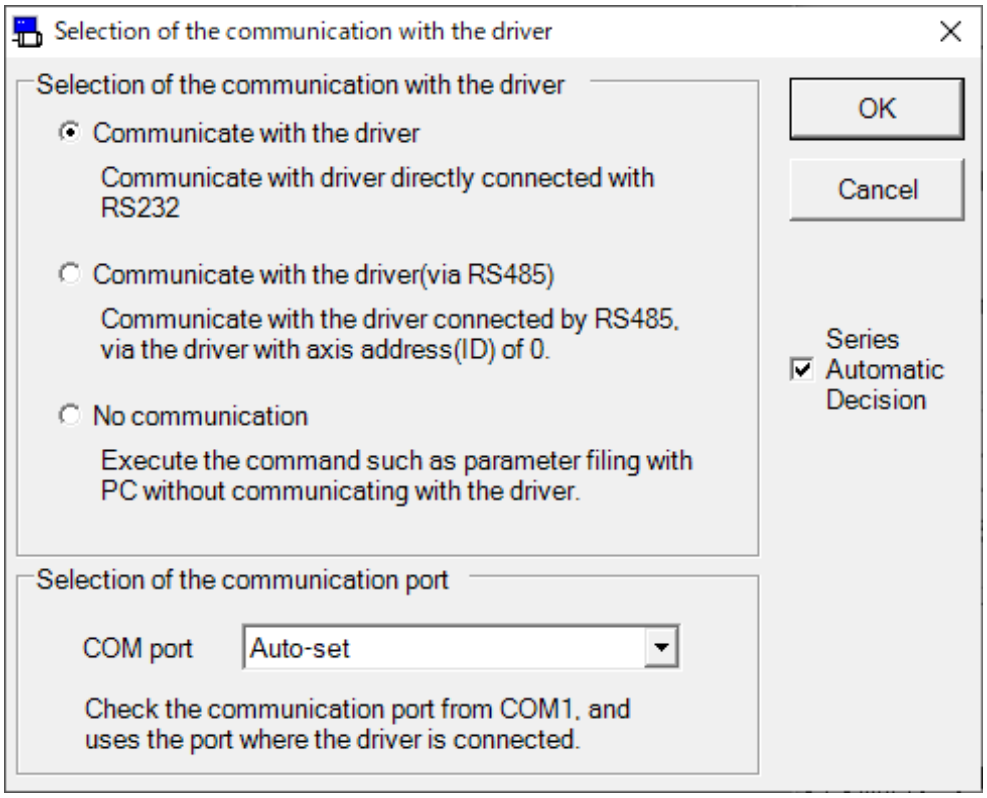


Note) Initial indication of Nickname setting screen shows blank if no nickname is set up, and the set nickname if a nickname has already been set.

Set up the nickname on Nickname setting screen and click “OK” to reflect the change in nickname, then terminate the Nickname setting screen.
Click “Cancel” to terminate Nickname setting screen without reflecting the nickname change.

Notes 1) When there are drivers communicating, the drivers are displayed “Now Connect”. To continue the communication with the drivers communicating, please click “Cancel”.
Notes 2) The driver displayed as "Already Used" cannot be selected. The driver may be communicating with other applications, or it may be operating the front panel.

<When RS232 communication is used>



Selection of the communication with the driver

□“Communicate with the driver”
Communication with the driver connected by RS232 is done.

□“Communicate with the driver (via RS485)”
It communicates with the driver connected by RS485 cable via the driver of the axial address 0.

□“No communication”
Without communication with drivers, edition of parameter etc. saved in files can be available freely.

“OK” : Determine the context selected.
“Cancel” : Exits the screen without reflecting the selected contents.

□“Series automatic decision”
The series automatic decision function of driver is set up. Usually, please put in a check and validate it.

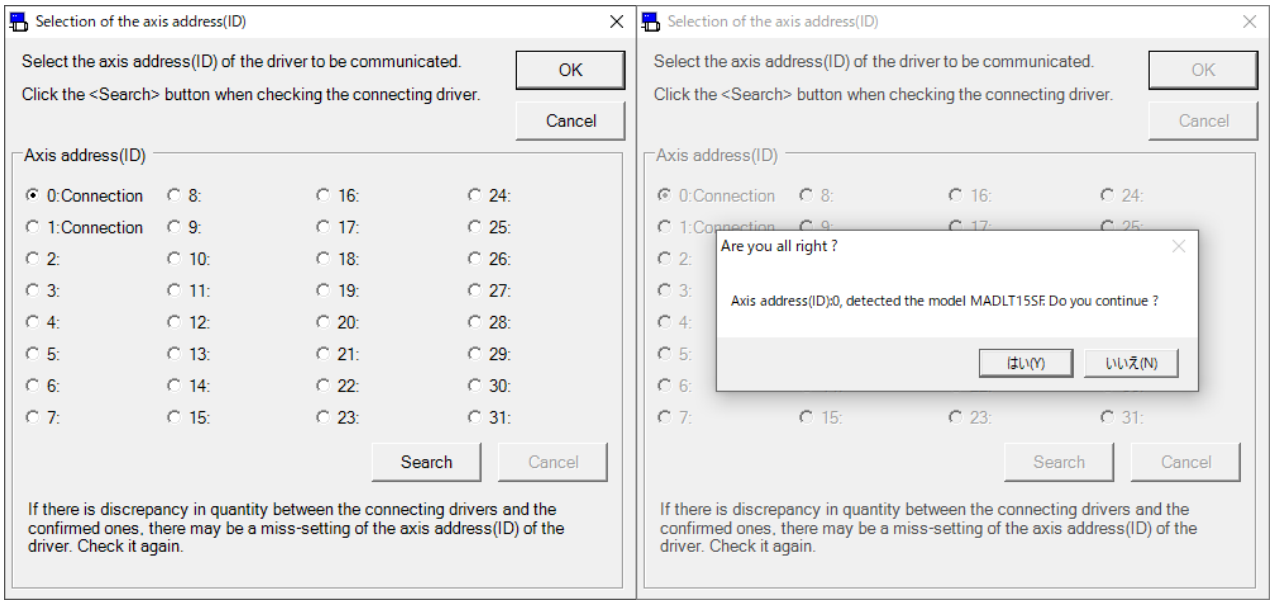
Selection of the communication port

Select the communication port.

COM 1 – 16 : The specified port is used.
Auto-set : Connected port is automatically identified.

Selection of the axis address (ID)

When connecting to a driver (via RS485) is selected, select the axis address (ID) of the driver from a list.
PANATERM performs a parameter setting and the surveillance of a state to the driver of the specified axis address in this.



"OK" : Determine the context selected.
"Cancel" : Exits the screen without reflecting the selected contents.

Axis address (ID)

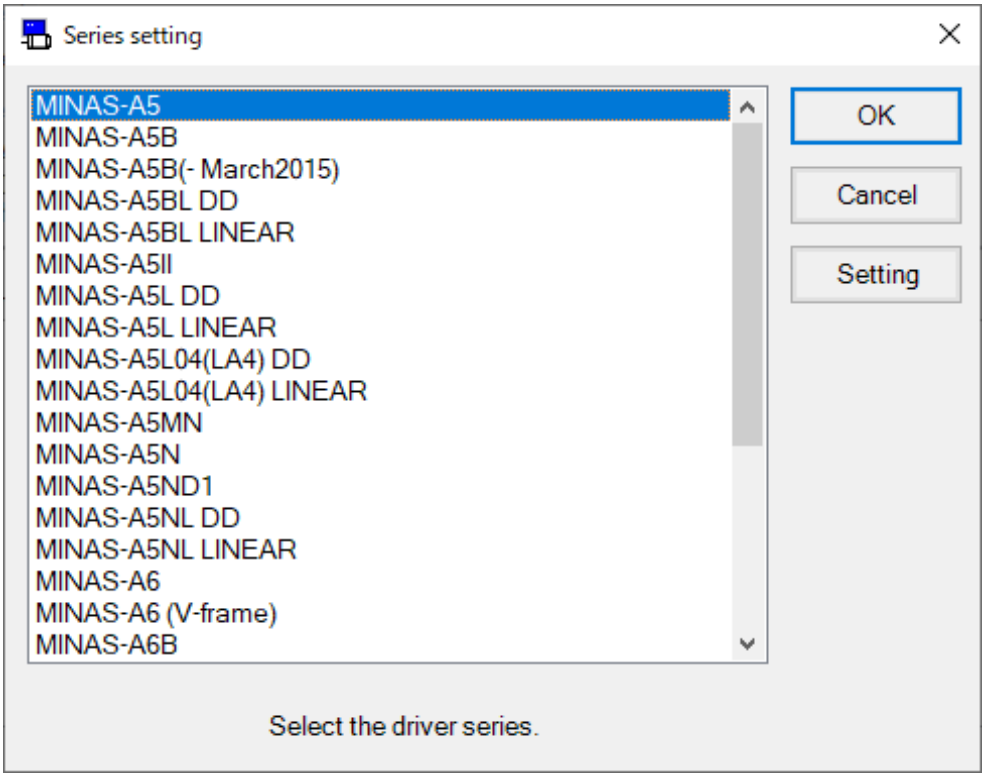
"Search" : The state of the connected driver is searched.
"Cancel" : Search of driver is stopped.

Notes 1) When the actually connected number of driver differs from the number of the driver whose check of connection was completed by search, there is a possibility that a setup of the axis address (ID) is wrong. Please check that the axis address (ID) of the driver linked to a PC is 0. Moreover, please check whether the axis address (ID) of other driver overlaps in 1 to 31.
Notes 2) Search of driver requires the time for about 1 minute.

Series setting

When select the “No communication” or “Series automatic decision” invalidity, series setting screen is displayed. Select the series name of the driver from the list.

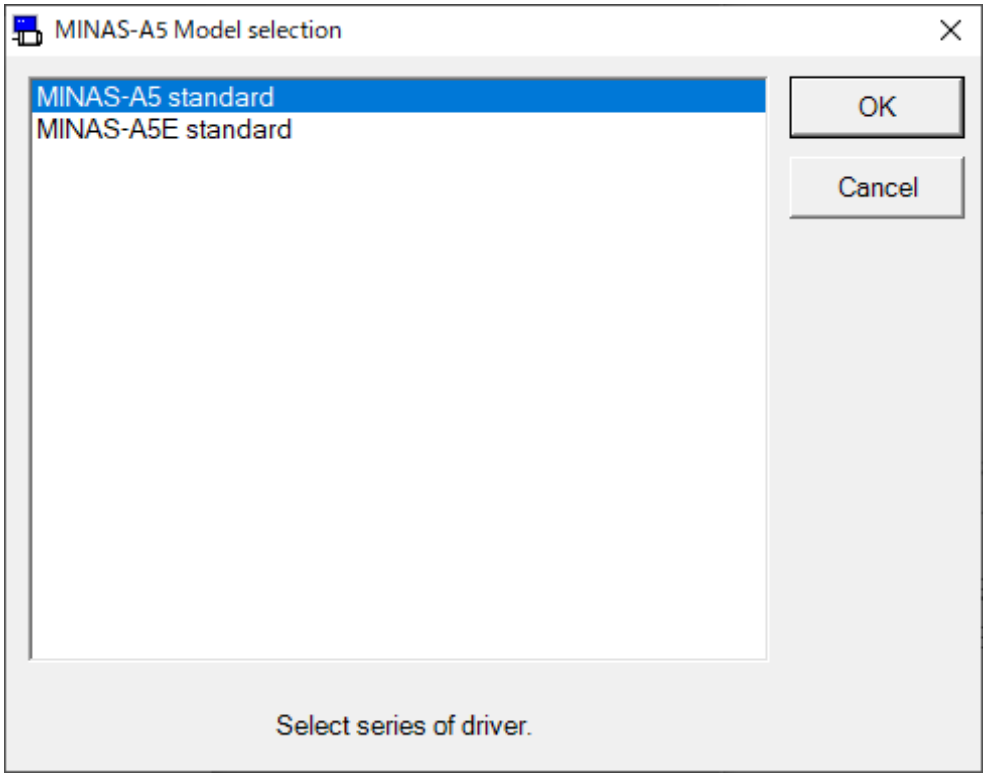
1 Regarding the combination between the driver’s model and the series, please refer to page 8 “Confirming applicable drivers”.



“OK” : Determine the context selected.
“Cancel” : Exits the screen without reflecting the selected contents.
“Setting” : Display “Series type setting screen”. Please refer to page 42.

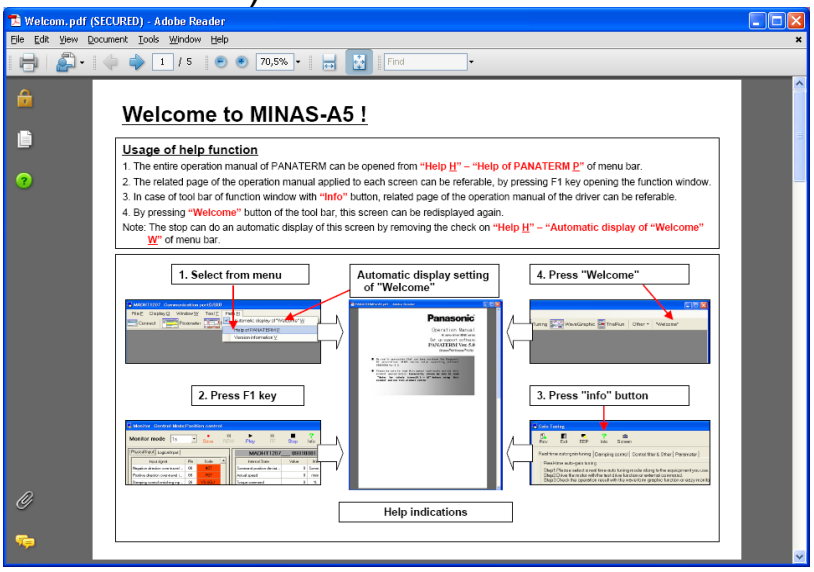
Note) Even “Communication with the driver” selected, if drivers model cannot be identified automatically, series selection is executed in case of derivational model, specified model.

2 Select the driver's model from the list.



"OK" : Selected items are determined.
"Cancel" : Exits the screen without reflecting the selected contents.

3 The main screen is displayed, and you can use all kind of function. Select the series corresponding to "Welcome" and "Welcome" screen is displayed when automatic display setting of "Welcome" is enabled. (This screen is not displayed when using RS232 communication.)



Main screen

Once PANATERM start up, the main screen is displayed. Many PANATERM functions are used opening each function windows in this main screen. Some function windows cannot use being opened together.

You can display only valid function window.

Series		MINAS-A5	MINAS-A5B	MINAS-A5BL	MINAS-A5II	MINAS-A5L	MINAS-A5L04(LA4)	MINAS-A5MN	MINAS-A5N	MINAS-A5ND1	MINAS-A5NL
Usable function window	Parameter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Monitor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Alarm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Gain Tuning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Wave form graphic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Trial run	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Frequency characteristics	✓	✓	✓ *1	✓	✓ *1	✓ *1	✓	✓	✓	✓ *1
	Pin assign	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Trouble shooting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Analogue input adjustment	✓			✓	✓	✓				
	Z phase search	✓	✓		✓			✓	✓	✓	
	Setup Wizard	✓			✓						
	Fit gain (standard)	✓			✓						
	Fit gain (2 degrees of freedom control)				✓						
	Object Editor		✓	✓							
	Battery refresh										
	Block operation editor										
	Block operation monitor										
	Block operation editor v2										
	Deterioration diagnosis										
	RTEX Setup										
	Magnetic pole position estimation results copying										
	Twisted table compensation										
	Linear motor initial adjustment										
	Welcome	✓									

(Continued on next page)

Series		MINAS-A6	MINAS-A6L	MINAS-A6(V-frame)	MINAS-A6L(V-frame)	MINAS-A6SC	MINAS-A6ST
Usable function window	Parameter	✓	✓	✓	✓	✓	✓
	Monitor	✓	✓	✓	✓	✓	✓
	Alarm	✓	✓	✓	✓	✓	✓
	Gain Tuning	✓	✓	✓	✓	✓	✓
	Wave form graphic	✓	✓	✓	✓	✓	✓
	Trial run	✓	✓	✓	✓	✓	✓
	Frequency characteristics	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1
	Pin assign	✓	✓	✓	✓	✓	✓
	Trouble shooting	✓	✓	✓	✓	✓	✓
	Analogue input adjustment	✓	✓	✓	✓		✓
	Z phase search	✓		✓		✓	✓
	Setup Wizard	✓		✓			✓
	Fit gain (standard)	✓		✓		✓	✓
	Fit gain (2 degrees of freedom control)	✓	✓ *2	✓	✓ *2	✓	✓
	Object Editor						
	Battery refresh	✓		✓		✓	✓
	Block operation editor	✓	✓	✓	✓		✓
	Block operation monitor	✓	✓	✓	✓		✓
	Block operation editor v2	✓	✓	✓	✓		✓
	Deterioration diagnosis	✓	✓	✓	✓		✓
	RTEX Setup						
	Magnetic pole position estimation results copying		✓		✓		
	Twisted table compensation						
	Linear motor initial adjustment		✓		✓		
	Welcome						

Some functions are restricted depending on software version of driver.
For details, refer to technical specification of driver.
*1 Analysis after frequency characteristic measurement cannot be used.
*2 Only linear type (LINEAR) is supported. Rotary type (DD) is not supported.

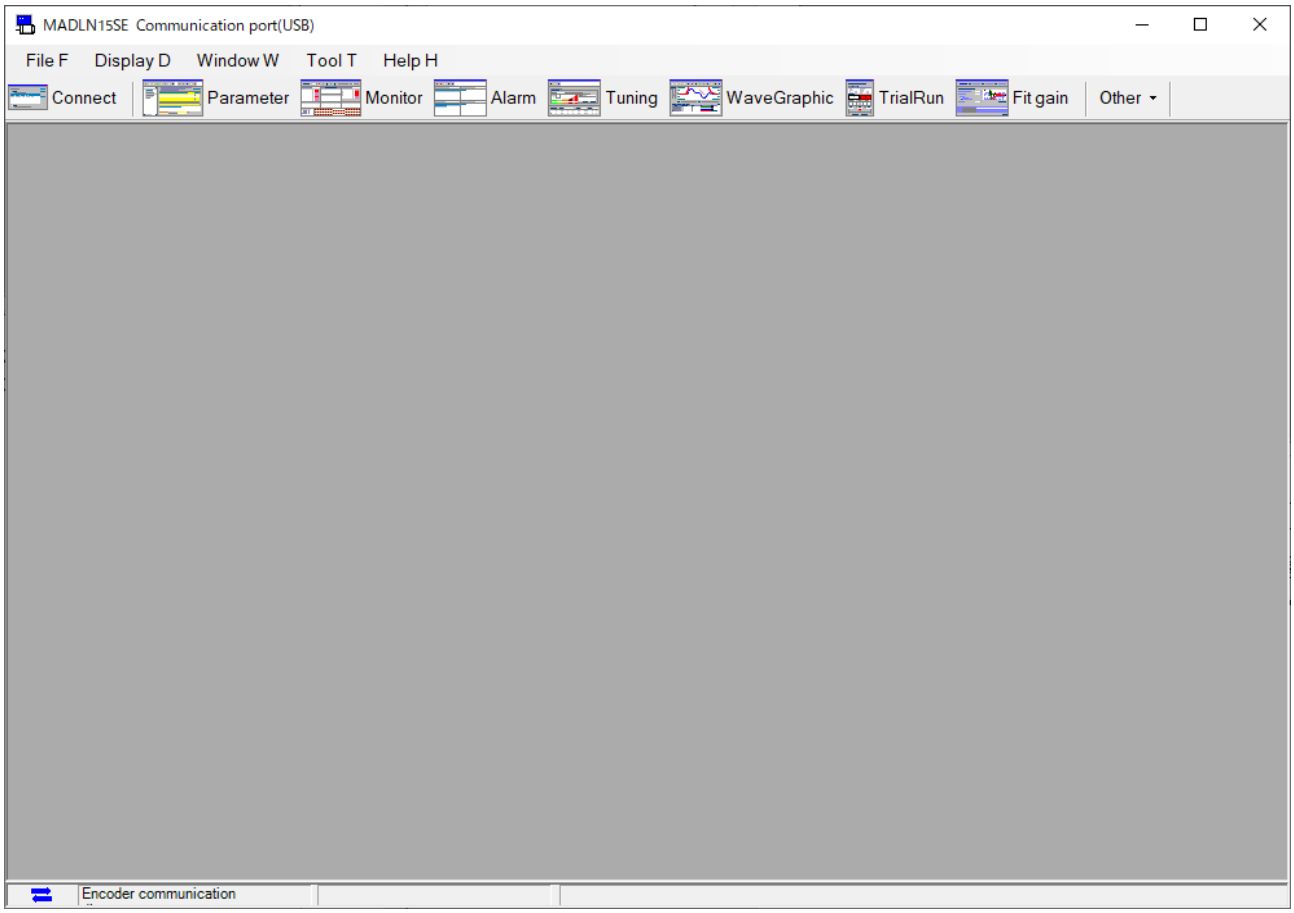
Series		MINAS-A6N	MINAS-A6NL
Usable function window	Parameter	✓	✓
	Monitor	✓	✓
	Alarm	✓	✓
	Gain Tuning	✓	✓
	Wave form graphic	✓	✓
	Trial run	✓	✓
	Frequency characteristics	✓ *1	✓ *1
	Pin assign	✓	✓
	Trouble shooting	✓	✓
	Analogue input adjustment		
	Z phase search	✓	
	Setup Wizard		
	Fit gain (standard)	✓	
	Fit gain (2 degrees of freedom control)	✓	✓ *2
	Object Editor		
	Battery refresh	✓	
	Block operation editor		
	Block operation monitor		
	Block operation editor v2		
	Deterioration diagnosis	✓	✓
	RTEX Setup	✓	✓
	Magnetic pole position estimation results copying		✓
	Twisted table compensation		
	Linear motor initial adjustment		✓
	Welcome		

Some functions are restricted depending on software version of driver.
For details, refer to technical specification of driver.
*1 Analysis after frequency characteristic measurement cannot be used.
*2 Only linear type (LINEAR) is supported. Rotary type (DD) is not supported.

Series		MINAS-A6B	MINAS-A6BC	MINAS-A6BL	MINAS-A6BL0C0	MINAS-A6BN	MINAS-A6BN0C0	MINAS-A6BU
Usable function window	Parameter	✓	✓	✓	✓	✓	✓	✓
	Monitor	✓	✓	✓	✓	✓	✓	✓
	Alarm	✓	✓	✓	✓	✓	✓	✓
	Gain Tuning	✓	✓	✓	✓	✓	✓	✓
	Wave form graphic	✓	✓	✓	✓	✓	✓	✓
	Trial run	✓	✓	✓	✓	✓	✓	✓
	Frequency characteristics	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1
	Pin assign	✓	✓	✓	✓	✓	✓	✓
	Trouble shooting	✓	✓	✓	✓	✓	✓	✓
	Analogue input adjustment							✓
	Z phase search	✓	✓					✓
	Setup Wizard							
	Fit gain (standard)	✓	✓					✓
	Fit gain (2 degrees of freedom control)	✓	✓	✓ *2	✓ *2	✓ *2	✓ *2	✓
	Object Editor	✓	✓	✓	✓	✓	✓	✓
	Battery refresh	✓						✓
	Block operation editor							
	Block operation monitor							
	Block operation editor v2							
	Deterioration diagnosis	✓	✓	✓	✓	✓	✓	✓
	RTEX Setup							
	Magnetic pole position estimation results copying			✓	✓	✓	✓	
	Twisted table compensation					✓	✓	
	Linear motor initial adjustment			✓	✓	✓	✓	
	Welcome							

Some functions are restricted depending on software version of driver.
For details, refer to technical specification of driver.
*1 Analysis after frequency characteristic measurement cannot be used.
*2 Only linear type (LINEAR) is supported. Rotary type (DD) is not supported.

<When USB communication is used>



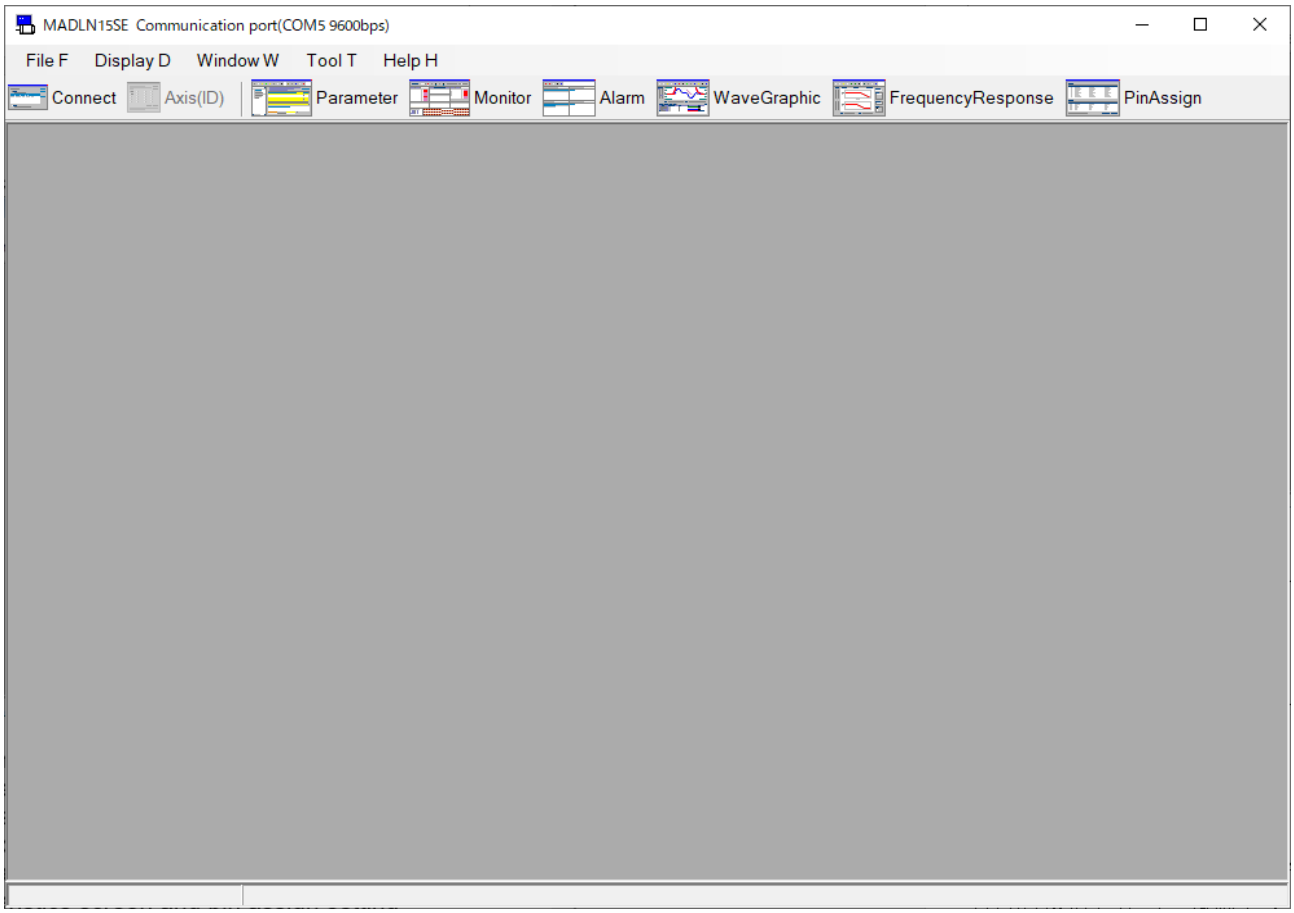
Note) Pin assign setting screen, setup wizard, RTEX setup screen, and Twisted table compensation can be operated when all other windows are closed.
Even outside the above function windows, combinations in the following cannot use.
(See the next page's table.)

	Functions that cannot be opened simultaneously
Parameter	Gain tuning, Fit gain (Standard), Fit gain (2 degrees of freedom control), Object Editor, Block operation Editor, Block operation Editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying Linear motor initial adjustment
Gain tuning	Parameter, Fit gain (Standard), Fit gain (2 degrees of freedom control), Object Editor, Block operation Editor, Block operation Editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying Linear motor initial adjustment
Wave form graphic	Linear motor initial adjustment
Trial run	Fit gain (2 degrees of freedom control), Z phase search, Magnetic pole position estimation results copying Linear motor initial adjustment
Frequency characteristics	Fit gain (Standard), Fit gain (2 degrees of freedom control) Linear motor initial adjustment
Analogue input adjustment	Magnetic pole position estimation results copying Linear motor initial adjustment
Z phase search	Fit gain (2 degrees of freedom control), Trial run, Magnetic pole position estimation results copying Linear motor initial adjustment
Fit gain (Standard)	Parameter, Gain tuning, Frequency characteristics, Object Editor, Block operation Editor, Block operation Editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying Linear motor initial adjustment

	Functions that cannot be opened simultaneously
Fit gain (2 degrees of freedom control)	Parameter, Gain tuning, Trial run, Frequency characteristics, Z phase search, Object Editor, Block operation Editor, Block operation Editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying Linear motor initial adjustment
Object Editor	Parameter, Gain tuning, Fit gain (Standard), Fit gain (2 degrees of freedom control) , Block operation Editor, Block operation Monitor, Block operation Editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying Linear motor initial adjustment
Block operation Editor	Parameter, Gain tuning, Fit gain (Standard), Fit gain (2 degrees of freedom control), Object Editor, Block operation Editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying Linear motor initial adjustment
Block operation Monitor	Object Editor, Block operation Editor v2 Linear motor initial adjustment
Block operation Editor v2	Parameter, Gain tuning, Fit gain (Standard), Fit gain (2 degrees of freedom control), Object Editor, Deterioration diagnosis, RTEX setup, Block operation Editor, Block operation Monitor, Magnetic pole position estimation results copying Linear motor initial adjustment
Deterioration diagnosis	Parameter, Gain tuning, Fit gain (Standard), Fit gain (2 degrees of freedom control), Object Editor, Block operation Editor, Block operation Editor v2, Magnetic pole position estimation results copying Linear motor initial adjustment

	Functions that cannot be opened simultaneously
Magnetic pole position estimation results copying	Parameter, Gain tuning, Trial run, Fit gain (Standard), Fit gain (2 degrees of freedom control), Analogue input adjustment, Z phase search, Object Editor, Block operation Editor, Block operation Editor v2, Deterioration diagnosis Linear motor initial adjustment
Linear motor initial adjustment	Parameter, Gain tuning, Wave form graphic, Trial run, Frequency characteristics, Fit gain (standard), Fit gain (2 degrees of freedom control), Analogue input adjustment, Z phase search, Object Editor, Block operation editor, Block operation monitor, Block operation editor v2, Deterioration diagnosis, Magnetic pole position estimation results copying

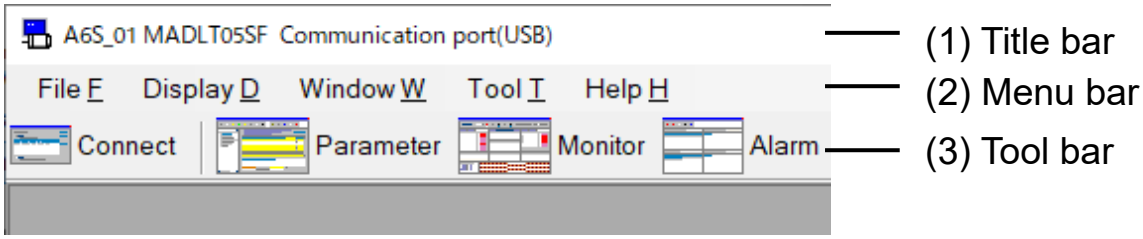
<When RS232 communication is used>



Note) Gain tuning, trial run, trouble shooting, analogue input adjustment, Z phase search, setup wizard, fit gain, object editor, battery refresh, block operation editor, block operation monitor, Block operation Editor v2, deterioration diagnosis, RTEX setup, Magnetic pole position estimation results copying, Twisted table compensation and Linear motor initial adjustment cannot used.
Frequency characteristics screen and pin assign setting screen can be operated when all other windows are closed.
Since detection of guide wire malfunction is not performed, during operation, please do not cut a communication cable or do not turn off the power supply of driver.

When connecting each driver with RS485 cable, it is possible to change connection driver from "Axis (ID)" of a tool bar.

Structure of main screen

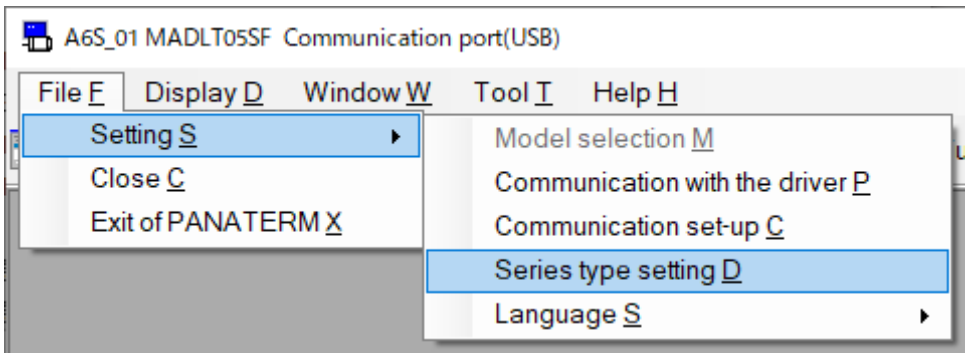


(1) Title bar

Model code and setting condition of communication port are displayed.

(2) Menu bar

The menu of “File”, “Display”, “Window”, “Tool” and “Help” are displayed. Click a command name to use a command. Some commands are divided by functions. And they changes by opening each function’s.



(3) Tool bar

Each function windows are called. Function windows can be called also out of the menu bar of the main screen.
Without communication with drivers, valid functions are limited.

In subsequent explanation, the functions that can call a function window with a tool bar are explained with the case using a tool bar for an example.

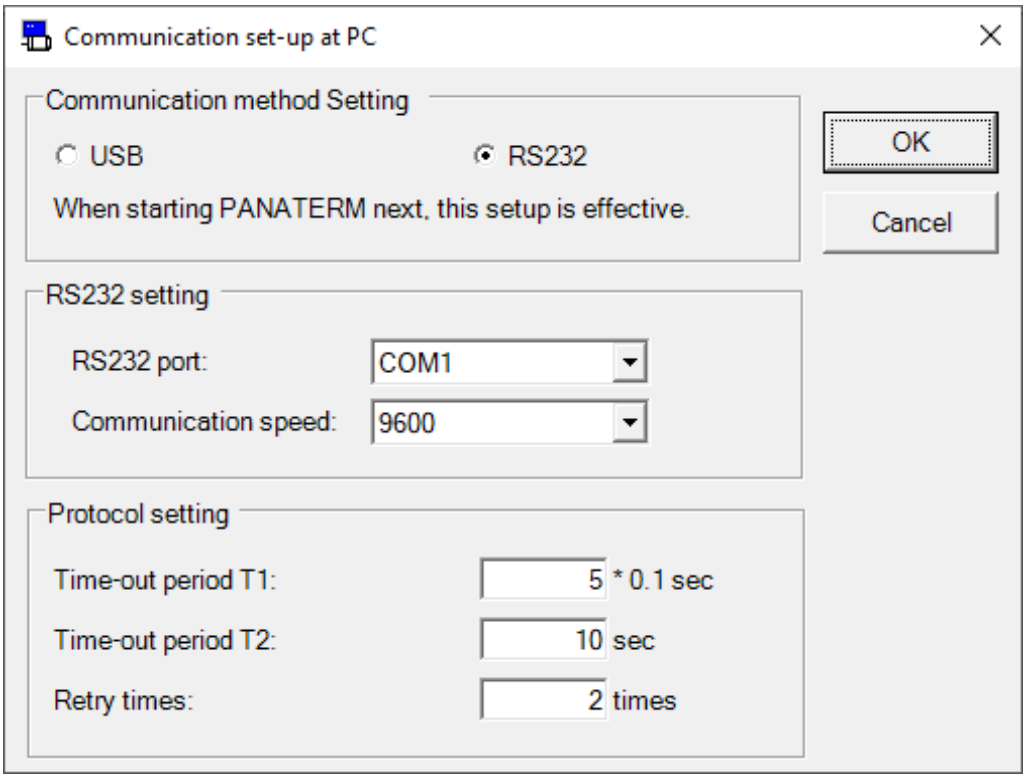
Communication set-up at PC screen

In a communication setup at PC screen, communication between driver and PANATERM is set up.

Note) Usually, please use initial setting. This setup becomes only the PC side and is not reflected in the driver side. Please be careful.

Open the Communication setup at PC window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “File” > “Setting” > “Communication with the driver” is selected on the menu bar on the main screen.
3 The Communication setup at PC window is opened.



“OK” : Selected items are determined.
“Cancel” : Exits the screen without reflecting the selected contents.

Communication method setting

Connection with driver select from “USB” communication or “RS232” communication.
When starting PANATERM next this setup is effective.

RS232 setting (When “RS232” is selected)

“RS232 port”	: Initial value of the communication port at the time of automatic search is selected.
“Communication speed”	: Initial value of the communication speed at the time of automatic search is selected.

Notes 1) Since the connection setup newest by this setup is memorized when it is under connection by RS232 communication, it cannot select except a setup in use now.

Protocol setting (When “RS232” is selected)

“Time-out period T1”	: Specify timeout T1 between characters in 0.1 seconds.
“Time-out period T2”	: Specify timeout T1 between protocols in seconds.
“Retry times”	: Specify the number of communication retrials. Setting range is from 1 to 8 times.

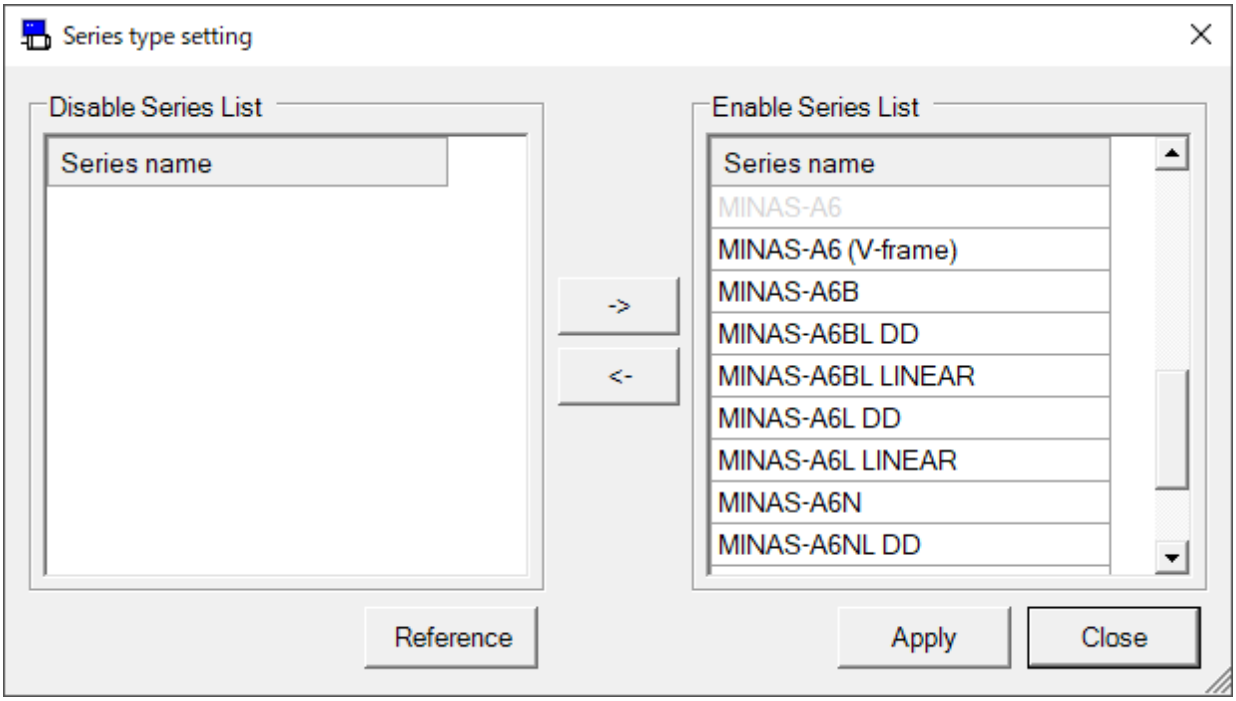
Series type setting screen

In a series type setting screen, you can use the driver of other series by adding a series definition to PANATERM.

Note) Please use the default setting normally.
For more information, please contact a distributor.

Open the Series type setting window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “File” > “Setting” > “Series type setting” of the menu bar on the main screen.
3 The Series type setting window is opened.



“->” : Move selected series in “Disable Series List” to “Enable Series List”.
“<-” : Move selected series in “Enable Series List” to “Disable Series List”.
“Reference” : You can add a new series to “Enable Series List” by referring to series definition file on the PC.
“Apply” : Apply the changes of the series definition setting.
“Close” : Close the series type setting window.

Enable Series List

The available series are displayed.
If you double click a series in this list or select series and click “<-” you can move it to “Disabled Series List”.

Disable Series List

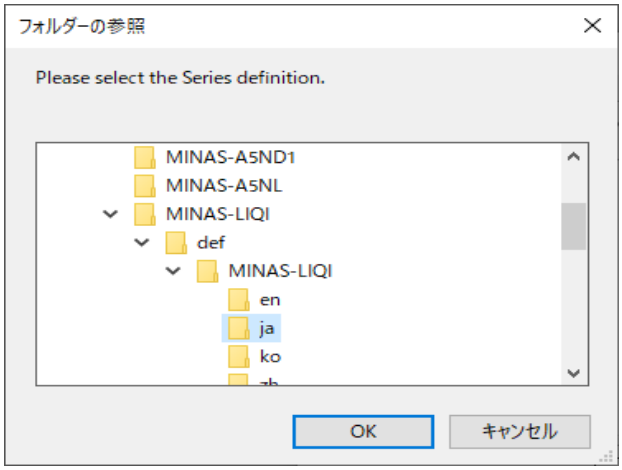
The unavailable series are displayed.
If you double click a series in this list or select series and click “->” you can move it to “Enabled Series List”.

Close the Series type setting window

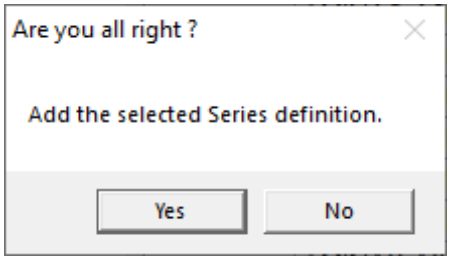
Click “Close” button or  button at top right of the screen.
If you do not run "Apply" after changing the series definition, the exit confirmation dialog is displayed.

Adding and updating of the series definition by reference

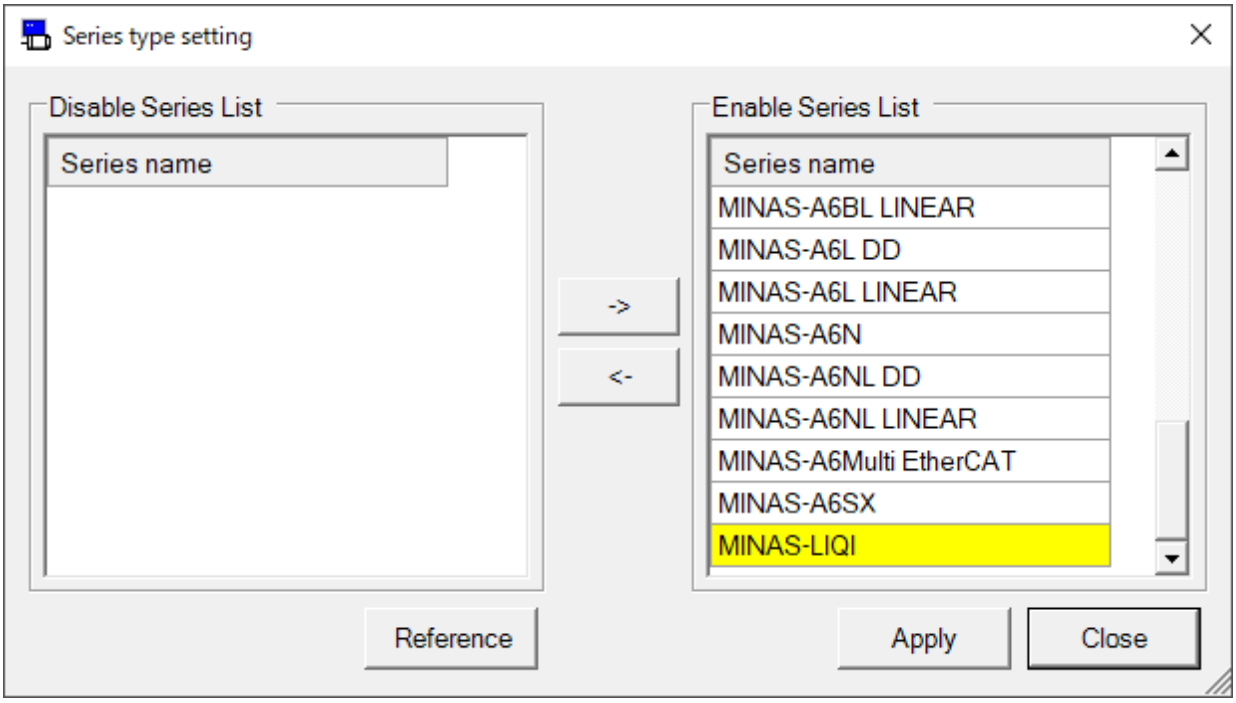
1. If you click "Reference", the Browse For Folder dialog box is displayed, and you can select folder.



2. Click “OK” after selecting the folder.
   If selected folder has a series definition file then a confirmation dialog is displayed.
   Click “Yes” then the series definition file is added.

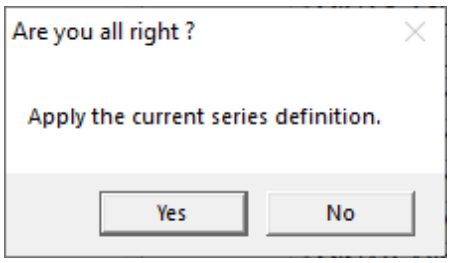


3. If adding a series definition is success, “Enable Series List” will be updated.



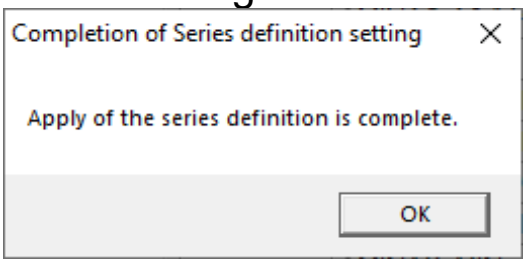
* The background color of the series definition that you added or updated will change.

4. Click “Apply”, in order to enable changes of the series definition.
If you change the series definition, the confirmation dialog will be displayed.
Click “Yes” then apply changes of the series definition.

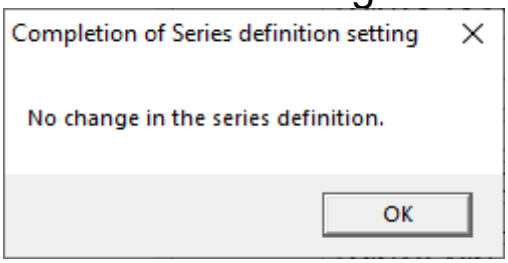


5. Completion of Series definition setting dialog will be displayed.

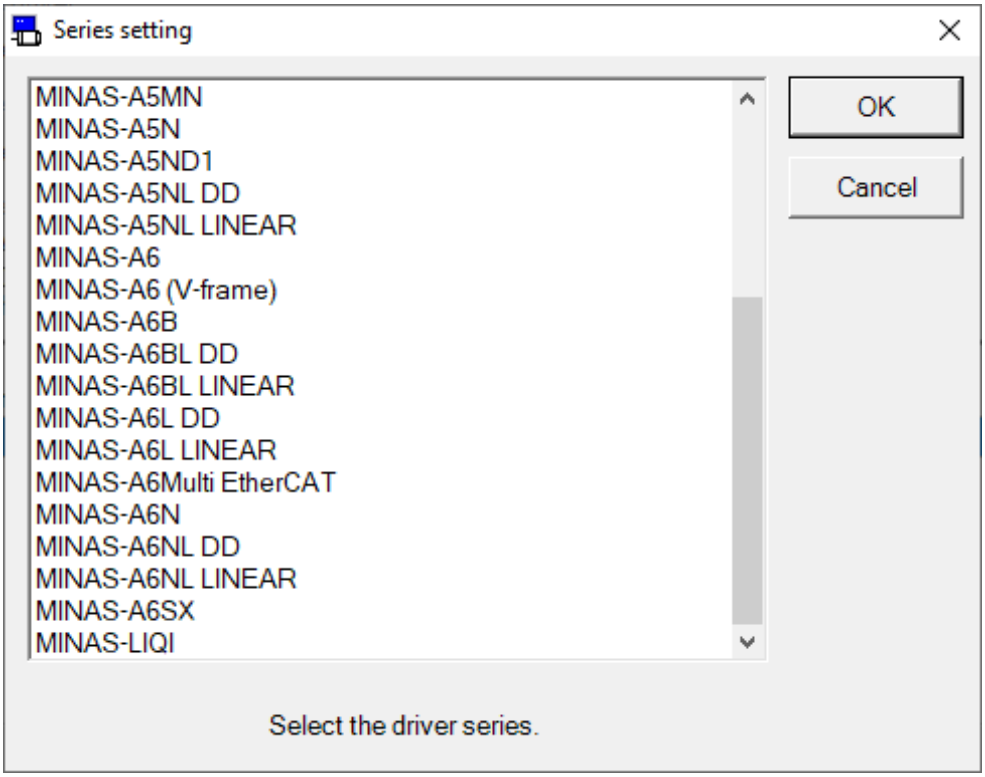
< When changed >



< When not changed >



6. The series that have been added are available for selection in the series setting screen.



Notes 1) You cannot delete the MINAS-A5 series, which is a standard model. However, update by “reference” is possible.
Notes 2) You cannot delete or update current selected series.
If you want to delete or update current selected series, please retry after switching to the other series.
Notes 3) The series definition in “Disable Series List” with a yellow background color does not exist in the installation folder of PANATERM.
So, if you delete that series, it will not be displayed “Disable Series List”. If you do not have a backup, you cannot restore.
Notes 4) When you update a series definition, some of the previous settings are initialized.

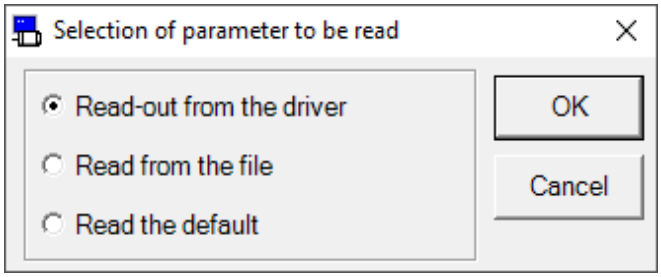
Parameter screen

In a parameter screen, parameter check of drivers, modification of parameters, saving parameters into files and some other operations on parameters are available.

Note) Please modify parameters with enough care after reading the driver's instruction manual or technical reference carefully, as some parameters give large effect to operations of drivers or motors.

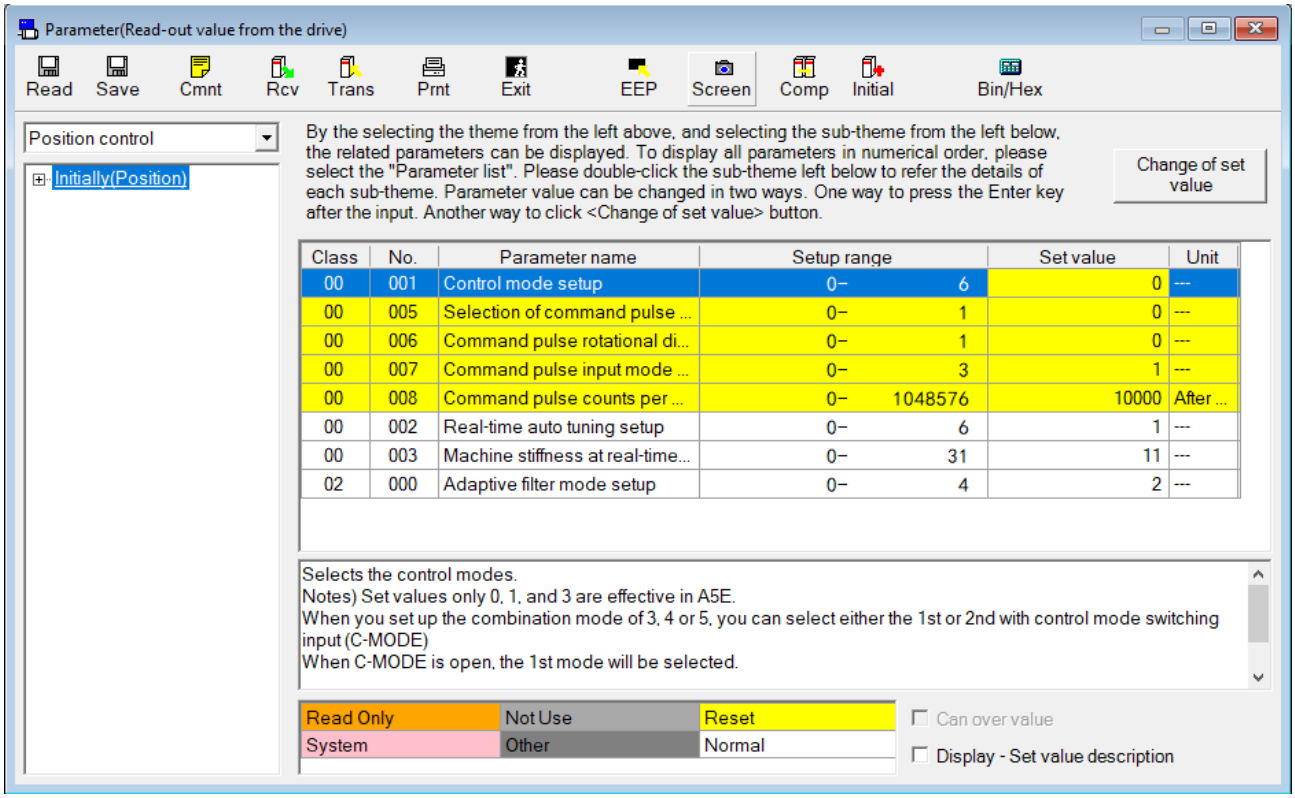
Open the Parameter window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Parameter” of the tool bar on the main screen.
3 Selection of parameter to be read window is displayed.



4 Select the origin of parameters, and click.
□“Read - out from the driver”
The parameters set in the driver are read communicating the driver connected. If this mode is selected, modifications of the parameter values are reflected to the driver immediately.
□“Read from the file”
Parameter files already edited (.prm5) are read. Parameter modifications are not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Read from the file”.
□“Read the default”
Default set values saved at the time of installation is read. The parameter modifications are not reflected unless “Transmit the parameter to the driver” is executed as the case of “Read from the file”.

5 Click “OK”. The Parameter window is opened.

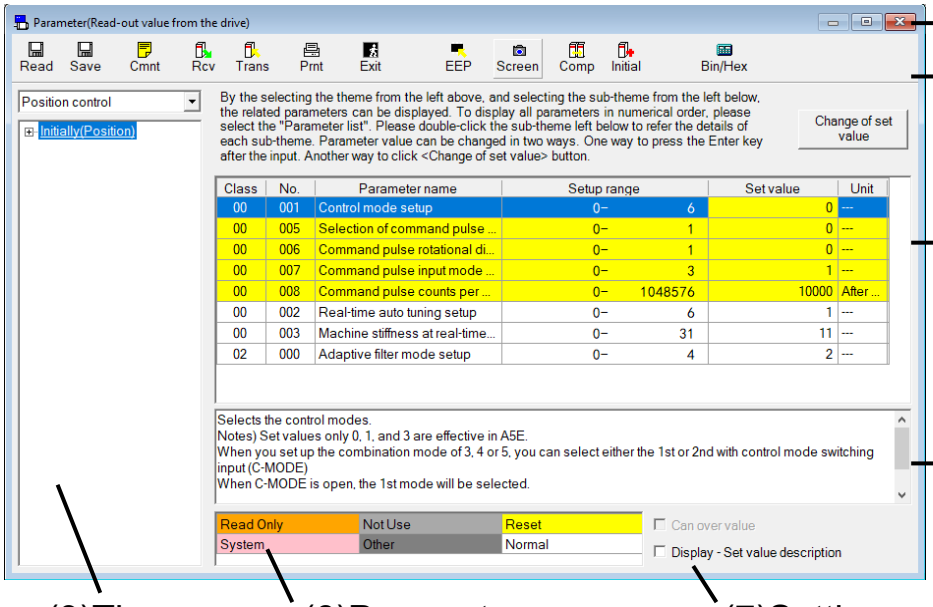


Close the Parameter window

Click 

(Exit) on the tool bar.

Structure of Parameter screen



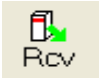
(1) Title bar

The origins of reference of parameters reference are displayed.
Following buttons are used to operate windows.

	Display the window in full screen
	Close the window

(2) Tool bar

Saving, reading, some other basic operation commands on parameters are listed.

	(Read)	Reads parameters from files (.prm5). When this button is effective, a parameter file can be specified by drag and drop.
	(Save)	Writes parameters to files (.prm5).
	(Comment)	Makes comments attached to parameters files.
	(Receive)	Receives parameters from the driver.
	(Transmit)	Sends parameters to the driver.
	(Print)	Prints parameters.

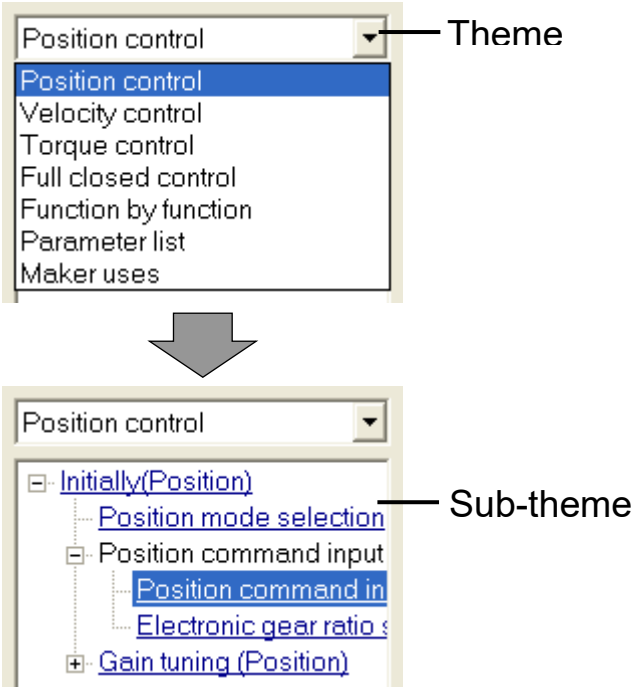
Exit	(Exit)	Closes parameter screen.
EEP	(EEPROM)	Write parameters to EEPROM of the driver.
Screen	(Screen)	Captures the screen and save into a file.
Comp	(Compare)	Compares parameters on editing with other parameters.
Initial	(Initialize)	Initialize parameters of the driver.
Bin/Hex	(Binary/ Hexadecimal)	Enter the number of binary and hexadecimal values of the selected setting.

(3) Theme selection

If the parameter classification is selected from the sub theme, related parameters are indicated in the parameter setting field.

The Help indicated by double clicking the underline of the sub theme.

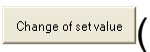
Please refer to the manual of drivers or technical reference regarding the details of sub theme.



(4) Parameter setting field

Editing and setting of parameters are available.

“Class”	Parameter classifications are indicated.
“No.”	Parameter numbers are indicated.
“Parameter name”	Parameter names are indicated.
“Setup range”	Maximum & minimum value of parameter setting is indicated.

“Set value”	Parameter value. Its value can be modified. Parameters with  on the set values are set with the combo boxes. After selecting the values from the combo boxes, input the [ENTER] key or click  (modification of set value). Parameters without  on the set values, are inputted with the number keys directly, or modified clicking  and changing the values. To set the values, input the [ENTER] key or click  (modification of set value). If the [ESC] key is inputted, the value is return to the original one.
“Unit”	Units of the parameter set values are indicated.

(5) Text indication box
Explanations regarding selected parameters.

(6) Parameter attributes explanation
Explanations regarding of parameter attribute. Back ground colors of parameters indicate the attributes.

(7) Can over value
Without communication with drivers, if a check mark is inputted on “Can over value”, settings out of bounds can be available. Setting with combo boxes is not available with check mark on “Can over value”.

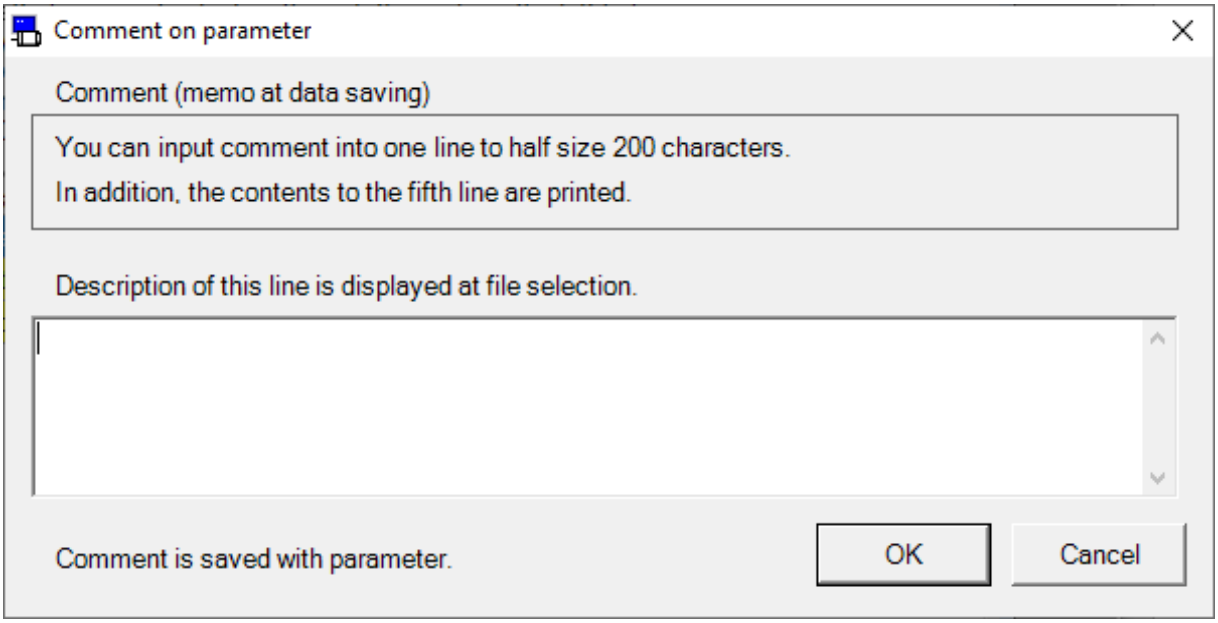
(8) Display - Set value description
The combo box and the decimal point are displayed when checking it. You can display more details of the parameters, when check on “Display - Set value description”.

Comment

On saving set parameters in a file, comments can be saved together. These comments do not effect operations of the driver.

Making Comment

1 Click Cmnt (Comment) on the tool bar, and open the comment window.



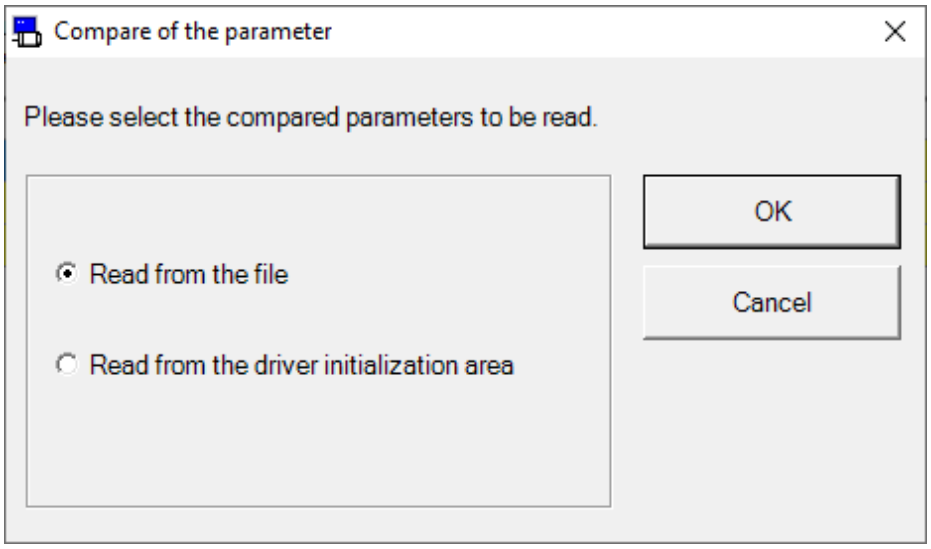
2 Click comment box and input comments.
3 After completing comment input, click “OK”.

Comparison

Parameters being edited can be compared with other parameters.

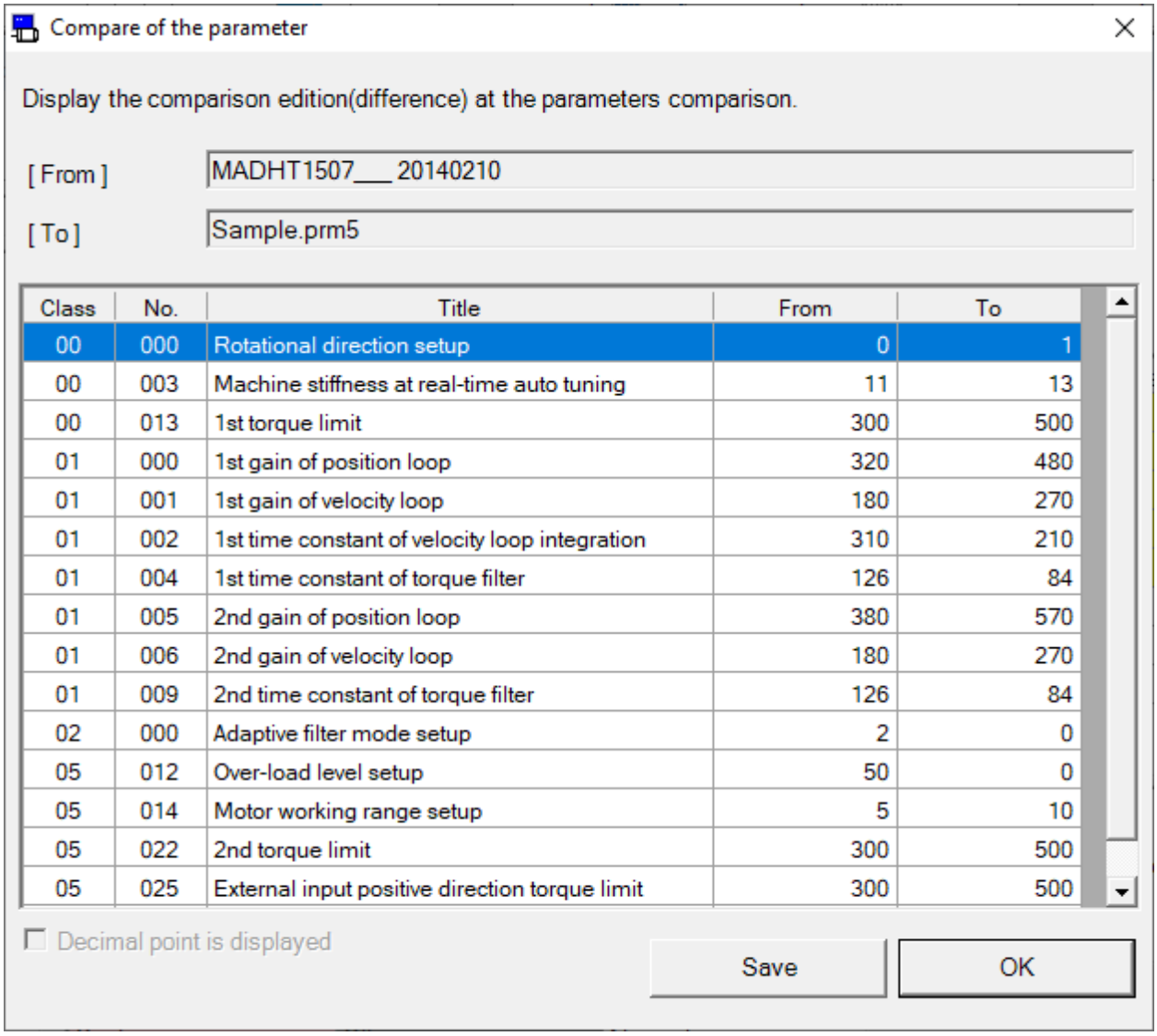
Comparison of parameters

1 Click Comp (Comparison) on the toolbar, and open the parameter comparison window.



2 Select “Read from the file” or “Read from the driver initialization area”, and click “OK”.
In case “Read from the file” is chosen, please select the file (.prm5) to be compared.

3 Comparison result of parameters is displayed.



4 Click “Save”, comparison result of parameters can be saved at a file.

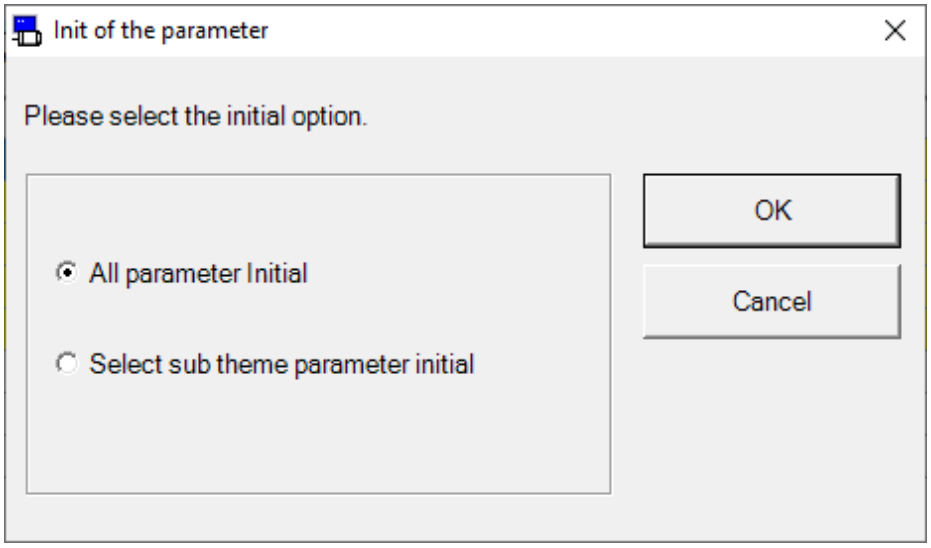
Initialization

Parameters can be initialized to the default values. The initialized parameters are written to also the EEPROM. To save current parameters, please save the parameters before initialization.

Initialization of parameters

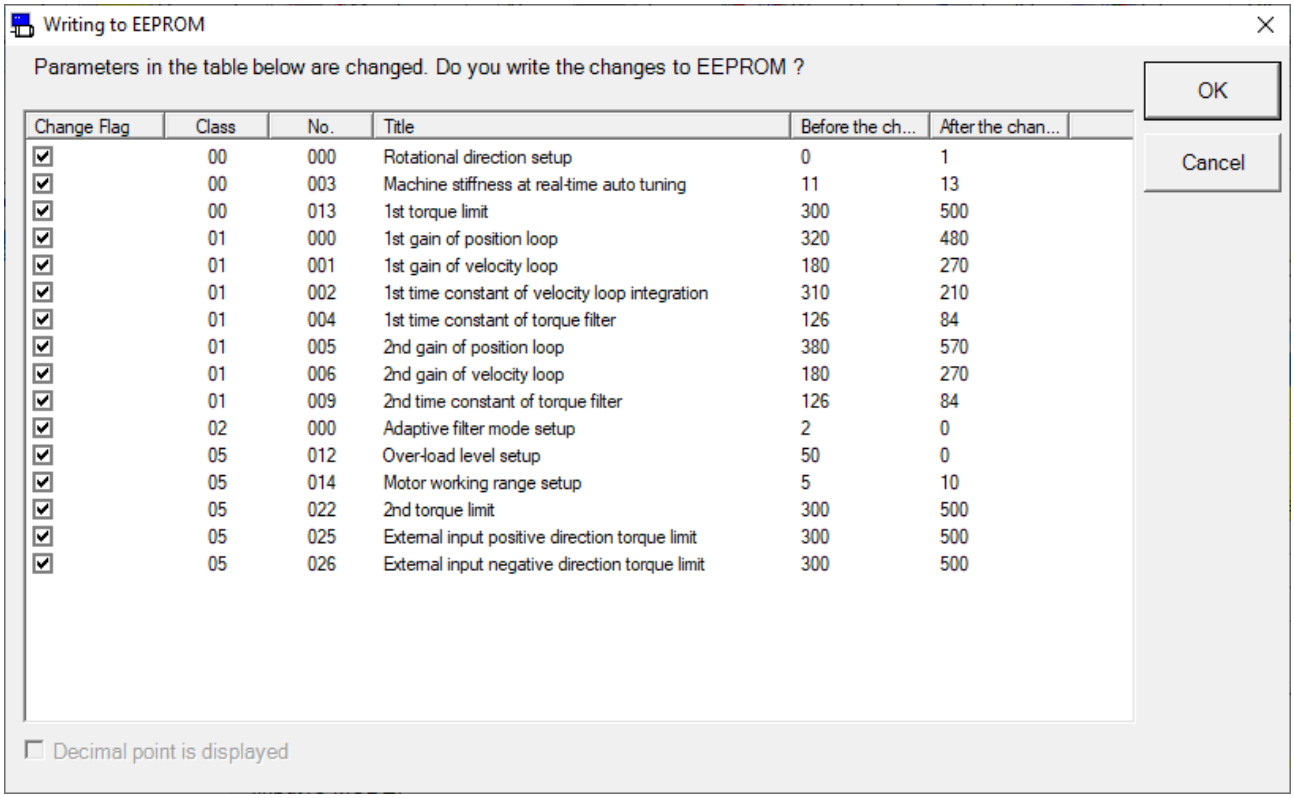
1 Click 

(Initialization) and open the initialization window.



2 Select “All parameter initial” or “Select sub theme parameter initial”, and click “OK”.

3 Set “Change Flag”.



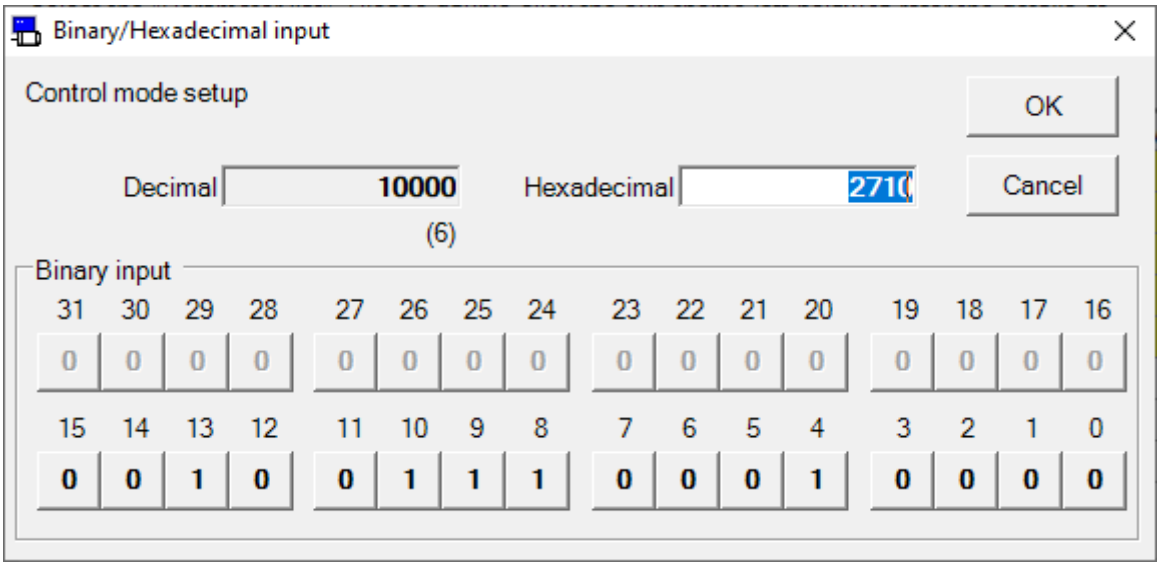
4 Click “OK” Button.

Binary/Hexadecimal

You can enter binary or hexadecimal values for the selected parameter.

Entered in binary/hexadecimal

1 Click Bin/Hex (Binary/Hexadecimal) and open the Binary/Hexadecimal input window.



2 When you enter hexadecimal numbers, please press the [ENTER] key after typing. When you enter binary numbers, please press the button for corresponding to each bit.

* If you enter beyond the parameter ranges is displayed within the limited value of the bottom of the decimal.

3 After completing value input, click “OK”.

Notes 1) Please refer to the manual of the driver or technical reference for details of each parameter's function and so on.
Notes 2) Even if parameters are sent to the driver, parameters are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver. Parameter modifications list are displayed on EEPROM writing. Please check the modification carefully.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) Some parameters become valid after modifications to the new data, writing EEPROM, and power supply reset. (On inputting, that issue is displayed. Please refer to the manual of the driver or technical reference and confirm on the objective parameters)
Notes 5) Parameter screen indication may be different from the actual parameter value of the driver in case PANATERM function windows which change the parameters (ex. Trial Run, Pin Assign, Analog Input) is opened. In such case, press the reception button and update the parameter of the driver to the latest one.
Notes 6) The parameter screen cannot open during opening some screens. For more information please refer to page 265 "Parameter screen behavior".

