MiSUMi

AC Servo Drive

E-DFASxxE series (EtherCAT type)

Quick Start Guide

V 0.1

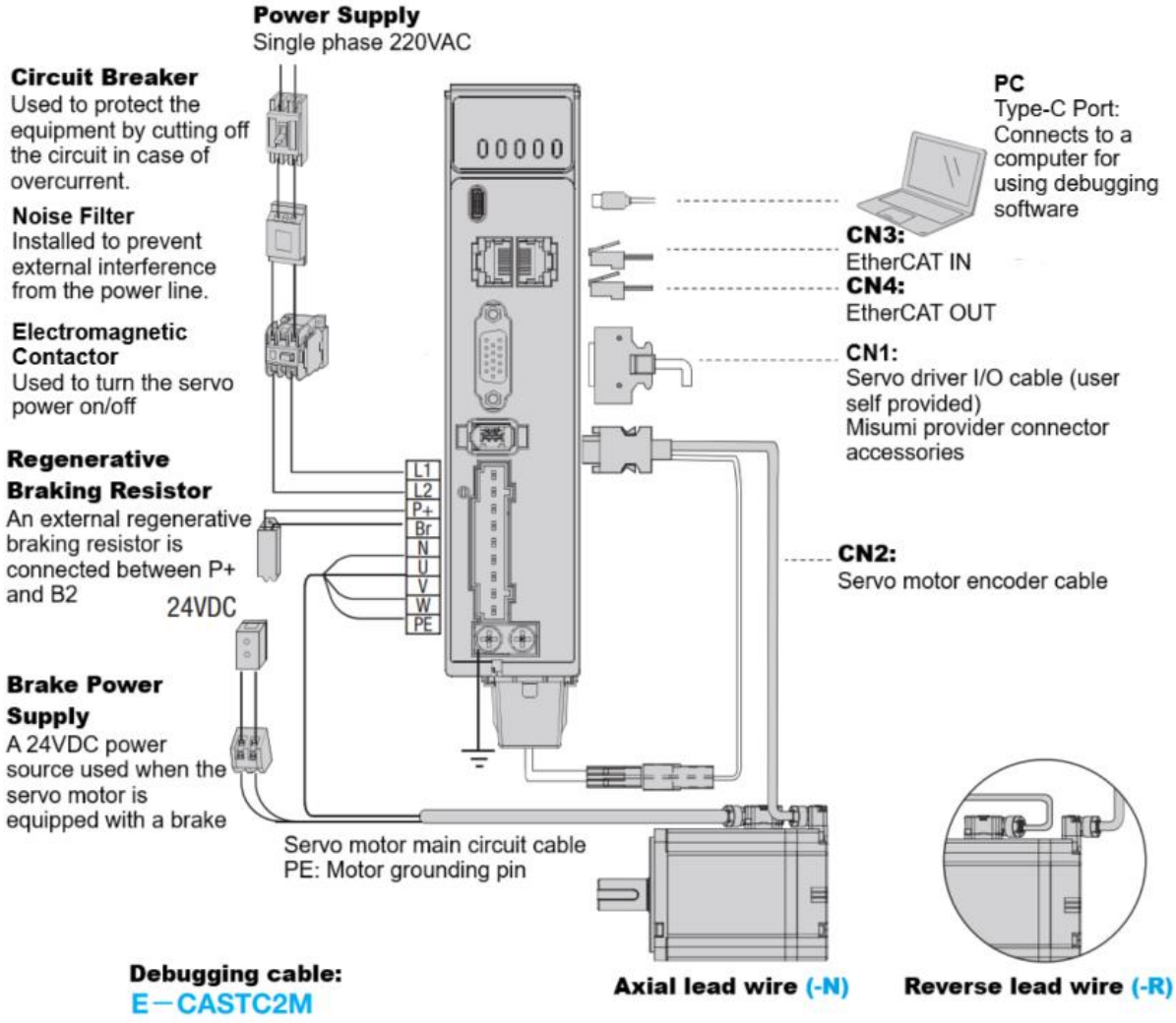
Contents

Version Update Record

Version	Update date	Update content
V1.0	**2025-07**	**First release**

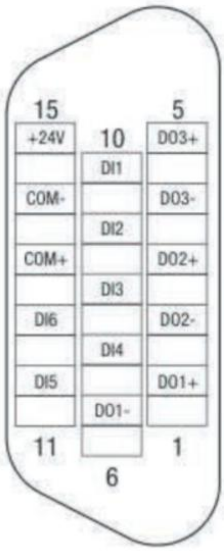
1. Wiring

Main Circuit Wiring Diagram



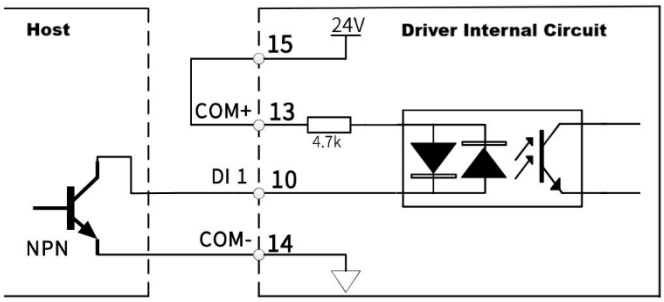
Control Signal Connector - CN1 Pin Assignment

To ensure I/O signal to not be affected by electromagnetic interference, a shielded twisted pair cable is recommended for this application.

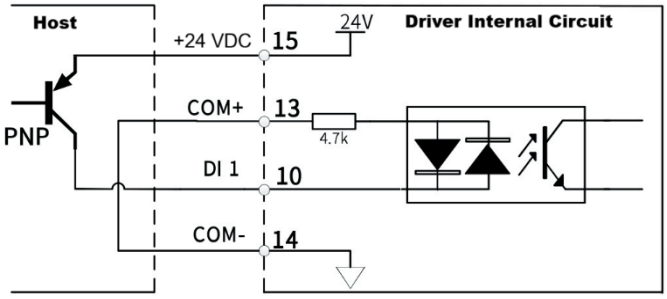
Diagram (soldering side of the connector)	Function	Pin	Label	Signal	Description (default function)
	General	15	+24V	Internal 24V power supply	Internal 24V power supply. Voltage range: +20~28V. Max current: 200mA. (Driver internal 24V power supply cannot be used as motor brake supply, or will trigger internal power supply overload protection)
		14	COM-		
	General I/O	13	COM+	DI-COM	Common digital input
		10	DI1	POT	Positive limit switch
		9	DI2	NOT	Negative limit switch
		8	DI3	Home Switch	Homing switch
		7	DI4	EXT 2	Probe 2
		11	DI5	EXT 1	Prob 1
		12	DI6	-	No default function
		1	DO1+	SRDY+	Servo ready signal output
		6	DO1-	SRDY-	
		3	DO2+	ALM+	Alarm output
		2	DO2-	ALM-	
		5	DO3+	BRK-OFF+	External brake released signal
		4	DO3-	BRK-OFF-	

1. General digital input connection

NPN connection:

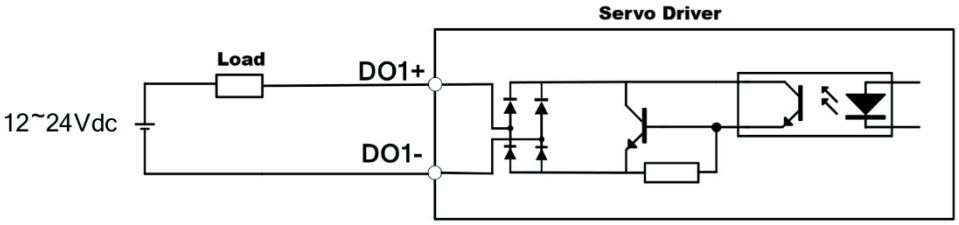


PNP connection:

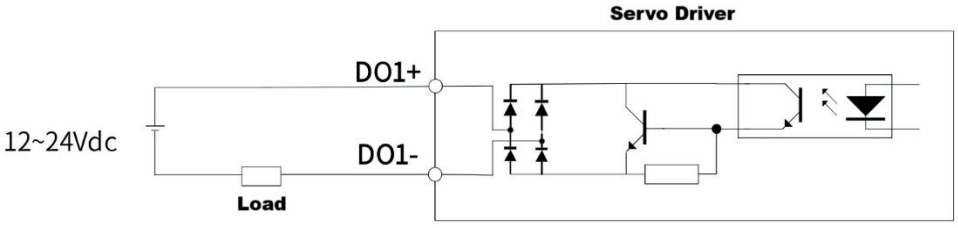


2. General digital output circuit

NPN connection:



PNP connection:



2. Precautions Before Operation

The driver and servo motor must be reliably grounded. The PE terminal of the driver must be securely connected to the equipment ground.

Ensure all wiring is correct before powering on.

An emergency stop circuit must be integrated to ensure the power supply immediately stops in case of a fault.

After a driver fault alarm, verify that the issue has been resolved before restarting, and ensure the SRV-ON signal is inactive.

Do not touch the driver within at least 5 minutes after power is turned off to prevent electric shock.

If the driver panel is unresponsive after powering on, check whether the input voltage is within the rated range and ensure there are no phase losses.

3. EDrive Configuration Software

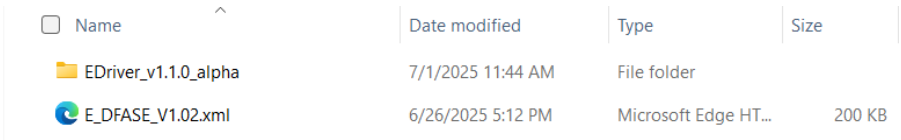
Download EDrive Configuration Software.

Download link:

https://www.misumi.com.cn/linked/archive/me/MISUMI_EDrive_v1_0_0.zip

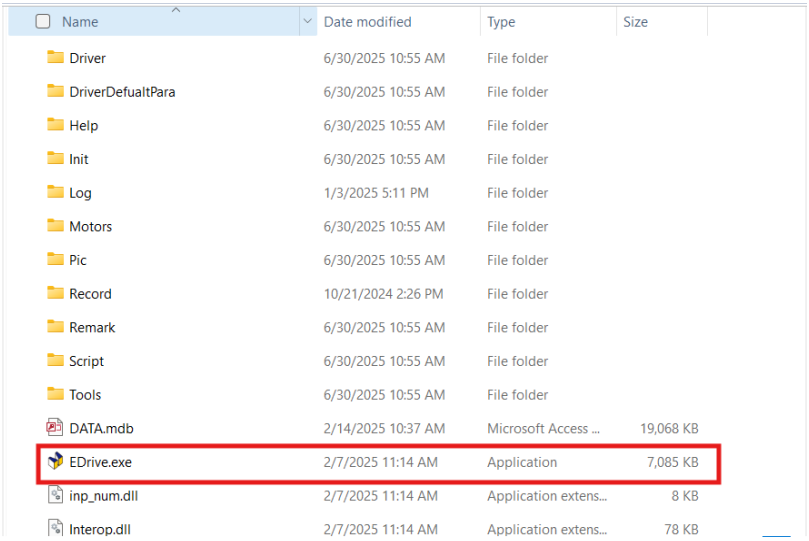
Installation

Just unzip or pull the 'MISUMI EDrive_v1.0.0' folder to the desktop.

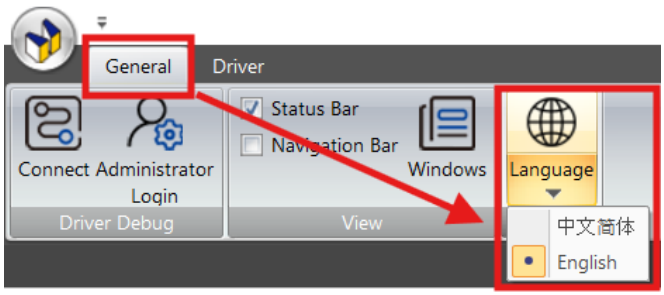


Open Software

Double click 'EDrive.exe' to open the software.



After software opened, go to 'General' and change language to 'English'.



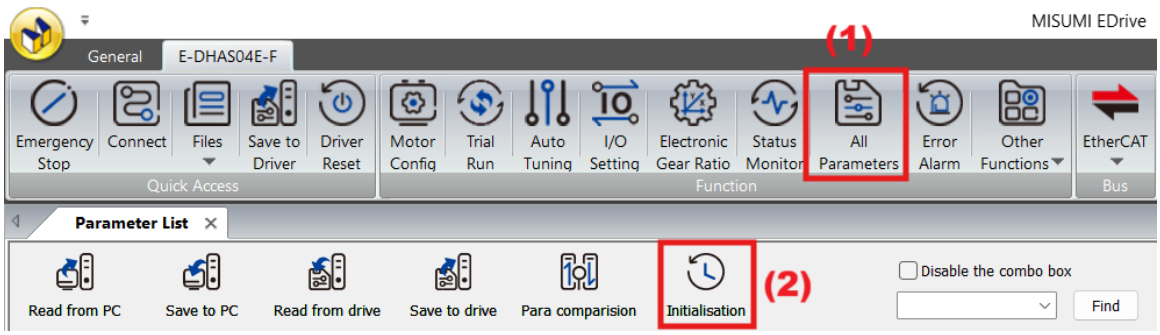
Connect to PC

Please use cable with one side USB type-A and the other side USB type-C.

