



Programmable Controllers
MELSEC iQ-R
series



Ezi-STEP® CC-Link IE TSN
Micro Stepping System **ALL**

Connection Guide

MELSEC iQ-R RD78G (H) and

Ezi-STEP® CC-Link IE TSN
Micro Stepping System **ALL**

Mitsubishi Electric Products
RD78G4 / RD78G8 / RD78G16
RD78G32 / RD78G64
RD78G4HV / RD78GHW

FASTECH Products
Ezi-STEP CC-Link IE TSN ALL

Before you begin

- Thank you for using our company's products.
- The Ezi-STEP CC-Link IE TSN ALL is a stepping motor unit consisting of a driver equipped with a 32-bit high-performance ARM processor and various motors. It is used as a remote station in a CC-Link IE TSN network.
- Ezi-STEP CC-Link IE TSN ALL is an industrial product. Do not use it for any other purpose. Our company shall not be liable for any damages incurred due to non-compliance with this instruction.
- This connection guide provided by our company explains how to connect the Ezi-STEP CC-Link IE TSN ALL to Mitsubishi Electric's MELSEC iQ-R RD78G(H). It covers CSP+ file registration, system configuration, parameter settings, and programming methods.
- Before writing the PLC program, please be sure to read this connection guide, understand its contents accurately, and use the product correctly.
- This connection guide is subject to change without notice. For the latest version, please refer to our company's CC-Link IE TSN website (<https://cltsn.fastech-motions.com/en>).

Manual Information

- The Ezi-STEP CC-Link IE TSN ALL manual can be downloaded from the FASTECH website.
<https://cltsn.fastech-motions.com/en/download/quick>

Manual Name	Manual Number
[Manual][CC-Link IE TSN][Ezi-STEP ALL] Micro Stepping System	
[Connection Guide][CC-Link IE TSN][MELSEC iQ-R RD78G(H)][Ezi-STEP ALL]	

- The MELSEC iQ-R RD78G(H) manual can be downloaded from the Mitsubishi Electric website.
<https://www.mitsubishielectric.com/fa/index.html>

Manual Name	Manual Number
MELSEC iQ-R Motion Unit User's Manual (Startup Edition)	IB-0300405
MELSEC iQ-R Motion Unit User's Manual (Application Edition)	IB-0300410
MELSEC iQ-R Motion Unit User's Manual (Network Edition)	IB-0300425
MELSEC iQ-R Programming Manual (Motion Unit Instructions/General-Purpose FUN/General-Purpose FB Edition)	IB-0300430
MELSEC iQ-R Programming Manual (Motion Control FB Edition)	IB-0300532
MELSEC iQ-R Motion Unit User's Manual (Simple Motion Mode Applications Edition)	IB-0300571
MELSEC iQ-R Motion Unit User's Manual (Simple Motion Mode Advanced Synchronous Control Edition)	IB-0300574
GX Works3 Operating Manual	SH-081214

Terminology

- This section covers terms used in the connection guide.

Terminology	Description
CC-Link IE TSN	An open network that adopts 'TSN (Time-Sensitive Networking)', an extension of the standard Ethernet specification, enabling simultaneous processing of real-time control and information from other open networks.
Master station (Manager station)	This station manages the entire network and can perform cyclic and transient transmission with all stations. The MELSEC iQ-R RD78G(H) corresponds to this station.
Remote station	A station that performs cyclic transmission of bit-level I/O signals and word-level I/O data, also capable of transient transmission. Ezi-STEP CC-Link IE TSN ALL corresponds to this.
PDO	Abbreviation for Process Data Object. A collection of application objects periodically transmitted between multiple CANopen nodes.
Object	Various data held by device stations corresponding to CANopen.

Table of Contents

1. Overview

- 1-1. Overview
- 1-2. Ezi-STEP CC-Link IE TSN ALL CSP+ File Registration
- 1-3. CC-Link IE TSN Configuration
- 1-4. Setup Sequence
- 1-5. Restrictions

2. RD78G(H) Settings

- 2-1. Project Creation
- 2-2. Module Registration
- 2-3. Module Configuration – H/W
- 2-4. Parameter / Module Information / 0000:RD78G4
- 2-5. Module Extended Parameter – Motion Control
Setting Function
- 2-6. Convert
- 2-7. Write to PLC

3. Follow the Program

- 3-1. Exploring Motion Control Commands
- 3-2. [Ladder] STEP Enable, STEP ON
- 3-3. [Ladder] Specifying the homing method
- 3-4. [Ladder] Execute Ezi-STEP homing
- 3-5. [Ladder] Execute Ezi-STEP Operation
- 3-6. [Ladder] Executing Ezi-STEP DIO Operation
- 3-7. [Ladder] Convert

Appendix

- [Operation Verification] Axis Monitor
- [Operation Verification] Changing the Homing Method
- [Operation Verification] Homing
- [Operation Verification] Jog Operation
- [Operation Verification] Troubleshooting
- [Parameter] Homing Parameter Settings

1. Overview

1-1. Overview

- **MELSEC iQ-R RD78G(H) and Ezi-STEP CC-Link IE TSN ALL Connection Guide**

- ◆ **Master station: RD78G4 (4-axis) / RD78G8 (8-axis) / RD78G16 (16-axis) / RD78G32 (32-axis) / RD78G64 (64-axis)**

RD78G4HV (128-axis) / RD78GHW (256-axis)

- PLCopen® Motion Control FB (Function Block)**

- Control programs can be easily written using the PLCopen Motion Control FB library, an international standard specification.
 - This program allows third parties to easily understand its contents, significantly reducing design and maintenance time.

- ◆ **Engineering software**

- GX Works3: Ver. 1.105K or later
 - Motion control setting function: Ver. 1.055H or later
 - ※ For the latest files, please refer to the Mitsubishi Electric website.
(<https://www.mitsubishielectric.com/fa/download/index.html>)

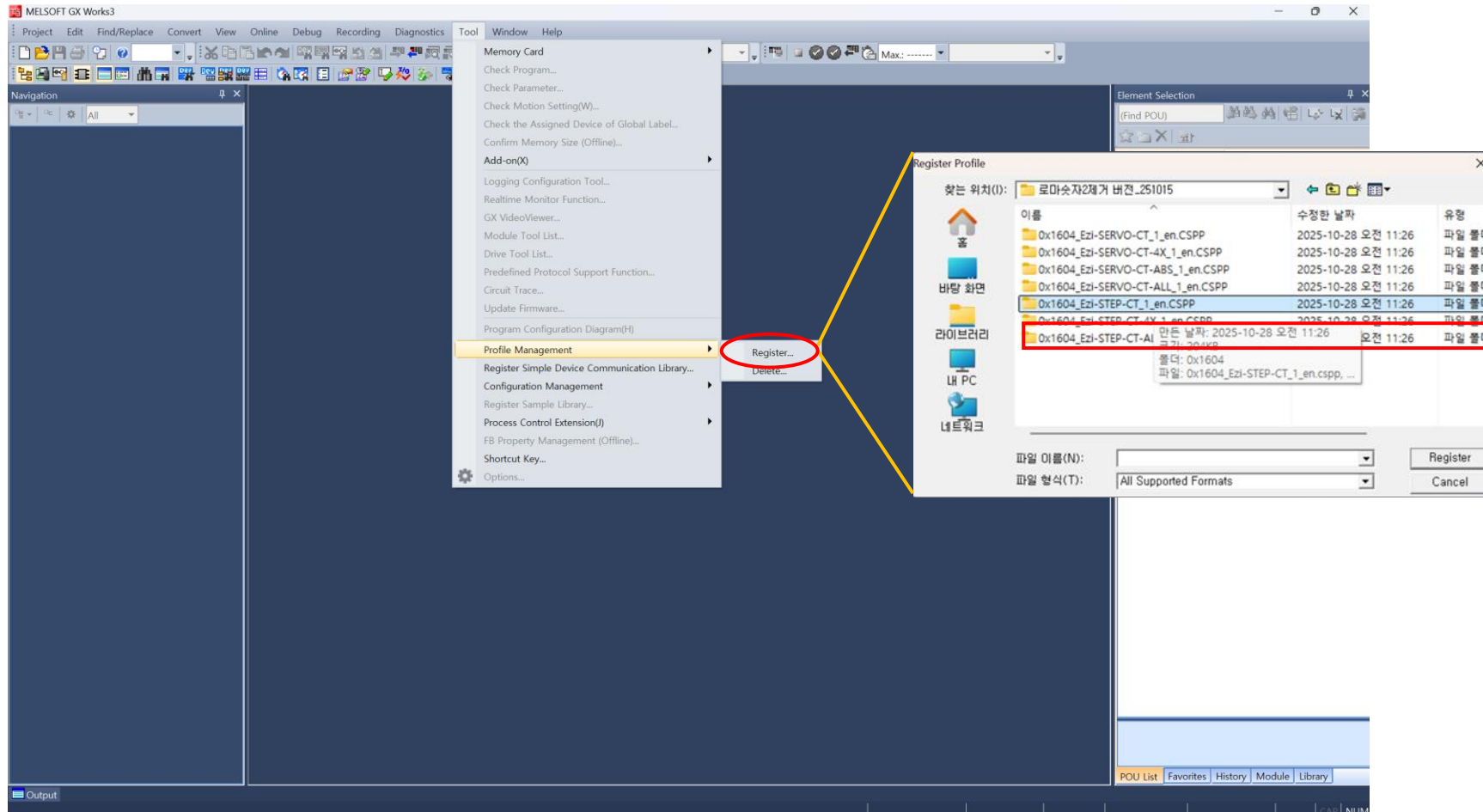
- ◆ **Remote station: Ezi-STEP CC-Link IE TSN ALL**