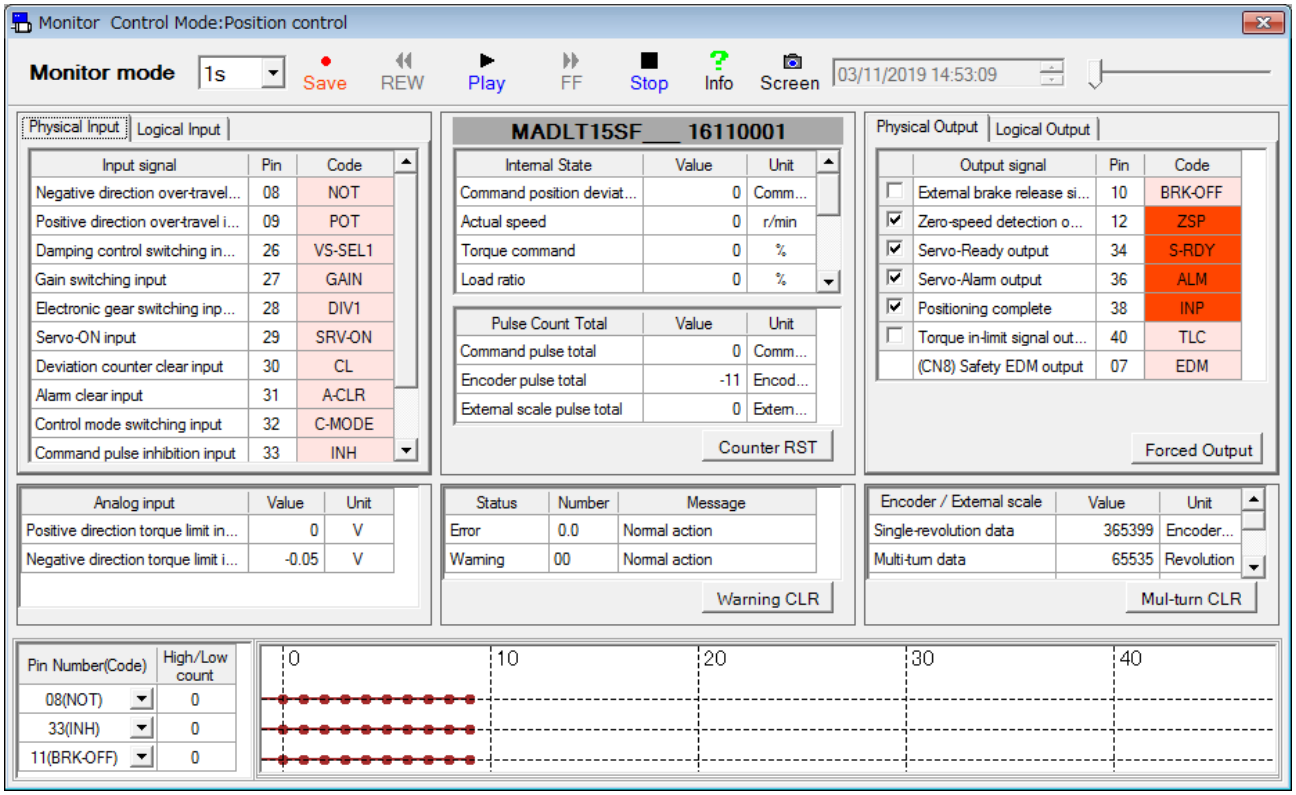
Monitor screen

You can display and check the operation conditions of Driver and motor, in - out put signal and internal status. And you can record the monitoring data in long times and play it back on the screen.

Note) When you use RS232 communication with the communication speed of less than 4800 bps, please do not make a monitor cycle into 1 second.
When using digital input / output signal monitoring, pin number error may appear on screen.
For details, please contact the consultation desk.

Open the Monitor window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Monitor” of the tool bar on the main screen.
3 The Monitor window is opened.

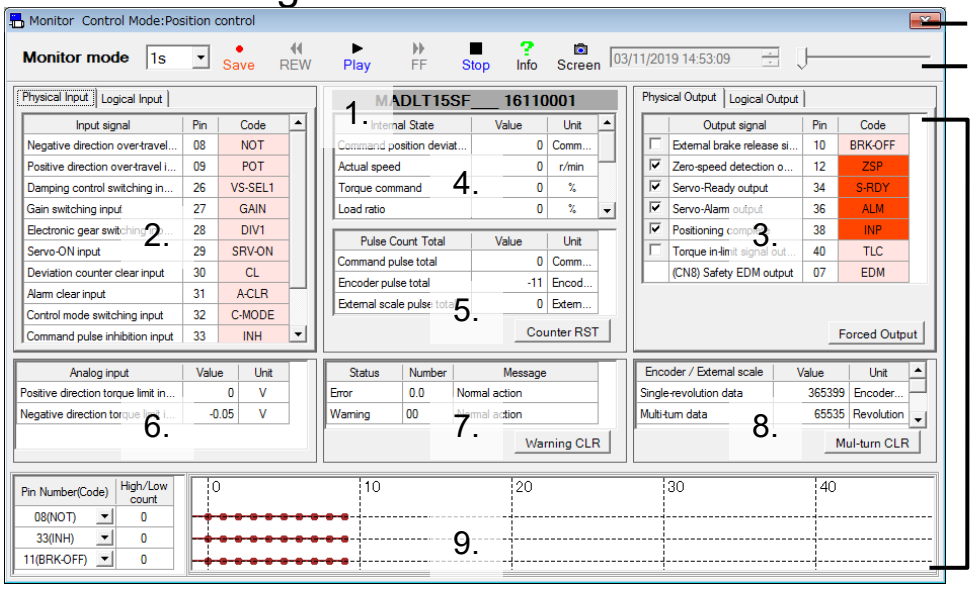


Close the Monitor window

Click ☒ of upright on the window.

Structure of Monitor screen

Indication of signal name is different in the motor model.



(1) Title bar

(2) Log function

(3) Monitor contents displayed area

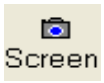
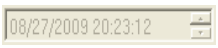
(1) Title bar

Control mode is displayed. You can operate window.

(2) Log function

You can record log of monitoring contents and play it back.

Monitor mode	(Display of operating conditions)	Display the log operating function.
1S	(Setting the communication of Opening time)	Set the communication of opening time between Driver and PC. You can chose 1s, 5s or 10s.
Save	(Start Log file output)	Start Log file output.
REW	(Rewind)	Rewind log file which is playing it back. You can shoes 2 times, 4 times, 8 times or 16 times.
Play / Pause	(Play back) /(Pause)	Select Log file and play back/stop. When this button is effective, a log file can be specified by drag and drop.
FF	(Fast forward)	Fast forward Log file. You can choose two times, 4 times, 8 times or 16times.

	(Stop)/(Start)	Stop/Restart of Monitoring operation. When you record Log and restart it, Record and restart is finalized.
	(Information)	The relevant page of the operating instructions for driver. (Only MINAS-A5 is supported)
	(Screen)	Captures the screen and save into a file.
	(Display of Time)	Display the present time. When you are play it back, recorded time is displayed.
	(Slider)	Display the present time in all log data.

(3) Monitoring Contents display area
Display monitoring information.

1. Driver Model name / Driver Serial Number
   Display Driver Model name and Serial Number.
2. Input signal conditions monitoring
   Display input signal condition. Using tab, you can select “Physical Input” and “Logical input”.
   Display Input signal condition to Physical Input - Driver.
   Red : COM (-) connection
   Pink: Open
   Logic input - Display signal condition of Driver.
   Red : Active
   Pink: Inactive
3. Output signal condition monitoring
   Display output signal condition. By using Tab, you can switch “Physical output” and “Logical output”.
   Physical output
   Display output signal condition from Physical output - Driver.
   Red : Output Transistor ON
   Pink: Output Transistor OFF
   Logical output
   Display Signal condition of Logical output - Driver Internal part.
   Red : Active
   Pink: Inactive

4. Internal State Monitoring
   Display the internal condition of Driver.
5. Pulse Count Total monitoring
   Display the Pulse count total of Command / Encoder / External Scale taken in by driver.
   “Counter RST” is toggle Button, with a timing of counter reset, PANATERM is recording 3 pulse count total as offset value and then, after that this shows value deducting this offset value. If you again click it, Offset value is clear and display the Pulse count total itself from original driver.
6. Analog input Monitoring
   Display the electric voltage value of Analog input.
7. Alarm / Warning Monitoring
   Display present alarm and warning of driver.
8. Encoder / External Scale information monitoring
   Display Encoder/External scale information.
   If you click “Mul-turn CLR”, Multi-turn data recorded by encoder is clear to 0, and all encoder error shall be cleared.
   Note) Please refer to the remarks when you use multi-turn clear. And it is necessary for you to restart when you clear the encoder error.
9. Digital input / output signal monitoring
   Display up to 3 the physical input / output signal’s changed number of times.
   As driver is counting changed number of times, you can find the shorter changed signal than communication intervals on monitor screen.
   Note) Standardly display signal level, display more than 2 times changed signal on communication interval in the red square.
   Note) If the display is not updated in time, it will be displayed at a low level.

Forced Output Button

When this button is pushed, and OK button is pushed with Dialogue of confirmation, is shifts to the Input / output confirmation mode. In the case of standard type, the front panel display is fixed to the monitoring display input / output display.
You can check only in Input / output confirmation mode. If you input Physical input, the driver is not operative. And against Physical output, with left check box, you can compulsorily turn On/Off the output signal.

Note) If you need the driver of Input / Output confirmation mode to be returned to the standard conditions, you shall restart the driver.

Notes 1) Using USB communication or RS232 communication as data receipt between Driver and PC, there are accidental errors, delay of display value on the screen, recoded monitoring value, and time on the log file and actual driver value and recoded time.
Notes 2) There are accidental errors of recoded time between monitoring display, recoded log file and many data in a time. If you need more detail information, please refer to the wave graphic.
Notes 3) The (+) and (-) symbols are not displayed even if the polarity is present.
Notes 4) Monitoring function is not precious measurement instrument. Monitoring display shall be used as rough estimate.
Notes 5) The monitor screen cannot open during opening some screens. For more information please refer to page 266 “Monitor screen behavior”.
Notes 6) Physical input and physical output signal names are displayed according to the current parameter settings.

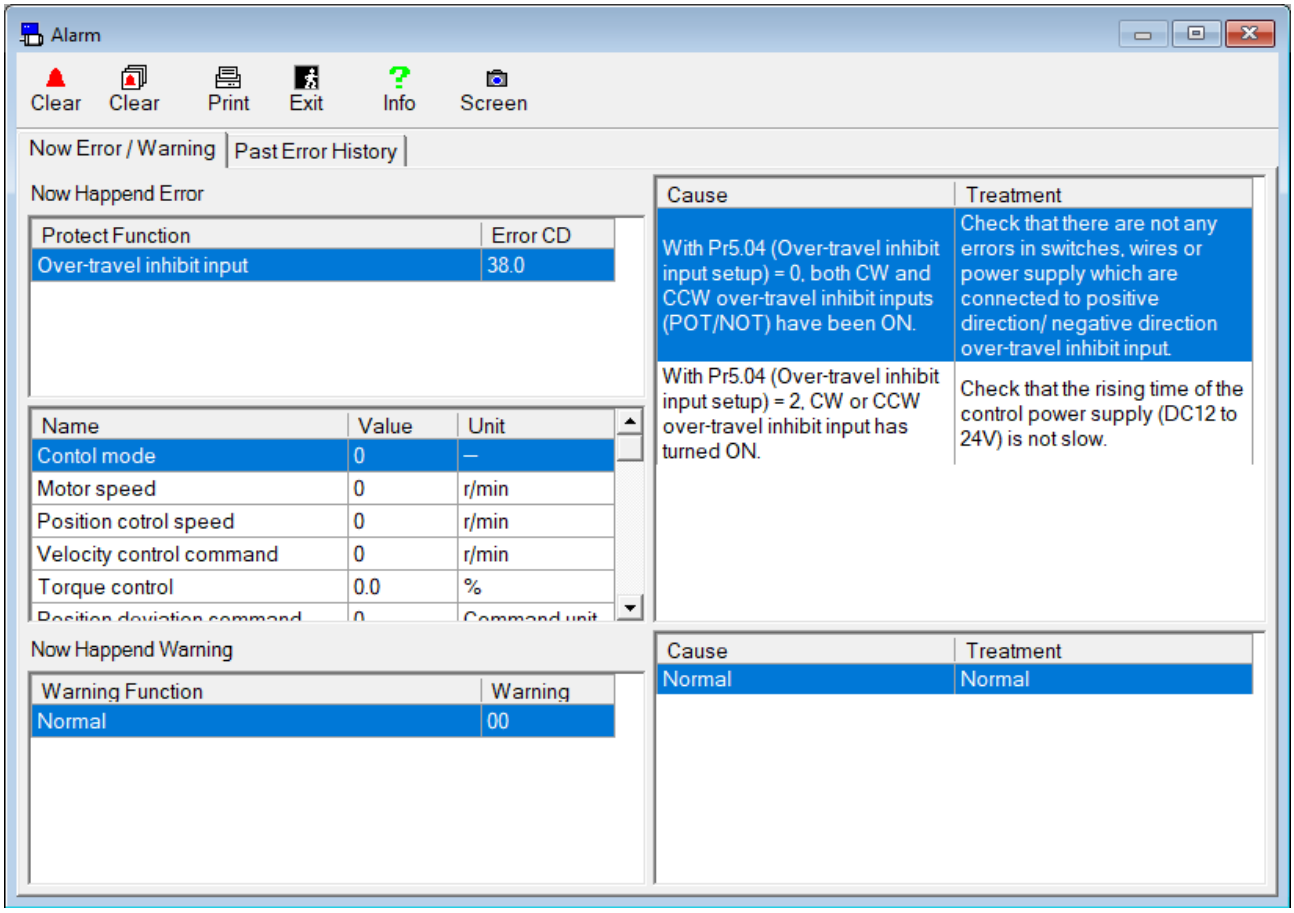
Alarm screen

In case that driver's front panel LED is flashing like that Motor is not operative etc., you can check the error conditions.

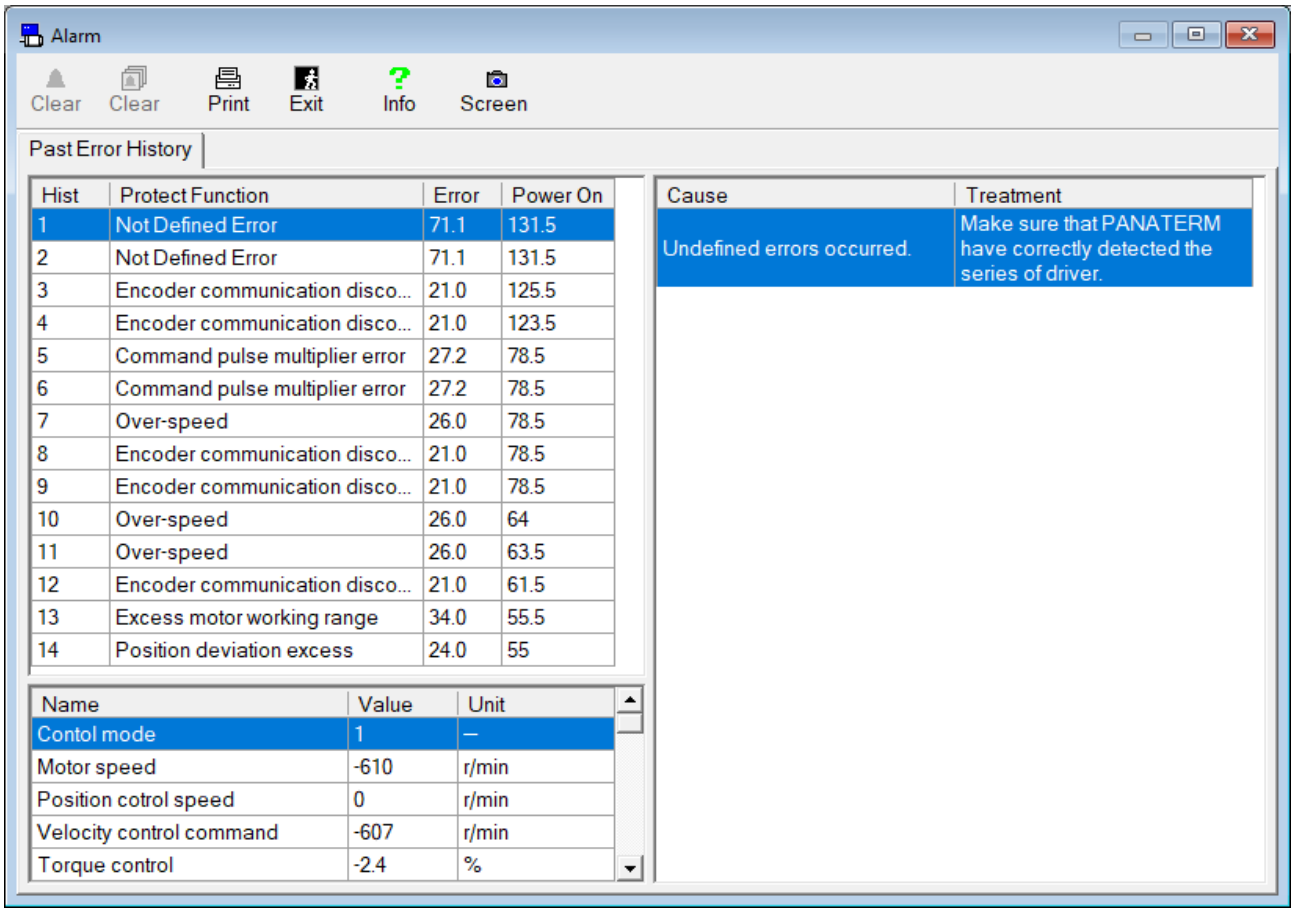
Open the Alarm window

1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Alarm" of the tool bar on the main screen.
3 When not communicating with driver, the selection screen of a parameter is displayed. Please select the parameter file saved when alarm was reported.
4 The Alarm window is opened.

<When communication with driver>



<When not communication with driver>



Close the Alarm window

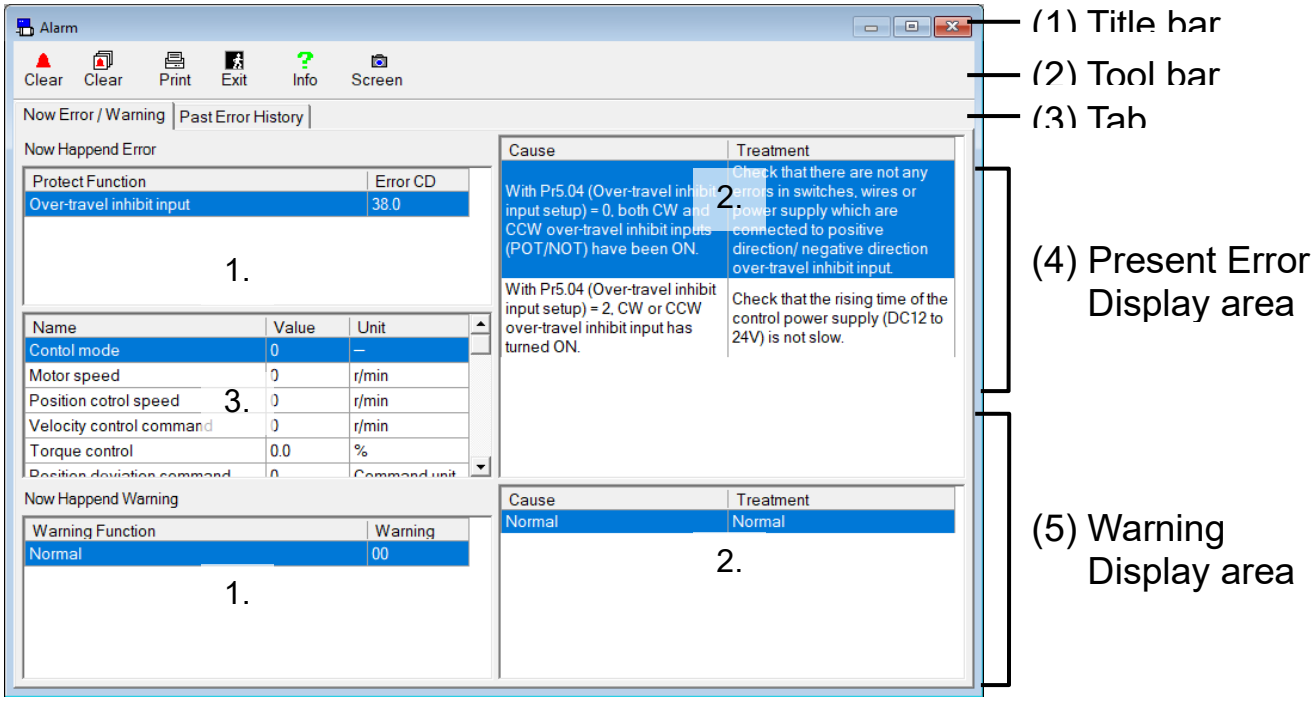
Click 

(Exit) on the tool bar.

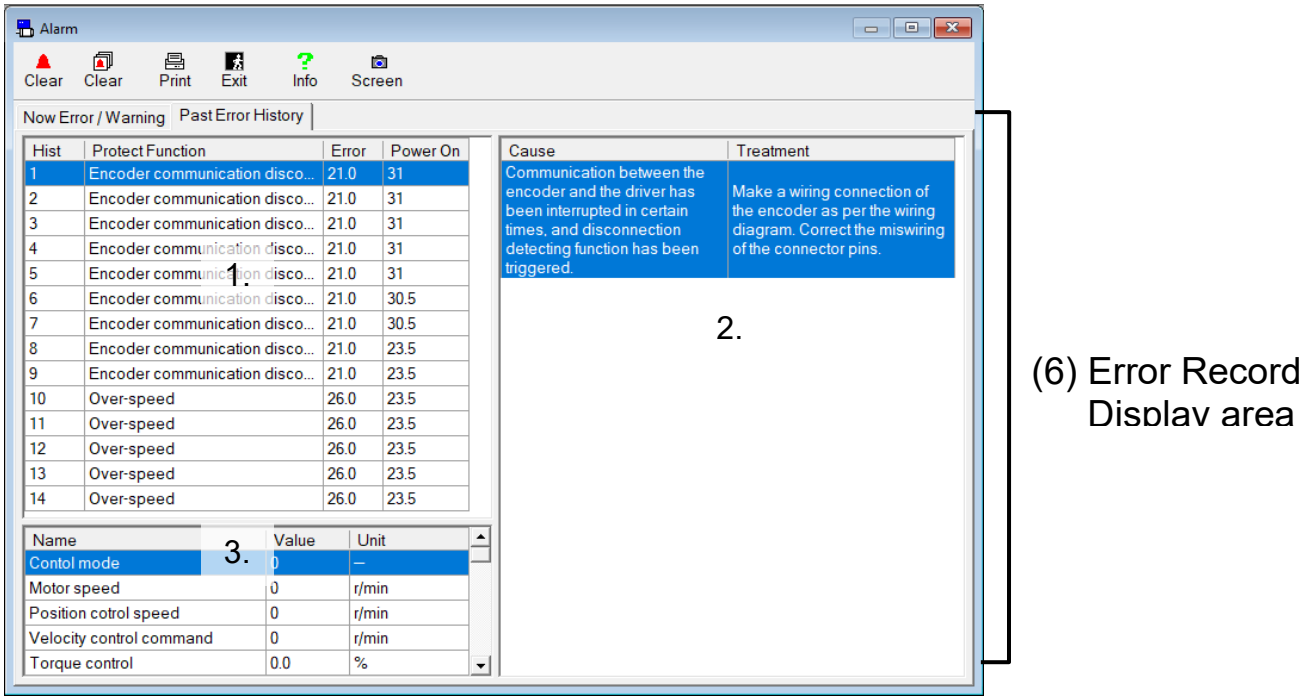
Structure of Alarm screen

Now Happened Error / Warning display

This is displayed when communication with driver only.



Past Error History display



(1) Title bar
You can operate this window.

(2) Tool bar

	(Alarm clear)	You can clear the present error. Removing the cause of errors, you click this button, present error is clear and it operates correctly. However, you cannot delete the error that you cannot clear by alarm clear input signal. Please turn off the driver and remove the cause of error, please turn on the electric power again.
	(Record clear)	You can delete error record.
	(Print)	Print out the information about the errors.
	(Exit)	Close the Alarm window.
	(Information)	The relevant page of the operating instructions for driver. (Only MINAS-A5 is supported)
	(Screen)	Capture the screen and record the screen into the file.

(3) Tab

Switch the display of “Now Error / Warning” and “Past Error History”

(4) Now Happened Error display area

1. Display present all happening error numbers and names. Displayed error on the top is an error displayed on the front panel.
2. Display the selected error’s causes and countermeasures.
3. Display the motor internal conditions on the selected alarm happening.

(5) Warning display area

1. Display all present happening warning numbers and names.
2. Display selected warning causes and countermeasures.

(6) Error record display area

1. Display error record order, error number and error names.
2. Display the selected error causes and countermeasures.
3. Display the motor internal conditions on the selected alarm happening.

Notes 1) There are some errors, which is tripped, but is not left as error record. Please refer to the driver manual or technical reference.
Notes 2) Error records are saved up to 14 times. If errors happen over 14 times, oldest record is deleted in order.
Notes 3) Internal conditions of motor is recorded up to 3 times on alarm happening. When the alarm is generated immediately after turning on of the power supply, an internal state of the motor might not be able to be acquired standardly.
Notes 4) The alarm screen cannot open during opening some screens. For more information please refer to page 267 “Alarm screen behavior”.
Notes 5) The control mode in the motor internal state at the time of the alarm indicates the state in the driver and does not match Pr0.01 of the driver.

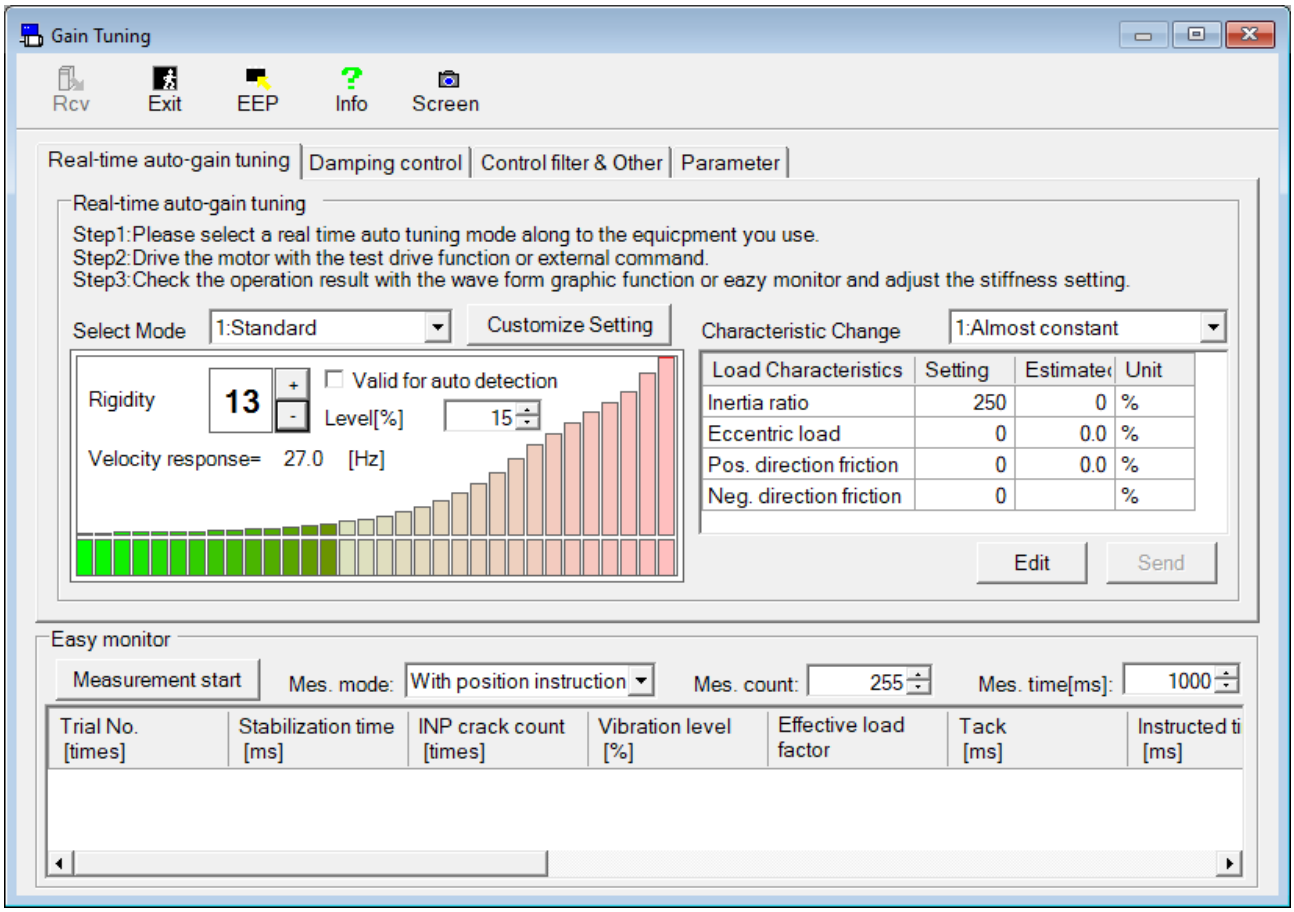
Gain Tuning screen

You can adjust servo gain parameter with the driver's auto adjustment function. And you can use easy monitoring that automatically measures the tuning index.

Note) If you adjust auto adjustment function of the driver please refer to application scope and remarks specified in the driver manual or technical reference.
Gain tuning cannot be performed through RS232 communication.

Open the Gain Tuning window

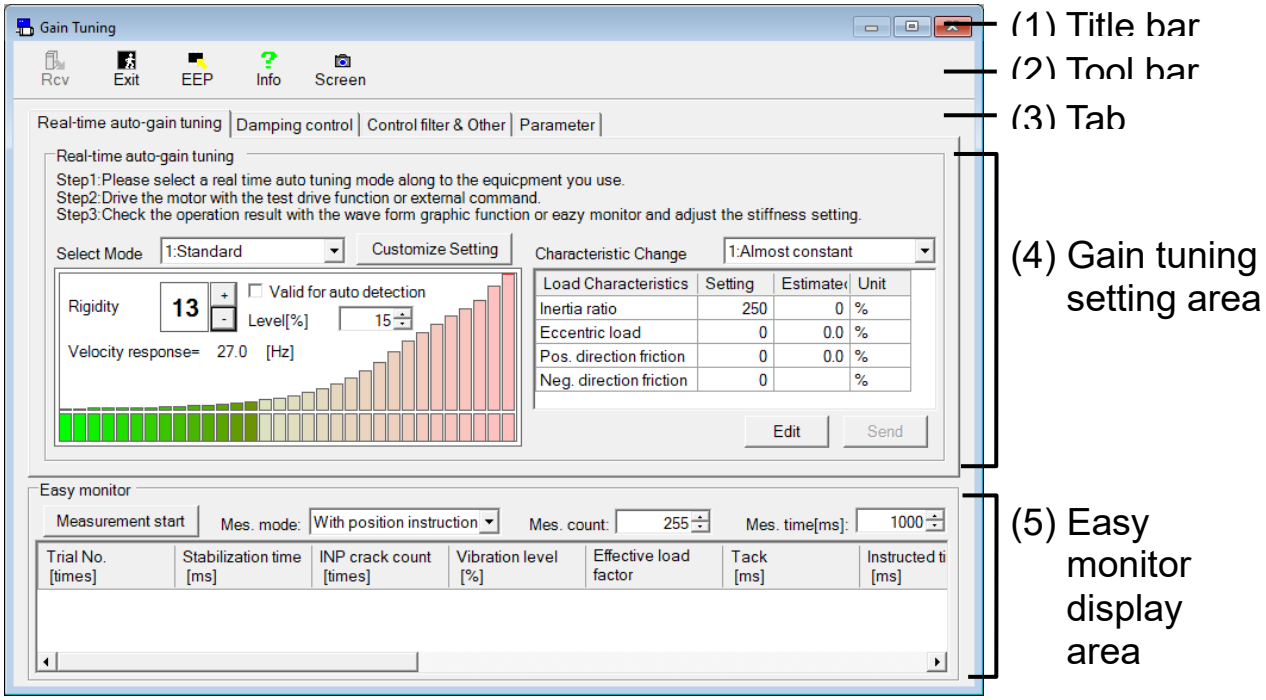
1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Tuning" of the tool bar on the main screen.
3 The Gain Tuning window is opened.



Close the Gain Tuning window

Click Exit (Exit) on the tool bar.

Structure of Gain Tuning screen



(1) Title bar
You can operate this window.

(2) Tool bar

Rcv	(Receive)	Receives parameters from the driver. (Valid only when the Parameters tab is selected)
Exit	(Exit)	Close the gain tuning window.
EEP	(EEPROM)	Write parameter value to EEPROM of driver.
Info	(Information)	The relevant page of the operating instructions for driver. (Only MINAS-A5 is supported)
Screen	(Screen)	Capture the screen and record it to the file.

(3) Tab
Switch Gain tuning setting area display to “Real time auto-gain tuning”, “Damping control”, ”Control filter & Other”, “Parameter”.

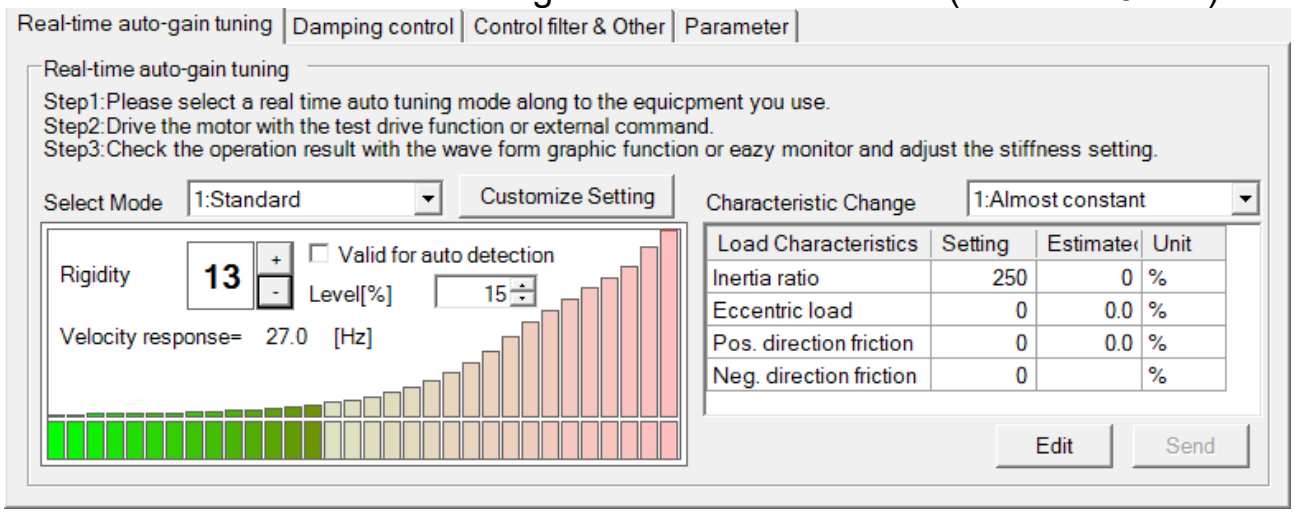
(4) Gain tuning setting area
You can perform Real time auto-gain tuning, Adaptive filter, Damping control, Control filter and the parameter setting.

(5) Easy monitor display area
You can measure the tuning index easily.

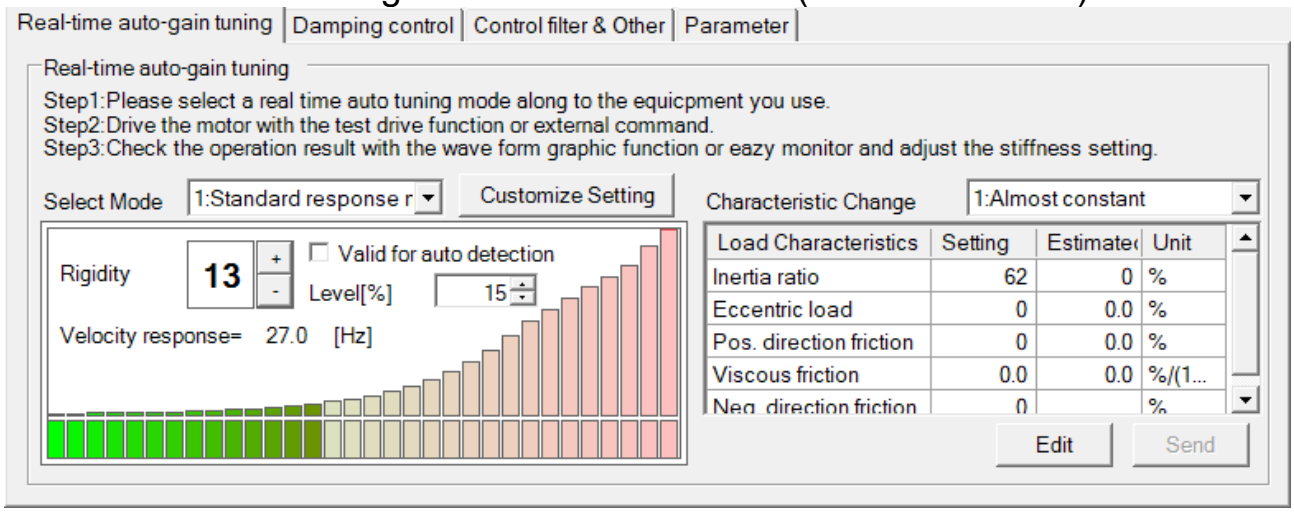
Method of performance of real time auto-gain tuning

1 Select a tab of “Real-time auto-gain tuning”.

<When driver doesn’t have 2 degrees of freedom control (MINAS-A5 etc.)>

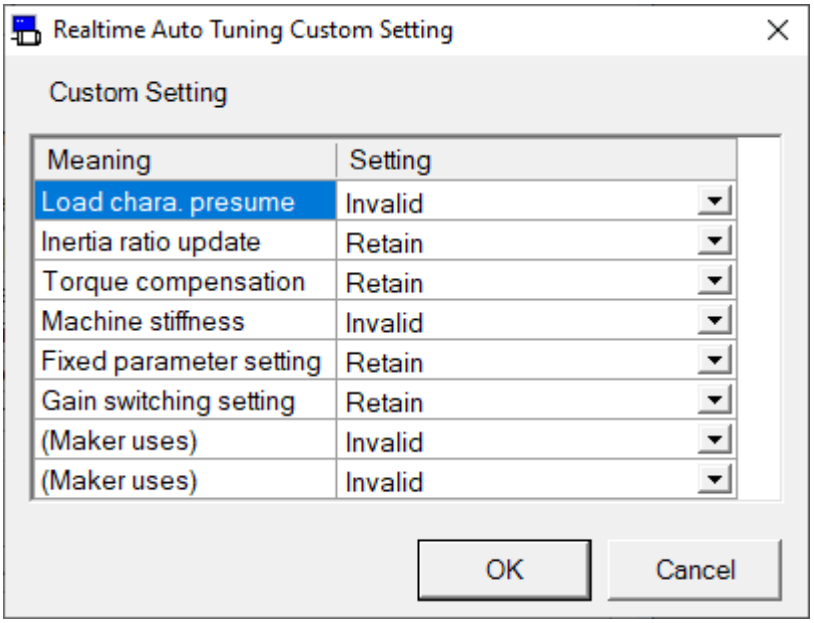


<When driver has 2 degrees of freedom control (MINAS-A5II etc.)>



2 In accordance with the usage of your machine, you can change the “Select Mode” and “Rigidity”.
If you select “6: Customize” in “Select Mode”, you can specify the detail function individually. In “Customized Setting”, “Real time Auto Tuning Custom Setting” window will open, please set the conditions.

* If you open customized setting window and push OK, at the same time, mode selection is changed to “6: Customize”.
* “Real time Auto Tuning Custom Setting” are not available in 2 degrees of freedom control mode.



3 You can operate the motor using “Trial Run” of PANATERM or external command. If motor revolves, presumed value of load characteristics is displayed.
4 Using wave graphic function of PANATERM or easy monitor, you can check the result of moving of motor and adjust the “Rigidity” setting. “Rigidity” setting can be performed by right side of figures + (+) or - (-).

Valid for auto detection

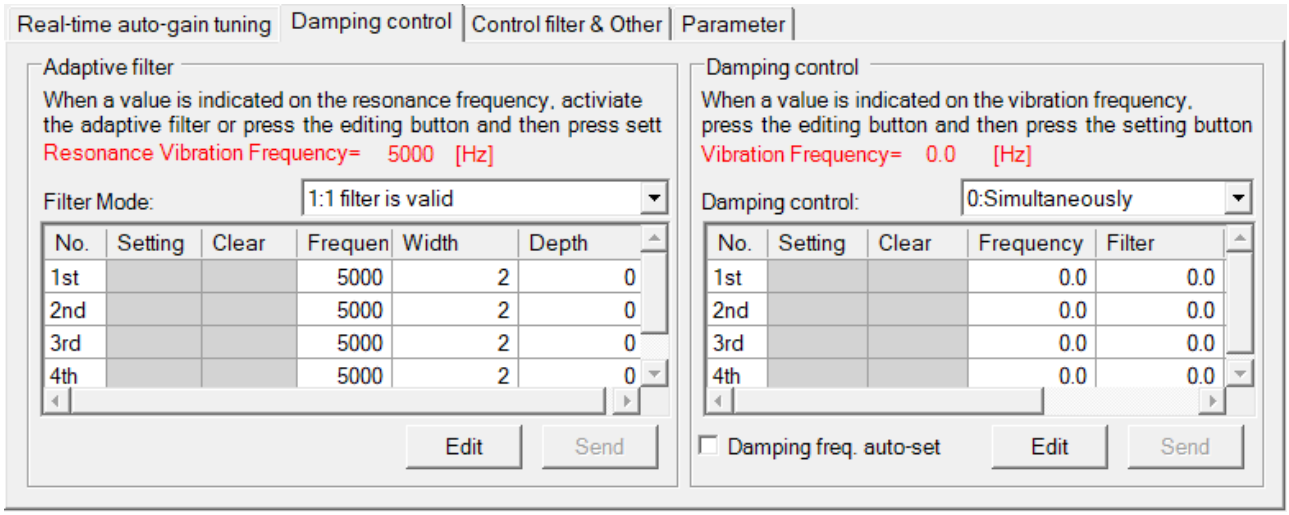
On the conditions that Gain Tuning screen is open, and the mode setting is from 1 to 4, you can use auto suppression of oscillation. Checking this check box, the rigidity setting is automatically down on motor oscillation happenings, and motor oscillation is suppressed.

Change of parameter about load characteristics

If you manually change the parameter of load characteristic, please click “Edit” button and change the setting value. After changing, you click “Send” button, all parameter shall be transmitted to driver. During editing, the block display is not renewed. Please click the “Monitor” button to restart monitoring.

Setting method of adaptive filter

1 Select the tab of “Damping control”.



2 For the adaptive filter to be effective, please change “1:1 filter is valid” or “2: 2 filters are valid”. If the vibration happens in motor speed, other figures except for 5000[Hz] as “Resonance Vibration Frequency” are displayed. And 3rd or 4th notch filter is automatically set.

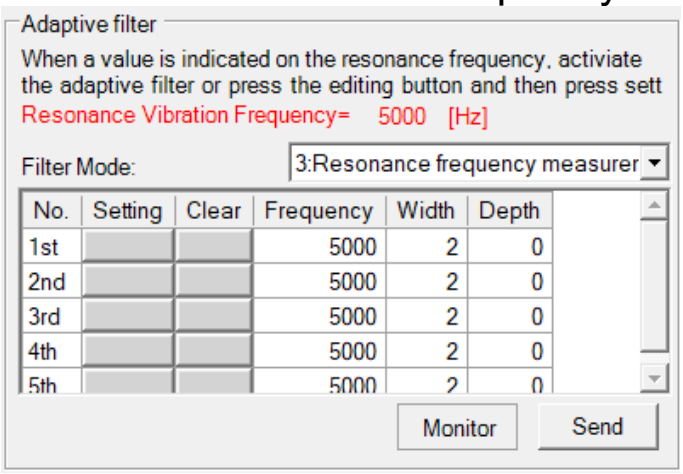
3 If you want to clear the adaptive result, please change the “Filter Mode” to “4: Clear result of adaptation”.

* “Resonance Vibration Frequency” display shows the latest frequency when the vibration is detected by adaptive operation.

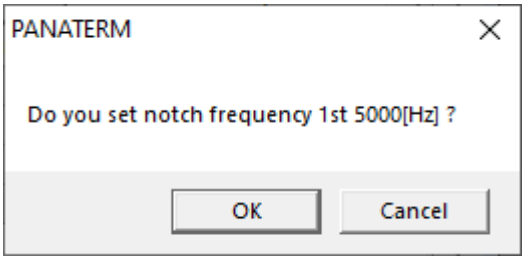
Resonance frequency measurement mode

1 If you measure only the resonance frequency without notch filter setting, please change Adaptive filter mode to “3: Resonance frequency measurement”.

2 If the vibration happens in motor speed, the figures except for 5000[Hz] as “Resonance Vibration Frequency”.



3 If you set this frequency with notch filter, after push the “Edit” button, please click the “setting” button, check the contents of following confirmation screen and click “OK”.



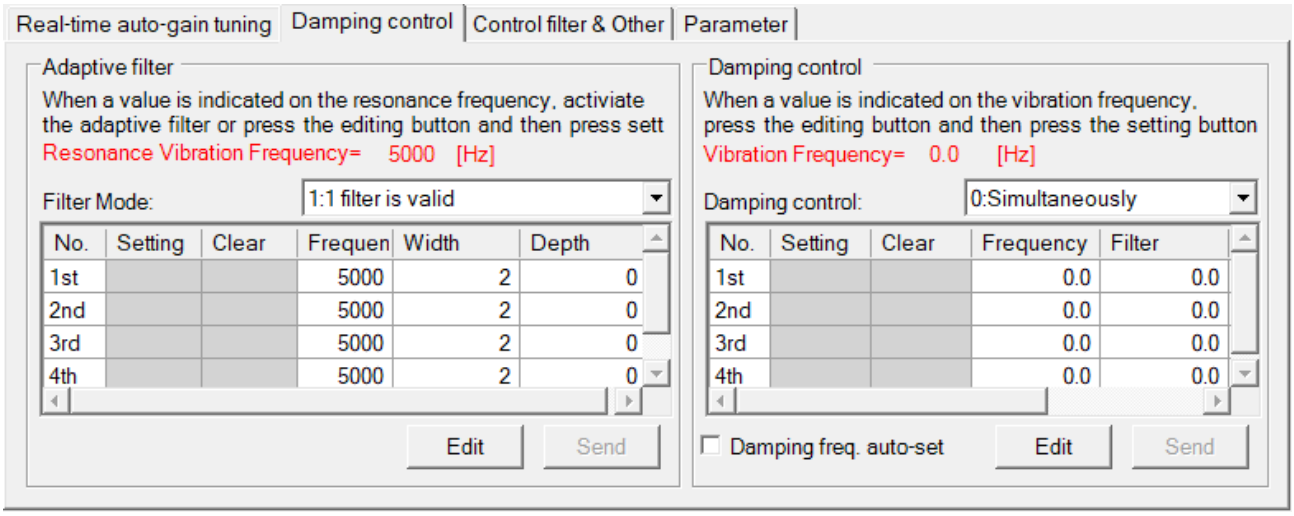
4 If you clear resonance frequency you set, after push the “Edit” button, please click the “Clear” button whose number you want to clear. As same confirmation screen is displayed, if ok, please click the “OK” button.

Change of parameter about Notch filter etc.

If you need to manually change the parameter about notch filter etc., please click ”Edit” button and change the setting value. After changing them, if you click “Send” button and all parameter in this block shall be transmitted to the driver. During editing, as the display of this block is not renewed, please click “Monitor” button again.

Setting method of damping control

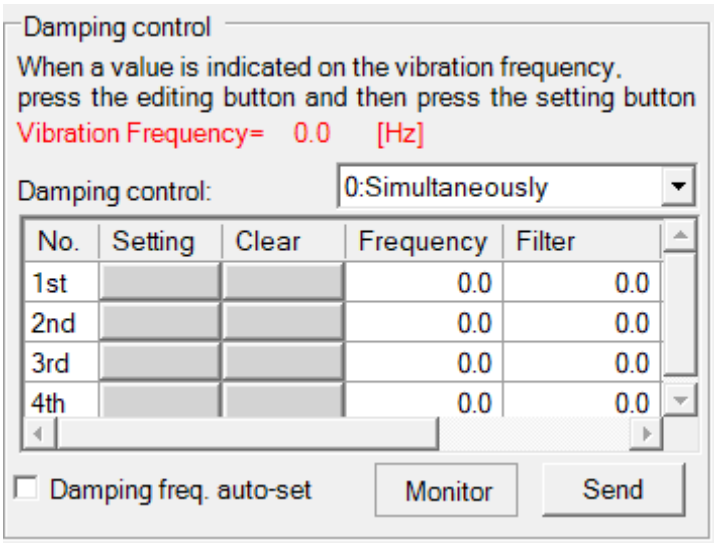
1 Select the tab of “Damping control”.



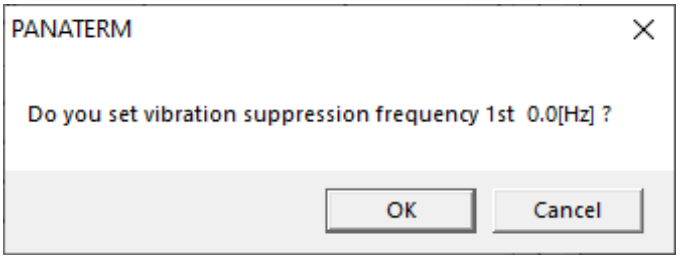
2 You can use max 2 sets of filters in damping control at the same time. You can set which one is effective according to the operation conditions from the 4 sets of “Damping control” setting.
Note) Please refer to the driver manual or technical reference as to this parameter specification.

3 When you operate the positioning by position control or full closed control, trial operation function or external command, if the vibration in position deviation at settling time, the other figures except for 0.0[Hz] shall be displayed in “Vibration Frequency”.

4 If you want to suppress this vibration, after push the “Edit” button, please click “setting “button next to effective vibration filter number in operation.



5 As the confirmation screen of vibration frequency setting, if ok, please click “OK”.



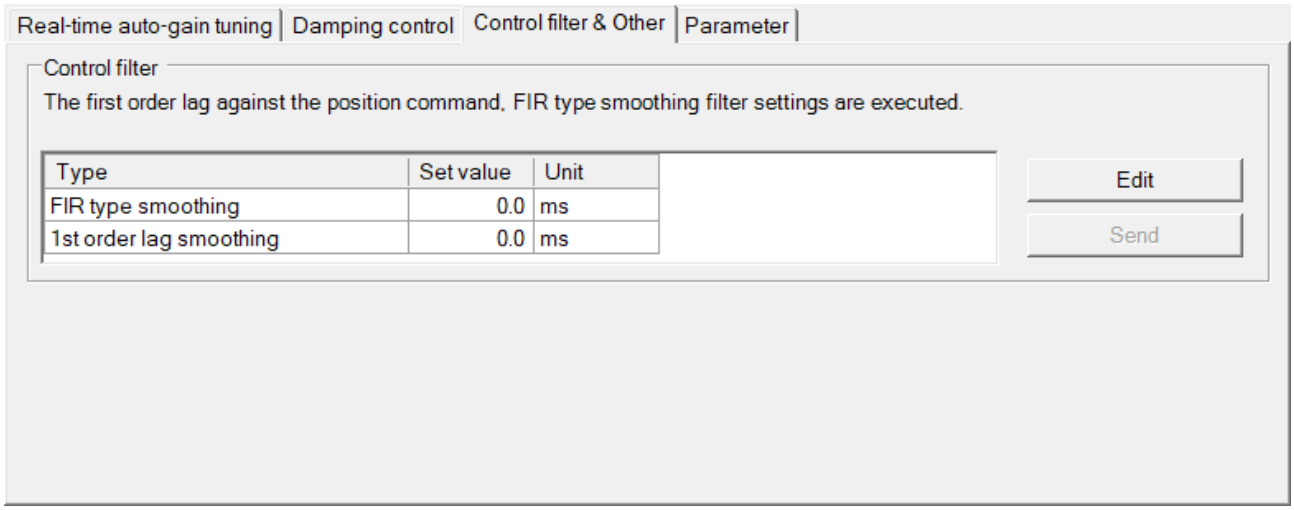
6 If you clear vibration frequency you set, after push the “Edit” button, please click “Clear” button whose number you want to clear. If ok, please click “OK” button.

Change of vibration control parameter

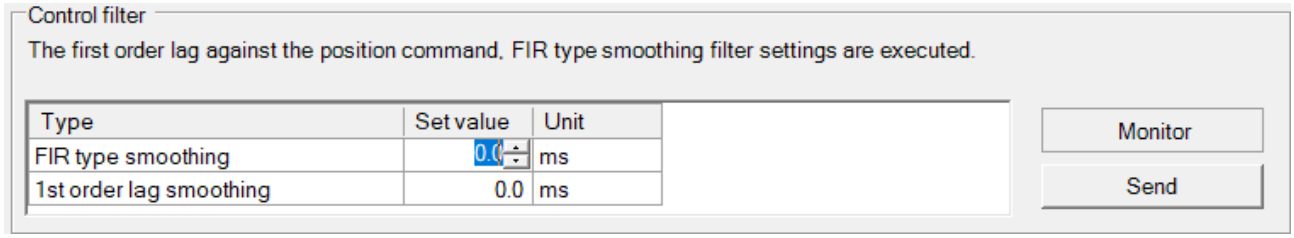
If you manually change the damping control parameter, please click “Edit” button and change the setting value. After change of them, you click “Send” button, all parameter in this block shall be transmitted to the driver. During editing, as this block display is not renewed, please click “Monitor” button again.

Setting method of Position command filter

1 Select the tab of “Command filter & Other”.



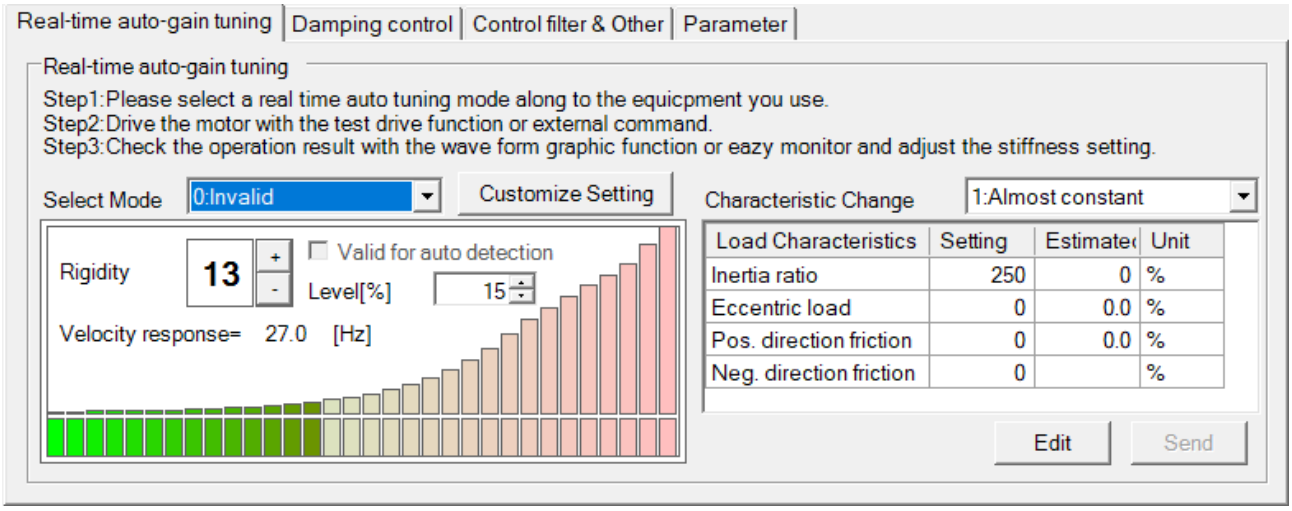
2 If you change the parameter of position command filter, please click “Edit” button and change the setting value.



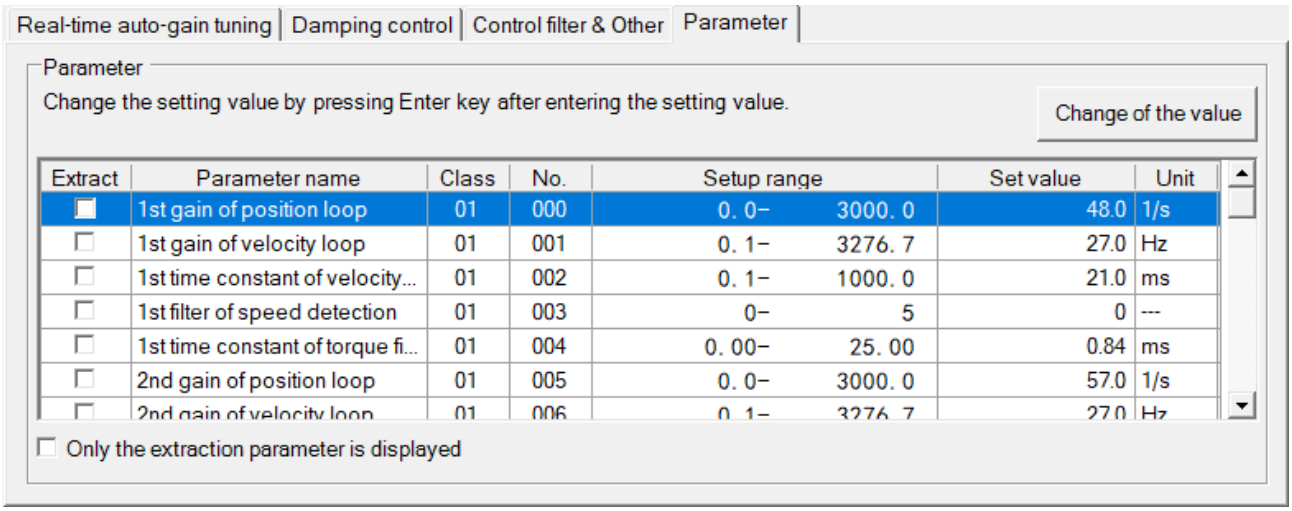
3 After changing them, when you click “Send” button, all parameter in this block shall be transmitted to the driver. During editing, as this block display is not renewed, please click “Monitor” button again.

Manual setting method of the gain tuning parameter

1 Select the tab of “Real-Time auto-gain tuning”, and select the mode of “0: Invalid”.

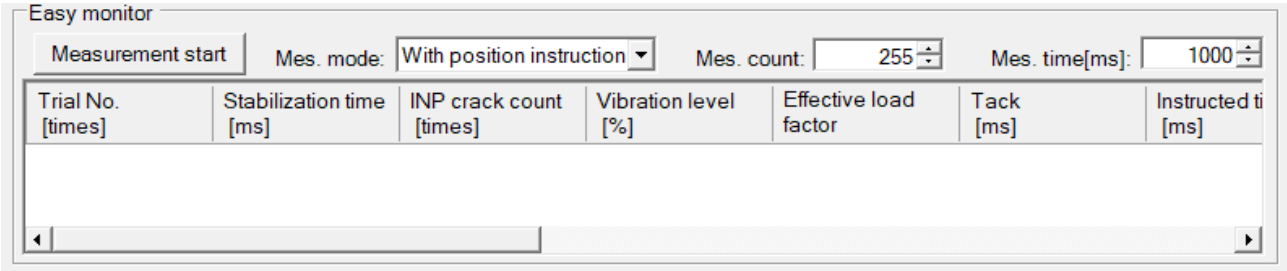


2 Select the tab of “Parameter”.



3 Please select the setting value of parameter you want to edit. After changing the setting value of the parameter you want to edit, enter the [ENTER] key or click the “Change of the value” button.
Note) Only the parameter that checks “Extract” is displayed when “Only the extraction parameter is displayed” is checked.

Measurement the tuning index by easy monitor



1 Set the easy monitor setting.

"Mes. mode" : Set the measurement mode.

With position instruction: Measure the tuning index from the start of position commanded to next start of position command or shorter measurement time.

Uniformity time: Measure the tuning index from the each time data set by measurement time.

With speed instruction: Measure the tuning index from the start of speed command to next start of speed command or shorter measurement time.

"Mes. count" : Set the measured number of time.

"Mes. time[ms]" : Set the maximum measuring time period [ms].

2 Click "Measurement start"

Note) If you click "Measurement start", the displayed index shall be cleared.

3 The measured results shall be renewed until the trial No. meets the measured number of time, or you click "Measurement stop".

【Monitoring Item】

The tuning indices are as below.

Stabilization time	Times [ms] from the finalization of positioning command passing to the range of completion of positioning of the position deviation. Or times[ms] from the below speed command still value to Zero speed range of Motor speed
INP crack count	Count [times] is a number in which two times (the on signal that entered range of in-position first and the off signal when starting) are pulled from the number of times into which INP1 output changes between tact.
Vibration level	Conversion value from vibration level to torque value[%]
Effective load factor	Torque command effective value among tact[%]
Tact	Measured time[ms] for one trial
Instructed time	Time[ms] from the trial start to final position command or the time by detecting more than speed command sill value
Speed zero cross	Count [times] is a number in which two times (the on signal that entered range of in-position first and the off signal when starting) are pulled from the number of times into which ZSP output changes between tact.
Instructed speed min	Command speed minimum value [r/min] during trial
Instructed speed max	Command speed maximum value [r/min] during trial
Motor speed min	Motor speed minimum value [r/min] during trail
Motor speed max	Motor speed maximum value [r/min] during trail
Torque instruction min	Torque command minimum value [%] during trial
Torque instruction max	Torque command maximum value [%] during trial
Pos. following error min	Positioning deviation minimum value during trial [Command unit]
Pos. following error max	Positioning deviation maximum value during trial [Command unit]

The following indices are expressed as a model with 2 degrees of freedom control (MINAS-A5II, MINAS-A6 etc.).

Micro vibration count	The number of times that the mark of actual speed with a blind sector changed [Times]
Overshoot	The overshoot amount of an instruction position deviation [Command unit]
Command movement	The amount of instruction position change between tact [Command unit]
INP crack count of settling	The number of times of an INP crack after instruction ejection [Times]

Notes 1) If you click “Measurement start” or servo on the driver during the measurement, Trial No. shall be starting from 1.
Notes 2) If the measurement time is shorter than the tact, there is possibility that the results of settling time etc. are not correctly measured. Please assure the enough measurement time.
Notes 3) If you record the monitoring results, please select the cell of the monitoring result you need to record and select “Ctrl+C” and make a copy. Please paste and record the table calculation soft or text editor.
Notes 4) If you operate it with quicker tact by the 1s of easy monitor interval, trial No. may be skipped value. Please operate it with more than 1 s of tact command as long as possible.
Notes 5) Parameter set on this screen is inputted into Driver. As PANATERM does not maintain this value, please perform the recording it to EEPROM of driver after completion of adjustment.
Notes 6) The gain tuning screen cannot open during opening some screens. For more information please refer to page 267 “Gain tuning screen behavior”.

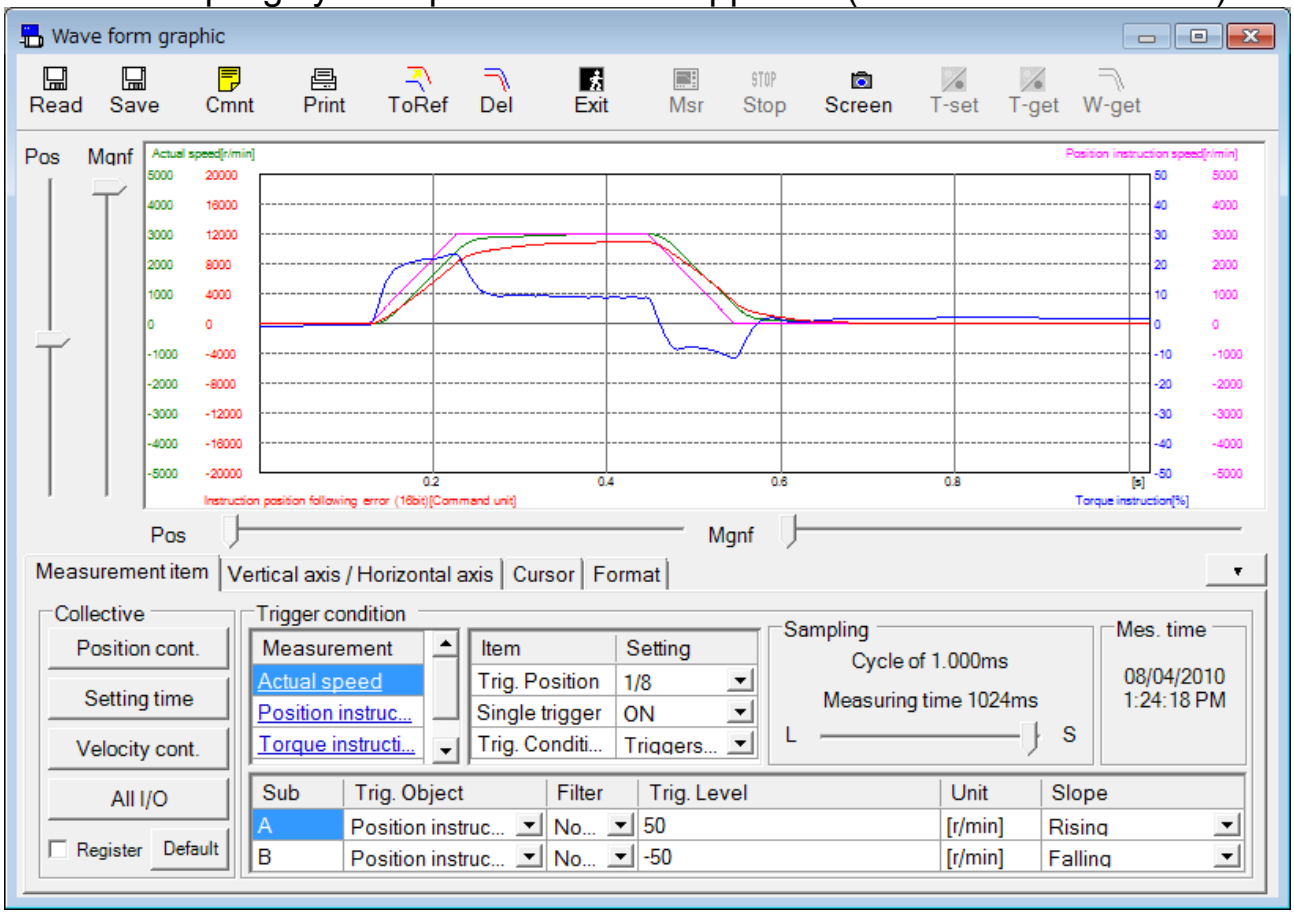
Wave form graphic screen

You can measure the motor operative waveform and display the results by the graphic. And these measurement conditions, results and parameters can be recorded in the wave form data file.

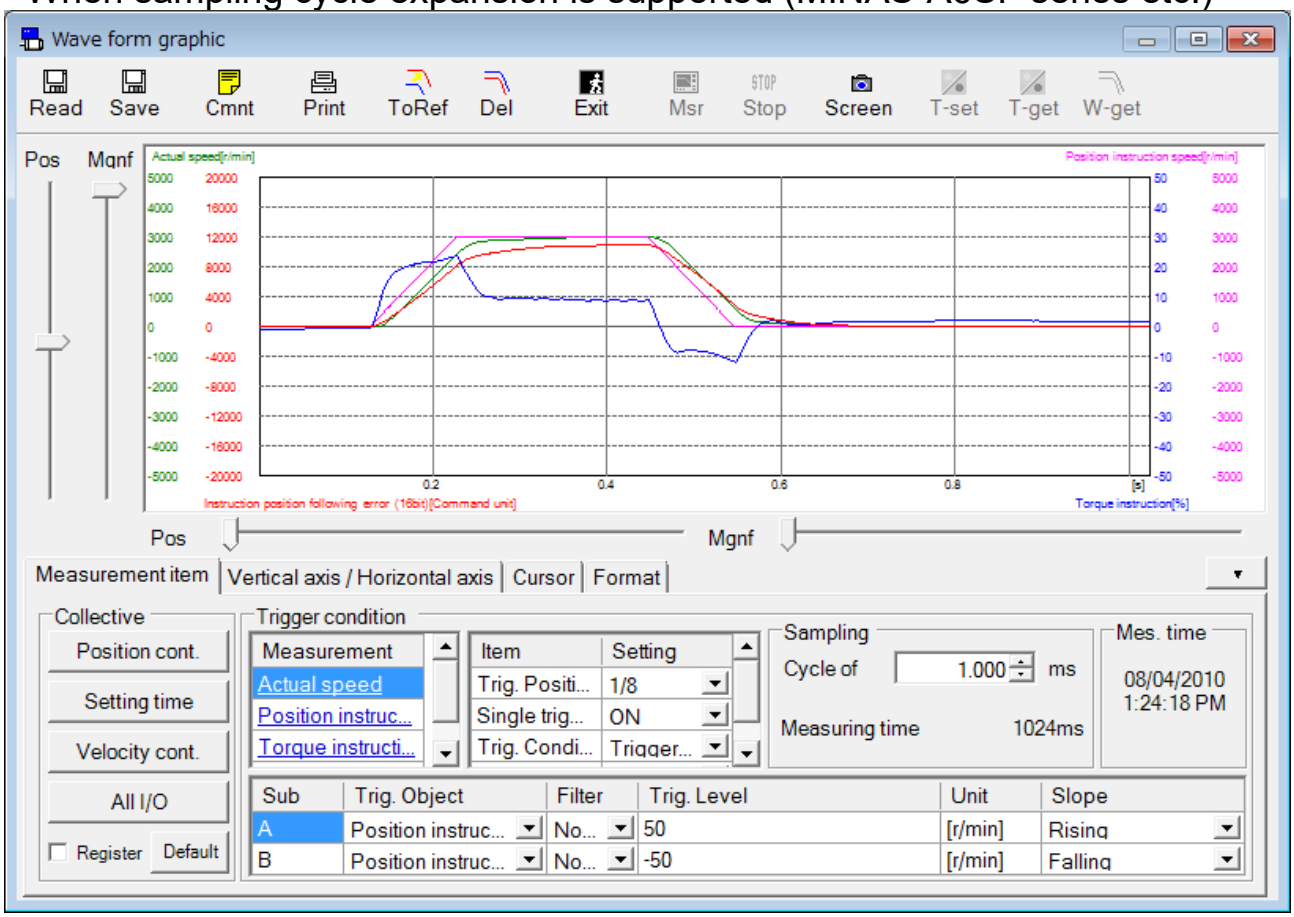
Open the Wave form graphic window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Wave Graphic” of the tool bar on the main screen.
3 The Wave form graphic window is opened.

<When sampling cycle expansion is not supported (MINAS-A5 series etc.)>



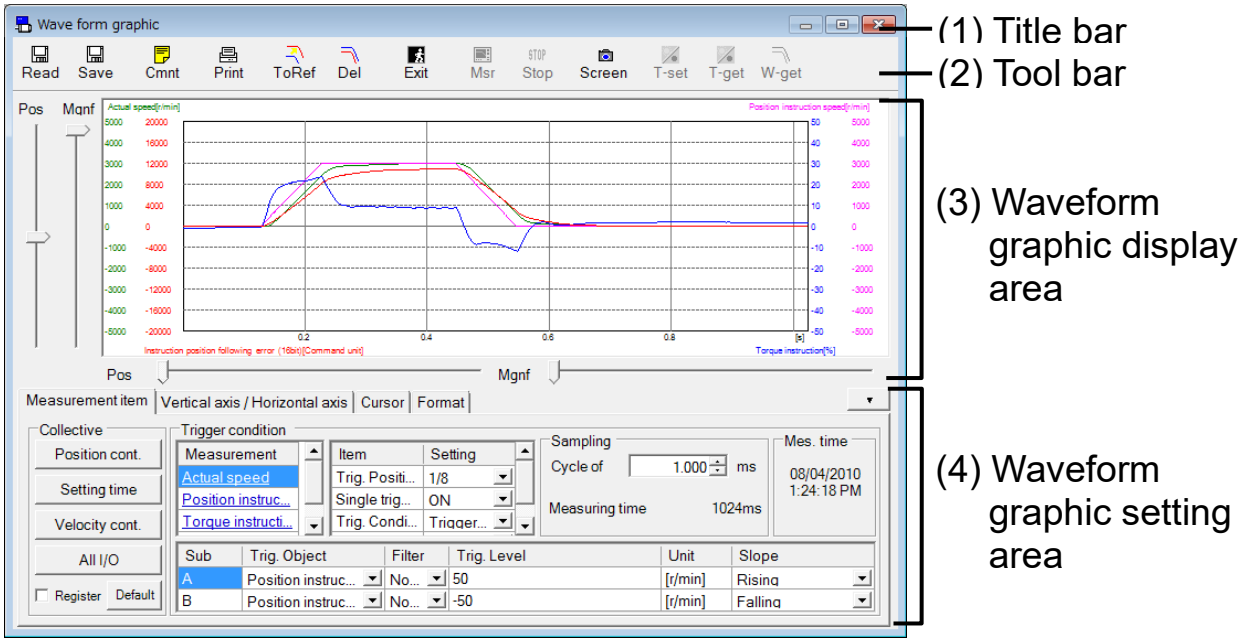
<When sampling cycle expansion is supported (MINAS-A6SF series etc.)>



Close the Wave form graphic window

Click Exit (Exit) on the tool bar.

Structure of Wave form graphic screen



(1) Title bar
You can operate title bar window.

(2) Tool bar
The operation commands are listed up.

Read	(Read)	Read the file to record the measurement data. When this button is effective, a file can be specified by drag and drop.
Save	(Save)	Save the measurement data into the file
Cmnt	(Comment)	Make the comments to be attached on the wave form graphic file.
Prnt	(Print)	Print out the results of wave form graphic measurement
ToRef	(Copy to reference)	Make a copy of observed wave form to reference wave form
Del	(Delete the reference)	Delete the reference wave form
Exit	(Close)	Close the wave form graphic window

	(Measurement)	Start the measurement of wave form graphic. Wait until the measurement conditions are met, and then execute a series of operations to acquire and display the measurement results from the driver.
	(Stop)	Stop the wave form graphic measurement
	(Screen)	Capture the screen and record the file
	(Trigger set)	Set the measurement conditions to driver and start measurement
	(Trigger acquisition)	Acquire and display the measurement conditions set in the driver
	(Wave data acquisition)	The measurement results and the measurement conditions are acquired and displayed from driver

(3) Waveform graphic display area
In accordance with setting contents on (4) Wave form graphic operation setting area, the operation wave form of the measurement subject is displayed.

(4) Waveform graphic setting area
Designate the graphic display conditions and select the tab and set each items.
If you click the upper right  of waveform graphic setting area, the wave form graphic setting area shall be hided. If you click  , wave graphic setting area shall be displayed again. You can record these measurement conditions in the file.

Note) Please refer to the “Record and loading of wave form graphic measurement conditions” about the record method.

Operation of the wave form graphic display area

In the wave form graphic display area, you can enlarge or scale down the graphic display with following pointed out mouse pointer and horizontal / vertical slider bar.

(1) In case you use mouth pointer

Use the mouse pointer when you enlarge or scale down overall wave form.

If you select the tab of “Measurement item” ”Vertical axis / Horizontal axis” ”Format”, Mouse pointer is a reading glass icon. At that time, following operation is effective.

Left click : enlarge the position of mouth pointer
Right click : scale down the position of mouth pointer
Drag : enlarge the selected rectangle scope

When you select tab of “Cursor”, Mouse pointer is Star icon. At that time, the following operation is effective.

Left click : designate the position of cursor 1
Right click : designate the position of cursor 2
Drag : enlarge the selected rectangle scope

When mouth pointer is near cursor, it shall be arrow icon. At that time, the following operation is effective.

Drag : move the nearby cursor

(2) In case that you use slider bar

By operation of the slider bar on wave graphic display area right edge (vertical axis), you can enlarge, scale down, move only the selected operation wave form subjects by tab.

Vertical axis “Pos” Slider bar:

If you drag the bar upright, operated subject wave form display is moving up, if you drag it down, the wave form is also moving down. And if you click the bar up and down, or if you push the key [↑] [↓] on the selected conditions of slider bar, the wave form is moving by one scale on vertical axis

Vertical axis “Mgnf” Slider bar:

If you drag the bar up, you can enlarge the operation subject vertical axis on the center of the screen. If you drag it down, it is to scale down.

If you operate the low edge (horizontal axis) slider bar, you can enlarge / scale down / move the time axis of total wave form.

Horizontal axis “Pos” Slider bar:

If you drag the bar to the right side, the overall wave form is moving to the left, the wave form is moving to the right. If you click the left right of the bar or push the key [←] [→] in the selected slider bar condition, you can move the wave form left right by 1/32 on the screen.

