

The Meister for AU9290 (EU3907)
Users Manual

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Date '18. 3.21

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The Meister for AU9290 (EU3907) Users Manual

1. Overview

「The Meister for AU9290」 (code number: EU3907) which developed in order to change the parameter of AU9290 and AU9300 assists you to set-up AU9290 and making a trial operation. This manual provides comprehensive information for it.

In first 3 Chapters, from 1~3, we describe about installation of 「The Meister of AU9290」, and in Chapters from 5 to 6 describe about actual manner to use it.

When the software doesn't work well, please refer to 「[Chapter 7. Trouble shooting](#)」.

Also, this document uses a link including a table of contents. If click the URL and blue underlines, moves to the appointed place.

2. Operating requirements

The followings are necessary to run The Maister of AU9290.

2.1. PC

- 「The Meister for AU9290」 runs on PC with a Windows® Vista SP1 or Windows® 7 32bit or 64bit or Windows® 10 operating system.

(Administrator authority are required to install and configure the driver for 「Virtual COM Port」.)

Note 1: 「The Meister for AU9290」 verification at Windows 8 is unconfirmed.

(If absolutely necessary, please try 「[Chapter 8. Operation with Windows10](#)」.)

Note 2: When the software doesn't start up, please refer to 「[Chapter 8. Operation with Windows10](#)」.

- The computer screen resolution should be 1024 × 768 DPI or more.

Software download : Available from <https://www.tamagawa-seiki.com/downloads/soft/>

: 「Set up software(Ver.xxx)」 and 「USB driver」

2.2. USB Cable

A USB cable is necessary to connect AU9290 (or AU9300) with your computer.

Use a Type A to Mini-B USB cable. (commercially available.)

3. USB port setting

The USB Driver 「VCP (Virtual COM Port Driver)」 needs to be installed to connect AU9290 (or AU9300) with PC.

Manual is as below.

[3.1 Installation of driver software](#)

[3.2 Set up pf device driver](#)

Please obtain this driver software from the following URL.

<https://www.tamagawa-seiki.com/downloads/soft/>

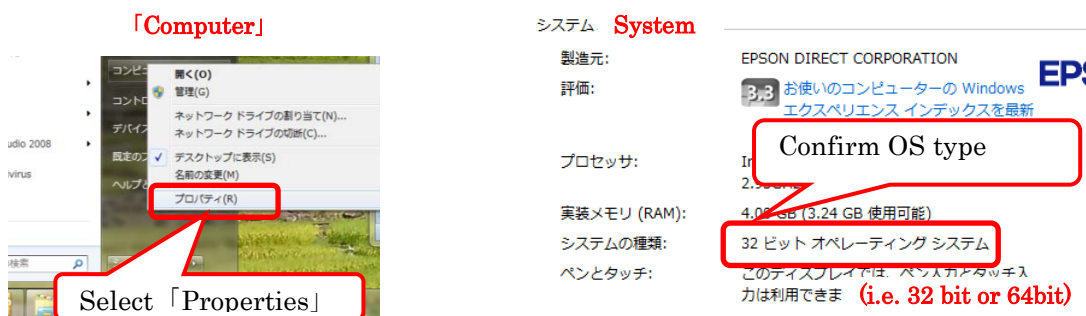
3.1. Installation of 「Virtual COM Port Driver」

First of all, install Virtual COM Port driver for the communication between the PC and AU9290. This procedure depends on the OS type of your PC.

(1) Open the Windows 「Start」 menu, right-click on 「Computer」, select 「Properties」.

(Alternatively, open the Windows 「Start」 menu, select 「Control Panel」 and 「System and Security」 and click 「System」).

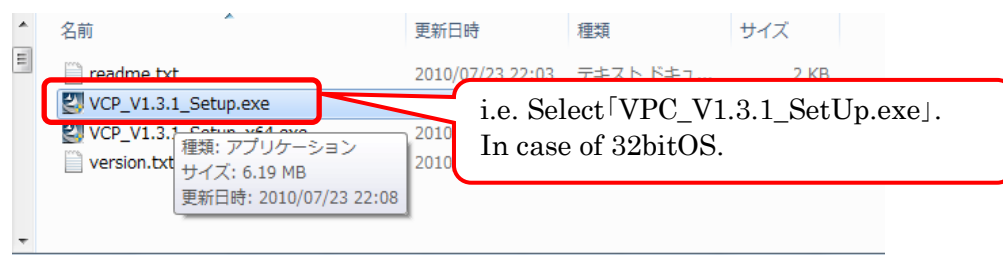
Please confirm OS type. (i.e. 32 bits or 64bits)



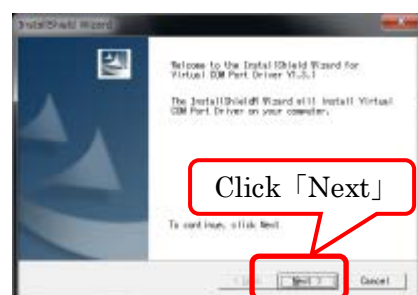
(2) Please open the folder 「/USBDriver」 in free provided software package, and select a correct file from 2 files.

「VPC_V1.3.1_SetUp.exe」 : For 32bitOS

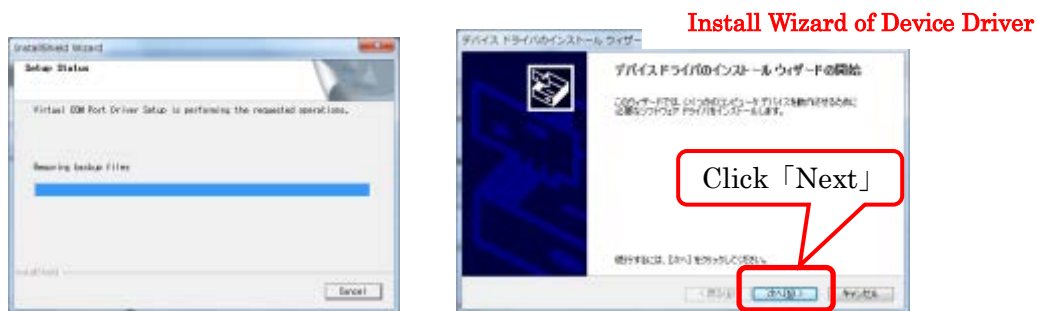
「VCP_V1.3.1_SetUp_x64.exe」 : For 64bitOS」



(3) The warning message will appear, but please proceed with the installation. At the 「InstallShield Wizard」 screen, click 「Next」 to continue.



- (4) Running 「Setup Status」, display will change to 「install wizard of Device Driver」.
Click 「Next」 to continue.



- (5) When the installation is complete, click 「Finish (Complete)」 to end the「Install Wizard of Device Driver」 program. All are completed for 「Virtual COM Port Driver」 installation.



3.2. Installation of Device Driver

Install Device Driver next to make USB connection.

There are 2 methods to install Device Driver. If the method 3.2.1 does not work, please try the method 「[Chapter 3.2.2 Manual installation of Device Driver](#)」. However, in that case, you must have administrator authority.

3.2.1. Automatic installation of Device Driver

- (1) Please connect the computer and AU9290 (or AU9300) with a USB cable as Fig 1, and then turn on the power of AU9290 (or AU9300).

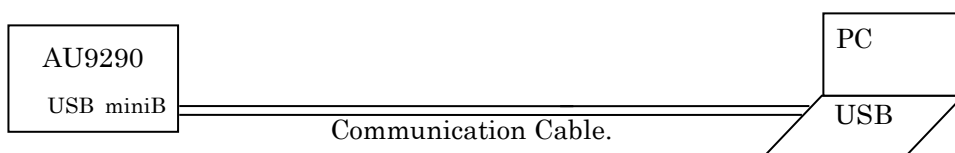
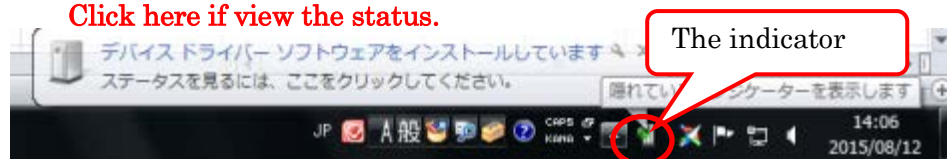


Fig 1 Connection of the computer and Driver

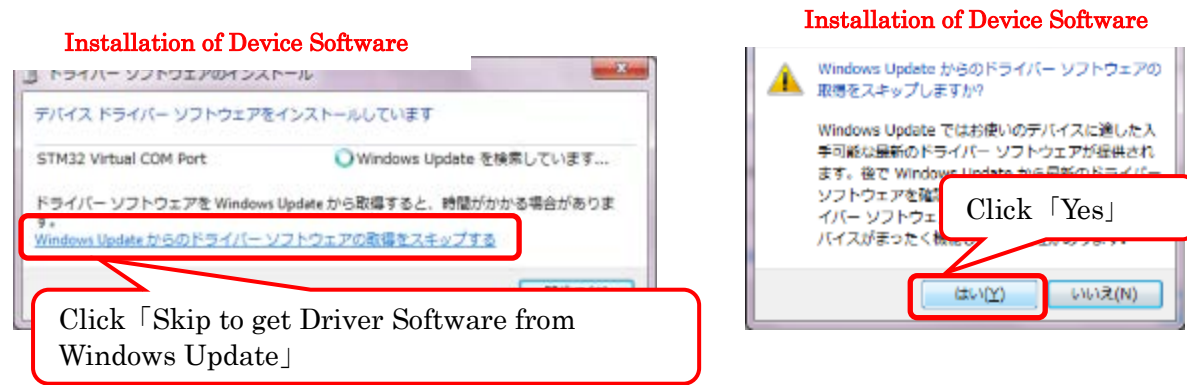
- (2) A message such as the one below will be displayed, and the computer will recognize the new hardware and automatically begin device driver installation.

During the Installation of Device Software
Click here if view the status.

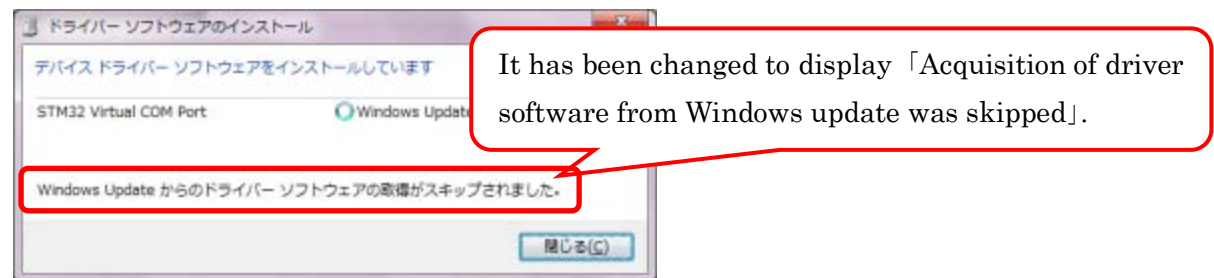


- (3) On Windows7, Device Driver software is automatically installed, and it can't be stopped until installation is completed. It takes about 5 minutes. The following methods are effective to shorten time.

- (4) After starting installation, please open the indicator in Task Bar. (See above) Please click 「Skip to get Driver Software from Windows Update」, and click 「Yes」to continue.



- (5) Display will change to 「Skipped Driver Software from Windows Update」.

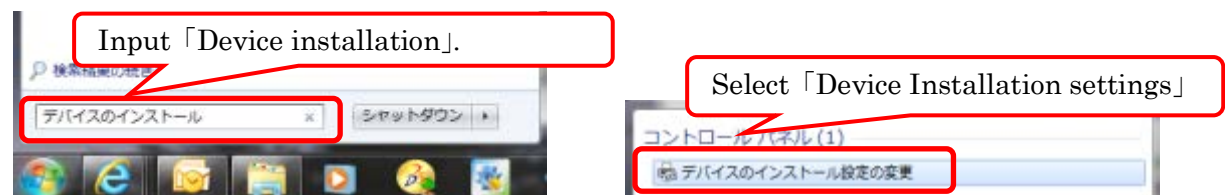


- (6) When the 「Ready to use」window will be displayed, click 「Close」 to end the installation of Device Driver Software .