- CSP+ File Download address: <https://cltsn.fastech-motions.com/en/download/quick>
 - File Name: 0x1604_Ezi-STEP-ALL-CT_1_en_CSPP

1-2. Ezi-STEP CC-Link IE TSN ALL CSP+ File Registration

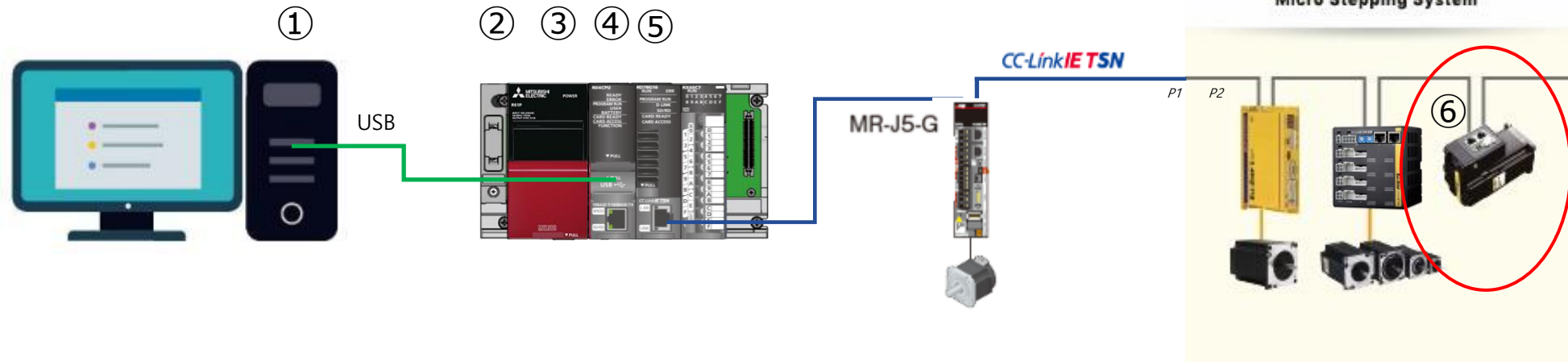
● CSP+ Registration

- [GX Works3] Tool / Profile Management / Register ※ Registration is only possible before opening a project.



1-3. CC-Link IE TSN Configuration

- System Configuration



Configuration		Product name	IP address
①	Engineering software	GX Works3	-
②	Main base	R33B	-
③	Power supply module	R61P	-
④	CPU module	iQ-R04	-
⑤	Motion module	RD78G4	192.168.3.253
⑥	Driver + Motor	Ezi-STEP-CT-ALL-42S-R	192.168.3.1

1-3. CC-Link IE TSN Configuration

- Ezi-STEP Specifications

Item		Specifications
Communication protocol		CC-Link IE TSN Class B
Communication speed		1Gbps / 100Mbps
Modes of operation		CiA402 drive profile: cyclic Synchronous position Mode (CSP) / Profile position mode (PP) / Homing mode (HM)
Synchronizat ion method	Time synchronization method	IEEE1588 / IEEE802.1AS
	Communication cycle	Minimum 250 μ s
	Network synchronization communication	Synchronous Communication (CSP, PP, HM) / Asynchronous Communication (PP, HM)
Encoder type		Incremental type

1-4. Setup Sequence

- Ezi-STEP, RD78G(H) Parameter Settings

No	Item	Details
1	Ezi-STEP Settings 	Configure parameters using the driver configuration program (Ezi-CT Manager). Please download the configuration program and its user manual from the FASTECH Co., Ltd. website. ※ Address: https://cltsn.fastech-motions.com/en/download/quick
2	RD78G(H) Configuration 	Create an RD78G(H) project using GX-Works3, then configure the unit parameters (communication method, connection target) and axis parameters (for motion control).
3	RD78G(H) + Ezi-STEP Operation Verification 	Write a program to verify that the RD78G(H) and Ezi-STEP are configured correctly. Manipulate labels to verify the motor operates normally.

1-4. Setup Sequence

● Ezi-STEP Setup Notes

Item	Details
IP address setting	① Set using the driver's rotary switch ② Rotary Switch → Setting value: '00', IP address (Index: 2101h, Subindex: 01~04h)
Driver homing method setting	① Homing method (Index: 6098h, Subindex:00h) setting - Set homing method: '0' (default) → '33' etc. ※ Refer to [Appendix] Homing Method ② Home offset (Index: 607Ch, Subindex:00h) → Set to '0' Caution) Setting a value other than 0 may cause rapid acceleration or deceleration upon homing completion.
Limit stop method setting	① Limit stop method (Index:2003h, Subindex:00h) setting - 0: PP, HM → Quick stop / CSP → No stop - 1: PP, HM → Deceleration stop / CSP → Does not stop ② Setting a value other than '0' or '1' may cause '1ED0H: Drive error' when detecting the hardware stroke limit.
In-position range	① In-position range (Index:2B21h, Subindex:00h, Data type:Unsigned32) setting - Register a value within the In-position range (5 to 20000 pulses) considering the operating environment ② If [Md.102: Deviation counter value] is less than the setting value, [Md.108: Servo status 1: In-position] turns ON. As a rule, this object should not be made public. Please configure it using the servo transient transmission function of the FX5 CPU module.

1-5. Restrictions

● Motion Control Function Restrictions (RD78G(H) and Ezi-STEP)

Item	Restriction
Torque limit function	The driver does not support the following object, so the Torque limit function cannot be used. • Positive torque limit value (Index:60E0h, Subindex:00h) • Negative torque limit value (Index:60E1h, Subindex:00h)
Absolute position system	The encoder is of the incremental type, so the absolute position system cannot be used.
Virtual servo amplifier function	Emulated by MR-J5-G.
Follow up function	This product must perform homing when the servo is turned ON. As this is an open-loop control system, the 'Position actual value (Index:6064h, Subindex: 00h)' is not updated when the servo is OFF. In the Follow-up function, the motor rotation amount is reflected in the controller command based on the 'Position actual value (Index:6064h, Subindex:00h)'. Therefore, the controller command and the motor position will be misaligned by the amount the motor rotated while the servo was OFF.
Mark detection function	The driver's TPR1 (Touch Probe 1) cannot be used for [Pr.800: Mark detection signal setting].
Optional data monitor function	When using the Optional data monitor function, set the objects to monitor in [Pr.91~94: Optional data monitor: Data type setting 1~4] and [Pr.591~594: Optional data monitor: Data type expansion setting 1~4]. The default value is "0: Not set". Therefore, [Md.109~112: Optional data monitor output 1~4] will be '0'.