Horizontal axis “Mgnf” Slider bar:

If you drag the bar to the right, you can enlarge the operation subject horizontal axis on the middle of the screen. If you drag it to the left, it shall be scaled down.

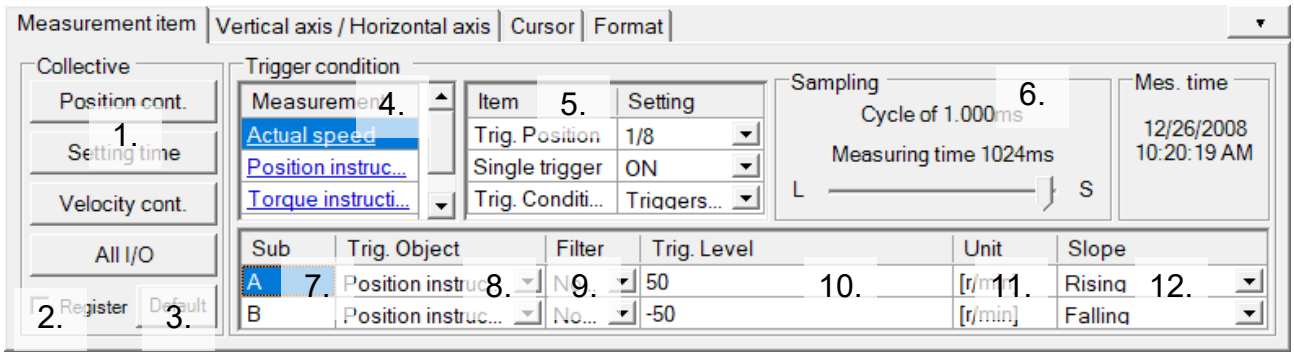
Notes 1) If you cannot find the wave form, it cannot be displayed so well, please push the “Auto range” button of “Vertical axis / Horizontal axis” tab and bring back to the overall display.

Notes 2) When you confirm the detail data of signal size 32 bits, once you display the overall wave form and move the part you want to watch to the middle of the screen with position slider.

Wave form graphic setting area

<Measurement Item Tab>

Designate the measurement item, trigger conditions, sampling cycle.



"Collective"

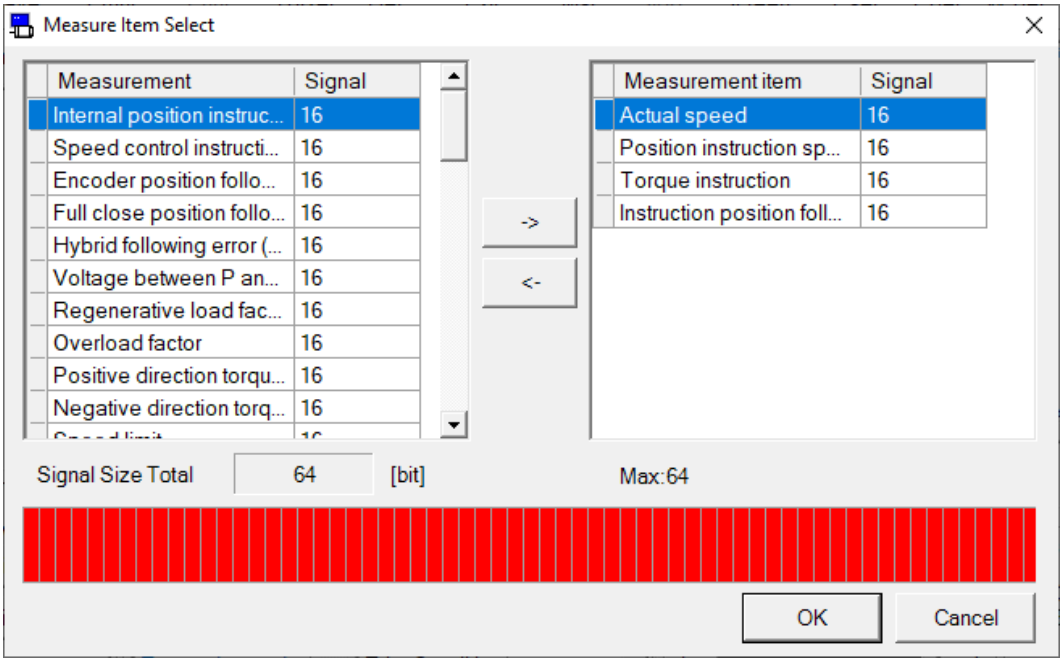
1. Setting button:
   The measurement condition is set from the wave form graphic file registered in button.
2. Register:
   When you check "Register" and push the button that registers, selection of the file window is displayed. Please select the file where the measurement condition that you want to register is included.
3. Default:
   The content of each setting button is read from the following files.

Position cont. : Measure the signal related to position control as position command speed trigger.
Settling time : Measure a signal related to the measurement of settling time as a trigger of position command passing completion.
Velocity cont. : Measure a signal related to the speed control as a trigger of the speed control command.
All I/O : Measure the analog input and physical input / output signal without trigger

“Trigger condition”

4. Measurement item:

You can measure the subject that you want to measure in your choice. If you double click the measurement items, you can open the window of the “Measure Item Select”. You can select the signal size up to total 64[BIT].(In MINAS-A6 series, you can select the signal size up to total 128[BIT]. Digital signal can be selected up to 16[BIT])
If you select the digital signal on the measurement items, analog signal and digital signal shall be displayed on the wave form graphic display area.



5. Trigger Item:

Perform the setting related to the trigger.

Trig. Position - Set the trigger happening position during the measured period.

Single trigger - When single trigger is on, the measurement can be performed only one time. If it is “Off”, until you click “Stop” button, we will continuously perform the measurement.

Trig. Condition - Set the trigger conditions.

Data average - Set the enable / disable of the data averaging function during the measurement.

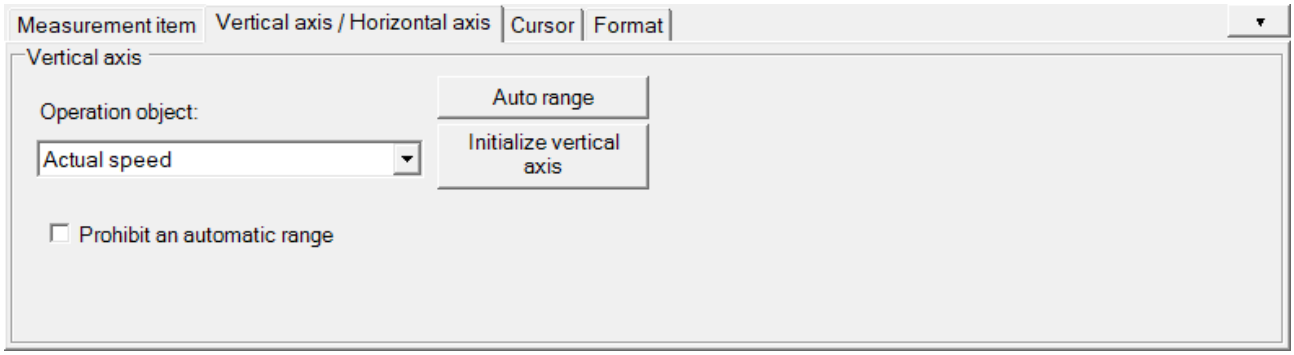
* Data average can be set only when sampling cycle expansion is supported.

6. Sampling: Set the sampling cycle. (When sampling cycle expansion is supported, the sampling setting method changes from the slider method, enabling the setting of a longer sampling cycle.)
7. Sub: You can set the trigger conditions to 2 kinds (A / B).
8. Trig. Object:
   Set the trigger subjects. You can select one of the analog signal or digital signal.
9. Filter:
   Set the filter the number of the time for the subjected number of the times signal. Depending on the trigger subjects, there are the items that you cannot set. If you cannot set the filter, “---” is displayed.
10. Trig. Level:
    Set the level of the trigger. If the trigger subject is analog signal, it is displayed by figures. If it is digital signal, it sets ON / OFF.
11. Unit: Display the trigger subjected unit to be selected.
12. Slope:
    Set the slope to be triggered. You can select it from “Leading”, “Trailing”, “Matched”, “Mismatched”, “Greater”, “Less”.

* If you use digital signal for trigger subject, slope setting is “Matched” or “Mismatched”.

<Vertical axis / Horizontal axis Tab>

Designate the wave form graphic conditions



“Operation object”

You can select the operation subject to be designated position and magnification by vertical axis slider bar. You can use analogue signal only.

“Auto range button”

Adequate value shall be automatically adjusted from all the wave form vertical axis position and magnification on the screen display. And minimum (display all data) of horizontal magnification is set.

“Initialize vertical axis button”

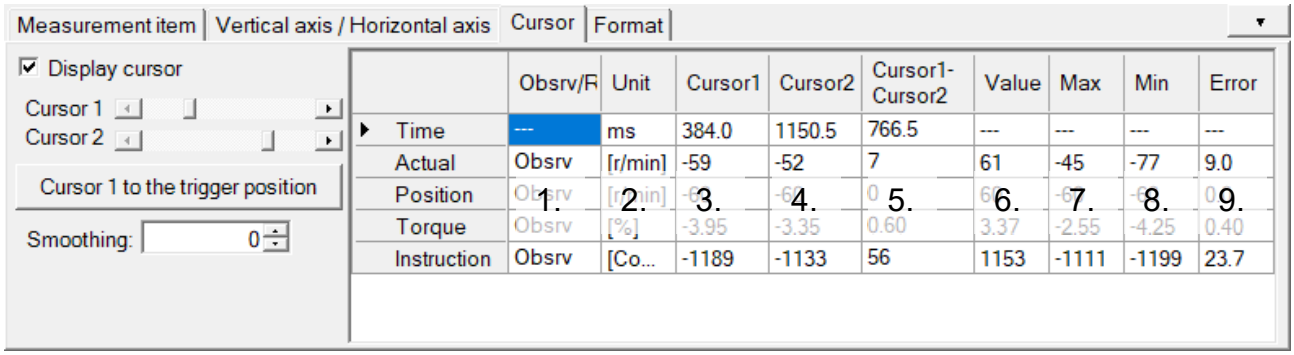
All wave form’s vertical magnification is itself and 0 is moving to middle of the screen.

“Prohibit an automatic range check box”

If you check the mark, Auto range is prohibited at the measurement. When measurement conditions are the same, the auto range of a horizontal axis is also forbidden. If there is no check mark, Auto range shall be performed on the wave from each graphic measurement.

<Cursor Tab>

Display cursor and the measured value of cursor 1 and cursor 2.



“Display cursor”

When checked, cursor 1 and cursor 2 is displayed.

"Cursor1"

The position of cursol1 can be moved.
You can also specify the position with the left mouse button.
You can also click the cursor to move it.

"Cursor2"

The position of cursol2 can be moved.
You can also specify the position with the right mouse button.
You can also click the cursor to move it.

"Value display"

The value of the selected measurement item is displayed.

1. Obsrv/Ref:
   Displays whether the waveform is observation or reference.
2. Unit:
   The unit of the selected item is displayed.
3. Cursor 1:
   The value of the selected item at the time of cursor 1 is displayed.
4. Cursor 2:
   The value of the selected item at the time of cursor 2 is displayed.
5. Cursor 1-Cursor 2:
   Displays the difference between the values of cursor 1 and cursor 2 of the selected measurement item.

6. Value:
   The effective value of the section from cursor 1 to cursor 2 of the selected measurement item is displayed.
   If there is no check mark in "Display", the value of all sections is displayed.
7. Max:
   The maximum value of the section from cursor 1 to cursor 2 of the selected measurement item is displayed.
   If there is no check mark in "Display", the max of all sections is displayed.
8. Min:
   The minimum value of the section from cursor 1 to cursor 2 of the selected measurement item is displayed.
   If there is no check mark in "Display", the min of all sections is displayed.
9. Error:
   The standard deviation of the section from cursor 1 to cursor 2 of the selected measurement item is displayed.
   If there is no check mark in "Display", the error of all sections is displayed.

“Cursor 1 to the trigger position button”

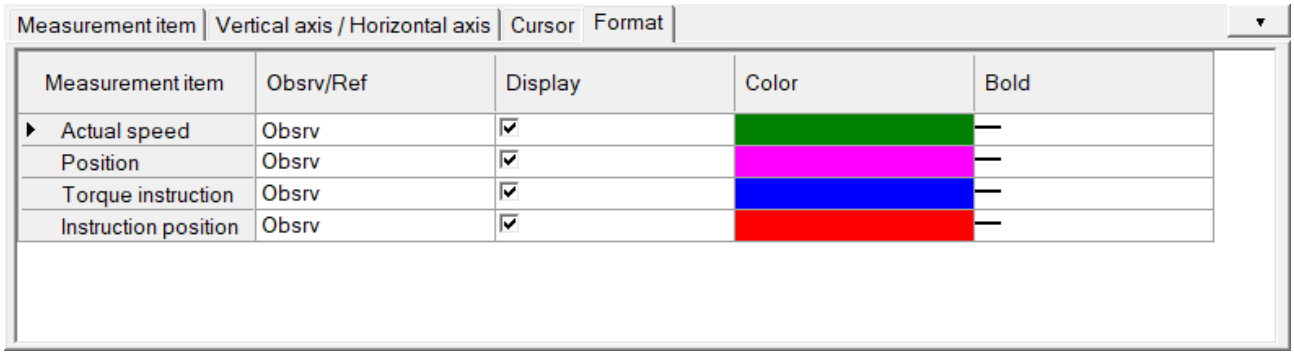
Cursor 1 sets the trigger position.
This is displayed when “Display cursor” is checked only.

“Smoothing”

The analog signal is smoothing.

<Format Tab>

Set the display format of the measured wave form.



"Measurement item"

Selected measurement item is displayed.

"Obsrv / Ref"

The type of item is displayed (Observed or Reference).

"Display"

Select this item is displayed or is not displayed.

"Color"

Set the waveform color of the measurement item.
Select the color of this item when color cell is double-clicked.

"Bold"

Set the thickness of the waveform of the measurement item.
Select the thickness of this item when color cell is double-clicked.

Measurement of wave form

1 Set the wave form graphic setting.

2 Click 

(Measure) of the tool bar.
When the measurement starts, status of measurement is displayed on status bar.

Notes 1) If "T-set" or "Msr" (Measure) button is once clicked, even if you close the wave form graphic display or exit the PANATERM, the driver continues measurement by the trigger condition last set. In this case, the measured data which is trigged by the setting is acquired by pushed the "W-get" button. But if the driver is yet waiting for trigger, displayed communication error dialog box.

Notes 2) When wave form graphic display is closed, measurement condition is saved, and same condition is applied next time.

Reference data

1 After measuring wave form graphic, click 

(To Reference) button on the tool bar, and observed data is copied to reference data.

2 Check the “Display” of Reference data from “Format” tab and reference data can be displayed on screen.

Notes 1) The reference data is registered up to 10 sets. If you copy with all the reference waveforms filled, reference 10 will be overwritten.

Notes 2) When measurement item is changed, the reference data is cleared.

Notes 3) The time (horizontal) scale of reference data is fixed at the condition of measurement. Don’t read the reference data which has different time scale from wave file.

Save and read the wave graphic data

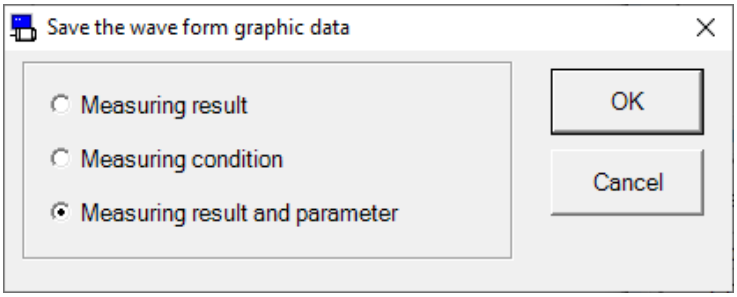
It is possible to use, and to refer when the parameter setting value at the measurement condition, the result of a measurement, and that time specified when measuring it is preserved in the file, and the measurement is executed again under this condition.

Wave graphic data file : ***.wgd5 or ***.wgd6
Wave graphic condition file : ***.wgc5 or ***.wgc6
Wave graphic data and parameter file : ***.wgp5 or ***.wgp6

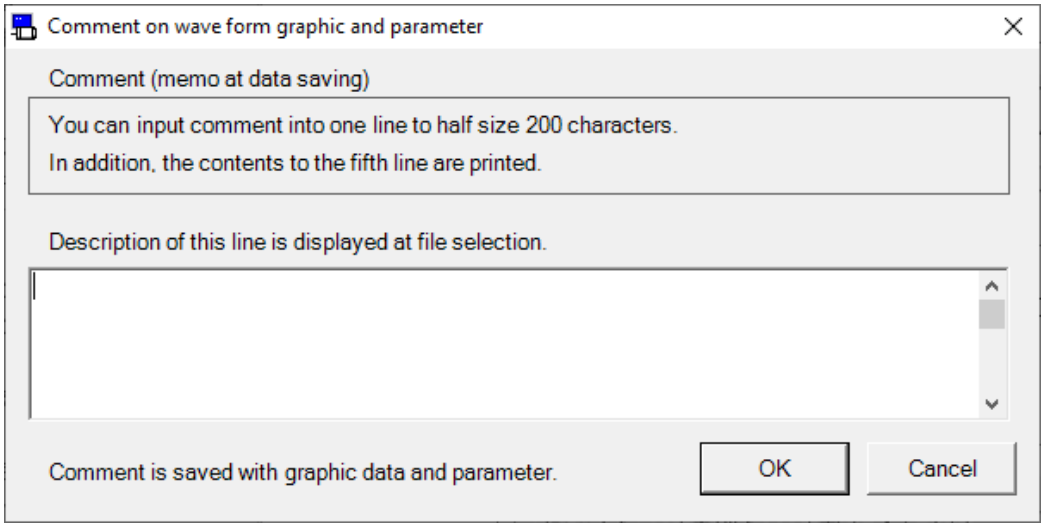
* When sampling cycle expansion is supported, files are saved with extensions wgd6, wgc6, and wgp6.

Save to wave graphic data

1 Click “Save” button from tool bar.
2 “Save the wave form graphic data” window is displayed.



3 Select the save item, and click “OK” button.
4 Comment input window is displayed.

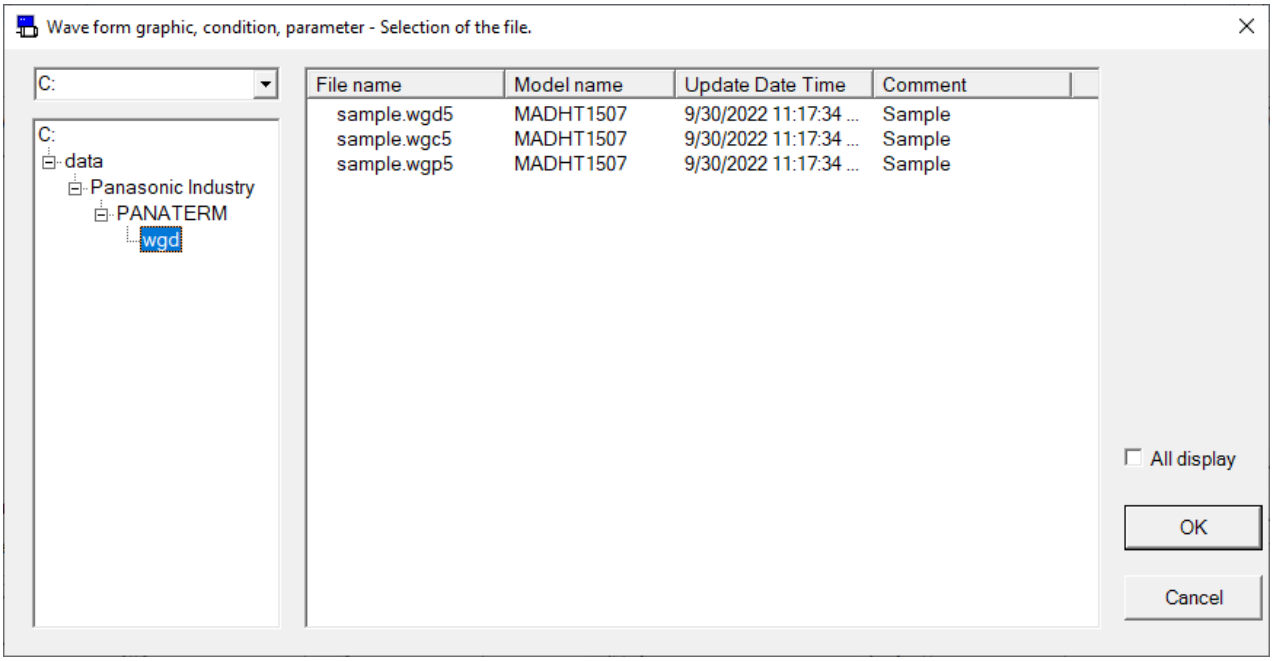


5 Click “OK” button, and the file dialog is displayed.

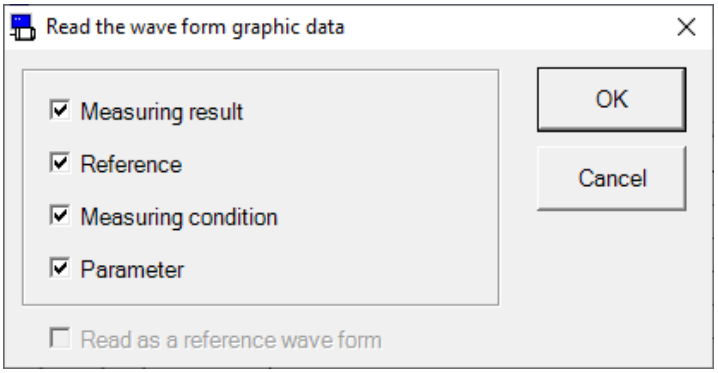
6 In the file dialog, specify the name of the file that you want to save.
7 Click “Save” button.

Read from wave graphic data

1 Click “Read” button from tool bar.



2 Select data file to read.
3 Click “OK” button.
4 Window for “Read the wave form graphic data” will appear.



5 Put checks on the items you would like to read, and click “OK”. The saved waveform for measurement result can be read as reference, if “Read as a reference wave form” is selected. However the measured condition, and parameters cannot be read, if this is selected.
6 Content that was selected will be read.

Notes 1) The detail of wave form data is referred the driver operation manual or technical reference.
Notes 2) When sampling cycle is not set minimum value, a part of analog signal are smoothing by the driver.
Notes 3) The aliasing might be caused and an actually different shape of waves be seen, when sampling cycle is longer than vibration data.
Notes 4) The communication error is displayed when the driver power supply is off while wave form graphic is measuring. Please close wave form graphic display.
Notes 5) The wave form graphic function is not precious measurement instrument. The wave form graphic data shall be used as rough estimate.
Notes 6) “Mes. time” (Measure time) display is the time of receive the wave form data from the driver. Note that the time is not the time of trigger time.
Notes 7) The wave form graphic screen cannot open during opening some screens. For more information please refer to page 269 “Wave form graphic screen behavior”.
Notes 8) In the case of network type (MINAS-A5N, MINAS-A5NL, etc.), if a network is established in the state of trigger standby, the detected trigger position may shift.

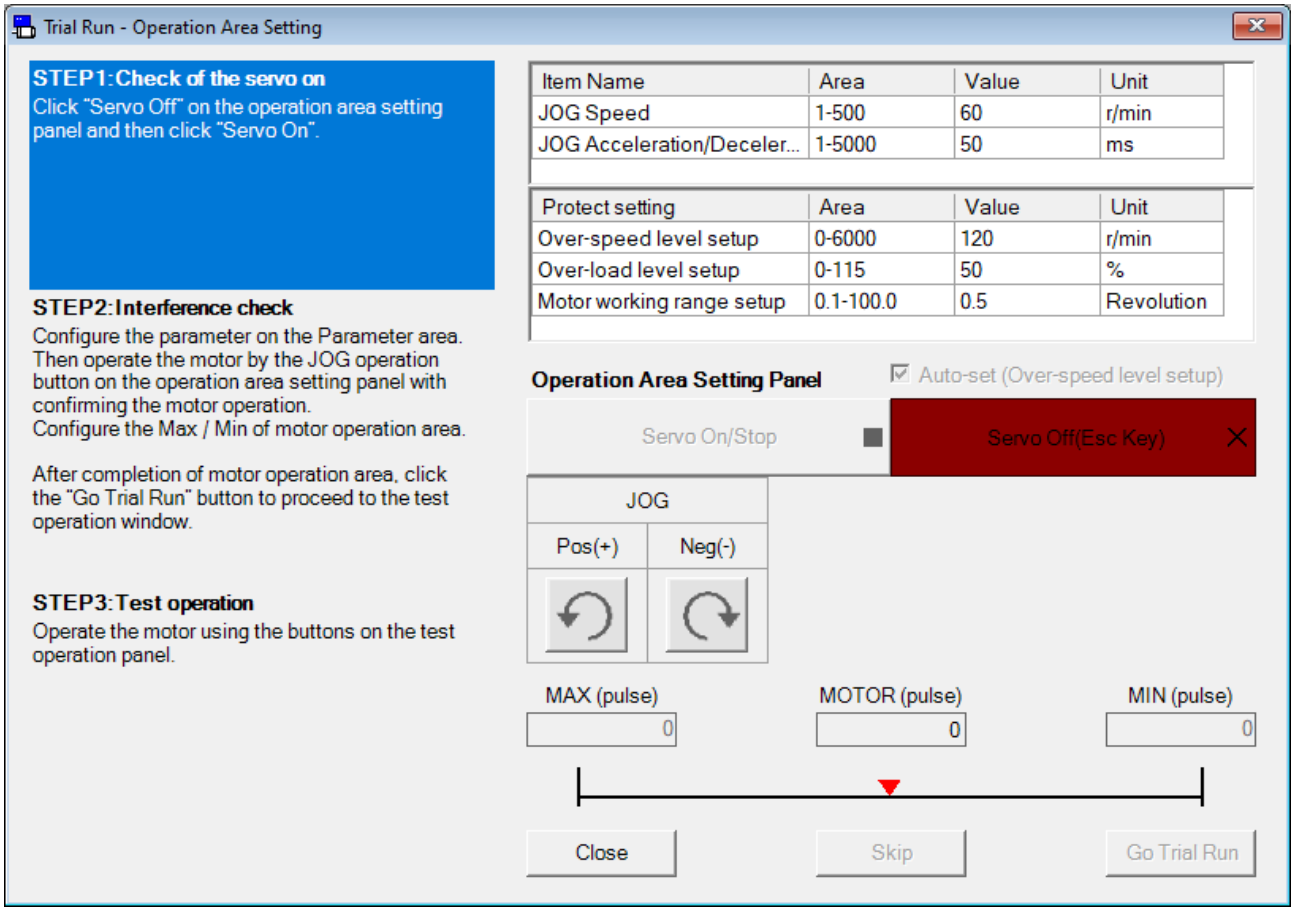
Trial run screen

Motor can be operated as test only with the Drive, and without connecting to the master level equipment.

Note) Parameter settings and Driver's gain tuning will be needed even at the trial run. Please read the operation manual or technical reference to understand the manual content prior to this operation.
Trial run cannot be performed through RS232 communication.

Open the Trial Run window

1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Trial Run" of the tool bar on the main screen.
3 The Trial Run window is opened.

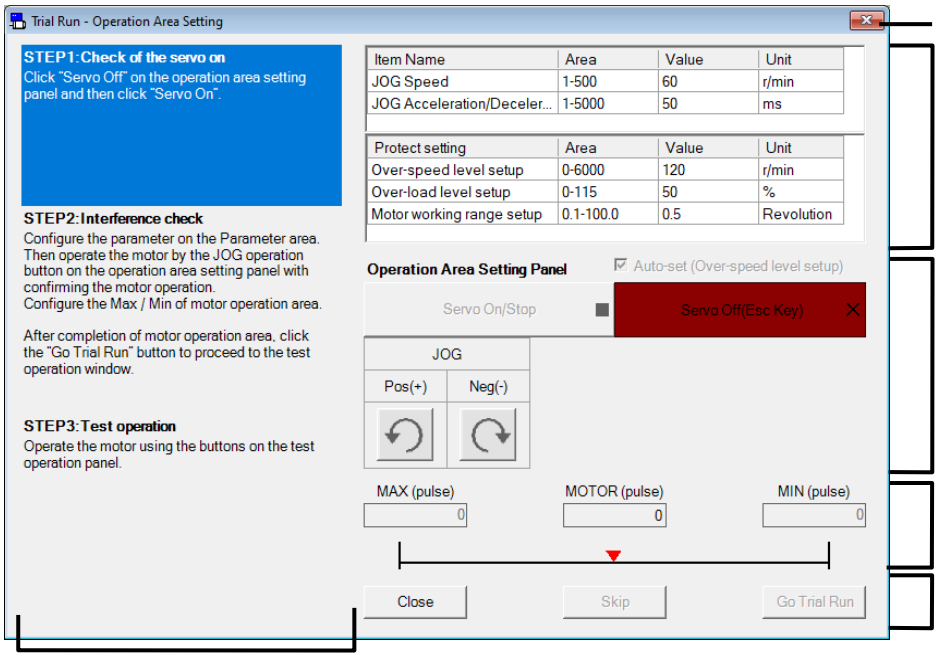


Close the Trial Run window

Click "Close" button on the window.

Structure of Trial Run screen

Operation Area Setting window



(1) Title bar

(2) Related parameter

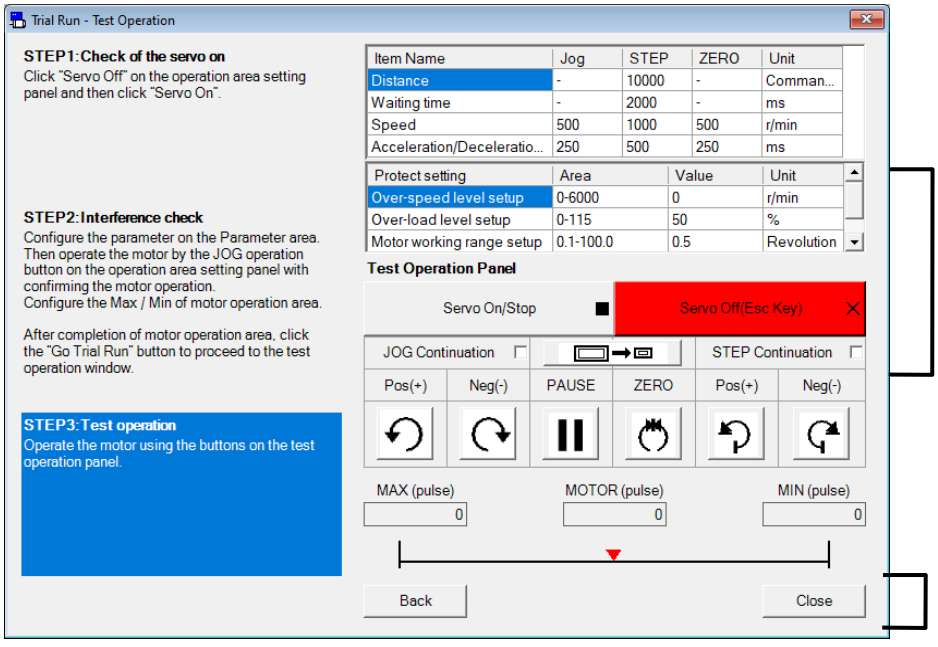
(3) Operation area setting panel

(4) Motor position data

(5) Operation button

(6) How to operation area

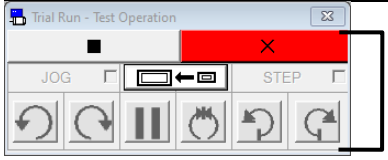
Test Operation window (Standard type)



(7) Test operation panel

(5) Operation button

Test Operation window (Shrink type)



(7) Test operation panel

(1) Title bar
Window can be operated.

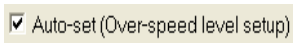
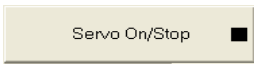
(2) Related parameter
Speed and Acceleration/Deceleration time can be operated at the Operation area settings window. Speed, Acceleration/Deceleration time, moving length, waiting time properties of JOG/STEP/ZERO can be set.

Notes 1) These parameters will be in PANATERM's default setting, when the Operation Area Setting window is opened. But these will be set the value before opening a Trial run, when the Test Operation window is opened.

Notes 2) Change of setting value will be reflected to the drive at the start of test operation.

Notes 3) Protection function setting will return back to the value before opening the window, when the Operation Area Setting window or the Test operation window is closed.

(3) Operation area setting panel
Test operation can be done with the button below

	Auto-set (Over-speed level setup)	If a check is put in, over-speed level will be changed the twice of JOG speed.
	Servo On / Immediate stop	Turn on the servo feature of motor.
	Servo Off	Turn off the servo feature of motor. Note) Servo feature can be turned off by the ESC key when the window is active.
	JOG Positive(+)	JOG operation can be done to the plus direction when JOG Positive (+) is pressed, and minus direction when the JOG Negative (-) is pressed with the speed on setting.
	JOG Negative(-)	

(4) Motor position information area
MAX : Maximum operation area
MOTOR: Current position
MIN : Minimum operation area
Note) Current position of the motor is the value in command unit with the position when the Servo On as 0.

(5) Operation button

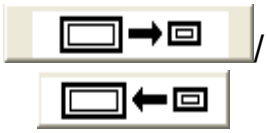
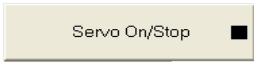
Close	: Close operation area configuration or test operation feature.
Skip	: Test operate without operation area being configured.
Go Trial Run	: Test operate based on configuration.
Back	: Stop test operation, and return to operation area configuration. Test operation window.

(6) How to operation area

This area displays the explanation of the operation method.

(7) Test Operation panel

Test operation can be done with the button below

	Change to shrink type / Change to standard type	A test run screen is changed from standard type to shrink type. Or it is changed from shrink type to standard type.
	Servo On / Immediate stop	Servo function will be turned on. When motor is in “Servo On” condition, this button will enable an immediate stop or continuous operation.
	Servo off	Servo function will be turned off. When window is active the Servo function will be turned off when ESC key is pressed.
	JOG Positive(+)	When check is not on “JOG Cont”, then JOG operation will be active when button is pressed, and will be inactive when button is not pressed.
	JOG Negative(-)	If check is on the “JOG Cont” button, then JOG operation will continue until operation area becomes Max/Min. when button is pressed once. When “Servo On/Stop” is pressed, then motor will immediately stop without time to descend the speed. When “Pause” is pressed, then motor will stop after descending the speed. Time to descend the speed until stopping the rotation will vary depending on time

needed.
Note) If you would like to cancel the JOG continuous operation, then “Pause” the motor, and then press “Servo On/Stop” button.

PAUSE

Motor will pause and continue the operation.

ZERO

Motor will Step operate until the 0 position.

STEP Positive(+)

STEP Negative(-)

If check is not in the “STEP Cont” checkbox; Step operation will continue when for the configured operation distance when the button is pressed.
Motor will immediately stop without speed deceleration time, when the “Servo On/Stop” button is clicked during rotation.
Motor will pause after speed deceleration when “PAUSE” button is clicked. When “PAUSE” button is clicked again, then motor will operate towards the targeted position set before pausing.

When check is on the “STEP Cont” checkbox ;
When the button is clicked once, then the motor will operate the “Step operation” for the configured distance to the designated direction, and then operate for same distance to the opposite direction, which will continue this back and forth operation.

When “Servo On/Stop” button is clicked during this continuous operation, the motor will stop without deceleration time, and cancel the continuous operation.

When “PAUSE” button is clicked during the same continuous operation, then the motor will pause and will continue on with the operation when the button is clicked again.

Note) Push “Servo On/Stop” button after “PAUSE” button and STEP continuous operation can be canceled.

Maneuvering Test operation

1 Click “Servo Off” on test operation panel at Operation area settings window, and then click “Servo ON” (STEP 1) If there are alarms or errors occurring at this step, eliminate the cause, clear the alarm, and then re - start from step 1.
2 Configure the parameter on the Parameter area. Then operate the motor by the JOG operation button on the test operation panel with confirming the motor operation.
Configure the Max / Min. of motor operation area. (STEP 2)
3 After completion of motor operation area, click the “Next” button to proceed to the test operation window.
4 Operate the motor using the buttons on the test operation panel on the test operation window.

Notes 1) If warning or error occurs when the trial run window is open, then the communication error will appear on screen. After removing the cause, clear the alarm, and then restart the test run. Also, if a servo-on signal is input from the outside, a communication error will be displayed.

Notes 2) When open the trial run window, the parameter of protection function setting changes into a default value. When close the trial run window, it returns to the value before it opens. Therefore, please note that the argument value changed on trial run screen might be displayed when the parameter is written from other screens while the trial running.
Moreover, the parameter changed on the trial run screen is not preserved.

Notes 3) When “Go Trial Run” button is clicked without the operation area configured, and then the error will appear on screen. Please configure the operation area going by what specified above.

Notes 4) Please be noted that the configured operation area will be canceled, and there will be no limit to the operation area during the test operation.

Notes 5) Operation area will be cleared when “Servo OFF” is clicked.

Notes 6) When “Close” button is clicked when the Servo is ON, then the Drive Servo will be turned OFF, and test operation will be stopped.

Notes 7) When “Servo OFF” or “Back” is clicked, then the Drive Servo will be turned OFF, and operation area will be cleared.

Notes 8) The trial run screen cannot open during opening some screens. For more information please refer to page 270 “Trial run screen behavior”.

Notes 9) When drive is not in ready status (Alarm or Main power source is cut off), front panel is used except for monitor mode, or Servo ON is input from outside, then the trial run window will not be able to open or error will be on screen during execution. Please re - execute after these status is eliminated, and the trial run window is closed.

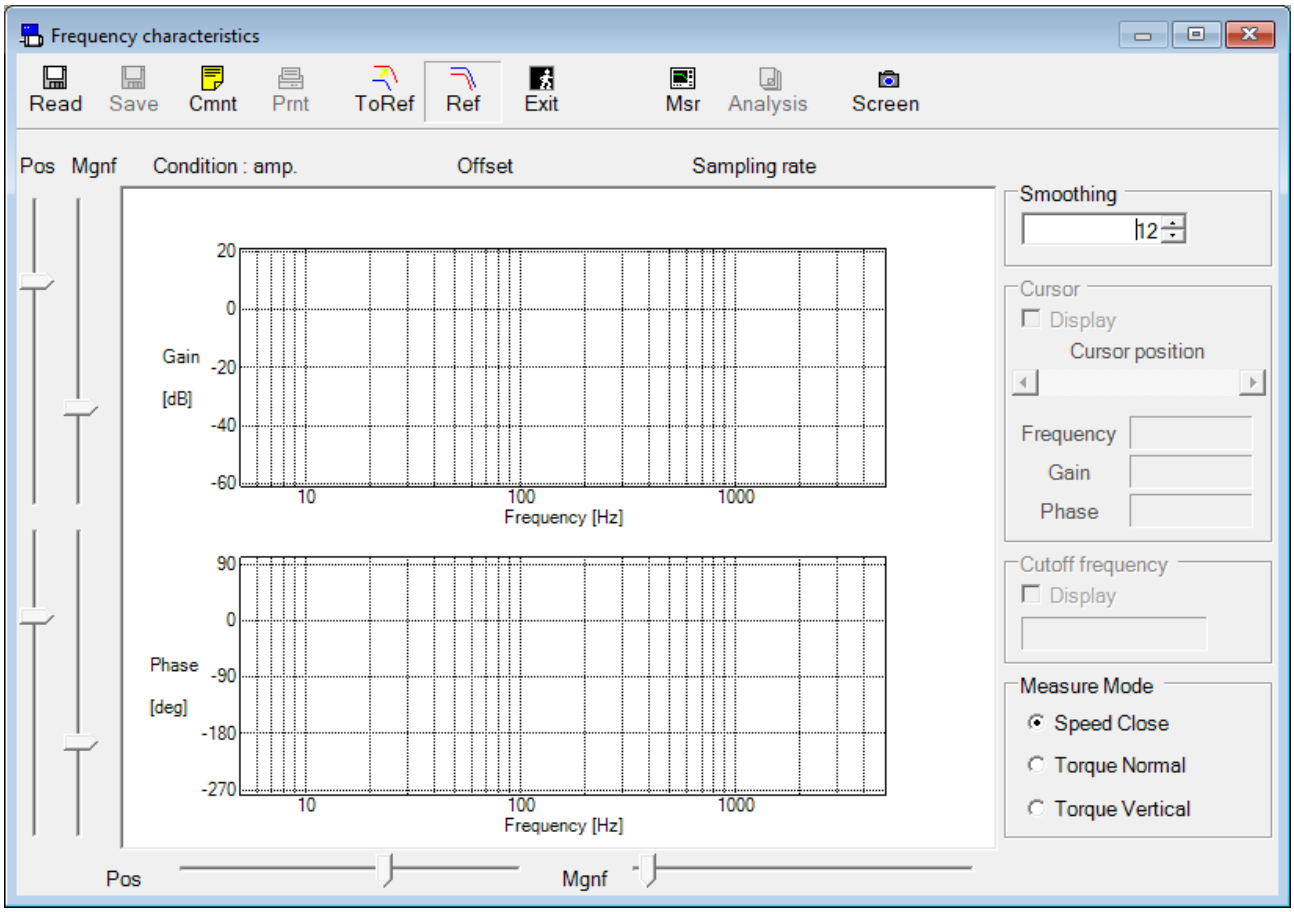
Frequency characteristics screen

Measures the wavelength characteristics including the load, and shows the result in bode plot Mechanical resonance point or response time can be measured. In addition, the measured result can be saved as file.

Note) Please check with the operation manual or the specification document.
Please execute the measurement in the condition that servo-off can be made anytime as a precaution.
This function should not be used in the case that blistering movement of a motor may break the machine.
Please execute the measurement in the condition of as low gain as possible.
Please note that large setting of offset value may cause exceeding movement limitation.

Open the Frequency characteristics window

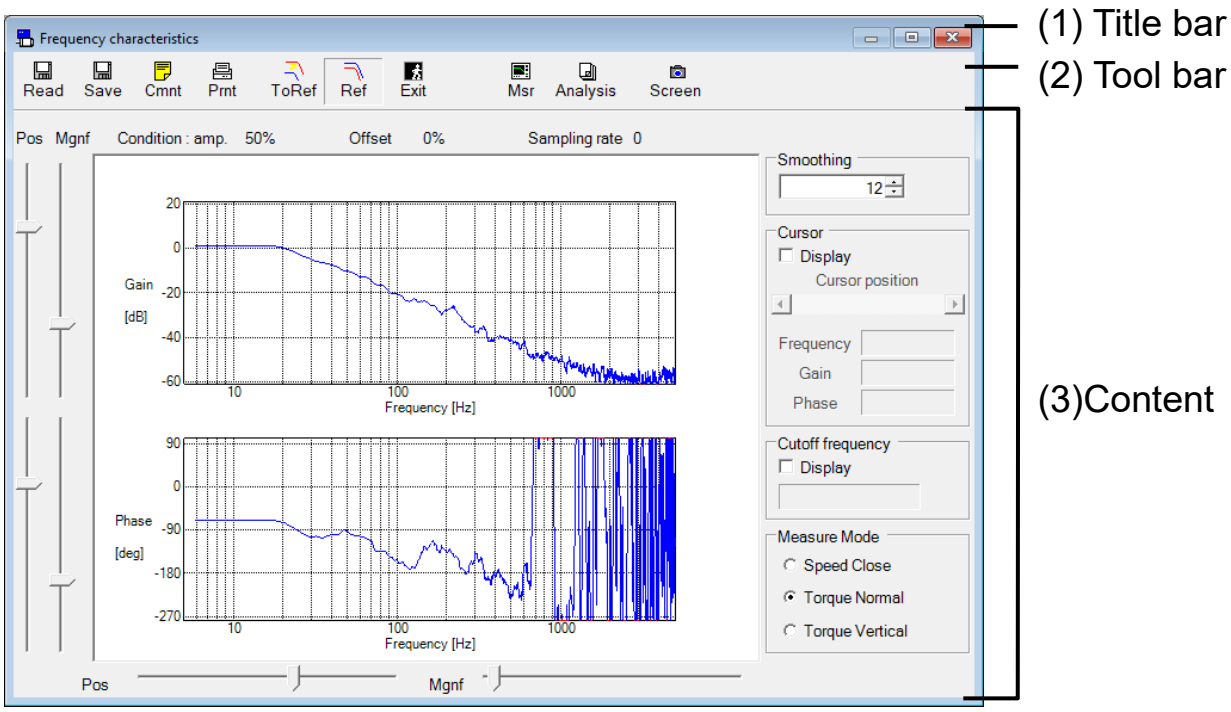
1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Frequency Response” of the tool bar on the main screen.
3 The Frequency characteristics window is opened.
(The figure of the next page)



Close the Frequency characteristics window

Click Exit (Exit) on the tool bar.

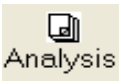
Structure of Frequency characteristic screen



(1) Title bar
You can operate this window.

(2) Tool bar
Operation command such as Frequency characteristics measurement is on this bar.

Read	(Read)	Read frequency characteristics data. When this button is effective, a file can be specified by drag and drop.
Save	(Save)	Saves the frequency characteristics data.
Cmnt	(Comment)	Write comments to the Frequency characteristics file.
Prnt	(Print)	Print Bode plot.
ToRef	(Copy)	Copy measured wavelength to referenced wavelength.
Ref	(Reference)	Turn ON/OFF screen of reference wavelength.
Exit	(Exit)	Close Frequency characteristics window.

	(Measure)	Measure Frequency characteristics.
	(Analysis)	Analyze frequency characteristics. This cannot be used when using RS232 communication.
	(Screen)	Capture screen and save as file.

(3) Content area

Graph option

Configure items related to graph appearance or operation

Smoothing	Configure level of smoothing
Cursor	Switch appearance/disappear of cursor on screen. The cursor moves to the position you clicked with the mouse.
Cut off frequency	Shows frequency[Hz] which will enable Gain - 3db.
Measurement mode	Configure measurement mode.
Speed Close	Measure frequency response from Speed input to motor speed.
Torque Normal	Measure frequency response from Torque input to Motor speed.
Torque Vertical	Measure frequency response from Torque input to Motor speed. This function is used in loads that are asymmetric such as in vertical angle.

(In MINAS-A6 series, you can measurement the Position loop operation.)

Vertical axis slider

Change position, and magnification of vertical axis of bode plot.

Horizontal axis slider

Change position, and magnification of horizontal axis of bode plot.

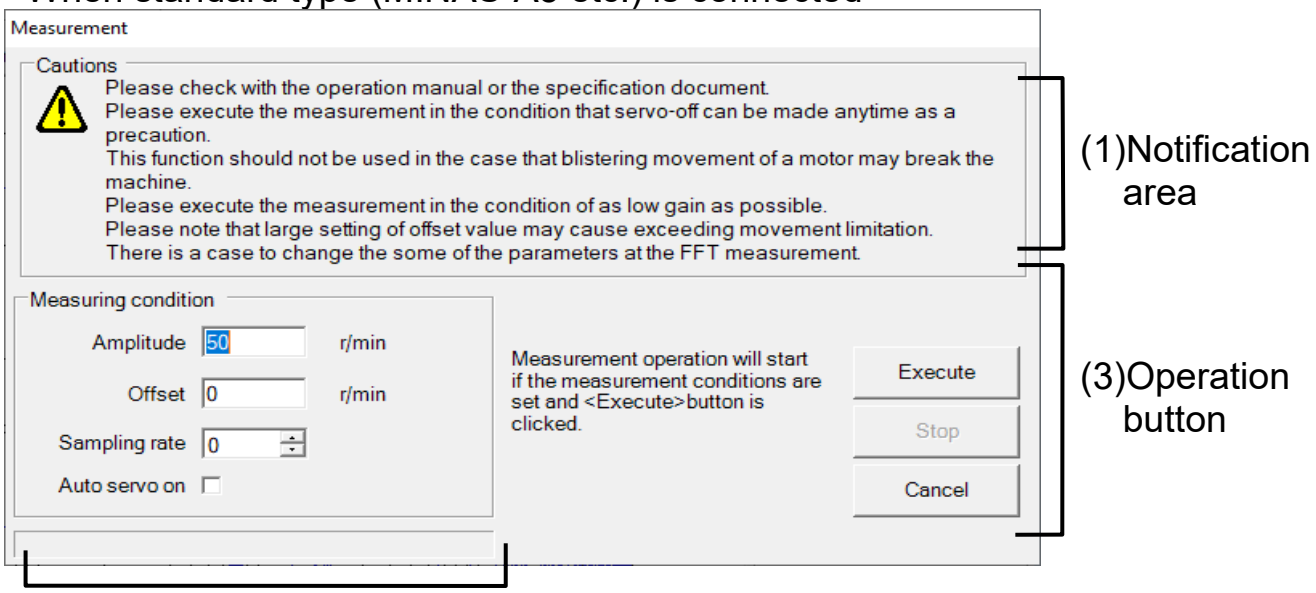
Bode plot

Creates bode plot of measured Frequency characteristics data.

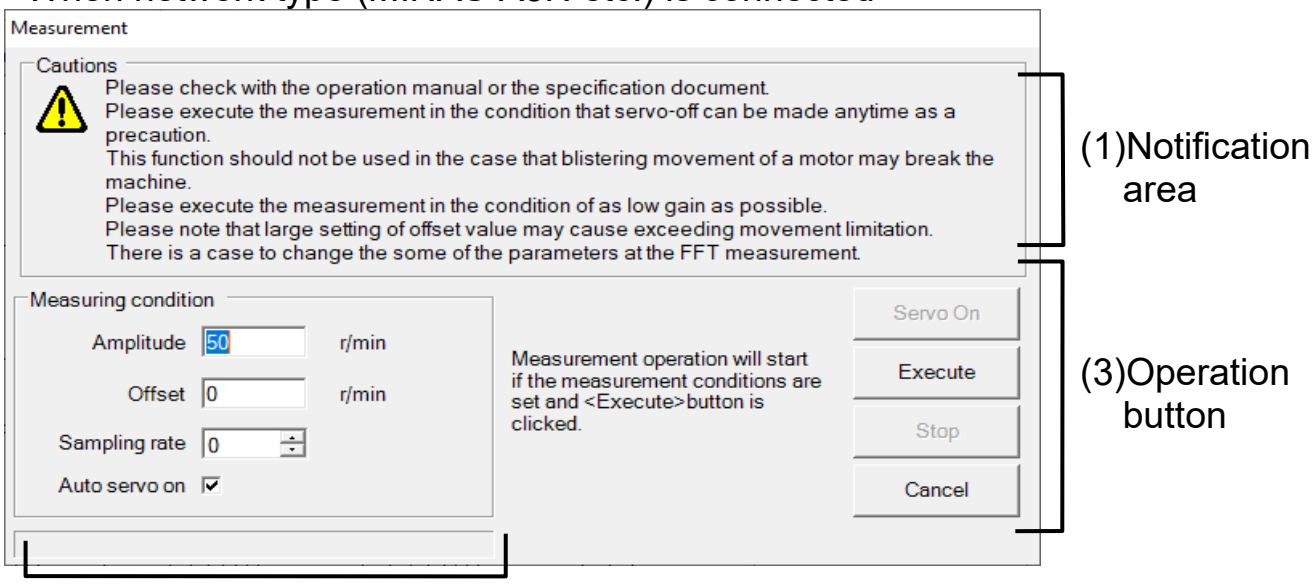
Measurement of Frequency characteristics

1 Click “Measure” on Frequency characteristics window, and then measurement window will open.

<When standard type (MINAS-A5 etc.) is connected>



<When network type (MINAS-A5N etc.) is connected>



2 Please confirm the content that is on the (1) notification area.

3 Specify (2) Measurement condition.

“Variation” The amplitude of noise waveform applied to the velocity command or the torque command is set when measurement of frequency characteristics.

* When measurement mode is at “Speed Close” sum of variation, and offset will be limited to 5,000r/min. When the measurement mode is “Torque Normal” or “Torque Vertical”, it is limited to a range that does not exceed 100%.
* When variation is increased the measurement will increase, however torque will be saturation, and torque precision will decrease. Please start with small values and increase with steps accordingly to the measurement result.

“Offset” The offset of noise waveform applied to the velocity command or the torque command is set when measurement of frequency characteristics.

* Sum of variation and offset will be limited to 5,000r/min. When measurement mode is in Torque – Speed, then setting is not possible.
* Motor will operate with offset being the average speed command during the measurement. Polarity of “+” is CW, and “-” is CCW. A good measurement result can be taken if the motor is rotating into one direction, while the offset is configured over the value of variation. However, please be careful when the “Rotation” is narrow, because the rotation may exceed the “Rotation”. Rotation of motor can be calculated by the below formula. Please confirm that the “Rotation” will not be exceeded before starting the measurement.

Rotation [r] = Offset [r/min] x 0.017 x (Sampling rate +1)

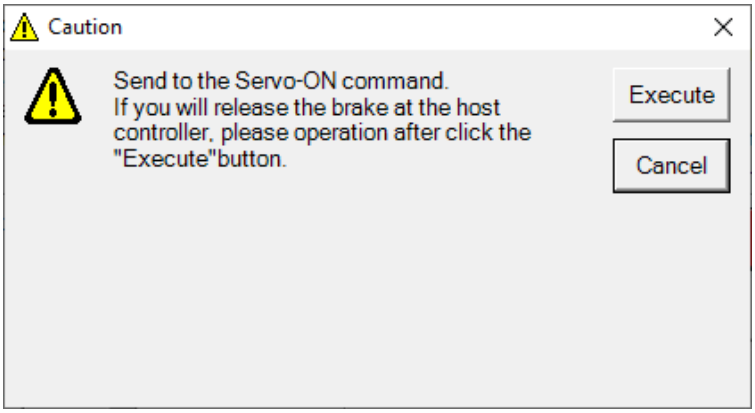
“Sampling rate” Can be configured to values from 0 to 7

* When sampling rate is large, then the measurement precision of low frequency will increase, however the measurement time will be longer. If small, then measurement precision of high frequency will increase. Please start from “0”, and adjust accordingly to the measurement result.
* When sampling rate is over 1, then the aliasing may occur.

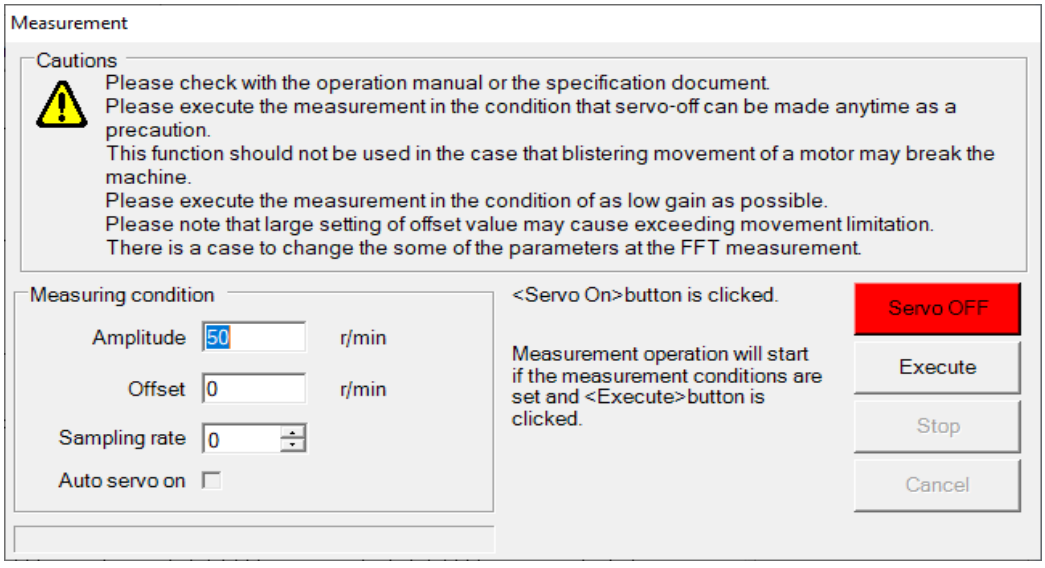
“Auto servo on” The driver does servo-on by automatic operation when measurement of frequency characteristics when “Auto servo on” is checked.

* In the case of standard type, please do not check it when servo-on by an external input.
  In the case of network type, please do not check it when brake release operation is being performed by host device.
* In the case of standard type, if close the measurement window, clear setting.

4 When the “Servo on” of (3) operation button is invalid, or when not displayed, please move on to the next.
When the “Servo on” is valid, please click on “Servo on”. Caution windows will appear. Confirm the window message carefully, and click “Execute”. To cancel, click “Cancel”.

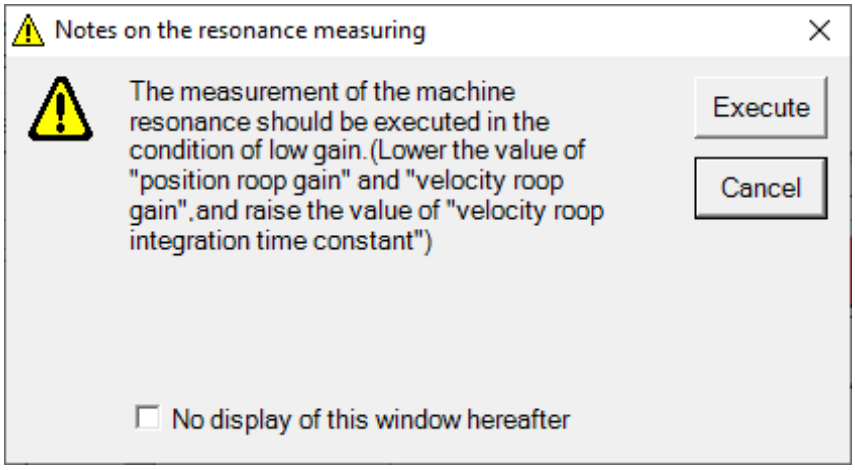


“Execute” of (3) operation button becomes effective after servo-on.



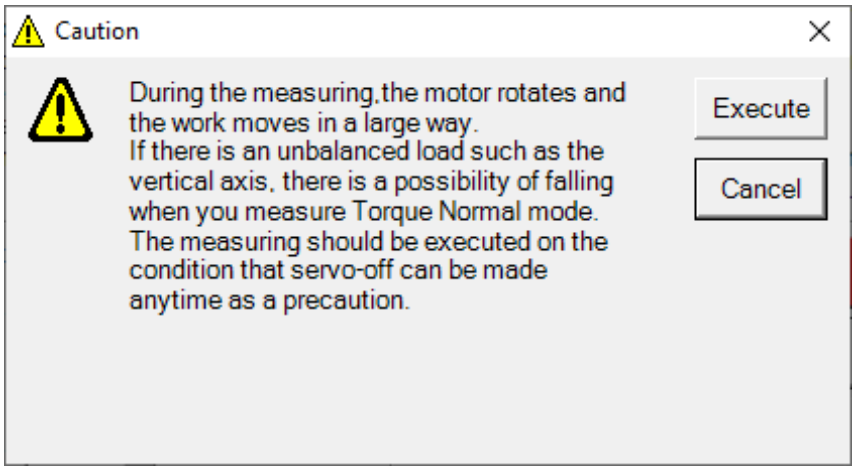
Please apply brakes by host device after servo-on.

5 Click on “Execute” on the (3) operation button, and notification window at resonance measure will appear. Confirm the window message carefully, and click “Execute”.

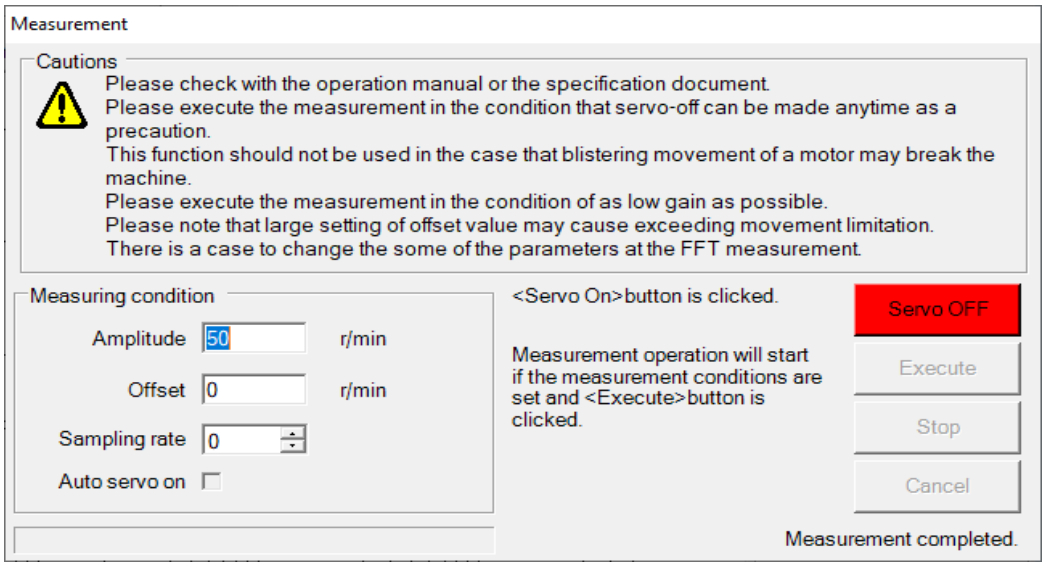


6 Caution windows will appear.
To turn on the servo by external input, turn on the servo.
Click “Execute” after servo-on, and the measurement will start.
To cancel, click “Cancel”.

Note) If you want to cancel while the measurement is in progress, click the “Stop” operation button in (3).

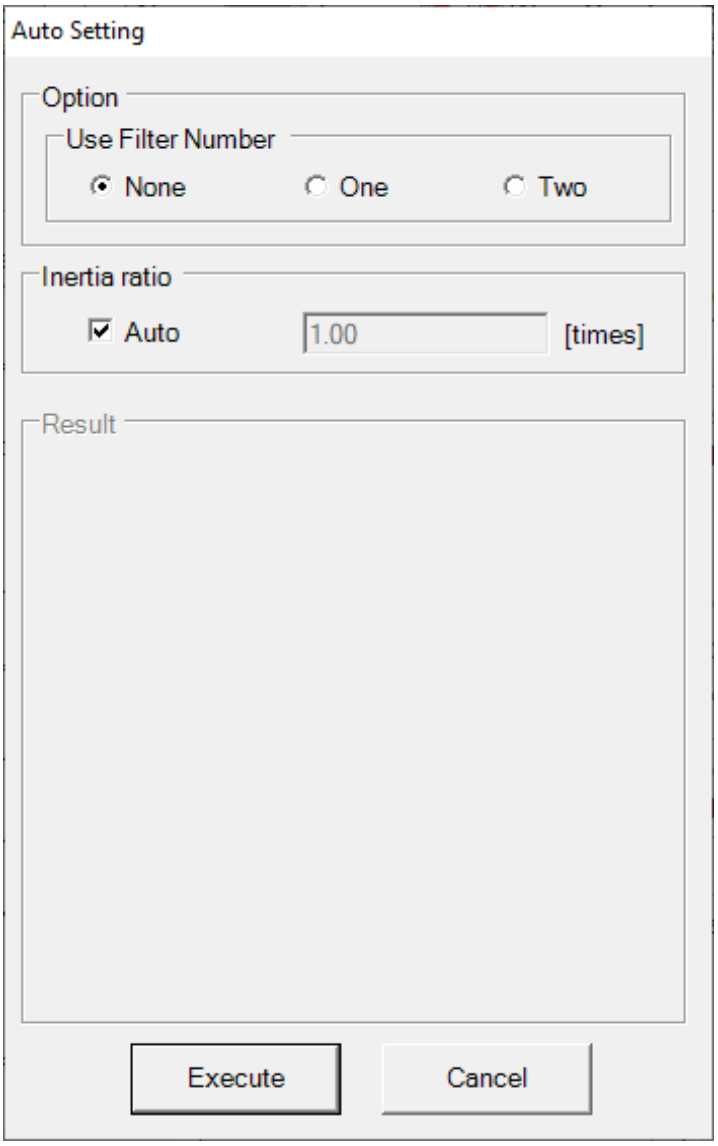


7 A measurement window closes automatically after the completion of measurement. Please click “Servo off”, when you do not close. Please apply brakes by host device before servo-off.



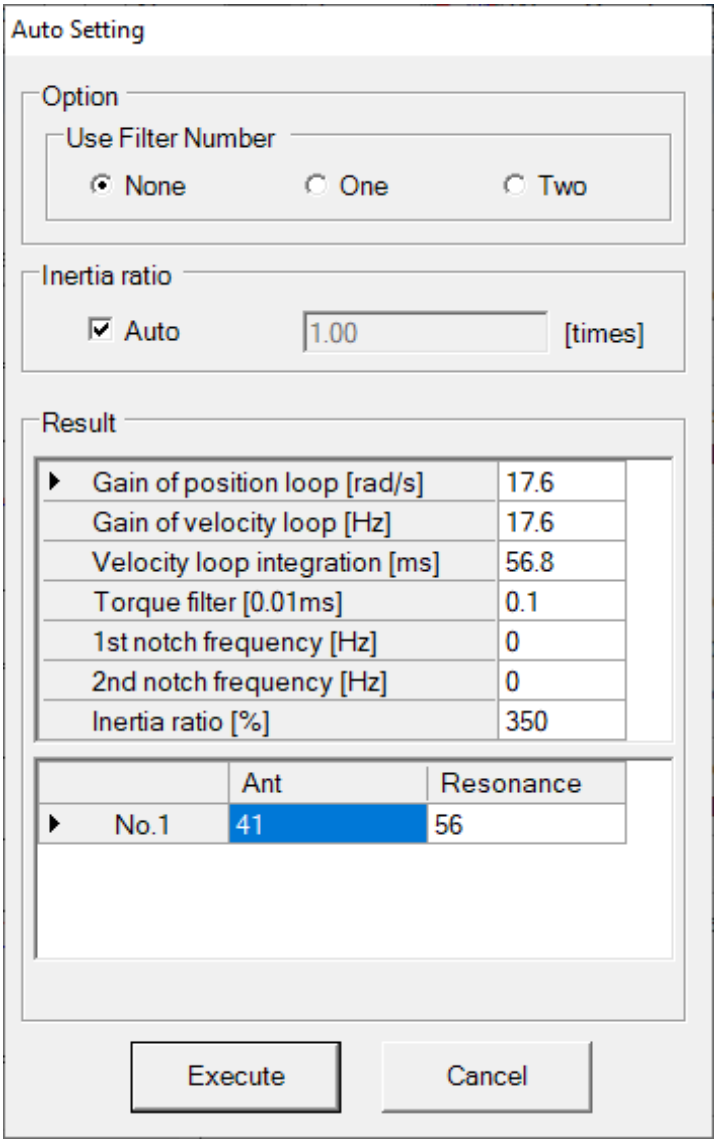
Analysis of frequency characteristics

1 Gain automatic adjustment window will open, when “Analysis” button of Frequency characteristics window is clicked.
   * This function cannot be used with the MINAS-A6 series.
   * Analysis can be done when communication with drive is connected, and after measurement is done at measurement mode “Torque Speed”. (Standard analysis cannot be done when communication is not connected)



2 Configure number of notch filter that will be used at analysis option.
3 Configure Inertia ratio. If inertia ratio is to be automatically assumed from the result of frequency characteristics measurement, then put the check on the automatic adjustment checkbox.

4 After “Execute” button is clicked, recommended control parameter will appear on the analysis result, and resonance & anti - resonance frequency and it’s opposite will appear on the bode plot frequency characteristics. (Yellow : Resonance, Green : Anti - resonance)



5 Close “Cancel” to close the Gain automatic adjustment window from the frequency characteristics.

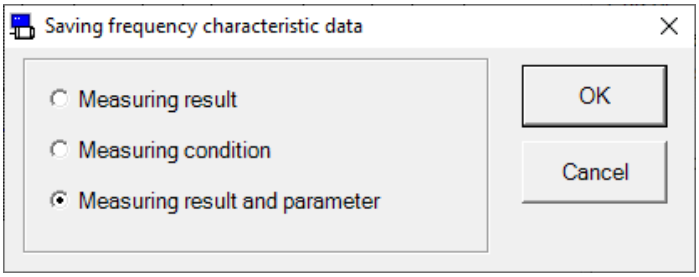
Save or reading frequency characteristics data

Measurement condition, result and parameter values at the time of measurement can be saved as file, and used again to measure with same condition, or read for reference.

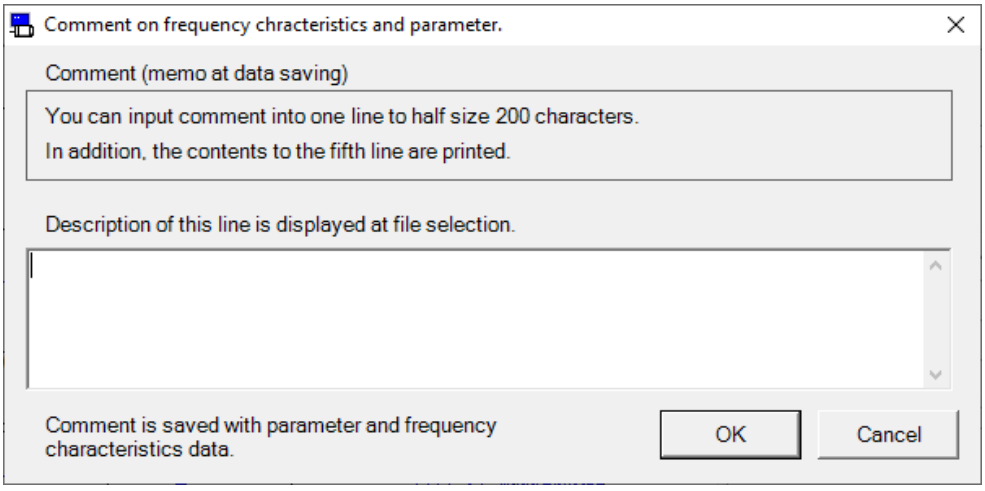
Frequency characteristics measurement result file	: ***.fcd5
Frequency characteristics measurement condition file	: ***.fcc5
Frequency characteristics measurement result & parameter file	: ***.fcp5

Saving frequency characteristics data

1 Click “Save” in toolbar.
2 Saving frequency characteristics data window will appear.



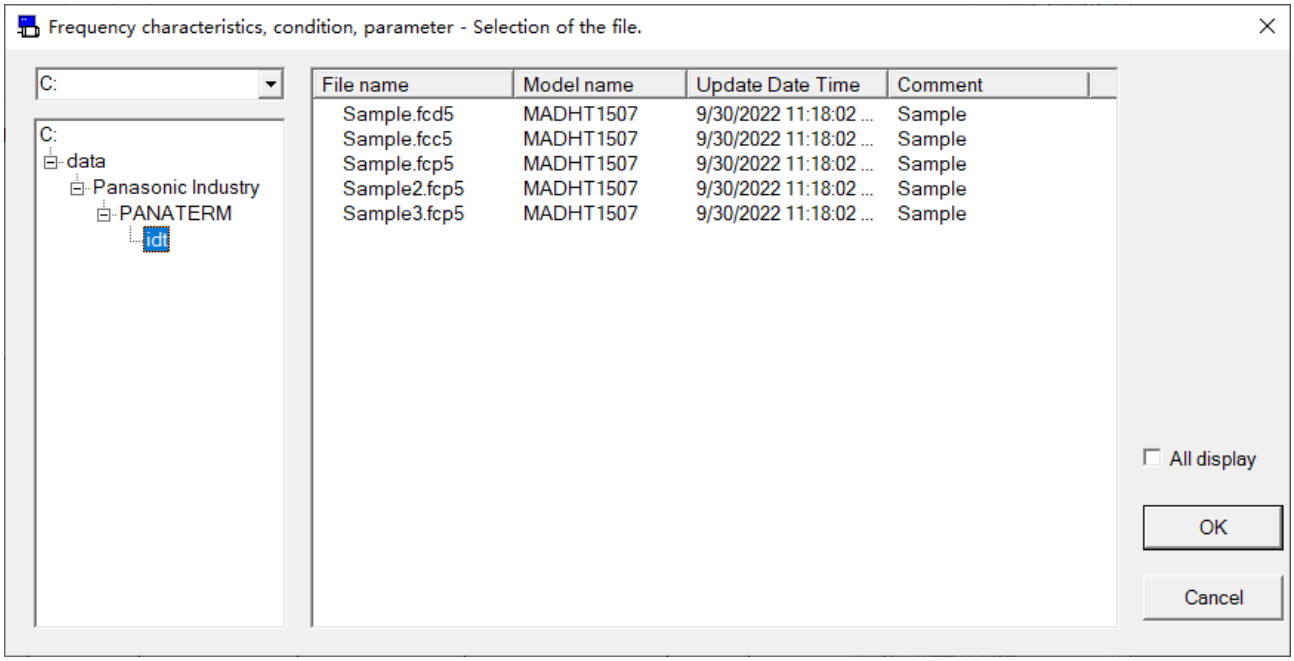
3 Select items to save, and click “OK”.
4 Comment window will appear. Below graphic shows the window when selecting “measurement condition”.



5 Click “OK”, and file dialogue will appear.
6 Input the file name to save, in this file dialogue
7 Click “Save”.

Reading Frequency characteristics data

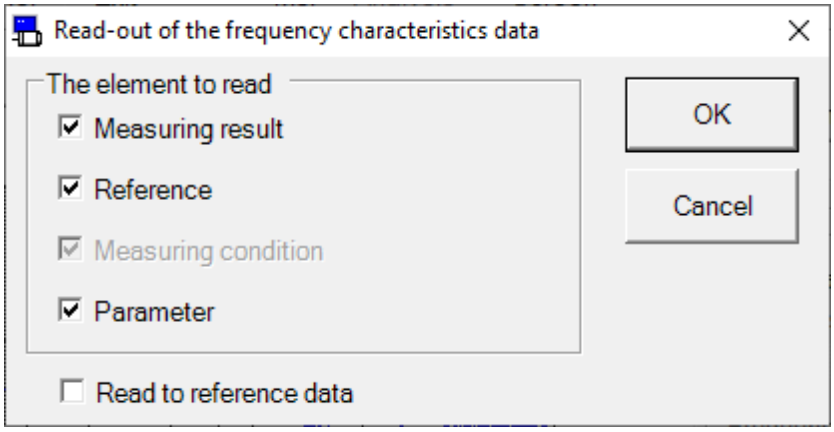
1 Click “Read” on the toolbar.



2 Select file name to read.

3 Click “OK”

4 Frequency characteristics read window will appear.



5 Select the content to read, and click “OK”
When check is put on “Read as reference data” you can read the saved measurement result as reference data. However, when the data is read as reference, the parameters will not be read. Also, data that are not once saved will not be read.

6 Content with check put on will be read.

Notes 1) For caution please execute measurement with condition where Servo can be turned on immediately.
Notes 2) Please measure the resonance of the machine, with the gain brought down to the minimum. (Lower the value of "position loop gain" and "velocity loop gain". And raise the value of "velocity loop integration time constant")
Notes 3) Gain will be fixed to "1" at Frequency characteristics measurement.
Notes 4) The frequency characteristics screen cannot open during opening some screens. For more information please refer to page 272 "Frequency characteristics screen behavior".
Notes 5) Result of frequency characteristics measurement can vary or show a mistaken value depending on characteristics of the equipment or measuring condition. Please take the analysis result of this feature as reference of gain adjustment.

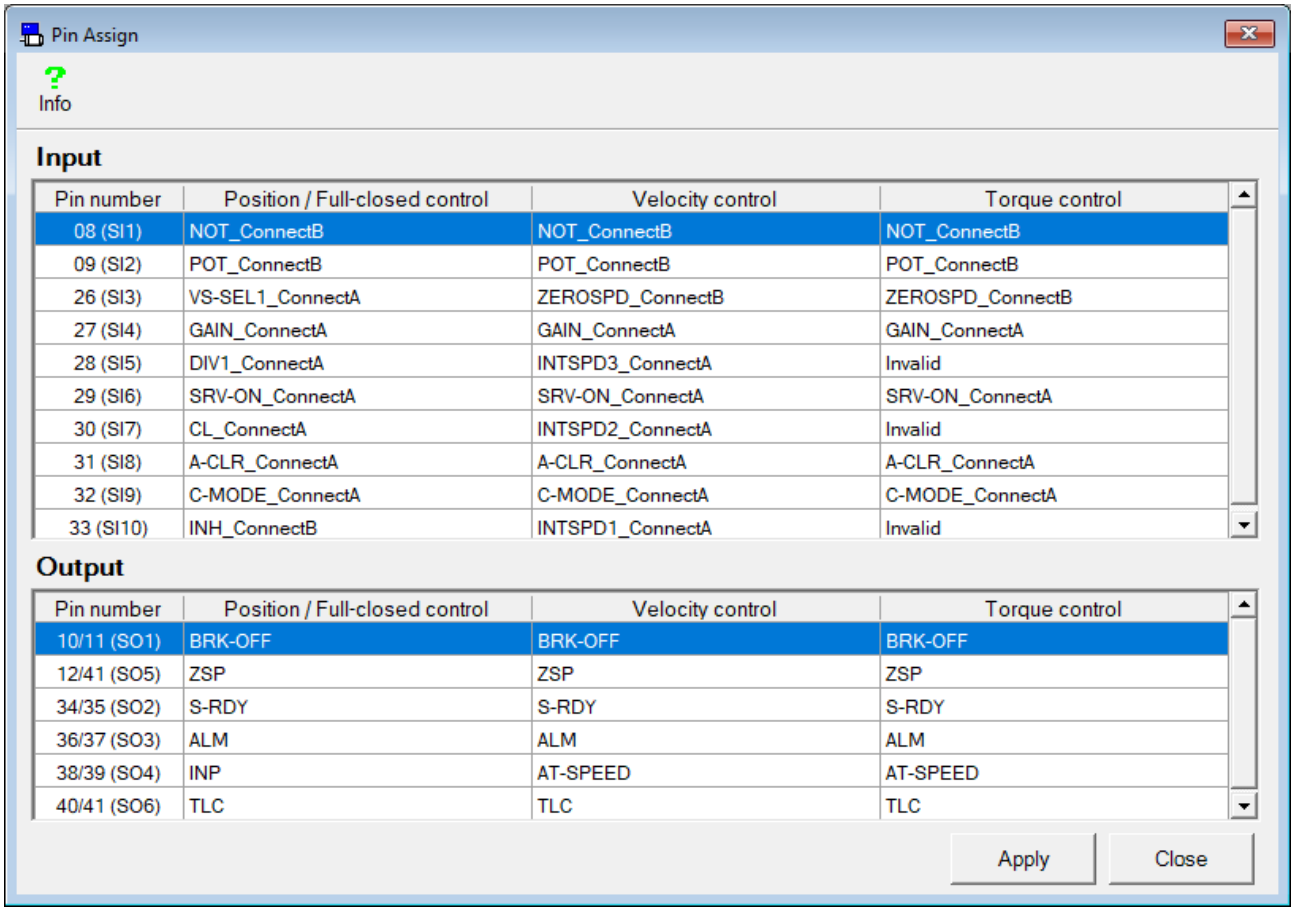
Pin assign setting screen

Assignment of input/output pin can be configured.