3.2.2. Manual installation of Device Driver

- (1) Prior to the manual installation, you need to change device installation settings. Open the Windows 「Start」 menu, please input 「Device installation」 in 「Search programs and files」. The following window will be displayed as 「Change of Device installation Settings」(「Device and Printer」 on Control Panel), please click it.



- (2) A new window pops up asking you whether you want Windows to download driver software. Click to select 「No, let me choose what to do」, select 「Never install driver software from Windows update」, and then click 「Save Changes」.

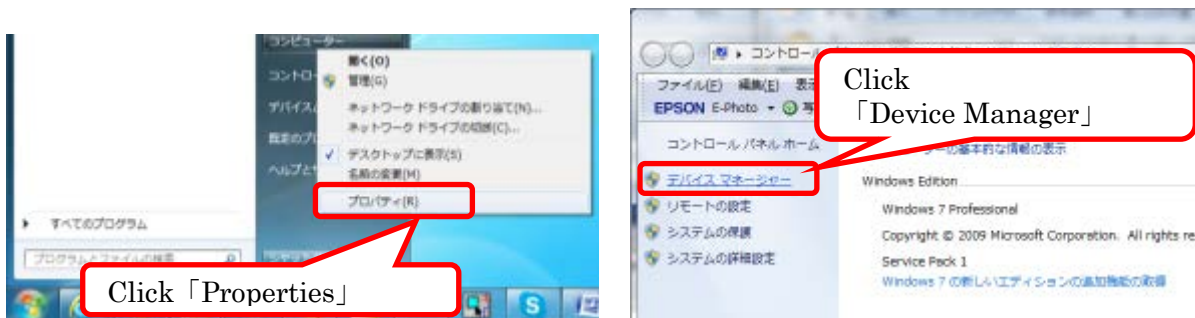
Note: To execute 「Save Changes」, Administrator authority is necessary.



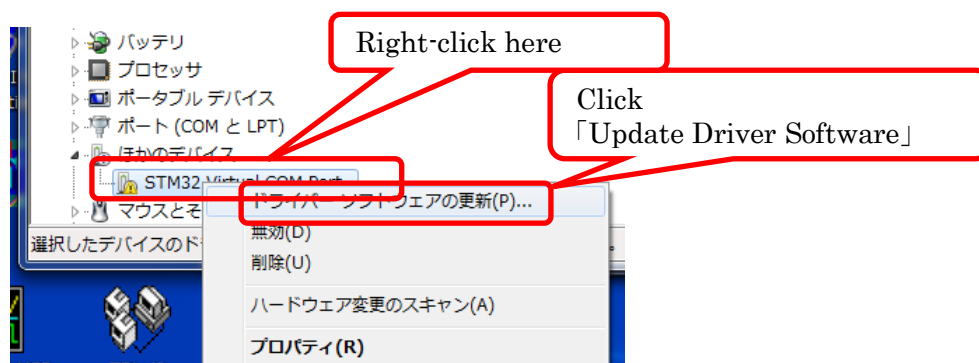
- (3) Please connect the computer and AU9290 (or AU9300) with a USB cable as [Fig 1](#), and then turn on the power of AU9290 (or AU9300).

- (4) Start 「Device manager」. Starting method is as below.

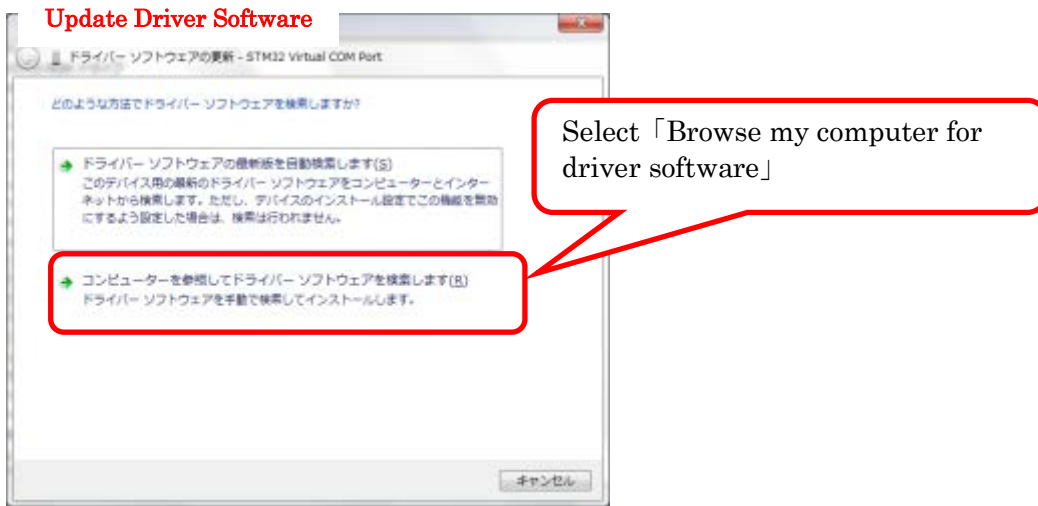
- Open the Windows 「Start」 menu, right-click on 「Computer」, select 「Properties」.
- Click 「Device manager」 on the window that appears.



- (5) Right-click on 「STM32(or STMicroelectronics) Virtual COM Port」 in 「Other Device」, and select 「Update Driver Software」.



(6) Select the 「Browse my computer for driver software」 on the window that appears.



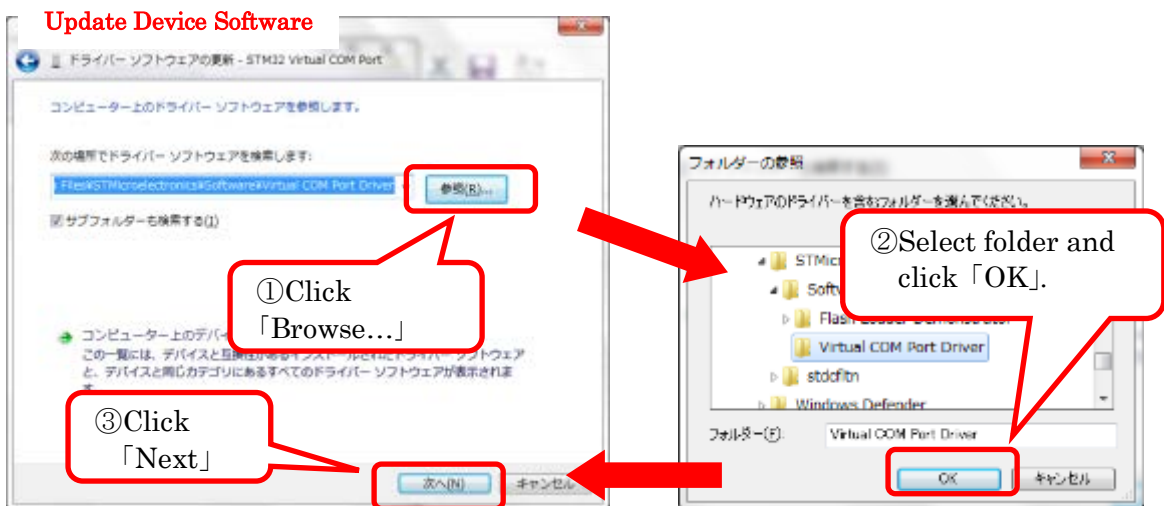
(7) Click 「Browse...」 and select following folder.

In case of 32bitOS :

C:\Program Files\STMicroelectronics\Software\Virtual COM Port Driver

In case of 64bitOS :

C:\Program Files (x86)\STMicroelectronics\Software\Virtual COM Port Driver



(8) Please click 「Next」.

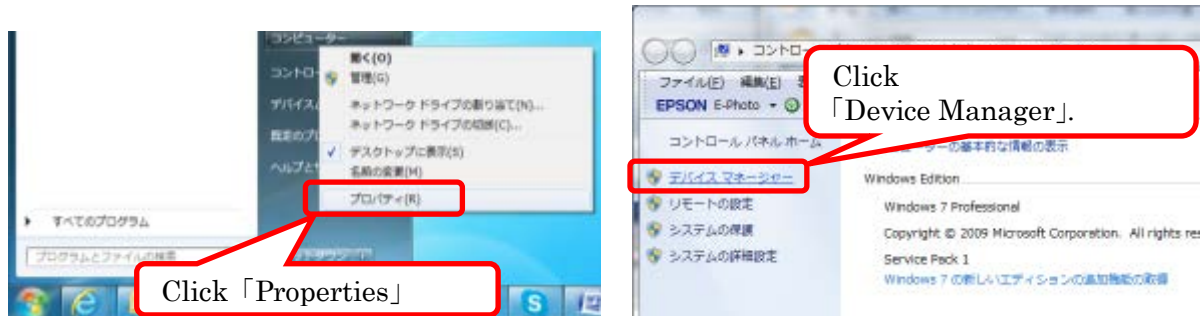
(9) When the installation is complete, click 「Close」 to end the 「Update Device Software」.



3.3. Confirmation of COM Port name

In order to make communication with AU9290, you must confirm COM Port name.

- (1) Please connect the computer and AU9290 (or AU9300) with a USB cable as [Fig 1](#), and then turn on the power of AU9290 (or AU9300).
- (2) Start 「Device manager」. Starting method is as below.
 - Open the Windows 「Start」 menu, right-click on 「Computer」, select 「Properties」.
 - Click 「Device manager」 on the window that appears.



- (3) Click 「Port」

You will see several COM port names are displayed. Find the COM port name indicated 「STMicroelectronics Visual COM Port」.

The COM port name is used for PC to make communication with AU9290 (or AU9300).

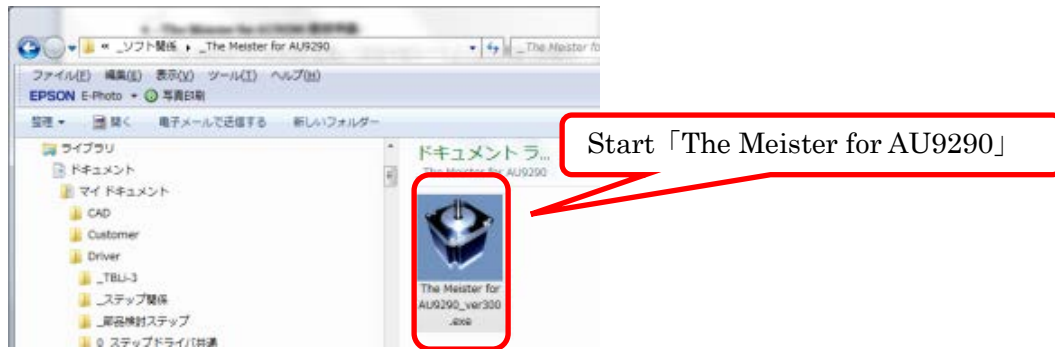


4. How to change language

Software is available from below URL.