1-5. Restrictions

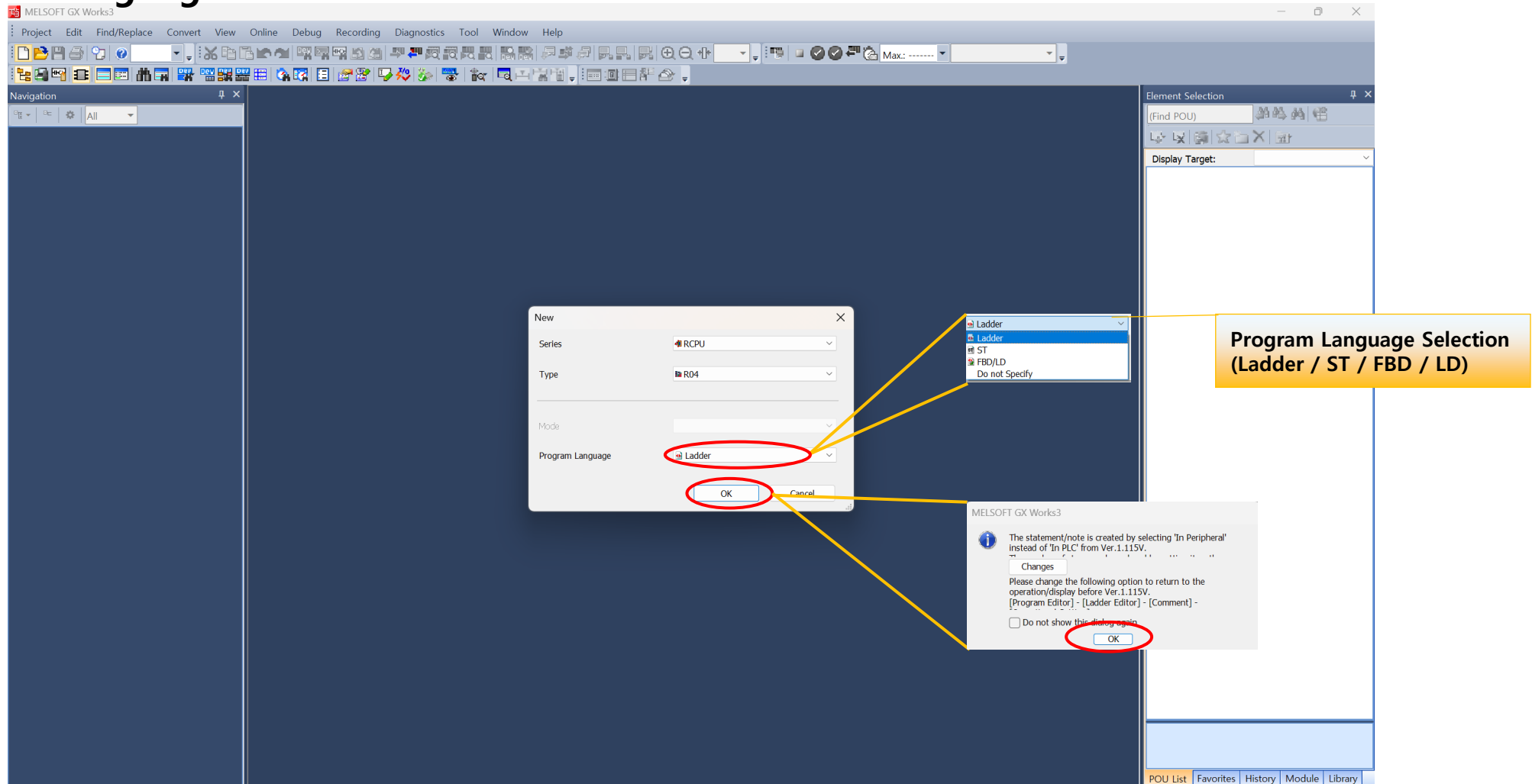
● Motion Control Function Restrictions (RD78G(H) and Ezi-STEP)

Item	Restriction
Md.103: Motor rotation speed	Since the driver does not support 'SI unit velocity (Index:60A9h, Subindex:00h)', it outputs the motor rotation speed in pulses per second.
Md.104: Motor current value	Since the driver does not support 'Torque actual value (Index:6077h, Subindex:00h)', it always displays "0".
Md.108: Servo status 1	The following bits in the monitor data are always in the 'OFF' state. · Gain switching (b4) · Fully closed control switching (b5) · Torque limit active (b13) · Absolute position lost (b14) · Servo warning (b15)
Md.119: Servo status 2	The following bits in the monitor data are always in the 'OFF' state. · Zero point pass (b0) · Zero speed (b3) · Speed limit active (b4) · PID control active (b8)
Md.115: Servo alarm detail number	Not supported. This monitor data is always displayed as '0'.
Cd.108: Gain switching command flag	Not supported. Only MELSERVO responds to this data.
Cd.133: Semi/Fully closed loop switching request	Not supported. Only MELSERVO responds to this data.
Cd.136: PI-PID switching request	Not supported. Only MELSERVO supports this data.

2. RD78G(H) Settings

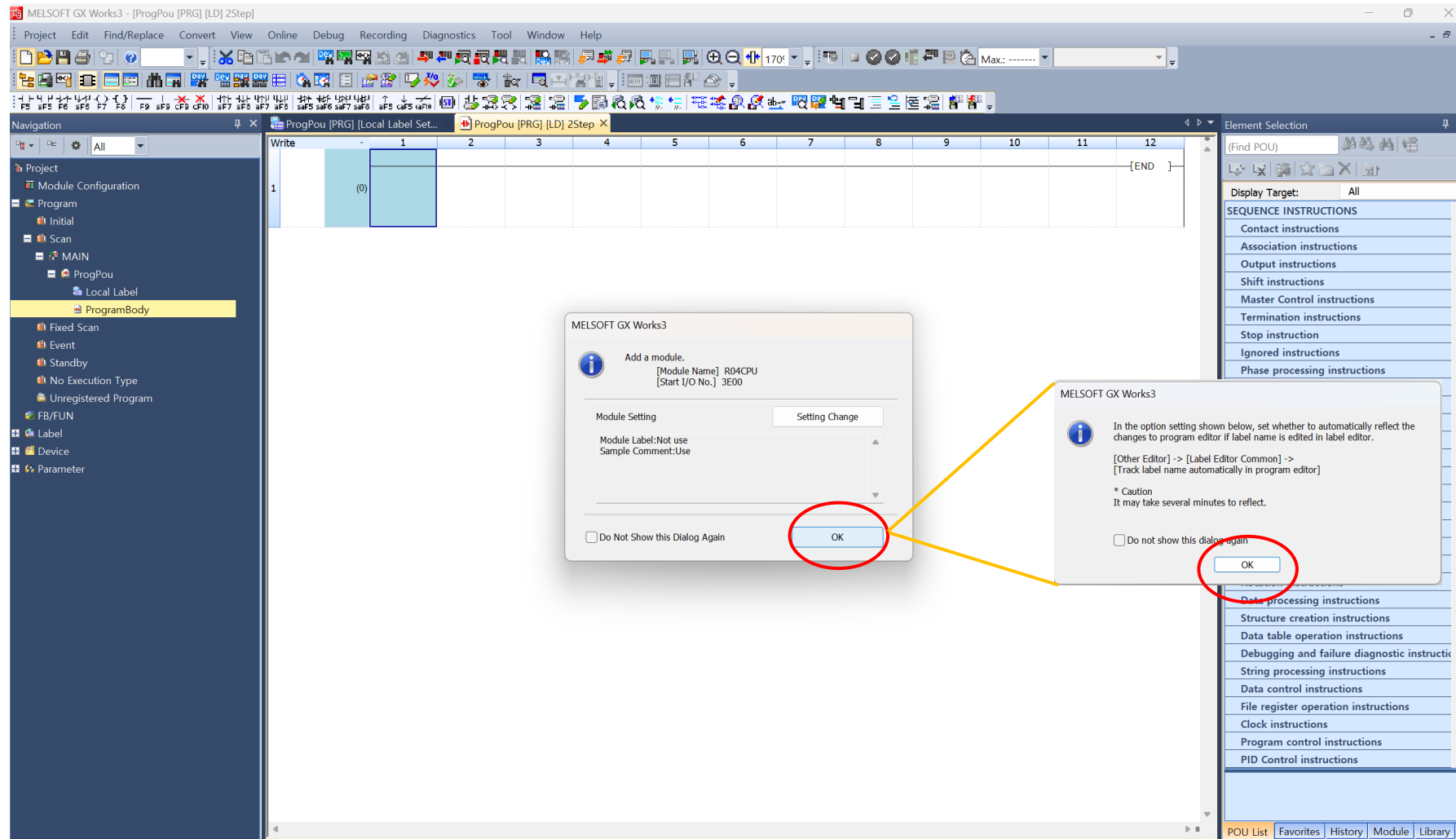
2-1. Project Creation

- When creating a new project, select iQ-R RD78G(H), model name, number of axes used, and program language



2-2. Module Registration

- iQ-R CPU Registration



2-3. Module Configuration – H/W

- Configure the Main Base, CPU Module, and Power Supply by clicking and dragging with the mouse

The screenshot shows the MELSOFT GX Works3 interface with the 'Module Configuration' window open. The 'Element Selection' panel on the right lists various modules. A yellow box highlights the 'Main Base' section, and a red box highlights the 'R33B' module. A yellow box highlights the 'Power Supply' section, and a red box highlights the 'R61P' module. A yellow box highlights the 'Motion Module' section, and a red box highlights the 'RD78G4' module. A yellow box highlights the 'CPU iQ-R Mounted' section, and a red box highlights the 'R33B' module. A yellow box highlights the 'RD78(H) Installed' section, and a red box highlights the 'RD78G4' module. A yellow box highlights the 'Mouse Click & Drag' instruction. A yellow box highlights the 'OK' button in the 'MELSOFT GX Works3' dialog box.

1. Main Base
2. Power Supply
3. CPU iQ-R Mounted
4. RD78(H) Installed

Mouse Click & Drag

MELSOFT GX Works3

When you finish editing Module Configuration, fix the parameters to reflect to their respective functions.