Open the Pin assign setting window

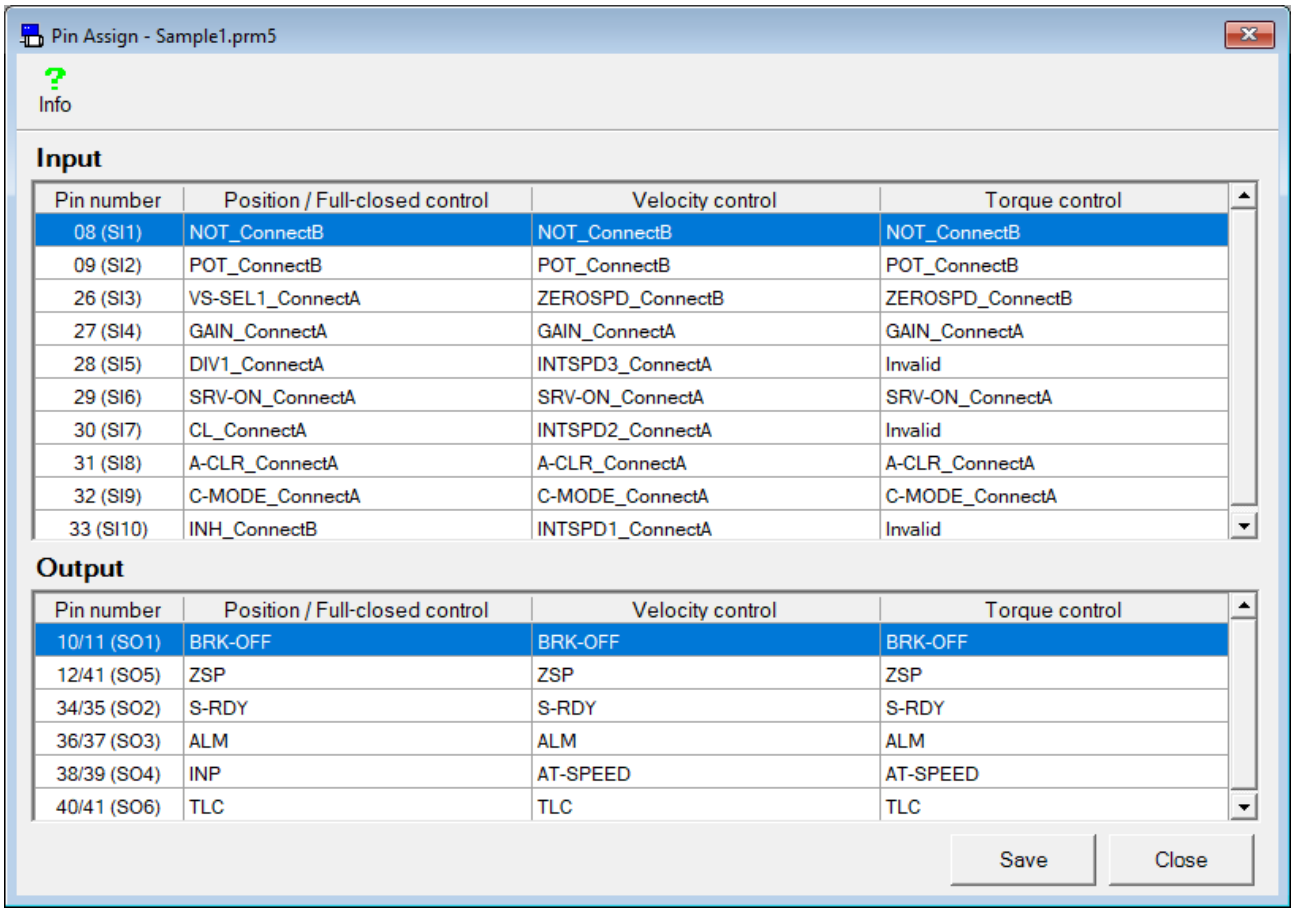
1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Pin Assign” of the tool bar on the main screen.
3 When not communicating with driver, the selection screen of a parameter is displayed. Please choose the parameter file to edit.
4 The Pin assign setting window is opened.

<When communication with driver>



“Apply” : Sends pin assign setting to the driver.
“Close” : Close the pin assign setting window.

<When not communication with driver>

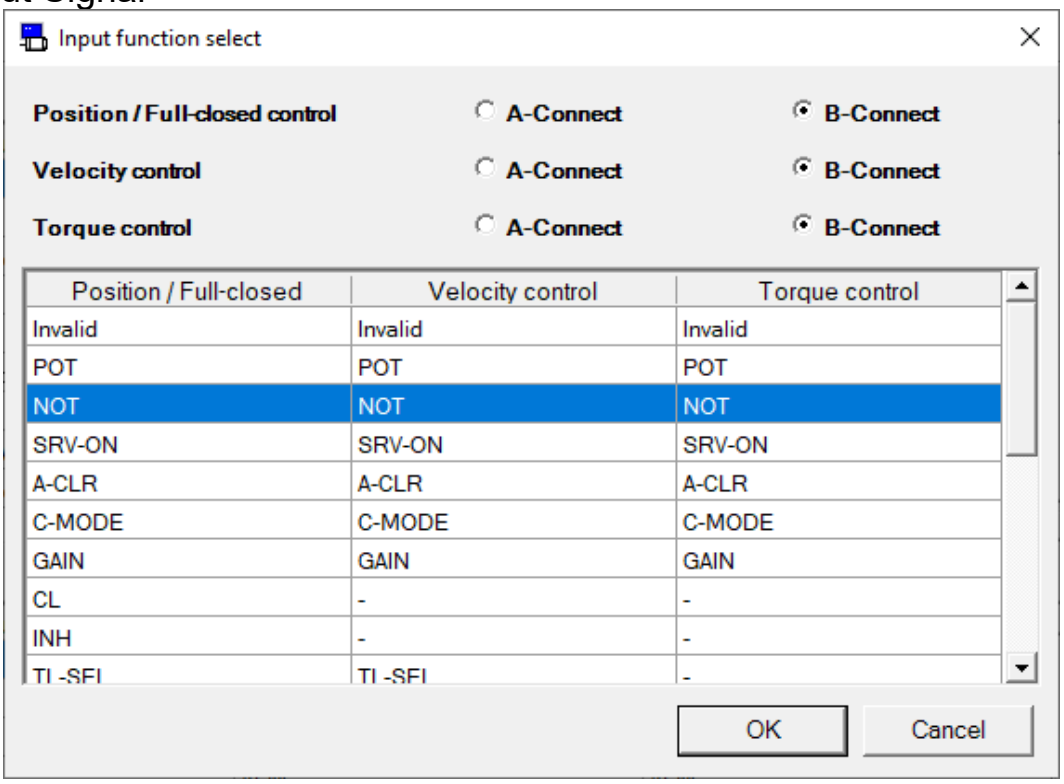


“Save” : Writes pin assign setting to the parameter files (.prm5).
“Close” : Close the pin assign setting window.

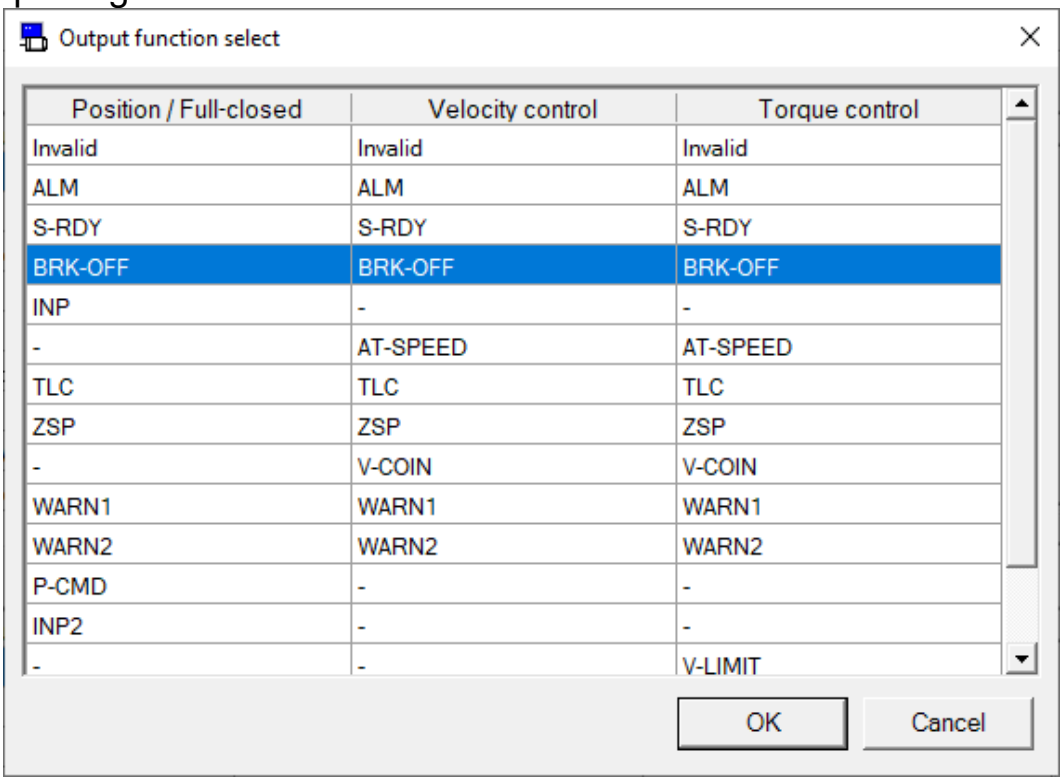
Configurations of pin assign setting

1 Double click the row of pin number to configure
2 Function select windows will appear

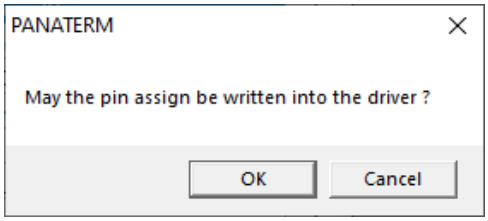
<Input Signal>



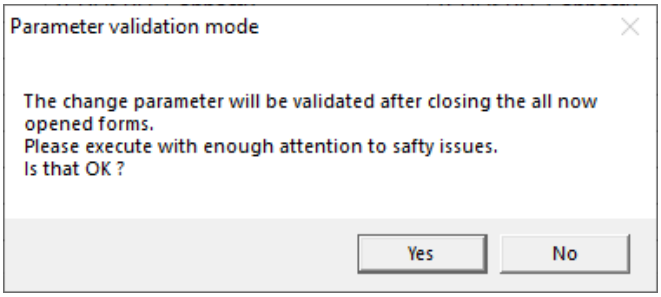
<Output Signal>



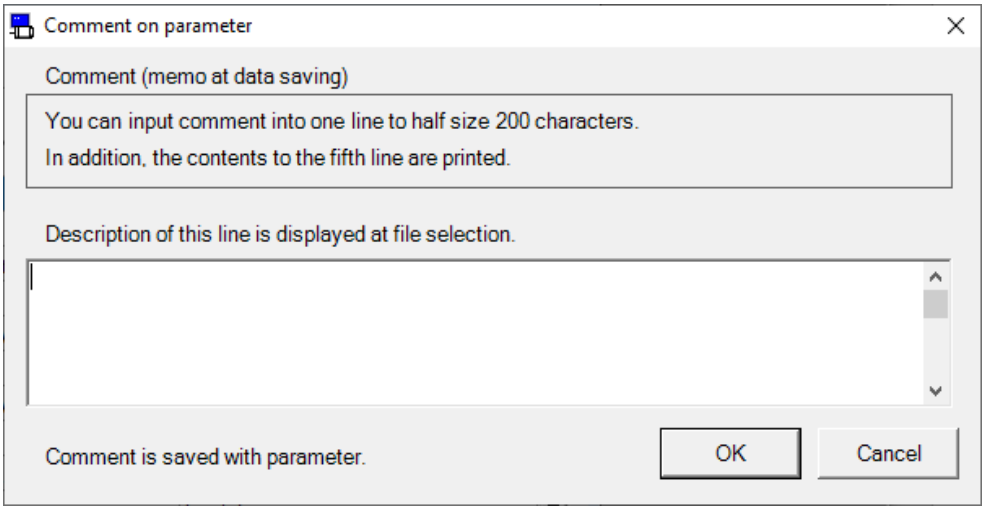
3 Select the assigning function to pin for each control mode, and connection method (When only input function is selected).
4 When “OK” is clicked at function selection window, window will go back to pin assign setting window.
5 When communication with driver, click on to “Apply”, and a screen to confirm prior to writing the drive will appear. Click “OK”, and parameters will be written onto the EEPROM of Drive. If “Cancel” is clicked, then the parameter will not be written on the Drive’s EEPROM.



Reboot the drive, and activate the new settings.



6 When not communication with driver, click on to “Save”, and a comment screen will appear.



A click of "OK" will display a file dialog. Please save to a file.

Notes 1) The pin assign setting screen can be operated when all other windows are closed. For more information please refer to page 273 “Pin assign setting screen behavior”.

Notes 2) Configuration of connection is needed for input signal. Please also unify a point of contact, when you assign the same signal to two or more control modes. For details of signal, please review the drive’s operation manual or technical reference.

Notes 3) A single input signal cannot be assigned to multiple pins. Output signal can be set to multiple pins. Moreover, when you assign the same signal to two or more control modes, please assign to the same pin.

Notes 4) New pin assign configuration will not be active unless the drive is rebooted.

Notes 5) An error message is displayed when a setup which cannot be assigned is performed. Please change a setup according to directions of a screen. Please read the operation manual of driver or technical reference about the details of a setup which cannot be assigned.

Trouble shooting screen

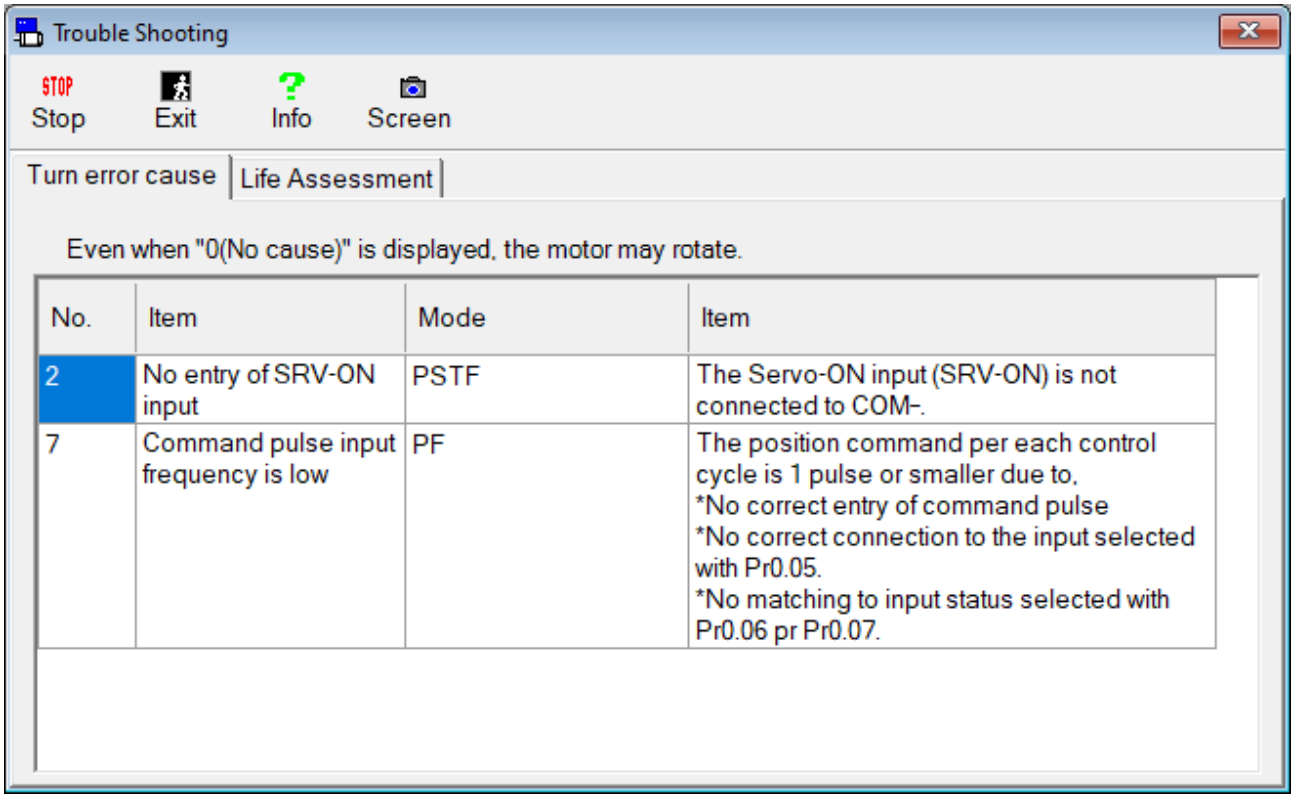
Elements causing motor not to rotate or drive's lifetime can be indicated this screen.

Note) Trouble shooting cannot be performed through RS232 communication.

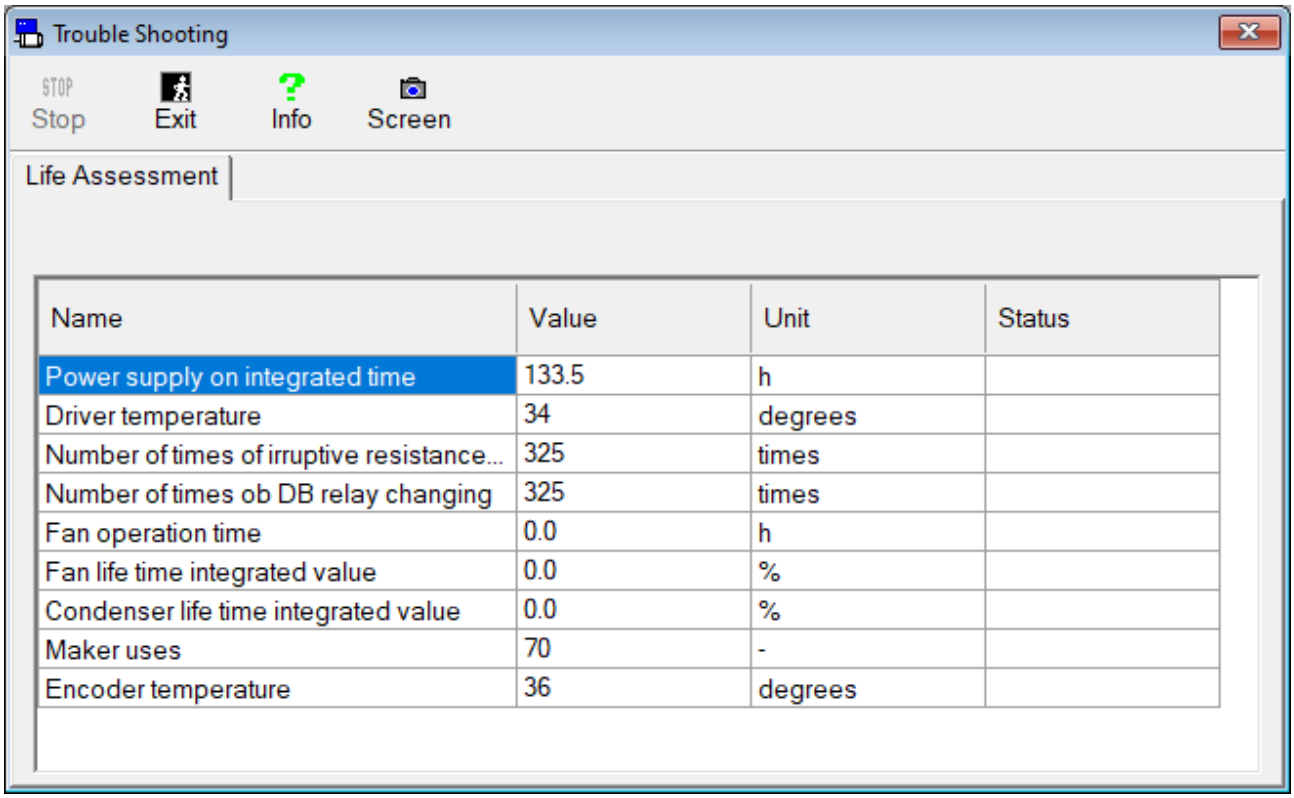
Open the Trouble shooting window

1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Other" > "Trouble shooting" on the tool bar of the main screen.
3 When not communicating with driver, the selection screen of a parameter is displayed. Please select the parameter file.
4 The Trouble shooting window is opened.

<When communication with driver>



<When not communication with driver>



Close the Trouble shooting window

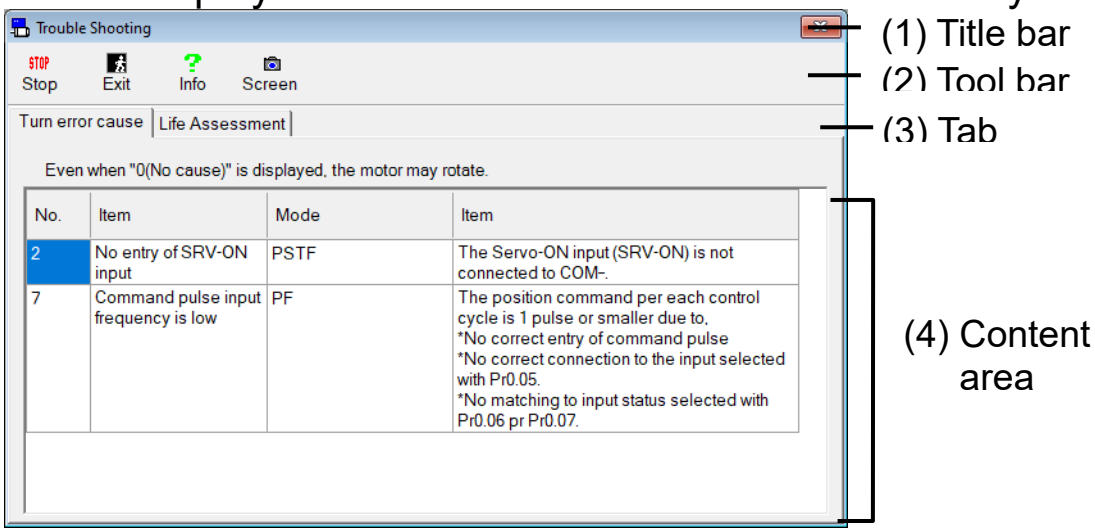
Click 

(Exit) on the tool bar.

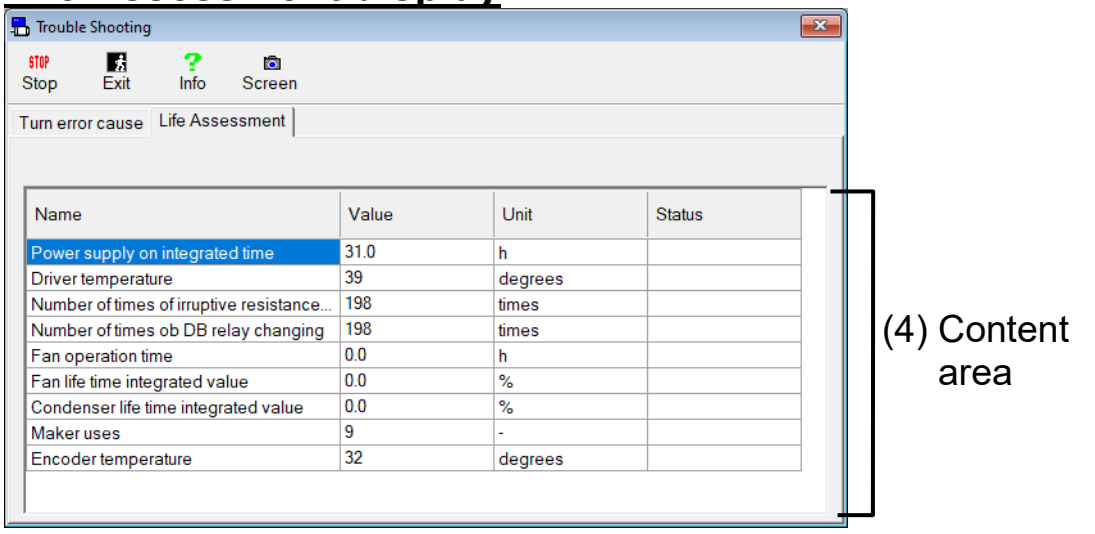
Structure of trouble shooting window

Turn error cause display

This is displayed when communication with driver only.

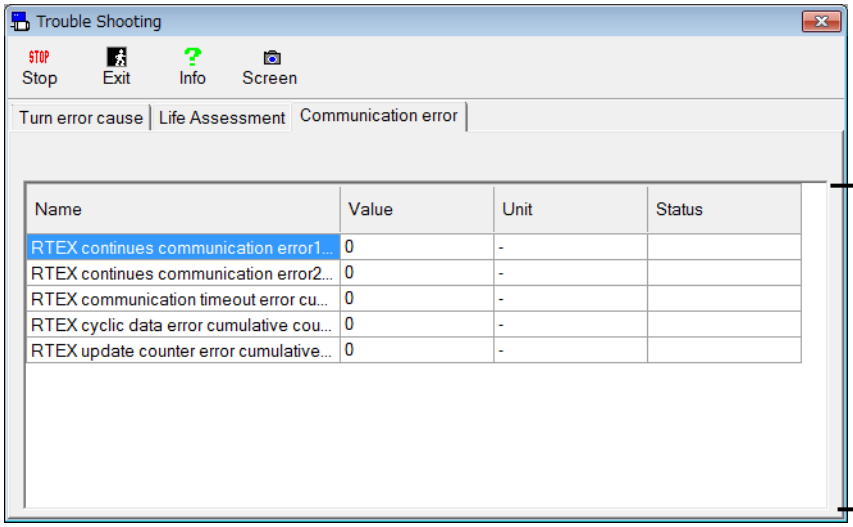


Life Assessment display



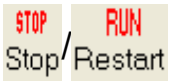
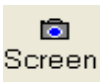
Communication error

This is displayed when communication with driver only.


Trouble Shooting
Stop
Exit
Info
Screen
Turn error cause
Life Assessment
Communication error
Name
Value
Unit
Status
RTEX continues communication error1...
0
-
RTEX continues communication error2...
0
-
RTEX communication timeout error cu...
0
-
RTEX cyclic data error cumulative cou...
0
-
RTEX update counter error cumulative...
0
-
(4) Content area

(1) Title bar
Window operation can be done

(2) Tool bar

	Stop/Restart	Stop/Restart update of trouble shooting window.
	Exit	Close trouble shooting window.
	Information	The relevant page of the operating instructions for driver. (Only MINAS-A5 is supported)
	Screen	Capture screen and save as file.

(3) Tab
Switch to “Turn error cause”, “Life Assessment”, or “Communication error”.

(4) Content area
“Turn error cause”
Indicates element is being obstacle to rotation.
* There will be cases where “0” (No element) is indicated even with the motor rotating.

“Life Assessment”
Indicates element is lifetime evaluation.
The judged result will appear on the status as colored depending on the judged lifetime.
Green : Drive to be within standard operation.
Yellow : Drive is close to replacement
Red : Drive suggested for replacement
White : Judged level is out of configured range

* Accuracy of evaluated lifetime’s accuracy may be lowered when in application with control electricity being shutdown frequently, because the lifetime information is saved in 30 minute cycle. Drive may operate standardly even if the status is red. Please refer to this result as reference.

“Communication error”
Indicates element is RTEX communication error counter information.
* Communication error tab is displayed during communicating with network type driver (MINAS-A6NF etc.) corresponding the RTEX communication error counter monitoring function.

Notes 1) The trouble shooting screen cannot open during opening some screens. For more information please refer to page 273 “Trouble shooting screen behavior”.

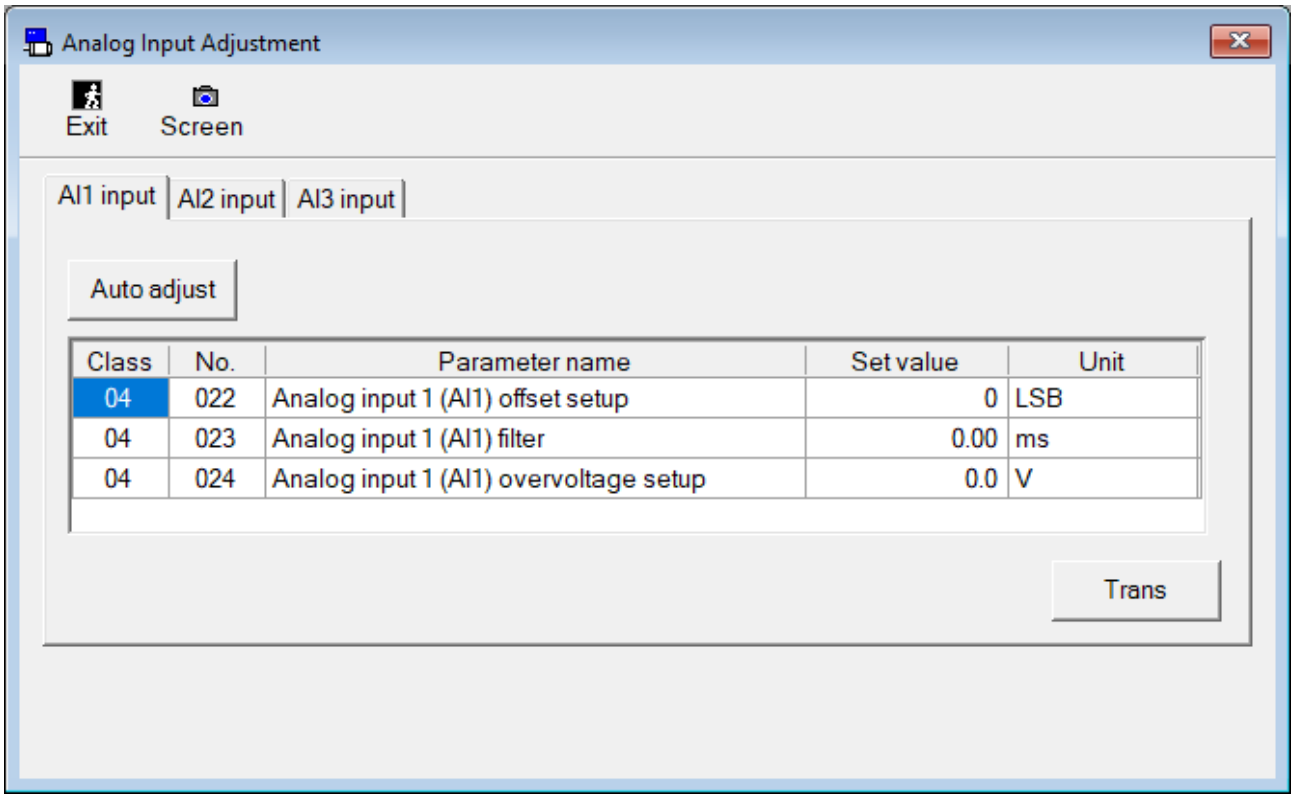
Analogue input adjustment screen

Offset of analogue input signal can be automatically adjusted.
Settings of filter or over voltage can be manually adjusted.

Note) Analogue input adjustment cannot be performed through RS232 communication.

Open the Analogue Input Adjustment window

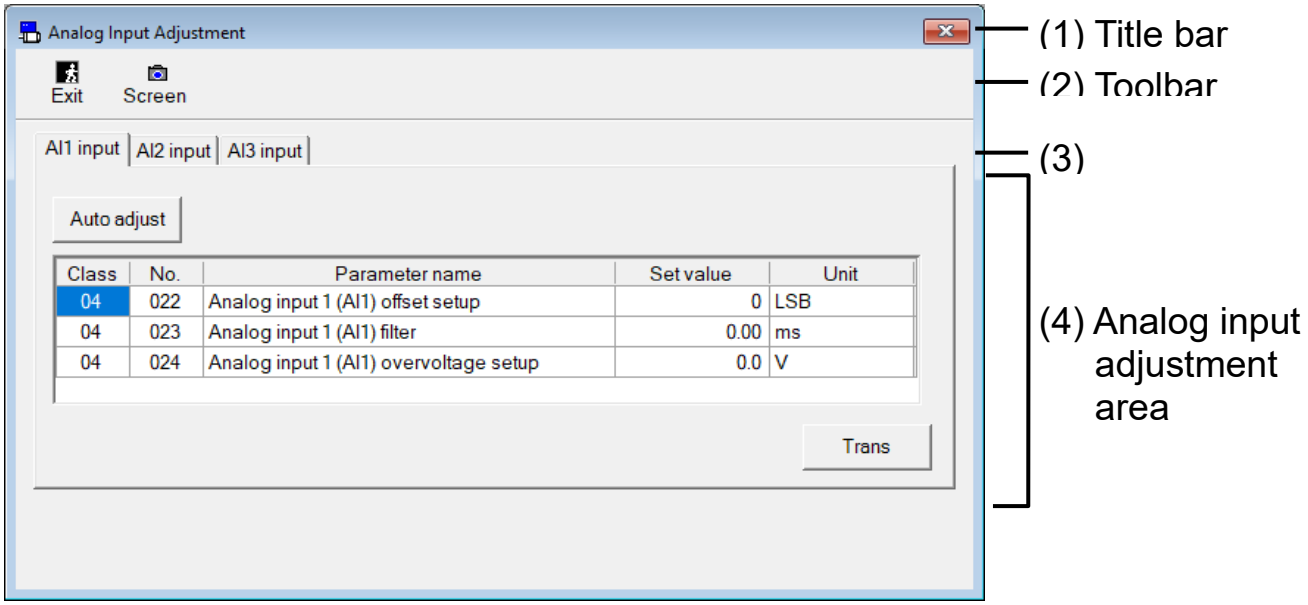
1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Analogue input” of the tool bar on the main screen.
3 The Analog Input Adjustment window is opened.



Close the Analogue Input Adjustment window

Click Exit (Exit) on the tool bar.

Structure of Analog input adjustment



(1) Title bar
Windows can be operated.

(2) Tool bar

Exit	Exit	Close analogue input adjustment window
Screen	Screen	Capture window, and save as file.

(3) Tab
Switch Analogue input signal

(4) Analog input adjustment area

“Automatic adjust”

Automatic measurement of offset and setting of analogue input can be done by clicking.

“Parameter”

Configured parameter will be indicated. Setting value can be directly changed.

* Parameter change will be cancelled when tab is switched without “Trans” button is clicked being pressed.

“Trans”

Write the indicated parameter into the drive’s EEPROM.

Notes 1) The analog input adjustment screen cannot open during opening some screens. For more information please refer to page 274 “Analogue input adjustment screen behavior”.

Z phase search screen

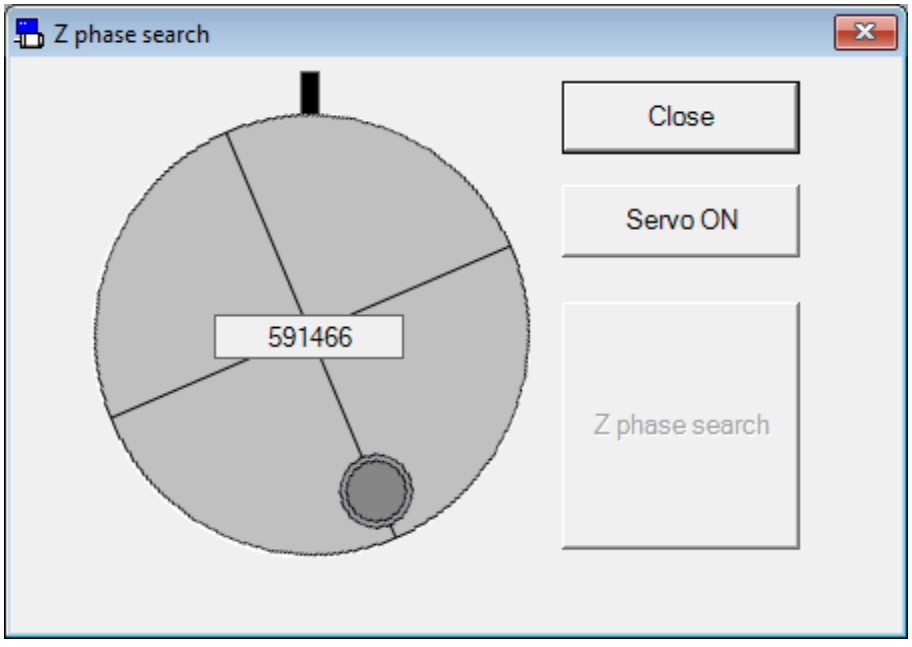
Will turn the Servo On automatically without input, and rotate motor to reach the point where Z phase output will turn on.

Note) Please make sure that the notification and implementation area written on the drive's operation manual or technical reference before using this feature.
It is very dangerous when connecting the motor to load with Servo being ON after Z phase search, because of the drastic change of inertia ratio may occur making the motor to have resonance. Please make sure that the Servo is turned OFF. Also, have the main power turned off, or have motor wire pulled off, to disable the motor's ability to rotate, and then conduct the operation.
Z phase search cannot be performed through RS232 communication.

Open the Z phase search window

1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Other" > "Z phase search" of the tool bar on the main screen.
3 The Z phase search window is opened.

* Z phase search window cannot be used when Trial run window is opened, front panel is used, or Servo is turned ON by input from outside. Close the trial run function and front panel is free before using the Z phase search window.

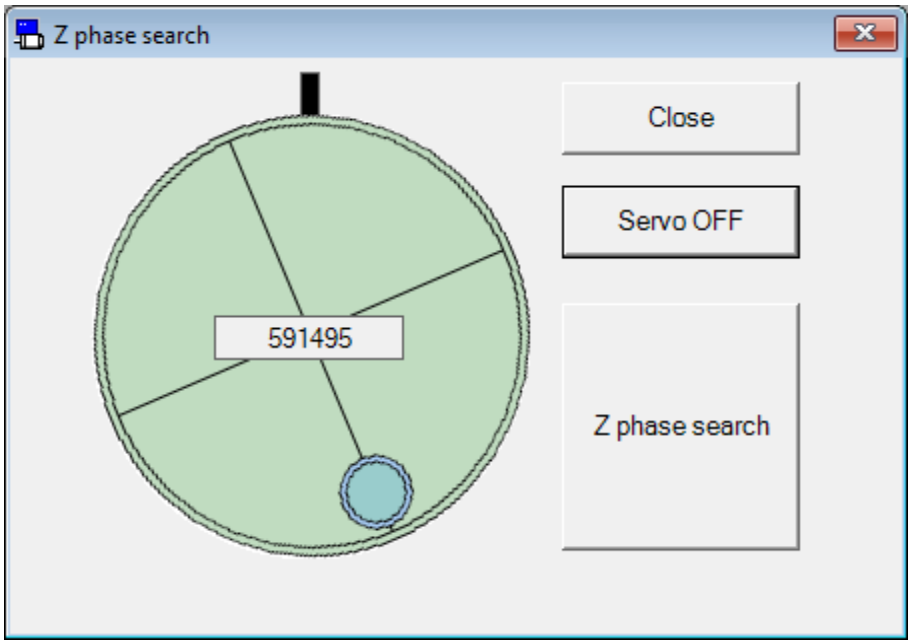


Close the Z phase search window

Click “Close” on the Z phase search window.

Procedure for Z phase search

1 Click “Servo ON”.
2 Click “Z phase search”.
3 Motor will rotate in CCW direction towards Z phase at 60 r/min speed.



Notes 1) For caution, please have the motor ready for power shutdown when conducting the above.
Notes 2) The Z phase search screen cannot open during opening some screens. For more information please refer to page 275 “Z phase search screen behavior”.
Notes 3) When drive is not in ready status (Alarm or Main power source is cut off), front panel is used except for monitor mode, or Servo ON is input from outside, then the Z phase search window will not be able to open or error will be on screen during execution. Please re - execute after these status is eliminated, and the Z phase search window is closed.

Setup Wizard

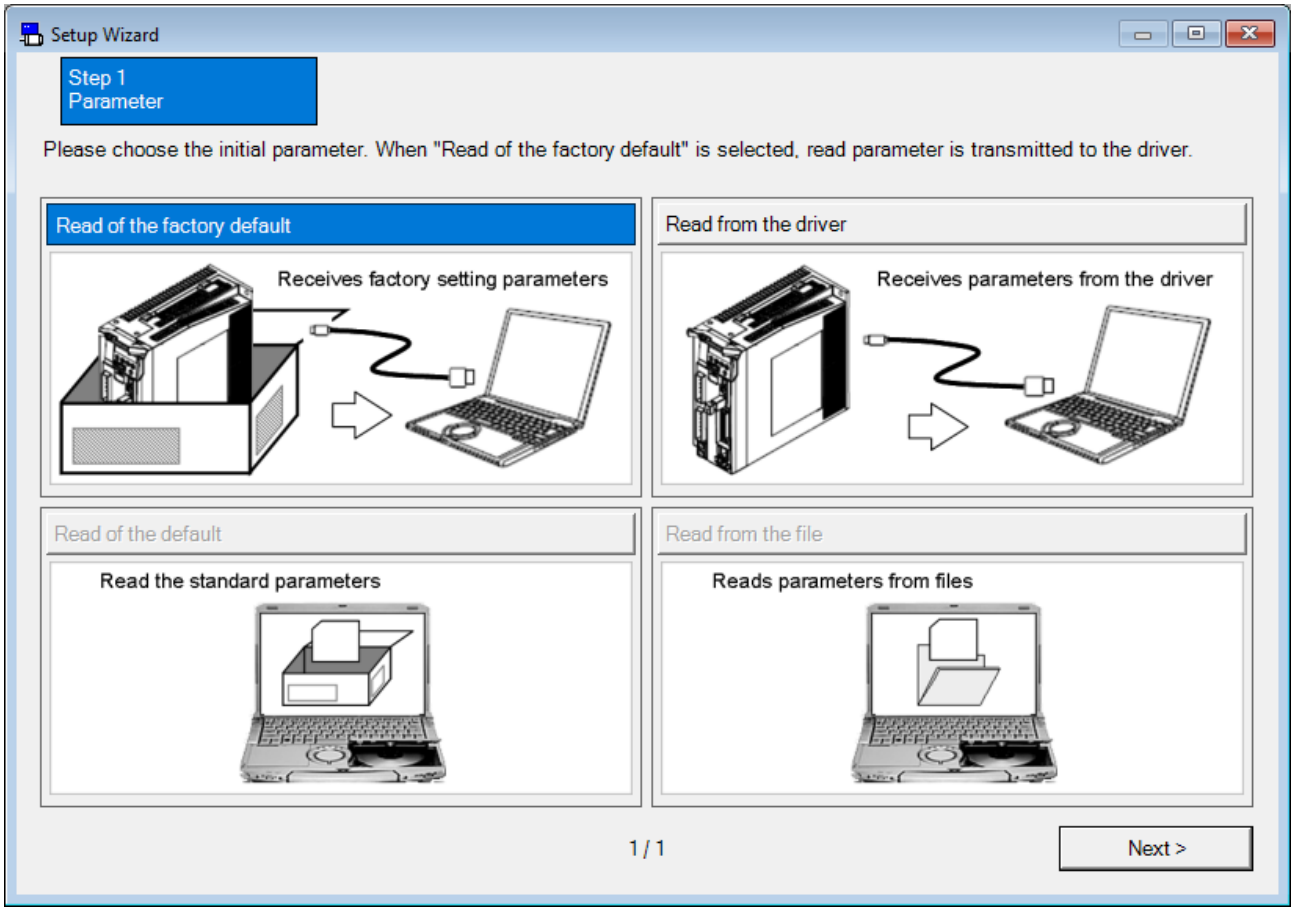
Please follow the instruction of the screen.
So a minimum parameter necessary for driver's operation can be set.

Note) The setup wizard cannot be performed through RS232 communication.

Open the Setup Wizard window

1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Other" > "Setup Wizard" of the toolbar on the main screen.
3 The Setup Wizard window is opened.

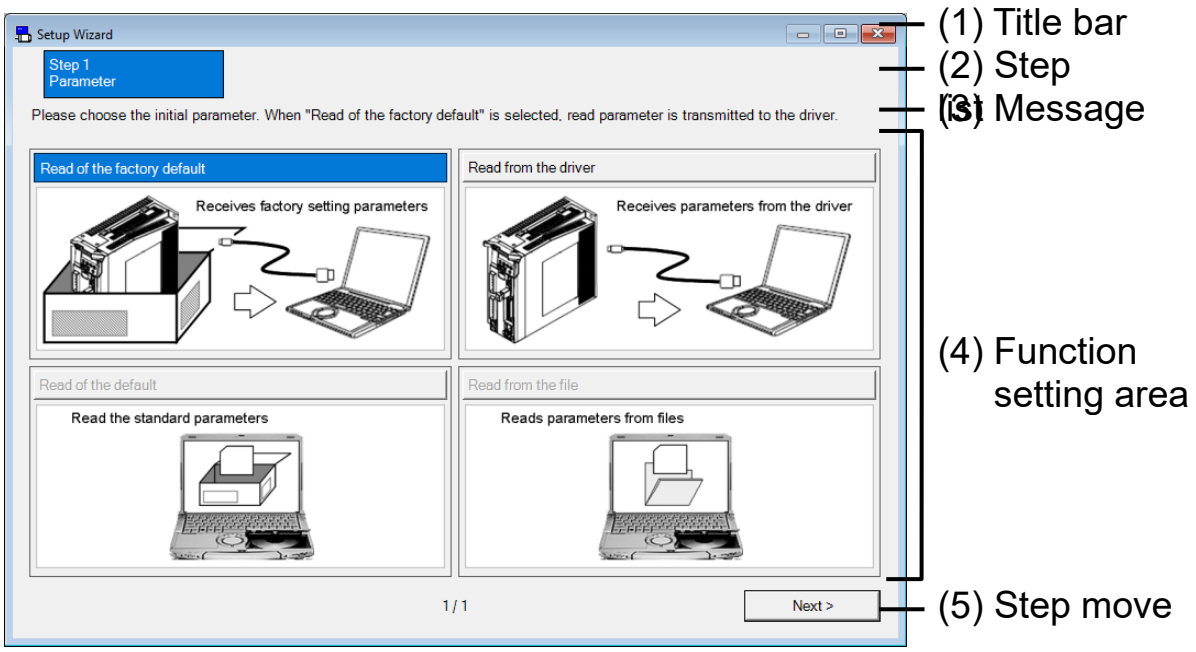
* The Setup Wizard window cannot be used when Servo is turned ON by input from outside.



Close Setup Wizard window

Click ☒ of upright on the window.

Structure of Setup Wizard Screen



(1) Title bar
The origins of reference of parameters reference are displayed. Present control mode is displayed when communication with the driver.
And you can operate Window.

(2) Step list
The position seen from the whole of a present step is displayed.

(3) Message
An easy explanation of the content set in a present step is displayed.

(4) Function setting area
Each function is set.

(5) Step move
Switch to present step.

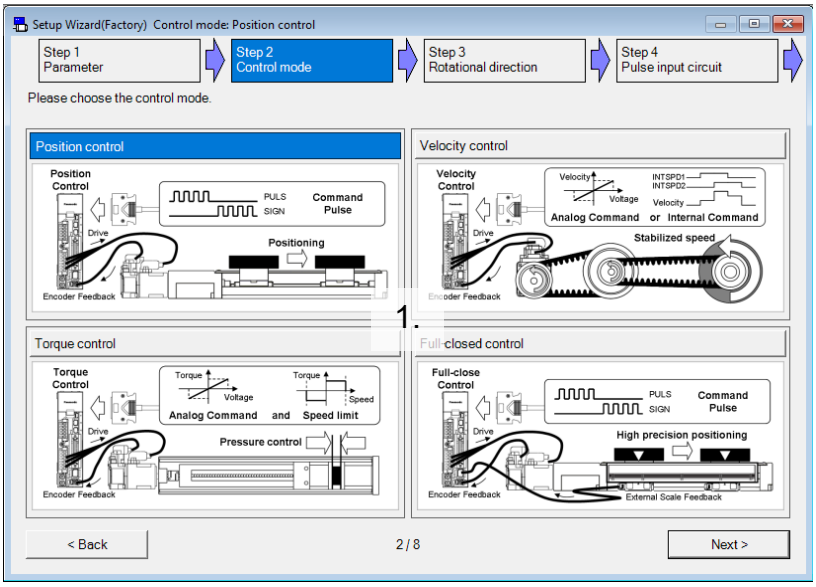
“Back”	The previous step is displayed.
“Next”	The next step is displayed.
“Interrupt”	Drive reset is interrupted, and close the setup wizard.
“Finish”	Close the setup wizard.

Setting method of Setup Wizard

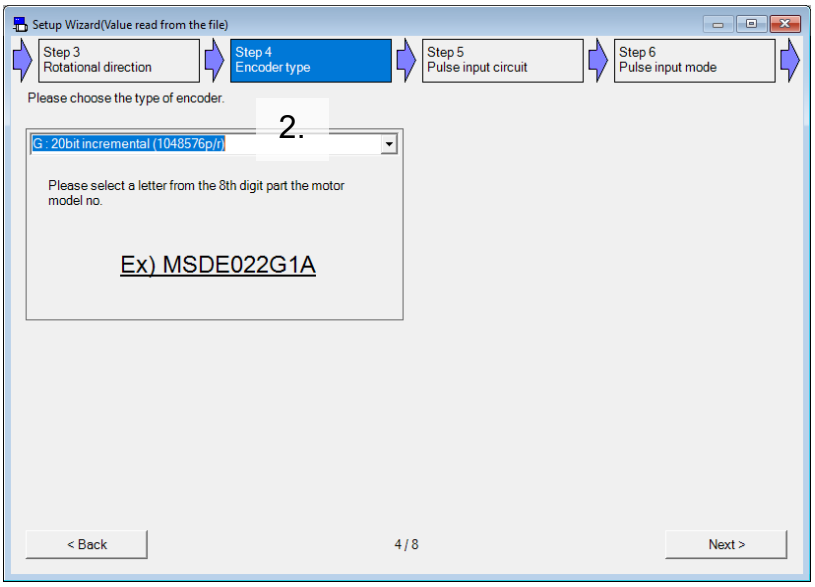
1 Select the origins of reference of parameters, and click “Next” button.

* When read from the default setting, the setting result is cleared. When start from present parameter, please select “Read from the driver” or “Read from the file”.

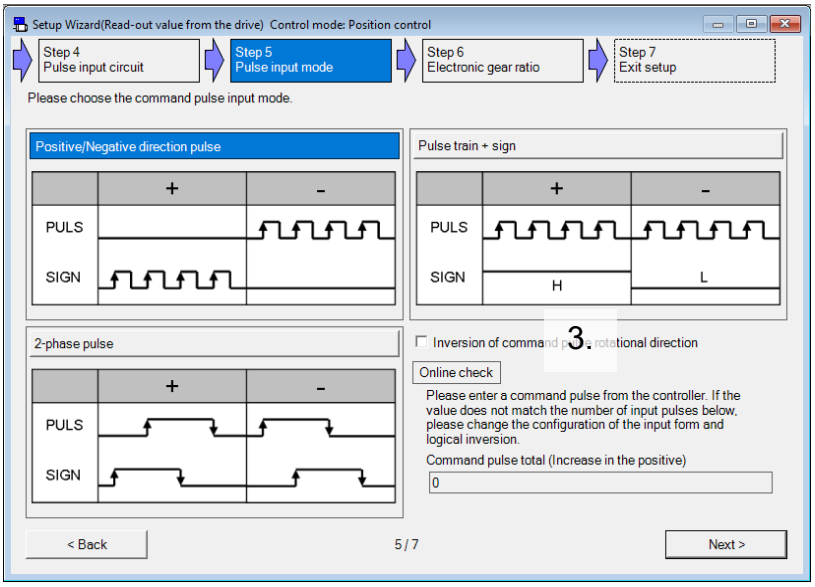
2 You set the functions according to usage. And please click “Next” button.
The setting method has the following pattern.



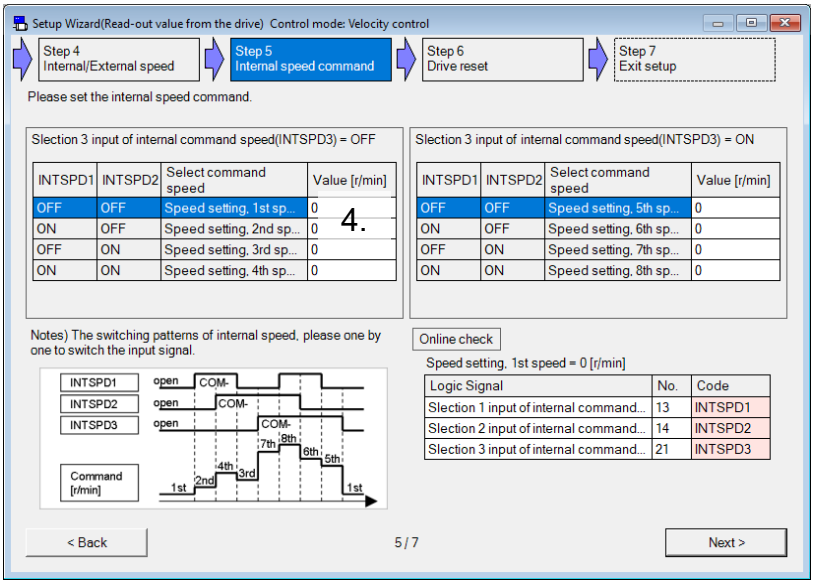
1. Select 2 – 4 panel:
You can select a radio button or image click.



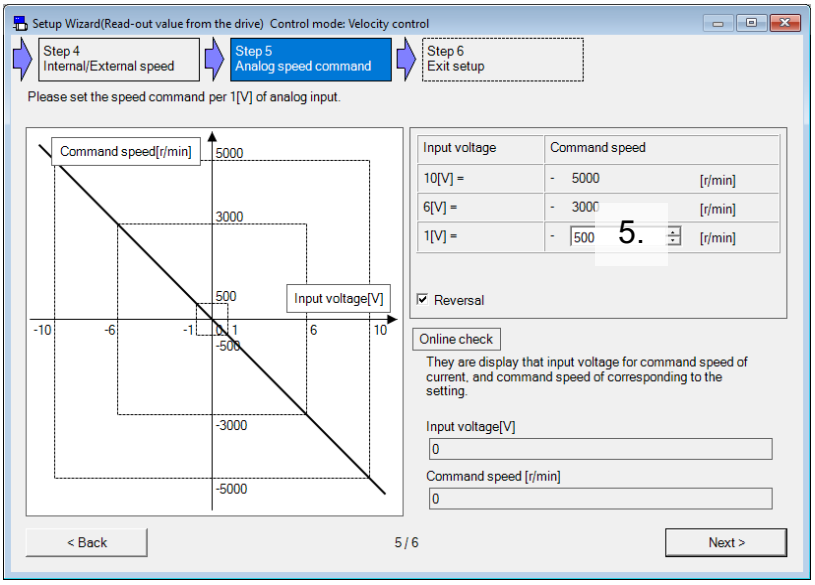
2. Combo box:
You can choose only one of the items.



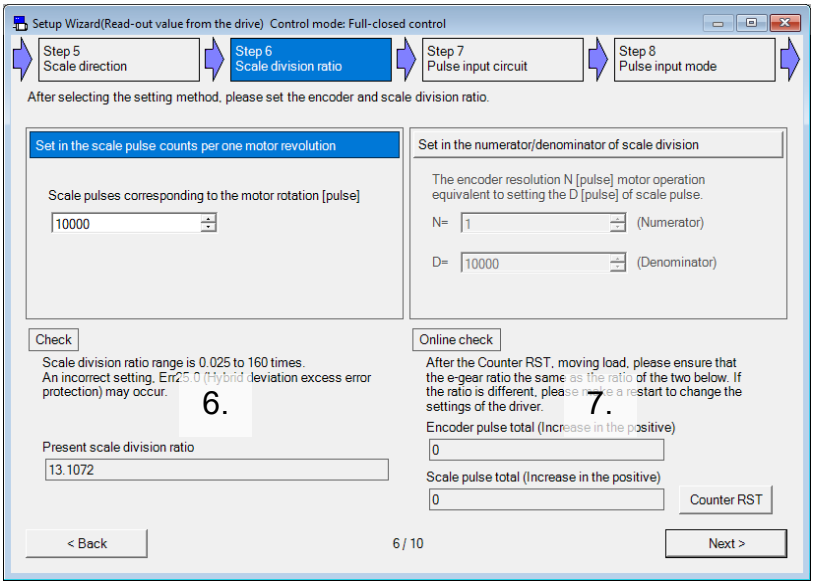
3. Check box:
You can switch the setting to check it.



4. Input value (cell):
Please move to the next cell after input. The setting will be saved.



5. Input value (single):
For keyboard input, please press [Enter] key to determine the setting value. If in the “Select 2-4 panel”, please enter after selecting the panel.

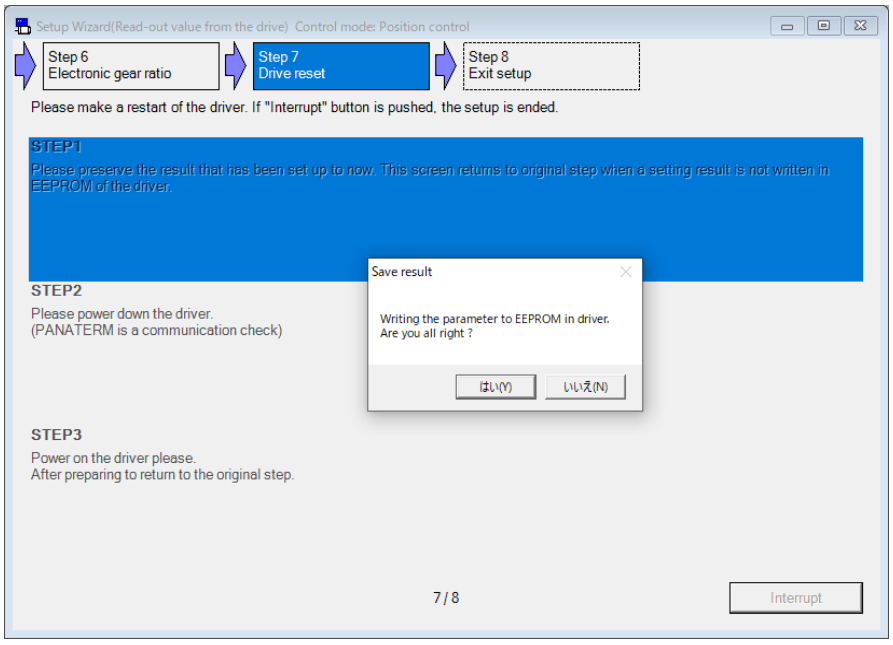


6. Check:
   This is the check item of setting contents. Please reference configuration.

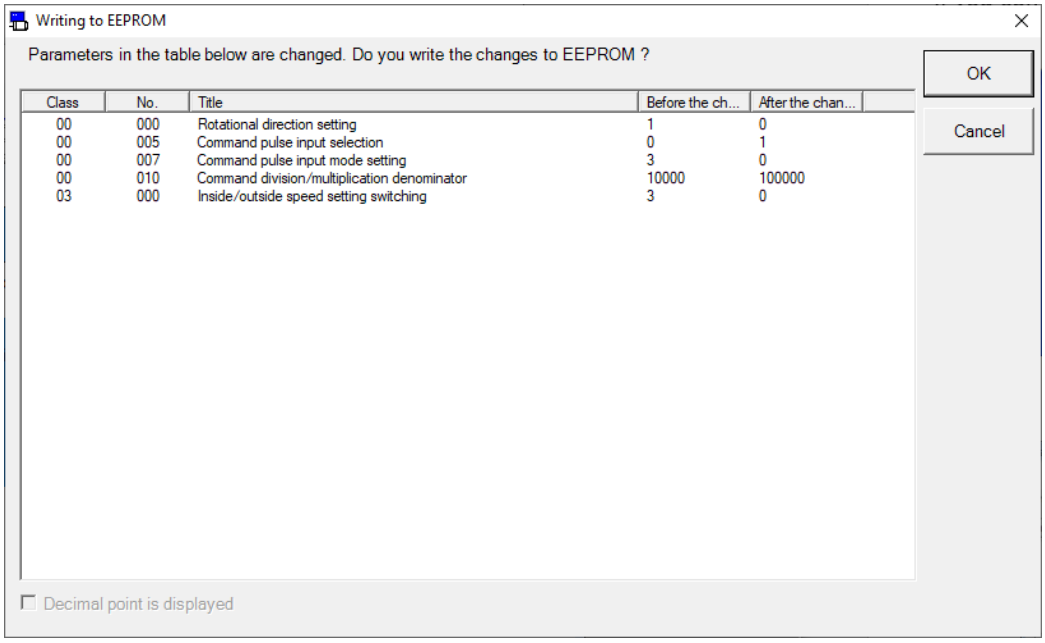
7. Online check:
   This is the check item of setting contents. This is displayed when communication with the driver. Please reference configuration.

* Step of the setup wizard displays the results change depending on the previous setting steps.

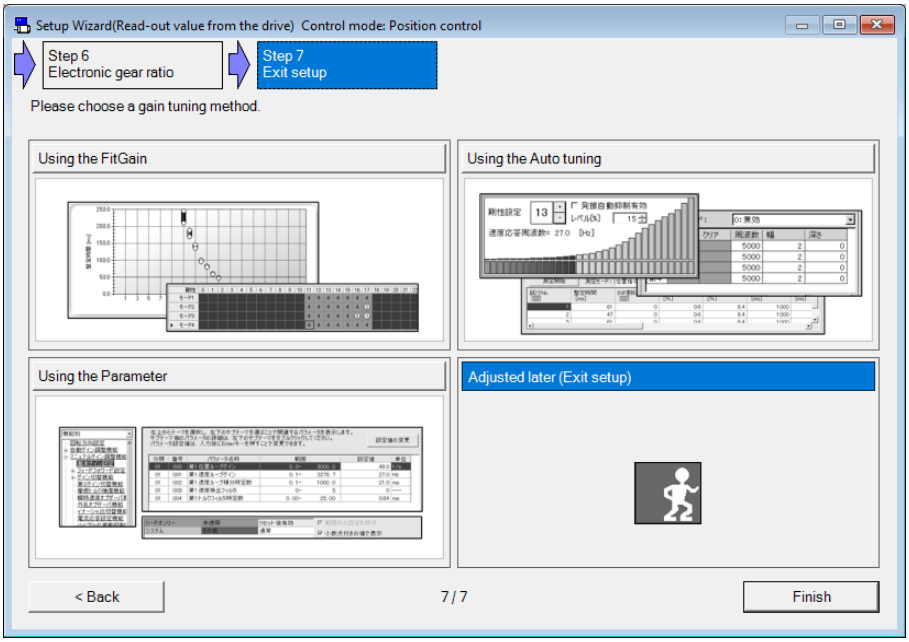
* When you change a parameter is valid after, may be inserted “Drive reset” into the step list. Please follow the instructions on the screen.



3 Please save your settings before you exit the setup.
If you do not communicate with the driver writes to a parameter file. (The extension is ".prm5").
If you communicate with the driver writes to EEPROM in the driver.



4 Please select a gain tuning method and click "Finish" button.



5 Setup wizard screen is closed, according to the result of the selection screen is displayed.

Notes 1) Your first step “Read from the driver” or “Read from the file” if you select, you may not work according to the configured of the wizard by the other parameters.
(Example)
- Selection input of internal command speed was changed to a different function by the pin assign setting
- Electronic gear switching function is valid and 1st numerator of electronic gear
- Etc.

Notes 2) The changes in the setup wizard will be reflected in the parameters at any time. To return to the state before starting the setup wizard, the driver without writing to EEPROM in the driver please does the power reset.

Notes 3) The online check item in the function setting area is displayed when communication with the driver.

Notes 4) Parameter set on this screen is inputted into the driver. PANATERM does not maintain this value, please perform the recording it to EEPROM of driver after completion of setting.

Notes 5) The setup wizard screen cannot open during opening some screens. For more information please refer to page 275 “Setup wizard behavior”.

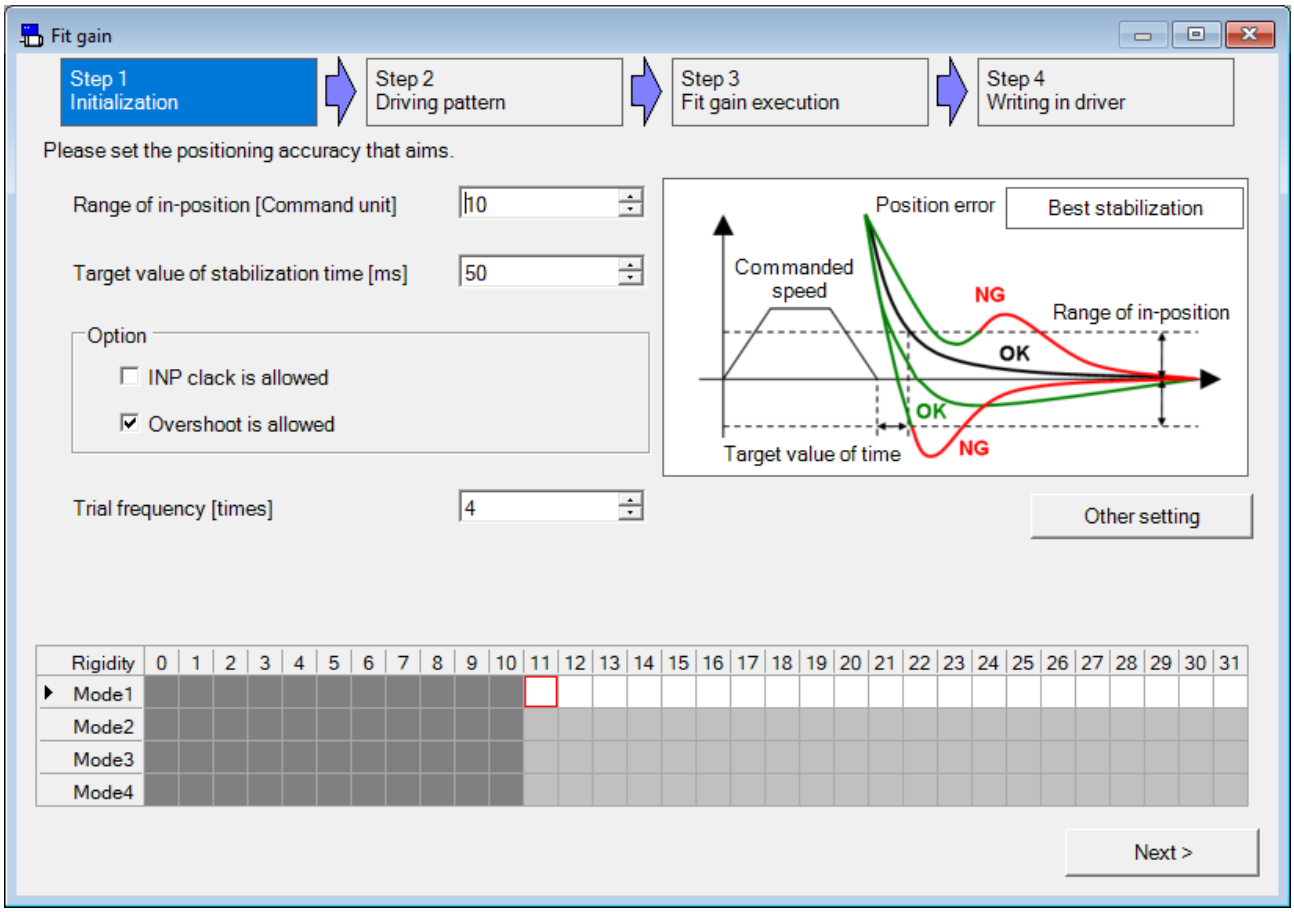
Fit gain screen (Standard)

Explore the best gain settings automatically by repeating the positioning between two points.

Note) The fit gain function is rigidity and mode at real-time auto-gain tuning may oscillate for a short time in the course of raising the load. May be suppressed by the adaptive filter and auto-oscillation detection, just in case, on ensuring the safety of the operating range, please execute in the condition that servo-off can be made anytime as a precaution. Please refer to application scope and remarks specified in the driver manual or technical reference.
The fit gain cannot be performed through RS232 communication.
In addition, the fit gain function is disabled for some special motors. For details, please contact the consultation desk.

Open the Fit gain window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Fit gain” of the tool bar on the main screen.
3 The Fit gain window is opened. (The figure of the next page)

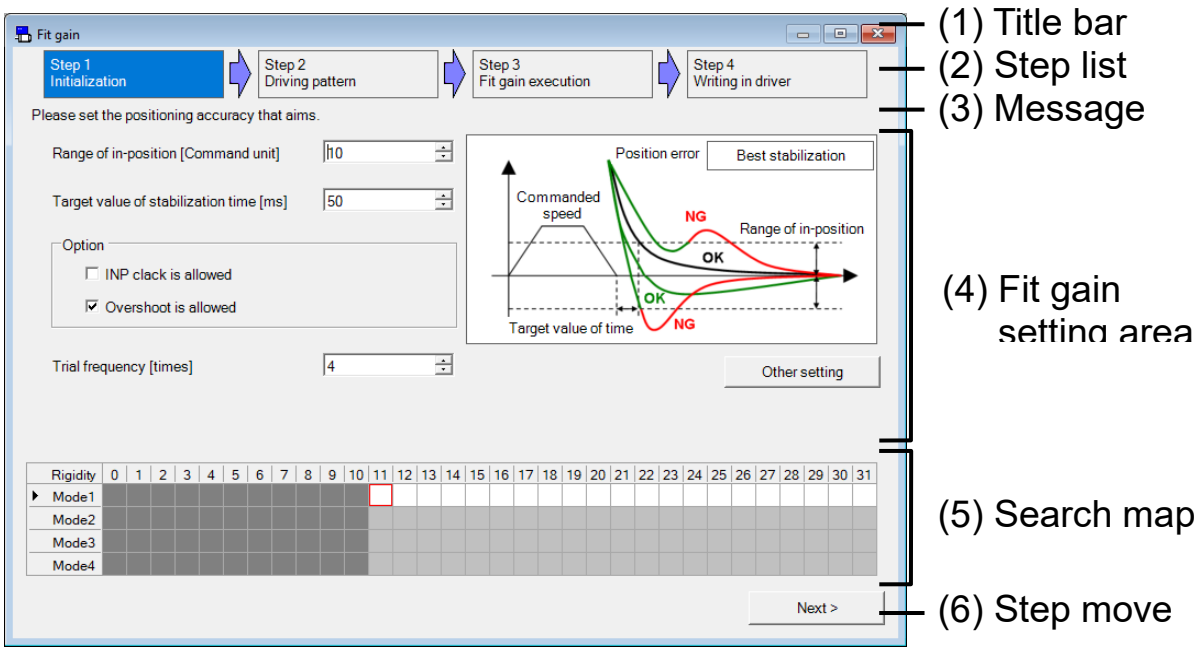


* If the log on of fit gain window is opened, please select “Standard position control”.
* The fit gain window cannot be used when velocity control mode and torque control mode.

Close the Fit gain window

Click ☒ of upright on the window.

Structure of Fit gain Screen



(1) Title bar
You can operate window.

(2) Step list
The position seen from the whole of a present step is displayed.

(3) Message
An easy explanation of the content set in a present step is displayed.

(4) Fit gain setting area
You can set from step 1 to step 4.

(5) Search map
A combination of rigidity and mode is displayed.
Each cell is displayed in a number of actual trials.
In addition, background color changes the meaning.

White: Explore	Silver: Unexplored	Gray: Excluded
Lime: Completion	Red: Vibration detection	Fuchsia: Failed

(6) Step move
Switch to present step.

“Back”	The previous step is displayed.
“Next”	The next step is displayed.
“Finish”	Close the fit gain window.

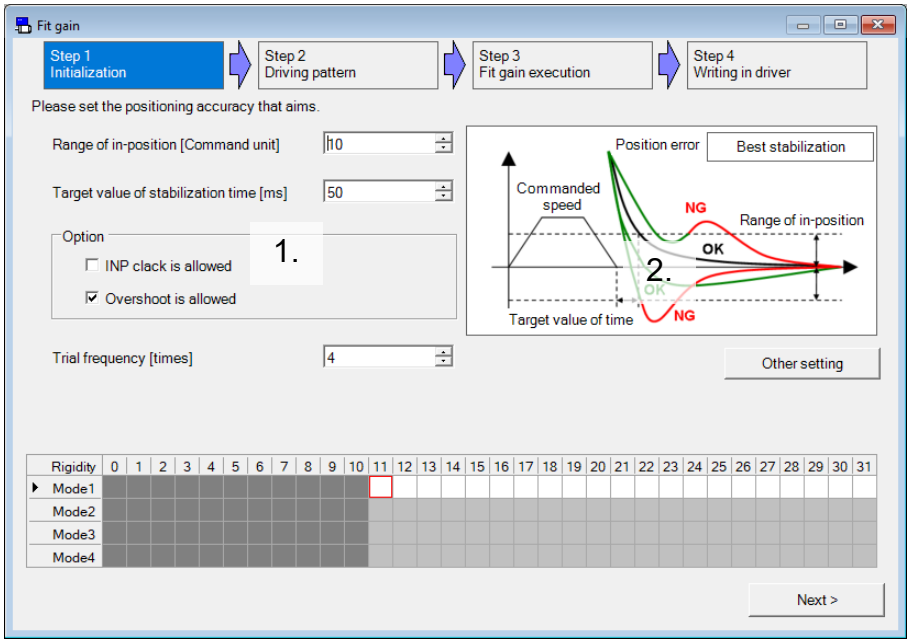
Applicable condition of fit gain

The fit gain must satisfy following conditions in order to execute.

- Real-time auto-tuning can be applied to the load and driving pattern.
  (The velocity more than 100[r/min], the acceleration more than 2000[r/min/s], the time more than 50[ms], and so on. For more information please refer to the driver manual or technical reference.)
- When you move the load, easy monitor on the gain tuning screen will must be updated correctly.
  (Command interval must be at least 1.5 seconds, Stabilization time can measure, and so on.)
- Adaptive filter can be applied the load and driving pattern.
  (Nonlinear effect is small, the acceleration less than 30000[r/min/s], and so on. For more information please refer to the driver manual or technical reference.)
- In addition, must work correctly in a state of motor control.

Method of performance of fit gain

1 Please set the positioning accuracy (Range of in-position, Target value of stabilization time) that aims.



1. Setting item: Set the positioning accuracy that aims.

"Range of in-position"

Set the range of in-position.

"Target value of stabilization time"

Set the target value of stabilization time.

"Option": Specify the conditions of auto-search.

INP clack is allowed:

Adjustment index measure data for the shorter one either of the following time. That time from start of command to next start of command or measurement time.

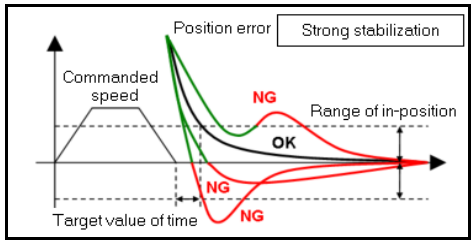
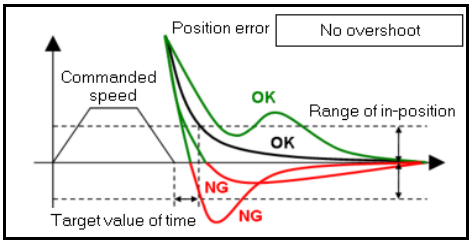
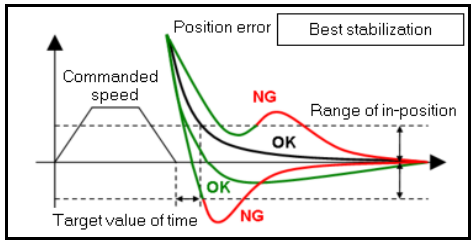
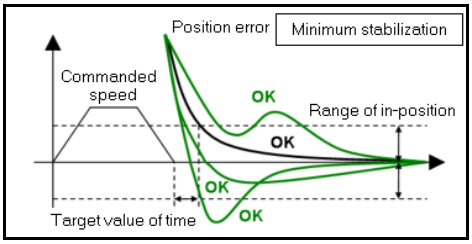
Overshoot is allowed:

Adjustment index measure data for measurement time.