<https://www.tamagawa-seiki.com/downloads/soft/>

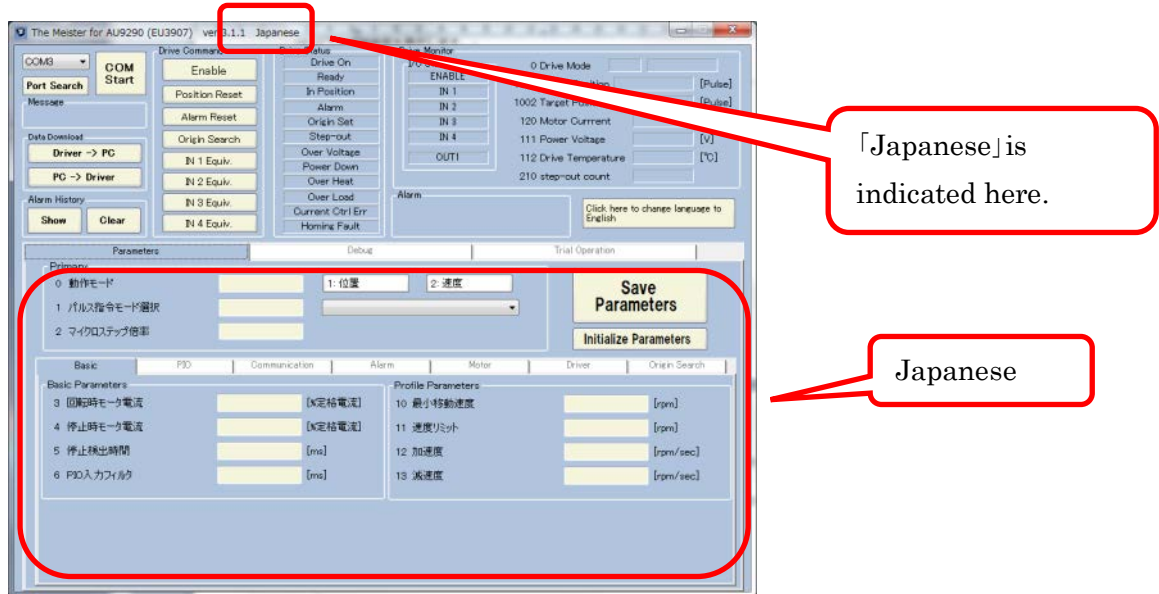
(1) Start 「The Meister for AU9290_ver xxx.exe」.



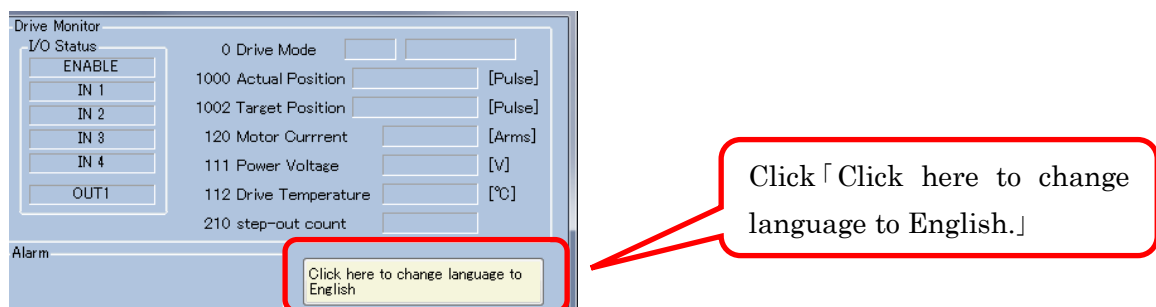
(2) This is starting display.



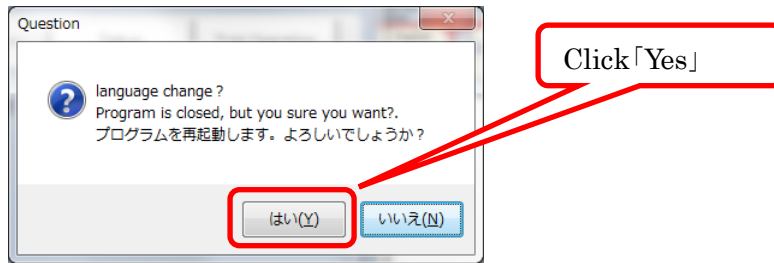
(3) This display is coming up next. (Actual operation display) 「Japanese」 is selected at first.



(4) In order to change language to English, click 「to English」.



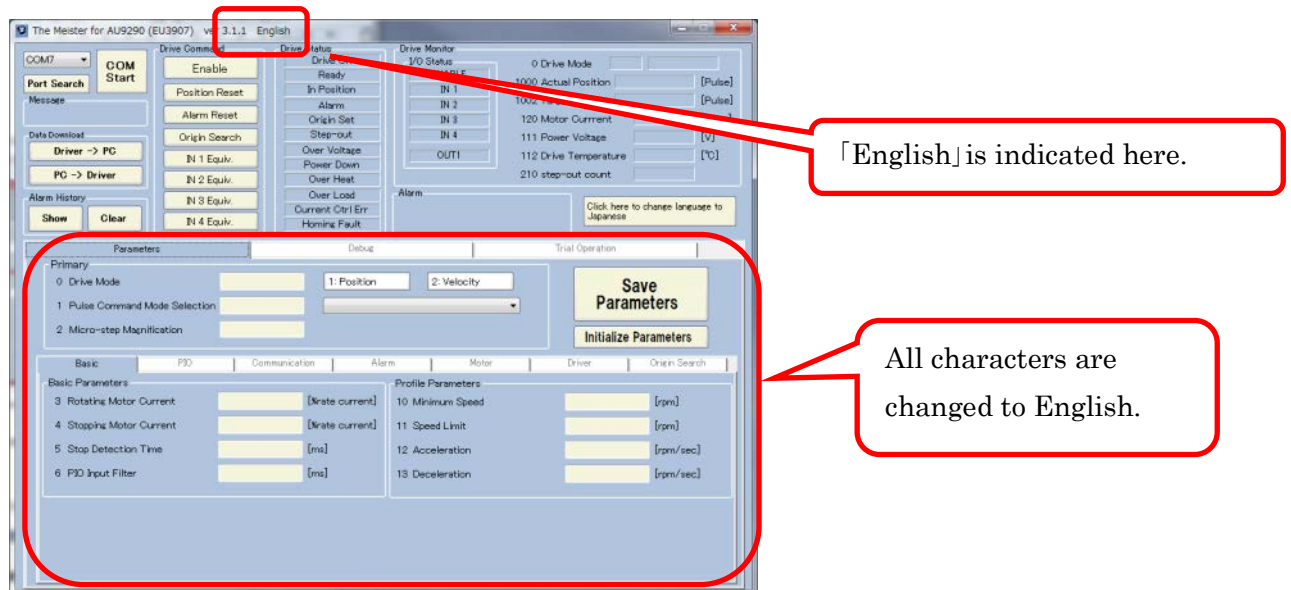
(5) Click「Yes」



(6) Restart software



(7) This display is coming up next by English mode.



Language is changed to English from now on.

5. Using 「The Meister for AU9290」 (Basic Version)

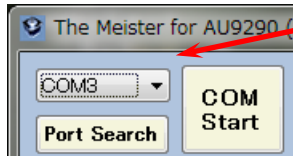
5.1. Introduction

This Chapter describes basic manner to use 「The Meister for AU9290」. Detail settings for other functions are described in 「[Chapter 6 Using 「The Meister for AU9290」 \(Detail version\)](#)」.

5.2. 「Communication connection」

5.2.1. Display explanation

The below indicators shown the communication connection between PC and AU9290 (or AU9300) Driver.



Port name connect with PC.

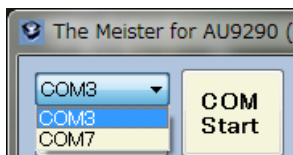
: Port names list will be indicated by clicking here.

「COMStart」 : Communication connection will be started by clicking this button.

「PortSearch」 : Please click this button if you cannot find the expected port name.

5.2.2. Connection methods

- (1) Confirm if port name is correct. (See 「[Chapter 3.3 Confirmation of COM Port name](#)」)
- (2) Otherwise, click port name and select the correct it.
- (3) If you cannot find the port name, please check connection line and power of AU9290 (or AU9300). And then click 「PortSearch」 button.
- (4) Click port name button again and select your port name.
- (5) Click 「COMStart」 button.
- (6) When communication connection is finished successfully, the color will be changed to right green and the indication is changed to 「COMStop」.



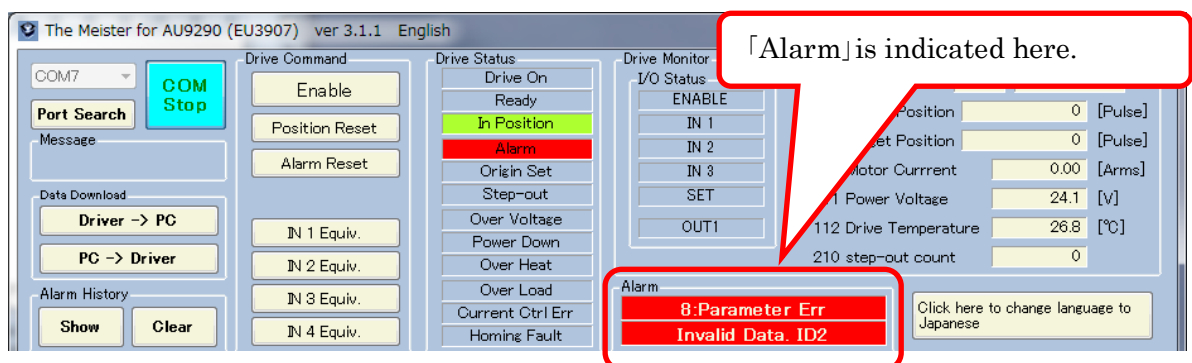
When port name button clicked: (2)



When connected successfully: (5)

5.3. 「Alarm」

When some alarms is detected in AU9290, the alarm code and alarm name are indicated in 「Alarm」. (The following picture is indicating the case 「alarm code 8」 is detected.)



5.4. 「Parameters Window」

5.4.1. Change parameters

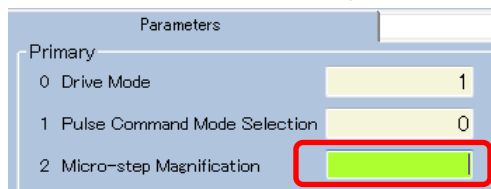
The procedure to change a parameter is shown below. The descriptions below are the case to change parameter 「2 Micro-step Magnification」 for example.

5.4.1.1 Delete previous parameters

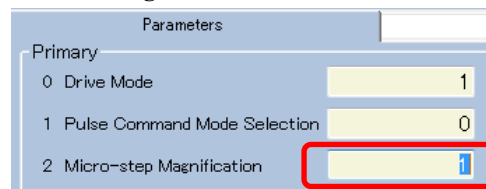
Frist, delete the previous parameter by one of the following two methods. **Don't use 「Delete」 key** while you change a value in a text box.

- (1) Using 「Back space」 key and erase the previous parameter.
- (2) Drag the previous parameter.

The case of the method (1), the color of the frame will change.



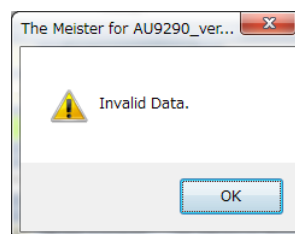
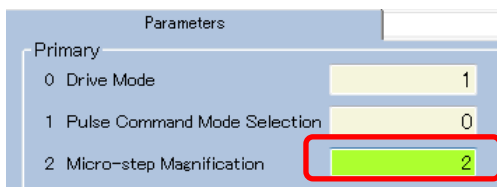
(1) Using 「Back space」 key



(2) Dragging the previous parameter

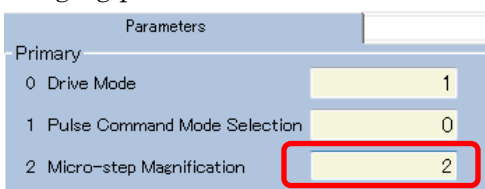
5.4.1.2 Input new parameters

When you input the new parameter, the color of the frame will change to light green. **Don't input a non-numeric data.** If you input non-numeric data and press 「Enter」 key, an error message is displayed, changing parameter will be canceled.