☐ Do not show this dialog again.

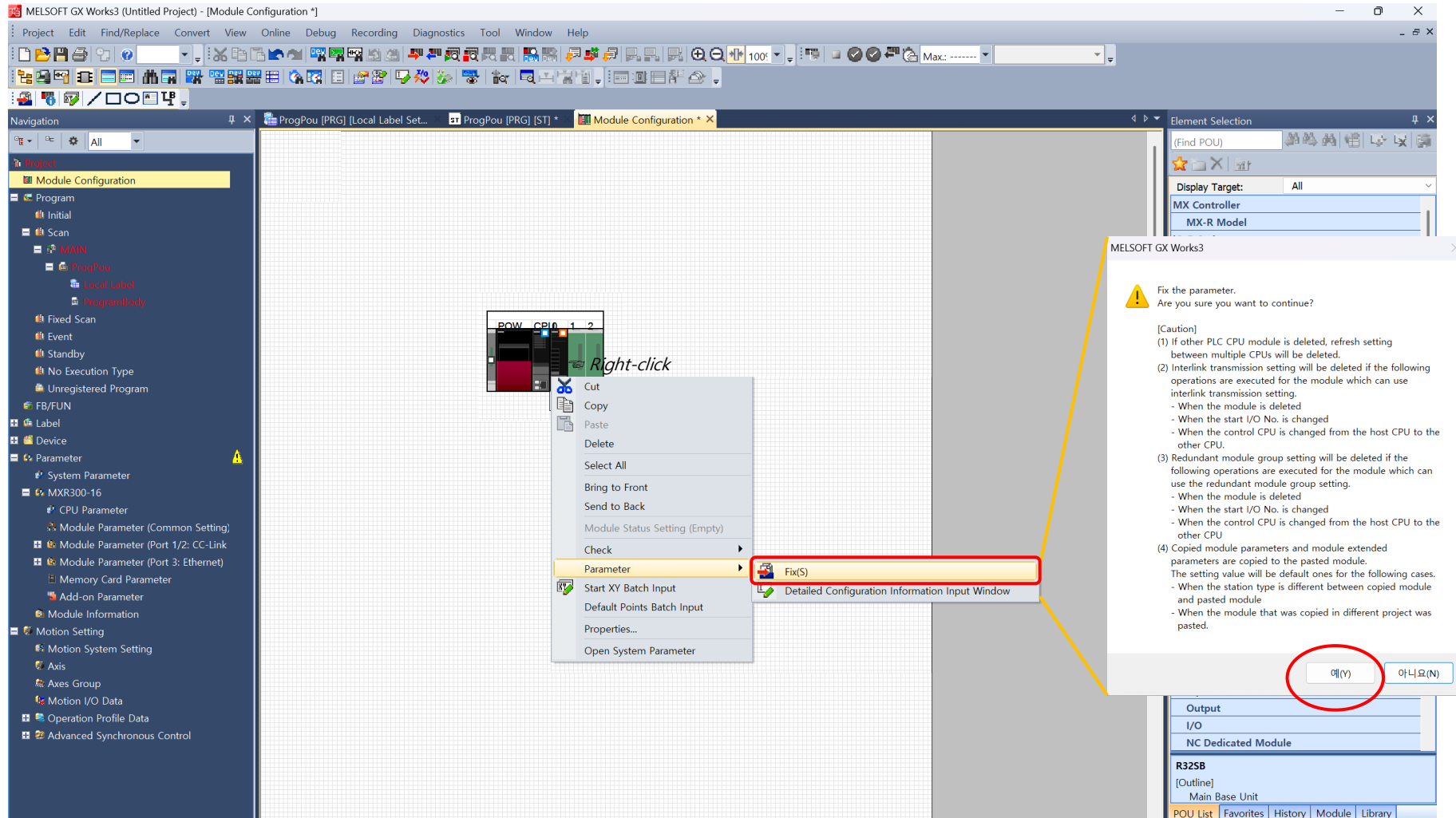
You are able to change this setting through the Options menu.

OK

Module	Slots (Type requiring)
Main Base	
R32SB	2 Slots (Type requiring)
R33B	3 Slots (Type requiring)
R33SB	3 Slots (Type requiring)
R35B	5 Slots (Type requiring)
SIL2 Process CPU	
Safety CPU	
C Controller	
MELSECWinCPU	
Head Module	
Motion CPU	
NCCPU	
Robot CPU	
Power Supply	
R61SP	2.5A output (Slim type)
R62P	3.5A output
R61P	6.5A output
R63P	6.5A output
NC Dedicated Module	
Sensor Control	
Analog Input	
Analog Output	
Temperature Input	
Temperature Control Module	
Motion Module	
RD78G4	4 axes CC-Link IE TSN
RD78G4(S)	4 axes CC-Link IE TSN
RD78G8	8 axes CC-Link IE TSN
RD78G8(S)	8 axes CC-Link IE TSN
Network Module	
Blank Cover	

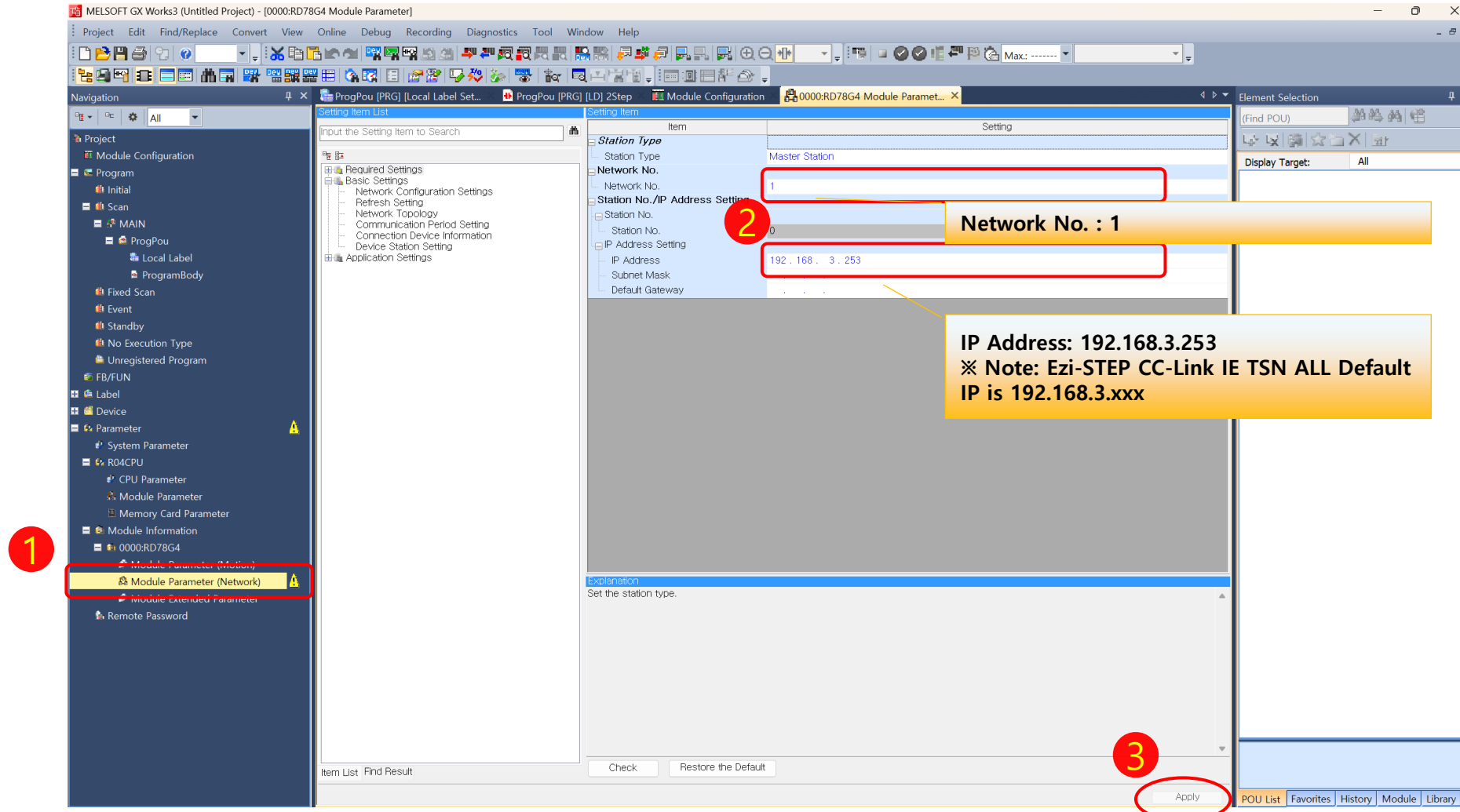
2-3. Module Configuration – H/W

- Right-click the mouse and select Fix(S) to complete module configuration



2-4. Parameter / Module Information / 0000:RD78G4

- **Module Parameter (Network): Station No., IP Address Setting**



The screenshot displays the MELSOFT GX Works3 interface for configuring the 0000:RD78G4 module parameters. The left sidebar (1) shows the 'Module Parameter (Network)' option selected. The main window shows the 'Station No./IP Address Setting' tab (2) with the following settings:

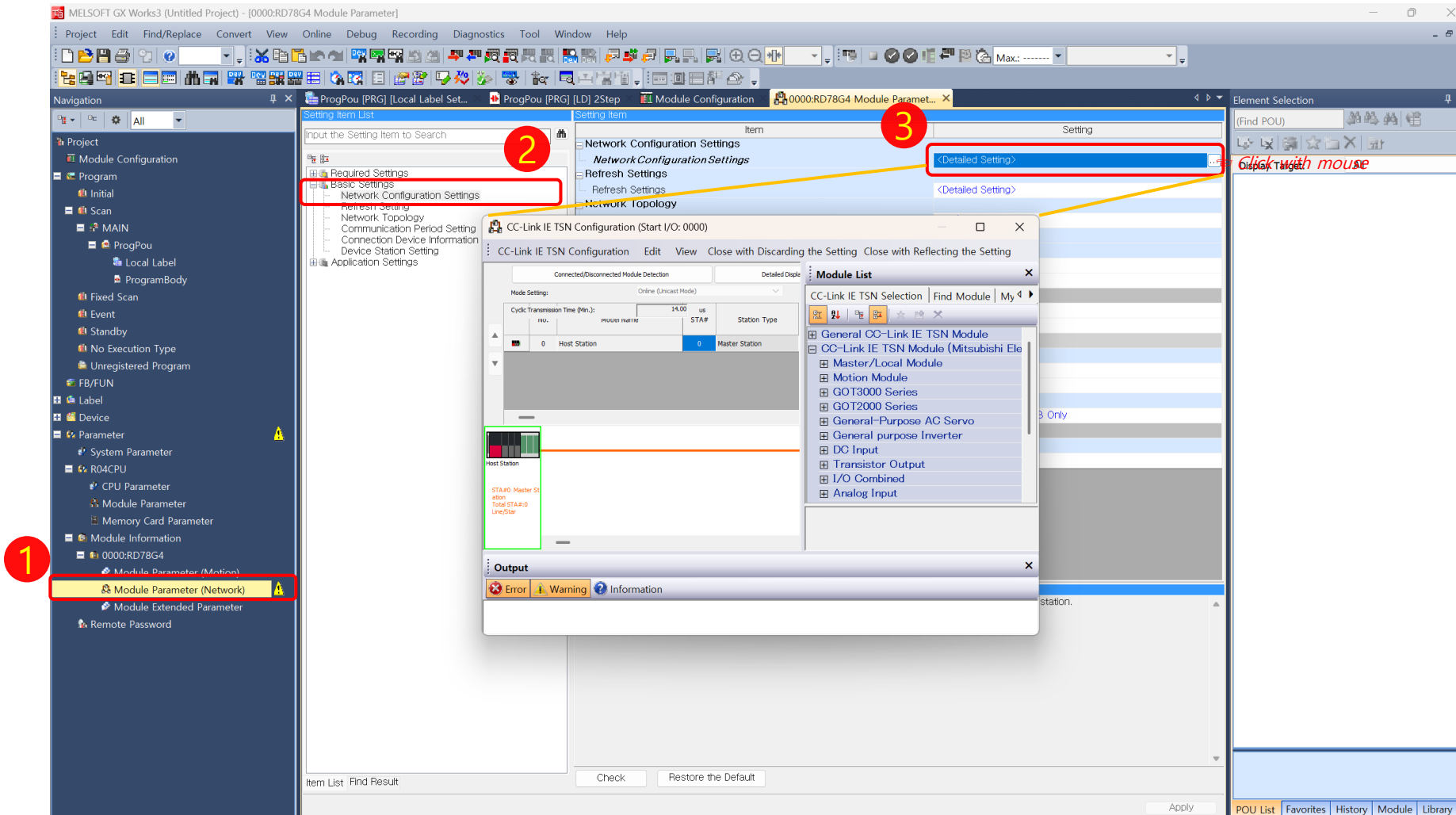
- Station Type: Master Station
- Network No.: 1
- Station No.: 0
- IP Address Setting: 192.168.3.253
- IP Address: 192.168.3.253
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.3.1

A note indicates: **IP Address: 192.168.3.253**
* Note: Ezi-STEP CC-Link IE TSN ALL Default IP is 192.168.3.xxx

The 'Apply' button is circled (3) at the bottom right of the window.

2-4. Parameter / Module Information / 0000:RD78G4

- **Module Parameter (Network): Basic Settings / Network Configuration Settings**



2-4. Parameter / Module Information / 0000:RD78G4

- **Network Disconnected State: Configure the CC-Link IE TSN Module **Manually (Click & Drag)****

CC-Link IE TSN Configuration (Start I/O: 0000)

Connected/Disconnected Module Detection Detailed Display

Mode Setting: Online (Unicast Mode) Assignment Method:

No.	Model Name	STA#	Station Type	RX Setting	RY Setting	RW Setting	RWw Setting	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Master Station							192.168.3.253		
1	Ezi-STEP-ALL-CT	1	Remote Station			16	16		<Detail Setting>	192.168.3.1		
2	Ezi-STEP-ALL-CT	2	Remote Station			16	16		<Detail Setting>	192.168.3.2		
3	Ezi-STEP-ALL-CT	3	Remote Station			16	16		<Detail Setting>	192.168.3.3		

Generated upon registration

2

[Ezi-STEP CC-Link IE TSN ALL IP Address arbitrarily modified]

1. 192.168.3.1
2. 192.168.3.2
3. 192.168.3.3

※ Power reset is required after changing the IP address.

1

Mouse click & drag (repeat)

Module List

- CC-Link IE TSN Selection
- Find Module
- My 4
- General CC-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Electr
- Master/Local Module
- Motion Module
- GOT3000 Series
- GOT2000 Series
- General-Purpose AC Servo
- General purpose Inverter
- DC Input
- Transistor Output
- I/O Combined
- Analog Input
- Analog Output
- Network Interface Board
- EnergyMeasuringUnit
- Bridge module
- FPGA module
- CC-Link IE TSN Module (FASTECH Co. L
- Closed-loop Step Drive
- Open-loop Step Drive
- Ezi-STEP-CT
- Ezi-STEP-CT-4X
- Ezi-STEP-CT-ALL

[Note] Ezi-STEP CC-Link IE TSN ALL IP Address Settings Hexadecimal Rotary Switch

(x16) (x1)

Host Station

STA#0 Master Station

Total STA#3

UnitStar

Ezi-STEP-CT-ALL

Ezi-STEP-CT-ALL

Ezi-STEP-CT-ALL

Network Label

Output

Error Warning Information

2-4. Parameter / Module Information / 0000:RD78G4

- CC-Link IE TSN Configuration: Select Module as Motion Control Station and Synchronous

CC-Link IE TSN Configuration (Start I/O: 0000)

CC-Link IE TSN Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting

Mode Setting: Online (Unicast Mode) Assignment Method:

No.	Model Name	STA#	Control Station	RX Setting	Communication Period Interval (Min.)	125.00	Unicast Setting	POD Mapping Setting	IP Address	Subnet Mask	Default Gateway	Reserved/Error Invalid Station	Network Synchronous Communication	Communication Period Setting
0	Host Station	0							192.168.3.253					
1	Ezi-STEP-CT-ALL	1	☒		16	16		<Detail Setting>	192.168.3.17			No Setting	Asynchronous	Basic Period
2	Ezi-STEP-CT-ALL	2	☒		16	16		<Detail Setting>	192.168.3.18			No Setting	Asynchronous	Basic Period
3	Ezi-STEP-CT-ALL	3	☒		16	16		<Detail Setting>	192.168.3.19			No Setting	Synchronous	Basic Period

1 Motion Control Station - Check (Mouse Click)

2 Select Synchronous

Module List

CC-Link IE TSN Selection Find Module My 4

- General CC-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Electr
- Master/Local Module
- Motion Module
- GOT3000 Series
- GOT2000 Series
- General-Purpose AC Servo
- General purpose Inverter
- DC Input
- Transistor Output
- I/O Combined
- Analog Input
- Analog Output
- Network Interface Board
- EnergyMeasuringUnit
- Bridge module
- FPGA module
- CC-Link IE TSN Module (FASTECH Co. L
- Closed-loop Step Drive
- Open-loop Step Drive
- Ezi-STEP-CT Open-Loop st
- Ezi-STEP-CT-ALL Open-Loop st
- Ezi-STEP-CT-ALL Open-Loop st