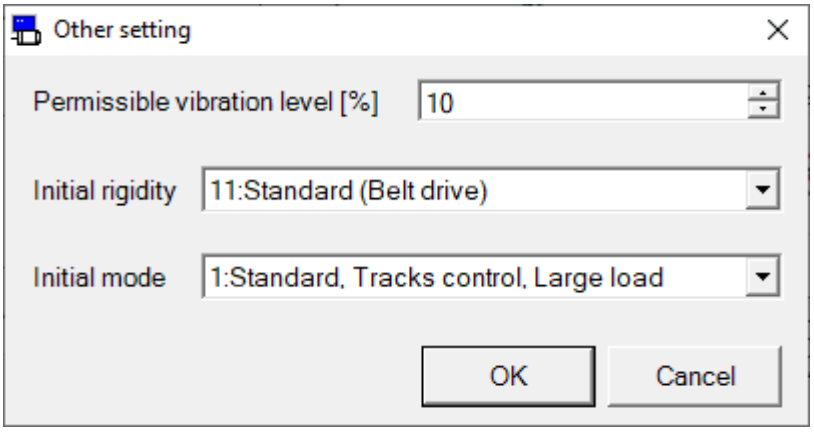
"Trial frequency"

Set the number of repeat to try for a combination of machine rigidity and mode.

2. Information figure: Switched according to “Option”.

	☐INP clack is allowed	☑INP clack is allowed
☐Overshoot is allowed		
☑Overshoot is allowed		

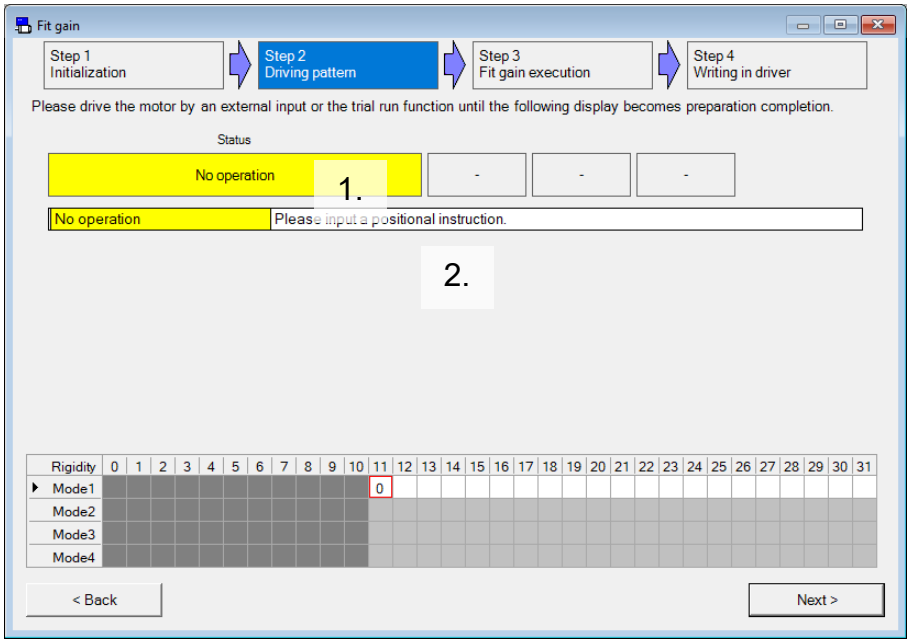
2 If you change the permissible vibration level, initial rigidity and initial mode, click “Other setting” button and set its.



“Permissible vibration level”
Set the permissible vibration level.
“Initial rigidity”
Set the real-time auto tuning rigidity of first measurement.
“Initial mode”
Set the real-time auto tuning mode of first measurement.

3 Please “Next” button click when you are finished setting, and go to Step 2.

4 Please drive the motor by an external command input or test drive function to confirm the driving pattern.



1. Status: The current status and the value associated with it are displayed.

2. Details: The current status and specific instructions to do next.

Status	Back color	Instructions
No operation	Yellow	Please input a positional instruction.
Trying	Yellow	Please repeat the operation command.
Search of initial rigidity	Yellow	Search of initial rigidity. Please repeat the operation command.
Fit gain preparation completion	Lime	Please move to the fit gain execution screen of STEP3 with a lower right button.
Stabilization time measurement failed	Fuchsia	Stabilization time measurement failed. Please do the following measures. - Please lengthen waiting time from the disbursement completion of a positional instruction to the following instruction input. - Please return to STEP1, and lower the initial stiffness below a left, present rigidity. - Please return to STEP1, and widen the range of the positioning completion.

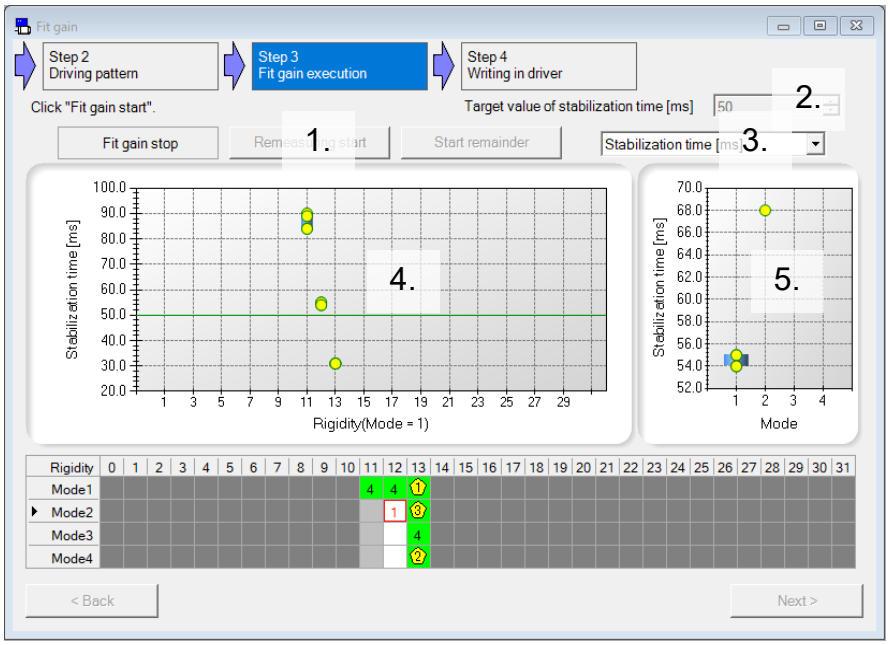
Status	Back color	Instructions
Effective load factor excessive	Fuchsia	The effect load factor of one operation is 80[%] or more. Please lower a left, maximum load factor referring to the following measures. - The acceleration and deceleration is made gradual. (The addition and subtraction velocity time is lengthened, and maximum speed is lowered.) - The dormant period of a positional instruction is lengthened. - The load is reduced. - The turbulence power (friction and offset load) is reduced.
Tack is short	Fuchsia	In the fit gain, time (tack) from a certain instruction input to the following instruction input is more necessary than that of short 1.5[s]. Please lengthen a left, minimum baton referring to the following measures. - The dormant period of a positional instruction is lengthened. - The instruction time is lengthened.
Instructed time is short	Fuchsia	In the fit gain, time that the instruction is continuously input (instruction time) is necessary for 0.1[s] or more. Please lengthen the left, minimum instruction time referring to the following measures. - Moved distance is lengthened. - The addition and subtraction velocity time is lengthened. - Maximum speed is raised.
Instructed speed is short	Fuchsia	In the fit gain, the instruction speed should be -500[r/min] or less and 500[r/min] or more. Please enlarge the absolute value at a left maximum and the minimum instruction speed referring to the following measures. - Maximum speed is raised. - Moved distance is lengthened. - The addition and subtraction velocity time is shortened.
Motor speed is short	Fuchsia	In the fit gain, the motor speed should be -500[r/min] or less and be 500[r/min] or more. Please enlarge the absolute value at a left maximum and the minimum motor speed referring to the following measures. - Maximum speed is raised. - Moved distance is lengthened. - The addition and subtraction velocity time is shortened. - Please return to STEP1, and lower the initial stiffness below a left, present rigidity. - Please return to STEP1, and an initial mode is assumed to be one.

Status	Back color	Instructions
Torque is saturated	Fuchsia	The torque instruction is saturated. Please reduce the absolute value of the maximum and the minimum torque instruction in the left referring to the following measures. - The acceleration and deceleration is made gradual. (The addition and subtraction velocity time is lengthened, and maximum speed is lowered.) - The load is reduced. - The turbulence power (friction and offset load) is reduced. - The torque limit switch is assumed to be invalid (the first fixation), and it enlarges it within the range where the first torque limit can be allowed with the equipment.
Real time estimation doesn't operate	Fuchsia	The load estimate of the real time auto tuning should operate standardly to execute the fit gain. Please meet the real time presumption operation requirement (*1) referring to the following measures. *1 The motor speed continues and the acceleration and deceleration continues 100[r/min] or more and the condition of 2000[r/min/s] or more continues and 50[ms] or more continues. - Maximum speed is raised. - The addition and subtraction velocity time is shortened securing 50[ms] or more. - Moved distance is lengthened. - Please return to STEP1, and lower the initial stiffness below a left, present rigidity.

5 Status is “Fit gain preparation completion” appears in, “Next” button click, and go to step 3.

6 Click “Fit gain start” button, please wait the measurement is completed.

* First of all, the fit gain function is performed search operation of rigidity. The search operation of rigidity repeats the same operation of the following. Setting of rigidity repeatedly measures a specified number of “Trial frequency”. And increase the setting of rigidity one.
  When stabilization time satisfied targets or oscillation of the motor detected, the fit gain function transition the search operation of mode. The search operation of mode could make the measurement while changing the mode in the range of measurement rigidity.
* The Load may oscillate in short. Just in case, on ensuring the safety of the operating range, please execute in the condition that servo-off can be made anytime as a precaution.



1. Measurement button

“Fit gain start” : Start to measure from “Initial rigidity” and “Initial mode” configuration.

“Remeasuring start” : Measure the rigidity and mode settings selected on the search map. This button is available after the search operation of rigidity.

“Start remainder” : Measure the rigidity and mode combination not measured. This button is available from end of the search operation of rigidity to end of the search operation of mode.

2. Stabilization time

Displays “Target value of stabilization time” set in Step 1.

3. Select index

Select index to display the chart. Index can be selected the same content of Monitoring Item (refer to page 81) of the Gain Tuning screen.

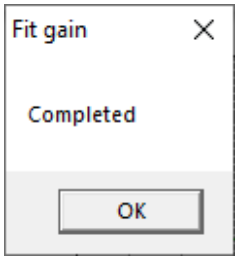
4. Chart of index data for each setting of rigidity

In the result of the search operation of rigidity, selected index by “3. Select index” is displayed. If measurement data is not, it is not displayed.

5. Chart of index data for each setting of mode
   In the result of the search operation of mode, selected index by “3. Select index” is displayed. It is not displayed until the end of the search operation of rigidity.

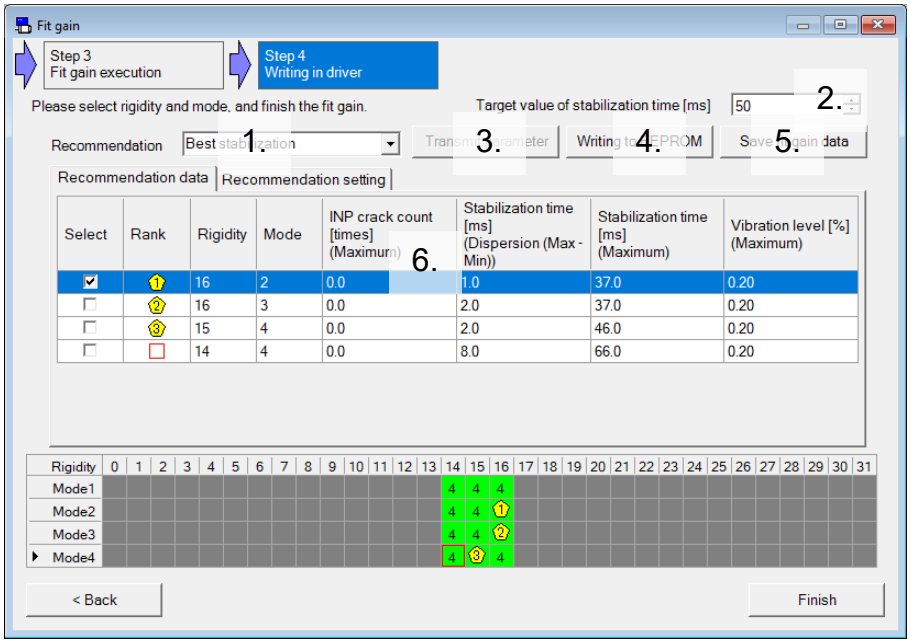
* Click on the “Search map” after measurement, measurement results can be displayed according to the rigidity it clicked.

7 When measure is completed, measurement completed screen is displayed. Please click “OK”.



8 When measurement completed screen is closed, please “Next” button click, and go to Step 4.

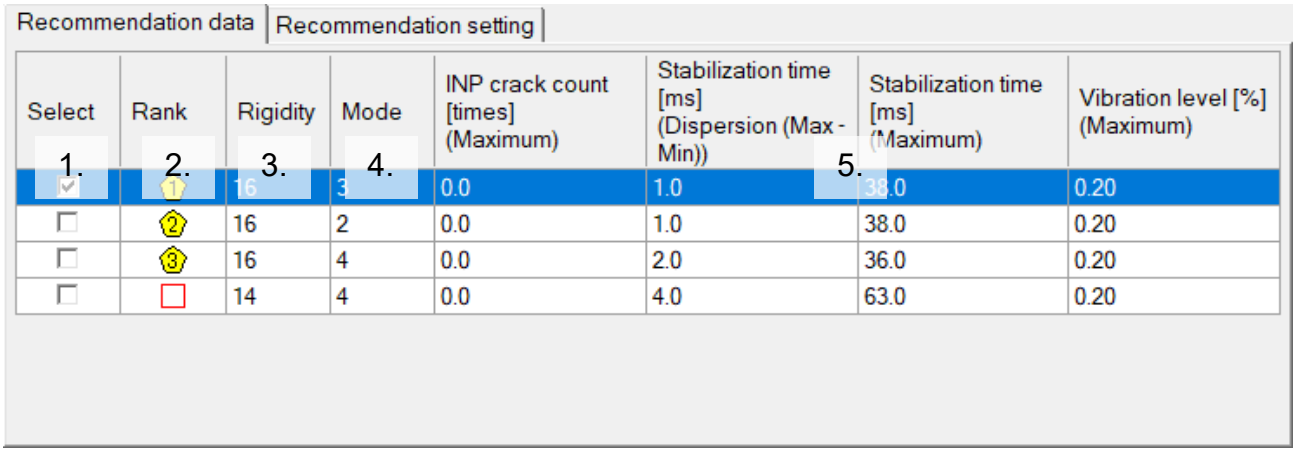
9 Please select rigidity and mode combination while referring to the recommendation data.



1. Recommendation
   You can refine the measurement data by rigidity and mode combination in Step 3 to the specified conditions. You can also sort it. Recommendation data tab displays the top three results.
   “Best stabilization”
   It find stabilization time stable configuration without INP crack.
   “No overshoot”
   It find stabilization time stable configuration without overshoot.
   “Strong stabilization”
   It find stabilization time stable configuration without INP crack and overshoot.
   “Minimum stabilization”
   It finds the minimum stabilization time configuration.
   “Manual setting”
   Use what you specify in the Recommendation setting tab.
2. Target value of stabilization time
   Displays the “Target value of stabilization time” set in Step 1. It can be changed at Step 4.

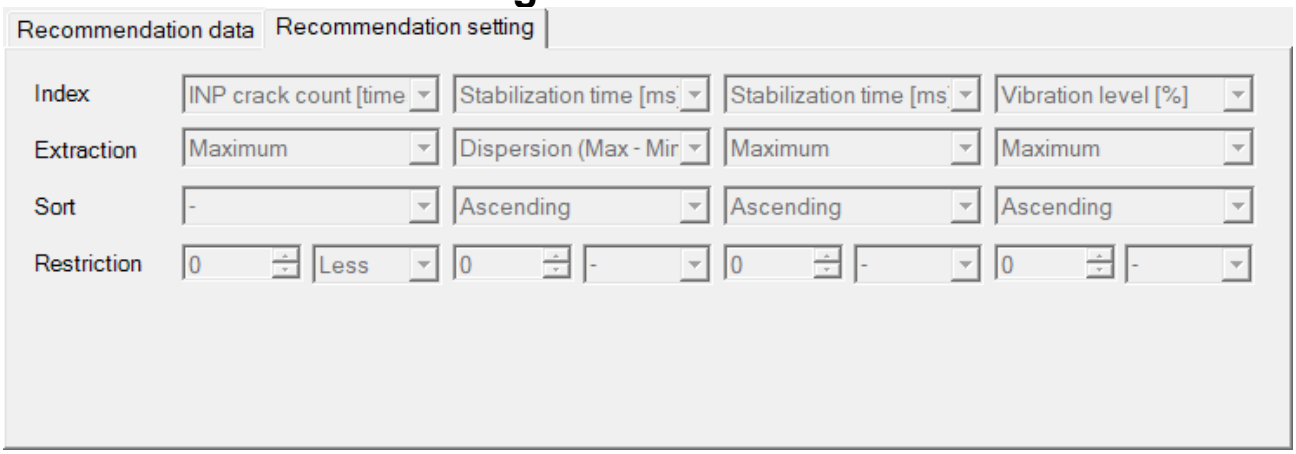
3. Transmit parameter
   Send to the driver to setting is checked. If the setting is sent, it will be disabled.
4. Writing to EEPROM
   Write parameters to EEPROM of the driver. If you do not transmit parameter, it will be disabled.
5. Save fit gain data
   Write parameters to fit gain measure result file (.fit5) to index data measured.
6. Tab
   Switch to “Recommendation data” or “Recommendation setting”.

<Recommendation data>



1. Select
   Please select setting to send to the driver.
2. Rank
   Displays rank of recommendation data. The rigidity and mode setting selected on the search map is displayed in line 4.
3. Rigidity
   Rigidity of recommendation data is displayed.
4. Mode
   Mode of recommendation data is displayed.
5. Index data
   Index of recommendation data is displayed. For more information please refer to Recommendation setting.

<Recommendation setting>

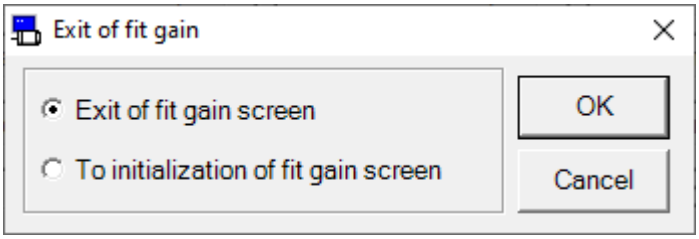


“Index”
Specify the target index to refine and be sort.
“Extraction”
Specify the kind of value to use to sort and refine.
You can select “Minimum”, “Maximum”, “Average”, “Dispersion (Max – Min)” and “Standard deviation”.
“Sort”
Use to determine the rank of the recommendation data.
You can select “- (Not set)”, “Ascending” and “Descending”.
In the following cases, the data on the larger rigidity and mode is given priority. It is if the same value or if you select “- (Not set)” on all.
“Restriction”
Use to refine recommendation data.
You can select “- (Not set)”, “Greater” and “Less”.

* Maximum of stabilization time is greater than target value of stabilization time is not displayed.
* You should select “Manual setting” in Step 4 “Recommendation” to change the recommendation setting.

10 Click “Transmit parameter” and “Writing to EEPROM”, save setting to driver.

11 Click “Finish”, the Exit of fit gain window is displayed.



□“Exit of fit gain screen”
Close the fit gain window.
□“To initialization of fit gain screen”
Start again from scratch. Current settings are cleared.

Notes 1) Please refer to application scope and remarks specified in the driver manual or technical reference. Notes 2) Parameter set on this screen is inputted into Driver. As PANATERM does not maintain this value, please perform the recording it to EEPROM of driver after completion of adjustment. Notes 3) Parameter settings will be needed even at the fit gain. Please read the operation manual or technical reference to understand the manual content prior to this operation. Notes 4) The fit gain screen cannot open during opening some screens. For more information please refer to page 276 “Fit gain screen (Standard) behavior”.

Fit gain screen (2 degrees of freedom control)

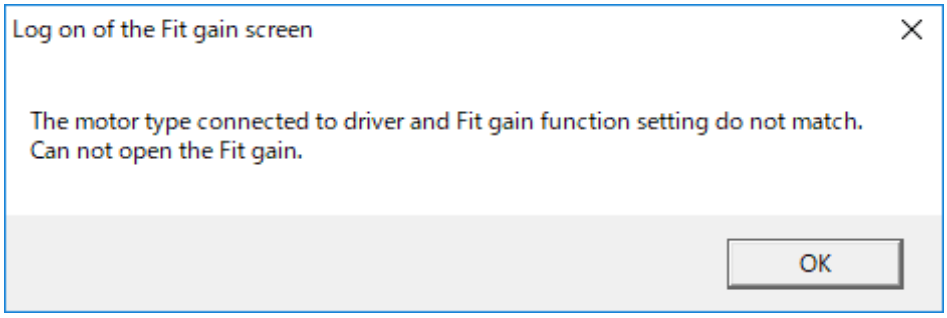
Explore the best gain settings automatically by repeating the positioning between two points. The fit gain function corresponding to 2 degree of freedom control generates a pattern of operation automatically by a test run function, and carries out full automatic adjustment of the load-characteristics and rigid setup / instruction response setup.

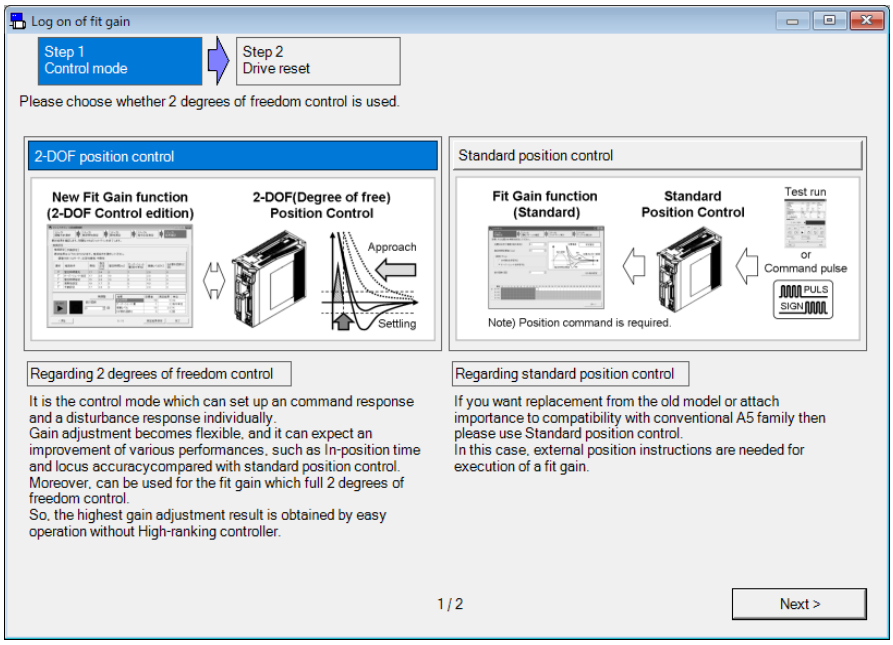
Note) The fit gain function is rigidity and mode at real-time auto-gain tuning may oscillate for a short time in the course of raising the load. May be suppressed by the adaptive filter and auto-oscillation detection, just in case, on ensuring the safety of the operating range, please execute in the condition that servo-off can be made anytime as a precaution.
Please refer to application scope and remarks specified in the driver manual or technical reference.
The fit gain cannot be performed through RS232 communication.
In addition, the fit gain function is disabled for some special motors.
For details, please contact the consultation desk.

Open the Fit gain window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Fit gain” of the tool bar on the main screen.
3 The Log on of fit gain window is opened.
Please select “2-DOF position control” and “Next” button click.
(The figure of the next page)

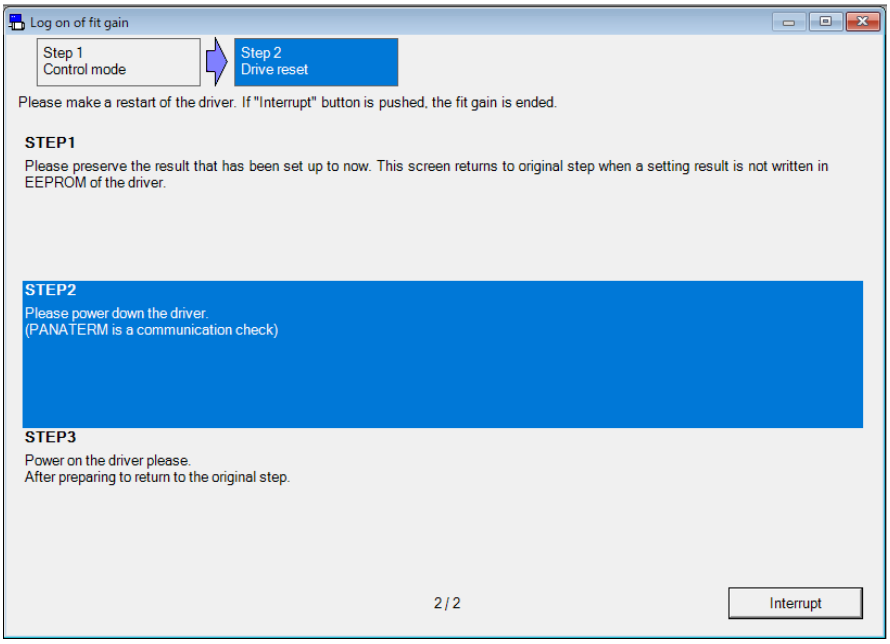
* If the motor type connected to driver and Fit gain function setting (Standard / Linear) do not match then, the following dialog is displayed and the fit gain function cannot be executed.
In that case, please use the after changing the combination of driver and selected series is correct.



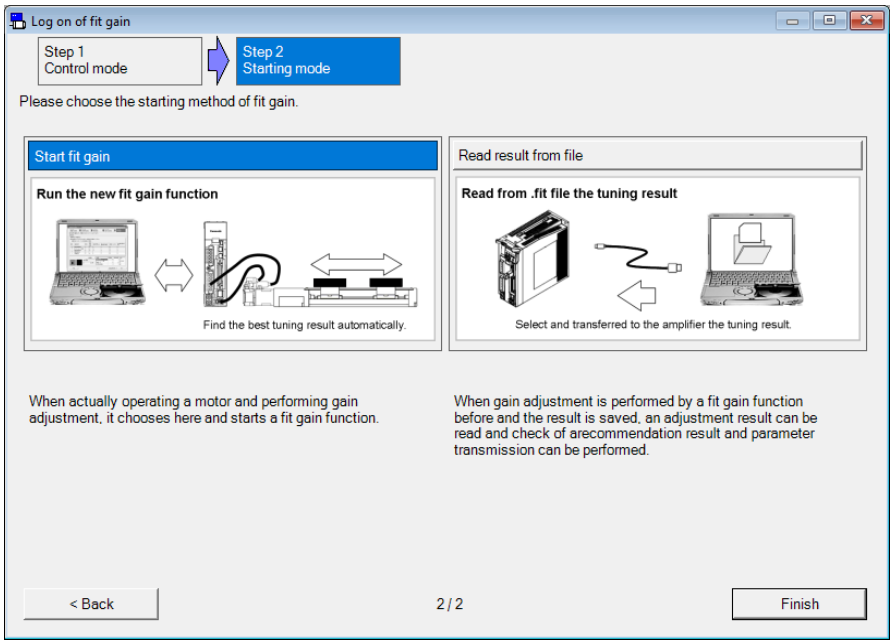


* When you select “Standard position control”, a standard fit gain window is opened.
* The log on of fit gain window cannot be used when velocity control mode and torque control mode. When full closed control mode, a standard fit gain window is opened.
  If the driver is Linear and DD Control Drive, the fit gain function cannot be used except for position control.
* When not communicating with driver, the selection screen of the fit gain measure result file is displayed. Please select the measure result, and the fit gain data window is opened.
* If the driver is Linear and DD Control Drive, Standard position control is not displayed.
  Only 2-DOF position control is displayed.

* “Drive reset” is inserted when selection changes into “2-DOF position control” from “Standard position control”. Please follow the instructions on the screen.

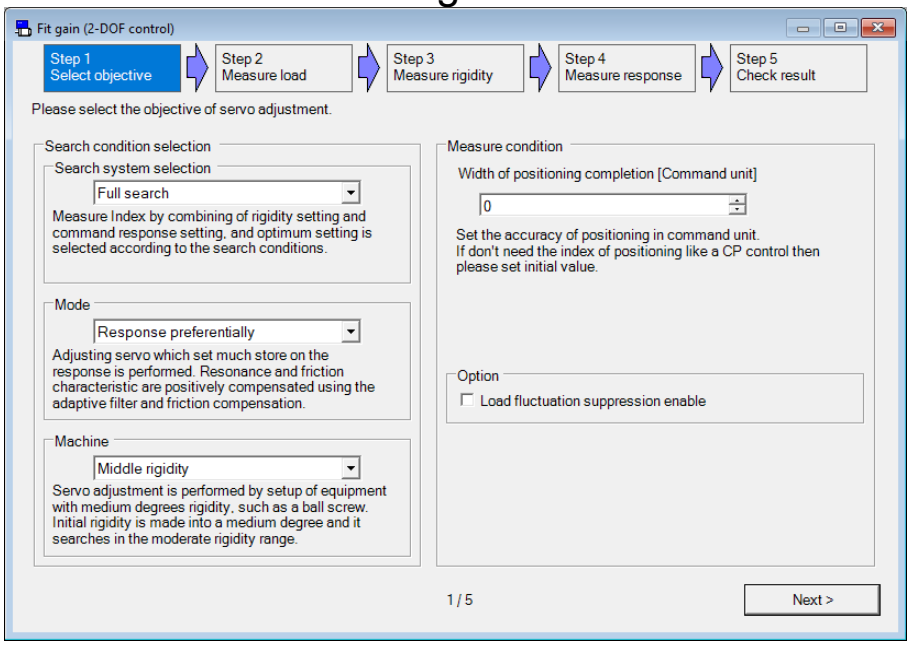


4 Please select fit gain with 2 degrees of freedom control, and “Finish” button click.

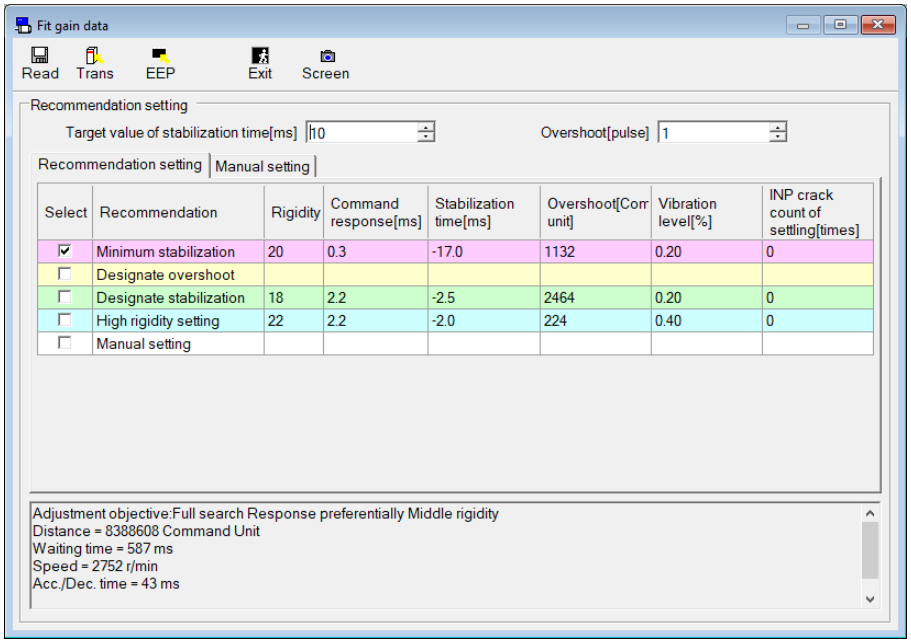


5 If you select “Start fit gain”, the fit gain (2-DOF control) window is opened.
If you select “Read result from file”, selection screen of the fit gain measure result file is displayed. Please select the measure result, and the fit gain data window is opened.

<When select “Start fit gain”>



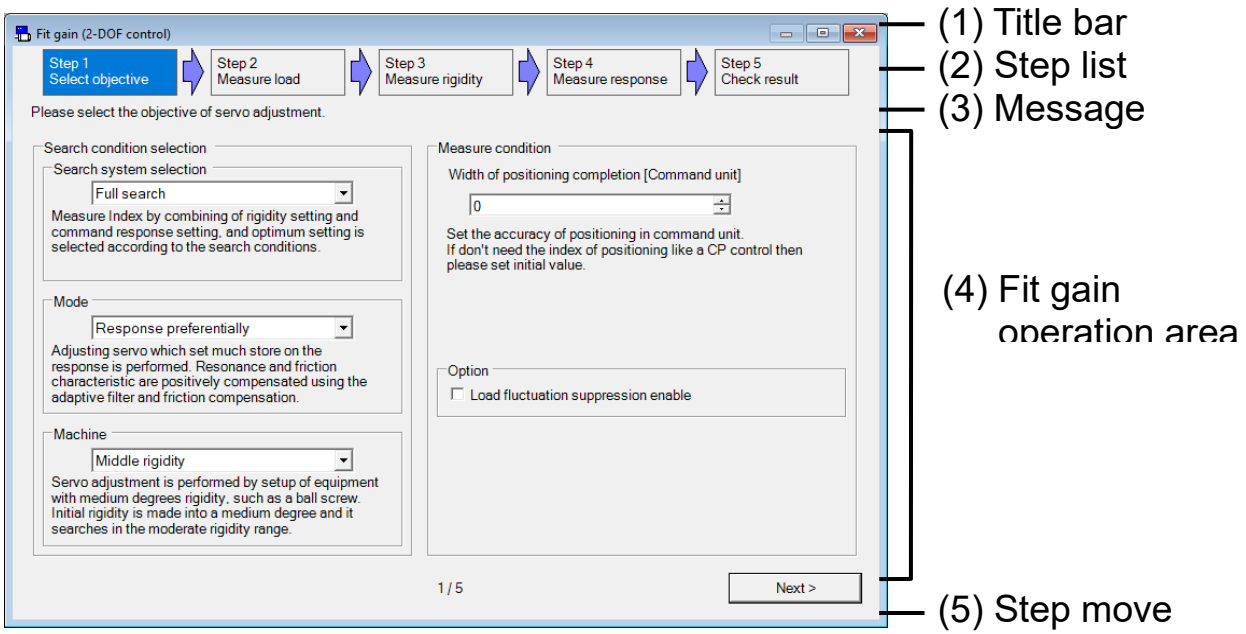
<When select “Read result from file”>



Close the Fit gain window

Click  of upright on the window.

Structure of Fit gain Screen



(1) Title bar
You can operate window.

(2) Step list
The position seen from the whole of a present step is displayed.

(3) Message
An easy explanation of the content set in a present step is displayed.

(4) Fit gain operation area
Steps 1-5 can be operated.

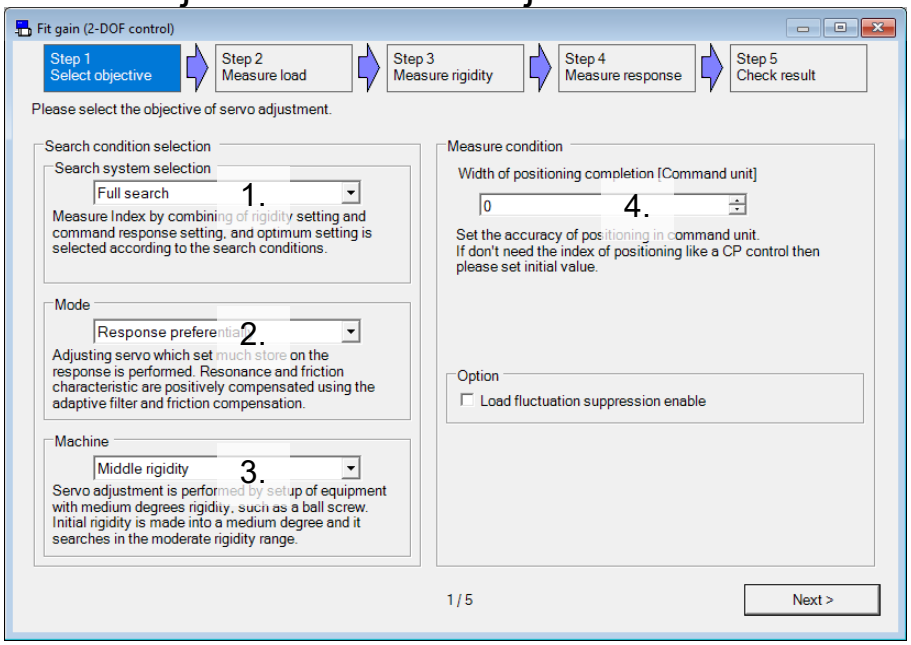
(5) Step move
Switch to present step.

“Back”	The previous step is displayed.
“Next”	The next step is displayed.
“Finish”	Close the fit gain window.

Method of performance of fit gain

Step 1: Select objective

Select objective of servo adjustment.



1. Search system selection

   Select search system.

   “Full search”

   Measure Index by combining of rigidity setting and command response setting, and optimum setting is selected according to the search conditions.

2. Mode

   Select “Response preferentially”, “Balanced” and “Stability preferentially”.

   “Response preferentially”

   Adjusting servo which set much store on the response is performed. Resonance and friction characteristic are positively compensated using the adaptive filter and friction compensation.

   “Balanced”

   Adjusting servo which was able to balance a response and stability is performed. Using the adaptive filter, resonance characteristic is controlled positively.

   “Stability preferentially”

   Adjusting servo which set much store on the stability is performed. Fundamental adjustment which does not use the adaptive filter and friction compensation is performed.

3. Machine

Rigidity is selected from “High”, “Middle” and “Low”.

“High rigidity”

Servo adjustment is performed by setup of equipment with high rigidity, such as coupling direct connection. Initial rigidity is made high and adjustment which raises rigidity as much as possible is performed.

“Middle rigidity”

Servo adjustment is performed by setup of equipment with medium degrees rigidity, such as a ball screw. Initial rigidity is made into a medium degree and it searches in the moderate rigidity range.

“Low rigidity”

Servo adjustment is performed by setting of equipment with low rigidity, such as belt driving. Initial rigidity is made low and adjustment which raises rigidity as much as possible is performed.

4. Width of positioning completion

Set the accuracy of positioning in command unit.

If don't need the index of positioning like a CP control then please set initial value.

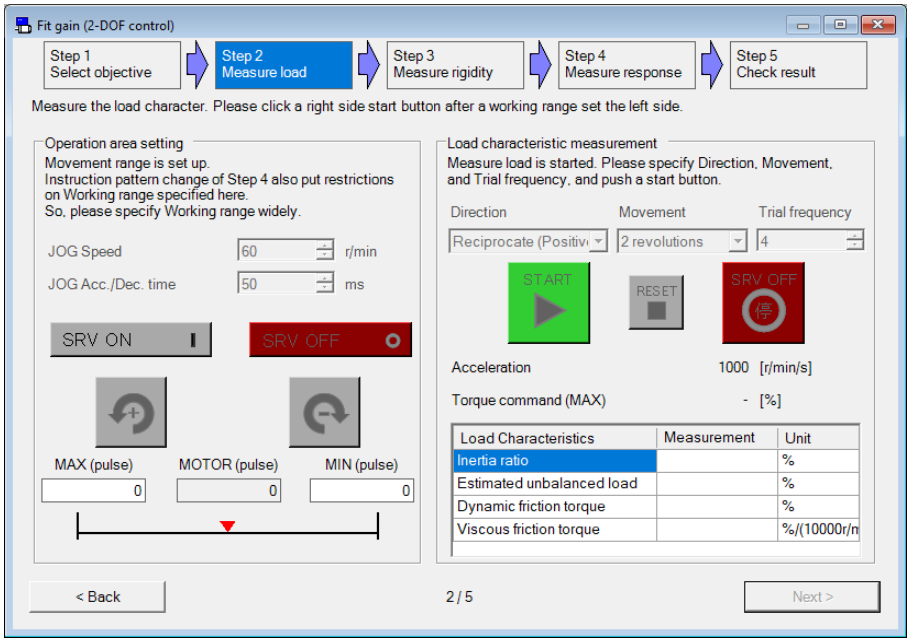
(In MINAS-A6 series, you can set the option control.)

1 Please set the objective (Search system, Mode, Machine) and width positioning completion.

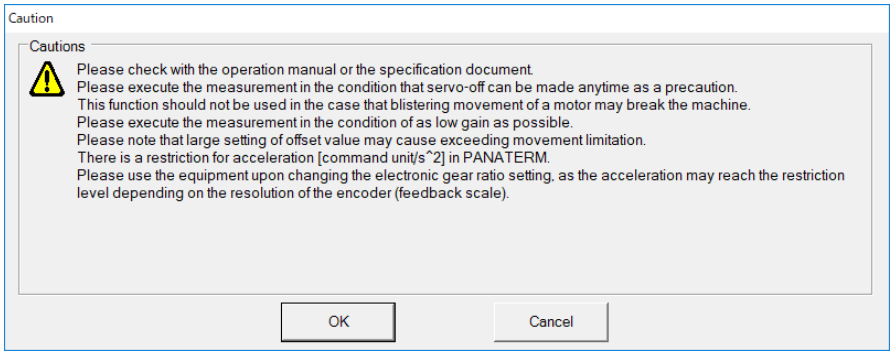
2 Please “Next” button click when you are finished setting, and go to Step 2.

Step 2: Measure load

Measure the load character.



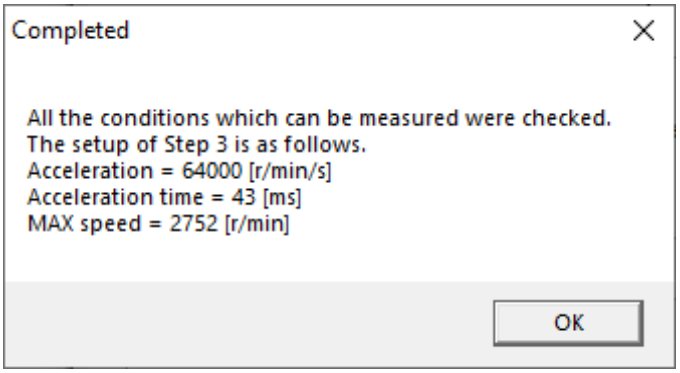
1 Click on “SRV ON” button, and the caution window will appear. Confirm the window message carefully, and click “OK”.



2 Please move load by  (Positive) and  (Negative), and set up a working range.

3 Please set direction, movement and trial frequency and click  button.

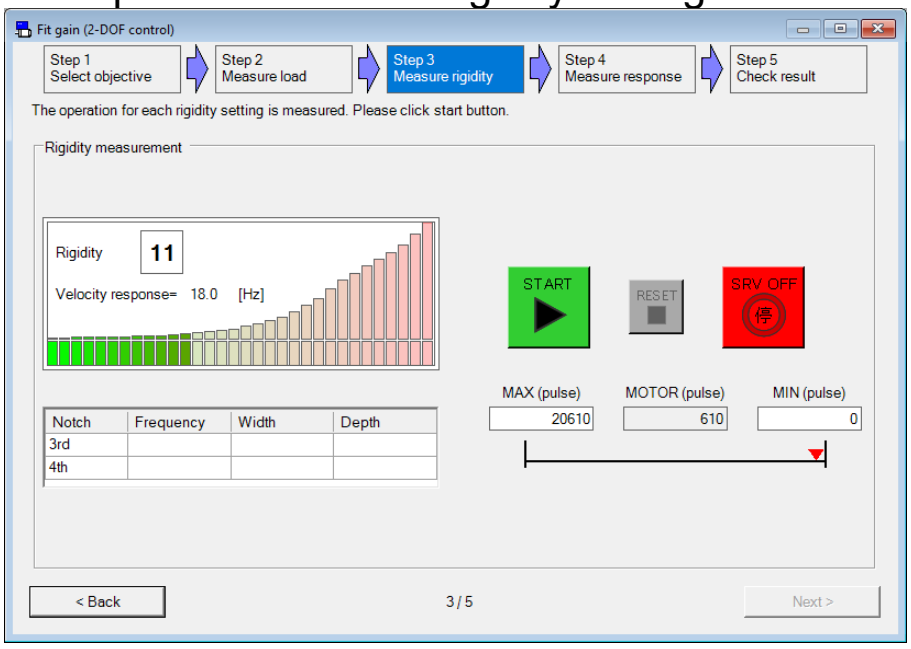
4 When measure is completed, measurement completed screen is displayed. Please click “OK”.



5 When measurement completed screen is close, please “Next” button click, and go to Step 3.

Step 3: Measure rigidity

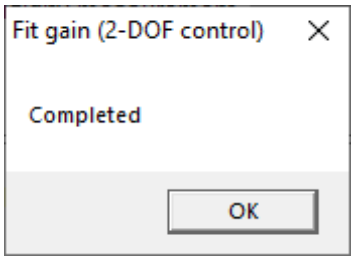
The operation for each rigidity setting is measured.



1 Click  button, please wait the measurement is completed.

* The Load may oscillate in short. Just in case, on ensuring the safety of the operating range, please execute in the condition that servo-off can be made anytime as a precaution.

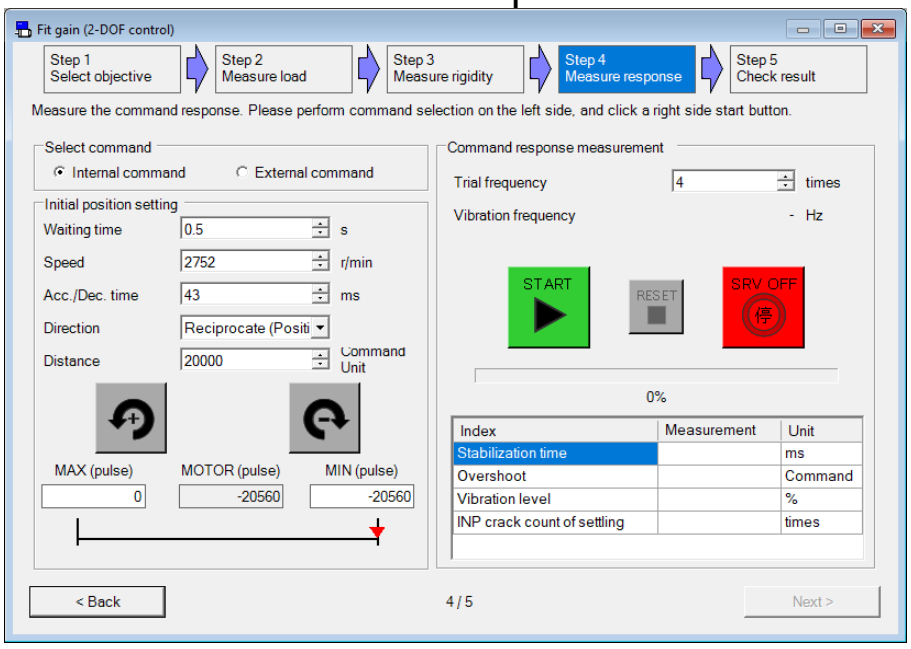
2 When measure is completed, measurement completed screen is displayed. Please click “OK”.



3 When measurement completed screen is close, please “Next” button click, and go to Step 4.

Step 4: Measure response

Measure the command response.



1 Please select internal command or external command if needed. In internal command, please set waiting time, speed, acceleration and deceleration time, direction and distance.

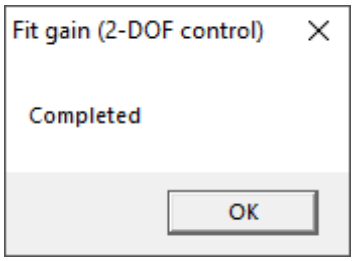
* Initial setting is an operation pattern of the internal command in Step 3.

* When external command is selected, select command cannot return to internal command. Please be careful.

2 Please click 

button after setting trial frequency, and wait the measurement is completed.

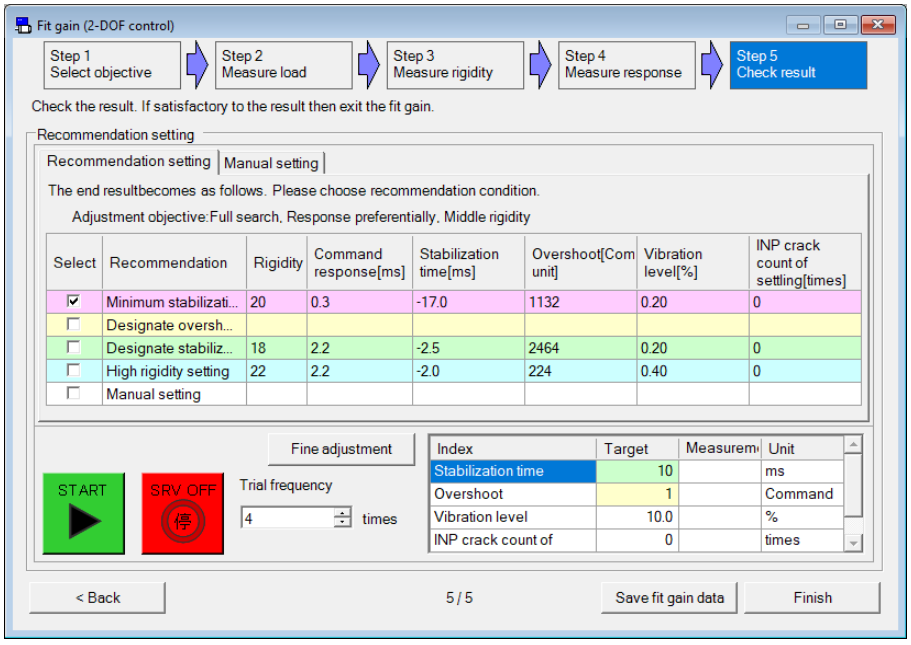
3 When measure is completed, measurement completed screen is displayed. Please click “OK”.



4 When measurement completed screen is closed, please “Next” button click, and go to Step 5.

Step 5: Check result

Check the result.



1 Please check a measurement result and put a check into recommendation conditions suitable for use.

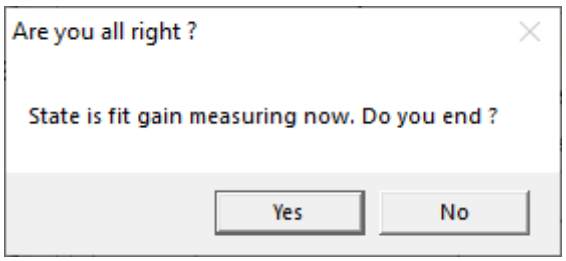
2 Click 

button, perform test run and check a measurement result if needed.

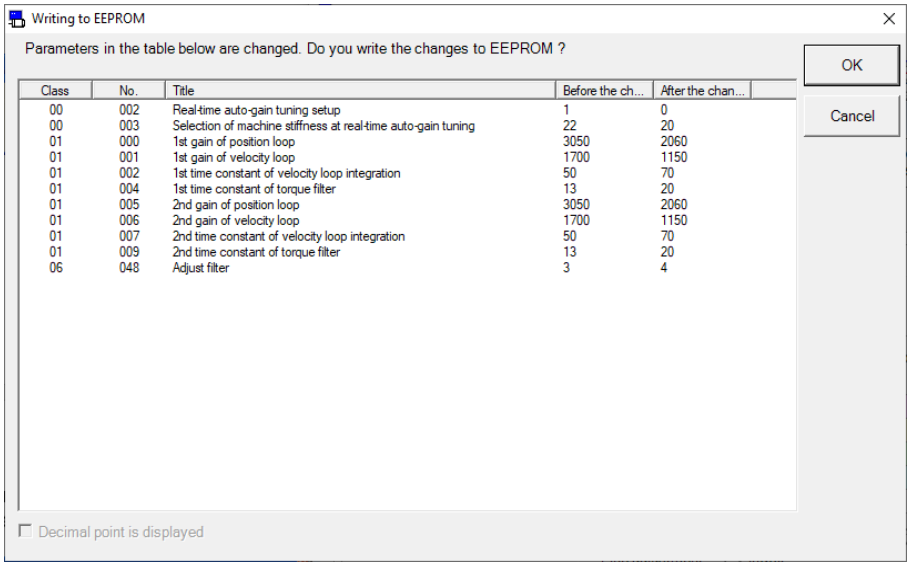
3 Click “Save fit gain data”, and please save the measurement result of all the steps.

* The saved file can perform check of a recommendation setting, and send to driver by selecting "Read result from file" as the start-up of fit gain.

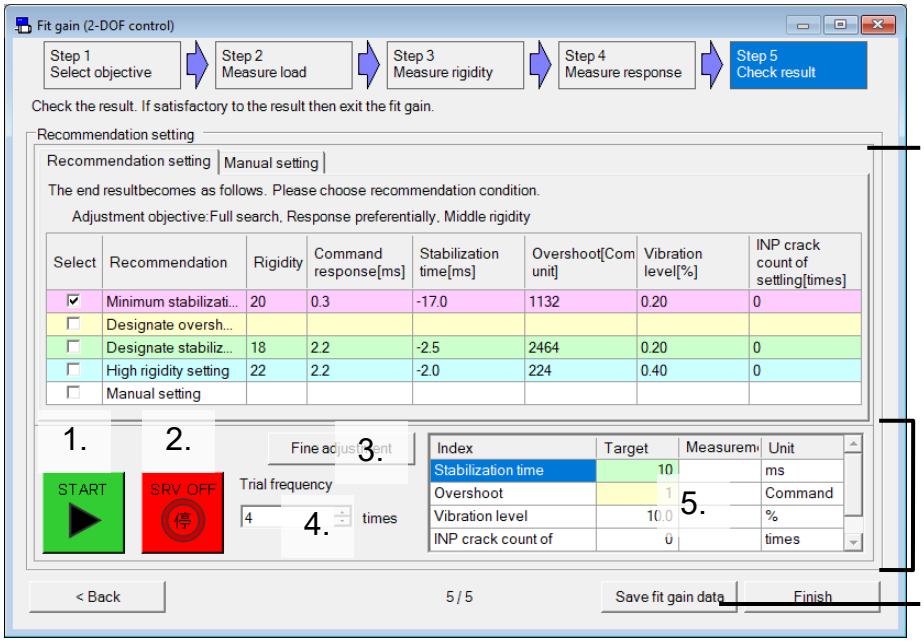
4 Click “Finish”, the exit of fit gain screen is displayed. Please click “Yes”.



5 When exit of fit gain screen is closed, and writing to EEPROM window will appear. Please click “OK”.



Recommendation setting



(1)

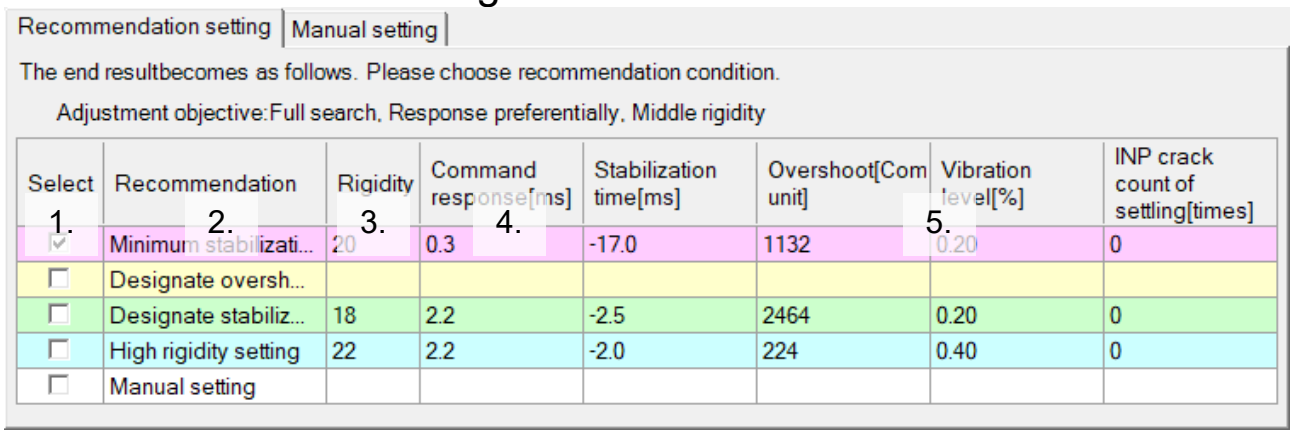
(2) Test runs area

(3) Save fit gain data button

(1) Tab

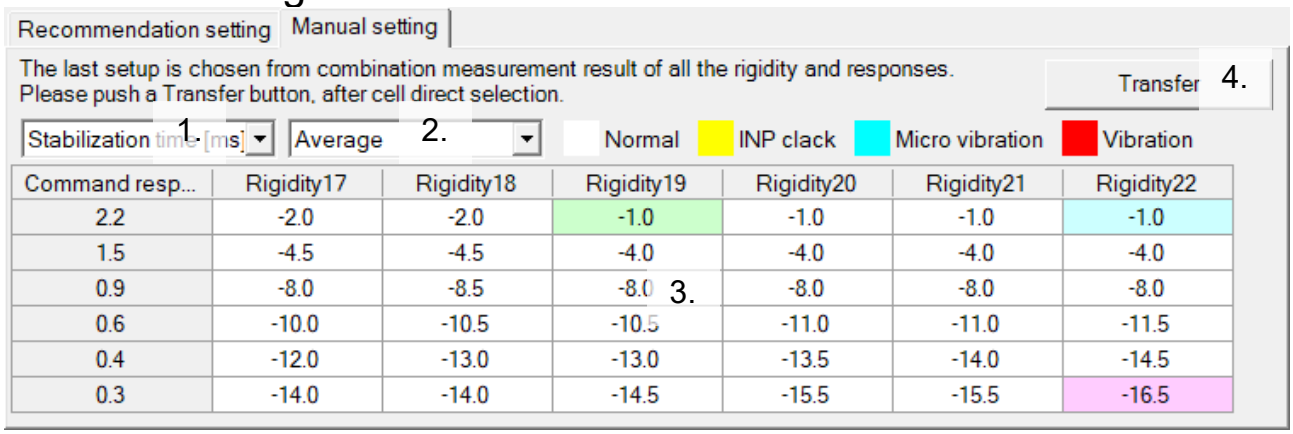
Switch to “Recommendation setting” or “Manual setting”.

<Recommendation setting>



1. Select
   Please select setting to send to the driver.
2. Recommendation
   The name of recommendation conditions is displayed.
3. Rigidity
   Rigidity of recommendation data is displayed.
4. Command response
   Command response of recommendation data is displayed.
5. Index data
   Index of recommendation data is displayed.

<Manual setting>



Command resp...	Rigidity17	Rigidity18	Rigidity19	Rigidity20	Rigidity21	Rigidity22
2.2	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0
1.5	-4.5	-4.5	-4.0	-4.0	-4.0	-4.0
0.9	-8.0	-8.5	-8.0	-8.0	-8.0	-8.0
0.6	-10.0	-10.5	-10.5	-11.0	-11.0	-11.5
0.4	-12.0	-13.0	-13.0	-13.5	-14.0	-14.5
0.3	-14.0	-14.0	-14.5	-15.5	-15.5	-16.5

1. Index
   Specify the target index to.
2. Extraction
   Specify the kind of value to use to. You can select “Minimum”, “Maximum”, “Average”, “Dispersion (Max – Min)” and “Standard deviation”.
3. Index data
   Index data corresponding to the combination of rigidity and command response is displayed.
4. Transfer
   The contents of the cell selected by “3.” are sending to the driver.

(2) Test runs area

Test run is performed.

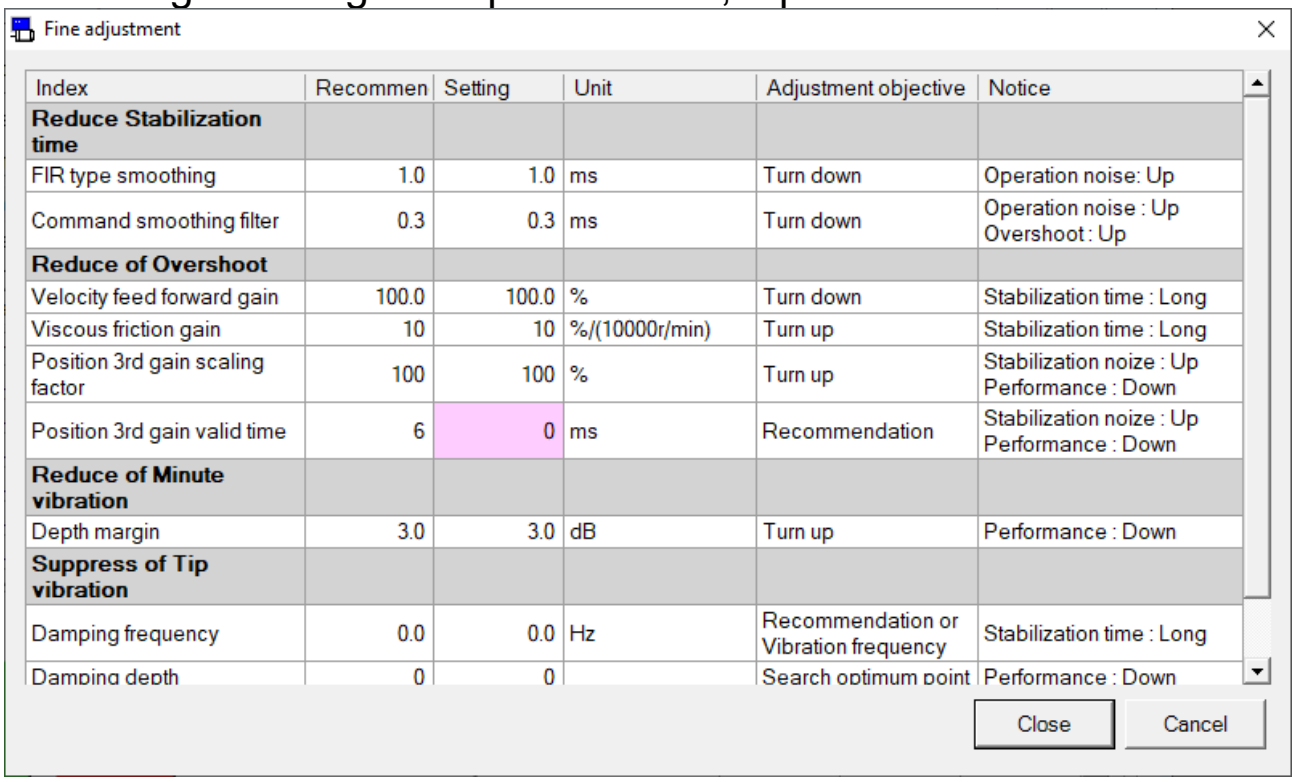
1. Test run
   Test run is performed using the same operation pattern as Step 4.
   * When having selected external command, please drive a motor by external command after button is clicked.
2. Emergency stop
   Do emergency stop by cut off electricity to a motor.
   * This becomes invalid when an external command is selected. Please use an external servo-on input etc. and enable it to perform an emergency stop.
3. Fine adjustment
   Can do fine adjustment from recommendation conditions.
4. Trial frequency
   Specifies the trial frequency when test run.
5. Measurement result
   Measurement result of test run is displayed.

(3) Save fit gain data button

The measurement result of all the steps is saved. The saved file can perform check of a recommendation setting, and send to driver by selecting "Read result from file" as the start-up of fit gain.

Fine adjustment

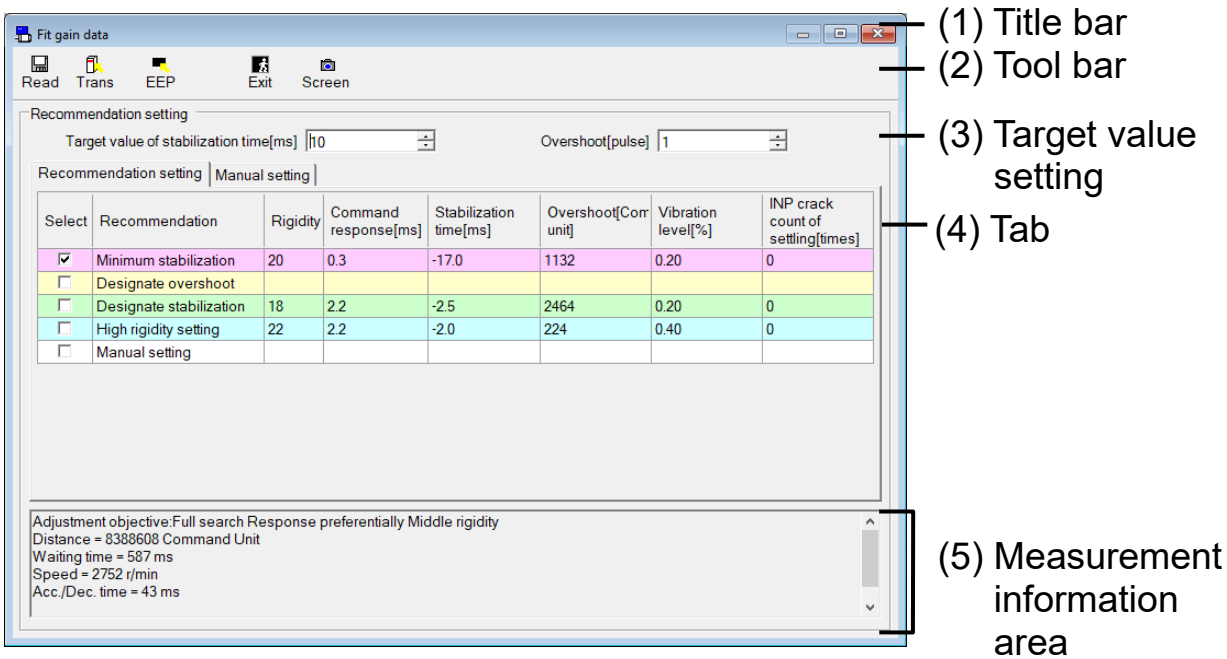
According to change of a preset value, a parameter is sent to driver.



Index	Recommen	Setting	Unit	Adjustment objective	Notice
Reduce Stabilization time					
FIR type smoothing	1.0	1.0	ms	Turn down	Operation noise: Up
Command smoothing filter	0.3	0.3	ms	Turn down	Operation noise : Up Overshoot : Up
Reduce of Overshoot					
Velocity feed forward gain	100.0	100.0	%	Turn down	Stabilization time : Long
Viscous friction gain	10	10	%/(10000r/min)	Turn up	Stabilization time : Long
Position 3rd gain scaling factor	100	100	%	Turn up	Stabilization noize : Up Performance : Down
Position 3rd gain valid time	6	0	ms	Recommendation	Stabilization noize : Up Performance : Down
Reduce of Minute vibration					
Depth margin	3.0	3.0	dB	Turn up	Performance : Down
Suppress of Tip vibration					
Damping frequency	0.0	0.0	Hz	Recommendation or Vibration frequency	Stabilization time : Long
Damping depth	0	0		Search optimum point	Performance : Down

“Close” : Activate the change, and exit the screen.
“Cancel” : Inactivate the change, and exit the screen.

Structure of Fit gain data Screen



(1) Title bar
You can operate window.

(2) Tool bar

Read	(Read)	Reads fit gain measure result from files (.fit5). When this button is effective, a fit gain measure result file can be specified by drag and drop.
Trans	(Transmit)	Sends parameters to the drivers.
EEP	(EEPROM)	Write parameters to EEPROM of the driver.
Exit	(Exit)	Closes fit gain data screen.
Screen	(Screen)	Captures the screen and save into a file.

(3) Target value setting

“Target value of stabilization time”

Set the target value of stabilization time.

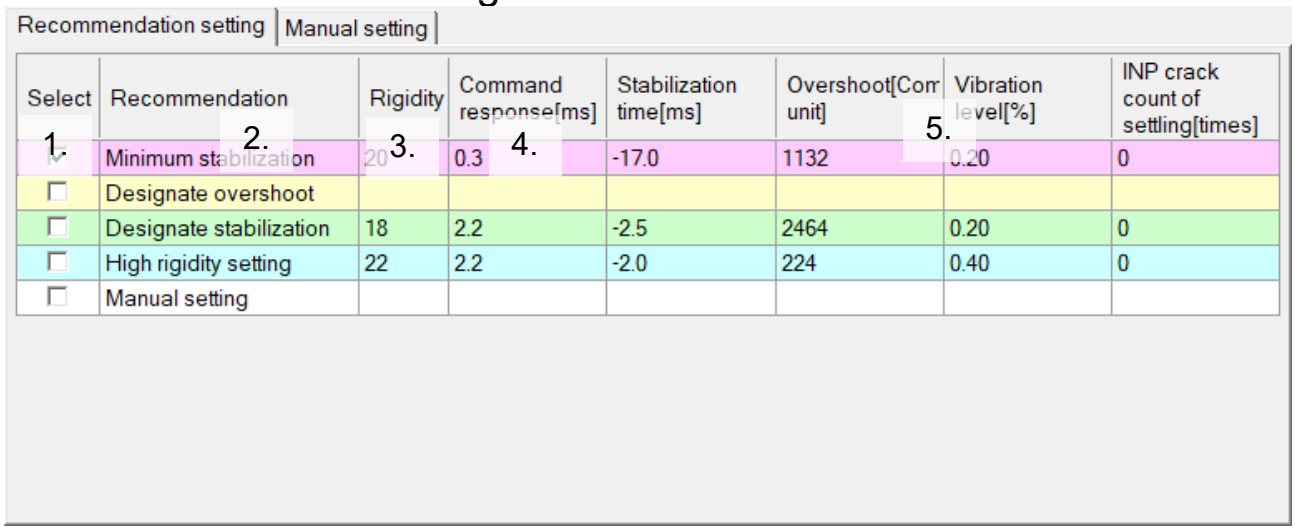
“Overshoot”

Set the target value of overshoot.

(4) Tab

Switch to “Recommendation setting” or “Manual setting”.

<Recommendation setting>



1. Select

Please select setting to send to the driver.

2. Recommendation

The name of recommendation conditions is displayed.

3. Rigidity

Rigidity of recommendation data is displayed.

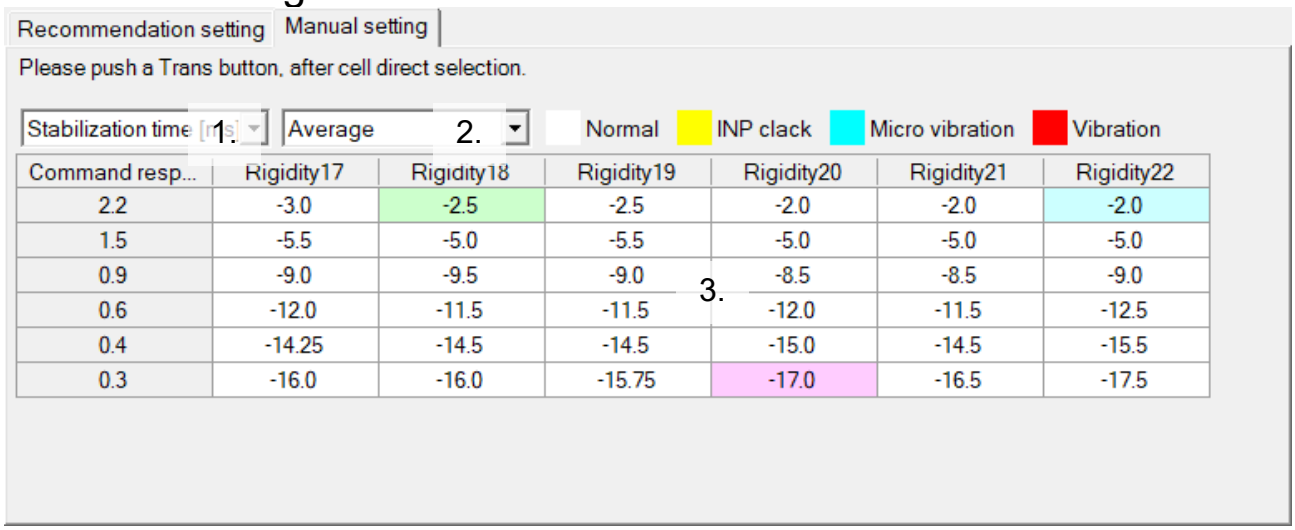
4. Command response

Command response of recommendation data is displayed.

5. Index data

Index of recommendation data is displayed.

<Manual setting>



Command resp...	Rigidity17	Rigidity18	Rigidity19	Rigidity20	Rigidity21	Rigidity22
2.2	-3.0	-2.5	-2.5	-2.0	-2.0	-2.0
1.5	-5.5	-5.0	-5.5	-5.0	-5.0	-5.0
0.9	-9.0	-9.5	-9.0	-8.5	-8.5	-9.0
0.6	-12.0	-11.5	-11.5	-12.0	-11.5	-12.5
0.4	-14.25	-14.5	-14.5	-15.0	-14.5	-15.5
0.3	-16.0	-16.0	-15.75	-17.0	-16.5	-17.5

1. Index
   Specify the target index to.
2. Extraction
   Specify the kind of value to use to. You can select “Minimum”, “Maximum”, “Average”, “Dispersion (Max – Min)” and “Standard deviation”.
3. Index data
   Index data corresponding to the combination of rigidity and command response is displayed.

(5) Measurement information area

Objective of servo adjustment and operation pattern at the time of measurement are displayed.

Notes 1) Please refer to application scope and remarks specified in the driver manual or technical reference.
Notes 2) Parameter set on this screen is inputted into Driver. As PANATERM does not maintain this value, please perform the recording it to EEPROM of driver after completion of adjustment.
Notes 3) Parameter settings will be needed even at the fit gain. Please read the operation manual or technical reference to understand the manual content prior to this operation.
Notes 4) The fit gain screen cannot open during opening some screens. For more information please refer to page 277 “Fit gain screen (2 degrees of freedom control) behavior”.

Object Editor screen

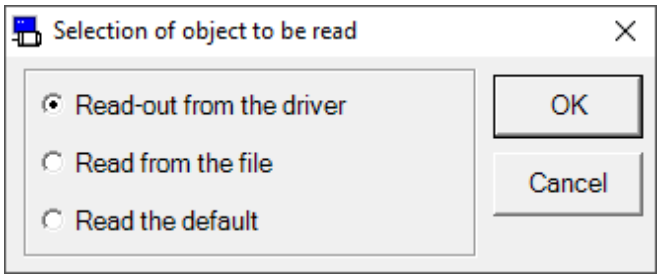
Realize easier troubleshooting without connecting to the host controller by displaying and editing the object list of the driver.

Note) Please modify objects with enough care after reading the driver's instruction manual or technical reference carefully, as some objects give large effect to operations of drivers or motors.
Object editor cannot be performed through RS232 communication.

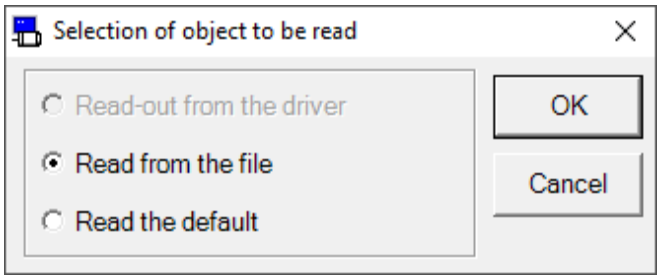
Open the Object Editor window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Object Editor” of the tool bar on the main screen.
3 Selection of object to be read window is displayed.

<When communication with driver>



<When not communication with driver>



4 Select the origin of objects, and click.

□“Read - out from the driver”

The objects set in the driver are read communicating the driver connected. If this mode is selected, modifications of the object values are reflected to the driver immediately.