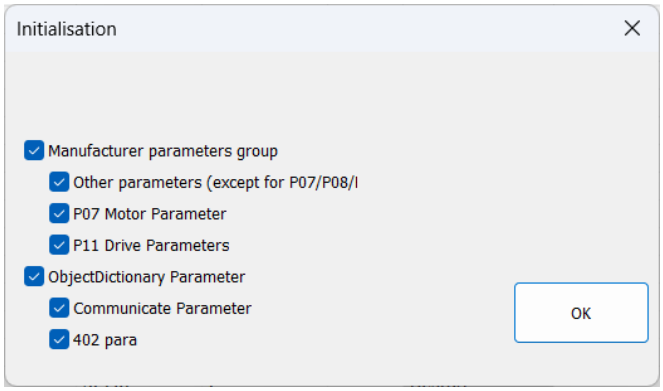
Open EDrive software and start connection. ‘Communication Mode’ please choose ‘RS232’, then click ‘Refresh’, then click ‘Connect’.

Trial Run

Before Trial Run, please initialize the driver. Click (1) ‘All Parameters’, choose (2) ‘Initialisation’.

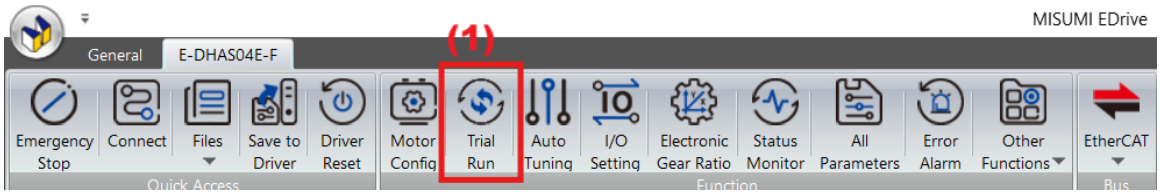


Select all and click ‘OK’

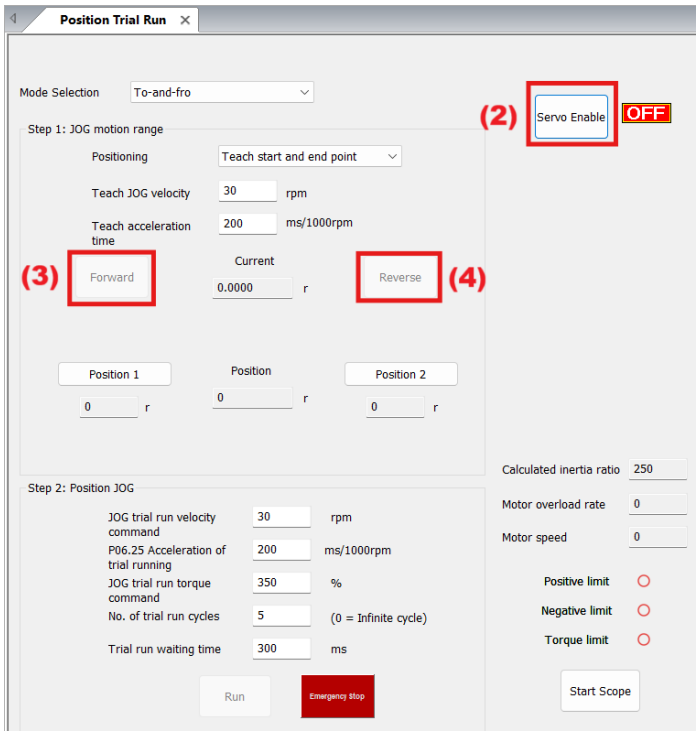


If you encounter motor abnormalities during operation, please power cycle the servo system. If the issue persists, proceed with initializing the system.

Click (1) ‘Trial Run’.

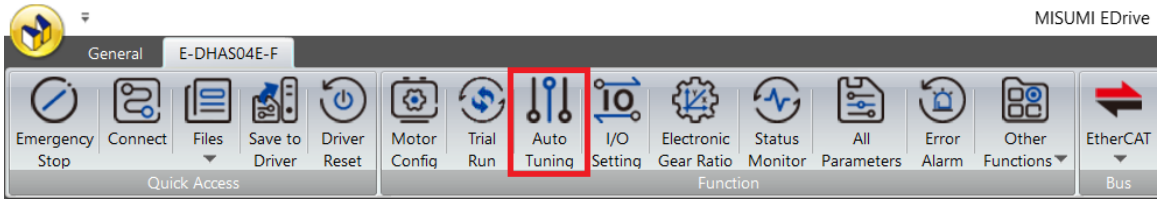


Click (2) ‘Servo Enable’, then click (3) ‘Forward’ or (4) ‘Reverse’, to move the motor.



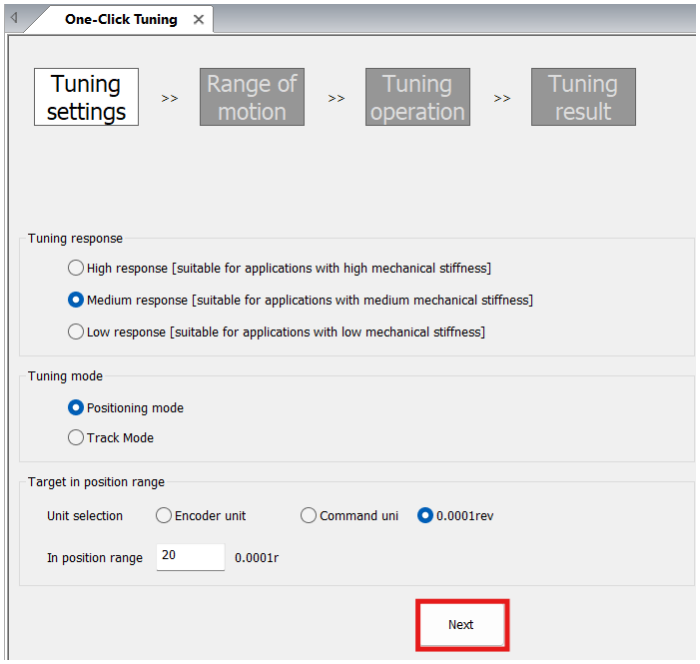
Auto Tuning

Click ‘Auto Tuning’.



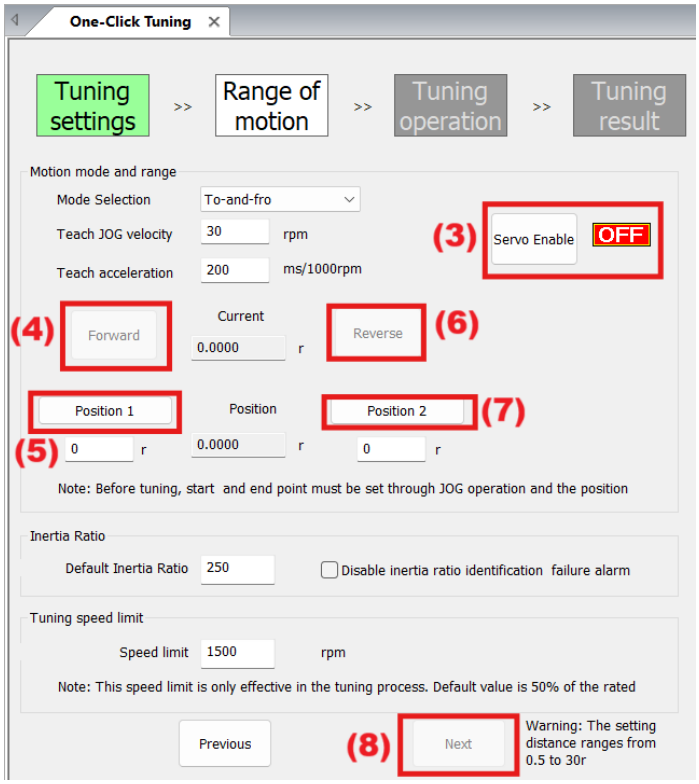
Click (2) ‘Next’.

Note: Suggest not to change other parameters if not necessary.

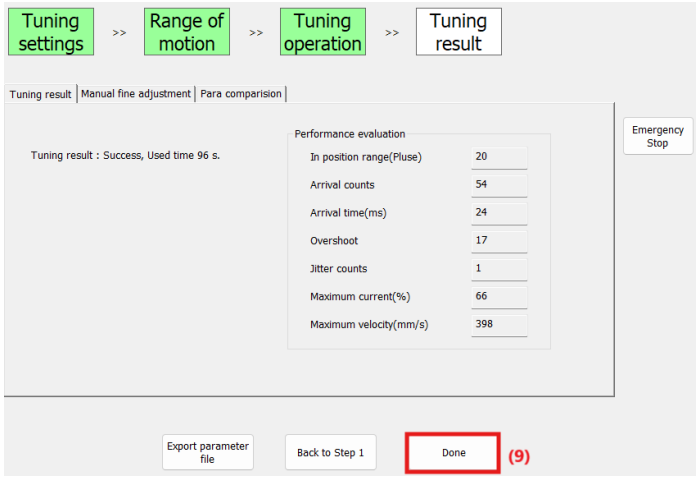


Click (3) ‘Servo Enable’. (Note: If driver already connected through EtherCAT, please tick check box ‘External enabling disabled’)

Click (4) ‘Forward’. After motor reaches starting position, click (5) ‘Position 1’. Then click (6) ‘Reverse’. After motor reaches ending position, click (7) ‘Position 2’. (Note: Please always make sure motor is in between of starting position and ending position) Click (8) ‘Next’, and follow the instruction to finish Auto Tuning.



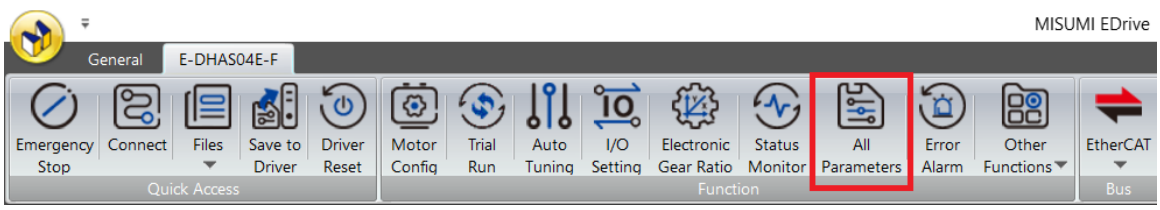
Click (9) 'Done', and follow the instruction to save parameters.



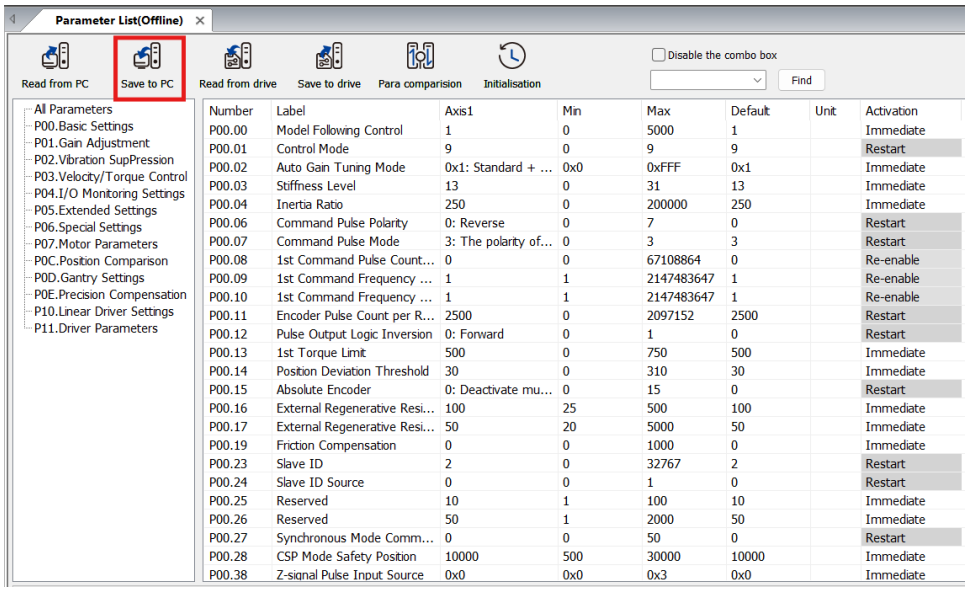
Parameter Backup and Download

Please refer to following steps to backup parameters.

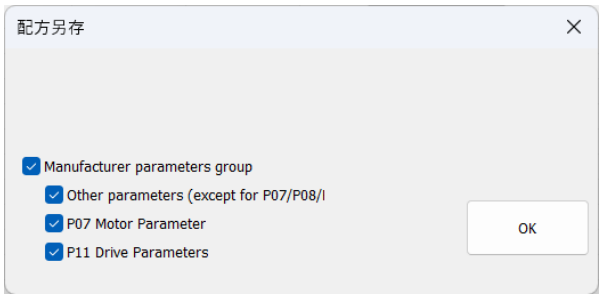
Click 'All Parameters'.



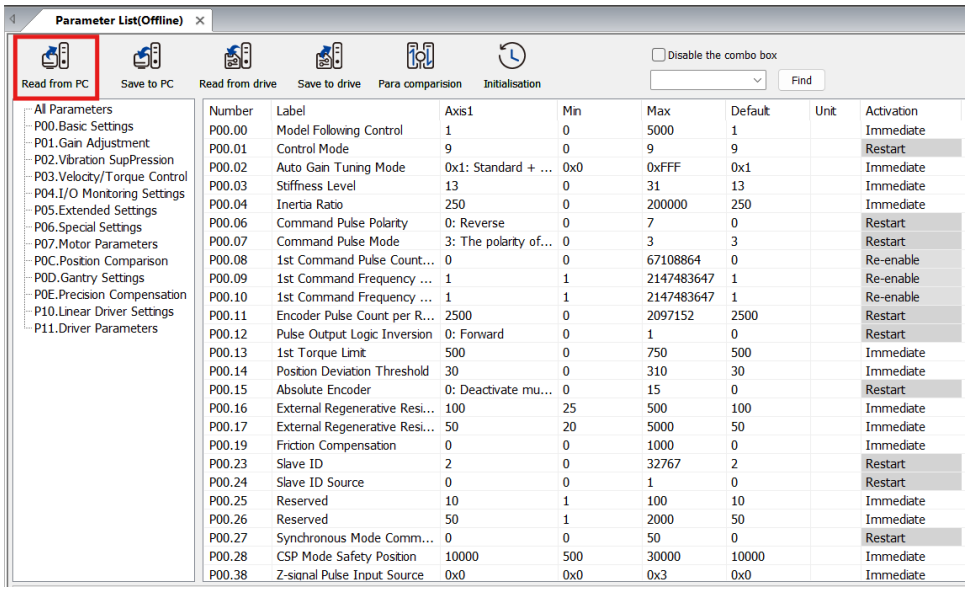
Click ‘Save to PC’ and follow the instruction to finish saving.