[Outline]
Step Drive, All-in-One
[Specification]
Open-Loop Step Drive
Motor: Max. NEMA 24
Mode: Homing, CSP, FP
CC-Link IE TSN Class B
All in One
[Manufacturer Name]
FASTECH Co. Ltd
[Station Type]

Host Station

STA#1 STA#2 STA#3

STEP ALL STEP ALL STEP ALL

STAND Master Station Total STA#3 LineStar

Ezi-STEP-CT-ALL Ezi-STEP-CT-ALL Ezi-STEP-CT-ALL

Network Label

2-4. Parameter / Module Information / 0000:RD78G4

- CC-Link IE TSN Configuration: Module PDO Mapping Setting (Per-Axis Setting)

CC-Link IE TSN Configuration (Start I/O: 0000)

CC-Link IE TSN Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting

Mode Setting: Online (Unicast Mode) Assignment Method:

No.	Model Name	STA#	Station Type	RX Setting Points	RY Setting Points	RW Setting Points	R/W Setting Points	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Master Station							192.168.3.253		
1	Ea-STEP-CT-ALL	1	Remote Station			16	16		<Detail Setting>	192.168.3.17		
2	Ea-STEP-CT-ALL	2	Remote Station			16	16		<Detail Setting>	192.168.3.18		
3	Ea-STEP-CT-ALL	3	Remote Station			16	16		<Detail Setting>	192.168.3.19		

Generated upon registration

PDO Mapping Setting

Link Device Points

PDO Mapping Parameter

PDO Mapping Pattern Selection (1/2)

Please select the TPDO mapping pattern assigned in link device (RW).

Link Device (RW) Points

No.	Pattern Name	Used Points
1	1st TPDO (CSP Mode)	8 Points
2	2nd TPDO (ProfilePosition Mode)	10 Points

Back Next Cancel

PDO Mapping Pattern Selection (2/2)

Please select the RPDO mapping pattern assigned in link device (RW).

Link Device (RW) Points

No.	Pattern Name	Used Points
1	1st RPDO (CSP Mode)	7 Points
2	2nd RPDO (ProfilePosition Mode)	13 Points

Back OK Cancel

Network Label

Host Station

STA#1 STA#2 STA#3

STEP ALL STEP ALL STEP ALL

STA#0 Master Station Total STA#3 LineStar

Ea-STEP-CT-ALL Ea-STEP-CT-ALL Ea-STEP-CT-ALL

[Outline]
Step Drive, All-in-One
[Specification]
Open-Loop Step Drive
Motor: Max. NEMA 24
Mode: Homing, CSP, FP
CC-Link IE TSN Class B
All in One
[Manufacturer Name]
FASTECH Co. Ltd
[Station Type]

Output

Error:0 Warning:0 Information:0

2-4. Parameter / Module Information / 0000:RD78G4

- CC-Link IE TSN Configuration: Module PDO Mapping Setting (Per-Axis Setting)

The screenshot displays the 'CC-Link IE TSN Configuration' software interface. The main window shows a table of modules with columns for No., Model Name, STA#, Station Type, RX Setting, RY Setting, RWr Setting, RWw Setting, Parameter Automatic Setting, PDO Mapping Setting, IP Address, Subnet Mask, and Default Gateway. The 'PDO Mapping Setting' column for the selected module (Ez-STEP-CT-ALL) is highlighted with a red box, and a blue button labeled '<Detail Setting>' is visible.

A 'Generated upon registration' watermark is present on the left side of the main window.

The 'PDO Mapping Setting' dialog box is open, showing a table of Link Device, Index [Hexadecimal], Sub-Index [Hexadecimal], Entry Name, Comment, and Data Type. The table lists various parameters for the selected module, including Watchdog counter UL 1, Status word, Modes of operation display, Error code, Position actual value, and Digital Inputs.

A yellow callout box with a red border contains the text: 'Turns black when PDO setting is complete <Detail Setting> → <Detail Setting> Repeat for all axis PDO settings'. An arrow points from this box to the '<Detail Setting>' button in the main window.

The 'Module List' panel on the right shows a tree view of modules, including 'General CC-Link IE TSN Module', 'CC-Link IE TSN Module (Mitsubishi Electric)', 'Master/Local Module', 'Motion Module', and 'GOT3000 Series'. The 'Ez-STEP-CT-ALL' module is selected and highlighted with a red box.

The 'Network Label' panel at the bottom left shows a diagram of the network topology with stations labeled STA#1, STA#2, and STA#3. The 'Ez-STEP-CT-ALL' module is highlighted with a green box.

The 'Output' panel at the bottom right shows the status of the configuration, including 'Error:0', 'Warning:0', and 'Information:0'.

2-4. Parameter / Module Information / 0000:RD78G4

- CC-Link IE TSN Configuration: Module Setting applied

The screenshot displays the 'CC-Link IE TSN Configuration' software interface. A red circle highlights the 'Close with Reflecting the Setting' button in the top menu bar. A yellow arrow points from this button to a warning dialog box titled 'MELSOFT GX Works3'. The dialog box contains the text: 'Warning(s) in the CC-Link IE TSN Configuration. Are you sure you want to close the CC-Link IE TSN Configuration window?'. The '예(Y)' (Yes) button is circled in red. The background interface shows a table of module settings and a 'Module List' on the right.

No.	Model Name	STA#	Station Type	RX Setting	RY Setting	RWr Setting	RWv Setting	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Station							192.168.3.253		
1	Ea-STEP-ALL-CT	1	Station				16	16	<Detail Setting>	192.168.3.17		
2	Ea-STEP-ALL-CT	2	Station				16	16	<Detail Setting>	192.168.3.18		
3	Ea-STEP-ALL-CT	3	Station				16	16	<Detail Setting>	192.168.3.19		

Generated upon registration

Module List

- CC-Link IE TSN Selection
- Find Module
- My 4
- General CC-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Electr
- Master/Local Module
- Motion Module
- GOT3000 Series
- GOT2000 Series
- General-Purpose AC Servo
- General purpose Inverter
- DC Input
- Transistor Output
- I/O Combined
- Analog Input
- Analog Output
- Network Interface Board
- EnergyMeasuringUnit
- Bridge module
- FPGA module
- CC-Link IE TSN Module (FASTECH Co. L
- Closed-loop Step Drive
- Open-loop Step Drive
- Ezi-STEP-CT
- Ezi-STEP-CT-4X
- Ezi-STEP-CT-ALL

[Outline]
Step Drive, All-in-One
[Specification]
Open-Loop Step Drive
Motor: Max. NEMA 24
Mode: Homing, CSP, FP
CC-Link IE TSN Class B
All in One
[Manufacturer Name]
FASTECH Co. Ltd
[Station Type]