「Error message」

If you click 「**Enter**」key, the color of the frame goes back to original state. It is indicating changing parameter is finished successfully.

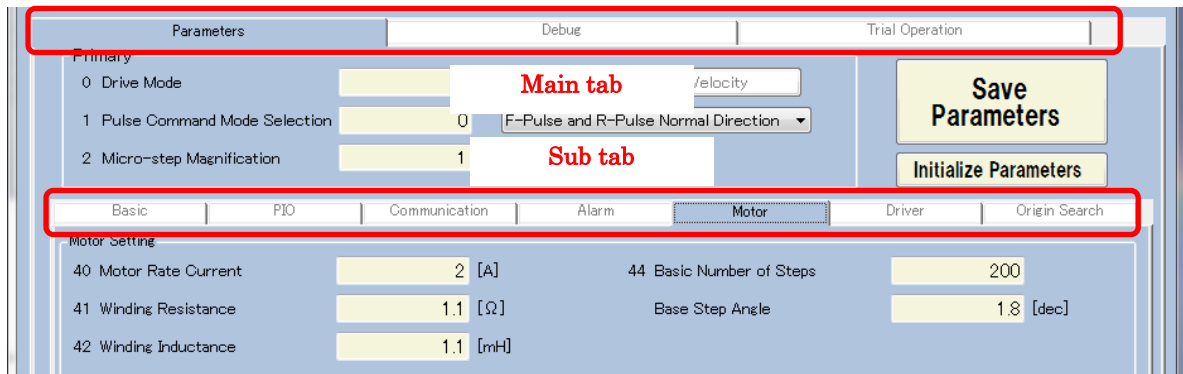


5.4.1.3 Cancel parameters

If you click 「**Esc**」 key before 「Enter」 key, the color of the frame goes back to original state, and changing parameter is canceled.

5.4.2. 「Motor」

Motor operation settings. Please refer detail setting to Users manual Chapter 10.10.



(1) Maintain the Main tab at 「Parameters」, and please change the Sub tab to 「Motor」.

(2) Input value in following IDs. This is used for the instruction manual chapter 6.

「Motor Rate Current」 (ID#40) : Motor rate current [A]※

「Winding Resistance」 (ID#41) : Motor winding resistance [Ω]※

「Winding Inductance」 (ID#42) : Motor winding inductance [mH]※

「Basic Number of Steps」(ID#44) : $360 \div$ basic step angle

(「Basic Step Angle」 : Motor's original angle 1.8, 0.9 etc [dec])

※ In the software, following unit conversion is performed.

「Motor Rate Current」 : [0.01A]

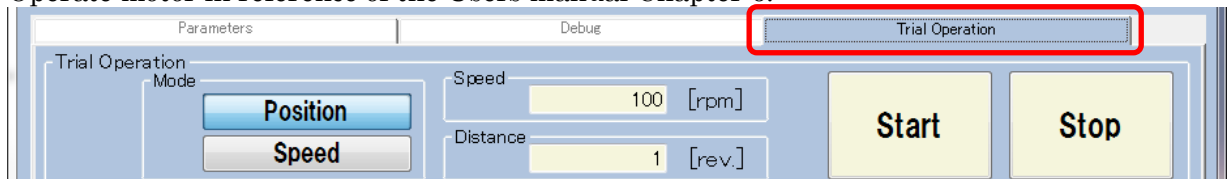
「Winding Resistance」 : [0.01Ω]

「Winding Inductance」 : [0.01mH]

(3) After inputting value, click 「Save Parameters」 and save to Non-volatile memory.

5.4.3. 「Trial Operation」

Operate motor in reference of the Users manual Chapter 6.



(1) Change the Main tab to 「Trial Operation」.

(2) Decide each values of 「Mode」, 「Speed」 and 「Distance」.

「Mode」 : Select 「Position」 or 「Speed」 (Default : 「Position」)

「Speed」 : Input rotation speed. (Default : 100 [rpm])

「Distance」 : Input rotation distance. (Default : 1 [rev.])

In case of 「Speed」, this is unnecessary.

☆ Since the color will change when changing the value, click 「Enter」 key to confirm.

(3) Click 「Start」 button, motor start to rotate. Rotation is stopped by following condition.

- In case of 「Position」, move the value in 「Distance」.
- In case of 「Position」 or 「Velocity」, click 「Stop」 button.

(4) It is possible to change 「Speed」 and 「Distance」 during motor rotating. Also, if a negative value input, motor rotate in the opposite direction. (Please pay attention to large change of value.)

6. Using 「The Meister for AU9290」 (Detail version)

6.1. Introduction

AU9290 has various functions. This chapter explains the detail setting for them.

Basic manner to use 「The Meister for AU9290」, please refer [5 「Using 「The Meister for AU9290」 \(Basic version\)」](#).

AU9290 has 3 operation modes: Pulse command operation mode, PIO operation mode, and Serial communication operation mode.

The operation modes that a following section is related to are written on the line of the title: For example, on 「6.2 Setting Display」 「Pulse」, 「PIO」 and 「Communication」 are written.

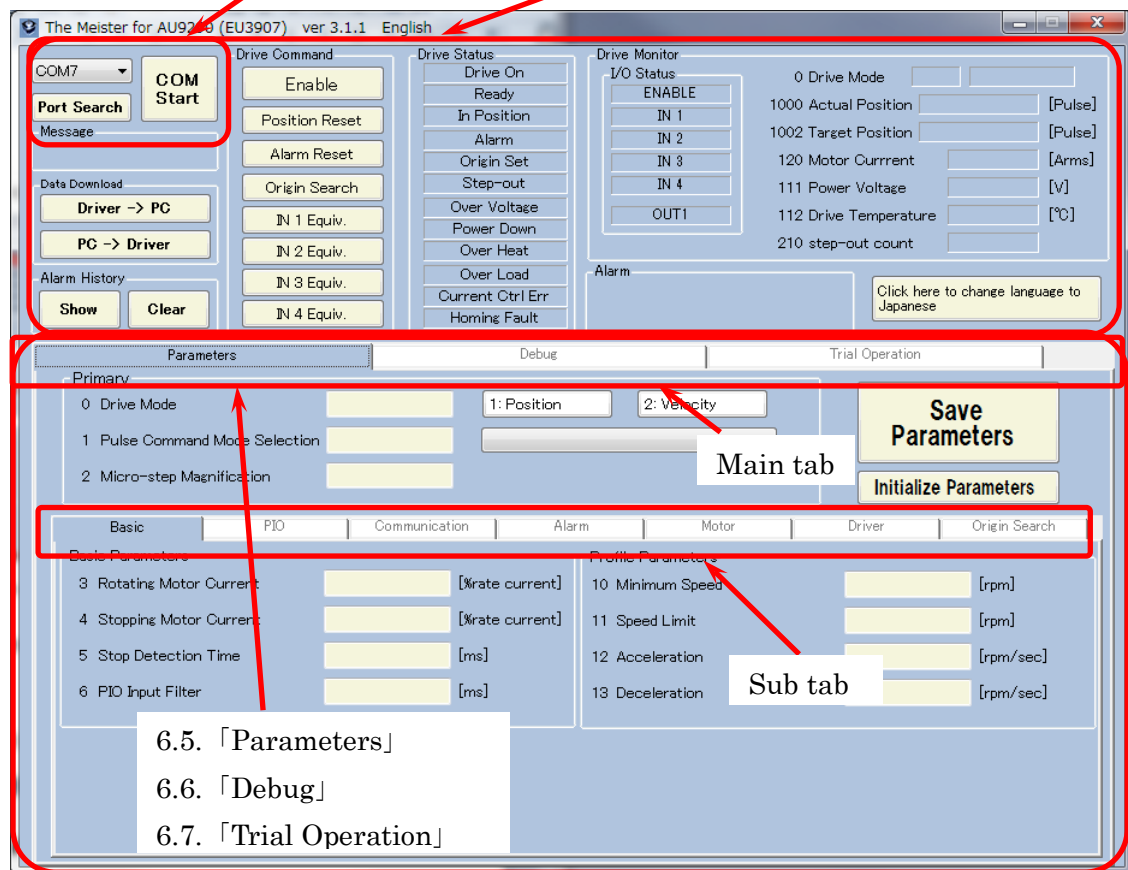
This means that. the section 6.2 is related to 「Pulse mode」, 「PIO mode」 and 「Serial Communication mode」.

6.2. Setting Display : 「Pulse」, 「PIO」, 「Communication」

Following is setting display.

6.3 Communication command

6.4. Status



Structure in above setting display is as follow.

[6.3 「Communication」](#) : For communication connection between PC and driver.

[6.4 「Status」](#) : For Driver status indication and command.

Menu in the Main tab

[6.5 「Parameters」](#) : For settings parameters. There is the Sub tab.

[6.6 「Debug」](#) : For parameter debug.

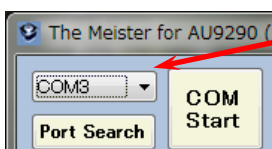
[6.7 「Trial Operation」](#) : For trial operation.

6.3. 「Communication」

: 「Pulse」, 「PIO」, 「Communication」

6.3.1. Display explanation

The below indicators shown the communication connection between PC and AU9290 (or AU9300) Driver.



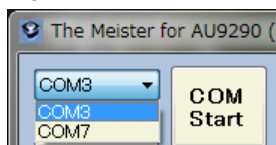
Port name : Port names list will be indicated by clicking here.

「COMStart」 : Communication connection will be started by clicking this button.

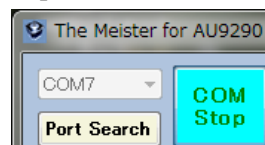
「PortSearch」 : Please click this button if you cannot find the expected port name.

6.3.2. Connection method

- (1) Confirm if port name is correct. (See 「[Chapter 3.3 Confirmation of COM Port name](#)」).
- (2) Otherwise, click port name and select the correct it.
- (3) If you cannot find the port name, please check connection line and power of AU9290. And then click 「PortSearch」 button.
- (4) After confirming, click「COMStart」 button.
- (5) When communication connection is finished successfully, the color will be changed to right green and the indication is changed to 「COMStop」.



When port name button clicked: (2)



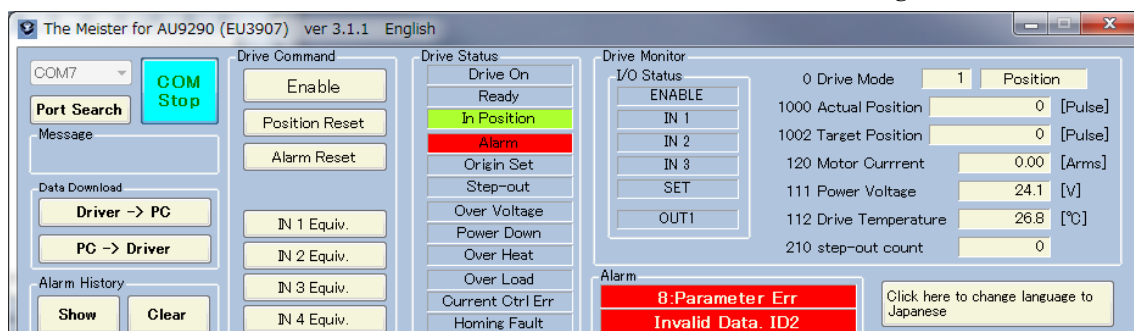
When connected successfully: (5)

6.4. 「Status」

6.4.1. Display explanation

: 「Pulse」, 「PIO」, 「Communication」

Current driver status is monitored. (In case of 「Alarm Code 8」 is generated)



Message : Information about the communication.