Number	Label	Axis1	Min	Max	Default	Unit	Activation
P00.00	Model Following Control	1	0	5000	1		Immediate
P00.01	Control Mode	9	0	9	9		Restart
P00.02	Auto Gain Tuning Mode	0x1: Standard + ...	0x0	0xFFF	0x1		Immediate
P00.03	Stiffness Level	13	0	31	13		Immediate
P00.04	Inertia Ratio	250	0	200000	250		Immediate
P00.06	Command Pulse Polarity	0: Reverse	0	7	0		Restart
P00.07	Command Pulse Mode	3: The polarity of...	0	3	3		Restart
P00.08	1st Command Pulse Count...	0	0	67108864	0		Re-enable
P00.09	1st Command Frequency ...	1	1	2147483647	1		Re-enable
P00.10	1st Command Frequency ...	1	1	2147483647	1		Re-enable
P00.11	Encoder Pulse Count per R...	2500	0	2097152	2500		Restart
P00.12	Pulse Output Logic Inversion	0: Forward	0	1	0		Restart
P00.13	1st Torque Limit	500	0	750	500		Immediate
P00.14	Position Deviation Threshold	30	0	310	30		Immediate
P00.15	Absolute Encoder	0: Deactivate mu...	0	15	0		Restart
P00.16	External Regenerative Resi...	100	25	500	100		Immediate
P00.17	External Regenerative Resi...	50	20	5000	50		Immediate
P00.19	Friction Compensation	0	0	1000	0		Immediate
P00.23	Slave ID	2	0	32767	2		Restart
P00.24	Slave ID Source	0	0	1	0		Restart
P00.25	Reserved	10	1	100	10		Immediate
P00.26	Reserved	50	1	2000	50		Immediate
P00.27	Synchronous Mode Comm...	0	0	50	0		Restart
P00.28	CSP Mode Safety Position	10000	500	30000	10000		Immediate
P00.38	Z-signal Pulse Input Source	0x0	0x0	0x3	0x0		Immediate

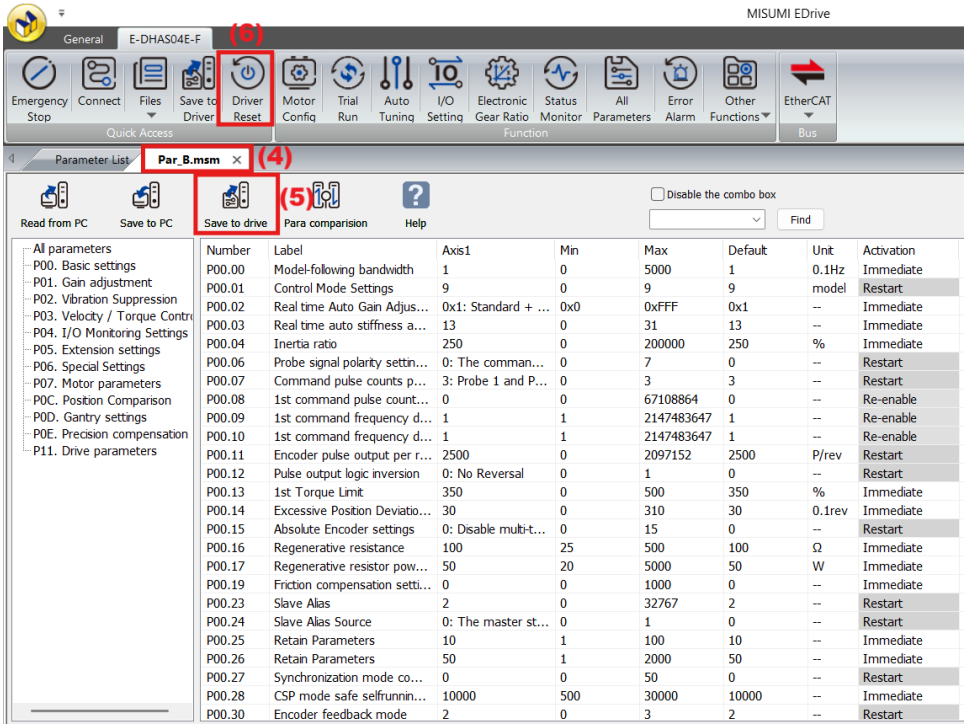


When download parameters, click ‘Read from PC’.



Number	Label	Axis1	Min	Max	Default	Unit	Activation
P00.00	Model Following Control	1	0	5000	1		Immediate
P00.01	Control Mode	9	0	9	9		Restart
P00.02	Auto Gain Tuning Mode	0x1: Standard + ...	0x0	0xFFF	0x1		Immediate
P00.03	Stiffness Level	13	0	31	13		Immediate
P00.04	Inertia Ratio	250	0	200000	250		Immediate
P00.06	Command Pulse Polarity	0: Reverse	0	7	0		Restart
P00.07	Command Pulse Mode	3: The polarity of...	0	3	3		Restart
P00.08	1st Command Pulse Count...	0	0	67108864	0		Re-enable
P00.09	1st Command Frequency ...	1	1	2147483647	1		Re-enable
P00.10	1st Command Frequency ...	1	1	2147483647	1		Re-enable
P00.11	Encoder Pulse Count per R...	2500	0	2097152	2500		Restart
P00.12	Pulse Output Logic Inversion	0: Forward	0	1	0		Restart
P00.13	1st Torque Limit	500	0	750	500		Immediate
P00.14	Position Deviation Threshold	30	0	310	30		Immediate
P00.15	Absolute Encoder	0: Deactivate mu...	0	15	0		Restart
P00.16	External Regenerative Resi...	100	25	500	100		Immediate
P00.17	External Regenerative Resi...	50	20	5000	50		Immediate
P00.19	Friction Compensation	0	0	1000	0		Immediate
P00.23	Slave ID	2	0	32767	2		Restart
P00.24	Slave ID Source	0	0	1	0		Restart
P00.25	Reserved	10	1	100	10		Immediate
P00.26	Reserved	50	1	2000	50		Immediate
P00.27	Synchronous Mode Comm...	0	0	50	0		Restart
P00.28	CSP Mode Safety Position	10000	500	30000	10000		Immediate
P00.38	Z-signal Pulse Input Source	0x0	0x0	0x3	0x0		Immediate

Choose the parameter file you saved, and it will be shown in a new tab (4). Click (5) ‘Save to driver’, then click (6) ‘Driver Reset’. Follow the instruction to finish saving.


MISUMI EDrive
General
E-DHAS04E-F
(6)
Emergency Stop
Connect
Files
Save to Driver
Driver Reset
Motor Config
Trial Run
Auto Tuning
I/O Setting
Electronic Gear Ratio
Status Monitor
All Parameters
Error Alarm
Other Functions
EtherCAT
Quick Access
Function
Bus
Parameter List
Par_B.msm
(4)
Read from PC
Save to PC
Save to drive
(5)
Para comparision
Help
Disable the combo box
Find
All parameters
P00. Basic settings
P01. Gain adjustment
P02. Vibration Suppression
P03. Velocity / Torque Contr
P04. I/O Monitoring Settings
P05. Extension settings
P06. Special Settings
P07. Motor parameters
P0C. Position Comparison
P0D. Gantry settings
P0E. Precision compensation
P11. Drive parameters
Number Label Axis1 Min Max Default Unit Activation
P00.00 Model-following bandwidth 1 0 5000 1 0.1Hz Immediate
P00.01 Control Mode Settings 9 0 9 9 model Restart
P00.02 Real time Auto Gain Adjus... 0x1: Standard + ... 0x0 0xFFF 0x1 -- Immediate
P00.03 Real time auto stiffness a... 13 0 31 13 -- Immediate
P00.04 Inertia ratio 250 0 200000 250 % Immediate
P00.06 Probe signal polarity settin... 0: The comman... 0 7 0 -- Restart
P00.07 Command pulse counts p... 3: Probe 1 and P... 0 3 3 -- Restart
P00.08 1st command pulse count... 0 0 67108864 0 -- Re-enable
P00.09 1st command frequency d... 1 1 2147483647 1 -- Re-enable
P00.10 1st command frequency d... 1 1 2147483647 1 -- Re-enable
P00.11 Encoder pulse output per r... 2500 0 2097152 2500 P/rev Restart
P00.12 Pulse output logic inversion 0: No Reversal 0 1 0 -- Restart
P00.13 1st Torque Limit 350 0 500 350 % Immediate
P00.14 Excessive Position Deviatio... 30 0 310 30 0.1rev Immediate
P00.15 Absolute Encoder settings 0: Disable multi-t... 0 15 0 -- Restart
P00.16 Regenerative resistance 100 25 500 100 Ω Immediate
P00.17 Regenerative resistor pow... 50 20 5000 50 W Immediate
P00.19 Friction compensation setti... 0 0 1000 0 -- Immediate
P00.23 Slave Alias 2 0 32767 2 -- Restart
P00.24 Slave Alias Source 0: The master st... 0 1 0 -- Restart
P00.25 Retain Parameters 10 1 100 10 -- Immediate
P00.26 Retain Parameters 50 1 2000 50 -- Immediate
P00.27 Synchronization mode co... 0 0 50 0 -- Restart
P00.28 CSP mode safe selfrunnin... 10000 500 30000 10000 -- Immediate
P00.30 Encoder feedback mode 2 0 3 2 -- Restart

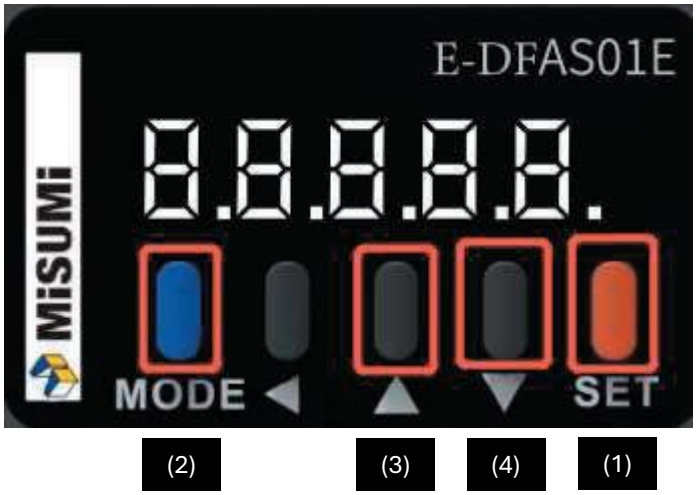
4. Change Motion Direction

If controller pulse train or command is positive direction, but motor moves to negative direction, direction change is needed.

P00.06	**Label**	Command Pulse Polarity					**Valid mode(s)**			F
	Range	0～1	**Unit**	-	**Default**	**0**	**Activation**	Restart	**Index**	2006h
	Used to change the rotational direction of the motor.									
	Set value	**Details**								
	0	Polarity of the command is not inversed. The direction of rotation is consistent with the polarity of command.								
	1	Polarity of command is inversed. The direction of rotation is opposite to the polarity of command.								

Method 1: Set with Front Panel

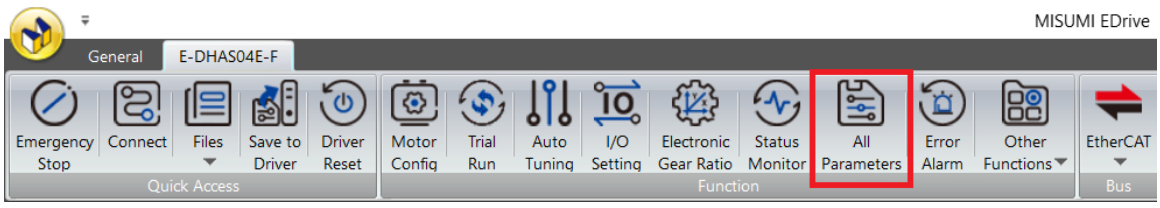
1. Press (1) 'S' button, front panel shows 'd345E'. Press (2) 'M' button, front panel shows 'P00.00'. Press (3) ↑ button and change to 'P00.06', then press (1) 'S' button to show the current 'Command Pulse Polarity' setting.