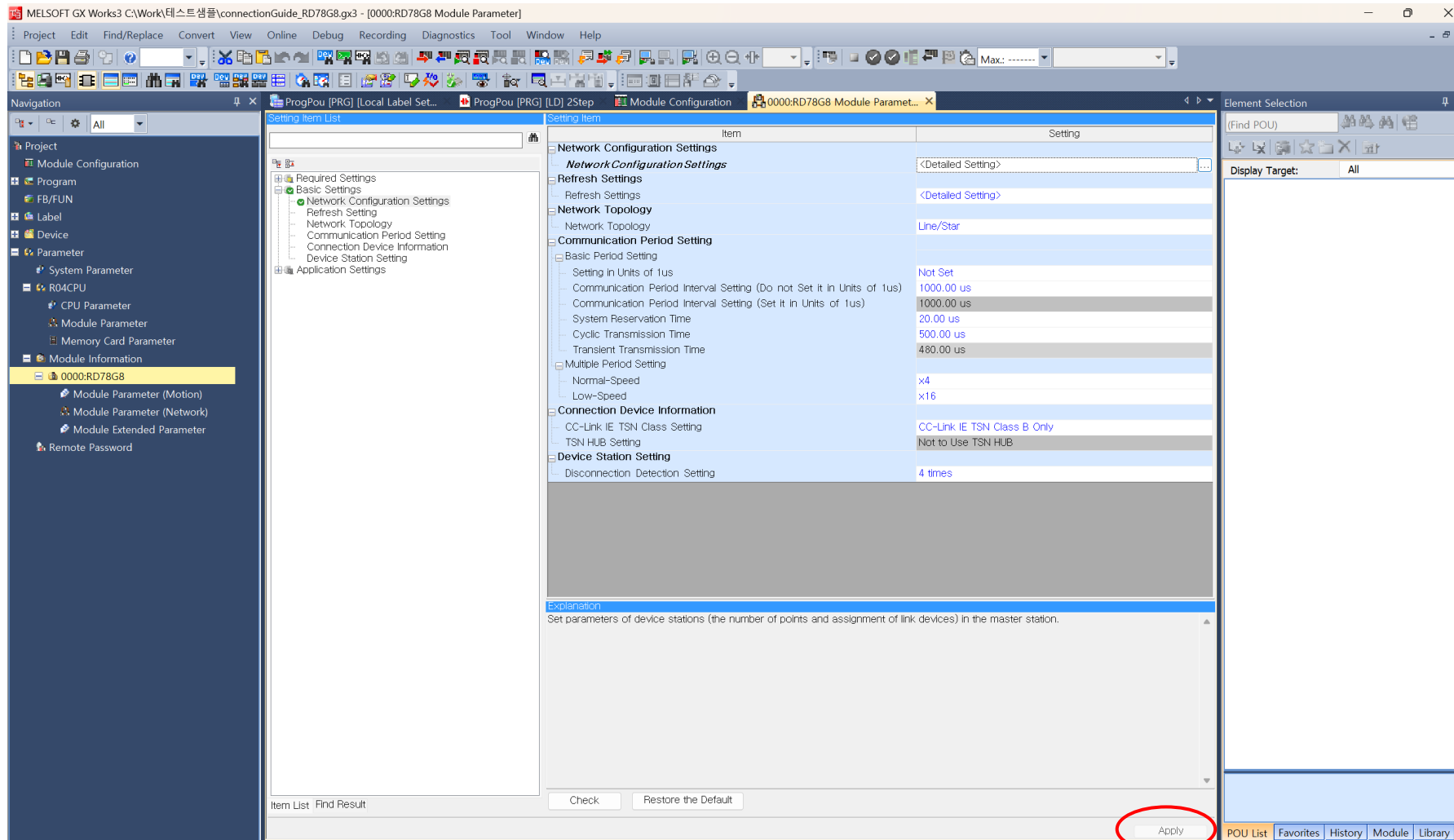
Network Label

Output

Error:0 Warning:0 Information:0

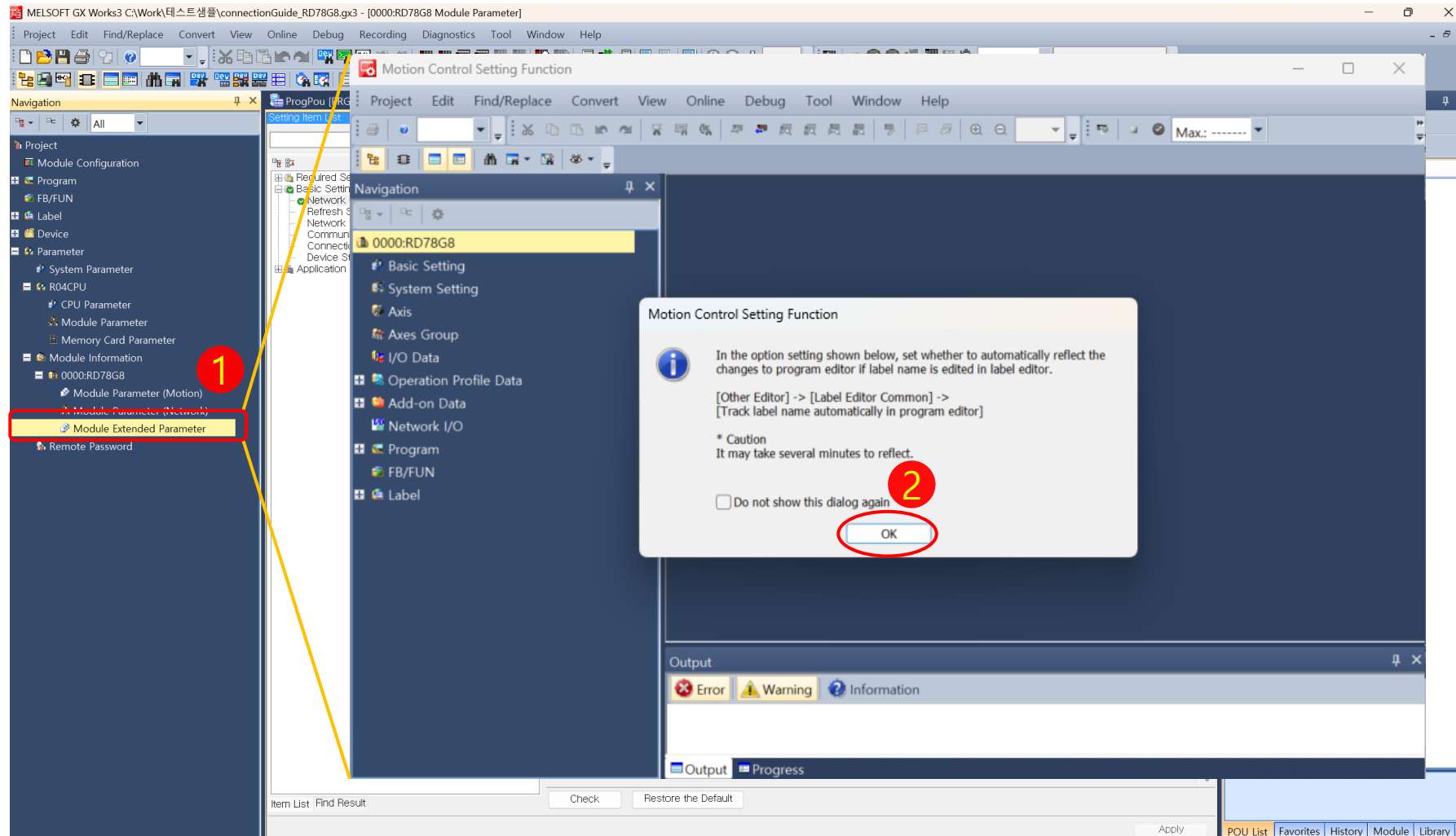
2-4. Parameter / Module Information / 0000:RD78G4

- Apply Network Configuration Settings



2-5. Module Extended Parameter – Motion Control Setting Function

- Module Extended Parameter



2-5. Module Extended Parameter – Motion Control Setting Function

- Axis - Axis0001 Creation

Right-click

1

2

3

Station Address Setting

IP Address	Model Name	Alias
192.168.3.1Ezi-STEP-CT-ALL		
192.168.3.1Ezi-STEP-CT-ALL		
192.168.3.1Ezi-STEP-CT-ALL		

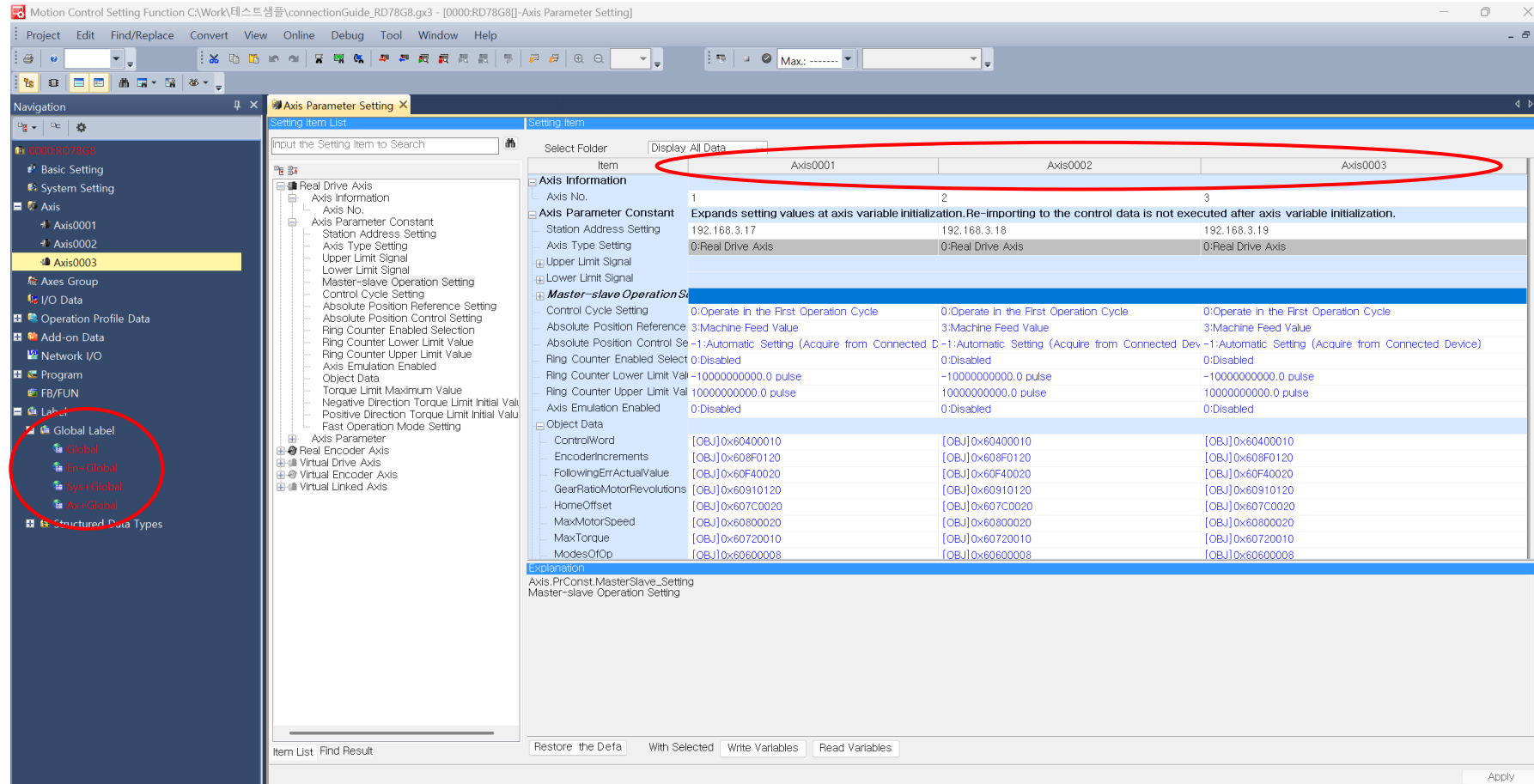
Output

Error Warning Information

Output Progress

2-5. Module Extended Parameter – Motion Control Setting Function

- Axis - Create Axis0001, Axis0002, Axis0003 (Repeat)