Data Download : Data input/ output. (Refer to [6.4.2 「Data Download」](#))

Alarm History : Alarm history is indicated and erased. (Refer to [6.4.3 「Alarm History」](#))

Drive Command : Operation 「Drive Command」 is done to driver. (Refer to [6.4.4 「Drive Command」](#))

Drive Status : Operation status is monitored. (Refer to [6.4.5 「Drive Status」](#))

Drive monitor : Data is constantly monitored. 「I/O Status」 indicates I/O status. 「Control Mode」 indicates current command mode. (Refer to [6.4.6 「Drive Monitor」](#))

Alarm : Alarm status is indicated. (Above display alarm code 8: parameter error)

※ If click 「Click here to change language to Japanese」, display will be changed in Japanese.

6.4.2 「Data Download」

: 「Pulse」, 「PIO」, 「Communication」

6.4.2.1 Overview

Data input/ output

「Driver -> PC」 : For downloading data in Driver to PC.

「PC -> Driver」 : For uploading data in PC to Driver.

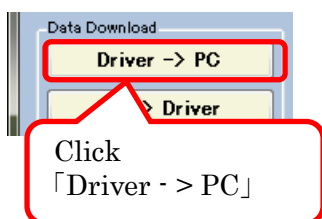
6.4.2.2 「Driver -> PC」

- (1) Click 「Driver -> PC」 button.
- (2) Input folder name or file name. File extension is 「.tscs」. Initial value is set as 「AU9290.tscs」.
- (3) Click 「Save」 and data is saved.
- (4) Saved file contents are follows. This file can be found in the 「Notepad」.

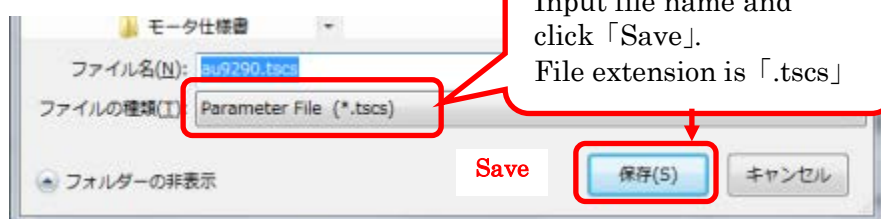
Frist line : Data save Date and Time.

2nd line and after : 「ID」, 「Data」 and 「ID description」

※ ID consists of 0 to 255, 1000 to 1009.



(1) Data Download



(2) Save file mane input



(3) Saving

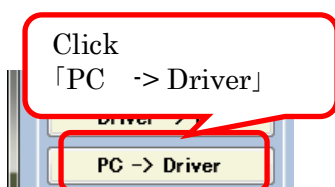


(4) Contents of saved file. (You can see in the「Notepad」)

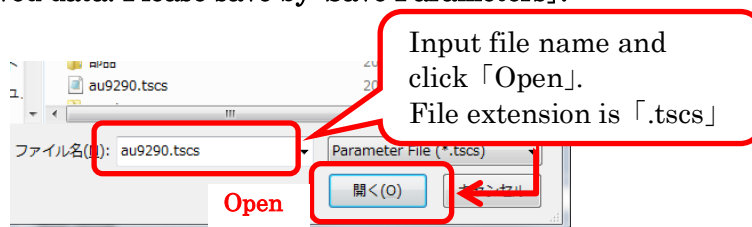
6.4.2.3 「PC -> Driver」

- (1) Click 「PC -> Driver」 button.
- (2) Select folder name and file name for uploading. File extension is 「.tscs」.
- (3) Click 「Open」 and start uploading.

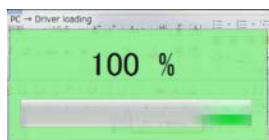
※ This operation cannot be saved data. Please save by「Save Parameters」.



(1) PC -> Driver



(2) File selection for uploading



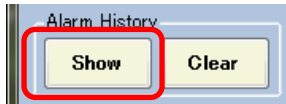
(3) Uploading

6.4.3. 「Alarm History」

: 「Pulse」, 「PIO」, 「Communication」

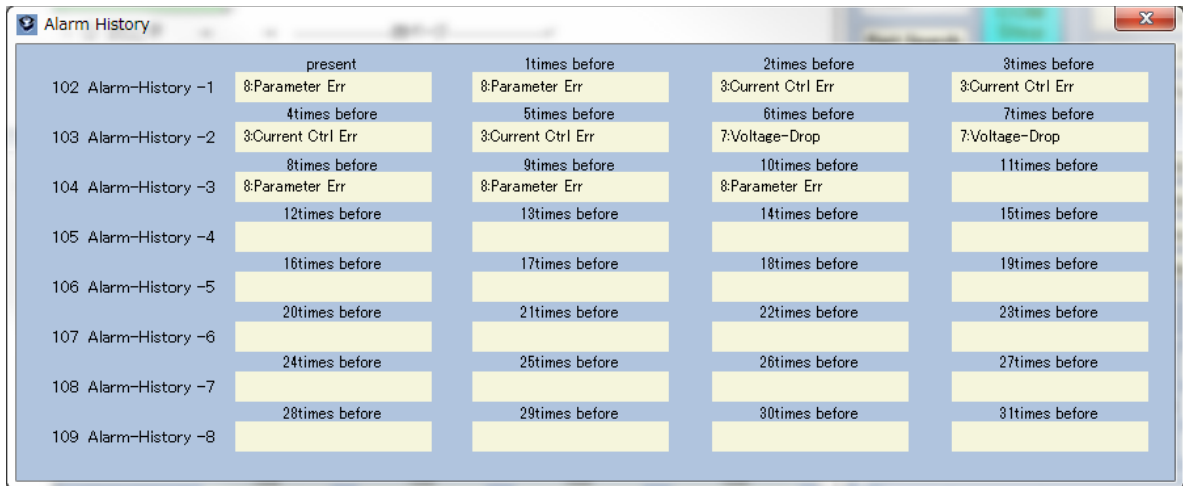
Alarm history indicated and erase.

6.4.3.1 「Alarm History Show」



(1) Click「Show」 button.

(2) Alarm history indicated. (Total 32 times)



6.4.3.2 「Alarm History Clear」

(1) Click 「Clear」 button

(2) Comment of「Alarm history erase?」comes , then select 「Yes」.※1

※1 Before 「Alarm History Clear」,it recommends buck up 「Driver - > PC」.

After 「Alarm History Clear」,Automatically 「Alarm History」 is saved.

It cannot be undone.



(1) Click 「Clear」 button



(2) Message for confirmation

6.4.4. 「Drive Command」

: 「Pulse」, 「PIO」, 「Communication」

Operation 「Drive Command」 is done to driver. Each bit of ID#60 is applied of each buttons



「Enable」 : Drive enable.

「Position Reset」 : Current position reset.

「Alarm Reset」 : Alarm reset.

「Origin Search」 : Origin search start (Refer to Users manual Chapter 10.7)

※In case 「PIO selection」(ID#7) is 「Origin Search is unavailable」, this is not indicated. Refer to [6.5.10 「Origin Search」](#) in detail.

「IN_ Equiv.」 : Input equivalent PIO.

Although it not indicated to [6.4.7 「I/O Status」](#). It becomes

equivalent to the state where the PIO signal is input.

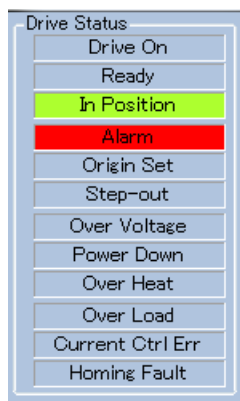
「Drive Command」

(Refer to Users manual Chapter 8)

6.4.5. 「Drive Status」

: 「Pulse」, 「PIO」, 「Communication」

Operation status is monitored. Each bit of ID#100 is applied of each label. It will be light by below status.



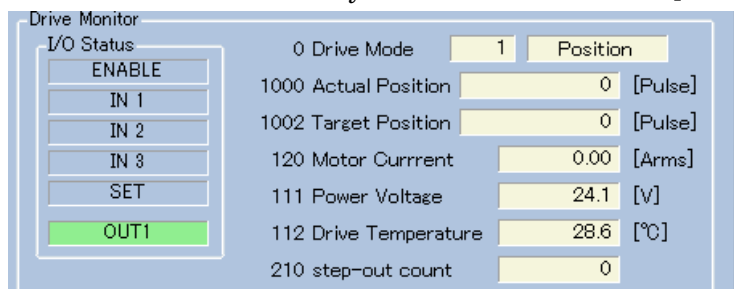
「Drive Status」

- 「Drive On」 : At Drive On
- 「Ready」 : At Driver Ready
- 「In Position」 : When motor is targeted position.
- 「Alarm」 : At alarm
- 「Origin Set」 : When Origin Search operation is completed.
- 「Step-out」 : When Step-out is detected
- 「Over Voltage」 : When power voltage is at over voltage level.
- 「Power Down」 : When power voltage is at low voltage level.
- 「Over Heat」 : at Over-heat
- 「Over Load」 : At Over-load
- 「Current Ctrl Err」 : At Current control error
- 「Homing Fault」 : At Origin Search operation fault

6.4.6. 「Drive monitor」

: 「Pulse」, 「PIO」, 「Communication」

Drive monitor is constantly monitored. 「I/O Status」 is refer to below.



「Drive monitor」

6.4.7. 「I/O Status」

: 「PIO」, 「Pulse」(Only Enable)

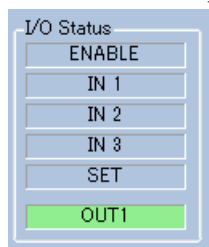
(1) I/O input signal is indicated. Indication is dependent of 「Control mode」(ID#0).

Control mode : In case of 「Position」, line 5 becomes 「SET」.

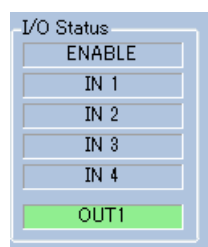
: In case of 「Speed」, line 5 becomes 「IN4」.

(2) When signal is input into I/O, 「Input Signal」 turn on. (Only for Nx1x)

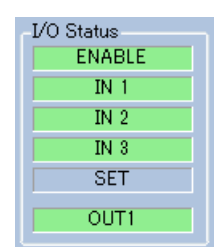
(3) I/O output signal 「OUT1」 is indicated. Please refer detail setting to Users manual Chapter 8, as status is dependent of 「Control mode」.



(1) In case of 「Position」



(1) In case of 「Speed」



(2) In case of 「I/O input」

6.5. 「Parameters」

6.5.1. Contents in Subtab



Following is contents of each menu bar in the Sub tab. Detail is explained in each chapter later.

- [6.5.3 「Primary」](#) : Primary parameter settings and parameters processing.
- [6.5.4 「Basic Parameters」](#) : Parameter settings of basic operation and profile calculation
- [6.5.5 「PIO」](#) : Motor operation settings by parallel I/O.
- [6.5.6 「Communication」](#) : Motor operation settings by Communication.
- [6.5.7 「Alarm」](#) : Alarm settings.
- [6.5.8 「Motor」](#) : Motor settings.
- [6.5.9 「Driver」](#) : System parameter settings and current control loop gain settings.
- [6.5.10 「Origin Search」](#) : Parameter settings of Origin search operation.

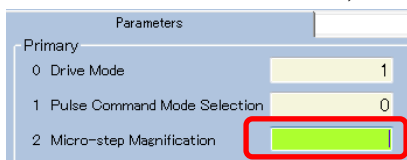
6.5.2. Change parameters

6.5.2.1 Delete previous parameters

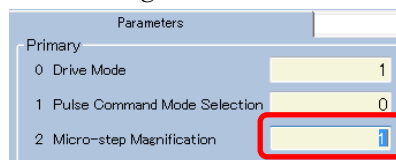
Frist, delete the previous parameter by one of the following two methods. **Don't use 「Delete」 key** while you change a value in a text box.

- (1) Using 「Back space」 key and erase the previous parameter.
- (2) Drag the previous parameter.

The case of the method (1), the color of the frame will change.