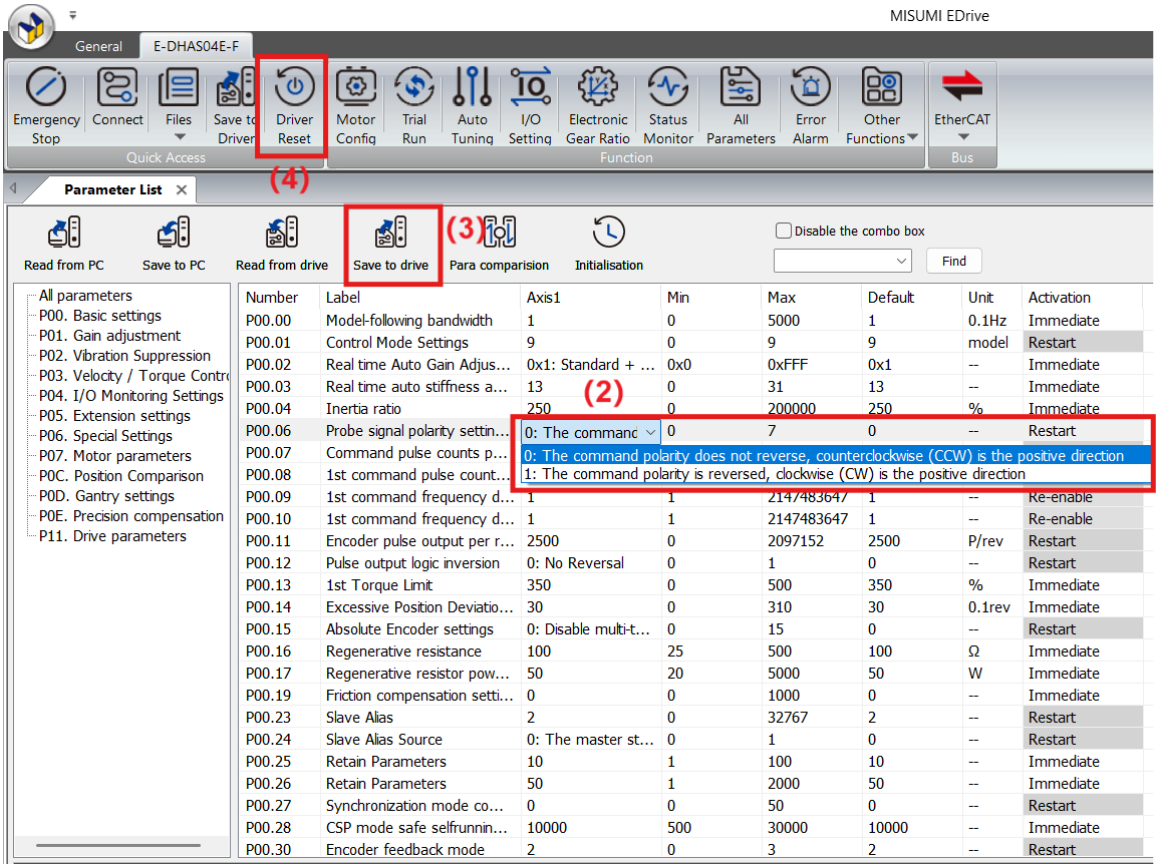
2. If now 'Command Pulse Polarity' setting is '0', press (3) ↑ button and change to '1'. If it's '1', then press (4) ↓ button and change to '0'.
3. After changing the parameter, restart the driver to activate the setting.

Method 2: Change through 'All Parameters' in EDrive software

1. Click 'All Parameters'.



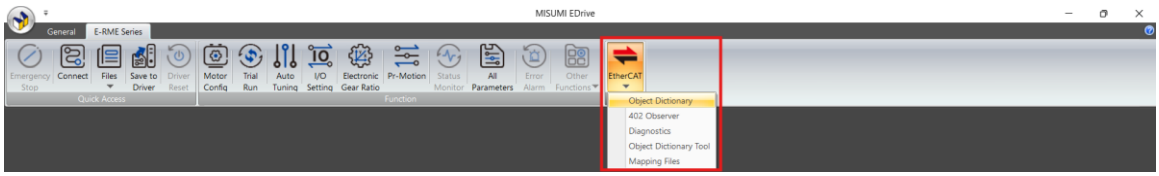
2. Change value of (2) P00.06 'Command Pulse Polarity' from '0: Reverse' to '1: Forward' or vice versa. Then click (3) 'Save to drive', and click (4) 'Driver Reset'.



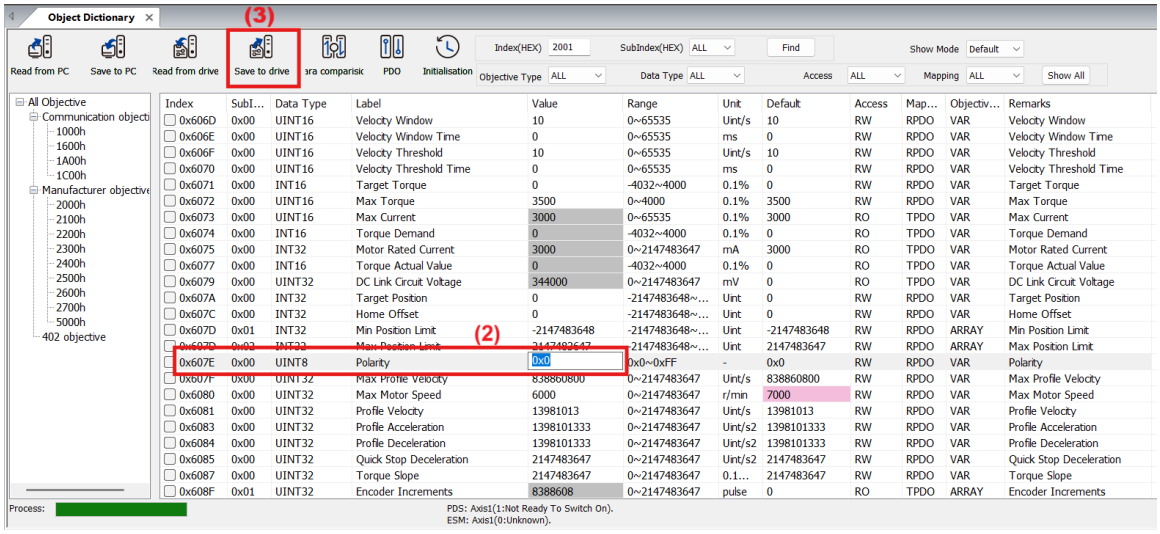
Number	Label	Axis1	Min	Max	Default	Unit	Activation
P00.00	Model-following bandwidth	1	0	5000	1	0.1Hz	Immediate
P00.01	Control Mode Settings	9	0	9	9	model	Restart
P00.02	Real time Auto Gain Adjus...	0x1: Standard + ...	0x0	0xFFF	0x1	--	Immediate
P00.03	Real time auto stiffness a...	13	0	31	13	--	Immediate
P00.04	Inertia ratio	250	0	200000	250	%	Immediate
P00.06	Probe signal polarity settin...	0: The commanc	0	7	0	--	Restart
P00.07	Command pulse counts p...						
P00.08	1st command pulse count...						
P00.09	1st command frequency d...	1	1	2147483647	1	--	Re-enable
P00.10	1st command frequency d...	1	1	2147483647	1	--	Re-enable
P00.11	Encoder pulse output per r...	2500	0	2097152	2500	P/rev	Restart
P00.12	Pulse output logic inversion	0: No Reversal	0	1	0	--	Restart
P00.13	1st Torque Limit	350	0	500	350	%	Immediate
P00.14	Excessive Position Deviatio...	30	0	310	30	0.1rev	Immediate
P00.15	Absolute Encoder settings	0: Disable multi-t...	0	15	0	--	Restart
P00.16	Regenerative resistance	100	25	500	100	Ω	Immediate
P00.17	Regenerative resistor pow...	50	20	5000	50	W	Immediate
P00.19	Friction compensation setti...	0	0	1000	0	--	Immediate
P00.23	Slave Alias	2	0	32767	2	--	Restart
P00.24	Slave Alias Source	0: The master st...	0	1	0	--	Restart
P00.25	Retain Parameters	10	1	100	10	--	Immediate
P00.26	Retain Parameters	50	1	2000	50	--	Immediate
P00.27	Synchronization mode co...	0	0	50	0	--	Restart
P00.28	CSP mode safe selfrunnin...	10000	500	30000	10000	--	Immediate
P00.30	Encoder feedback mode	2	0	3	2	--	Restart

Method 3: Change Object 607E in EDrive software

1. Click 'EtherCAT' and open 'Object Dictionary'.

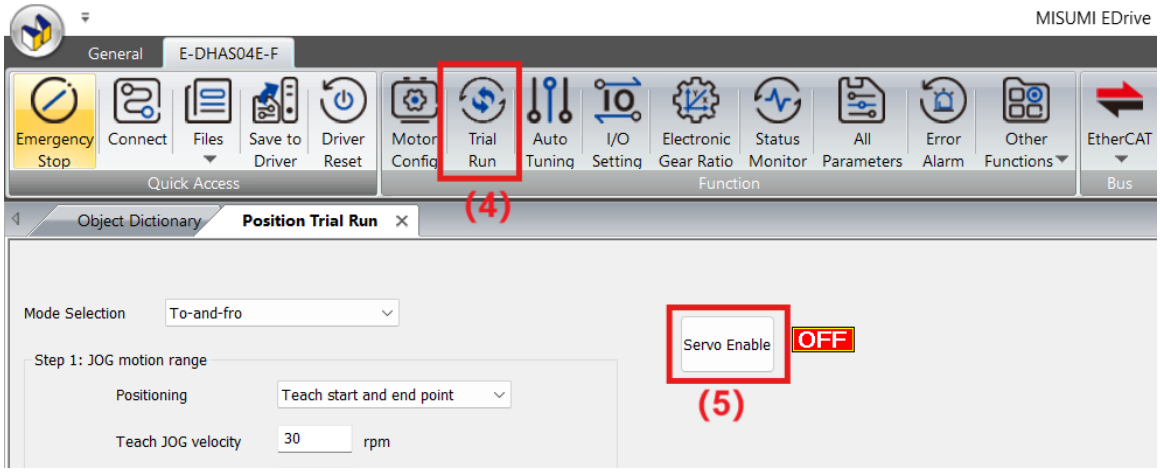


2. Click (2) to change the value of Object 607E following below table, then click (3) 'Save to drive'.



Mode		Setting Value
Position Mode	PP HM CSP	0: Rotary direction same as command direction 128: Rotary direction different from command direction
Velocity Mode	PV CSV	0: Rotary direction same as command direction 64: Rotary direction different from command direction
Torque Mode	PT CST	0: Rotary direction same as command direction 32: Rotary direction different from command direction
All Mode	F	0: Rotary direction same as command direction 224: Rotary direction different from command direction

3. Click (4) 'Trial Run' to open the trial run page and click (5) 'Servo Enable' to servo ON.



Note: The motion direction can be changed through object 607E, and suggest changing through 607E.

However, the priority of Parameter P00.06 is higher than Object 607E, which means that Object 607E is active when P00.06 = 0, and Object 607E is inactive when P00.06 = 1.

5. Change Electronic Gear Ratio

If the upper controller's pulse count is insufficient and the speed cannot meet the requirement, the motor command pulse count must be adjusted.

When setting the numerator and denominator for pulse input scaling, set P00.08 to 0 first.

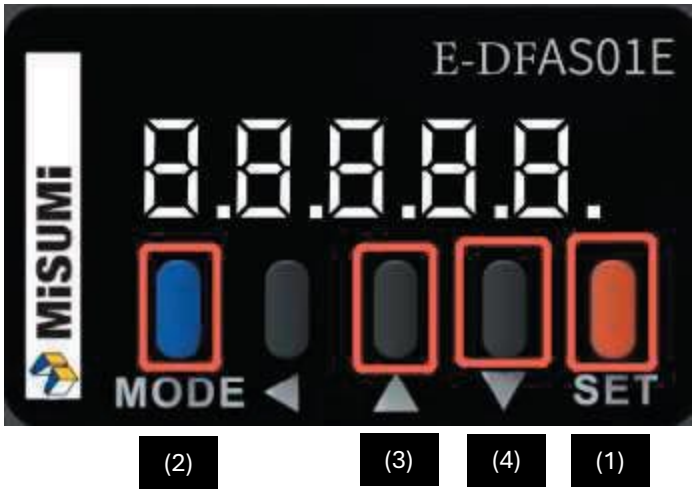
P00.08	**Label**	1st Command Pulses Count per Revolution					**Valid mode(s)**			F
	Range	0～67108864	**Unit**	-	**Default**	**0**	**Activation**	Re-enable	**Index**	2008h
This parameter sets the number of command pulses required for one full revolution of the motor. Note: This setting can also be configured via the object dictionary entries 608F, 6091, and 6092, but P00.08 takes priority when set.										

P00.09	**Label**	1st Command Frequency Divider/Multiplier Numerator					**Valid mode(s)**			F
	Range	0～2147483647	**Unit**	-	**Default**	**0**	**Activation**	Re-enable	**Index**	2009h
This parameter sets the numerator for scaling the input command pulses (for frequency division or multiplication). Corresponds to object dictionary 6091-01. Can be modified directly on the control panel to update the value of 6091-01. Effective only when P00.08 = 0.										

P00.10	**Label**	1st Command Frequency Divider/Multiplier Denominator					**Valid mode(s)**			F
	Range	0～2147483647	**Unit**	-	**Default**	**0**	**Activation**	Re-enable	**Index**	2010h
This parameter sets the denominator for scaling the input command pulses. Also corresponds to object dictionary 6091-01. Can be modified directly on the control panel to update the value of 6091-01. Effective only when P00.08 = 0.										

Method 1: Set with Front Panel

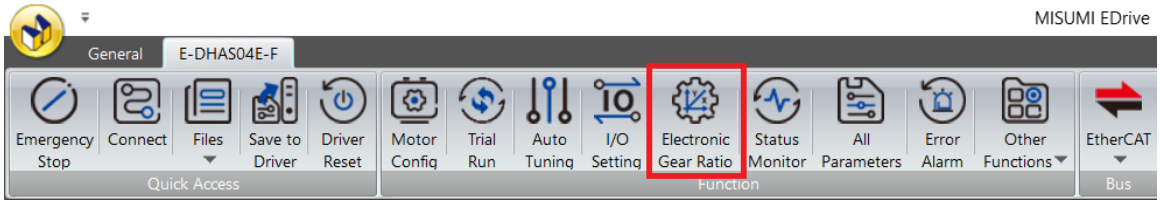
1. Press (1) ‘S’, display shows d345E. Press (2) ‘M’, display shows P00.00. Press (3) ↑ to scroll to P00.08. Press (1) ‘S’ again to enter the parameter setting for command pulses per motor revolution.