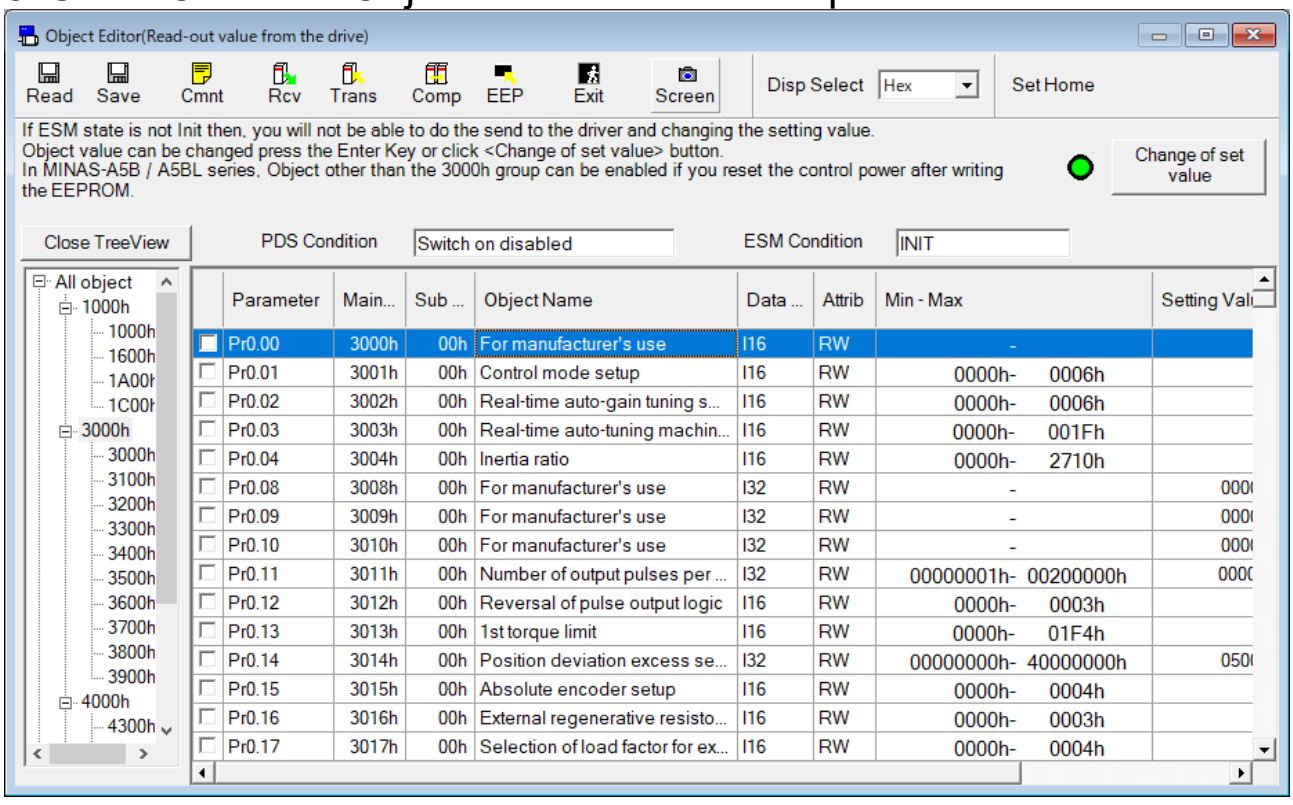
□“Read from the file”

Object Data files already edited (.obj5) are read. Object modifications are not reflected to the driver connected unless “Transmit the object to the driver” is executed when they are “Read from the file”.

□“Read the default”

Default set values saved at the time of installation is read. The object modifications are not reflected unless “Transmit the object to the driver” is executed as the case of “Read from the file”.

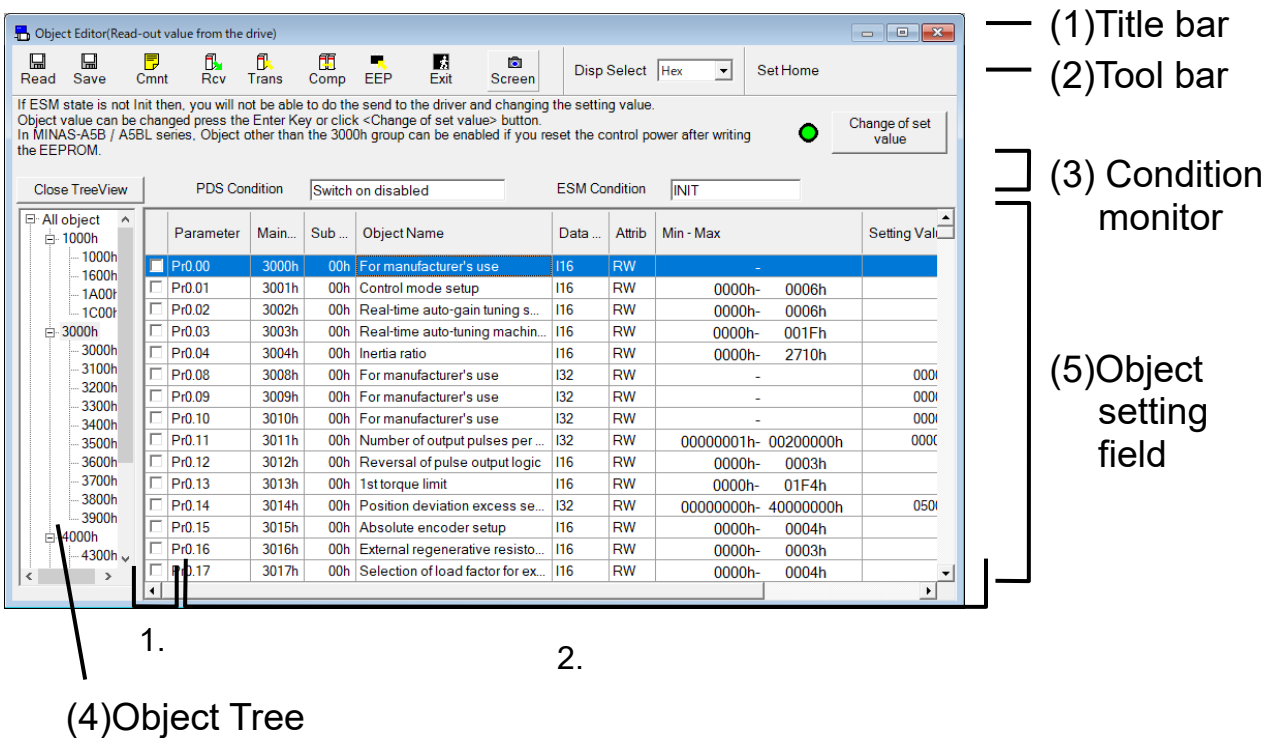
5 Click “OK”. The Object Editor window is opened.



Close the Object Editor window

Click Exit (Exit) on the tool bar.

Structure of Object Editor screen



(1) Title bar

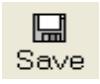
The origins of reference of objects reference are displayed.
Following buttons are used to operate windows.

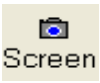
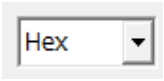
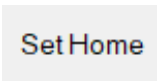
Display the window in full screen

Close the window

(2) Tool bar

Saving, reading, some other basic operation commands on objects are listed.

	(Read)	Reads objects from files (.obj5). When this button is effective, an object file can be specified by drag and drop.
	(Save)	Writes objects to files (.obj5).
	(Comment)	Makes comments attached to objects files.
	(Receive)	Receives objects from the driver.
	(Transmit)	Sends objects to the driver.

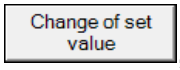
	(Compare)	Compares objects on editing with other objects.
	(EEPROM)	Write objects to EEPROM of the driver.
	(Exit)	Closes object editor screen.
	(Screen)	Captures the screen and save into a file.
	(Disp Select)	Change the numerical display of objects being displayed. Hex: Displayed in hexadecimal, add "h" to the end of the number. Dec: Displayed in decimal number, and sign is set. Bin : Displayed in binary number, add "b" to the end of the number. Min-Max columns are displayed in hexadecimal.
	(Set Home)	Run Set Home. Write the calculation result of "607Ch-00h minus 6064h-00h" to "607 Ch-00h".

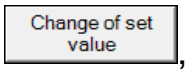
(3) Condition monitor

(PDS Condition) Show the PDS Condition of the Driver.
The condition is changed depending on the value of the object of 6041h-00h.

(ESM Condition) It shows condition whether rewriting objects in the driver is possible or not.

<When communication with driver>

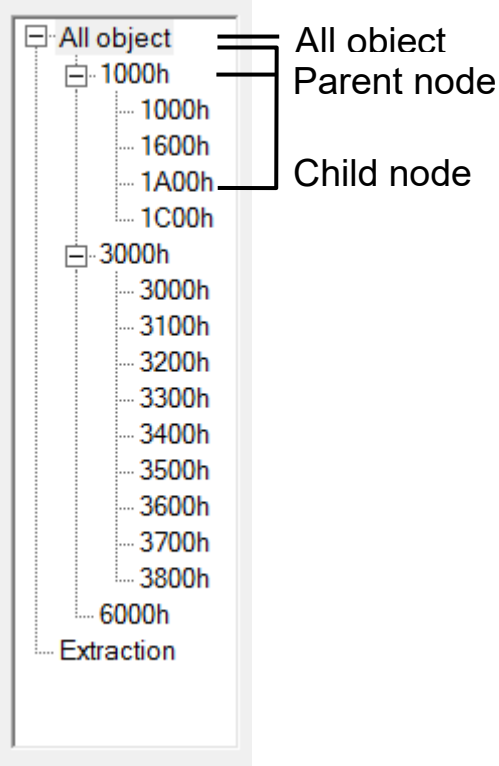
INIT — In this condition, you can rewrite the driver object.
 is displayed next to  , and becomes possible to edit and send the object setting value.

other than INIT — In this condition, you cannot rewrite the driver object.
 is not displayed next to  , and becomes impossible to edit and send the object setting value.

<When not communication with driver>

-  is displayed next to Change of set value, and becomes possible to edit and send the object setting value.

(4) Object Tree

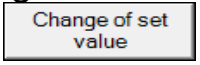


If you select a node from the object tree, related objects are displayed at object setting field.
If you click “Close TreeView” / “Disp TreeView” button, switch the Hide / Show of Object tree.
If you select “All object”, all objects are displayed.
If you select a parent node, objects of all the child nodes are displayed which following selected parent node.
If you select a child node, objects of the selected node are displayed.
If you select “Extraction”, the extracted objects are displayed .
The objects selected in the object setting field are displayed.
Refer to the instruction manual of the driver or technical reference for more information about each object.
Note) If you receive or transmit the object during the extraction display, targets are only extracted objects.
If the object is read during the extraction display, “All object” is selected and extraction display will be canceled.

(5) Object setting field

1. Extraction selection check box
   It is possible to extract the object by checking ON.
   Extraction selection is saved at the end of object editor, and read automatically when the object editor startup.

2. You can edit and set the object.

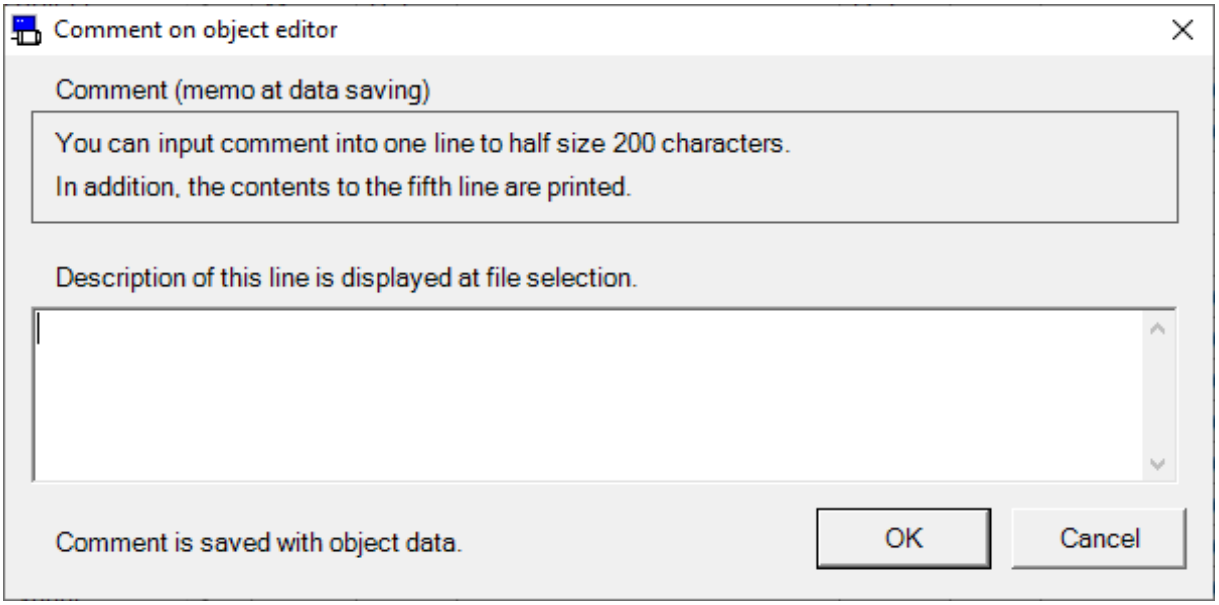
“Parameter”	Show the parameter classification and number corresponding to the object. Not displayed if you select “All object” or if the corresponding parameter does not exist.
“Main Index”	Show the Main Index of the object.
“Sub Index”	Show the Sub Index of the object.
“Object Name”	Show the Object Name.
“Data Type”	Show the Data Type of the object. I8 : Integer 8 I16 : Integer 16 I32 : Integer 32 U8 : Unsigned 8 U16 : Unsigned 16 U32 : Unsigned 32 Bool : Boolean OS : Octet String VS : Visible String
“Attrib”	Show the attribute of the object. RO : Read-Only attribute RW : Read-Write attribute
“MIN-MAX”	Show the setting range of the object. If “Data Type” is OS or VS, setting range is not displayed.
“Setting Value”	Show the setting value of the object. If “Attrib” is RW and “Setting Value” is number, you can change the setting value of the object. Depending on the choice of “Disp Select”, there is an input limit. Hex : 0 to 9, “A” to “F” (after editing, “h” is automatically added to the end.) Dec : 0 to 9, “-”sign Bin : 0 to 1 (after editing, “b” is automatically added to the end.) After changing the setting value, the change is reflected by pressing the [ENTER] key or clicking the  (Change of set value). Press the [ESC] key to return to the original value.
“Units”	Show the unit of the setting value of the object.

Comment

On saving set objects in a file, comments can be saved together.
These comments do not effect operations of the driver.

Making Comment

1 Click Cmnt (Comment) on the tool bar, and open the comment window.



2 Click comment box and input comments.
3 After completing comment input, click “OK”.

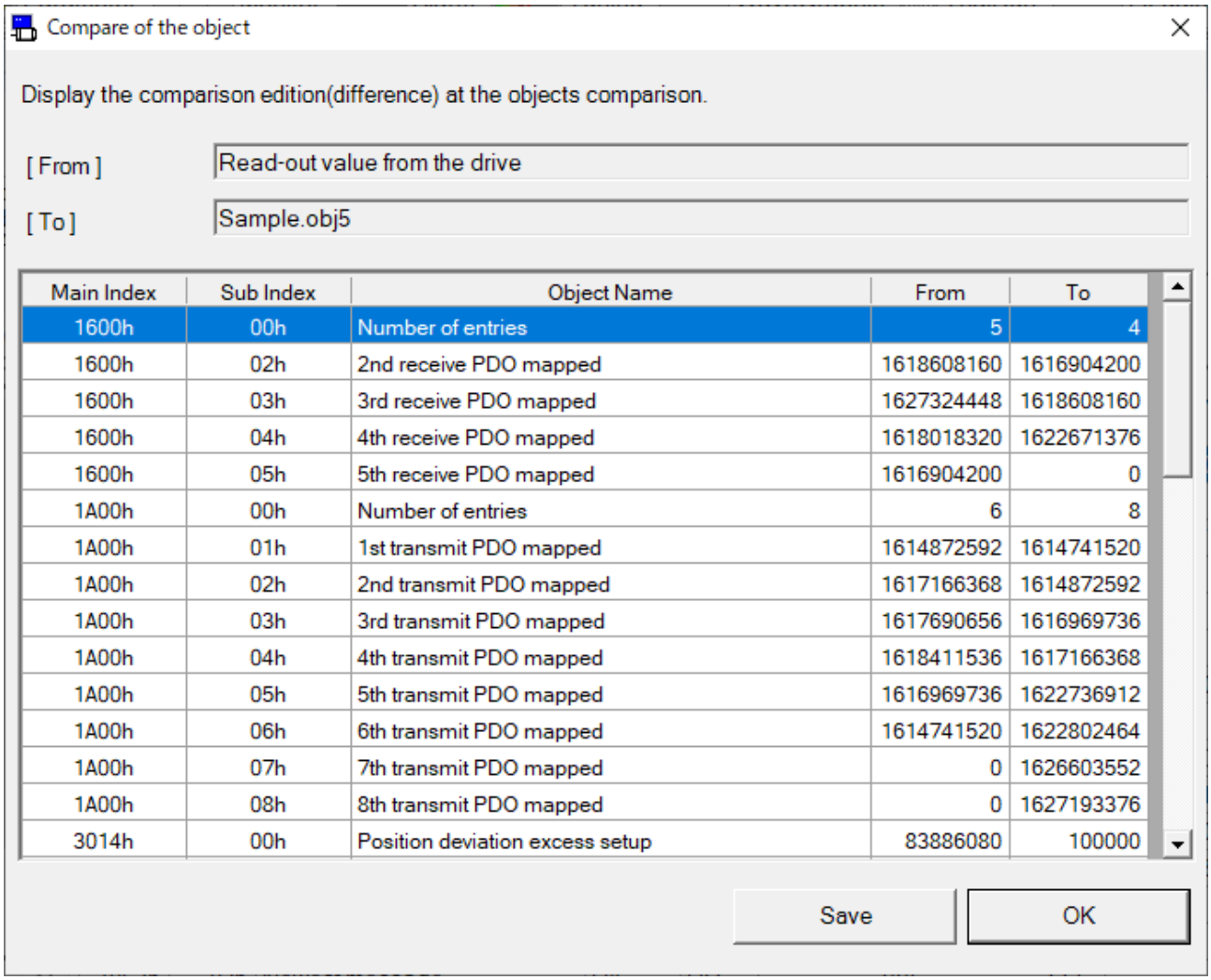
Comparison

Objects being edited can be compared with other objects.

Comparison of objects

1 Click Comp (Comparison) on the toolbar, please select the file (.obj5) to be compared.

2 Comparison result of the objects is displayed.



Main Index	Sub Index	Object Name	From	To
1600h	00h	Number of entries	5	4
1600h	02h	2nd receive PDO mapped	1618608160	1616904200
1600h	03h	3rd receive PDO mapped	1627324448	1618608160
1600h	04h	4th receive PDO mapped	1618018320	1622671376
1600h	05h	5th receive PDO mapped	1616904200	0
1A00h	00h	Number of entries	6	8
1A00h	01h	1st transmit PDO mapped	1614872592	1614741520
1A00h	02h	2nd transmit PDO mapped	1617166368	1614872592
1A00h	03h	3rd transmit PDO mapped	1617690656	1616969736
1A00h	04h	4th transmit PDO mapped	1618411536	1617166368
1A00h	05h	5th transmit PDO mapped	1616969736	1622736912
1A00h	06h	6th transmit PDO mapped	1614741520	1622802464
1A00h	07h	7th transmit PDO mapped	0	1626603552
1A00h	08h	8th transmit PDO mapped	0	1627193376
3014h	00h	Position deviation excess setup	83886080	100000

3 Click “Save”, comparison result of the objects can be saved at a file.

Notes 1) Please refer to the manual of the driver or technical reference for details of each object's function and so on.
Notes 2) Even if objects are sent to the driver, objects are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver. Object modifications list are displayed on EEPROM writing. Please check the modification carefully.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) Some objects become valid after modifications to the new data, writing EEPROM, and power supply reset. (On inputting, that issue is displayed. Please refer to the manual of the driver or technical reference and confirm on the objects)
Notes 5) Object editor screen indication may be different from the actual object value of the driver in case PANATERM function windows which change the objects (ex. Trial Run, Pin Assign, Analog Input) is opened. In such case, press the reception button and update the object of the driver to the latest one.
Notes 6) If you cannot edit object value during the communication with driver, the driver may be in condition which is not rewritable.
In this case, please check "ESM Condition" is "INIT" and also the driver is in condition which is rewritable.
Notes 7) The object editor screen cannot open during opening some screens. For more information please refer to page 278 "Object editor screen behavior".

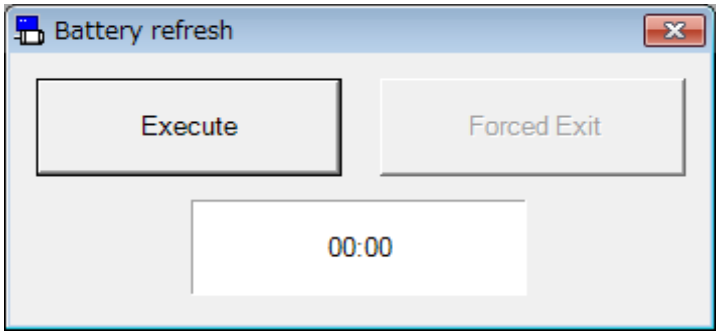
Battery Refresh screen

Will perform a battery forced discharge of the encoder.

Note) Battery refresh can be executed only by the corresponding encoder.
Please note that there is a possibility that the battery alarm occurs during the refresh operation.
Battery refresh cannot be performed through RS232 communication.

Open the Battery refresh window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Battery Refresh” of the tool bar on the main screen.
3 The Battery Refresh window is opened.



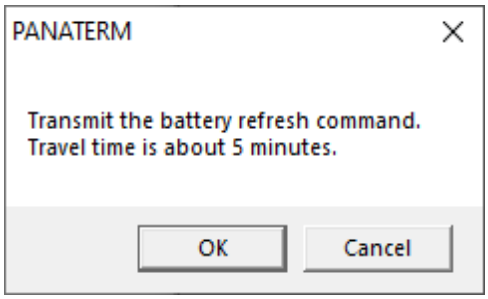
Close the Battery refresh window

Click of upright on the window

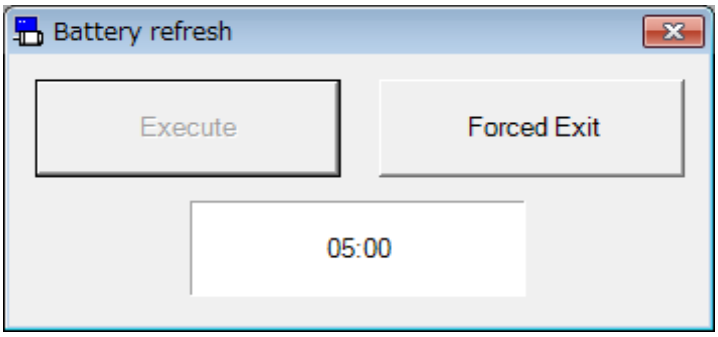
Procedure for Battery refresh

1 Click “Execute”.

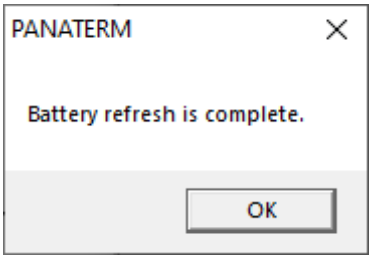
2 Confirmation dialog is displayed.
Click “OK” then Battery refresh is executed.



3 The remaining time is displayed as "05:00".
Will be gradually countdown.



4 When the remaining time reaches "00:00", the battery refresh is complete.



Interruption of Battery refresh

Click “Forced Exit” then exit forcibly battery refresh.

Notes 1) Remaining time of the countdown after the battery refresh execution, please note that after the end of the battery refresh screen is also continuing. Notes 2) The battery refresh screen cannot open during opening some screens. For more information please refer to page 279 “Battery refresh screen behavior”.

Block operation Editor screen

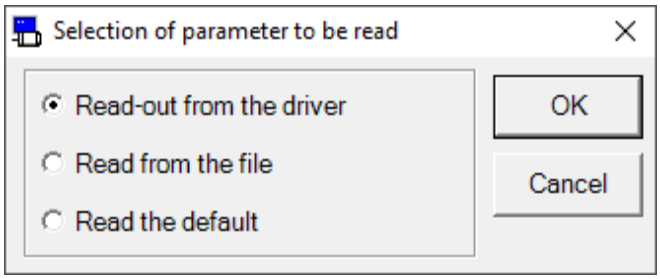
Realize easier block operation by displaying and editing the block operation and block parameter of the driver.

Note) Please modify parameters with enough care after reading the driver's instruction manual or technical reference carefully, as some parameters give large effect to operations of drivers or motors.
Block operation cannot be performed through RS232 communication.

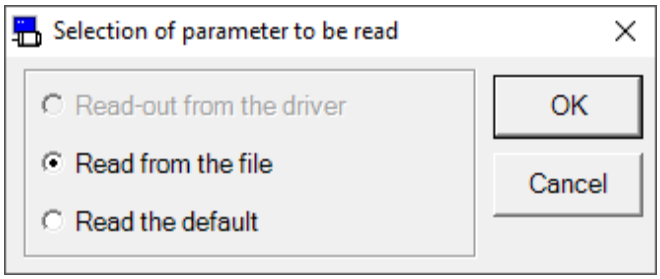
Open the Block operation Editor window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Block operation Editor” of the tool bar on the main screen.
3 Selection of parameter to be read window is displayed.

<When communication with driver>



<When not communication with driver>



4 Select the origin of parameters, and click.

□“Read - out from the driver”

The parameters set in the driver are read communicating the driver connected. If this mode is selected, modifications of the parameter values are reflected to the driver immediately.

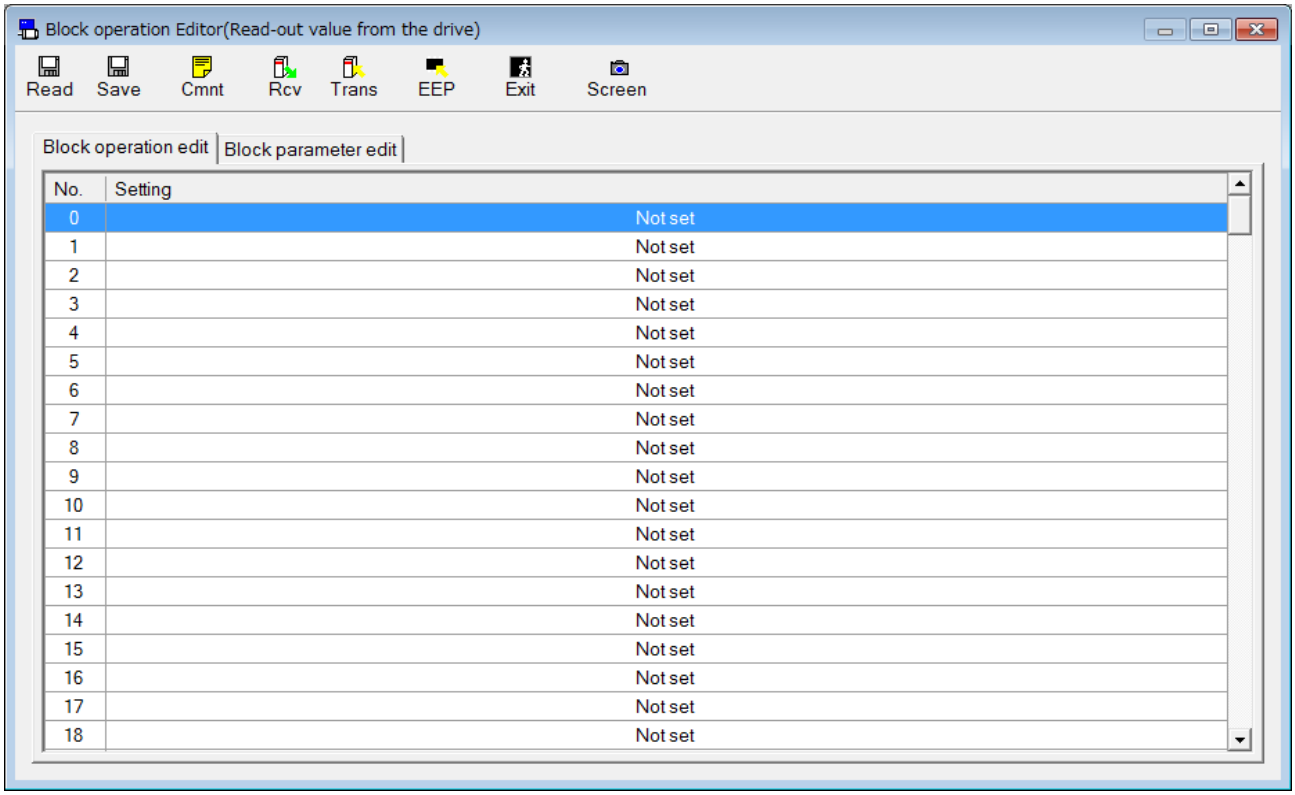
□“Read from the file”

Parameter files already edited (.obj5) are read. Parameter modifications are not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Read from the file”.

□“Read the default”

Default set values saved at the time of installation is read. The parameter modifications are not reflected unless “Transmit the parameter to the driver” is executed as the case of “Read from the file”.

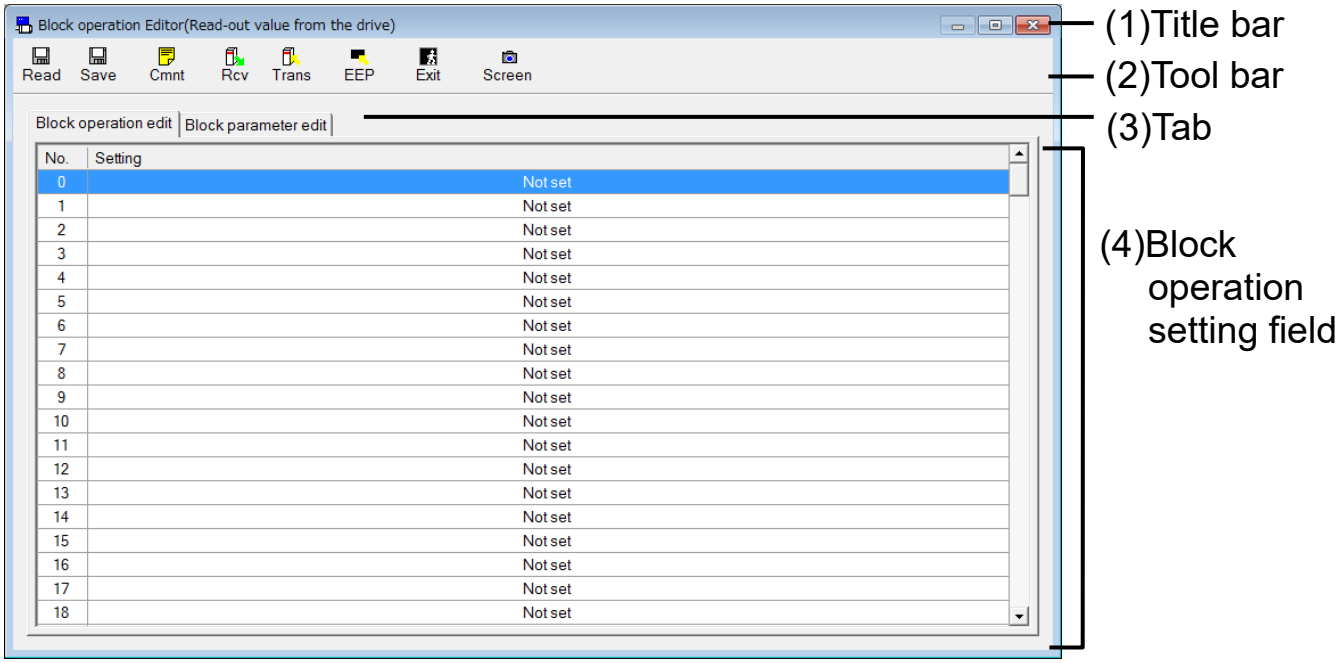
5 Click “OK”. The Block operation Editor window is opened.



Close the Block operation Editor window

Click Exit (Exit) on the tool bar.

Structure of Block operation editor screen



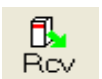
(1) Title bar

The origins of reference of parameters reference are displayed.
Following buttons are used to operate windows.

	Display the window in full screen.
	Close the window.

(2) Tool bar

Saving, reading, some other basic operation commands on parameters are listed.

	(Read)	Read parameters from files (.obj5). When this button is effective, a parameter file can be specified by drag and drop.
	(Save)	Write parameters to files (.obj5).
	(Comment)	Make comments attached to parameters files.
	(Receive)	Receive parameters from the driver.
	(Transmit)	Send parameters to the driver.
	(EEPROM)	Write parameters to EEPROM of the driver.

Exit	(Exit)	Close Block operation editor screen.
Screen	(Screen)	Capture the screen and save into a file.

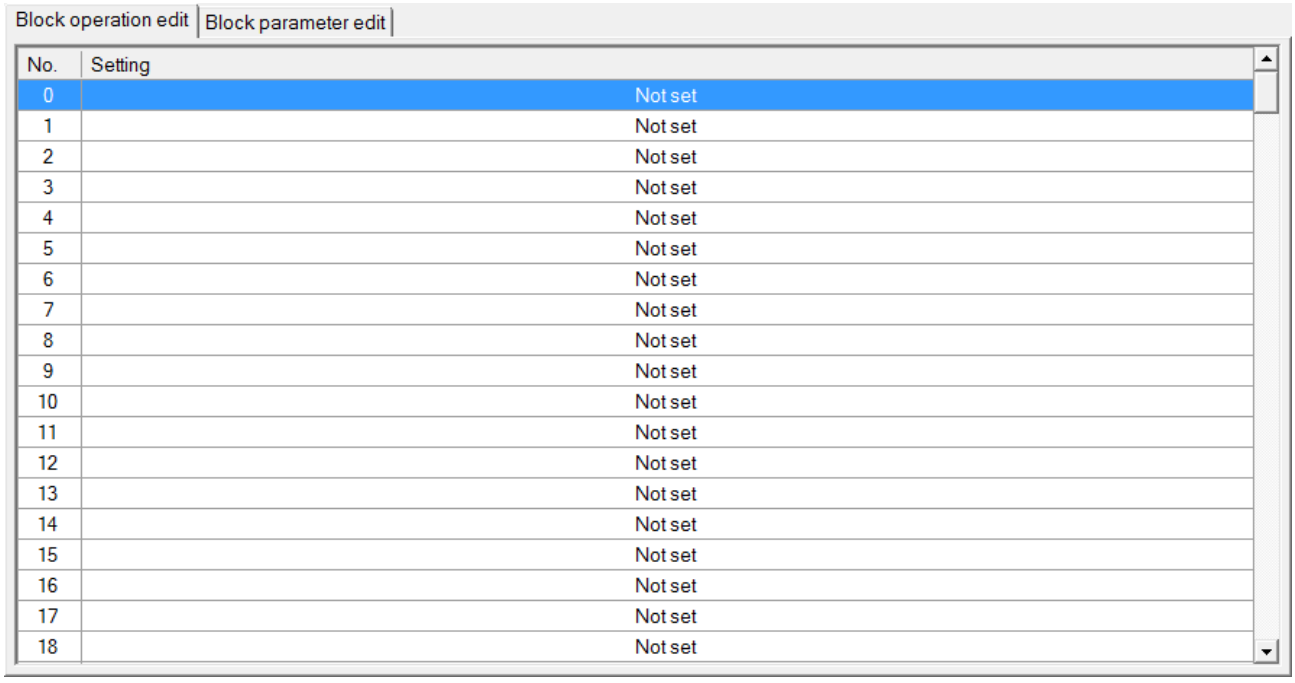
(3) Tab
Switch Block operation setting field display to “Block operation edit”, “Block parameter edit”.

(4) Block operation setting
Editing and setting of block operation command parameters and block operation parameter are available.

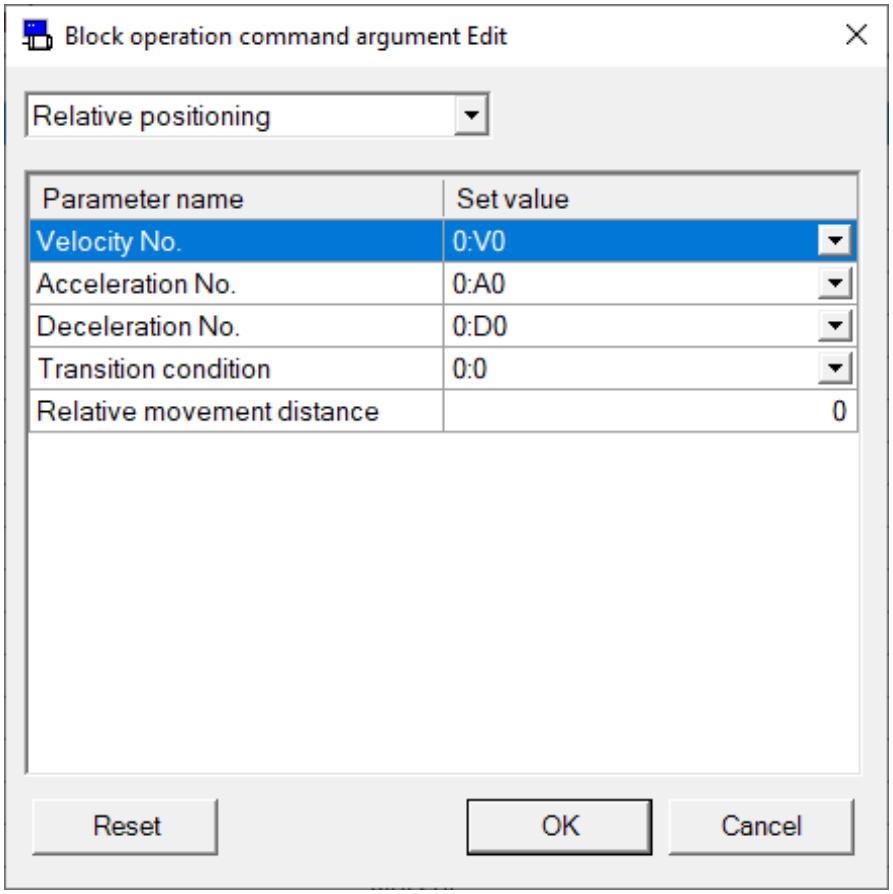
Setting method of Block operation command

1 Select the tab of “Block operation edit”.

* The settings row is displayed current block operation command. When block operation command is not set then, it is displayed “Not set”.
When the command cannot convert to block operation command then, it is displayed “Not defined command” or “Unusual command settings”.



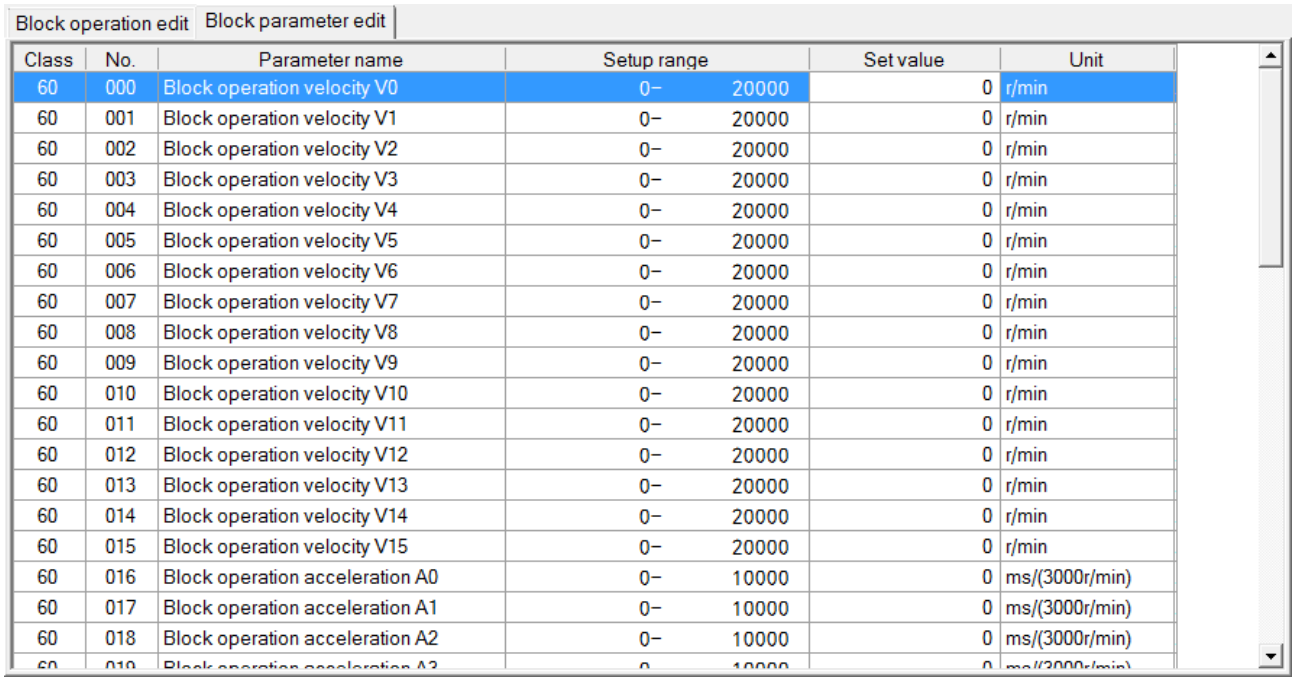
2 Double-click the block command row to want be set.
3 Block operation command argument Edit window is displayed.



4 Select the block operation command from the combo box, and please set each argument.
5 Click “OK”. Set the block operation command with the current settings.
Click “Reset”. Set the “Not set” and close this screen.
Click “Cancel”. Inactivate the change, and exit the screen.

Setting method of Block parameter

1 Select the tab of “Block parameter edit”.



Block operation edit | Block parameter edit

Class	No.	Parameter name	Setup range		Set value	Unit
60	000	Block operation velocity V0	0–	20000	0	r/min
60	001	Block operation velocity V1	0–	20000	0	r/min
60	002	Block operation velocity V2	0–	20000	0	r/min
60	003	Block operation velocity V3	0–	20000	0	r/min
60	004	Block operation velocity V4	0–	20000	0	r/min
60	005	Block operation velocity V5	0–	20000	0	r/min
60	006	Block operation velocity V6	0–	20000	0	r/min
60	007	Block operation velocity V7	0–	20000	0	r/min
60	008	Block operation velocity V8	0–	20000	0	r/min
60	009	Block operation velocity V9	0–	20000	0	r/min
60	010	Block operation velocity V10	0–	20000	0	r/min
60	011	Block operation velocity V11	0–	20000	0	r/min
60	012	Block operation velocity V12	0–	20000	0	r/min
60	013	Block operation velocity V13	0–	20000	0	r/min
60	014	Block operation velocity V14	0–	20000	0	r/min
60	015	Block operation velocity V15	0–	20000	0	r/min
60	016	Block operation acceleration A0	0–	10000	0	ms/(3000r/min)
60	017	Block operation acceleration A1	0–	10000	0	ms/(3000r/min)
60	018	Block operation acceleration A2	0–	10000	0	ms/(3000r/min)

2 Block parameter edit screen is displayed.

“Class” Parameter classifications are indicated.

“No.” Parameter numbers are indicated.

“Parameter name” Parameter names are indicated.

“Setup range” Maximum & minimum value of parameter setting is indicated.

“Set value” Parameter value. Its value can be modified.
Parameters with on the set values are set with the combo boxes. After selecting the values from the combo boxes, input the [ENTER] key.
Parameters without on the set values, are inputted with the number keys directly, or modified clicking and changing the values. To set the values, input the [ENTER] key
If the [ESC] key is inputted, the value is return to the original one.

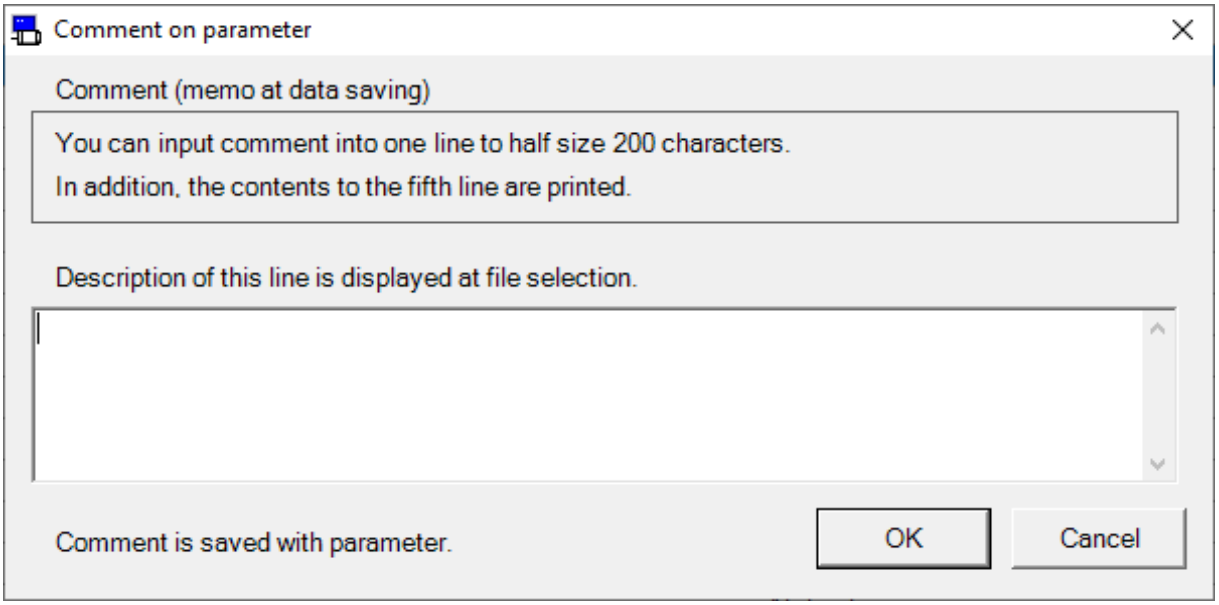
“Unit” Units of the parameter set values are indicated.

Comment

On saving set parameters in a file, comments can be saved together. These comments do not effect operations of the driver.

Making Comment

1 Click Cmnt (Comment) on the tool bar, and open the comment window.



2 Click comment box and input comments.
3 After completing comment input, click “OK”.

Notes 1) Please refer to the manual of the driver or technical reference for details of each parameter's function and so on.
Notes 2) Even if parameters are sent to the driver, parameters are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver. Parameter modifications list are displayed on EEPROM writing. Please check the modification carefully.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) Some parameters become valid after modifications to the new data, writing EEPROM, and power supply reset. (On inputting, that issue is displayed. Please refer to the manual of the driver or technical reference and confirm on the objective parameters)
Notes 5) The block operation editor screen cannot open during opening some screens. For more information please refer to page 279 "Block operation editor screen behavior".

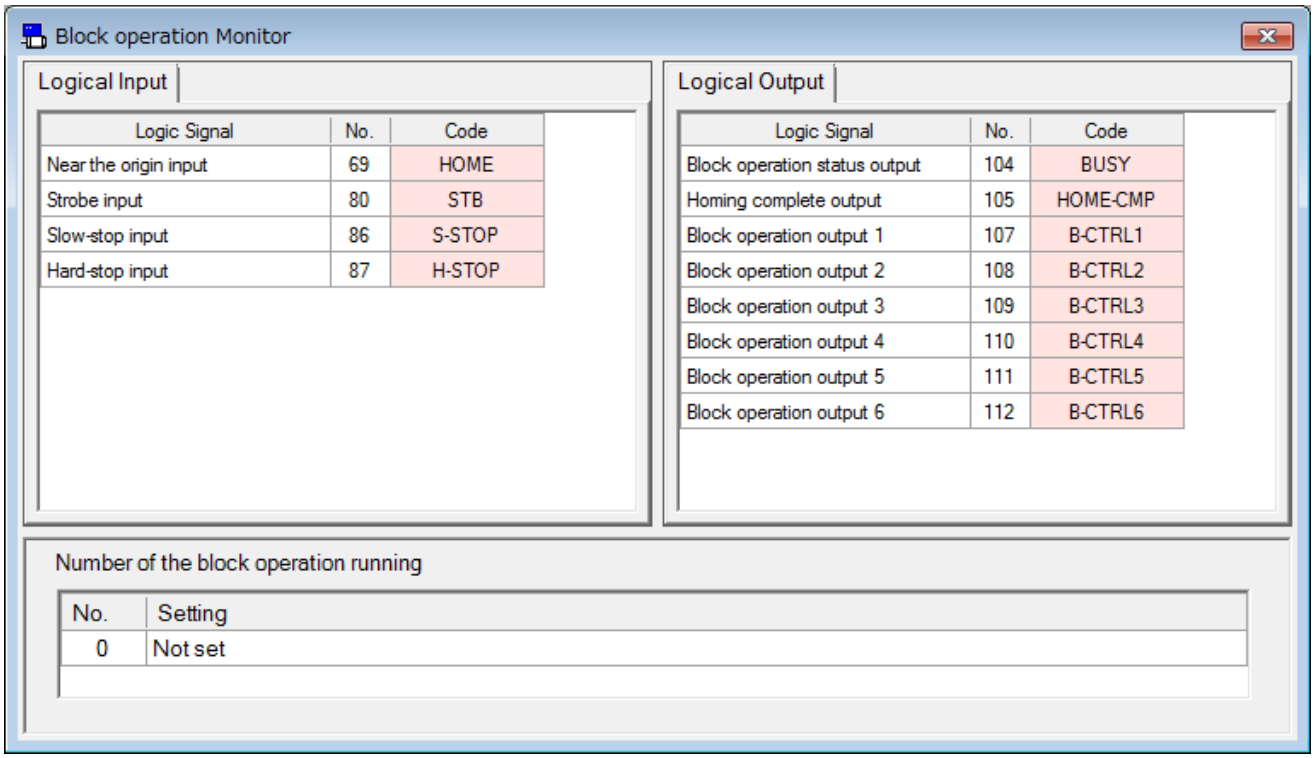
Block operation Monitor screen

You can display and check the execution status of the block operation.

Note) Block operation monitor cannot be performed through RS232 communication.

Open the Block operation Monitor window

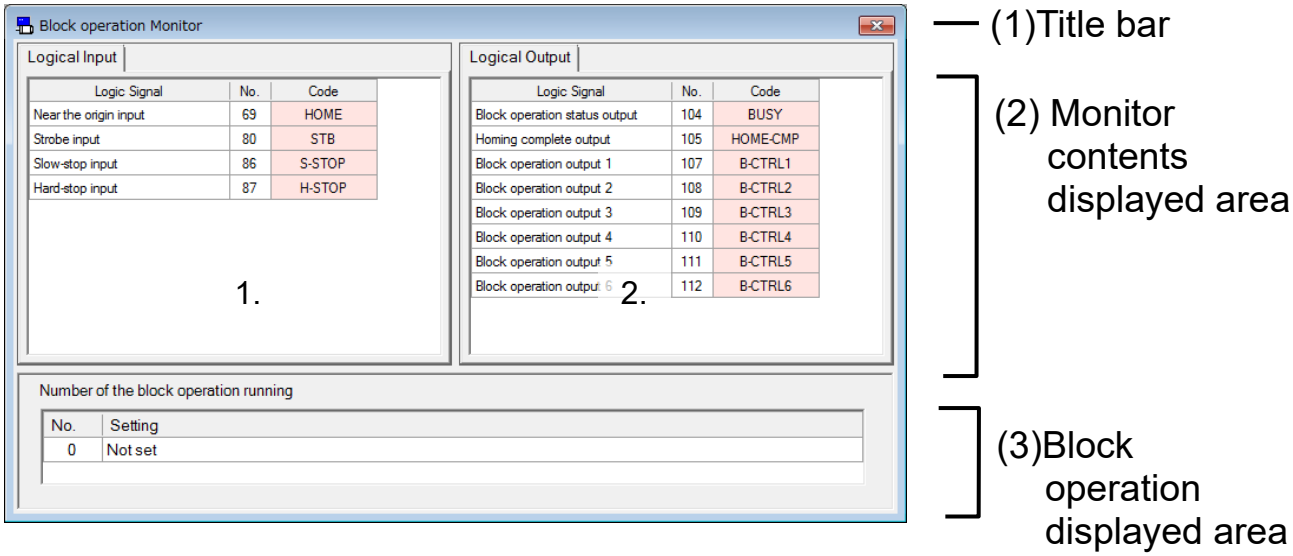
1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Block operation Monitor” of the tool bar on the main screen.
3 The Block operation Monitor window is opened.



Close the Block operation Monitor window

Click of upright on the window

Structure of Block operation monitor screen



(1) Title bar
You can operate window.

(2) Monitor contents displayed area
Display monitoring information.

1. Input signal conditions monitoring
   Display signal condition of input.
   Red : Active
   Pink: Inactive
2. Output signal condition monitoring
   Display Signal condition of output
   Red : Active
   Pink: Inactive

(3) Block operation displayed area
Display the number of the block operation running.

Notes 1) Using USB communication as data receipt between Driver and PC, there are accidental errors, delay of display value on the screen and actual driver value and recoded time.
Notes 2) If polarity is (+), (+) signal is not displayed.
Notes 3) Block operation monitoring function is not precious measurement instrument. Block operation monitoring display shall be used as rough estimate.
Notes 4) The block operation monitor screen cannot open during opening some screens. For more information please refer to page 280 “Block operation monitor screen behavior”.

Block operation Editor v2 screen

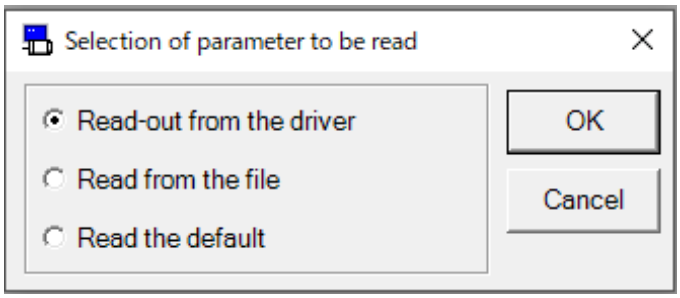
Realize easier block operation by displaying and editing the block operation and block parameter of the driver.

Note) Please modify parameters with enough care after reading the driver's instruction manual or technical reference carefully, as some parameters give large effect to operations of drivers or motors.
Note) Block operation Editor v2 cannot be performed through RS232 communication.

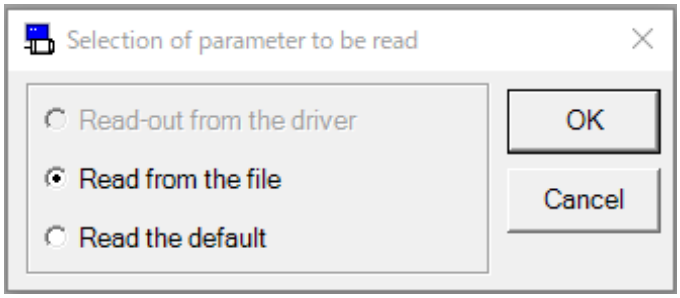
Open the Block operation Editor v2 window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Block operation Editor v2” of the tool bar on the main screen.
3 Selection of parameter to be read window is displayed.

<When communication with driver>



<When not communication with driver>



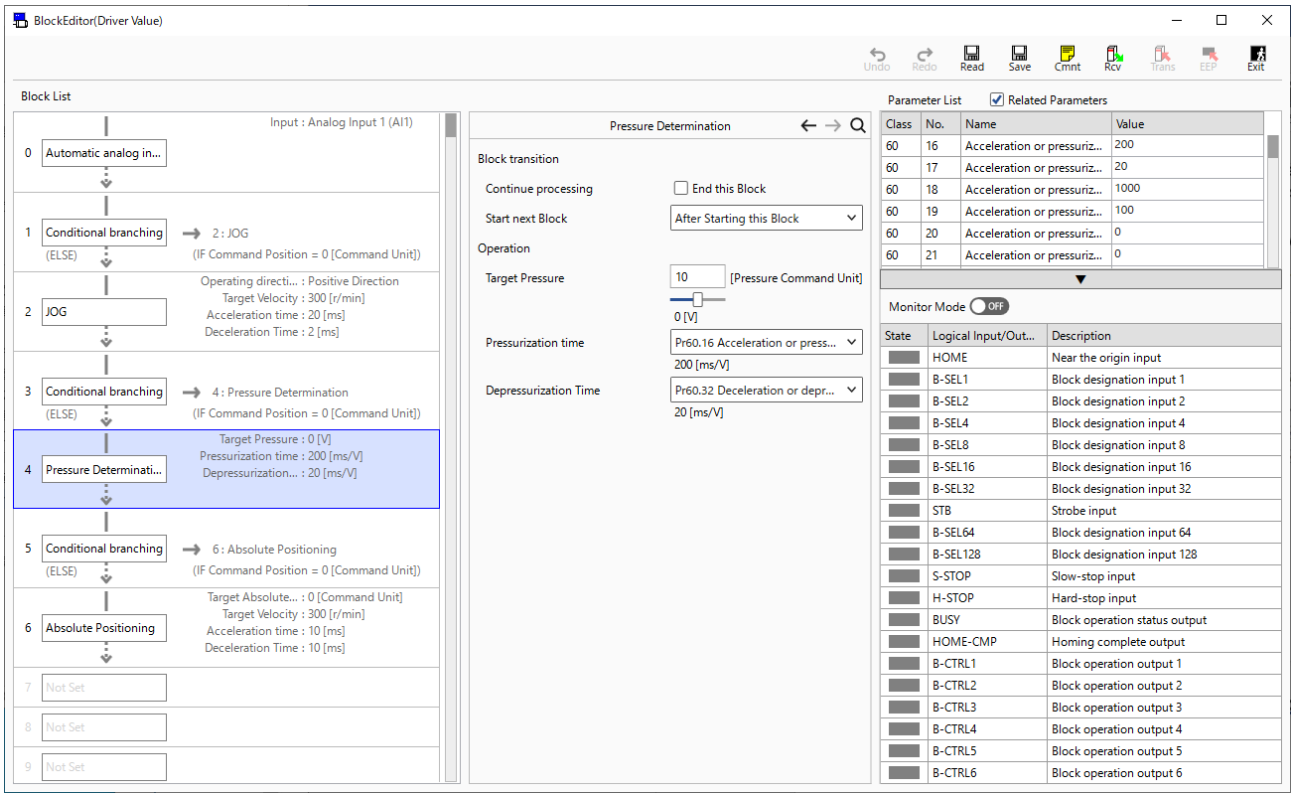
4 Select the origin of parameters, and click.

□ “Read - out from the driver”
The parameters set in the driver are read communicating the driver connected. If this mode is selected, modifications of the parameter values are reflected to the driver immediately.

□ “Read from the file”
Parameter files already edited (.obj5) are read. Parameter modifications are not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Read from the file”.

□ “Read the default”
Default set values saved at the time of installation is read. The parameter modifications are not reflected unless “Transmit the parameter to the driver” is executed as the case of “Read from the file”.

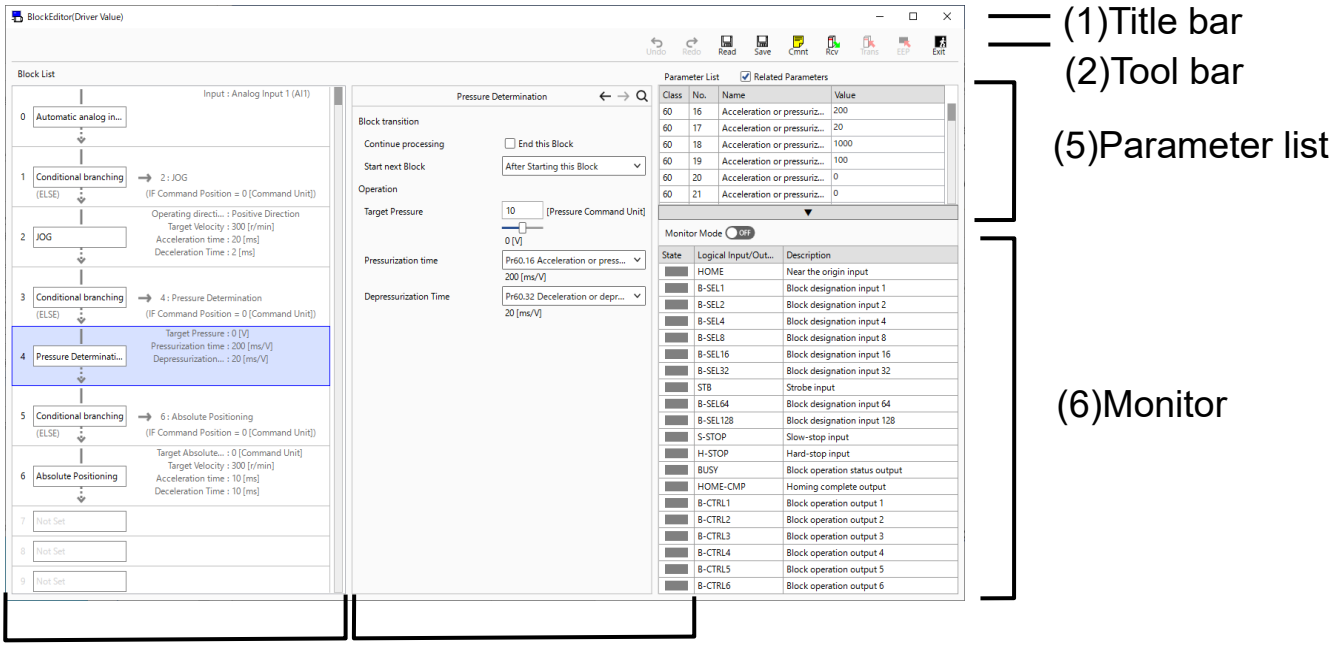
5 Click “OK”. The Block operation Editor v2 window is opened.



Close the Block operation Editor v2 window

Click Exit (Exit) on the tool bar.

Structure of Block operation editor v2 screen



(1) Title bar

You can operate window.

Following buttons are used to operate windows.

–	Minimize the window.
□	Display the window in full screen.
×	Close the window.

(2) Tool bar

Saving, reading, some other basic operation commands on parameters are listed.

Undo	(Undo)	Revert to the previous operation once. (Ctrl + Z)
Redo	(Redo)	Proceed to the previous operation once. (Ctrl + Y)
Read	(Read)	Read parameters from files (.obj5). When this button is enabled, parameters files can be specified by drag & drop.
Save	(Save)	Write parameters to files (.obj5).
Cmnt	(Cmnt)	Make comments attached to parameters files.
Rcv	(Rcv)	Receive parameters from the driver.
Trans	(Trans)	Send parameters to the driver.

	(EEP)	Write parameters to EEPROM of the driver.
	(Exit)	Close Block operation editor v2 screen.

(3) Block list

Display the currently configured Block list. When you select the block you want to edit, you can edit it in the block settings.

* Right click menu

Copy	Copy the selected block.
Paste	Paste the copied block.
Insert	Insert an unset block above the selected block.
Inserting Copied Block	Insert the copied block above the selected block.
Delete	Delete the selected block.

(4) Block settings

Edit the selected block in the block list.

(5) Parameter list

Set the parameters related to block operation.

(6) Monitor

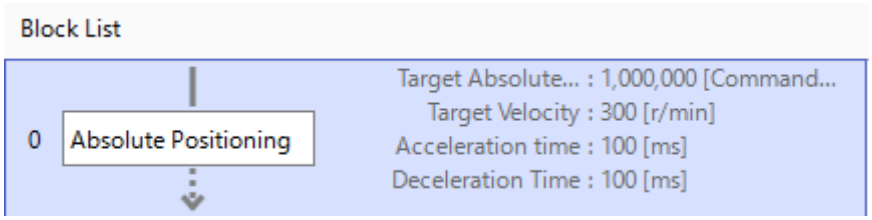
Monitor the currently executing block and the logic input/output signals required for block operation.

Keyboard shortcut

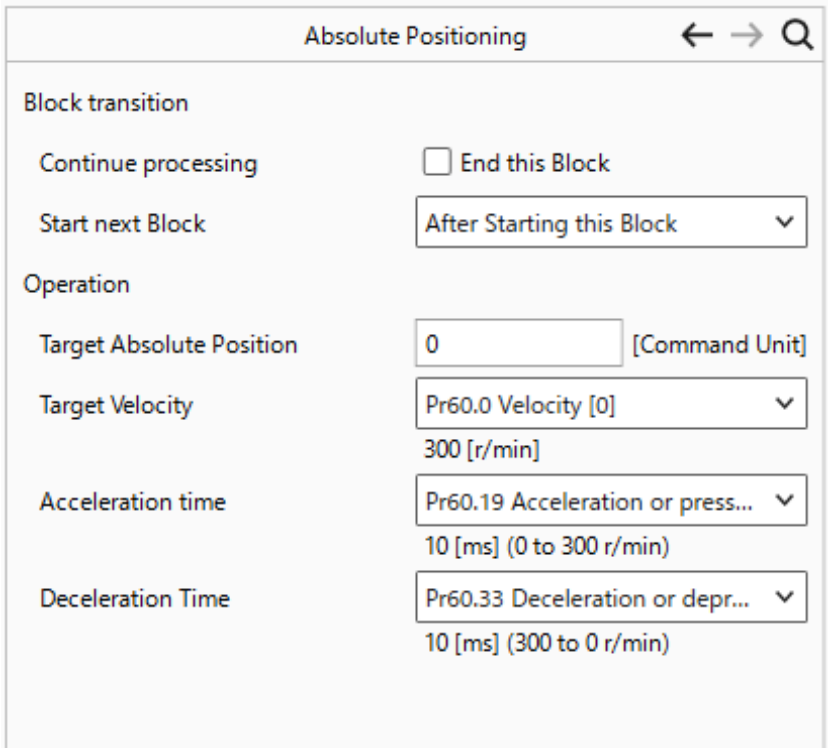
Key operation	Operation target	Operation details
F1	Block operation Editor v2 screen	View the manual.
Alt + F4	Each dialog	Exit the current dialog.
Ctrl + C	Block list	Copy selected block.
Ctrl + V	Block list	Paste copy block.
Del	Block list	Unset the selected block.
ESC	Block list	Release the copy state.
Click	Block list	Select a block.
Arrow keys	Block list	Move the selected block in the direction of the arrow key.
Home/End	Block list	Move the selected block to the beginning/end.
PgUp/PgDn	Block list	Move the selected block forward/back one page.
Shift + Arrow keys	Block list	Select multiple blocks in the direction of the arrow keys.
Shift + Home/End	Block list	Multi-select blocks to the beginning/end.
Shift + PgUp/PgDn	Block list	Multi-select blocks one page ahead/previous.
Shift + Click	Block list	Multi-select up to the block you clicked.
Ctrl + A	Block list	Select all blocks.
Ctrl + Arrow keys	Block list	Move the focus in the direction of the arrow key while keeping the selection block.
Ctrl + Space	Block list	Select focused block. Deselect if already selected.
Ctrl + Click	Block list	Selects the clicked block. Deselect if already selected.

Setting method of Block operation command

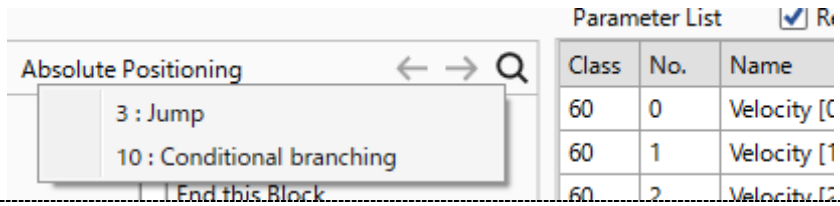
Select the block you want to change from the block list.



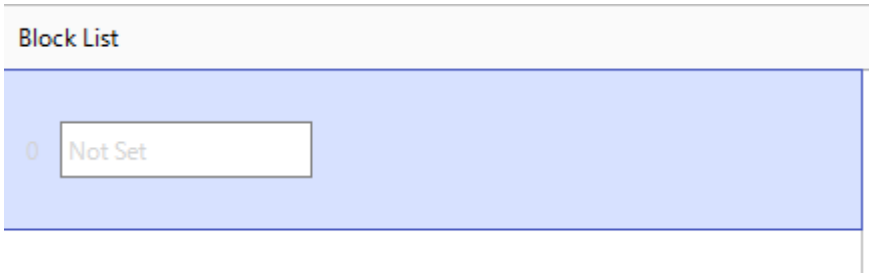
The block command selected in the block list is displayed. Change to any settings.



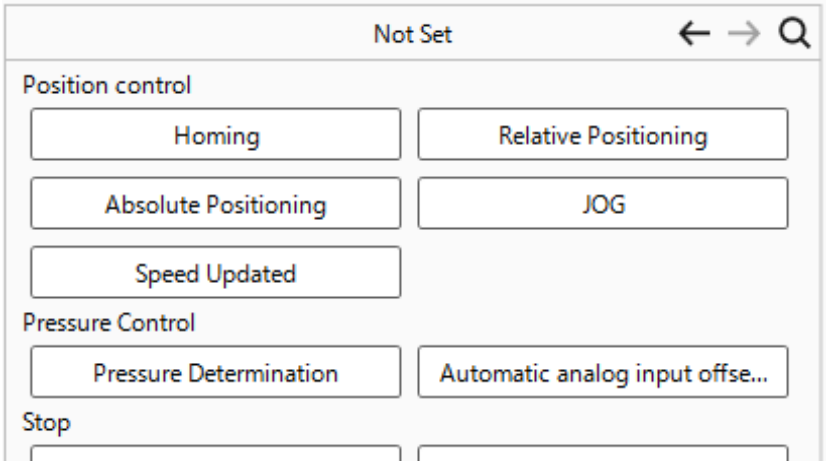
Move selected block

←	“Return”	Move to the previous selected block.
→	“Move on”	Move to the next selected block.
🔍	“Transition to referrer”	List referencing blocks. Move to the selected block in the list. 

* Not set is selected

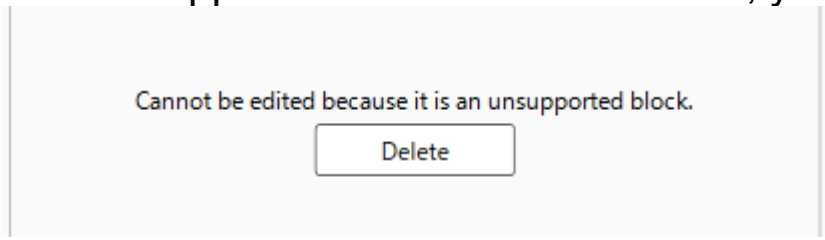


A list of configurable block command buttons is displayed. Select the block you want to use.



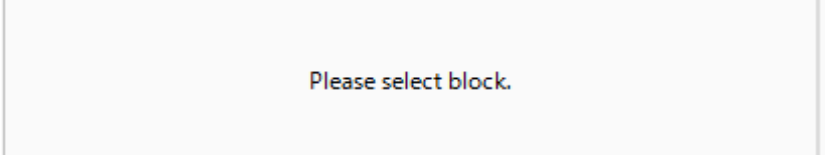
* Unsupported command is selected

If an unsupported command is selected, you can only delete it.



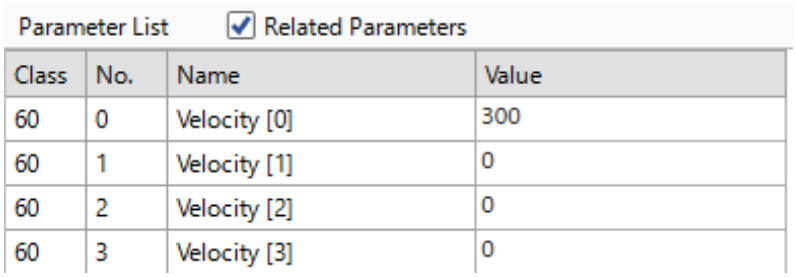
* If no block is selected

If you have not selected a block, please select a block.



Setting method of Block parameter

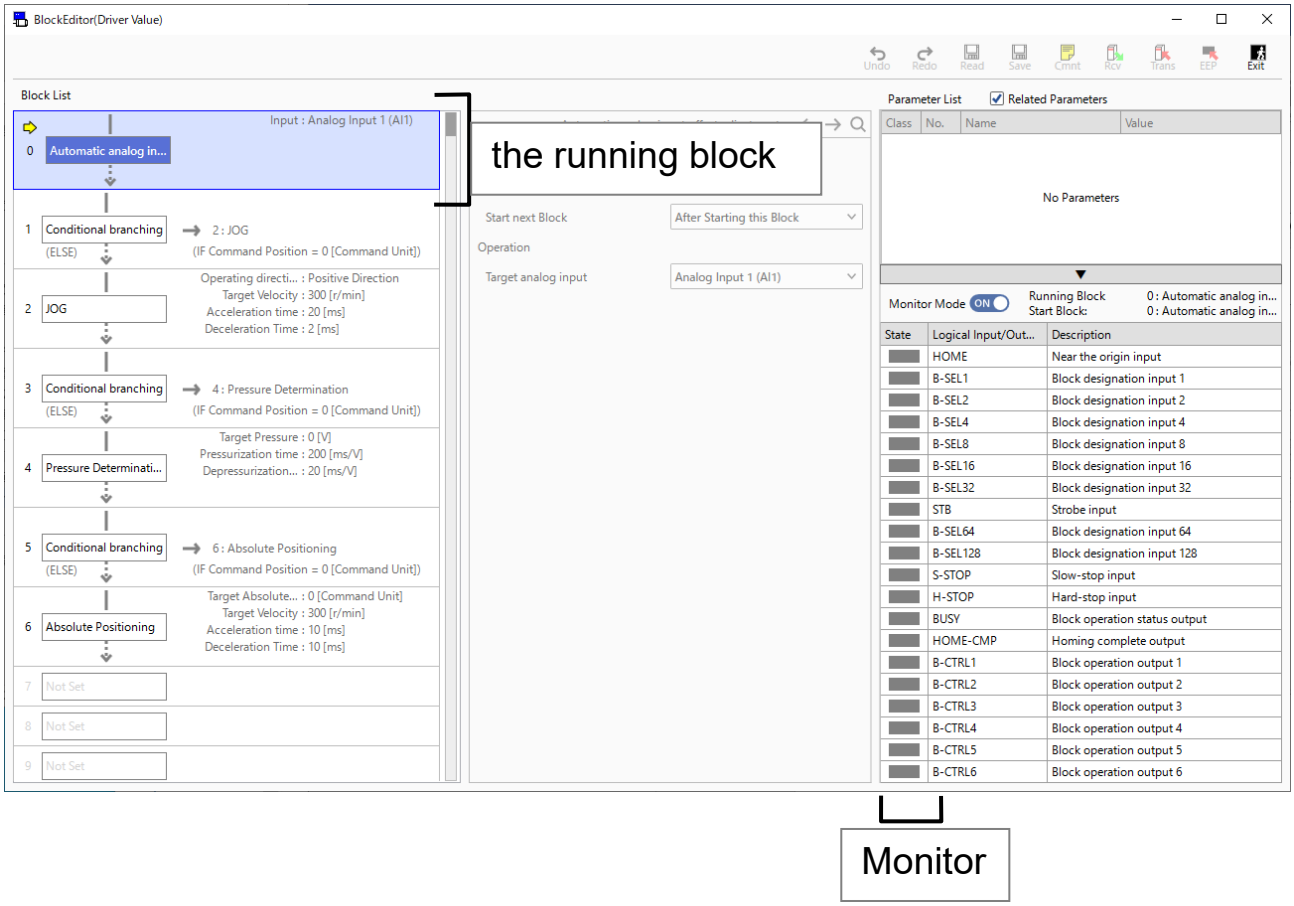
From the parameter list, you can change the setting value of the parameter you want to set. If you check "Related parameters", only the parameters related to the selected block will be displayed.



“Class”	Parameter classifications are indicated.
“No.”	Parameter numbers are indicated.
“Name”	Parameter names are indicated.
“Value”	Parameter value. You can enter a value or select it from a combo box. Placing the mouse pointer over an item displays the effective range of that item.

Using method of Monitor

When the monitor mode is ON, the running block is highlighted in the operation block list. It can also monitor the current logic input and output signals.



* The status is shown below:

	ON
	OFF

* The monitor mode can be turned on only when communicating with the driver.

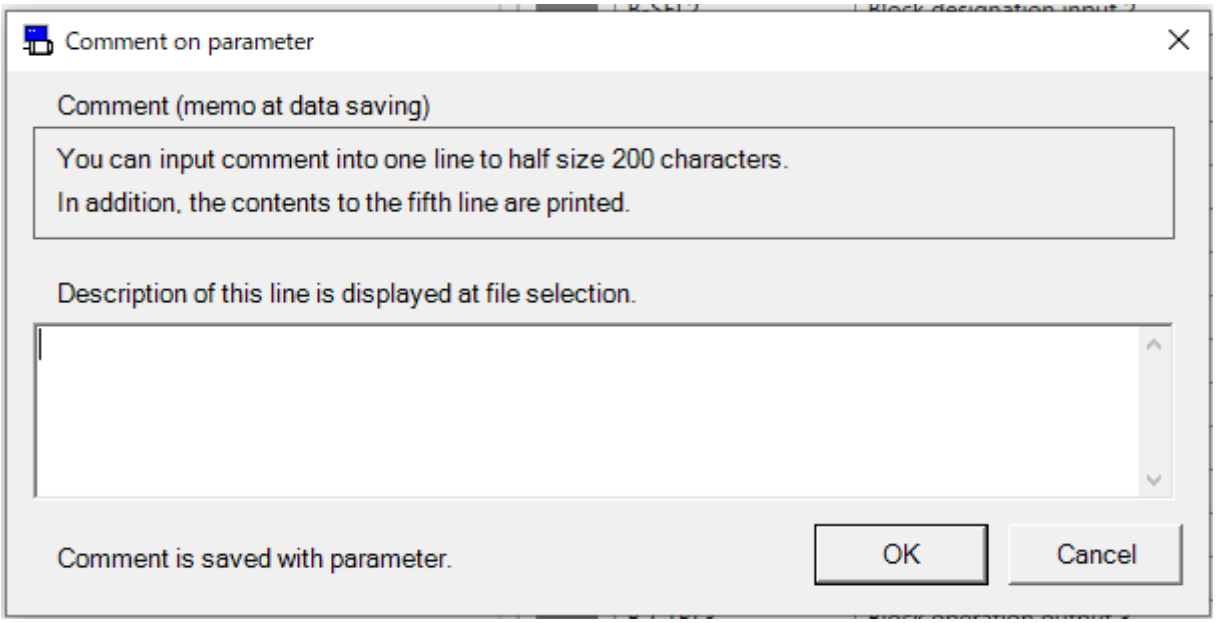
* When the monitor mode is ON, block commands, setting block parameters, and some toolbar operations, etc. cannot be executed.

Comment

On saving set parameters in a file, comments can be saved together. These comments do not effect operations of the driver.