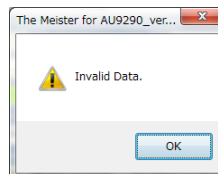
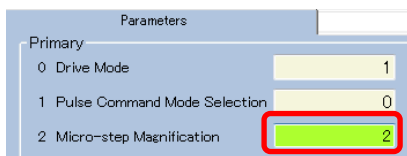
(1) Using 「Back space」 Key



(2) Dragging the previous parameter

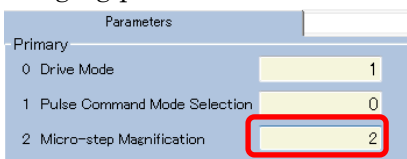
6.5.2.2 Input new parameters

When you input the new parameter, the color of the frame will change to light green. **Don't input a non-numeric data.** If you input non-numeric data and press 「Enter」 key, an error message is displayed, changing parameter will be canceled.



「Error message」

If you click 「Enter」key, the color of the frame goes back to original state. It is indicating changing parameter is finished successfully.



6.5.2.3 Cancel parameters

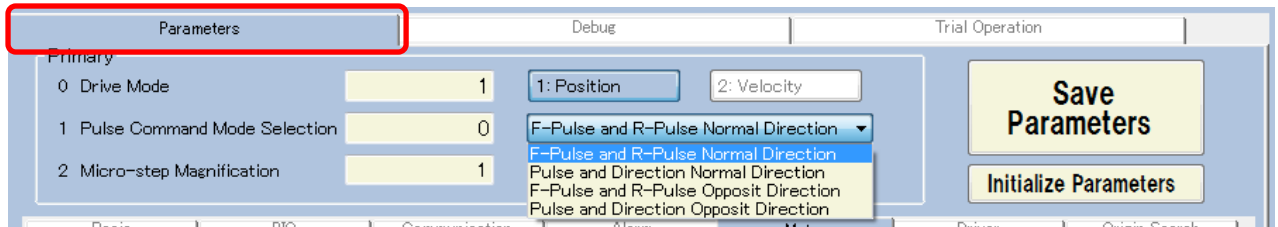
If you click 「Esc」 key before 「Enter」 key, the color of the frame goes back to original state, and changing parameter is canceled.

6.5.3. 「Primary」

: 「Pulse」, 「PIO」, 「Communication」

6.5.3.1 「Primary」

Motor controlled by pulse. Please refer detail setting to Users manual Chapter 7.



- 「Drive Mode」 (ID#0) : Select 「Position」 or 「Speed」
- 「Pulse Command Mode Selection」 (ID#1) : Select the kind of command
- 「Micro-step Magnification」 (ID#2) : Set rotation angle per 1 pulse.

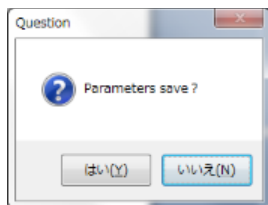
6.5.3.2 「Parameters processing」

Each button function

- 「Save Parameters」 : All parameter are saved in Non-volatile memory.
- 「Initialize Parameters」 : Common parameter is initialized ※

Attention : It may not be undone. Please operate the confirmation message on the check.

- ※ Before 「Initialize Parameters」, it recommends backup by 「Driver → PC (download)」.
- After 「Initialize Parameters」, date is not saved. Please save by「Save Parameters」.

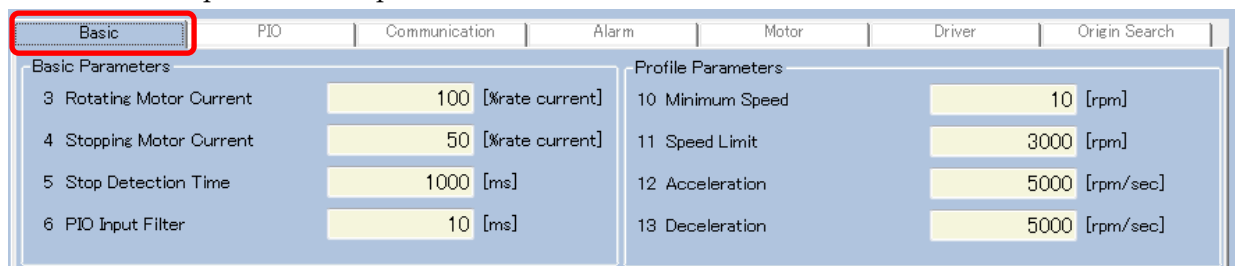


Message for confirmation

6.5.4. 「Basic Parameters」

: 「Pulse」, 「PIO」, 「Communication」

Set basic operation and profile calculation.



- 「Rotating Motor Current」 (ID#3) : Motor current during rotation. [%/ Rate current]
- 「Stopping Motor Current」 (ID#4) : Motor current during stopping. [%/ Rate current]
- 「Stop Detection Time」 (ID#5) : Time until Stop Status can be detected. [msec]
- 「PIO Input Filter」 (ID#6) : Set time og PIO input filter. [msec]
- 「Minimum Speed」 (ID#10) : Set minimum speed at Acc./Dec. on P-to-P. [rpm]
- 「Speed Limit」 (ID#11) : Limit of setting speed [rpm]
- 「Acceleration」 (ID#12) : Set acceleration on P-to-P operation. [rpm/sec] ※
- 「Deceleration」 (ID#13) : Set deceleration on P-to-P operation. [rpm/sec] ※

※ In software, value unit of 「Acceleration」 and 「Deceleration」is converted to [10rpm/sec].

6.5.5. 「PIO」

: 「PIO」

Motor operation is set by PIO (Parallel I/O). Display indication is different in each control mode. (In case of Speed, PIO Control Parameters (Position) is not indicated.) Please refer detail setting to Users manual Chapter 8.

「Travel Speed-3「11」」 (ID#17) is also used as signal to start origin search in

[6.5.10 「Origin Search」.](#)

Parameter ID	Parameter Name	Value	Unit
14	Travel Speed -0 「00」	75	[rpm]
15	Travel Speed -1 「01」	150	[rpm]
16	Travel Speed -2 「10」	300	[rpm]
17	Travel Speed -3 「11」	600	[rpm]
20	Travel Command -0 「000」	200	[Pulse]
21	Travel Command -1 「001」	400	[Pulse]
22	Travel Command -2 「010」	800	[Pulse]
23	Travel Command -3 「011」	2000	[Pulse]
24	Travel Command -4 「100」	-200	[Pulse]
25	Travel Command -5 「101」	-400	[Pulse]
26	Travel Command -6 「110」	-800	[Pulse]
27	Travel Command -7 「111」	-2000	[Pulse]
28	Travel Magnification	1	

「Travel Speed -0~3」 (ID#14~17) : Travel speed set by PIO [rpm]

「Travel Command」-0~7 (ID#20~27) : Travel distance set by PIO [Pulse]

「Travel Magnification」 (ID#28) : Magnification of Travel distance

6.5.6. 「Communication」

: 「Communication」

Motor operation is set by Serial communication. Please refer detail setting to Users manual Chapter 9.

Parameter ID	Parameter Name	Value	Unit
30	Device ID	0	
31	Baud Rate	19.2	[kHz]
32	UART Setting	0	
	StopBit	STOP= 1	
	Parity	Parity= non	
	Length	Length= 8	
33	Communications protocol	0	
	TSC standard	TSC standard	

「Device ID」 (ID#30) : Device ID for serial communication. : 1~15 selection

「Baud Rate」 (ID#31) : Baud rate of serial communication [kHz]※1

「UART Setting」 (ID#32) : Setting of serial communication ※2

「Communication Protocol」 (ID#33) : Select serial communication protocol ※3

※1 In software, value unit of 「Baud Rate」is converted to [0.1kHz].

※2 There are two ways to set. (1) input the figure or (2) select item and click 「Set」.

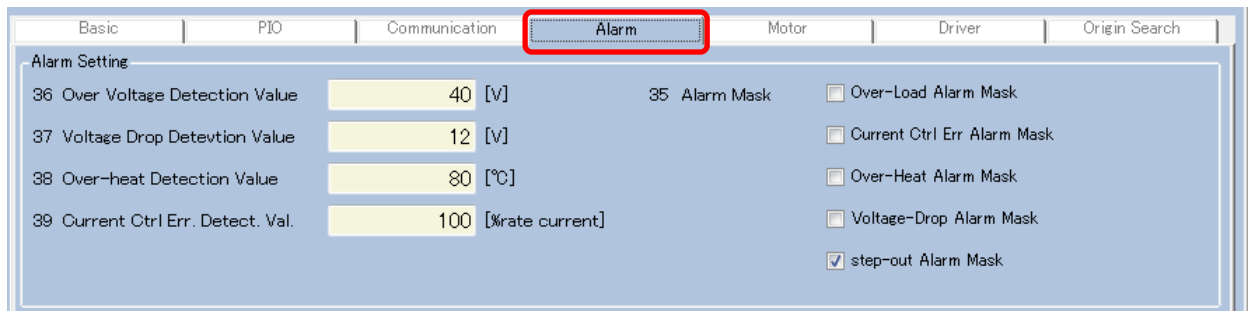
Once click each item, below status shown. Then please click 「Cancel」 or 「Set」 after changing.

※3 There are also two ways to set. (1) input the figure or (2) select item and click 「Set」.

6.5.7. 「Alarm」

: 「Pulse」, 「PIO」, 「Communication」

Change alarm settings.



「Over Voltage Detection Value」 (ID#36) : 「6」Over-voltage alarm voltage setting. [V]※1

「Voltage Drop Detection Value」 (ID#37) : 「7」Voltage drop alarm voltage setting. [V]※1

「Over-heat Detection Value」 (ID#38) : 「5」Over-heart alarm temperature setting [°C]※1

「Current CtrlErr. Detection Value」(ID#39) : 「3」current control error alarm setting [%/Rate current]

「Alarm mask」 (ID#35) : Each alarm is masked and ignored. ※2

※1 In the software, following unit conversion is performed.

「Over Voltage Detection Value」and「Voltage Drop Detection Value」 : [0.1V]

「Over-heat Detection Value」 : [0.1°C]

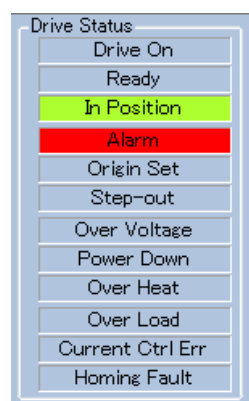
※2 Following is the function of Alarm mask.

i.e. : Mask「Current Control Error」

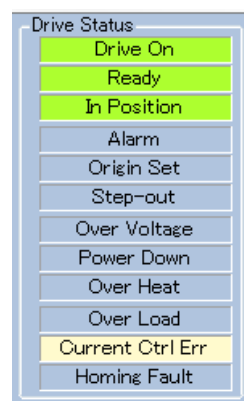
No Mask : At alarm, 「Alarm」 the light turns on in Status, and turn off 「Drive On」.
(Due to 「Drive Off」, the light of 「Current Ctrl Err」 is turned off.)

Mask : At alarm, without turning on「Alarm」light, the light of 「Drive On」
remaining turned on, and motor can drive.
(「Current Ctrl Err」is turned on.)

Even if masked alarm occurred, it not records to alarm history.



No alarm mask



Alarm mask

6.5.8. 「Motor」

: 「Pulse」, 「PIO」, 「Communication」

Motor operation settings. Please refer detail setting to Users manual Chapter 10.10.

Basic	PIO	Communication	Alarm	Motor	Driver	Origin Search
Motor Setting						
40 Motor Rate Current		2 [A]		44 Basic Number of Steps		200
41 Winding Resistance		1.1 [Ω]		Base Step Angle		1.8 [dec]
42 Winding Inductance		1.1 [mH]				

「Motor Rate Current」 (ID#40) : Motor rated current [A]※
 「Winding Resistance」 (ID#41) : Motor winding resistance [Ω]※
 「Winding Inductance」 (ID#42) : Motor winding inductance [mH]※
 「Basic Number of Step」 (ID#44) : $360 \div$ basic step angle
 (「Basic Step Angle」 : Moto basic step angle [dec])

※ In the software, following unit conversion is performed.