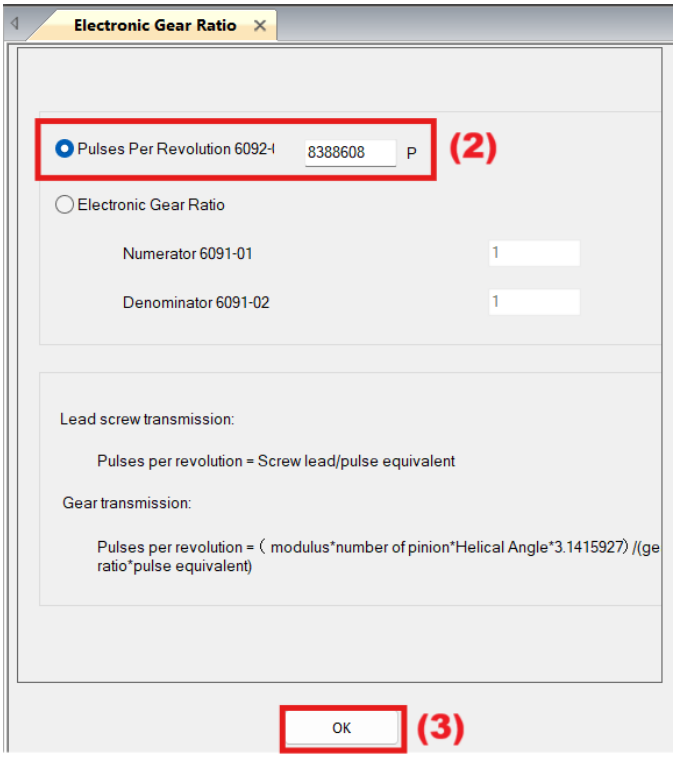
2. P00.08 must be set as an integer. To apply pulse input scaling (division/multiplication), first set P00.08 = 0, then configure P00.09: Numerator of the scaling ratio, P00.10: Denominator of the scaling ratio.
3. After modifying parameters, power cycle the driver for changes to take effect.

Method 2: Change through 'Electronic Gear Ratio' in EDrive software

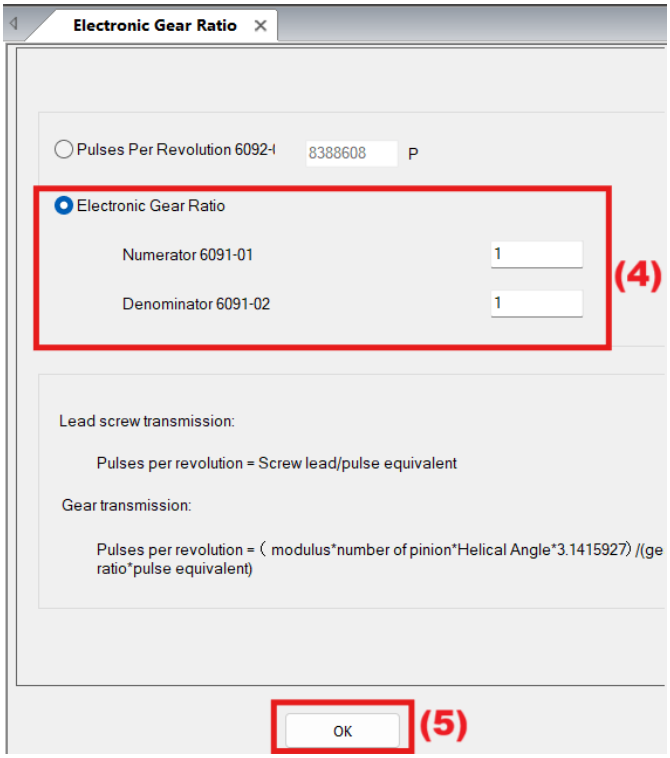
1. Click (1) 'Electronic Gear Ratio'.



2. Select (2) 'Pulse Per Revolution' to set the parameter, then click (3) 'OK'..

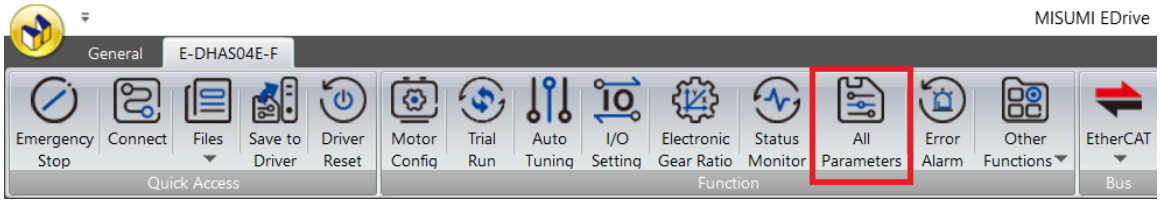


3. To apply pulse input scaling, select (4) 'Electronic Gear Ratio', set parameters 'Numerator' and Denominator'. Click (5) 'OK'.

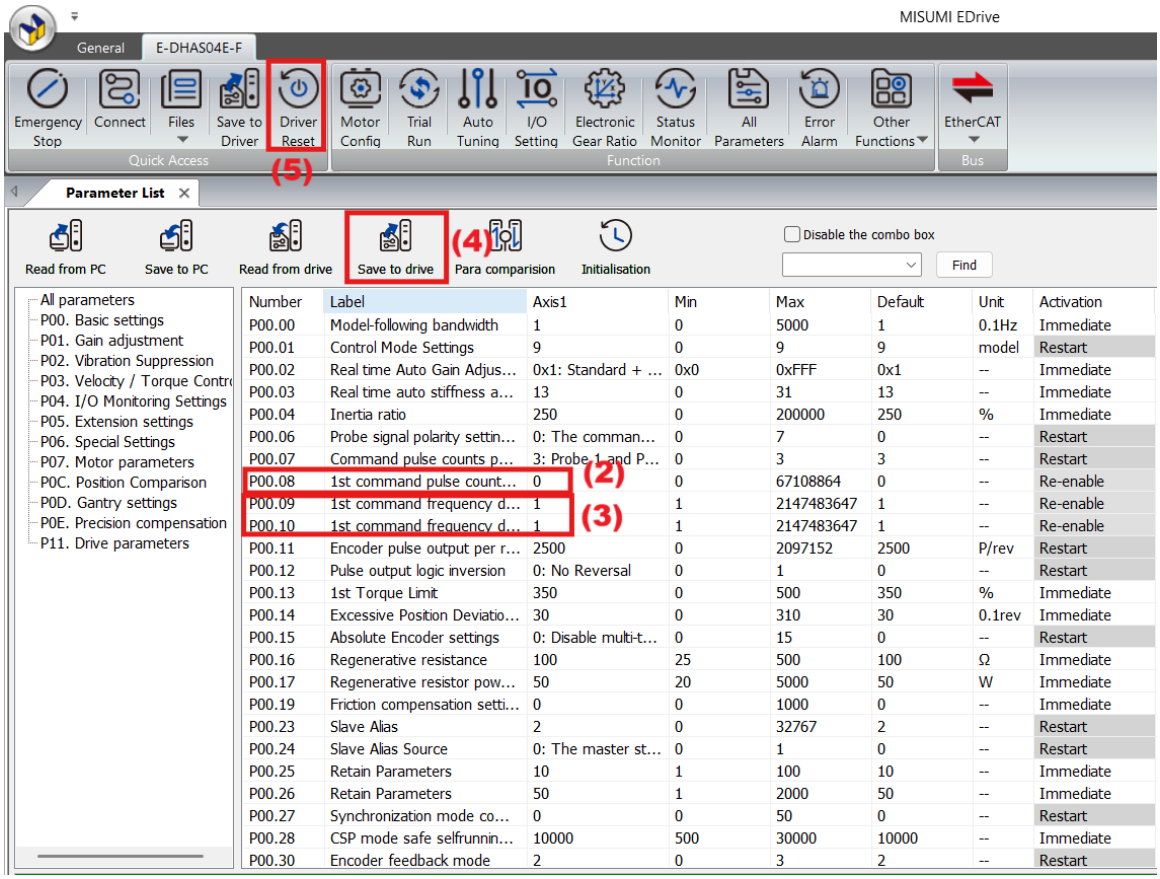


Method 3: Change through 'All Parameters' in EDrive software

1. Click 'All Parameters'.



2. Modify (2) P00.08 '1st Command Pulses Count per Revolution'. If setting scaling ratio, first set (2) P00.08 to 0, then configure (3) P00.09 '1st Command Frequency Divider/Multiplier Numerator' and P00.10 '1st Command Frequency Divider/Multiplier Denominator'. Click (4) 'Save to drive', then (5) 'Driver Reset'.



Number	Label	Axis1	Min	Max	Default	Unit	Activation
P00.00	Model-following bandwidth	1	0	5000	1	0.1Hz	Immediate
P00.01	Control Mode Settings	9	0	9	9	model	Restart
P00.02	Real time Auto Gain Adjus...	0x1: Standard + ...	0x0	0xFFF	0x1	--	Immediate
P00.03	Real time auto stiffness a...	13	0	31	13	--	Immediate
P00.04	Inertia ratio	250	0	200000	250	%	Immediate
P00.06	Probe signal polarity settin...	0: The comman...	0	7	0	--	Restart
P00.07	Command pulse counts p...	3: Probe 1 and P...	0	3	3	--	Restart
P00.08	1st command pulse count...	0	0	67108864	0	--	Re-enable
P00.09	1st command frequency d...	1	1	2147483647	1	--	Re-enable
P00.10	1st command frequency d...	1	1	2147483647	1	--	Re-enable
P00.11	Encoder pulse output per r...	2500	0	2097152	2500	P/rev	Restart
P00.12	Pulse output logic inversion	0: No Reversal	0	1	0	--	Restart
P00.13	1st Torque Limit	350	0	500	350	%	Immediate
P00.14	Excessive Position Deviatio...	30	0	310	30	0.1rev	Immediate
P00.15	Absolute Encoder settings	0: Disable multi-t...	0	15	0	--	Restart
P00.16	Regenerative resistance	100	25	500	100	Ω	Immediate
P00.17	Regenerative resistor pow...	50	20	5000	50	W	Immediate
P00.19	Friction compensation setti...	0	0	1000	0	--	Immediate
P00.23	Slave Alias	2	0	32767	2	--	Restart
P00.24	Slave Alias Source	0: The master st...	0	1	0	--	Restart
P00.25	Retain Parameters	10	1	100	10	--	Immediate
P00.26	Retain Parameters	50	1	2000	50	--	Immediate
P00.27	Synchronization mode co...	0	0	50	0	--	Restart
P00.28	CSP mode safe selfrunnin...	10000	500	30000	10000	--	Immediate
P00.30	Encoder feedback mode	2	0	3	2	--	Restart

Method 4: Send Object Dictionary from Host

When P00.08 ≠ 0, parameter P00.08 is effective. When P00.08 = 0, Object 6092-01h is effective.

If Host cannot recognize parameter P00.08, need to set P00.08 as 0 and use 6092-01h.

The range of Electronic Gear Ratio is between 0.001 to 8000 (23-bit encoder) or 0.001 to 125 (17-bit encoder). When setting the number of command pulses required per motor revolution, the following formula must be satisfied:

Command pulses per motor revolution ⩾ Encoder pulses per revolution / 8000

608Fh is Internal encoder resolution (read-only). 6092-01h is Command pulses per motor revolution (effective after disabling/enabling). 6091-01h and 6091-02h are Real-time effective scaling parameters.