Making Comment

1 Click Cmnt (Comment) on the tool bar, and open the comment window.



2 Click comment box and input comments.
3 After completing comment input, click “OK”.

Notes 1) Please refer to the manual of the driver or technical reference for details of each parameter’s function and so on.
Notes 2) Even if parameters are sent to the driver, parameters are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) Some parameters become valid after modifications to the new data, writing EEPROM, and power supply reset.
Notes 5) The block operation editor v2 screen cannot open during opening some screens. For more information please refer to page 280 “Block operation editor v2 screen behavior”.

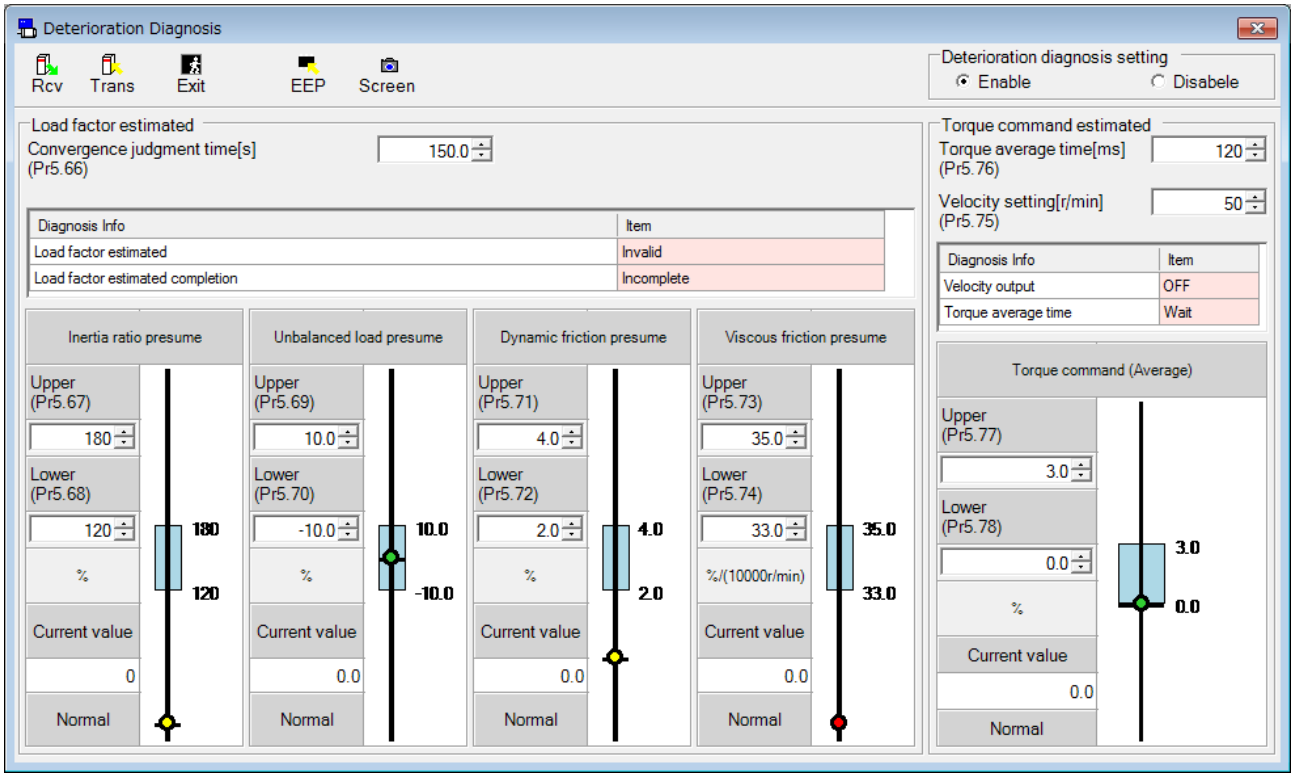
Deterioration diagnosis screen

You can display and check the deterioration and aging state of the equipment from the detection apparatus capable of information by the motor.

Note) Deterioration diagnosis cannot be performed through RS232 communication.

Open the Deterioration diagnosis window

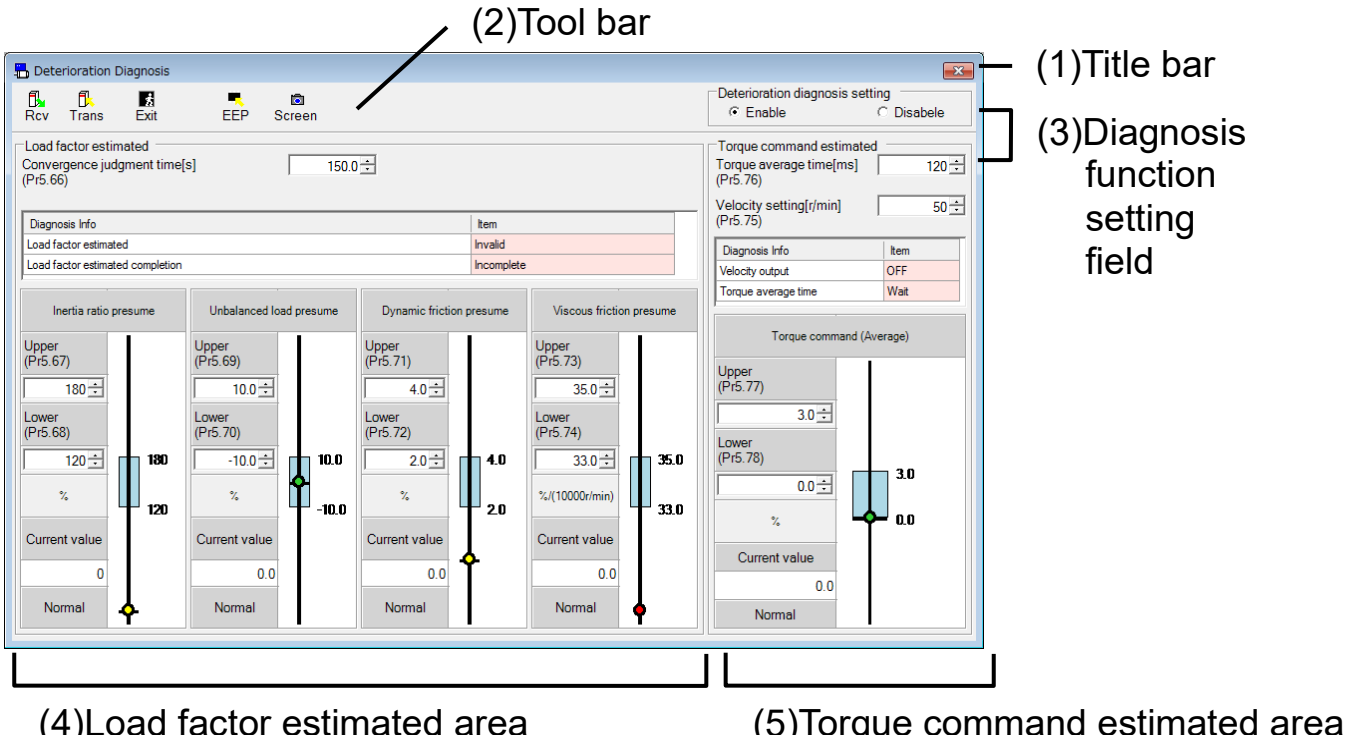
1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Deterioration diagnosis” of the tool bar on the main screen.
3 The Deterioration diagnosis window is opened.



Close the Deterioration diagnosis window

Click Exit (Exit) on the tool bar.

Structure of Deterioration diagnosis screen

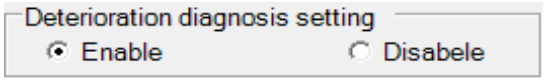


(1) Title bar
You can operate window.

(2) Tool bar
Receiving, transmitting, some other basic operation commands on parameters are listed.

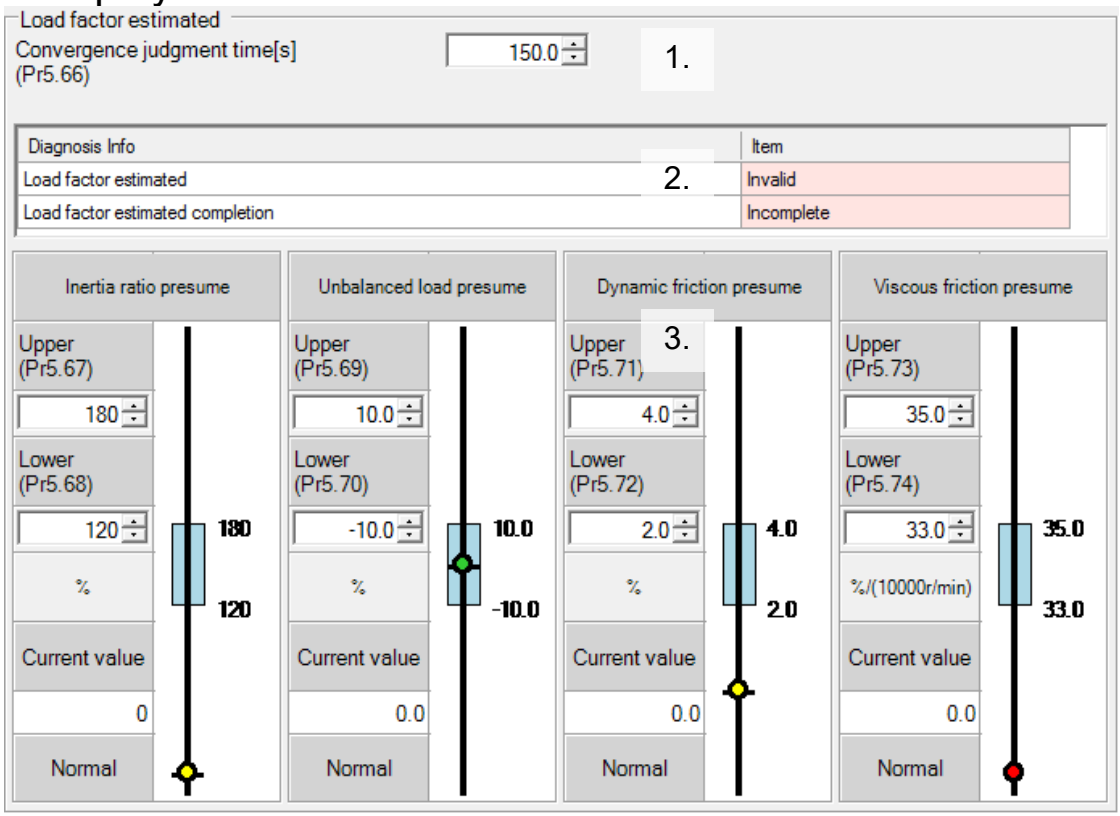
Rcv	(Receive)	Receives parameters from the driver.
Trans	(Transmit)	Sends parameters to the driver.
Exit	(Exit)	Closes parameter screen.
EEP	(EEPROM)	Write parameters to EEPROM of the driver.
Screen	(Screen)	Captures the screen and save into a file.

(3) Diagnosis function setting field
To enable / disable the deterioration diagnosis function.
When the screen is displayed, it is set to the current state of the driver.



Enabled : Deterioration diagnosis function is enabled.
Disabled : Deterioration diagnosis function is disabled.

(4) Load factor estimated area
It displays the estimated information about the load characteristics.



1. Estimated information setting
Set the estimated condition of the load factor estimation.
"Convergence judgment time"
Sets time for deemed convergence of real-time auto tuning load characteristics estimate.

2. Diagnosis information Monitor
Display the diagnostic status of the load characteristics estimation.
"Load factor estimated"
Display the load factor estimated of real time auto tuning indicates whether valid.

“Load factor estimated completion”
If load factor estimate is valid and it was possible that the data necessary to estimate is to get more than convergence determination time, will be completed.

3. Diagnostic slider
Display the slider that indicates the diagnostic state of deterioration diagnostic information related to the load factor.

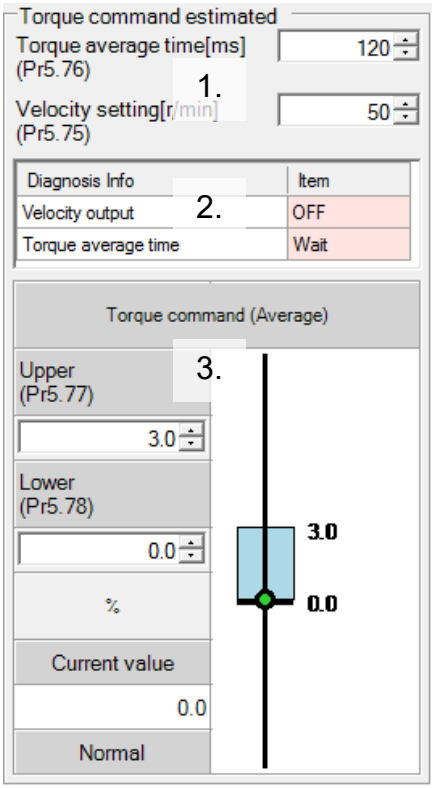
“Inertia ratio presume”
Display the diagnostic state of inertia ratio.

“Unbalanced load presume”
Display the diagnostic state of unbalanced load.

“Dynamic friction presume”
Display the diagnostic state of dynamic friction.

“Viscous friction presume”
Display the diagnostic state of viscous friction.

(5) Torque command estimated area
It displays the estimated information about the torque command.



1. Estimated information setting

Set the estimated condition of the torque command estimation.

“Torque average time”

Sets time required to compute the torque command average (weighted frequency).

“Velocity setting”

Sets deterioration diagnosis velocity output (V-DIAG).

2. Diagnosis information Monitor

Display the diagnostic status of the torque command estimation.

“Velocity output”

It turned on when the motor speed matches the velocity setting.

“Torque average time”

It will be completed when the velocity output is on and has passed more than the torque average time.

3. Diagnostic slider

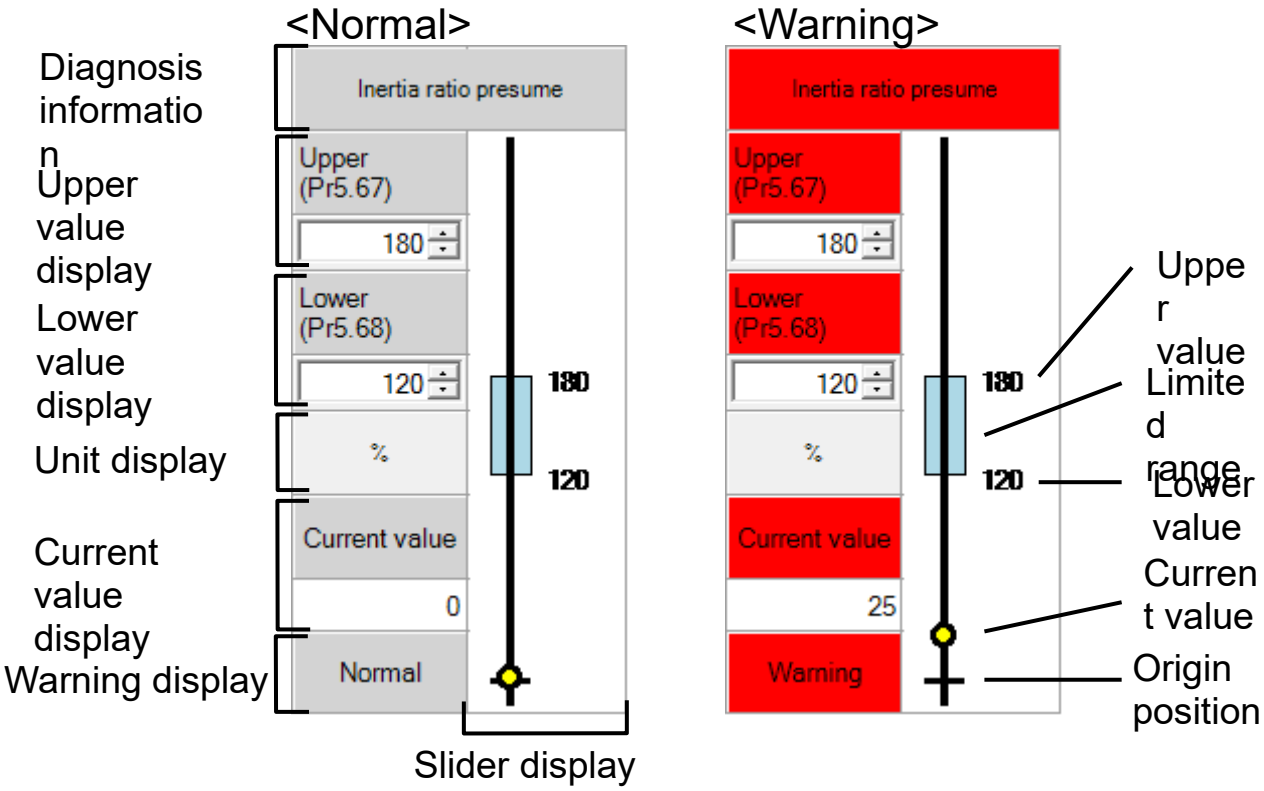
Display the slider that indicates the diagnostic state of deterioration diagnostic information related to the torque command.

“Torque command (Average)”

Display the diagnostic state of torque command (average).

Structure of Diagnostic slider

Diagnostic slider is composed of the following elements.
Warning during the occurrence of the deterioration diagnostic information of interest, background color as a warning display is displayed in red.



(Diagnosis information)	Display the name of diagnosis information.
(Upper value display) (Lower value display)	Set upper limit and lower limit of diagnosis information. Upper values and Lower values, are inputted with the number keys directly, or modified clicking and changing the values from each setting area. To set the values, input the [ENTER] key or click Trans (Transmit) on Toolbar.
(Unit display)	Display the unit of diagnosis information.
(Current value display)	Display the current value of diagnostic information acquired from the driver.
(Warning display)	Display the occurrence of deterioration diagnosis warning.
(Slider display)	Display estimation result of diagnosis information with slider. The drawing range of the slider changes according to the setting of the upper limit value and lower limit value.

Current value	Display the current value of diagnostic information with ○. In the limit range :Displayed as 🟢 Out the limit range :Displayed as 🟡 Out the drawing range :Displayed as 🔴
Upper value	Display the upper limit value of diagnostic information. If lower limit value ≧ upper limit value then, it not displayed.
Lower value	Display the lower limit value of diagnostic information. If lower limit value ≧ upper limit value then, it not displayed.
Limited range	Display the limit range by the upper limit value and lower limit value. If deterioration diagnosis function is enabled and the current value exceeds the limit range, diagnosis warning will be generated. If lower limit value ≧ upper limit value then, it not displayed.
Origin position	Display the position of the current value = 0. It is not displayed when there is no 0 position within the drawing area.

Notes 1) Please refer to the manual of the driver or technical reference for details of each parameter's function and so on.
Notes 2) Even if parameters are sent to the driver, parameters are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver. Parameter modifications list are displayed on EEPROM writing. Please check the modification carefully.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) The deterioration diagnosis screen cannot open during opening some screens. For more information please refer to page 281 "Deterioration diagnosis screen behavior".

RTEX Setup screen

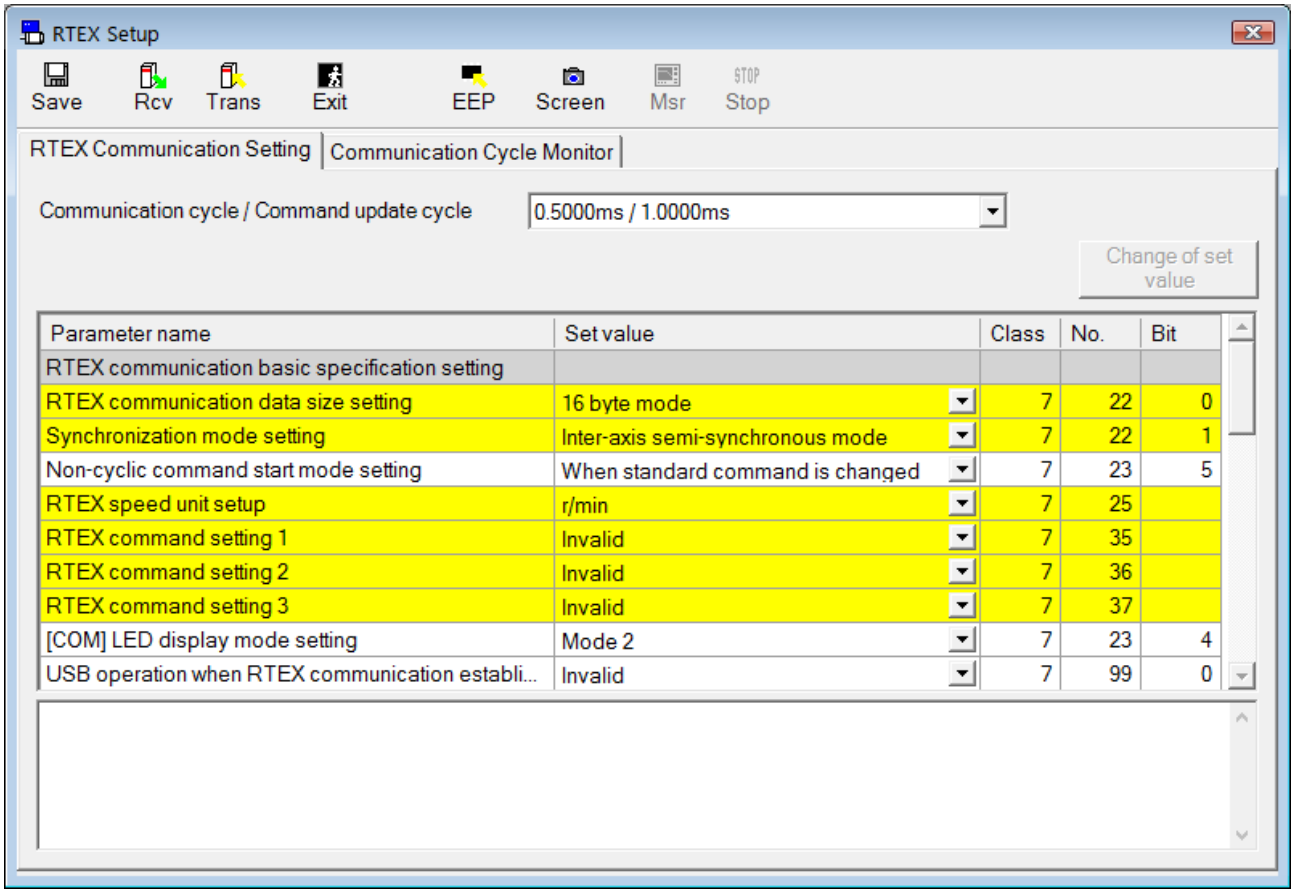
Set the RTEX communication between the driver and the host device.

Note) RTEX Setup cannot be performed through RS232 communication.

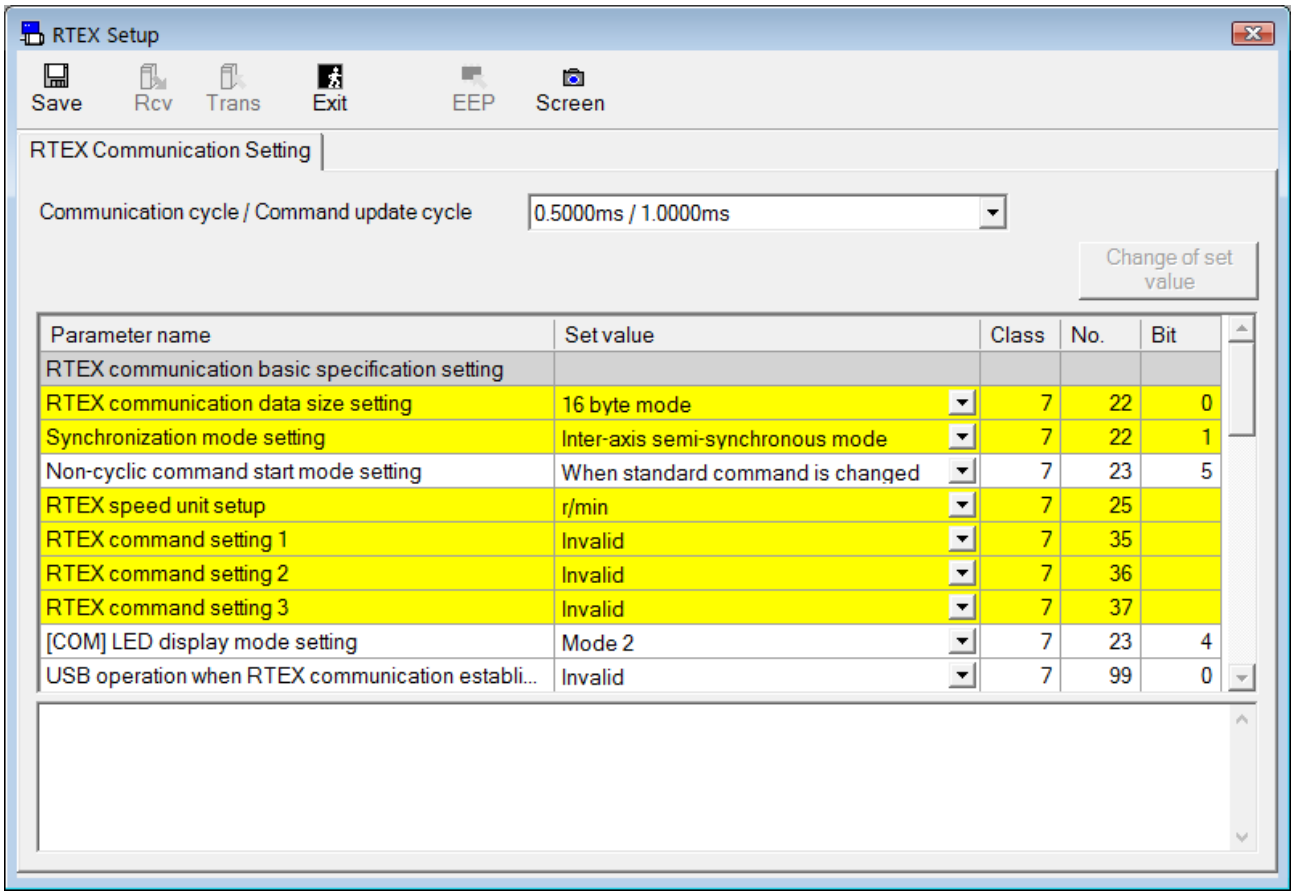
Open the RTEX Communication Setting window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “RTEX Setup” of the tool bar on the main screen.
3 When not communicating with driver, the selection screen of a parameter is displayed. Please choose the parameter file to edit.
4 The RTEX Setup window is opened.

<When communication with driver>



<When not communication with driver>

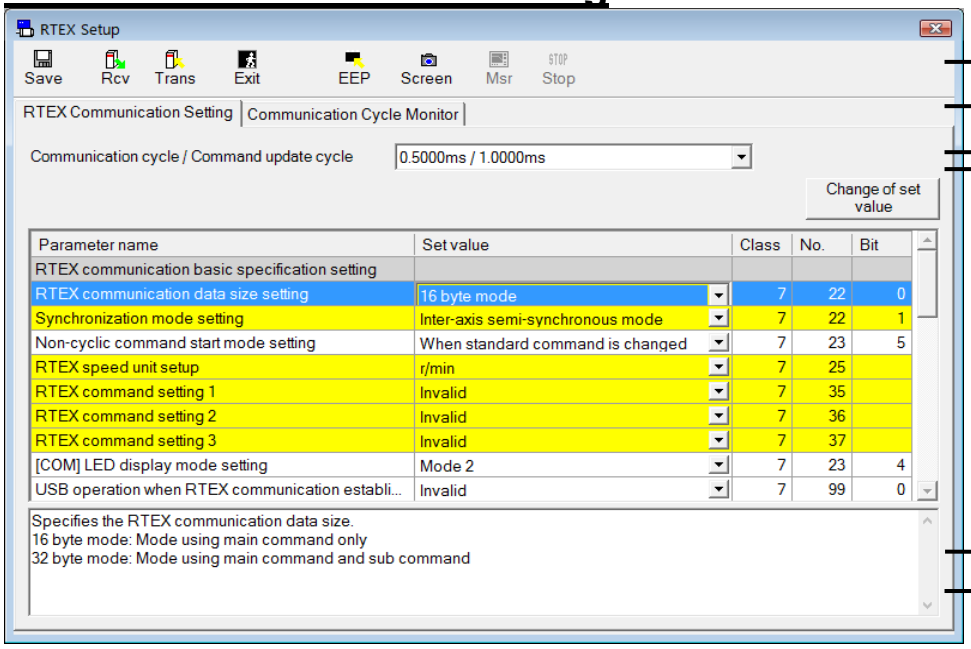


Close the RTEX Communication Setting window

Click Exit (Exit) on the tool bar.

Structure of RTEX Setup screen

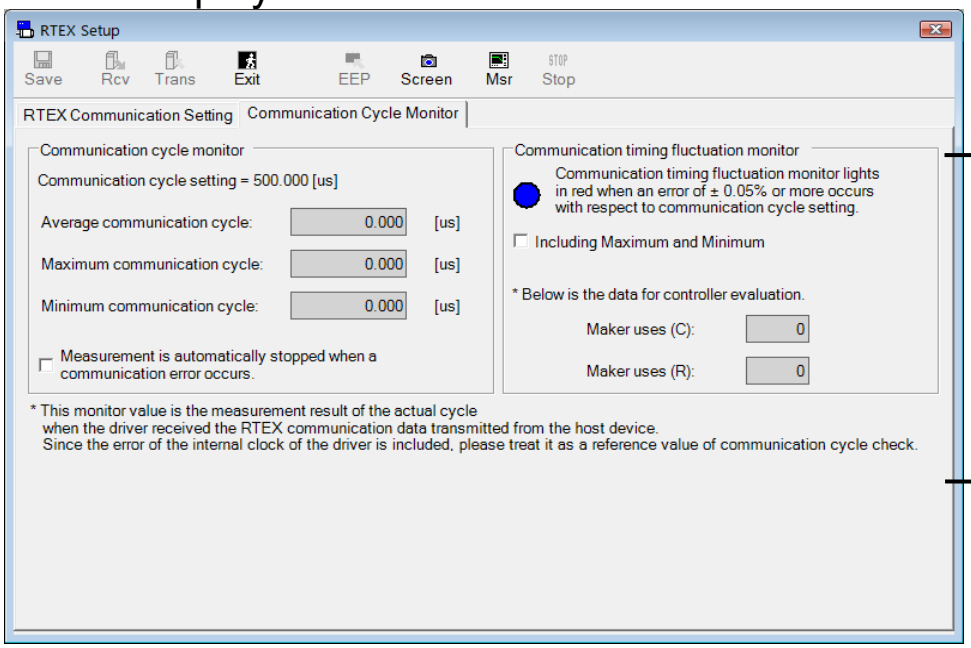
RTEX Communication Setting



(1) Title bar
(2) Tool bar
(3) Tab
(4) Parameter setting field
(5) Text indication box

Communication Cycle Monitor

This is displayed when communication with driver only.



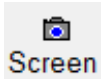
(6) Monitoring Contents display area

(1) Title bar　You can operate this window.

(2) Tool bar

(Save)　Moves to the parameter screen.

(Receive)　Receives parameters from the driver.

	(Transmit)	Sends parameters to the driver.
	(Exit)	Closes RTEX Setup screen.
	(EEPROM)	Write parameters to EEPROM of the driver.
	(Screen)	Capture the screen and record the file
	(Measurement)	Starts the communication cycle measurement/re-measurement.
	(Stop)	Stops the communication cycle measurement.

(3) Tab

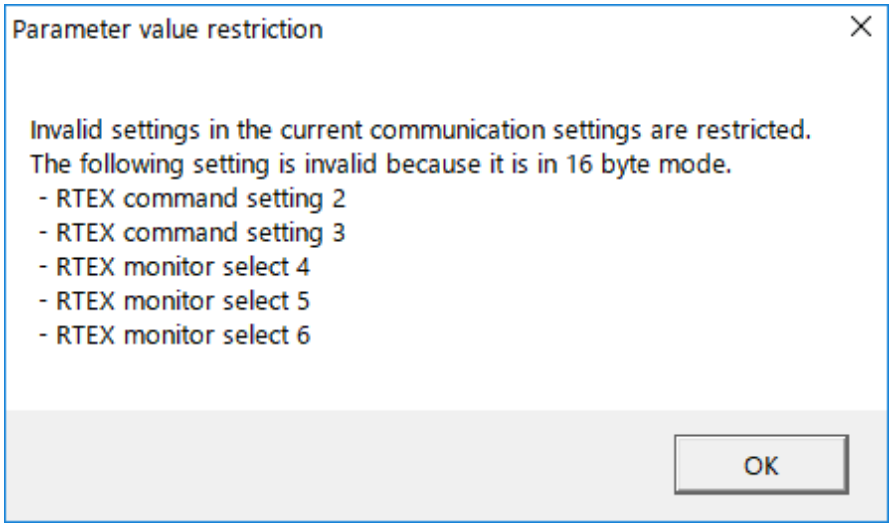
Switch the display of “RTEX Communication Setting” and “Communication Cycle Monitor”

(4) Parameter setting field

Editing and setting of parameters are available.

“Communication cycle / Command update cycle”	This parameter sets the communication cycle and the command update cycle of the driver. You can set the communication cycle and the command update cycle by changing this parameter.
“Parameter name”	Parameter names are indicated.
“Set value”	Parameter value. Its value can be modified. For a parameter value represented by a button, press the button to set the parameter. Parameters with  on the set values are set with the combo boxes. After selecting the values from the combo boxes, input the [ENTER] key or click  (modification of set value). Parameters without  on the set values, are inputted with the number keys directly, or modified clicking  and changing the values. To set the values, input the [ENTER] key or click  (modification of set value). If the [ESC] key is inputted, the value is return to the original one.
“Class”	Parameter classifications are indicated.
“No.”	Parameter numbers are indicated.
“Bit"	Displays the relevant bit.

* When you are editing parameters, if there are parameter settings invalid for the current communication setting, the following dialog box appears with the reasons for restriction and the list of parameters.



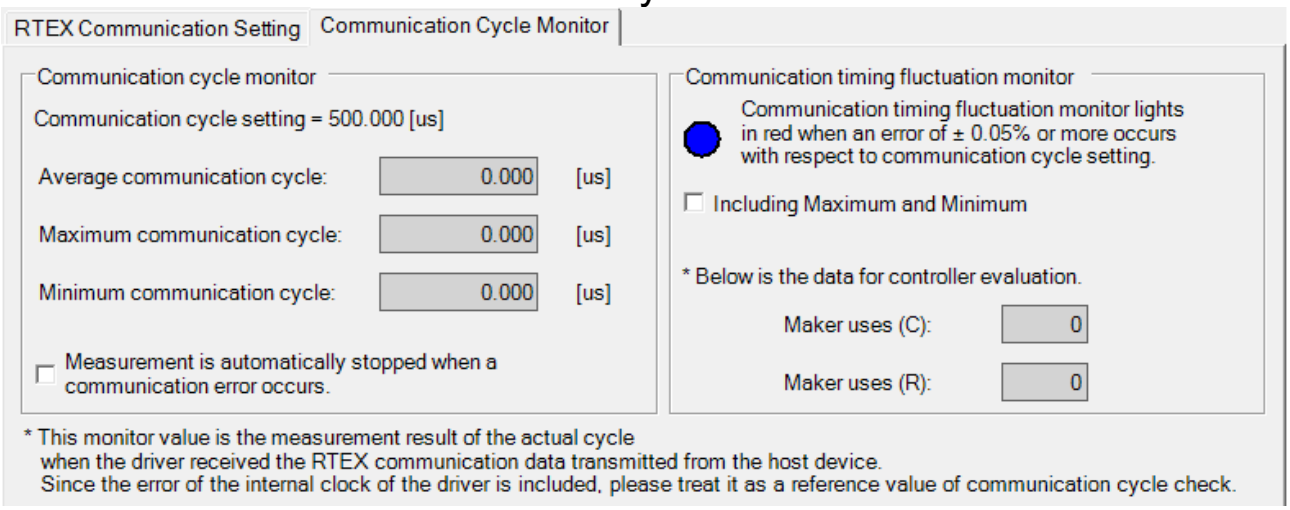
(5) Text indication box
Explanations regarding selected parameters.

(6) Monitoring Contents display area
This area displays the real-cycle representation of the measurement results of the RTEX communication data that the driver received from the host device.

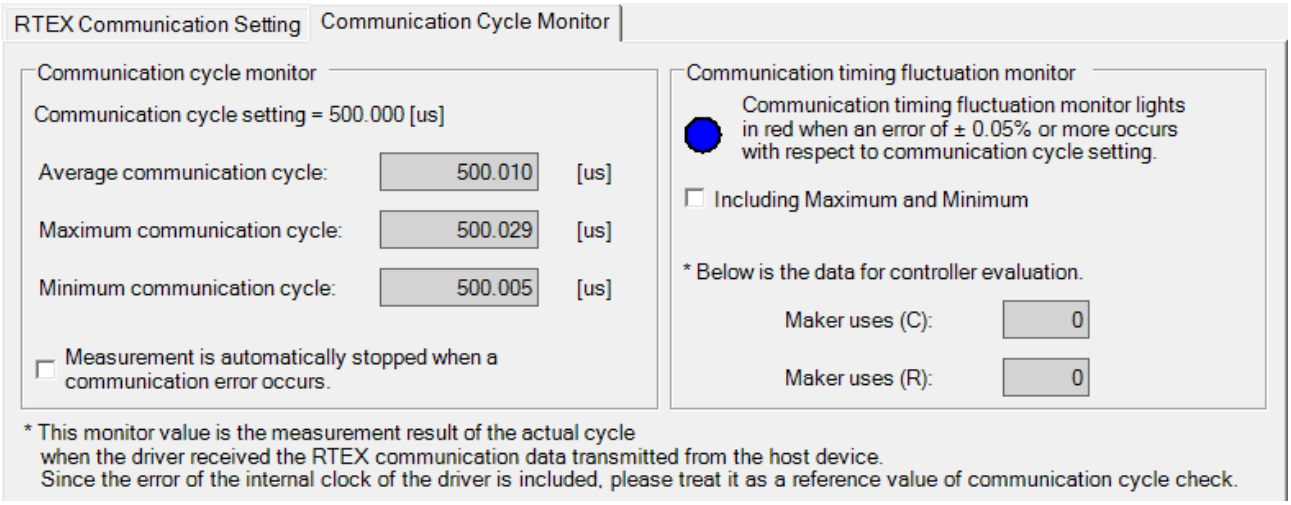
* Use the values to check the communication intervals just for reference because they include internal clock errors of the driver.

How to monitor the communication status

1 Select a tab of “Communication Cycle Monitor”.

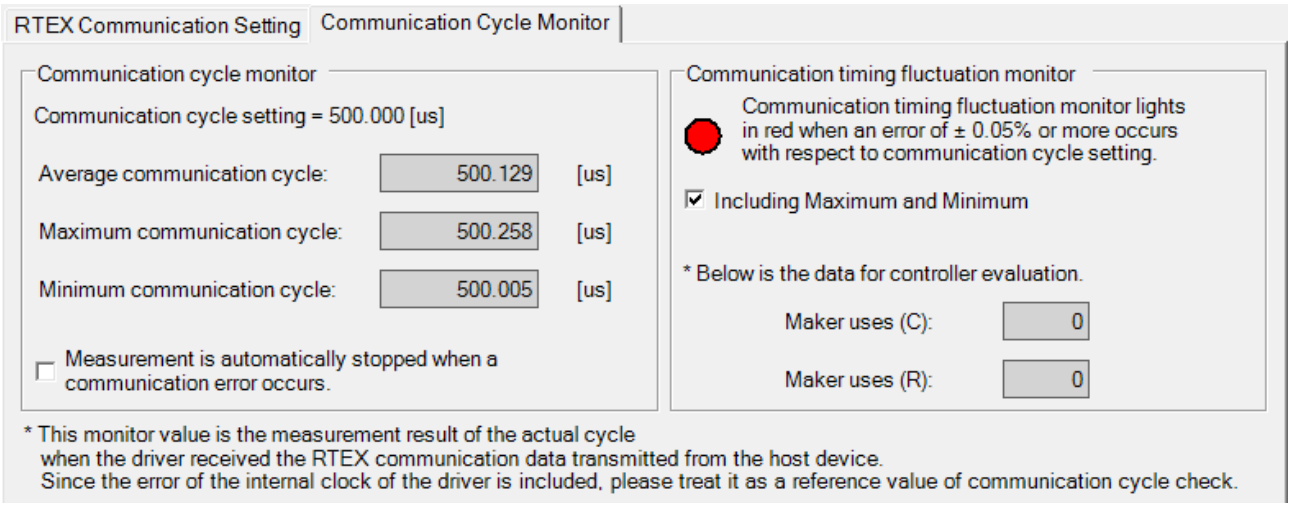


2 Click Msr (Measure) of the tool bar.
The content of the communication cycle monitoring area is updated when measurement starts.
The communication timing fluctuation monitor lights up in blue when the average communication cycle is within the valid range.
The communication timing fluctuation monitor lights up in red when it is not within the valid range.



* If you want the communication monitoring to be automatically stopped in case of a communication error, select “Measurement is automatically stopped when a communication error occurs.”

Selecting “Including Maximum and Minimum” includes the maximum communication cycle and the minimum communication cycle as the decision criteria of the communication timing fluctuation monitor.



Notes 1) Please refer to the manual of the driver or technical reference for details of each parameter's function and so on.
Notes 2) Even if parameters are sent to the driver, parameters are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver. Parameter modifications list are displayed on EEPROM writing. Please check the modification carefully.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) Some parameters become valid after modifications to the new data, writing EEPROM, and power supply reset. (On inputting, that issue is displayed. Please refer to the manual of the driver or technical reference and confirm on the objective parameters)
Notes 5) The RTEX Setup screen cannot open during opening some screens. For more information please refer to page 281 "RTEX Setup screen behavior".

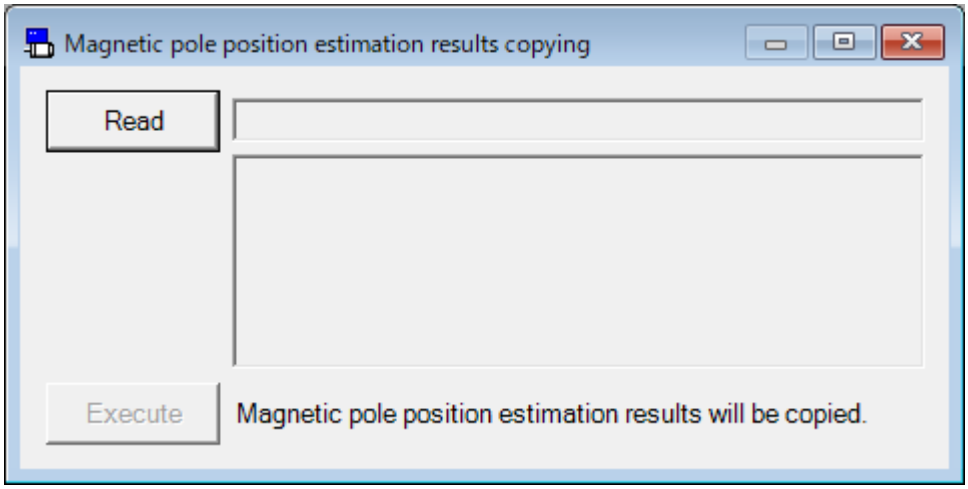
Magnetic pole position estimation results copying screen

Set the magnetic pole position estimation results based on the parameter file.

Note) Magnetic pole position estimation results copying function is assumed to exchange only driver without changing the combination of linear motor and feedback scale.
Make sure that the copy source and copy destination driver are the same device.
Otherwise the magnetic pole position will be shifted, motor cannot be controlled normally.
Magnetic pole position estimation results copying cannot be performed through RS232 communication.

Open the Magnetic pole position estimation results copying window

1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Magnetic pole position estimation results copying” of the tool bar on the main screen.
3 The Magnetic pole position estimation results copying window is opened.

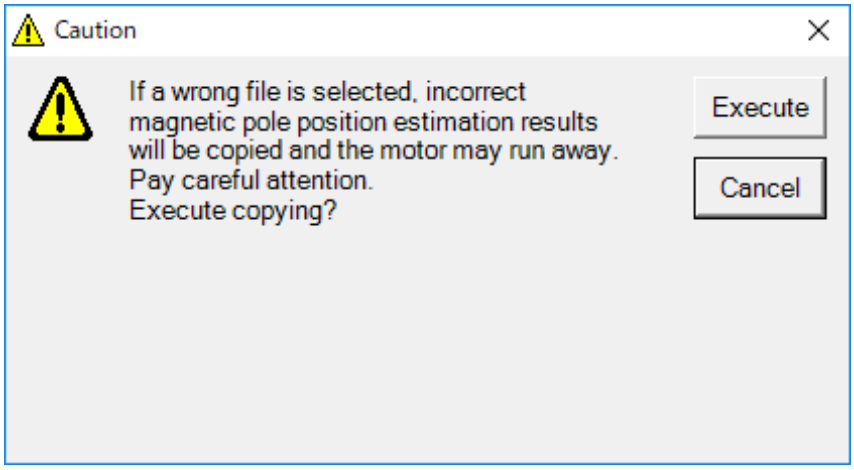


Close the Magnetic pole position estimation results copying window

Click of upright on the window

Magnetic pole position estimation results copying is executed

1 Click “Read” button.
2 Select the copy source parameter file.
3 Click “Execute” button.
4 Caution windows will appear. Confirm the window message carefully, and click “Execute”.



Notes 1) The Magnetic pole position estimation results copying screen cannot open during opening some screens. For more information please refer to page 281 “Magnetic pole position estimation results copying screen”.

Twisted table compensation screen

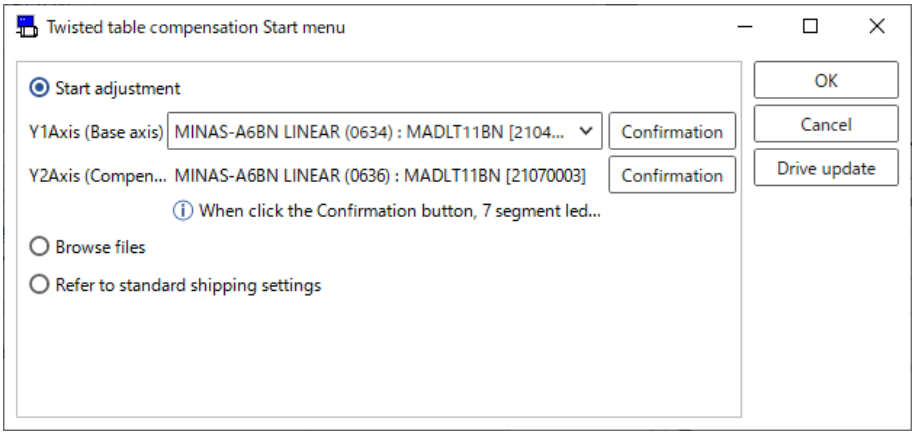
Set the compensation value for the misalignment between the two axes that occurs in the 2-axis gantry mechanism of the driver.

Note) Parameter settings and Driver's gain tuning will be needed even at the Twisted table compensation adjustment. Please read the operation manual or technical reference to understand the manual content prior to this operation.
When setting the correction value, make sure the drivers is in INIT state. Correction values cannot be set in any state other than INIT.
When using the torsion correction table function - torque interference reduction, please use the electronic gear at a ratio of 1:1. When using the torsion correction table function - Absolute position accuracy improvement, do not change the parameters after measurement. Also, set PositionOffset to 0. Conversion cannot be performed correctly.
Twisted table compensation cannot be performed through RS232 communication.

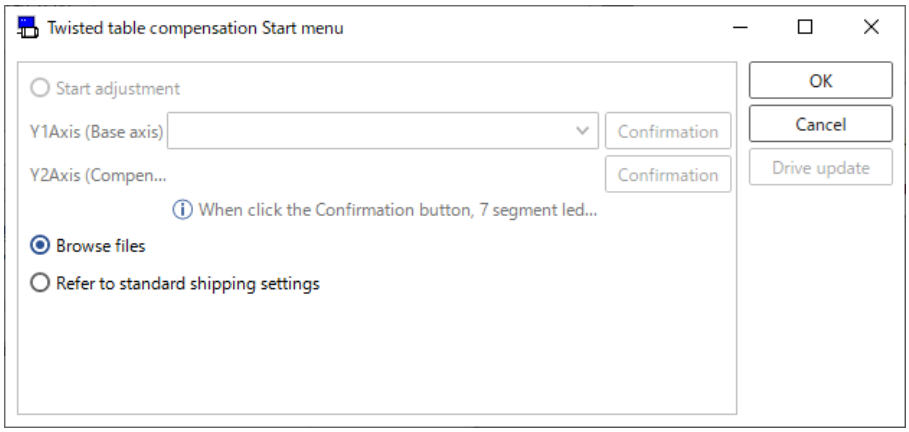
Open the Twisted table compensation

1 Start "PANATERM".
(Please refer to Article 5. Start up and Close down in details)
2 Click "Other" > "Twisted table compensation" of the tool bar on the main screen.
3 Twisted table compensation function start window is displayed.

<When communication with driver>



<When not communication with driver>



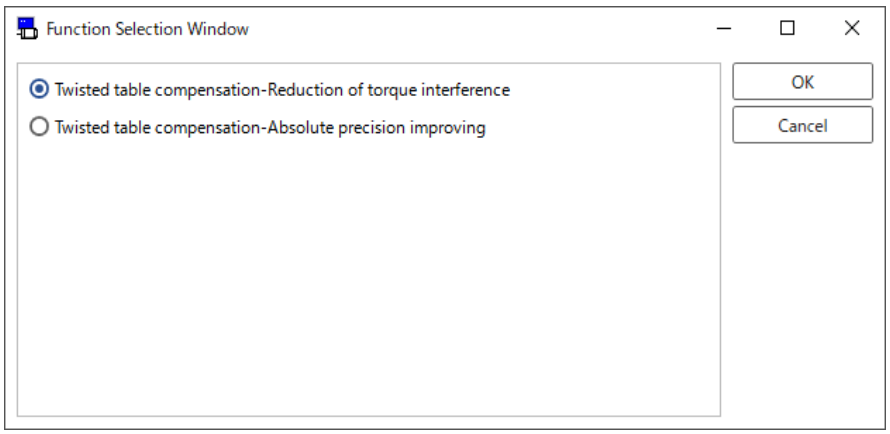
4 Select the read source of the Twisted table compensation adjustment data and click.

□ “Start adjusting”
The Twisted table compensation adjustment data set in the driver are read communicating the driver connected. If this mode is selected, the compensation value setting is reflected in the driver by executing the adjustment.

□ “Browse file”
Twisted table compensation adjustment data files already edited (.gnt5) are read. Adjustment value is not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Blowse file”.

□ “Browse default”
Default set values saved at the time of installation is read. Adjustment value is not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Blowse default”.

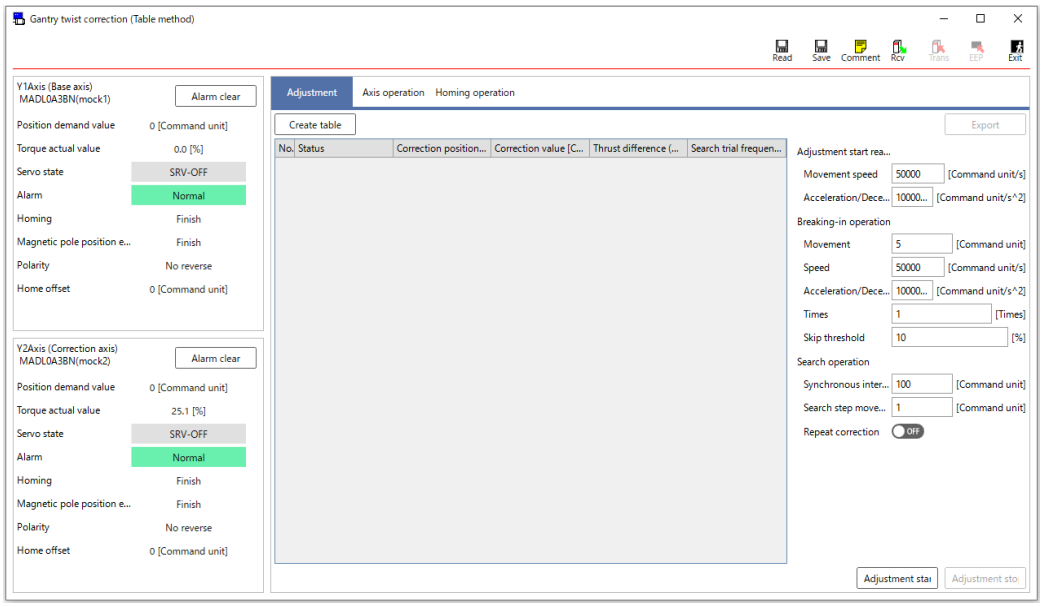
5 Click “OK”. The Twisted table compensation window is opened.



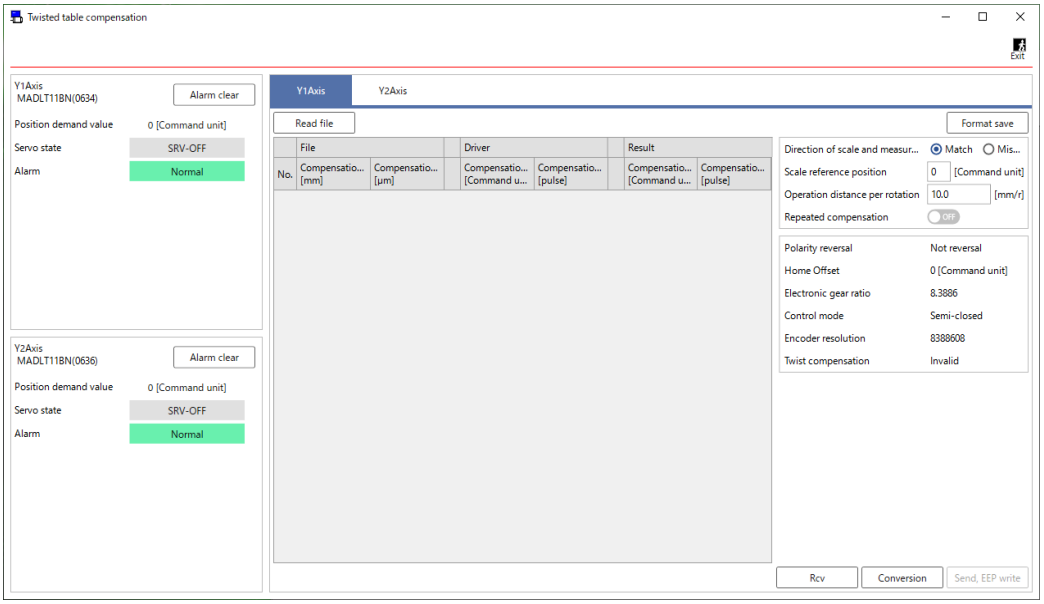
□ “Twisted table compensation-Reduction of torque interference”
The twisting caused by assembly errors and functional differences in the gantry system is adjusted.

□ “Twisted table compensation-Absolute precision improving”
Adjust the error based on the results observed with the measuring instrument. Observation data from measuring instruments is required. If you select "Refer to file" or "Refer to standard factory settings" on the twist correction table function startup menu screen, it cannot be selected.

6 Click “OK” to open the window for the selected screen.
<If twisted table compensation-Reduction of torque interference >



<If twisted table compensation-Absolute precision improving >

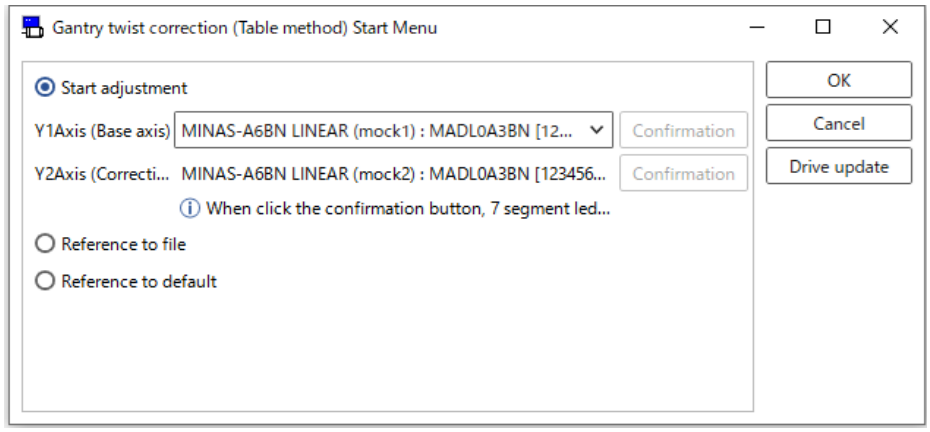


Close the Twisted table compensation window

Click 

(Exit) on the tool bar.

Structure of Twisted table compensation start screen

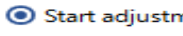


(1) Title bar

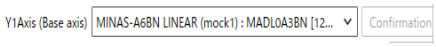
Following buttons are used to operate windows.

(2) Read-only selection area

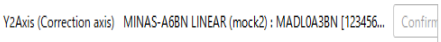
Selects the source from which Twisted table compensation adjustment data is read in.



The Twisted table compensation adjustment data set in the driver are read communicating the driver connected. If this mode is selected, the compensation value setting is reflected in the driver by executing the adjustment.



Select the driver to be set for the Y1Axis (Base axis).
When click the Confirmation button, 7 segment led blinks.
Note) If the connection with the drivers is disconnected, the confirmation button will be disabled.



Select the driver to be set for the Y2Axis (Compensation axis).
When click the Confirmation button, 7 segment led blinks.

Note) If online, the driver selected in the Select connection with drivers screen is selected.
If you want to make changes, please select the driver to connect in the “Select connection with drivers”.

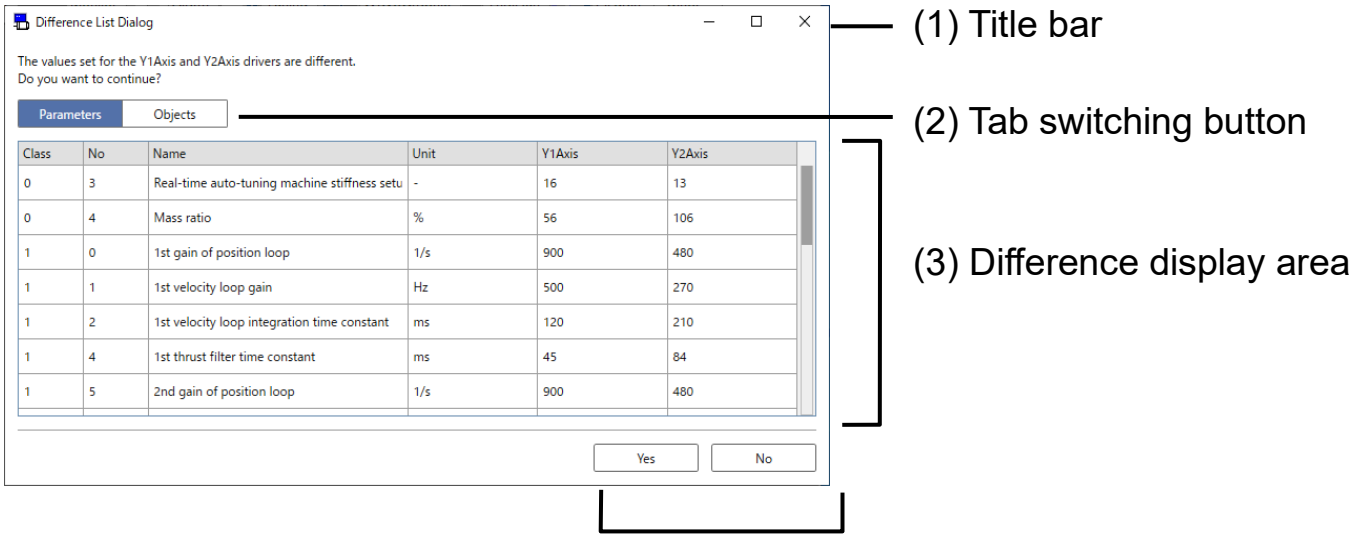
Note) If the connection with the drivers is disconnected, the confirmation button will be disabled.

○ Reference to file	Twisted table compensation adjustment data files already edited (.gnt5) are read. Adjustment value is not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Blowse file”.
○ Reference to default	Default set values saved at the time of installation is read. Adjustment value is not reflected to the driver connected unless “Transmit the parameter to the driver” is executed when they are “Blowse default”.

(3) Control button

	Activate the Twisted table compensation adjustment using the method selected in (2).
OK	Note) If you select "Start adjustment" the differences between the two axes' parameters and objects will be compared. As a result of the comparison, if there are any differences, they will be displayed in the difference list dialog.
Cancel	Close window.
Drive update	Load the driver being connected again.

Structure of the difference list dialog screen



(1) Title bar　Allows you to operate windows.

(2) Tab switching button

Parameters Objects	When you press a parameter, the difference between the parameters will be displayed in the difference display area. When you press an object, the difference between the objects will be displayed in the difference display area.

(3) Difference display area

Displays a list of parameter or object differences.

<Parameter tab>

Class	No	Name	Unit	Y1Axis	Y2Axis
0	3	Real-time auto-tuning machine stiffness setu	-	16	13
0	4	Mass ratio	%	56	106
1	0	1st gain of position loop	1/s	900	480
1	1	1st velocity loop gain	Hz	500	270
1	2	1st velocity loop integration time constant	ms	120	210
1	4	1st thrust filter time constant	ms	45	84
1	5	2nd gain of position loop	1/s	900	480

“Class”	Parameter classifications are indicated.
“No.”	Parameter numbers are indicated.
“Parameter name”	Parameter names are indicated.
“Unit”	Units of the parameter set values are indicated.
“Y1 Axis”	Displays the Y1 Axis parameter setting values.
“Y2 Axis”	Displays the Y2 Axis parameter setting values.

<Object tab>

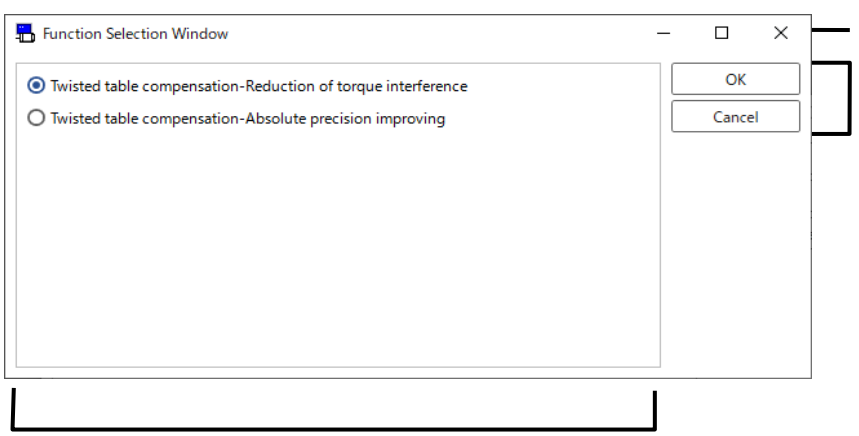
MainIndex	SubIndex	Name	Unit	Y1Axis	Y2Axis
3003h	00h	Real-time auto-tuning machine stiffness setu	-	16	13
3004h	00h	Inertia ratio	%	56	106
3100h	00h	1st gain of position loop	0.1/s	900	480
3101h	00h	1st velocity loop gain	0.1Hz	500	270
3102h	00h	1st velocity loop integration time constant	0.1ms	120	210
3104h	00h	1st torque filter time constant	0.01ms	45	84
3105h	00h	2nd gain of position loop	0.1/s	900	480

“Main Index”	Show the Main Index of the object.
“Sub Index”	Show the Sub Index of the object.
“Object Name”	Show the Object Name.
“Unit”	Units of the parameter set values are indicated.
“Y1 Axis”	Displays the Y1 Axis object settings.
“Y2 Axis”	Displays the Y2 Axis object settings.

(4) Operation button

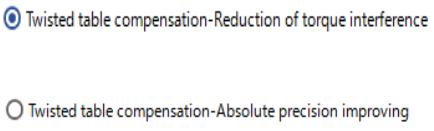
Yes	Starts the twist correction table function.
No	Return to the twist correction table function startup menu.

Structure of function selection screen



(1) Title bar　Allows you to operate windows.

(2) Function selection area　Select the function you want to launch.

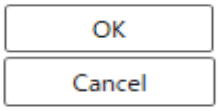


Select Twisted table compensation-Reduction of torque interference.

Select Twisted table compensation-Absolute precision improving.

If you select "Refer to file" or "Refer to standard factory settings" on the twist correction table function startup menu screen, it cannot be selected.

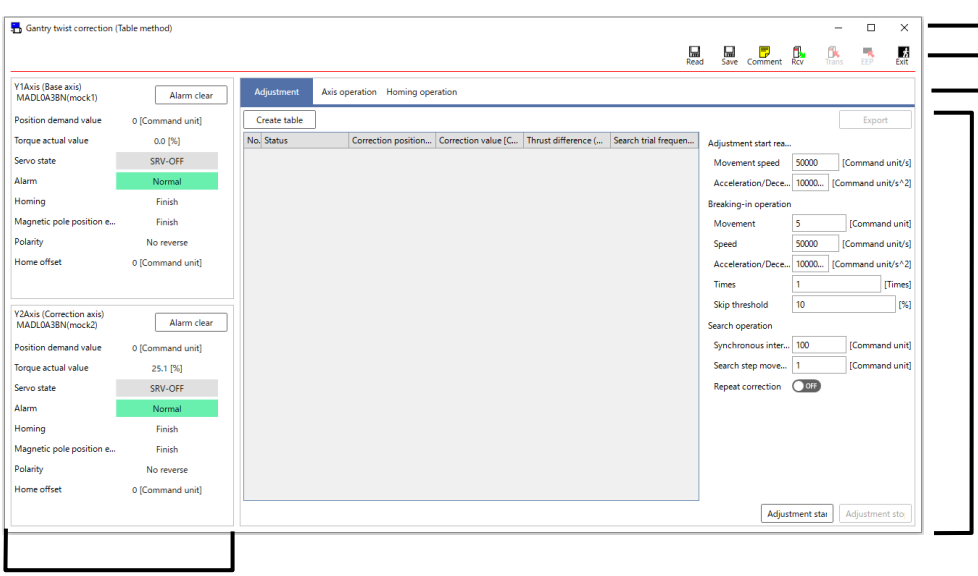
(3) Operation button



Starts the twist correction table function.

Return to the twist correction table function startup menu.

Structure of Twisted table compensation-Reduction of torque interference



(1) Title bar
Following buttons are used to operate windows.

(2) Tool bar
Saving, reading, some other basic operation commands on parameters are listed.

Read	(Read)	Read Twisted table compensation adjustment data from files (.gnt5).
Save	(Save)	Write Twisted table compensation adjustment data to files (.gnt5).
Cmnt	(Comment)	Make comments attached to Twisted table compensation adjustment data files.
Rcv	(Rcv)	Receive Twisted table compensation adjustment data from the driver.
Trans	(Trans)	Send Twisted table compensation adjustment data to the driver.
EEP	(EEP)	Write Twisted table compensation adjustment data to EEPROM of the driver. Note) After writing to the EEPROM, the return to origin status of the Y2 axis (correction axis) will not be completed.
Exit	(Exit)	Closes parameter screen.

(3) Tab

Displays the settings tab for page switching.

Adjustment	Displays the Adjustment page.
Axis operation	Displays the Axis operation page.
Homing operation	Displays the Homing operation page.

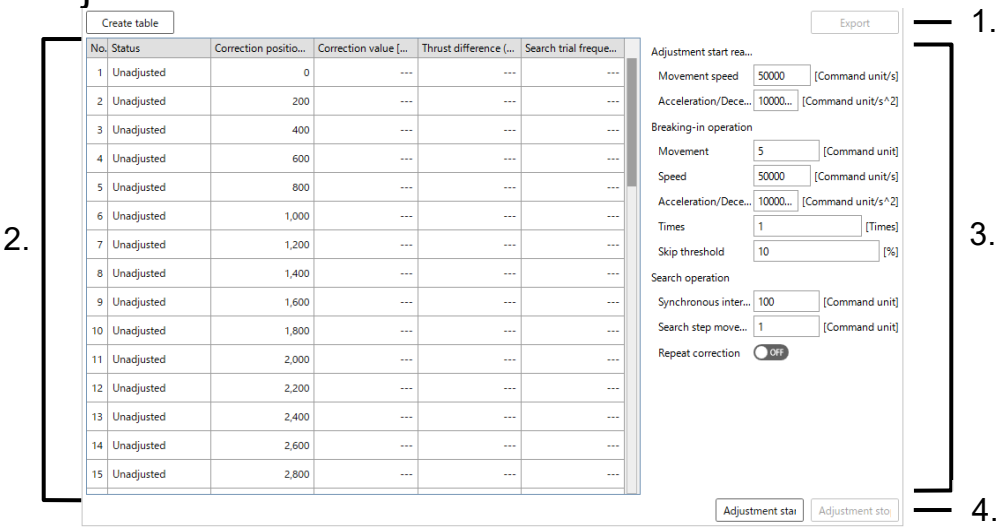
(4) Monitor

Real-time display of the connection status of each axis and various information.

Alarm clear	Clear current alarms. Some alarms cannot be cleared unless the cause is removed, and the power is reconnected.
Position demand value	Displays the current position of the motor.
Torque actual value	Displays the thrust value.
Servo state	Displays the servo status. Changes to the following background colors depending on the status. SRV-ON : Green SRV-OFF : Grey
Alarm	Displays the alarm status. Changes to the following background colors depending on the status. Normal : Green Warning : Yellow Error : Red
Homing	Displays the homing status.
Magnetic pole position est	Displays the magnetic pole position estimation status.
Polarity reversal	Displays polarity reversal.
Home offset	Displays the offset value.

(5) Page
Displays the function selected in each tab (Adjustment, Axis operation, homing operation).

<Adjustment tab>



1. “Table operation”
   Create Table : Displays the Create Table dialog and sets the conditions for creation.
   Export : Save the Twisted table compensation adjustment result in CSV format.

2. “Compensation point list”
   Lists the positions to be adjusted and the results of the compensation after adjustment in a table.

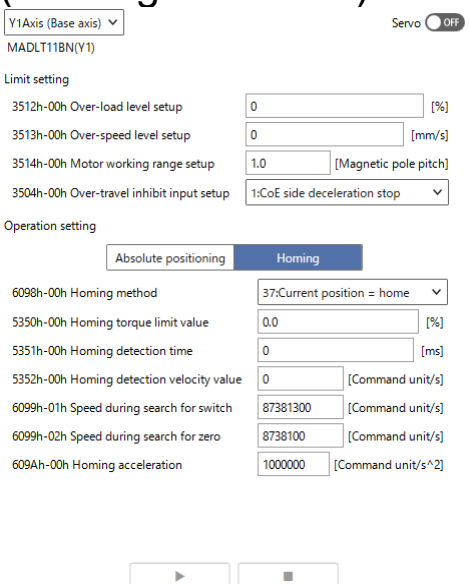
Status	Displays the adjustment status.
Compensation position	Displays the compensation position.
Compensation value	Displays the compensation values calculated by the correction algorithm.
Thrust difference	Displays the Thrust difference.
Search trial frequency	Displays the search trial frequency.

3. “Adjustment execution condition setting”
   Sets the execution conditions for the adjustment.

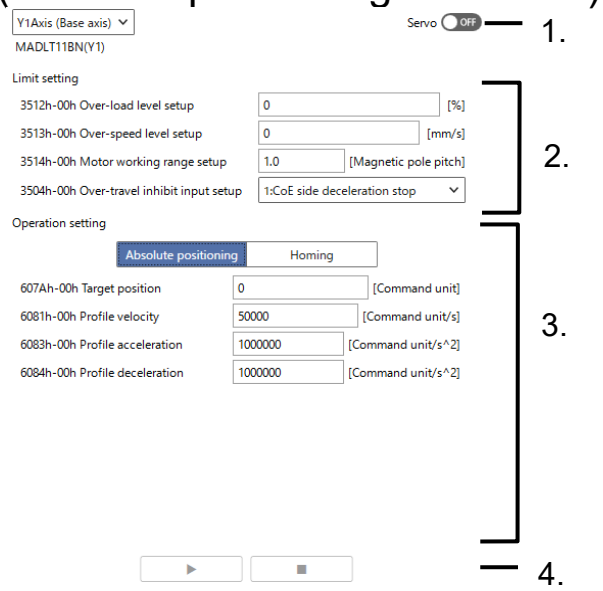
4. “Adjusting operation”
   Adjustment start : Start adjustment.
   Adjustment stop : Stop adjustment.

<Axis operation tab>

(Homing tab select)



(Absolute positioning tab select)



1. “Axis state”

   Selects and displays the axis target. Switches the servo ON/OFF of the selected axis.

2. Limit setting

   3512h-00h Overload level : Set the overload level.

   3513h-00h Over-speed level : Set the over-speed level.

   3514h-00h Motor working range : Set the motor working range.

   3504h-00h Over-travel inhibit input setup :

   Set the Drive prohibition input setting.

3. Operation setting

   Tab switching :

   Switches between “Homing” and “Absolute positioning”.

   (Homing tab select)

   6098h-00h Homing method : Select the homing method.

   5350h-00h Homing torque limit value : Set the homing torque limit value.

   5351h-00h Homing detection time : Set the homing detection time.

   5352h-00h Homing detection velocity value：Set the homing detection Value.

   6099h-01h Speed during search for switch ：Set the Speed (High speed).

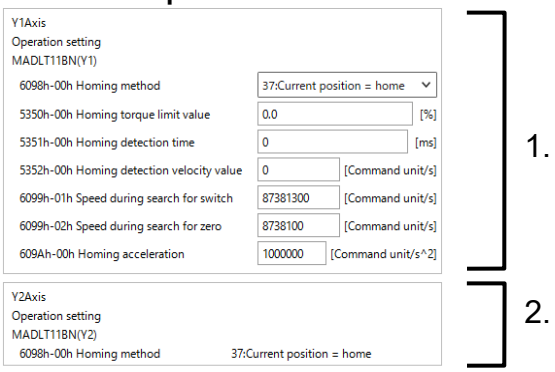
   6099h-02h Speed during search for zero：Set the Speed (Low speed).

609Ah-00h Homing acceleration：Set the acceleration/deceleration.
607Ch-00h Home offset ：Set the offset.

(Absolute positioning tab select)
607Ah-00h Target position：Set the target position.
6081h-00h Profile velocity： Set the Speed.
6083h-00h Profile acceleration： Set the acceleration.
6084h-00h Profile deceleration： Set the deceleration.

4. Axis operation
▶ (Start) : Start axis operation.
■ (Stop) : Stop axis operation.

<Home operation tab>



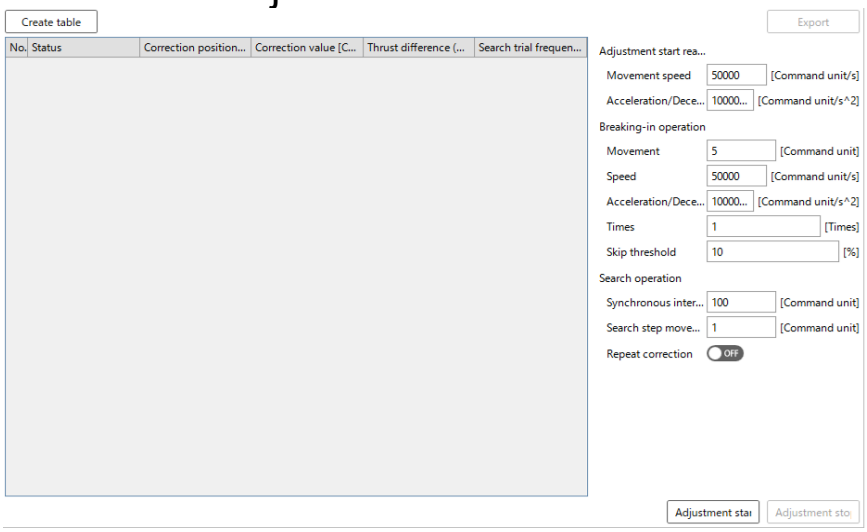
1. Operation setting (Y1 axis) :
Sets the operating conditions for the homing operation of the Y1 axis.

2. Operation setting (Y2 axis) :
Displays the homing method for the Y2 axis.
The homing method for the Y2 axis cannot be changed.

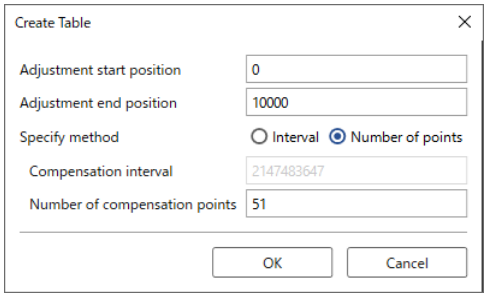
3. ▶ (Start) : Start homing.
■ (Stop) : Stop homing.