「Motor Rate Current」 : [0.01A]
 「Winding Resistance」 : [0.01 Ω]
 「Winding Inductance」 : [0.01mH]

6.5.9. 「Diver」

6.5.9.1 「Systemm Parameters (can't be changed)」 : 「Pulse」, 「PIO」, 「Communication」

System parameter set in Driver is indicated.

Each parameter can't be changed. (This parameter is fixed in the Driver. Even if each value is changed at the display, these values are not updated in Driver.)

Basic	PIO	Communication	Alarm	Motor	Driver	Origin Search
System Parameters (cannot be changed)						
50 Current Scale		3.64 [A/FS]		56 Product Code		9290
51 Drive Rate Current		2.4 [A]		57 Software Code		1834
52 Drive Maximum Current		2.4 [A]		58 Revision		300
53 Voltage Scale		60 [V/FS]				
54 Driver Type		2				

「Current Scale」 (ID#50) [A/FS]※
 「Driver Rate Current」 (ID#51) [A]※
 「Driver Maximum Current」 (ID#52) [A]※
 「Voltage Scale」 (ID#53) [V/FS]※
 「Driver Type」 (ID#54)
 「Product Code」 (ID#56)
 「Software Code」 (ID#57)
 「Revision」 (ID#58)

※ In the software, following unit conversion is performed.

「Current Scale」 [0.01A/FS]
 「Driver Rata Current」 and 「Driver Maximum Current」 [0.01A]
 「Voltage Scale」 [0.1V/FS]

6.5.9.2 「Driver Parameters」 : 「Pulse」, 「PIO」, 「Communication」

Current gain set in Driver is indicated. Usually, there is no need to change.

Please change as necessary.

Driver Parameters	
48 Kcp:Current Ctrl Loop Proportional Gain	10000
49 Kci:Current Ctrl Loop Integral Gain	250

「Kcp」 (ID#48) : Current control loop proportional gain [rad/sec]

「Kci」 (ID#49) : Current control loop integral gain [rad/sec]

6.5.10. 「Origin Search」 : 「Pulse」, 「PIO」, 「Communication」

Origin search operation is set. Please refer detail setting to Users manual Chapter 10.7.

「PIO Selection」 (ID#7) : Select origin search operation and enable-signal polarity. ※

「Homing Velocity」 (Set by parameter of 「Travel speed-3[11]」)

(ID#17) : Start origin search with this speed. [rpm]

「Creep Velocity」 (Set by parameter of 「Minimum speed」)

(ID#10) : Creep speed in origin search operation. [rpm]

「Origin Stop Time」 (ID#18) : Stop time at origin in origin search operation [ms]

※ There are two ways to set.

(1) Input the value, refer to Users manual Table 10.1

(2) Select items and click 「Set」.

When 「How to make Origin Search」 is not 「disable」, 「Polarity of Origin Signal」 and 「Homing Direction」 is visible (see below). Select items and click 「Set」 or 「Cancel」.

(3) When 「How to make Origin Search」 is not 「disable」, 「Origin Search」 button is shown at [6.4.4「Drive Command」](#). Origin search operation start to click 「Origin Search」 button after 「Drive On」.

6.6. 「Debug」

: 「Pulse」, 「PIO」, 「Communication」

Data is confirmed with Debug.

When each ID is selected, the ID data and 「Content」 are indicated.



Operation procedure is as follows.

6.6.1 ID input

There are two ways to input.

6.6.1.1 ID input : Use 「ID Ref」(Click)

6.6.1.2 ID input : Directly input

6.6.2 Change date (parameters)

6.6.3 Cancel and Initialize

6.6.1. ID input

6.6.1.1 ID input : Use 「ID Ref」 button

When 「ID Ref」 is clicked, following window comes up. (Any line is applicable)

Please click 「ID」 or 「Content」 you want to confirm.

The screenshot shows a window titled 'Driver ID List' with a table containing the following data:

ID	Content	ID	Content	ID	Content	ID	Content
0	Drive Mode	25	Travel Command -5 「101」[pulse]	50	Current Scale [0.01A/FS]	7	
1	Pulse Command Mode Selection	26	Travel Command -6 「110」[pulse]	51	Drive Rate Current [0.01A]	7	
2	Micro-step Magnification	27	Travel Command -7 「111」[pulse]	52	Drive Maximum Current [0.01A]	7	
3	Rotating Motor Current [%/Rate Current]	28	Travel Magnification	53	Voltage Scale[0.1V/FS]	7	
4	Stopping Motor Current [%/Rate Current]	29		54	Driver Type	7	
5	Stop Detection Time [msec]	30	Devise ID	55		8	
6	PIO Input Filter [msec]	31	Baud Rate [0.1kHz]	56	Product Code	8	
7	PIO Select	32	UART Setting	57	Software Code	8	
8		33	Communications protocol	58	Revision	8	
9		34		59		8	

(i.e.) In case of 「40」 or 「Motor Rate Current」 is clicked. (Any line is applicable)

The screenshot shows the same 'Debug' window as before, but with the row for ID 40 highlighted in yellow. The data for this row is:

ID Ref	ID	Contents	Data	
ID Ref	ID	Contents	Decimal	Hexadecimal
ID Ref	40	Motor Rate Current [0.01 A]	200	00C8

Color of the line is changes and data is indicated.

6.6.1.2 ID input : Directly input

(1) On inputting 「ID」, the color of line is changed. (Any line is applicable)

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12				
ID Ref					
ID Ref					

(2) After inputting 「ID」, click 「Enter」, and then data is indicated.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref					
ID Ref	12	Acceleration [10rpm/sec]	500	01F4	
ID Ref					

6.6.2. Change data (parameters)

「Data」 is changed by Decimal or Hexadecimal.

Attention : Pay attention to unit of value. 「Data」 indicates the date in Driver.

In below case, 「Acceleration」 is 5000 [rpm/sec] (500 [10rpm/sec]).

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12	Acceleration [10rpm/sec]	500	01F4	
ID Ref					

(1) For value delete, delete by「Back-Space」key. **Do not use「Delete」key.**

(Dragging the previous parameter is applicable. Refer to [6.5.2 Change parameters](#))

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12	Acceleration [10rpm/sec]	50	01F4	
ID Ref					

(2) After changing data, please click 「Enter」. The color of the frame goes back to original state, and value is updated.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12	Acceleration [10rpm/sec]	200	00C8	
ID Ref					

Note: Even if 「System Parameter」 ID (for example 「Product Code」(ID#56) is changed,

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	56	Product Code	9000	244A	
ID Ref					

The value is not updated and the color of the frame goes back to original state.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	56	Product Code	9290	244A	
ID Ref					

6.6.3. Cancel and Initialize

6.6.3.1 Data cancel

(1) Please click 「Cancel」 button on the lower right bottom for input cancellation.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12	Acceleration	[10rpm/sec]	200	01F4
ID Ref					

(2) The change parameter is canceled and the color of the frame goes back to original state.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12	Acceleration	[10rpm/sec]	200	00C8
ID Ref					

6.6.3.2 ID cancel

(1) Cancellation of ID is same. Please click 「Cancel」.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	1	Acceleration	[10rpm/sec]	200	00C8
ID Ref					

(2) The change ID is canceled and the color of the frame goes back to original state.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12	Acceleration	[10rpm/sec]	200	00C8
ID Ref					

6.6.3.3 Initialize

(1) To delete the line, please click 「Back-Space」 key at 「ID」.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	1	Acceleration	[10rpm/sec]	200	00C8
ID Ref					

(2) The color of the frame goes back to initial state.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref					
ID Ref					

(3) Indicated content is kept even after program is finished.

Parameters		Debug		Trial Operation	
ID Ref	ID	Contents	Data		
			Decimal	Hexadecimal	
ID Ref	12				
ID Ref					

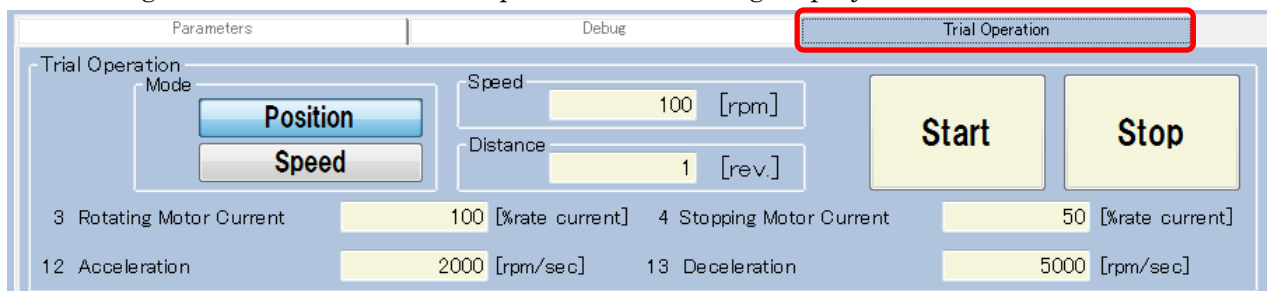
6.7. 「Trial Operation」 : 「Pulse」, 「PIO」, 「Communication」

Trial run and origin search operation setting is shown below.

6.7.1. 「Trial Operation」

Operate motor in reference of the Users manual Chapter 6.

- (1) Set [6.5.8 「Motor」](#). (Main tab is 「Parameters」)
- (2) After motor settings, click 「Save Parameters」 and save to Non-volatile memory.
- (3) Change the Main tab to 「Trial Operation」. Following display is indicated.



- (4) If it's necessary, please set follows.

「Rotating Motor Current」 (ID#3) : Motor current during rotation. [%/Rate current]

「Stopping Motor Current」 (ID#4) : Motor current during stopping. [%/Rate current]

「Acceleration」 (ID#12) : Set acceleration on P-to-P operation. [rpm/sec]※

「Deceleration」 (ID#13) : Set deceleration on P-to-P operation. [rpm/sec]※

※ In the software, value unit of Acceleration and Deceleration is converted to [10rpm/sec].

- (5) Decide each values of 「Mode」, 「Speed」 and 「Distance」.

「Mode」 : Select「Position」 or 「Speed」. (Default : 「Position」)

「Speed」 : Input rotation speed. (Default : 100[rpm])

「Distance」 : Input rotating distance. (Default : 1[rev.])

In case of 「Speed」, this is unnecessary.

※Since the color will change when changing the value, click 「Enter」 key to confirm.

- (6) Click 「Start」 button, motor start to rotate. Rotation is stopped by following condition.
 - In case of 「Position」, rotated the value in 「Distance」.
 - In case of 「Position」 or 「Velocity」, click 「Stop」 button.
- (7) It is possible to change 「Speed」 and 「Distance」 during motor rotating. Also, if a negative value input, motor rotate in the opposite direction. (Please pay attention to large change of value.)

6.7.2. 「Origin Search trial」

Setting and trial of origin search. Please refer detail setting to Users manual Chapter 10.7.

「PIO Selection」 (ID#7) : Select origin search operation and enable-signal polarity. ※

「Homing Velocity」 (Set by parameter of 「Travel speed-3[11]」)

(ID#17) : Start origin search with this speed. [rpm]

「Creep Velocity」 (Set by parameter of 「Minimum speed」)

(ID#10) : Creep speed in origin search operation. [rpm]

「Origin Stop Time」 (ID#18) : Stop time at origin in origin search operation [ms]

※ There are two ways to set.

- (1) Input the value, refer to Users manual Table10.1
- (2) Select items and click 「Set」.