When 6092-01h $\neq$ 608Fh:

Electronic Gear Ratio = Encoder resolution/6092-01h

When 6092-01h = 608Fh:

Electronic Gear Ratio = 6092-01h/6092-02h

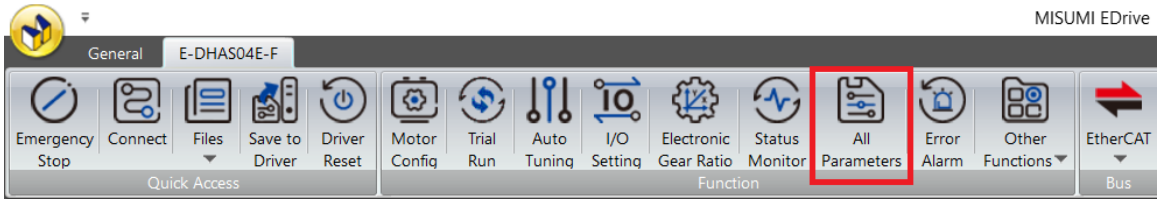
6. Parameter Setting

Method 1: Set with Front Panel

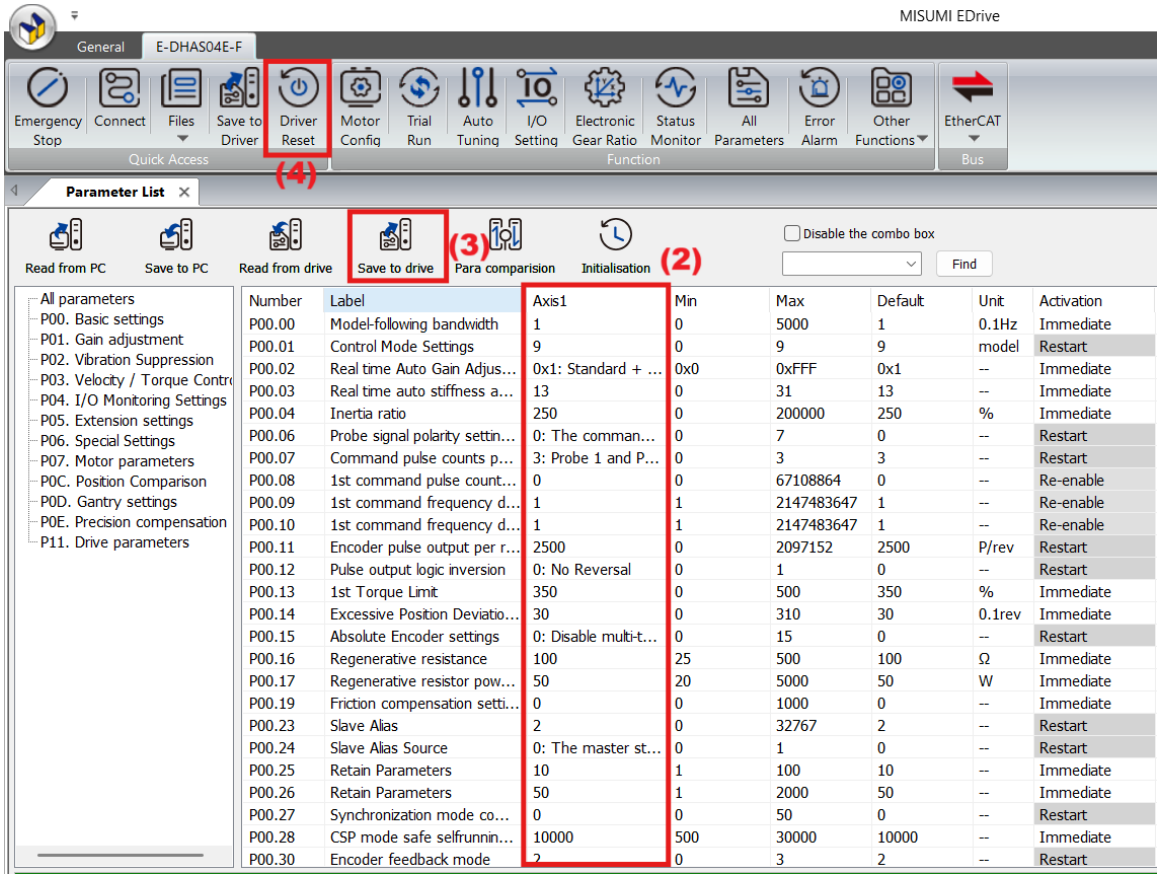
After the servo drive is powered on, Press button 'S', the display shows 'd34 5E'. Press button 'M', the display shows 'P00.00'. Scroll to the parameter code you want to adjust and press button 'S' again to enter the parameter setting page.

Method 2: Change through 'All Parameters' in EDrive software

1. Click 'All Parameters'.



2. In the (2) 'Axis 1' column, modify the desired parameter. After modification, click (3) 'Save to drive'. Then click (4) 'Driver Reset' to apply the changes.



Method 3: Change through EtherCAT BUS from Host

1. Connect the PLC to the servo driver.

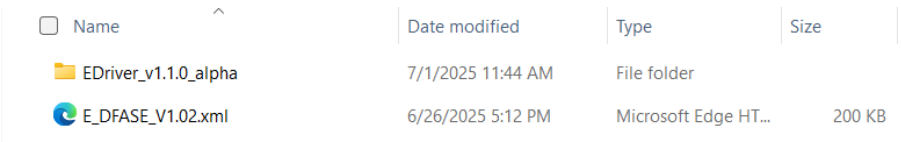
2. Run the PLC.
3. In the programming software, use EtherCAT communication to monitor and control PDO mapping parameters.

Object Index	Object Sub-index	Mapping Content	Mapping Content Break Down			Mapping Content Name
			Index	Sub-index	bits	
RXPDO1 (1600h)	01h	60400010h	6040h	00h	10h (16bit)	01h
	02h	607A0020h	607Ah	00h	20h (32bit)	02h
	03h	60B80010h	60B8h	00h	10h (16bit)	03h
RXPDO2 (1601h)	01h	60400010h	6040h	00h	10h (16bit)	Control Word
	02h	60FF0020h	60FFh	00h	20h (32bit)	Target Velocity
	03h	60B20010h	60B2h	00h	10h (16bit)	Torque Offset
RXPDO3 (1602h)	01h	60400010h	6040h	00h	10h (16bit)	Control Word
	02h	60710010h	6071h	00h	10h (16bit)	Target Torque
	03h	60870020h	6087h	00h	20h (32bit)	Torque Slop
RXPDO4 (1603h)	01h	60400010h	6040h	00h	10h (16bit)	Control Word
	02h	60980008h	6098h	00h	08h (8bit)	Homing Method
	03h	60990120h	6099h	01h	20h (32bit)	Speed During Search For Switch
	04h	60990220h	6099h	02h	20h (32bit)	Speed During Search For Zero
	05h	609A0020h	609Ah	00h	20h (32bit)	Homing Acceleration
	06h	607C0020h	607Ch	00h	20h (32bit)	Home Offset
	07h	60600008h	6060h	00h	08h (8bit)	Mode of Operation
TXPDO1 (1A00h)	01h	603F0010h	603Fh	00h	10h (16bit)	Error Code
	02h	60410010h	6041h	00h	10h (16bit)	Status Word
	03h	60610008h	6061h	00h	08h (8bit)	Mode of Operation Display
	04h	60640020h	6064h	00h	20h (32bit)	Position Actual Value
	05h	60B90010h	60B9h	00h	10h (16bit)	Touch Probe Status
	06h	60BA0020h	60BAh	00h	20h (32bit)	Touch Probe 1 Positive Position
	07h	60FD0020h	60FDh	00h	20h (32bit)	Digital Inputs
TXPOD2 (1A01h)	No Mapping by Default					

7. Controller Axis Configuration Precautions

EtherCAT ESI file is contained in the EDrive software zip file.

E-RME_V1.01_EtherCAT_ESI file



ESI file predefined PDO

RPDO1: Position control mode related PDOs

RPDO2: Velocity control mode related PDOs

RPDO3: Torque control mode related PDOs

RPDO4: Homing mode related PDOs

TPDO1: Controller feedback message related PDOs

Example: If use positioning control mode, click RPDO1 and TPDO1, then can achieve positioning control.

8. PLC EtherCAT Communication Example

PLC monitor and modify Servo Driver Object Dictionary via EtherCAT.

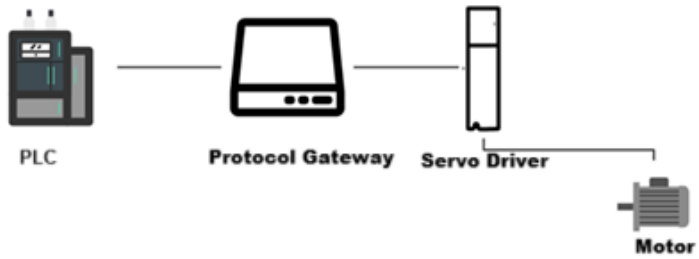
Hardware Used in This Case:

Servo Drive: Misumi E-DHAS01E-F

PLC: Siemens S7-1200, TIA Portal V20

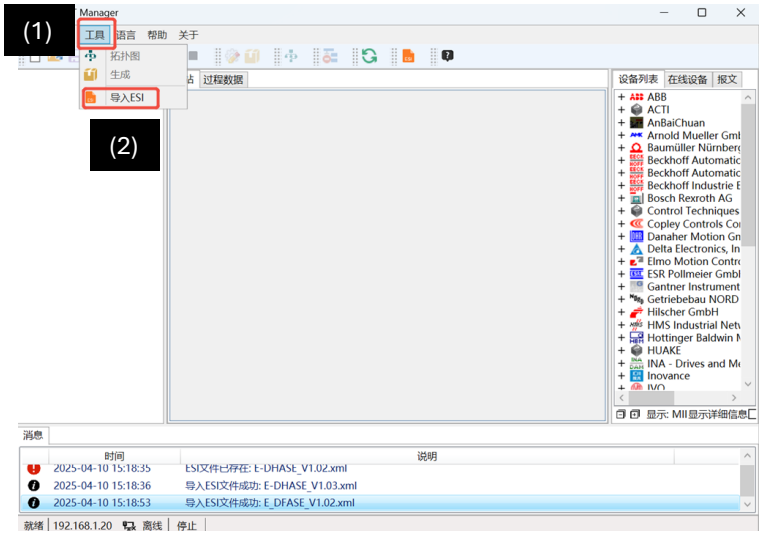
Protocol Conversion Gateway: KJ Smart KJ-PN-ECATM