Twisted table compensation-Reduction of torque interference procedure

1 Select the “Adjustments” tab.

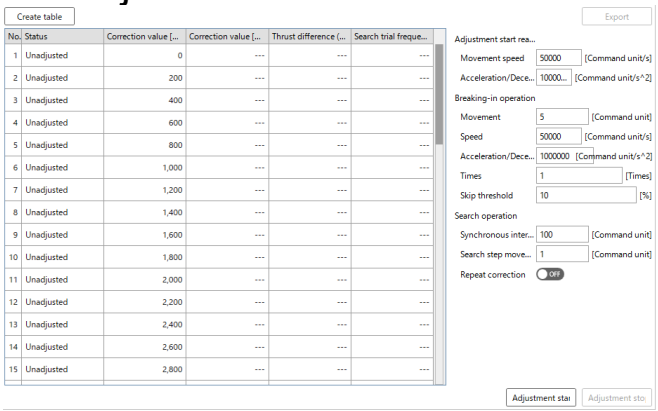


2 Click “Create table”.

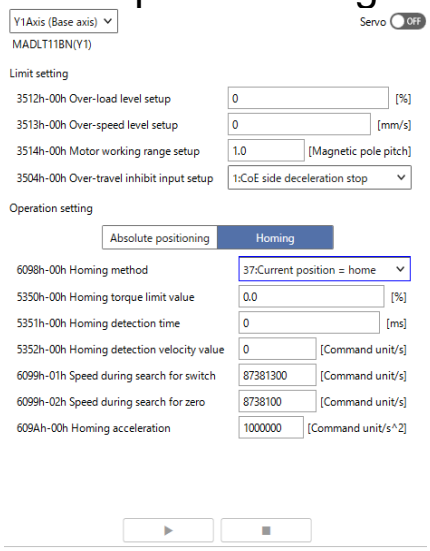


3 After setting the creation conditions, click “OK”.

4 After the update of the compensation point list is completed, set the adjustment execution conditions.



5 Select the “Axis operation” tab or the “Homing operation” tab. Complete homing of Y1 and Y2 axes in the “Axis operation” tab or complete homing of both axes in the “Homing operation” tab.



6 Select the “Adjustment” tab and click “Adjustment start”.

* If you want to stop the adjustment midway, click “Adjustment stop”.

7 After the adjustment is complete, “Export” to a CSV file and check the results.

Comment

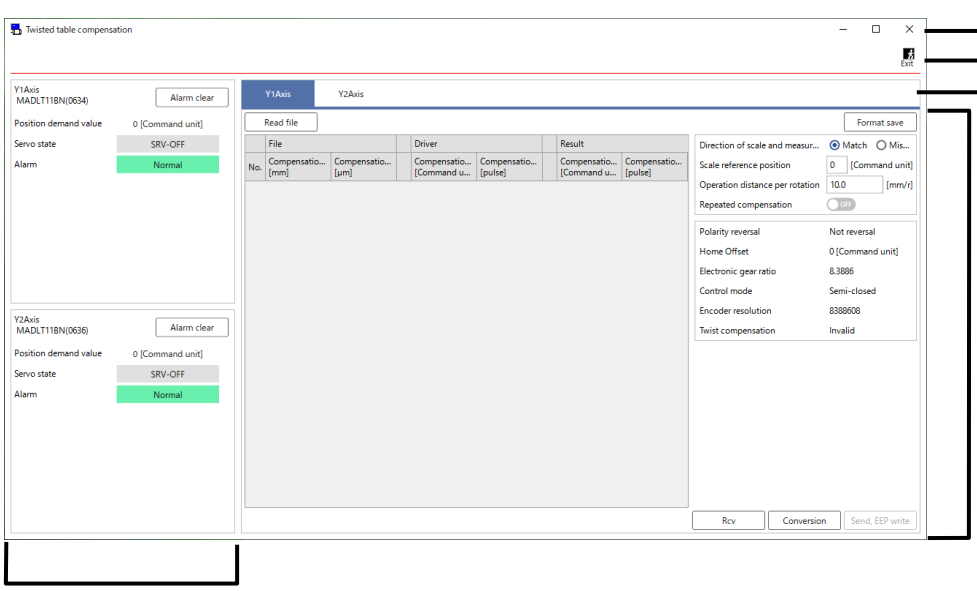
On saving set Twisted table compensation in a file, comments can be saved together. These comments do not affect operations of the driver.

Making Comment

1 Click Cmnt (Comment) on the tool bar, and open the comment window.

2 Click comment box and input comments.
3 After completing comment input, click “OK”.

Structure of Twisted table compensation-Absolute precision improving



(1) Title bar
(2) Tool bar
(3) Tab
(5) Page
(4) Monitor

(1) Title bar
Following buttons are used to operate windows.

(2) Tool bar

There is a command to close the screen.

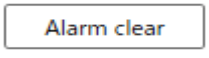
(Exit) Closes the twisted table compensation function screen.

(3) Tab
Displays the settings tab for page switching.

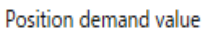
Display the Y1 axis page.

Display the Y2 axis page.

(4) Monitor
Real-time display of the connection status of each axis and various information.



Clear current alarms.
Some alarms cannot be cleared unless the cause is removed, and the power is reconnected.



Displays the current position of the motor.

Displays the servo status.

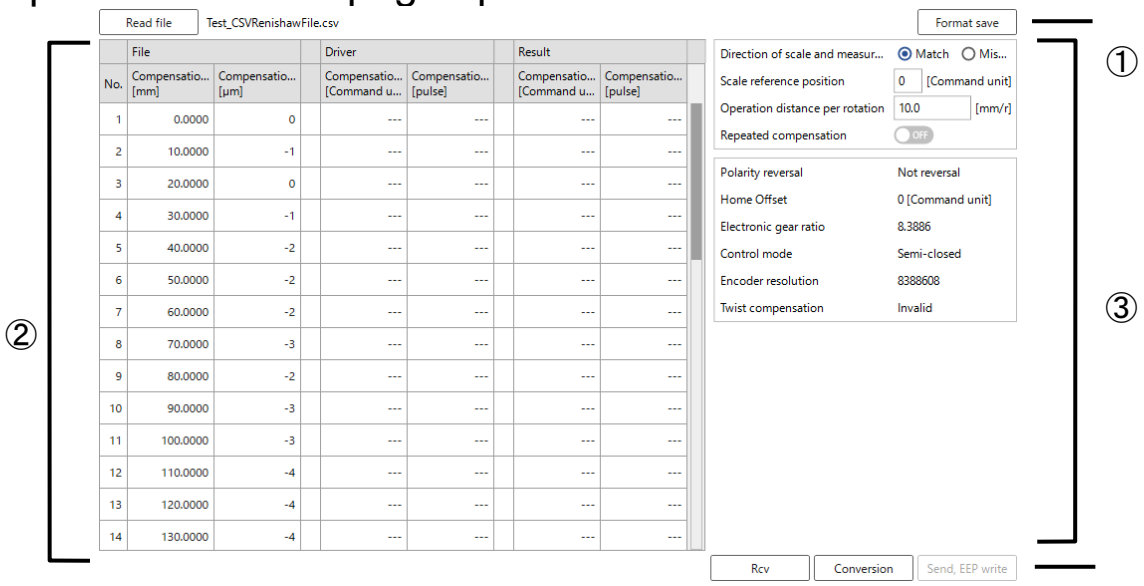
Changes to the following background colors depending on the status.
SRV-ON : Green
SRV-OFF : Grey

Alarm

Displays the alarm status.
Changes to the following background colors depending on the status.
Normal : Green
Warning : Yellow
Error : Red

(5) Page

Displays the axis selected in each tab (Y1 axis, Y2 axis).
Operations on the page operate on the selected axis.



① “File reading area”

Read file: Reads the torsion correction table function measuring instrument data file.

Save format: Save the format file for creating the torsion correction table function measuring instrument data file.

② “List of compensation points”

Displays a list of reading results of the measuring instrument data file, driver correction values, and converted values in a table. Below are the items from left.

No.	Displays the table number.
File compensation position [mm]	Displays the value of the compensation position [mm] read from the measuring instrument data file.
File compensation amount [μm]	Displays the value of the compensation amount [μm] read from the measuring instrument data file.

Driver compensation position [Command unit]	Displays the compensation value [command unit] received from the driver.
Driver compensation value [pulse]	Displays the compensation value [pulse] received from the driver.
Conversion result compensation position [Command unit]	Displays the converted compensation value [command unit] value. Depending on the parameters used for conversion, the spacing may not be equal.
Conversion result compensation value [pulse]	Displays the converted correction value [pulse] value.

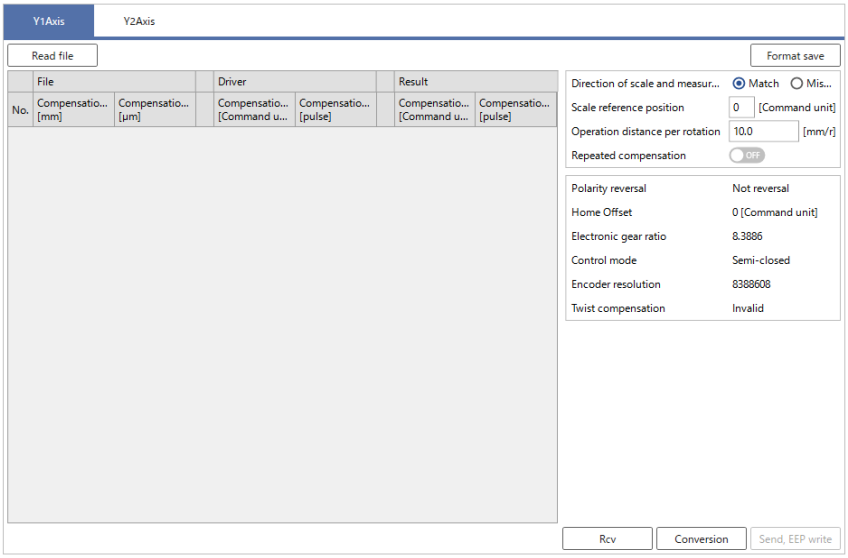
③ “Conversion conditions”
Set the parameters used for conversion. Items corresponding to the connected driver will be displayed.

④ “Conversion operation”
Rcv : Receives correction values from the driver.
Conversion : Converts values based on the measuring instrument data file. If a correction value is set for the driver, add the converted value to the previous correction value. After conversion, send the correction value to the driver.
Send, EEP write : Send the converted value to the driver.

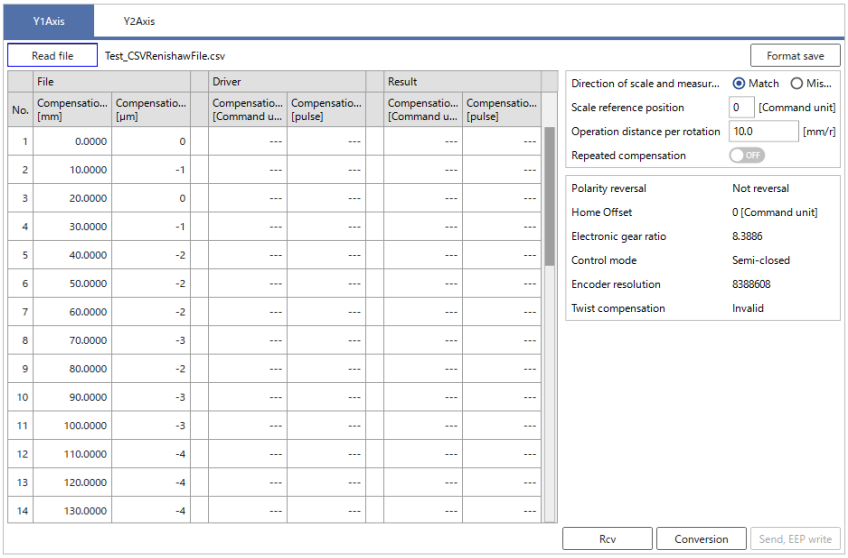
Twisted table compensation-Absolute precision improving procedure

< When performing the first correction >

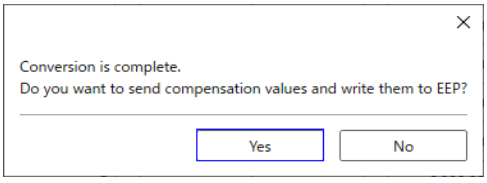
1. Prepare the data from the measuring device.
2. Click "Save format" to save the format file in any location.
3. Create a measuring instrument data file based on the measuring instrument data from the format file.
4. Click "Read file" to load the created measuring instrument data file.

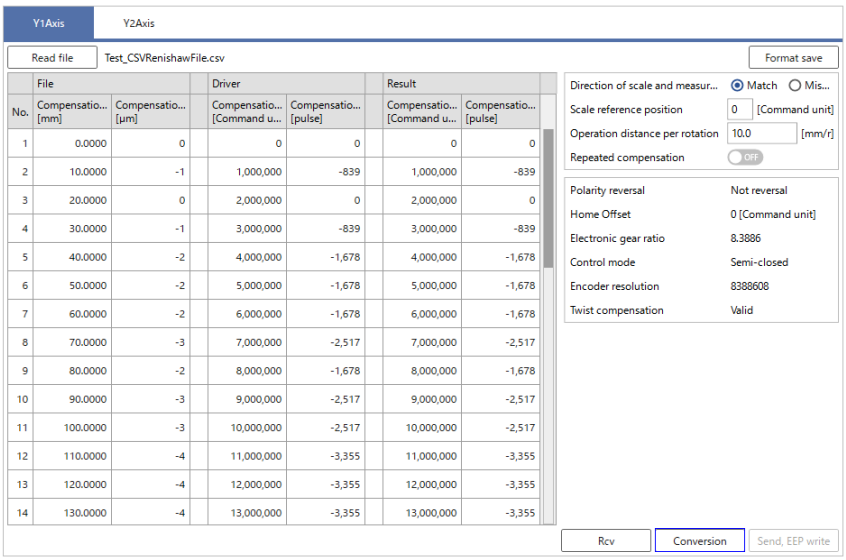


5. After updating the correction point list, set the "Conversion conditions", and Click “Conversion”.



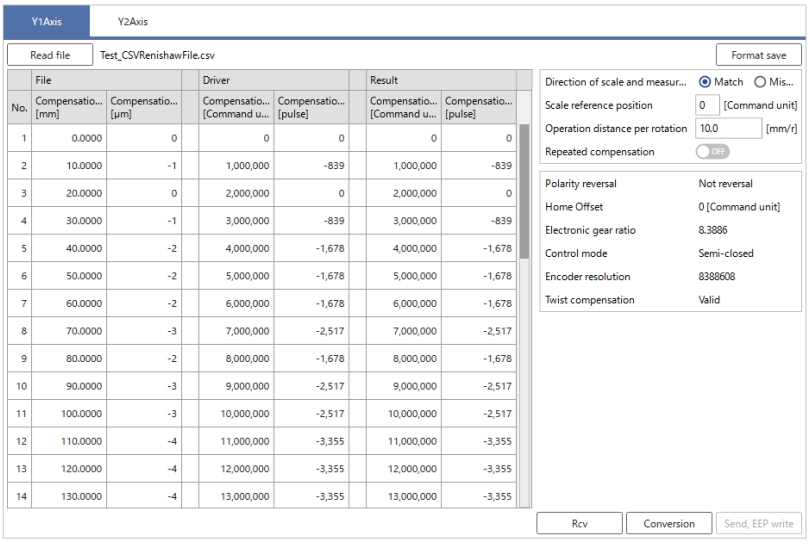
6. The conversion is performed and the converted value is sent to the driver.



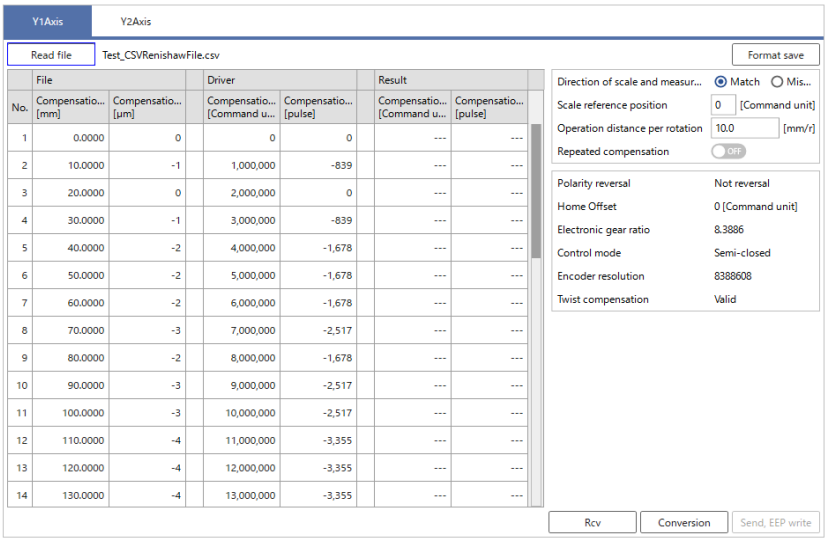


< When performing repeated corrections >

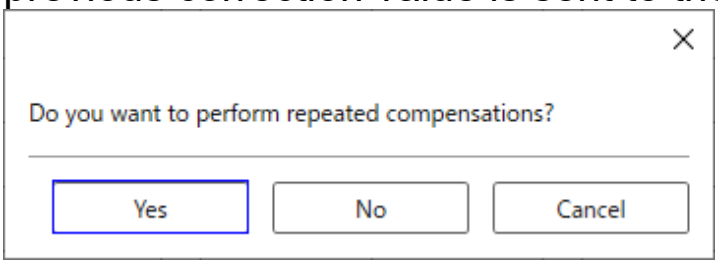
1. Click "Read File" to load the second instrument data file. If the correction value has not been received from the driver, click " Rcv ".

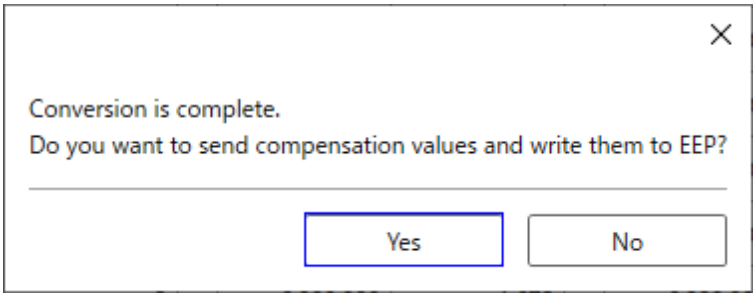


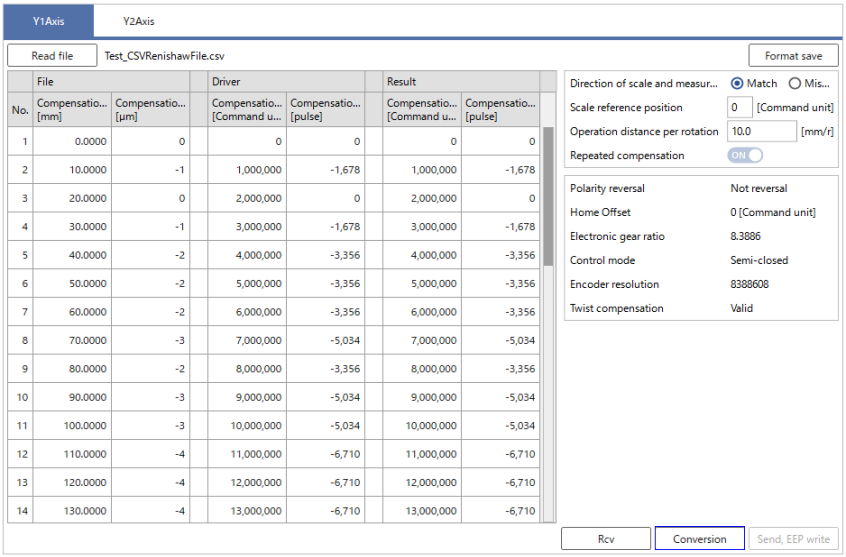
2. Click “Conversion”.



3. The conversion is performed and the converted value plus the previous correction value is sent to the driver.







Procedure for creating a measuring instrument data file

1. Edit the format file.

```
Header,,
#FILE VERSION,,
FILE VERSION,1.0.0,
,,
#,,
#,,
Body,,
#No,Correction position(mm),Correction amount(um)
#-----------------------------------------------,,
#-----------------------------------------------,,
```

2. Insert a line between #--- and #--- and enter the instrument data.

```
Header,,
#FILE VERSION,,
FILE VERSION,1.0.0,
,,
#,,
#,,
Body,,
#No,Correction position(mm),Correction amount(um)
#-----------------------------------------------,,
1,0.0000,0
2,10.0000,-1
3,20.0000,0
4,30.0000,-1
5,40.0000,-2
6,50.0000,-2
7,60.0000,-2
8,70.0000,-3
9,80.0000,-2
10,90.0000,-3
#-----------------------------------------------,,
```

No.	Please enter numbers in order starting from 1. If the numbers are not entered in order, the file cannot be read.
Correction position (mm)	Please enter the measuring instrument data target position. Please use mm as the unit. If you enter a value with a different unit, it will not be converted correctly.
Correction amount (μm)	Please enter the measurement instrument data correction amount. Please use μm as the unit. If you enter a value with a different unit, it will not be converted correctly.

3. Save the file.

Notes 1) Please refer to the manual of the driver or technical reference for details of each Twisted table compensation adjustment data's function and so on.
Notes 2) Even if Twisted table compensation adjustment data are sent to the driver, Twisted table compensation adjustment data are turned to the original value before modification if the power supply of the driver is turned off without writing to EEPROM of the driver.
Notes 3) Do not turn off the power supply of the PC during writing to EEPROM of the driver. Data context cannot be guaranteed if the power supply is turned off during writing.
Notes 4) Do not insert anything other than output results into the measuring instrument data file. The file will no longer be readable.
Notes 5) If the instrument data file is opened with another tool, it may not be possible to read the file. Please close the tool before reading the file.
Notes 6) The Twisted table compensation screen can be operated when all other windows are closed. For more information please refer to page 282 "Twisted table compensation screen behavior".

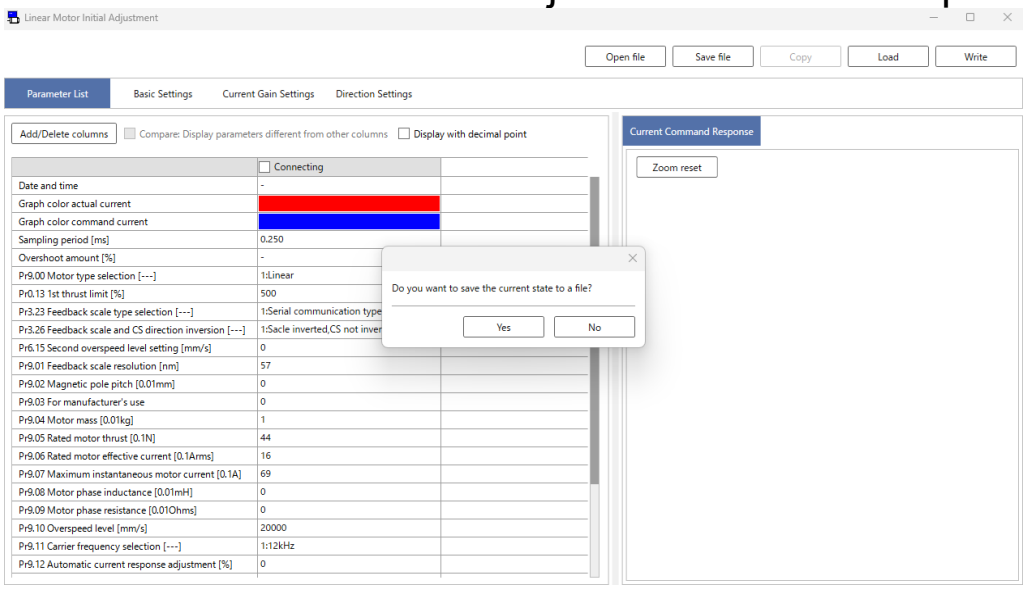
Linear motor initial adjustment screen

The related parameters of the linear motor can be configured.

Note) Please modify parameters with enough care after reading the driver's instruction manual or technical reference carefully, as some parameters give large effect to operations of drivers or motors.
Note) Linear motor initial adjustment cannot be performed through RS232 communication.

Open the Linear motor initial adjustment window

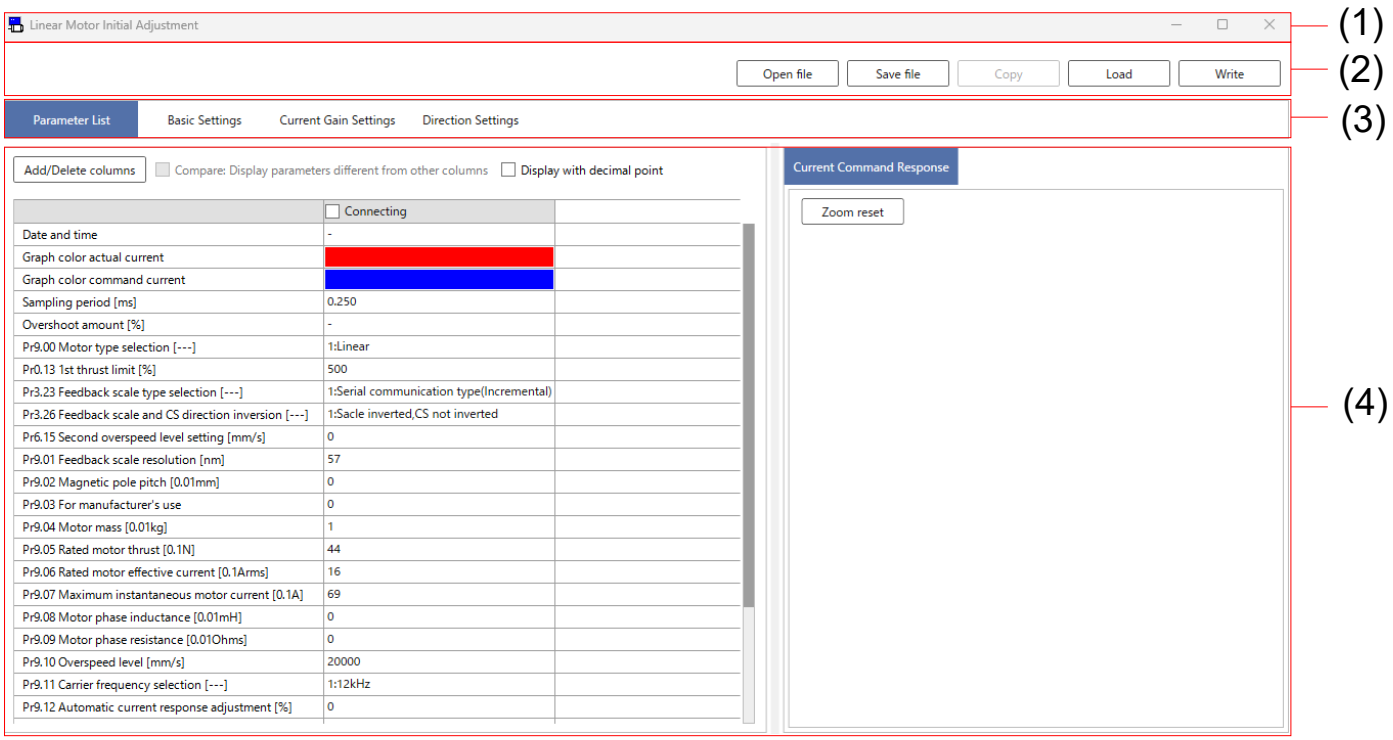
1 Start “PANATERM”.
(Please refer to Article 5. Start up and Close down in details)
2 Click “Other” > “Linear motor initial adjustment” of the tool bar on the main screen.
3 The Linear motor initial adjustment window is opened.



Close the Linear motor initial adjustment window

Click ✕ of upright on the window

Structure of Linear motor initial adjustment screen



(1) Title bar

You can operate this window.

(2) Tool bar

Open file	Load data from a file (.lms).
Save file	Write data to a file (.lms).
Copy	Copy the loaded data to the connected driver.
Load	Receive parameters from the driver.
Write	Send parameters to the driver.

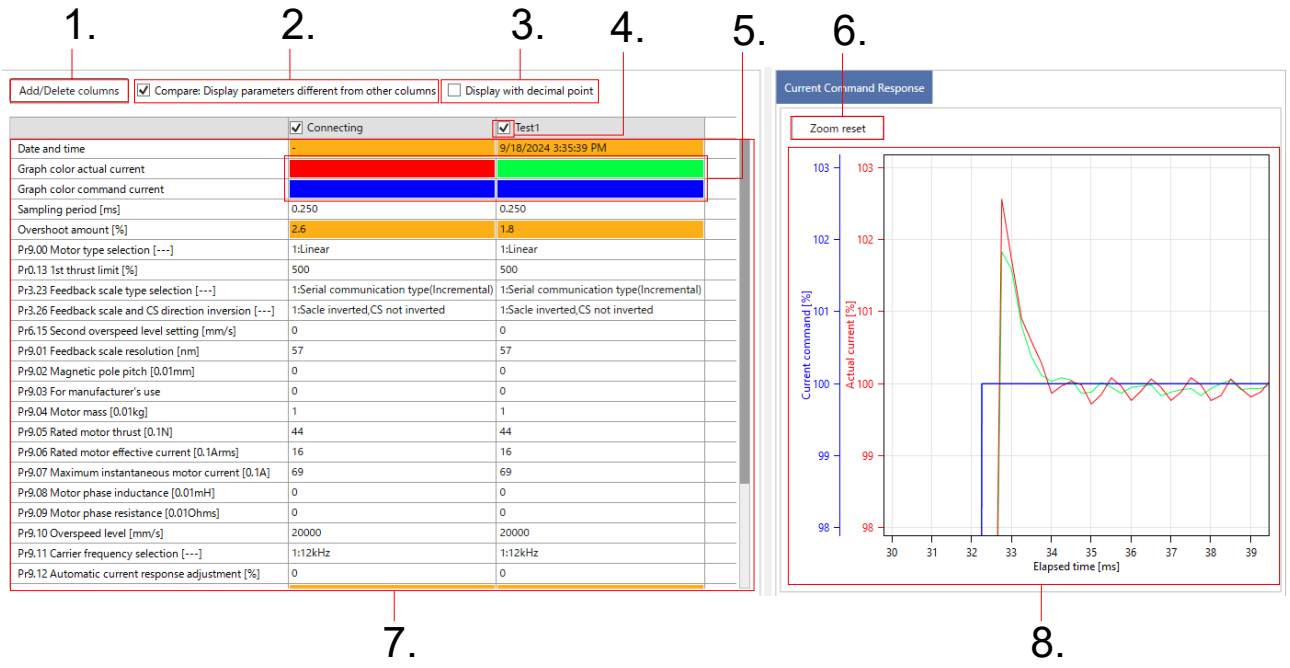
(3) Tab

Parameter List	Display the parameter list page.
Basic Settings	Display the basic settings page.
Current Gain Settings	Display the current gain settings page.
Direction Settings	Display the direction settings page.

(4) Page

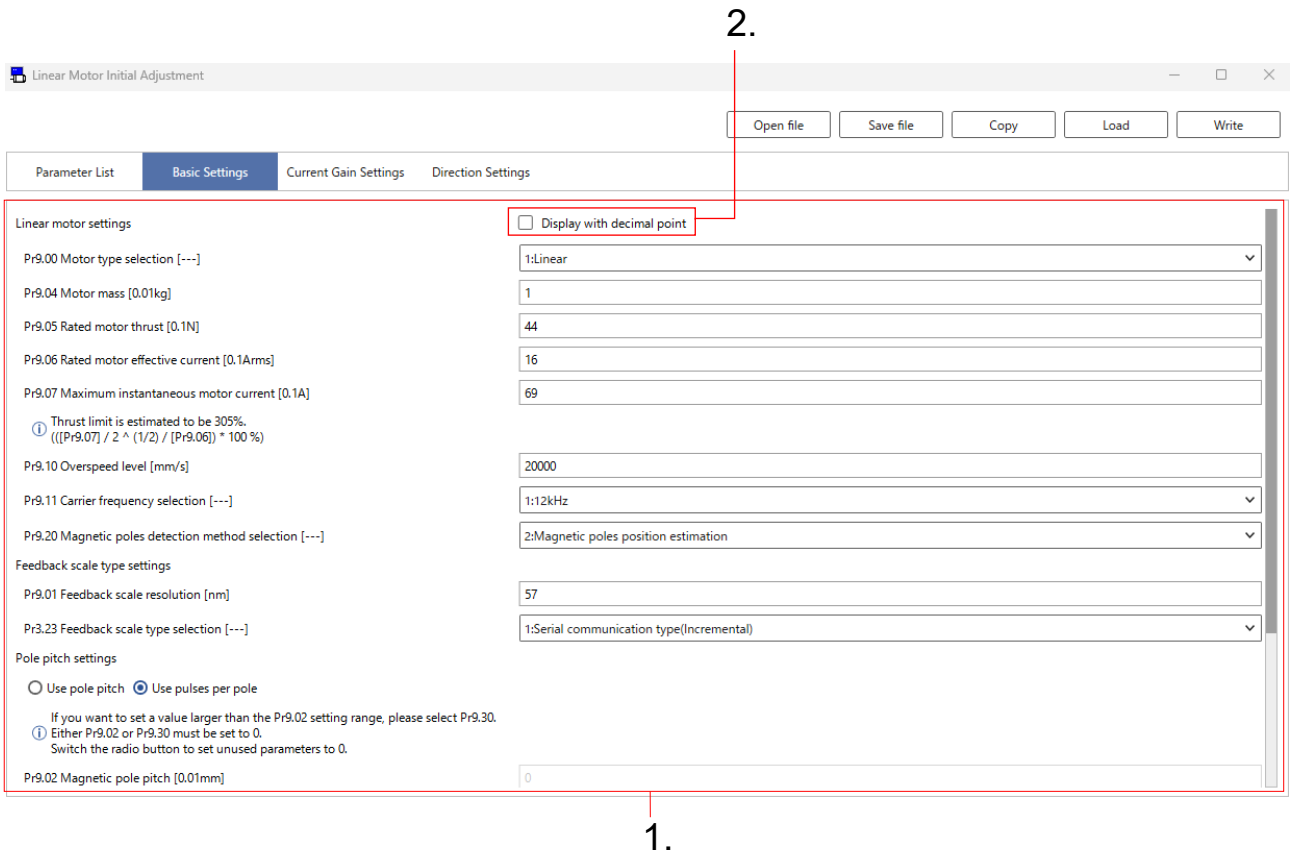
Display the function selected by the tab.

<Parameter List>



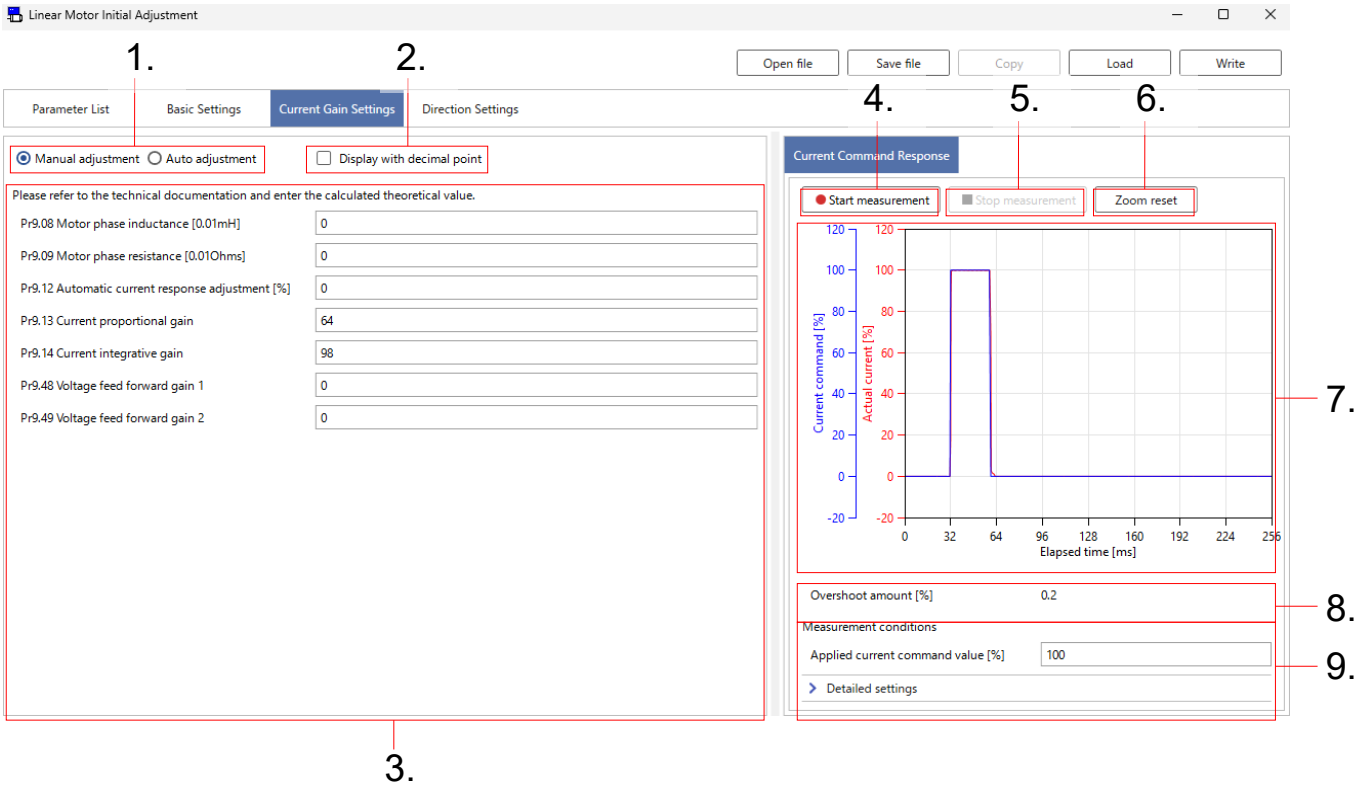
1.	Add/Delete columns	Add and delete data displayed in the parameter area.
2.	Compare: Display parameters different from other columns	When checked parameter rows with discrepancies will be highlighted in orange.
3.	Display with decimal point	When checked values with decimal points will be displayed.
4.	Graph selection	Select data to be displayed in the graph area.
5.	Graph color selection	Select the color of the graph to be displayed in the graph area.
6.	Zoom reset	Reset the zoom of the graph.
7.	Parameter area	Display parameter settings for each data.
8.	Graph area	Display the graph of the data selected in the parameter area.

＜Basic Settings＞



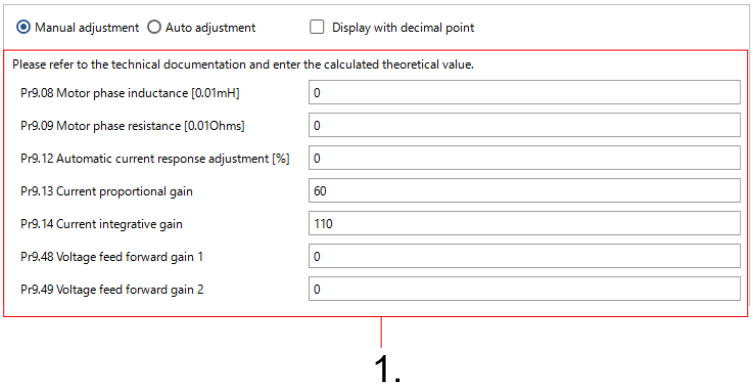
1.	Basic parameter settings	Set the basic parameters of the linear motor.
2.	Display with decimal point	When checked values with decimal points will be displayed.

＜Current Gain Settings＞



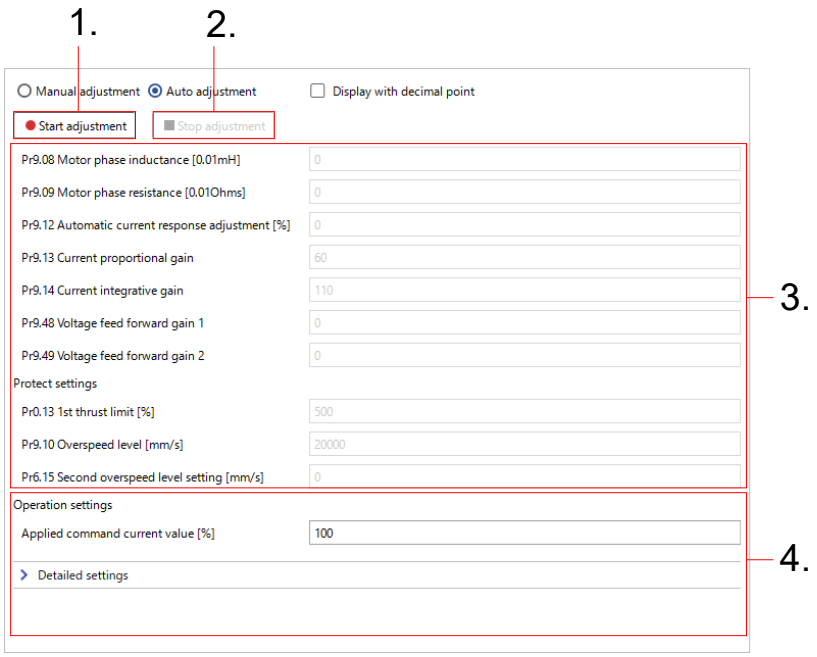
1.	Adjustment method selection	Select the adjustment method. Switch the display content of item ② according to the selected adjustment method.
2.	Display with decimal point	When checked values with decimal points will be displayed.
3.	Parameter settings area	Display related parameters according to the selected adjustment method.
4.	Start measurement	Start measuring the current command response.
5.	Stop measurement	Stop measuring the current command response.
6.	Zoom reset	Reset the zoom of the graph.
7.	Graph area	Display the graph of the measured current command response.
8.	Overshoot amount	Display the overshoot amount of the measured current command response.
9.	Measurement conditions	Set the measurement conditions for the current command response.

<Current Gain Settings (Manual adjustment)>



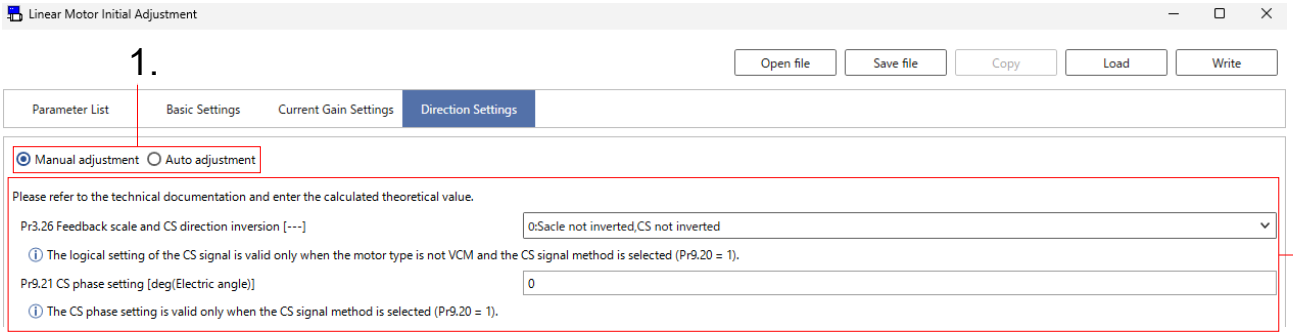
1.	Current gain parameter settings	Manually set parameters related to current gain.

<Current Gain Settings (Auto adjustment)>



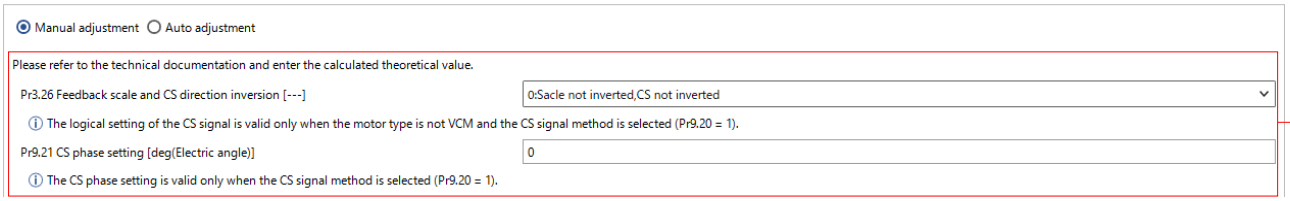
1.	Start adjustment	Start automatic adjustment of the current gain.
2.	Stop adjustment	Stop automatic adjustment of the current gain.
3.	Current gain parameter settings	Display parameters related to the automatically adjusted current gain.
4.	Operation settings	Set the operating conditions during automatic adjustment.

＜Direction Settings＞



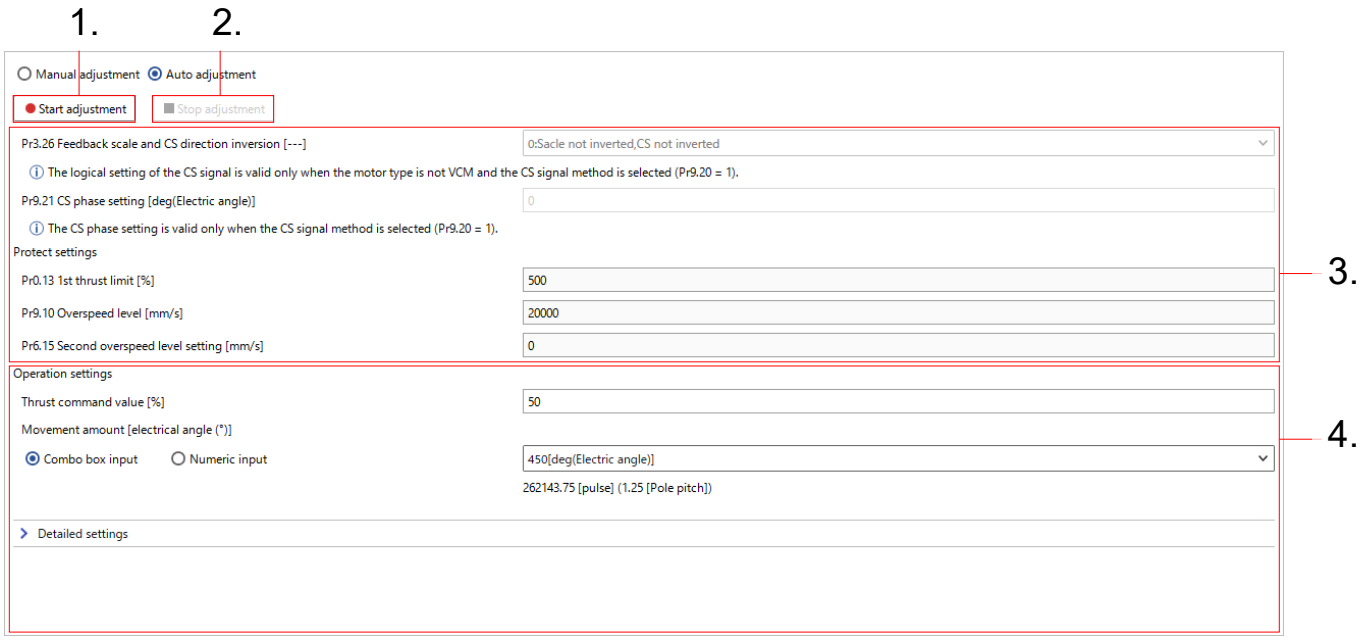
1.	Adjustment method selection	Select the adjustment method. Switch the display content of item 2. according to the selected adjustment method.
2.	Parameter settings area	Display related parameters according to the selected adjustment method.

<Direction Settings (Manual adjustment)>



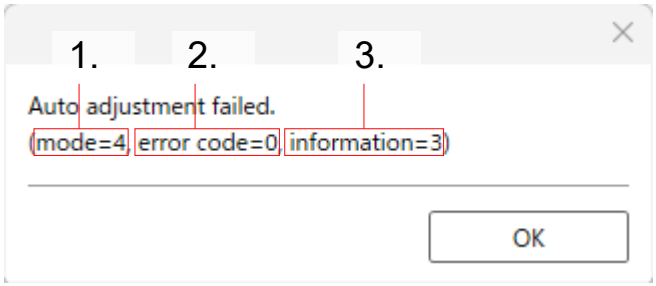
1.	Direction parameter settings	Manually set parameters related to direction.

<Direction Settings (Auto adjustment)>



1.	Start adjustment	Start automatic adjustment of the direction settings.
2.	Stop adjustment	Stop automatic adjustment of the direction settings.
3.	Direction parameter settings	Display parameters related to the automatically adjusted direction settings.
4.	Operation settings	Set the operating conditions during automatic adjustment.

Error list



Convert the value of Error Code (2.) from decimal to binary, and compare it with the corresponding bits in the table below to check the details of the error.

* Error Code is 255, check the table below with the decimal value.

Error Code	Cause	Treatment
bit0	Another function was running.	Ensure the front panel is not in use. Ensure FFT is not running. Ensure trial operation is not running. Ensure the network is not being established.
bit1	Servo ready was OFF.	Ensure the main circuit power is established, and no alarms are present.
bit2	Servo was already ON. The thrust limit was exceeded during frequency response measurement.	Ensure the servo is OFF. Check the setting value of the applied command current value and Pr0.13 “1st thrust limit”.
bit5	The setting value of Pr9.20 “Magnet pole detection scheme selection” was 0 (Not selected) or 3 (Magnetic poles position restoration).	Check the setting value of Pr9.20 “Magnet pole detection scheme selection”.
bit7	An error occurred in any of bits 0 to 6.	Check the cause of bits 0 to 6.
255	Disconnected during communication. Failed to calculate gain estimation.	Check the communication status. Check the setting value of the applied command current value.

Compare the values of Mode (1.) and Information (3.) with the combination table below to check the details of the error.

Mode	Information	Cause	Treatment
1, 5	1	Detected an abnormality in the current feedback value during the application of the current command. Detected a disconnection in the motor line during the application of the current command.	Check the setting value of Pr9.11 “Carrier frequency selection”. If the electrical time constant is too small, use a reactor. Ensure the motor line is not disconnected.
2, 4	1, 3, 6, 9	Detected excessive motor movement during the execution of two-phase energization lock.	Check the setting values of Pr9.01 “Feedback scale resolution / Number of scale pulses per rotation”, Pr9.02 “Magnet pole pitch”, and Pr9.03 “Pole logarithm per rotation”. Increase the setting value of the thrust command change time.
2, 4	2, 4, 8, 10	The motor did not stop where it should have during the execution of two-phase energization lock.	Increase the setting value of the thrust command change time.
2, 4	5, 7	Detected insufficient motor movement during the execution of two-phase energization lock.	Increase the setting value of the applied command current value. Decrease the setting value of the CS direction change speed.
2	11	Could not detect a change in the CS signal during direction setting or detected an abnormal change in the CS signal.	Ensure the output of the CS signal is correct.
2	12	Failed to save to EEPROM during direction setting.	Ensure no alarms are present.
2	16	An alarm occurred during direction setting.	Clear the alarm causes.

Notes 1) The Linear motor initial adjustment screen cannot open during opening some screens. For more information please refer to page 283 “Linear motor initial adjustment screen behavior”.

7 Trouble shooting

Set up

Stop setup
→Please review the system requirements, and make sure that the computer fulfils the required condition. Please especially note the Operation system's service package.
→If Microsoft .NET Framework 4.8 is not installed, please install .NET Framework 4.8 from the Microsoft website. Also, if you are asked to restart your computer after installation, please do so.
→As a result of download failure, there is a possibility that the installer has broken. Please download again after clearing cash of a browser.

Failed to install [PANATERM USB Driver]

Failed to install [PANATERM USB Driver]
→After uninstalling PANATERM, please refer to the following procedure to disable the driver signature and then re-install PANATERM. 1. Press "Windows" + "r" key to open [Run] dialog. 2. Enter "cmd" in the [Run] dialog, and then click the [OK] button. 3. After starting the Command Prompt, enter "Shutdown /r /o /t 0", press "enter" key, and restart the computer. 4. On the "Choose an option" screen, select [Troubleshoot]→ [Advanced options]→ [Startup Settings]→ [Restart]. 5. On the "Startup Settings" screen, press "F7" key (Disable driver signature enforcement). 6. After starting the computer, execute the installation. * When you restart the computer, the driver signature returns to the valid state. * The procedure may vary depending on the operating system.

Communication

Drive name does not appear on the USB connection window after starting up PANATERM.
→Control electricity of the Drive may not be activated.
→Connection of USB communication cable may be loose, the cable itself may be damaged, or the correct cable may not be used.
→USB port of PC may not be functioning standardly. Please confirm this by the operating manual of the PC.
→Confirm that the network setting of your computer is correct and functioning normally. (Refer to the operation manual of your computer.)
→USB driver may not be installed correctly.
→A drive name is not displayed when using RS232 communication.

“Cannot detect the communication port or the drive.” is displayed and it cannot communicate.
→Control electricity of the Drive may not be activated.
→Connection of cable may be loose, the cable itself may be damaged, or the correct cable may not be used.
→Communication port (USB or COM port) of PC may not be functioning standardly. Please confirm this by the operating manual of the PC.
→Confirm that the network setting of your computer is correct and functioning normally. (Refer to the operation manual of your computer.)
→Driver may not be installed correctly.
→RS232 communication cannot be used at the same time as the block operation function. Make sure that the block operation function is disabled.
→RS232 communication is only available with the MINAS standard protocol.

Printing

Cannot print.
→Printer may not be connected properly, or printer driver may not be functioning properly. `This can be confirmed by printing the test page.
→Document size may not be configured correctly. PANATERM can be printed only to the size of A4 or Letter size. Please confirm the printer property of PC.
→Letter per row may be too much. If this is the case, then please separate the row into multiple rows to decrease down the letter per row down to the level where the entire row will appear when printed.

Uninstall

Unable to uninstall PANATERM
→File created not by PANATERM may be included in the same folder where PANATERM data file is included, In this case, the files will be protected, and uninstall cannot be completed.

Axis address

The number of the connected driver and the number of the driver checked by search are not in agreement.
→Please check that the axis address (ID) of the driver linked to a PC is 0. Moreover, please check whether the axis address (ID) of other driver overlaps in 1 to 31.
→Connection of cable may be loose, the cable itself may be damaged, or the correct cable may not be used.

PANATERM behavior

Response of PANATERM is slow. Operation is slow.
→Close window that are not in use. All windows that are hiding behind active windows are still active and are communicating with the Drive periodically.
→Other equipment may be connected to USB. If so, then please lighten the load for USB connection by e.g. stop the other equipment's operation.
→When RS232 communication is used, please raise the transmission speed of a COM port.

Window is out of the screen, and is hard to see.
→Size of screen may not be configured properly. Please configure the screen size larger than 1,024 x 768.

Cannot open window. Display of the icon is strange.
→Memory may be lacking. Please close down PANATERM, other applications that are not in use, and/or reboot the PC, and then start up the PANATERM again.

PANATERM is not reacting anymore
→Close down PANATERM by pressing [CTRL]+[ALT]+[DEL] keys
→The error dialog may be displayed on the back of the PANATERM screen. Press the [ALT]+[TAB] keys and select the error dialog.

PANATERM had closed down suddenly
→Start up the PANATERM again.

Cannot start PANATERM
→Microsoft .NET Framework 4.8 may not be installed. Please install .NET Framework 4.8 from the Microsoft homepage. Also, if you are asked to restart your computer after installation, please do so. After that, execute the PANATERM installer again.
→When installing to the Program Files folder, it has failed series definition setting. Please re - install PANATERM after remove of the following folder. [System Drive]:Users\[User Name]\AppData\Local\VirtualStore\Program Files\Panasonic Industry\MINAS\PANATERM\ini\def
→If Windows update for November 2017 has not been executed, it may become impossible to start up the system. Refer to Microsoft website and execute Windows Update, then restart PANATERM.

Parameter screen behavior

Cannot open the parameter screen
→The parameter screen cannot be opened simultaneously with the gain tuning screen, the pin assign setting screen, the setup wizard, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the object editor screen, the block operation editor screen, the block operation editor v2 screen, the deterioration diagnosis screen, the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.

Parameter value returns back to the original
→Procedure to change parameter may not have been completed. This may happen if you select other parameter or switch windows without pressing [ENTER] key or “Change of set value” button. Please make sure of your operations.
→If the parameter value is read from the file, changed parameters are not sent to the driver. If you want to send then please click the “Trans” button.

Changed parameter after EEPROM over write does not match to the change
→Parameter may be changed by other windows that will change parameter. Please click “Rcv” button to update the parameter value.

The explanation of parameter is unkind. Cannot you display it in detail?
→Please double-click the item with underline on the left sub-themes tree. Related to the page of the operation manual of driver is displayed.
→Please check on “Display - Set value description” on the lower right of the screen. Information according to each value is displayed. Or else value with decimal point is displayed.

Monitor screen behavior

Cannot open the monitor screen
→The monitor screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard, the RTEX setup screen, and Twisted table compensation screen. Please close these screens first.

Monitor screen does not change
→Stop button may be clicked. If condition indicated on upper left corner states “Monitor stopped” then click the “Start” button on toolbar.
→Communication with the drive may be severed and may be off line. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

Log cannot be saved
→Log cannot be saved if the drive is in Input / Output confirm mode. Please retry after turning the drive back to standard condition e.g. reset drive, reboot drive.

In a digital input / output signal monitor, although a count does not change, a waveform changes
→When the processing speed of PC is slow, High data may be drawn with Low data. Please lengthen the communication interval of driver and PC.

Cannot display a digital input / output signal monitor
→When you use RS232 communication with the communication speed of less than 4800 bps, please do not make a monitor cycle into 1 second.
→A background may become white, without drawing meeting the deadline when the processing speed of PC is slow. Please lengthen the communication interval of driver and PC.

Cannot do Forced Output and Drive reset.
→In the case of network type (MINAS-A5N, MINAS-A5NL, etc.), if a network is established, it cannot do Forced Output and Drive reset. Please retry after making the network unestablished.

Alarm screen behavior

Cannot open the alarm screen
→The alarm screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard, the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.

Error log does not appear
→When error has never occurred or if the log has been cleared once, the error log will not appear.
→Additional information that appears on lower left portion only contains error that occurred 1 time to 3 times before. If additional information for older error is needed, then please select error log number at the upper left portion of window.
→Errors that were not presumed will not leave log even the error occurred. In this case, the log will not be kept, and therefore will not appear.

Gain tuning screen behavior

Cannot open the gain tuning screen
→The gain tuning screen cannot be opened simultaneously with the parameter screen, the pin assign setting screen, the setup wizard, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the object editor screen, the block operation editor screen, the block operation editor v2 screen, the deterioration diagnosis screen the RTEX setup screen, the magnetic pole position estimation results copying screen and the Twisted table compensation screen. Please close these screens first.
→The gain tuning screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

Automatic resonance suppression function does not activate effectively
→When mode 1 to 4 is selected for Real time auto tuning; automatic resonance suppression function will be active. Please configure the resonance detection level with reviewing the peak value of vibration by the monitor measurement, and put check on the checkbox.

Assumes value of load characteristics does not change
→Mode of real time auto tuning is “0”, or least - squares estimation of customize setting is invalid. Please select mode between 1 and 5, or valid the least - squares estimation at customize setting.
→If characteristics variation is set as “0: No Change” then the load

characteristics estimation is stopped. Please set a value from 1 to 3.

Resonance frequency appears as default value 5,000Hz
→When resonance level is small, or does not continue for long time, and then the resonance frequency may not change from 5,000Hz. Please use the graphic wave function to read resonance frequency directly from motor speed or torque command wave, and set notch filter.

Resonance frequency appears as default value 0.0Hz
→When resonance level is small or does not continue for long time, resonance frequency may not appear changed. Please use wave graphic function to set resonance suppression control setting by measuring position deviation to read resonance frequency directly.

Cannot use clear button of resonance suppression setting
→Please click “edit” button of the applicable window. When setting/clear button is clocked, the changed setting value will be transmitted to the drive automatically.

Simplified monitor does not update
→When drive Servo is OFF, measurement will stop also. Please turn ON the Servo and click “Start measurement” button again.
→Simplified monitor will stop when test run No. reaches the measurement number. When you need to continue the measurement, then please click on the “Start measurement” button again.

Parameter cannot be set manually
→Please click on the “edit” button to enable editing. Also, please click on the “Send” button to write the parameter to drive value when after the parameter was changed.

Wave form graphic screen behavior

Cannot open the wave form graphic screen
→The wave form graphic screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard, the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.

Wave data does not appear
→Trigger condition may not be satisfied. Please confirm trigger condition, or click on measure button with no trigger condition. However, if measurement is done without trigger condition is done, and then portion of measurement condition will be cleared. Also, please be noted that trigger will not be active if both sub condition is not satisfied when trigger condition is “A and B”.

Reference wave does not appear
→Referential wave will not appear even when the “Copy” button is clicked. Please put a check in the checkbox to the referential wave you would like to see on screen at the “Format” tab on lower portion.
→When copied referential wave data exceeds 10 data, then the newly copied wave data will be over written to the referenced previous 20 data. Please delete the unnecessary reference wave data to make the data number within 10 data.

Wave graphic data cannot be selected
→Please select one of the measurement items inside the measurement item tab’s measurement condition, and open the measurement item selection window.

Digital data cannot be triggered
→When digital data is selected at applicable trigger, then use at either trigger slope being “Matched” or “Unmatched”.

The P-N voltage is not triggered. Or an unintended trigger is triggered.
→In the case of the M-frame driver, the trigger may not be activated as expected because the PN voltage is handled as a decimal number inside the driver. In that case, do not use the trigger slope match or mismatch, and adjust the trigger level by 1V.

Wave data does not appear even “W-get” button is clicked
→Trigger condition of drive may not be satisfied or configured. Please reconfirm trigger condition by clicking the “T-Get” button, with confirming that the actual operation is satisfying the trigger condition.

A trigger position shifts
→In the case of network type (MINAS-A5N, MINAS-A5NL, etc.), if a network is established in the state of trigger standby, the detected trigger position may shift.

The waveform graphic cannot be loaded.
→Data for expanded sampling cycles (extension: wgd6, wgc6, and wgp6) cannot be loaded if the connected device or the selected series does not support the expanded function. Try loading it again after connecting a device or selecting a series that supports the expanded function.

Trial run screen behavior

Cannot open the trial run screen
→The trial run screen cannot be opened simultaneously with the pin assign setting screen, the Z phase search screen, the setup wizard, the fit gain screen (2 degrees of freedom control) the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→Drive is not in ready status (Alarm or Main power source is cut off), front panel is used except for monitor mode, network is established, or Servo ON is input from outside. Please re - execute after these status is eliminated, and the trial run screen is closed.
→The trial run screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.
→When the block operation function is enabled then, the trial run screen cannot be opened. Please, disable the function by your parameter setting.

Error happens frequently
→At the operation area setting window, the drive will automatically set the safety function to default setting; Over speed level 600r/min, Over load level 50%, Software limit setting 1 revolution. Please try with tuning the gain, changing operation command, and/or changing protection function on operation area setting window.
→The setting of the speed exceeds the maximum speed of the motor. Please set the speed below maximum speed of the motor.

Operation will stop shortly
→The JOG or STEP button at operation area setting window, or JOG button (un - continuous) at Test operation window will operate the motor when only during the button is clicked.
→If motion at step operation is smaller than expected and then please understand that this setting is set by command times, and therefore the motor rotation operation will vary by electrical gear ratio. Please change the setting.
→If limitation of operation area at test operation window is the issue, then please moves to test operation window by skip button if operation limit is not needed, or return to the operation area setting window to reconfigure the operation area.
→A working range cannot be set up more than the range of -1,073,741,823 to 1,073,741,823.

Operation doesn't reach at the speed
→The acceleration is limited 10,000 to 327,670,000. Please set it within the range, referring to the following equations. [Position Control] Acceleration [command unit/s2] = Speed [r/min] / 60 x encoder resolution / Electronic gear ratio / Acceleration time [s] [Full close control] Acceleration [command unit/s2] = Speed [r/min] / 60 x encoder resolution / External scale frequency division ratio / Electronic gear ratio / Acceleration time [s] [Linear motor] Acceleration [command unit/s2] = (Speed [mm/s] x scale resolution) x 10^6 / Electronic gear ratio / Acceleration time [s]

Frequency characteristics screen behavior

Cannot open the frequency characteristics screen
→The frequency characteristics screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.

Cannot measure frequency response. The result of measurement is wrong.
→The servo on input is necessary. Please confirm the motor is in the state of servo on.
→No condition that the motor works standard it, it is not likely to be able to measure it well. Please confirm a torque limitation and driving prohibition the functions etc.
→The frequency response measurement result changes greatly depending on the measurement condition. Please measure it when you measure the speed closed-loop characteristic on the condition that the motor doesn't stop as amplitude = offset absolute value though range of motion is noted. Moreover, please measure the amplitude setting from a small value as much as possible for the first time within the range where the torque saturation is not generated, and affects the equipment negatively by a big setting.
→When a nonlinear characteristic like the backlash and the dead-band, etc. exists in the equipment, it is likely not to become a value that changes the resonance frequency, and is correct by the amplitude setting and the offset setting.
→In the case of network type (MINAS-A5N, MINAS-A5NL, etc.), if a network is established, it cannot measure frequency response. Please retry after making the network unestablished.
→When the block operation function is enabled then, it cannot measure frequency response.

Frequency response cannot analyze.
→Analysis can be used when driver and a communication state are being continued after measurement by "Torque speed" mode.
→This cannot analyze, when using RS232 communication.
→Analysis after frequency characteristic measurement cannot be used with the MINAS-A6 series.

Pin assign setting screen behavior

Cannot open the pin assign setting screen
→The pin assign setting screen cannot be opened simultaneously with all other screens. Please close all other screens first.

The setting change of the pin assign screen is not reflected in the driver operation.
→It is necessary to reset the driver. Please turn it on again after turning off the control source of the driver once.
→In the case of network type (MINAS-A5N, MINAS-A5NL, etc.), if a network is established, the change of the pin assign setting is not reflected. Please retry after making the network unestablished.

Trouble shooting screen behavior

Cannot open the trouble shooting screen
→The trouble shooting screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard, the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.

The factor that doesn't rotate doesn't occasionally disappear.
→Please execute it in order with young number when you do measures because another factor might be generated by a certain factor.

The content of the longevity diagnosis might return to the origin.
→Longevity information is recorded only every 30 minutes. Please confirm time that the control source of the driver is energized.

The Communication error tab is not displayed.
→The Communication error tab is displayed only when the connected driver is of a network type that supports the monitoring of the RTEX communication error counter (MINAS-A6NF, etc.).

Analogue input adjustment screen behavior

Cannot open the analogue input adjustment screen
→The analogue input adjustment screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→The analogue input adjustment screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

The offset self-adjustment function is not effective.
→There is a possibility for the input voltage to have exceeded the range of the offset adjustment. Please confirm the analog input voltage display of a monitor screen and a driver front panel. Whether the input voltage is in about 0V or actually measures it.

After the function the offset self-adjustment, the parameter is written in EEPROM
→After the offset self-adjustment function is executed thoroughly to a front panel of the driver, the offset parameter is automatically written in EEPROM.

Z phase search screen behavior

Cannot open the Z phase search screen
→The Z phase search screen cannot be opened simultaneously with the trial run screen, the pin assign setting screen, the setup wizard, the fit gain screen (2 degrees of freedom control) the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→Drive is not in ready status (Alarm or Main power source is cut off), front panel is used except for monitor mode, network is established, or Servo ON is input from outside. Please re - execute after these status is eliminated, and the Z phase search screen is closed.
→The Z phase search screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.
→When the block operation function is enabled then, the Z phase search screen cannot be opened. Please, disable the function by your parameter setting.

When the power supply of the driver is turned on, the numerical value at the center is not changed as -1.
→Because single-turn data is not decided until the first Z phase is detected when the motor equipped with the encoder of an incremental type is used, the display becomes -1. The numerical value at the center comes to take a value nonnegative from 0 to single-turn data maximum value by executing Z phase search.

Setup wizard behavior

Cannot open the setup wizard
→The Setup Wizard window cannot be used when Servo is turned ON by input from outside. Please confirm the motor is in the state of servo off.
→The setup wizard cannot be opened simultaneously with all other screens. Please close all other screens first.

The setting change of the setup wizard is not reflected in the driver operation.
→It is necessary to reset the driver. Writing to EEPROM after, please turn it on again after turning off the control source of the driver once.

Fit gain screen (Standard) behavior

Cannot open the fit gain screen
→The fit gain screen (Standard) cannot be opened simultaneously with the parameter screen, the gain tuning screen, the frequency characteristics screen, the pin assign setting screen, the setup wizard, the object editor screen, the block operation editor screen, the block operation editor v2 screen, the deterioration diagnosis screen, the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→The fit gain screen (Standard) cannot be used velocity control mode and torque control mode.
→The fit gain screen (Standard) cannot be displayed except the case of communication with the driver. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

Proceed to Step 3
→Please change the driving pattern according to the instructions.
→Please check behavior of real-time auto-tuning on the gain tuning screen.
→Please check behavior of easy monitor on the gain tuning screen.
→Try increasing Initial rigidity on the Other setting of Step 1. Or else try decreasing it.
→Try increasing Permissible vibration level on the Other setting of Step 1. Or else try decreasing it.

Ranking is not displayed in Step 4
→There is no data that satisfies the restrictions determined by the “Recommendation”. Please review the “Recommendation” and Recommendation setting.
→There is no data below the Target value of stabilization time. Please increase the Target value of stabilization time.
→It may exist in the Recommendation data below Initial rigidity. After returning to Step 1, please decrease Initial rigidity on the Other setting to measure again.

Fit gain screen (2 degrees of freedom control) behavior

Cannot open the fit gain screen (2 degrees of freedom control)
→The fit gain screen (2 degree of freedom control compatible) cannot be opened simultaneously with the parameter screen, the gain tuning screen, the trial run screen, the frequency characteristics screen, the pin assign setting screen, the Z phase search screen, the setup wizard, the object editor screen, the block operation editor screen, the block operation editor v2 screen, the deterioration diagnosis screen the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→The fit gain screen (2 degrees of freedom control) cannot be used velocity control mode, torque control mode and full close control mode.
→The fit gain screen (2 degrees of freedom control) can be displayed only when the combination of driver and selected series is correct.
→The fit gain screen (2 degrees of freedom control) is supported only linear type (LINEAR) when the driver is Linear and DD Control Drive (MINAS-A6BL etc.). Rotary type (DD) is not supported.
→When the block operation function is enabled then, the fit gain screen (2 degrees of freedom control) cannot be opened. Please, disable the function by your parameter setting.

Cannot open the log on of fit gain screen
→The log on of fit gain screen cannot be displayed except the case of communication with the driver. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.
→The log on of fit gain screen can be displayed only when driver have 2 degrees of freedom control (MINAS-A5II, MINAS-A6 etc.).

Proceed to Step 3
→Please check the load condition.
→If the driver is Linear and DD Control Drive, please review the parameter settings of motor inertia (Mass of motor's movable section), Rated motor torque (Rated motor thrust).
→Try increasing Initial rigidity on the Machine setting of Step 1. Or else try decreasing it.
→Please change the Mode setting of Step 1 to Balanced or Stability preferentially. Or else try decreasing it.

Object editor screen behavior

Cannot open the object editor screen
→The object editor screen cannot be opened simultaneously with the parameter screen, the gain tuning screen, the pin assign setting screen, the setup wizard, the fit gain screen (Standard) and the fit gain screen (2 degrees of freedom control), the block operation monitor screen, the block operation editor screen, the block operation editor v2 screen, the deterioration diagnosis screen the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→Object editor screen can be displayed only if the series with uses the EtherCAT Communication is selected. (Example)MINAS-A5B

Cannot transmit and edit object value
→Please check that “ESM Condition” is “INIT” and  is displayed at the next to the “Change of set value” button.
→Please check object attribute is RW at column of “Attrib”.

Object value returns back to original
→Procedure to change object may not have been completed. This may happen if you select other object or switch windows without pressing [ENTER] key or “Change of set value” button. Please make sure of your operations.
→If the object value is read from the file, changed objects are not sent to the driver. If you want to send then please click the “Trans” button.

Changed object after EEPROM over write does not match to the change
→The object may be changed by other windows that will change parameter. Please click “Rcv” button to update the object value.
→The some of the objects may not displayed in the Writing to EEPROM screen if you change.
→The some of the objects may be changed in conjunction. These objects will be applied last changes.

Battery refresh screen behavior

Cannot open the battery refresh screen
→The battery refresh screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard screen, the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.
→The battery refresh screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

Cannot execute the battery refresh.
→Battery refresh can be executed in the case of a combination of control mode and the encoder that support.
→When the block operation function is enabled then, battery refresh cannot execute.

Block operation editor screen behavior

Cannot open the block operation editor screen
→The block operation editor screen cannot be opened simultaneously with the parameter screen, the gain tuning screen, the pin assign setting screen, the setup wizard, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the object editor screen, the block operation editor v2 screen, the deterioration diagnosis screen the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→When the block operation function is disabled then, the block operation editor screen cannot be opened. Please check of your parameter setting.

Parameter value returns back to the original
→Procedure to change parameter may not have been completed. This may happen if you select other parameter or switch windows without pressing [ENTER] key. Please make sure of your operations.
→If the parameter value is read from the file, changed parameters are not sent to the driver. If you want to send then please click the “Trans” button.

Changed parameter after EEPROM over write does not match to the change
→Parameter may be changed by other windows that will change parameter. Please click “Rcv” button to update the parameter value.

Block operation monitor screen behavior

Cannot open the block operation monitor screen
→The block operation monitor screen cannot be opened simultaneously with the pin assign setting screen, the setup wizard screen, the object editor screen, the block operation editor v2 screen, the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.
→The block operation monitor screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

Block operation editor v2 screen behavior

Cannot open the block operation editor v2 screen
→The block operation editor v2 screen cannot be opened simultaneously with the parameter screen, the gain tuning screen, the pin assign setting screen, the setup wizard, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the object editor screen, the block operation editor screen, the deterioration diagnosis screen, the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→When the block operation function is disabled then, the block operation editor screen cannot be opened. Please check of your parameter setting.

Parameter value returns back to the original
→If the parameter value is read from the file, changed parameters are not sent to the driver. If you want to send then please click the “Trans” button.

Changed parameter after EEPROM over write does not match to the change
→Parameter may be changed by other windows that will change parameter. Please click “Rcv” button to update the parameter value.

Deterioration diagnosis screen behavior

Cannot open the deterioration diagnosis screen
→The deterioration diagnosis screen cannot be opened simultaneously with the parameter screen, the gain tuning screen, the pin assign setting screen, the setup wizard screen, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the object editor screen, the block operation editor screen, the block operation editor v2 screen, the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→The deterioration diagnosis screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

RTEX Setup screen behavior

Cannot open the RTEX setup screen
→The RTEX setup screen cannot be opened simultaneously with all other screens. Please close all other screens first.

Magnetic pole position estimation results copying screen behavior

Cannot open the Magnetic pole position estimation results copying screen.
→The magnetic pole position estimation results copying screen cannot be opened simultaneously with the parameter screen, the gain tuning screen, the trial run screen, the pin assign setting screen, the analogue input adjustment screen, the Z phase search screen, the setup wizard, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the object editor screen, the block operation editor screen, the block operation editor v2 screen, the deterioration diagnosis screen, the RTEX setup screen, and the Twisted table compensation screen. Please close these screens first.
→The magnetic pole position estimation results copying screen cannot be displayed communication with the driver is severed. Please confirm if the unconnected mark is on the left side of status bar at the lowest portion of PANATERM screen.

Twisted table compensation screen behavior

Cannot open the Twisted table compensation screen.
→The Twisted table compensation screen cannot be opened simultaneously with all other screens. Please close all other screens first.

Twisted table compensation-Reduction of torque interference cannot be performed.
→This can only be performed if both drivers of the Y1 axis and Y2 axis are online. Check the status of the connection to the drivers.
→Cannot be executed if there is an alarm on either the Y1 axis or Y2 axis drivers. Check the alarm status on the monitor.
→Cannot be executed unless both drivers of the Y1 axis and Y2 axis are homing completed. Check the homing status on the monitor.
→Cannot be performed if a compensation point list does not exist. Please create a compensation point list in create table.
→Cannot be performed during adjustment. Please wait for the adjustment to be completed.
→The polarity (Polarity) of the Y1 and Y2 axes must be supported. Check the polarity (Polarity).
→If repetitive compensation is on, check that the list of compensation points on the tool matches the compensation table on the driver.
→When the Two-axis coordinated operation expansion function is enabled, it cannot be executed. Please check the Two-axis coordinated operation expansion function.

Twisted table compensation-Absolute precision improving cannot be performed.
→This can only be performed if either the Y1 axis or the Y2 axis is online. Please check the status of the connection to the drivers.
→If the electronic gear ratio is displayed as "Too small" or "Too large", it cannot be executed. Please check the settings of the electronic gear ratio.
→Cannot be executed without loading the measurement data file. Please click "Read file" and load the measurement data file.
→Cannot be executed unless the reception from the driver is completed. Please click "Rcv" to complete the reception of the correction values.
→For linear type drivers, the feedback scale resolution needs to be 1 or higher. Please check the setting value of the feedback scale resolution.
→Polarity support is required for this operation. Please check the polarity setting.

Linear motor initial adjustment screen behavior

Cannot open the Linear motor initial adjustment screen.
→The Linear motor initial adjustment screen cannot be opened simultaneously with the parameter screen, the gain tuning screen, the wave form graphic screen, the trial run screen, the frequency characteristics screen, the fit gain screen (Standard), the fit gain screen (2 degrees of freedom control), the pin assign setting screen, the analogue input adjustment screen, the Z phase search screen, the setup wizard, the object editor screen, the block operation editor screen, the block operation editor v2 screen, block operation monitor screen, the deterioration diagnosis screen, the RTEX setup screen, the magnetic pole position estimation results copying screen, and the Twisted table compensation screen. Please close these screens first.
→The Linear motor initial adjustment screen can only be displayed when communicating with the driver. Please check that there is no disconnected mark on the left side of the status bar at the bottom of the PANATERM screen.

Cannot execute the adjustments or measurements.
→When the block operation function is enabled, adjustments or measurements cannot be executed. Please check of your parameter setting.

After-Sale Service

Technical information

Technical information of this product (Operating Instructions, CAD data) can be downloaded and consulting questions from the following web site.

https://industrial.panasonic.com/ac/e/

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