When 「How to make Origin Search」 is not 「disable」, 「Polarity of Origin Signal」 and 「Homing Direction」 is visible (see below). Select items and click 「Set」 or 「Cancel」.

- (3) When 「How to make Origin Search」 is not 「disable」, 「Start」 and 「Stop」 button is shown at next to PIO selection.(see below) Click 「Start」 button, 「Drive On」 and 「Origin Search」 is started.

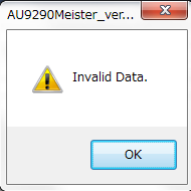


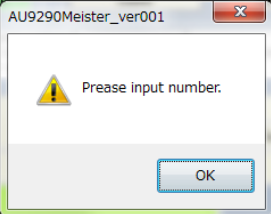
7. Trouble shooting

Please refer in case Driver cannot operate correctly. Firstly, in case of trouble, please check the power input and cable connection. Other troubles are listed as below.

7.1. Trouble shooting related to USB port.

Chapter	Trouble	Cause	Treatment
3.1	No software for PC.		Please get (download) from https://www.tamagawa-seiki.com/downloads/soft/
3.2	Device driver can't be installed.	①Does the USB port set for other function specifically like Virtual Port?	①Please install with another USB port.
3.2	Device manager doesn't indicate the port.	①USB Driver software set at Chapter 3.1 has installed correctly?	①Please install the USB Driver software.

7.2. Trouble shooting related to 「The Meister for AU9290」

Chapter	Trouble	Cause	Treatment
4.(2)	Error is generated.	(1) 「.NET Framework 3.5」 not installed.	(1) Please try Chapter 8 . If use Windows7 or older, please contact sales department.
4.(3)	No initial display. (No error indicated)	(1) Display is hidden.	(1) Please click icon blinking on Task Bar.
4.(6)	No restart software	(1) No COM Port	(1) Please try Chapter 3 .
5.2.1 6.3.1	No COM port confirmed Chapter 3.3	(1) No power input to driver. (2) No USB connection.	(1) Please turn on power for Driver. (2) Please connect USB. Click 「Port Search」 and reconfirm the connection. Ref. Chapter 6.3.2
5. 6.	 「Invalid Data」	(1) Do not enter a non-numeric data? (2) When performing 「PC->Driver」, is it not wrong data in upload file?	(1) Other characters than number is input in ID? (2) Confirm the file to Upload.
5. 6.	 「Number is overflow」	(1) Input number is larger or smaller against applicable value range?	(1) Valid value is 32bit in ID 1000 and above. (within ±2,147,483,647) Other ID is 16bit. (within ±32767)
5. 6.	 「Invalid Data IDxx」	(1) Negative number is input in ID and the parameter saved by 「SaveParameters」?	(1) Correct value in the ID No. indicated as error. (Indicated in message window), and click 「SaveParameters」 again. If alarm comes up again, repeat to input correct values until error disappear.
6.	 「Prease input number」	(1) Do not enter a non-numeric in ID?	(1) Only number is acceptable in ID.

Above trouble shooting is not covering perfectly. Please free to contact our sales department if you have any question and problem.

8. Operation with Windows10.

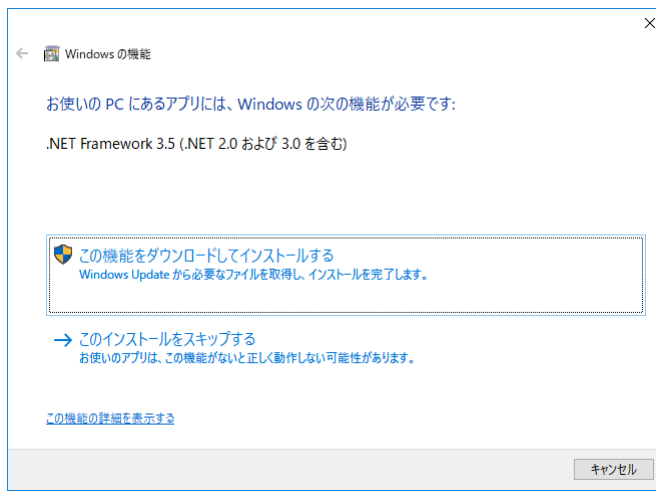
8.1. Over view of the work in case software is not work.

Installation of 「.NET Framework 3.5」 is necessary to operate with Windows10. (About 「.NET Framework」, please refer to [Chapter 8.4 「\(Reference\) About 「.NET Framework」」](#)) Please install according to below procedure. Please refer to details [Chapter8.3 「Work Procedure」](#).

- (1) Install batch file「NDPFixit-KB3005628-X86.exe」.
- (2) Update the Windows.
- (3) Install 「.NET Framework 3.5」.

If 「.NET Framework 3.5」 had been installed in your system, 「[Starting display](#)」 is shown and software is started up.

In case below message comes up, it may not work even if you operate according to the instructions. (There is no problem when working.)



If it does not work, please follow the procedure shown in this chapter.

8.2. Preparation

Follows are necessary to propagate.

- (1) Administrator authority
- (2) Internet environment

8.3. Work procedure

Work procedure is below.

- 8.3.1 Install batch file「NDPFixit-KB3005628-X86.exe」.
- 8.3.2 Update a Windows.
- 8.3.3 Install 「.NET Framework 3.5」.

8.3.1. Install batch file「NDPFixit-KB3005628-X86.exe」

Batch file is necessary to install 「.NET Framework 3.5」.

- (1) Access to below URL.

<https://support.microsoft.com/en-us/help/3005628/update-for-the-net-framework-3-5-on-windows-8-windows-8-1-windows-server>

Microsoft Support

Update for the .NET Framework 3.5 on Windows 8, Windows 8.1, Windows Server 2012, and Windows Server 2012 R2

Email


Print

- (2) Down load the「NDPFixit-KB3005628-X86.exe」

Download information

The following files are available for download from the Microsoft Download Center.

For all supported x86-based systems

 [Download the NDPFixit-KB3005628-X86.exe package now.](#)

For all supported x64-based systems

 [Download the NDPFixit-KB3005628-X64.exe package now.](#)

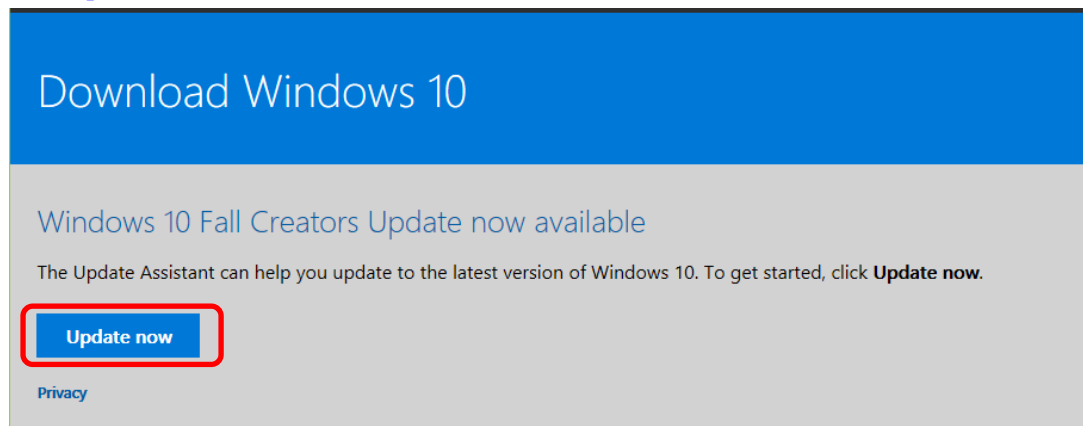
- (3) After down load, please click 「Execution」.

8.3.2. Update a Windows

<Note> It may take time to update. (Longer than 2 hours) Although you can do other work until downloading, nothing can be done during 「Configure updated program」 or 「Reboot the system」. Please prepare time in advance.

- (1) Access to below URL.

<https://www.microsoft.com/en-us/software-download/windows10>



- (2) Click 「Update now」.

Download the updated contents, configure the installation and update program.

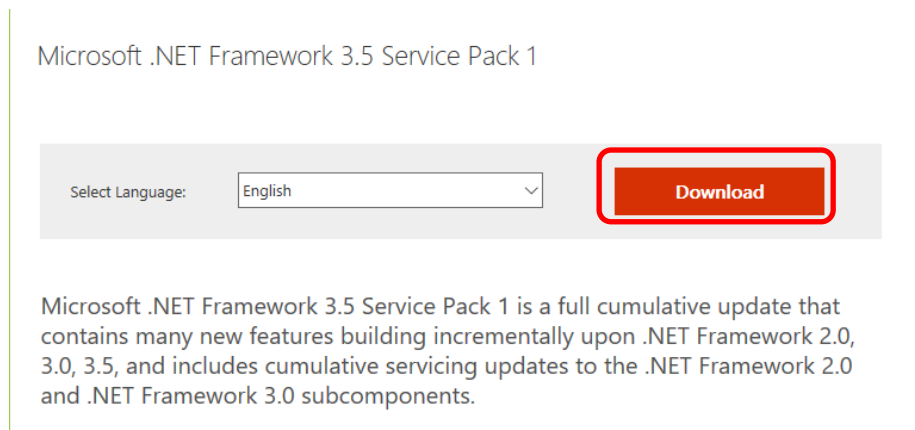
Nothing can be done during 「Configure updated program」 or 「Reboot the system」.

It may take a long time.

8.3.3. Install 「.NET Framework 3.5」

(1) Access to below URL.

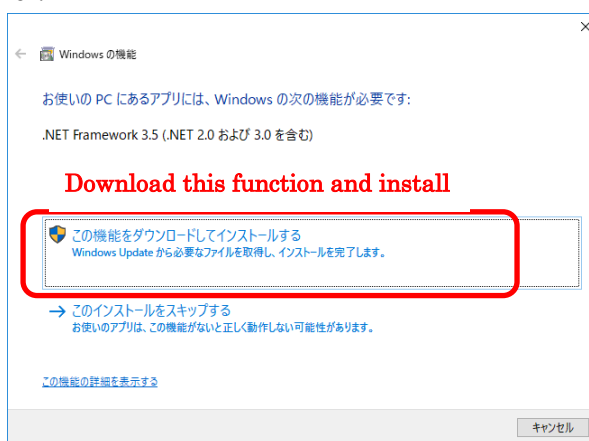
<https://www.microsoft.com/en-us/download/details.aspx?id=22>



(2) Click「Download」. After download, perform installation.

(3) The Window 「Function of Windows」 open, and installation procedure for 「.NET Framework 3.5」 are displayed. Then, select 「Download this function and install」.

※ 「Download」 in (2) is only installer downloading. So, next downloading the program from the installer.



(4) Install after download, and then work is completed.

8.4. (Reference) About 「.NET Framework」

This chapter explains 「.NET Framework」 very briefly. (You can skip this.)

- Necessary to use 「.NET Framework」 compliant application, for example 「Visual Basic 2010」 (「The Meister for AU9290」 is made by 「Visual Basic 2010」).
- In Windows 10 and Windows 8, version 「.NET Framework 4.x」 is pre-installed. (「.NET Framework 3.5」 is not installed.)
- In Windows7, 「.NET Framework 3.5」 is pre-installed.
- ☆「.NET Framework 3.5」 is upwardly compatible with Version2.0 and 3.0, but completely different software from 「.NET Framework 4.x」.

By reason of 「☆」, 「The Meister for AU9290」 cannot be use in Windows 10 (and Windows 8). Version can be confirmed by searching 「Enable or disable Windows function」.

Revision history

Date	Revised content	Note
2016. 4.20	First edition	Rev.0000
2016. 4.26	Add description of total number of pages.	Rev.0001
2018. 3.21	Full review with software version change (ver.311) : <ul style="list-style-type: none"> • Changing the software name • Adding Windows10 operation manual • Updating the screen display • Describe where software provided (with link). 	Rev.0200