System wiring diagram

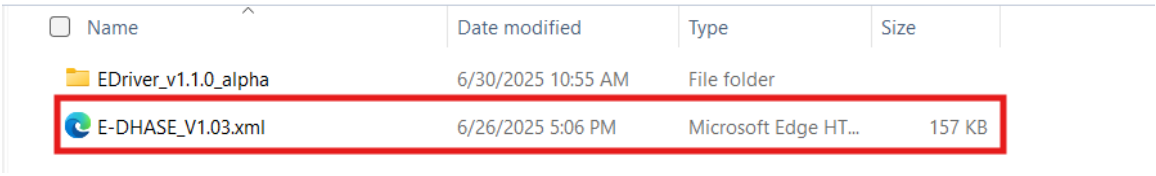


EtherCAT Manager Software Configuration

1. Click (1) Tools, then select (2) Import ESI.

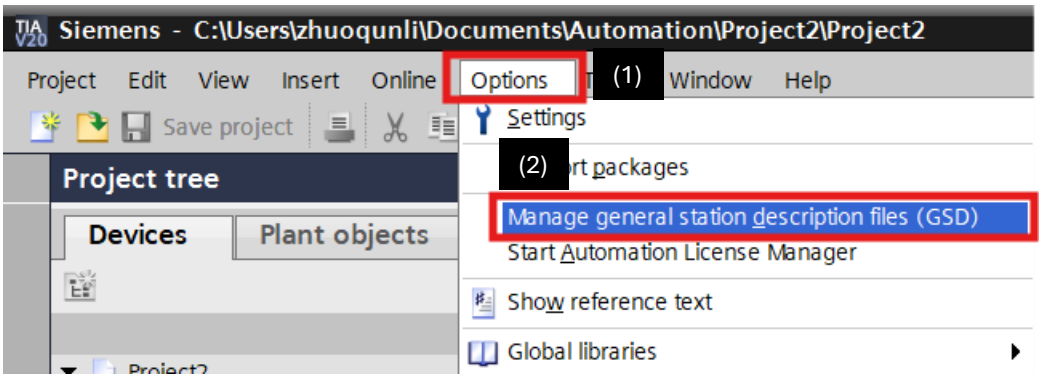


2. Import the axis configuration file.
   Note: Run the software as administrator when importing ESI files.

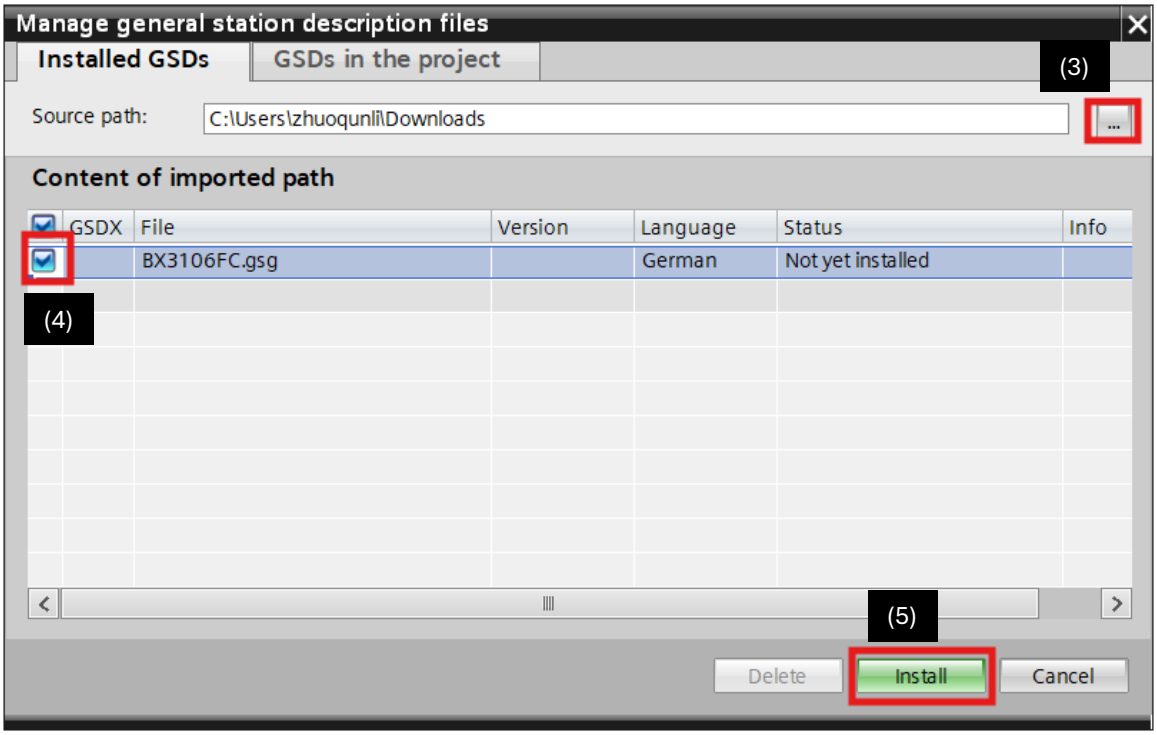


TIA Portal (Siemens STEP 7) Configuration

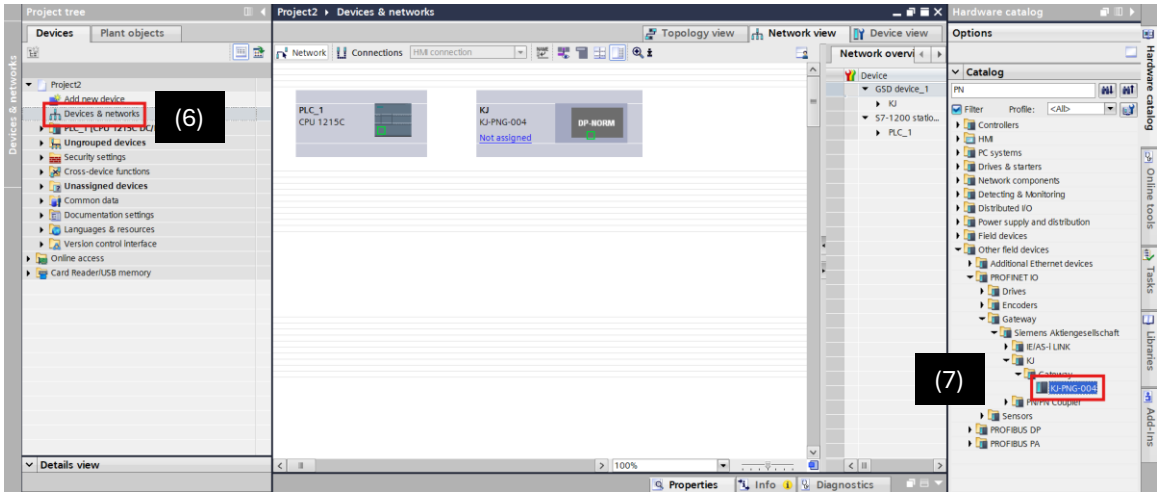
1. In TIA Portal, install the GSD file for the protocol conversion gateway: Click (1) Options, then (2) Manage General Station Description Files (GSD).



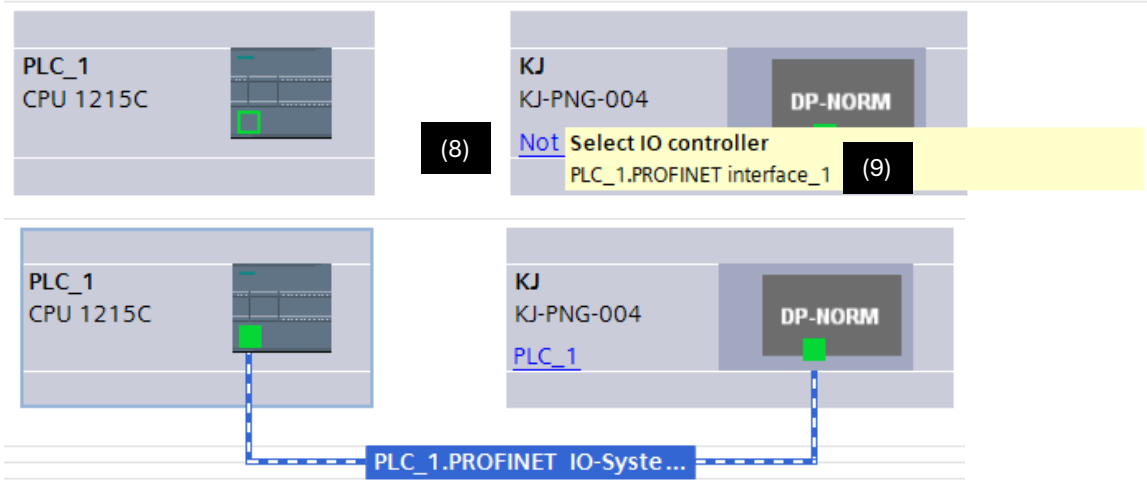
2. Click (3) Browse to locate the downloaded GSD file and click 'Install'. Check (4) and click (5) 'Install'.



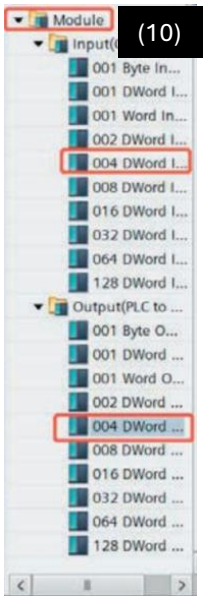
3. Open (6) Devices and Networks, find added device, and double click to add the protocol conversion device.

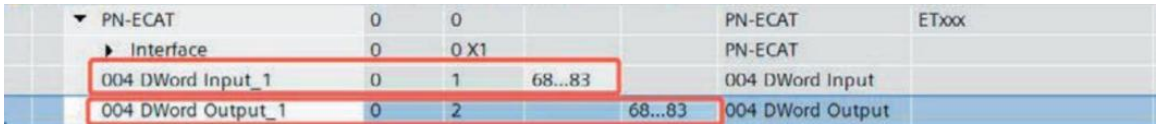


4. Click (8) 'Not assigned', then select (9) IO Controller to link the PLC with the gateway.



5. Double-click the protocol conversion device, then in the right panel. Click (10) Module, select Input 004 DWord and Output 004 DWord to view their addresses.





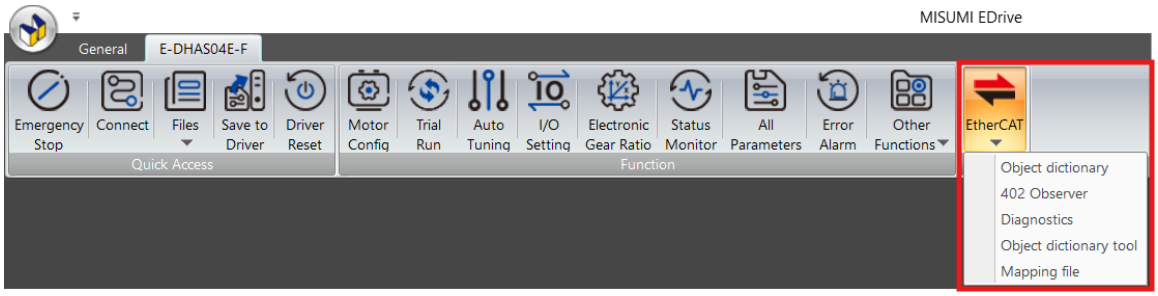
Servo ON steps

Write the values of PDO parameter 6041 in the following order: 6—7—15

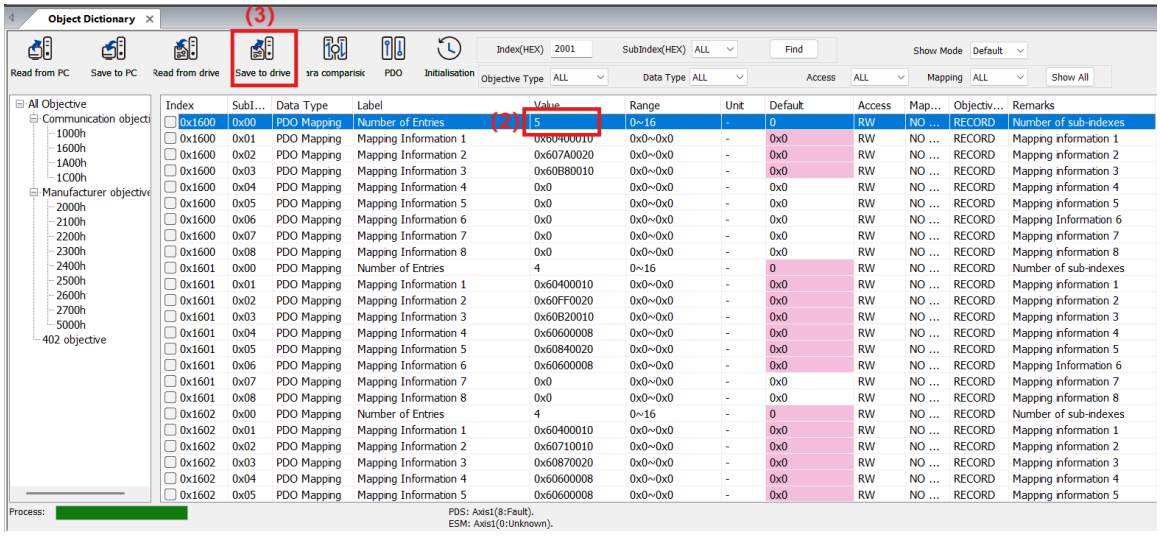
Convert Command	Combination of bit 7 and 0~3					6040h Typical Value	402 State Machine Transition
	7: Fault reset	3: Servo running	2: Quick stop	1: Main circuit power on	0: Start		
Power OFF	0	X	1	1	0	0006h	2, 6, 8
Start	0	0	1	1	1	0007h	3
Start	0	1	1	1	1	000Fh	3

Writing Parameter Values

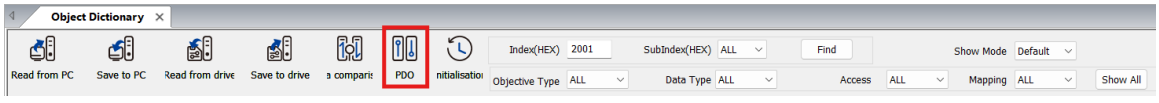
1. Open the debugging software and connect to the servo drive. Click 'EtherCAT' and open 'Object Dictionary'.



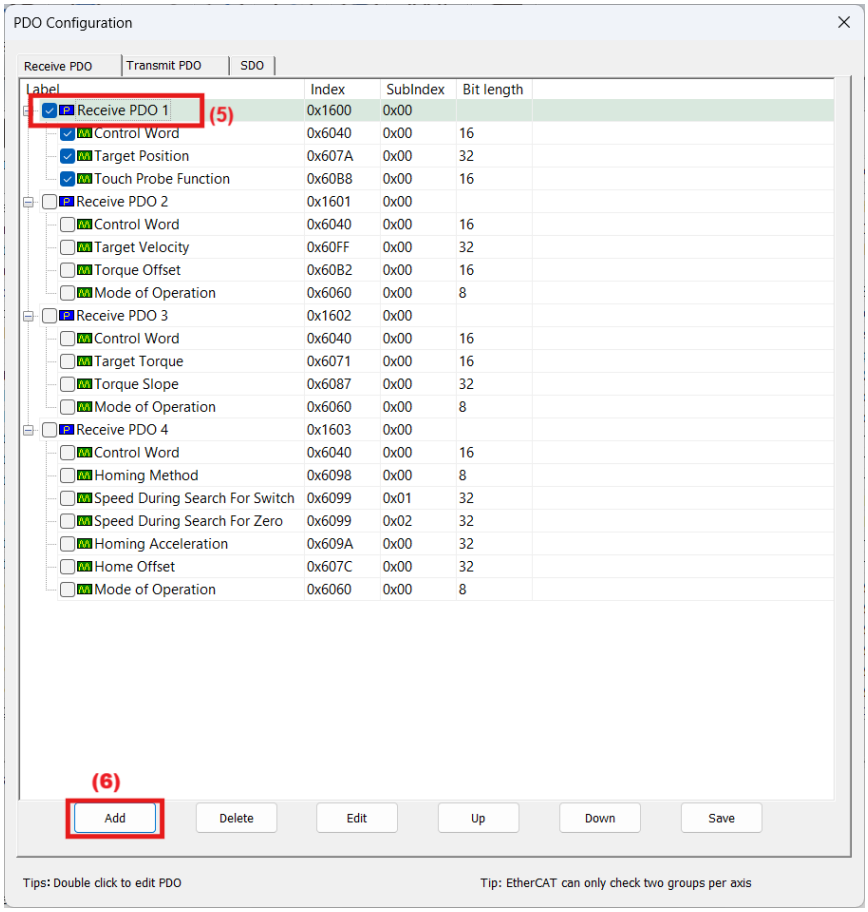
2. In (2) 'Value', enter the number of parameters to read, then click (3) 'Save to drive'.



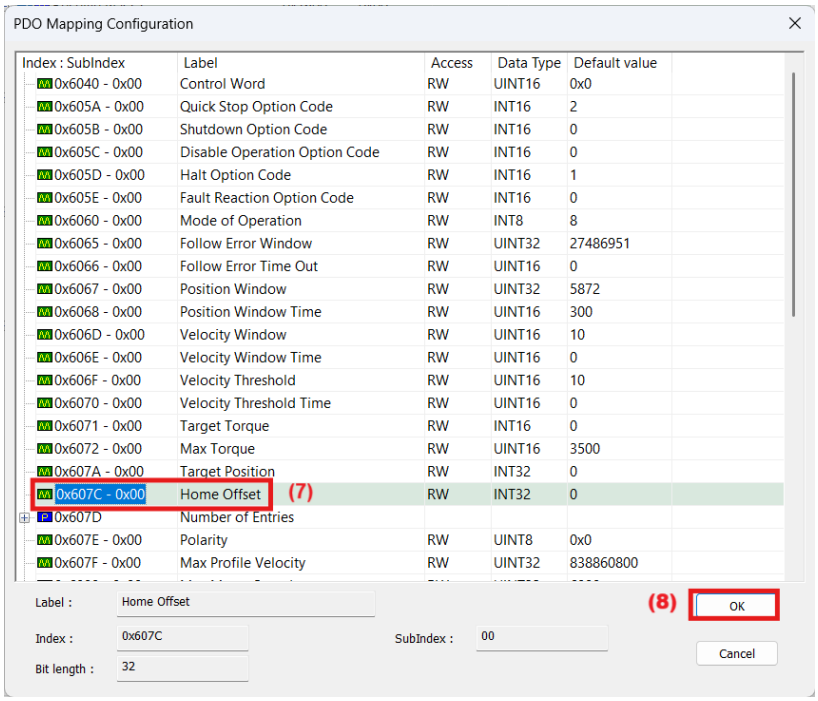
3. Click (4) 'PDO' to open the PDO configuration page.



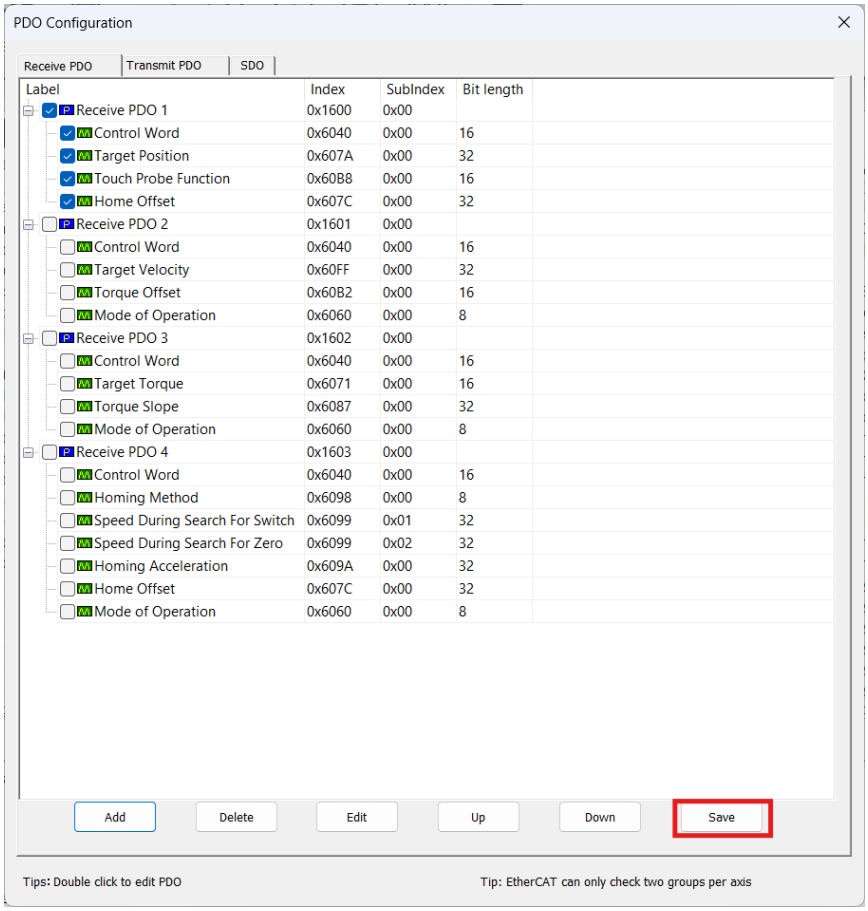
4. Click (5) 'Receive PDO 1', then (6) 'Add'.



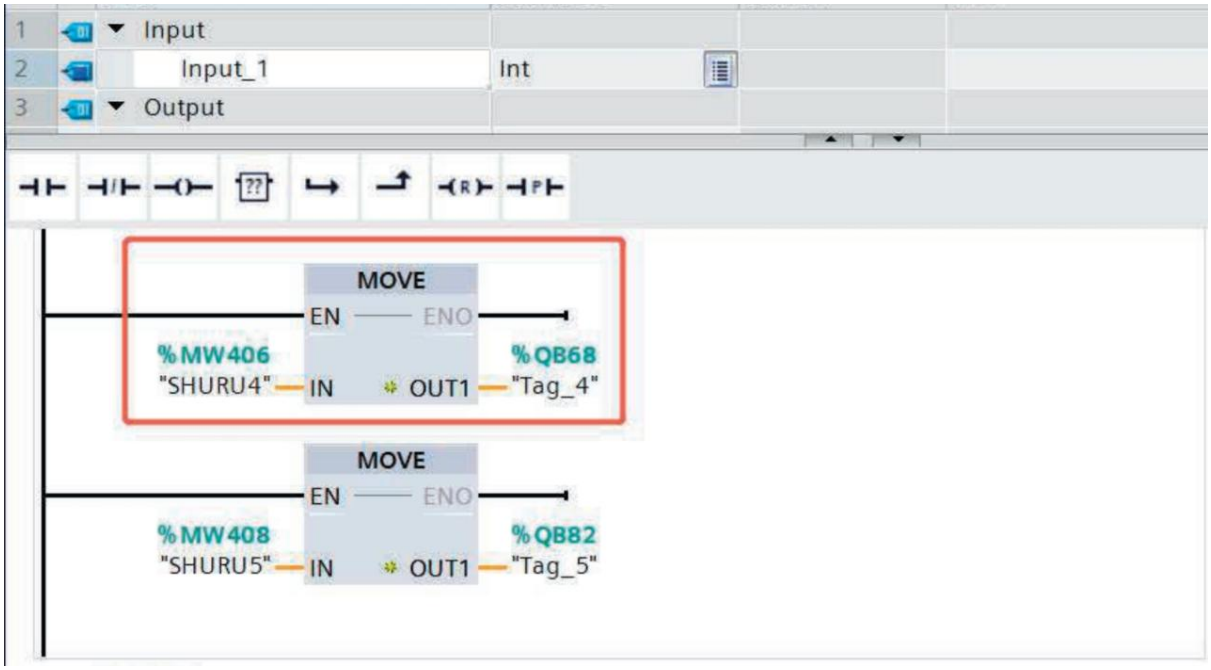
5. Select the sub-index to add (7), then click (8) 'OK'.



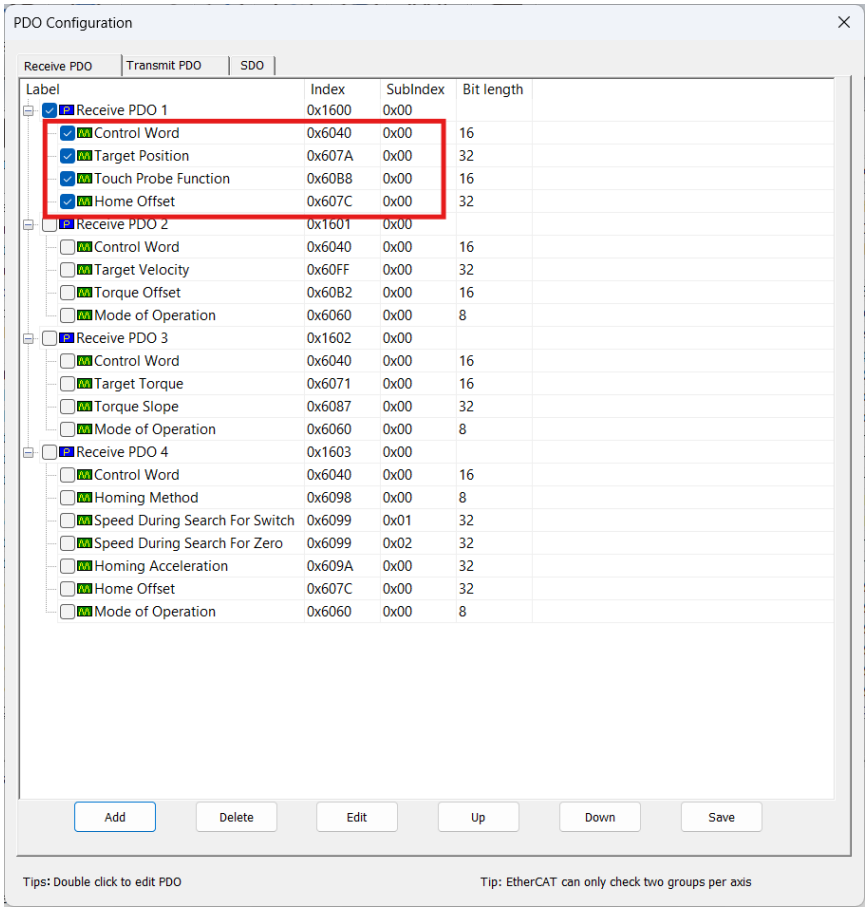
6. Click (9) 'Save' to write into driver.



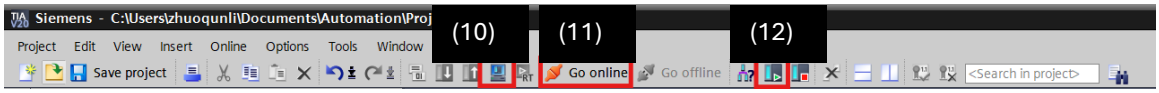
7. In TIA Portal, create a new INT variable as input. Use a MOVE instruction to write values into the servo drive parameters.



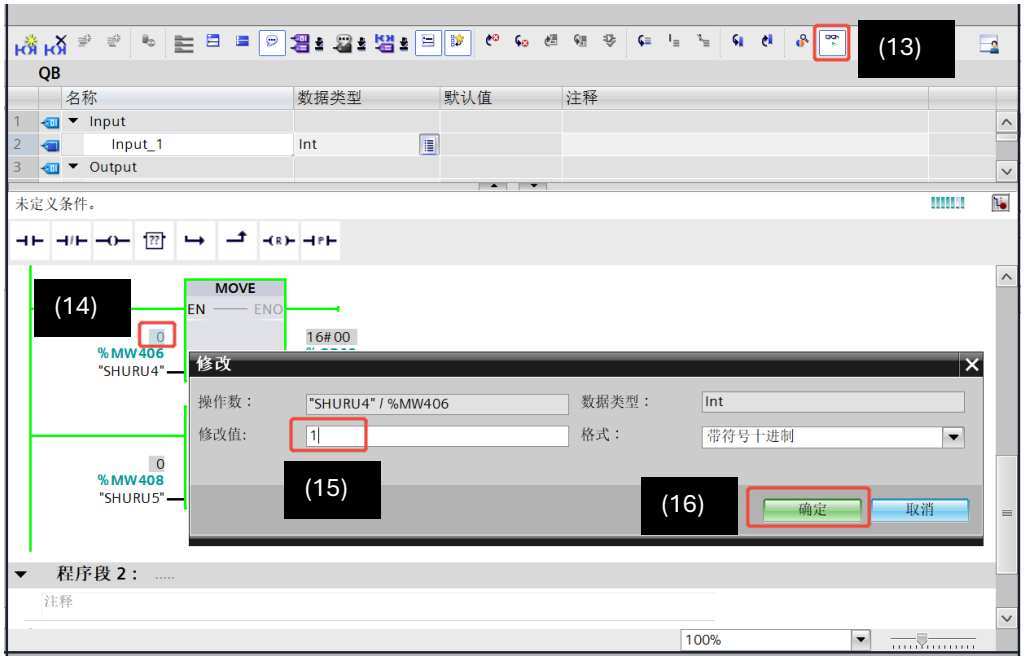
Addresses are arranged according to the PDO order.



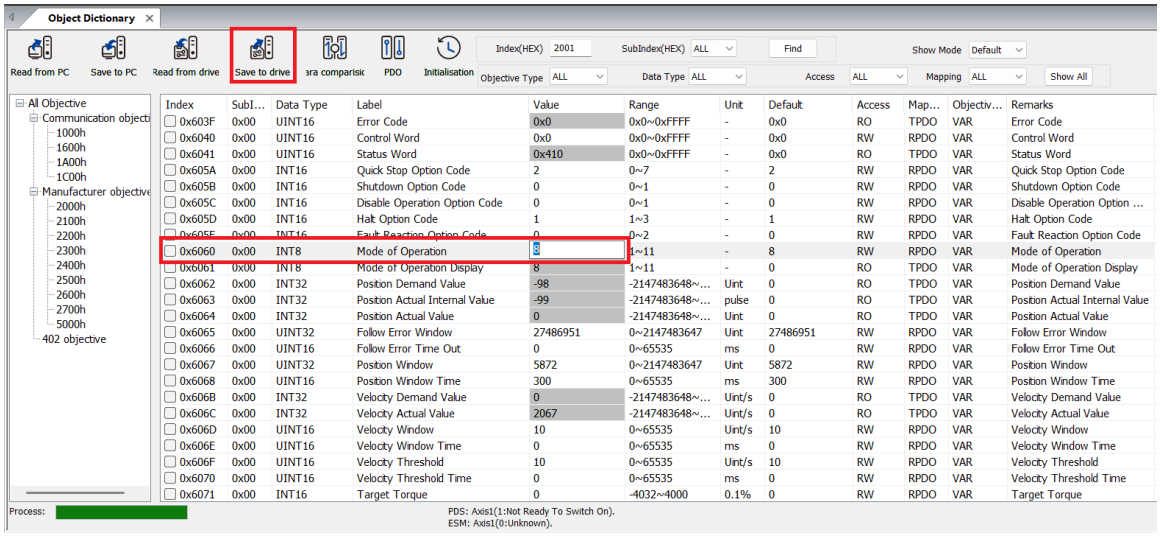
8. Click (10) Download Program to CPU, then (11) Go Online, and (12) Run CPU.



9. Click (13) Monitor Program, double-click (14) to modify parameter values, enter the new value in (15), and click (16) Confirm.



10. In this case, the PDO mapped to %68 is 0x6060. You can see the current value is 8. Click (17) 'Read from drive' to write the parameter value from the PLC to the drive.



11. The value of 0x6060 changes to 1, indicating the parameter has been successfully written.