2-5. Module Extended Parameter – Motion Control Setting Function

- Axis - Axis0001... - Object Data Setting (Set to Ezi-STEP CC-Link IE TSN ALL Object Data)

Motion Control Setting Function C:\Work\테스트샘플\connectionGuide_RD78G8.gx3 - [0000:RD78G8]-Axis Parameter Setting

Navigation: 0000:RD78G8, Basic Setting, System Setting, Axis, Axis0001, Axis0002, Axis0003, Axes Group, I/O Data, Operation Profile Data, Add-on Data, Network I/O, Program, FB/FUN, Label, Global Label, Global, Em Global, Sys Global, As Global, Structured Data Types

Setting Item List: Input the Setting Item to Search

Select Folder: Display All Data

Item	Axis0001	Axis0002	Axis0003
Ring Counter Lower Limit Value	-10000000000.0 pulse	-10000000000.0 pulse	-10000000000.0 pulse
Ring Counter Upper Limit Value	10000000000.0 pulse	10000000000.0 pulse	10000000000.0 pulse
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Object Data			
ControlWord	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0120	[OBJ]0x608F0120
FollowingErrorActualValue	[OBJ]0x60F40020	[OBJ]0x60F40020	[OBJ]0x60F40020

Object Data Setting (Axis0001)

Target Device: Ezi-STEP-CT

Changing the object data is not required when MELSERVO has been used. Please set it to the generic default value by pressing Restore the Default Settings button when the non-MELSERVO device has been used. It can be changed individually when the device inherent object data has been set.

Item	Axis0001	Axis0002	Axis0003
ControlWord	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0120	[OBJ]0x608F0120
FollowingErrorActualValue	[OBJ]0x60F40020	[OBJ]0x60F40020	[OBJ]0x60F40020
GearRatioMotorRevolutions	[OBJ]0x60910120	[OBJ]0x60910120	[OBJ]0x60910120
HomeOffset	[OBJ]0x607C0020	[OBJ]0x607C0020	[OBJ]0x607C0020
MaxMotorSpeed	[OBJ]0x60800020	[OBJ]0x60800020	[OBJ]0x60800020
MaxTorque	[OBJ]0x60720010	[OBJ]0x60720010	[OBJ]0x60720010
ModesOfOp	[OBJ]0x60600008	[OBJ]0x60600008	[OBJ]0x60600008
ModesOfOpDisol	[OBJ]0x60610008	[OBJ]0x60610008	[OBJ]0x60610008
NegativeTorqueLimitValue	[OBJ]0x60E10010	[OBJ]0x60E10010	[OBJ]0x60E10010
Polarity	[OBJ]0x607E0008	[OBJ]0x607E0008	[OBJ]0x607E0008
PosActualValue	[OBJ]0x60640020	[OBJ]0x60640020	[OBJ]0x60640020

Import... Export... Restore the Default OK Cancel

StatusWord [OBJ]0x60410010 [OBJ]0x60410010 [OBJ]0x60410010

SupportedDriveModes [OBJ]0x65020020 [OBJ]0x65020020 [OBJ]0x65020020

Explanation: Request the drive unit to switch status. The setting values depending on the drive unit connected. Check the manual of product data settings.

MELSOFT GX Works3

The specified station address refers to a non-MELSERVO device. Do you want to set to generic default values?

Yes: Set to generic default values
No: Set default values for MELSERVO

예(Y) 아니요(N) 취소

Ezi-STEP CC-Link IE TSN ALL Object Data

Restore the Default With Selected Write Variables Read Variables

Output: Parameter Check Error: 0 Warning: 0 Information CheckWarning: 0

No.	Result	Data Name	Category	Content	Error Code
-----	--------	-----------	----------	---------	------------

Output Progress

2-5. Module Extended Parameter – Motion Control Setting Function

- Axis - Axis0001... - Object Data Setting (Set to Ezi-STEP CC-Link IE TSN ALL Object Data)

Motion Control Setting Function C:\Work\테스트샘플\connectionGuide_RD78G8.gx3 - [0000:RD78G8]-Axis Parameter Setting

Navigation: Basic Setting, System Setting, Axis, Axis0001, Axis0002, Axis0003, Axes Group, I/O Data, Operation Profile Data, Add-on Data, Network I/O, Program, FB/FUN, Label, Global Label, Global, Global, Sys+Global, As+Global, Structured Data Types

Setting Item List: Input the Setting Item to Search

Select Folder: Display All Data

Item	Axis0001	Axis0002	Axis0003
Ring Counter Lower Limit Value	-10000000000.0 pulse	-10000000000.0 pulse	-10000000000.0 pulse
Ring Counter Upper Limit Value	10000000000.0 pulse	10000000000.0 pulse	10000000000.0 pulse
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Object Data			
ControlWord	[OBJ] 0x60400010	[OBJ] 0x60400010	[OBJ] 0x60400010
EncoderIncrements	[OBJ] 0x608F0120	[OBJ] 0x608F0120	[OBJ] 0x608F0120
FollowingErrorActualValue	[OBJ] 0x60F40020	[OBJ] 0x60F40020	[OBJ] 0x60F40020
GearRatioMotorRevolutions			
HomeOffset	[OBJ] 0x607C0020	[OBJ] 0x607C0020	[OBJ] 0x607C0020
MaxMotorSpeed	[OBJ] 0x60800020	[OBJ] 0x60800020	[OBJ] 0x60800020
MaxTorque	[OBJ] 0x60720010	[OBJ] 0x60720010	[OBJ] 0x60720010
ModesOfOp	[OBJ] 0x60600008	[OBJ] 0x60600008	[OBJ] 0x60600008
ModesOfOpDisp	[OBJ] 0x60610008	[OBJ] 0x60610008	[OBJ] 0x60610008
NegativeTorqueLimitValue	[OBJ] 0x60E10010	[OBJ] 0x60E10010	[OBJ] 0x60E10010
Polarity	[OBJ] 0x607E0008	[OBJ] 0x607E0008	[OBJ] 0x607E0008
PosActualValue	[OBJ] 0x60640020	[OBJ] 0x60640020	[OBJ] 0x60640020
PosEncoderResolution	[OBJ] 0x608F0008	[OBJ] 0x608F0008	[OBJ] 0x608F0008
PosEncoderResolutionMot	[OBJ] 0x608F0220	[OBJ] 0x608F0220	[OBJ] 0x608F0220
PositiveTorqueLimitValue	[OBJ] 0x60E00010	[OBJ] 0x60E00010	[OBJ] 0x60E00010
ShaftRevolutions			
SiUnitPos	[OBJ] 0x60A80020	[OBJ] 0x60A80020	[OBJ] 0x60A80020
SiUnitVel	[OBJ] 0x60A90020	[OBJ] 0x60A90020	[OBJ] 0x60A90020
StatusWord	[OBJ] 0x60410010	[OBJ] 0x60410010	[OBJ] 0x60410010
SupportedDriveModes	[OBJ] 0x65020020	[OBJ] 0x65020020	[OBJ] 0x65020020

Explanation: Request the drive unit to switch status. The setting values depending on the drive unit connected. Check the manual of object data settings.

[OBJ] Verify Changes

Item List Find Result: Restore the Defa With Selected Write Variables Read Variables

Output: Parameter Check Error: 0 Warnings: 0 Information CheckWarning: 0

No. Result Data Name Category Content Error Code

2-5. Module Extended Parameter – Motion Control Setting Function

- Axis – Position Command Unit (Gear Ratio Setting) ※ Ezi-STEP ALL 10,000 ppr

Ezi-STEP CC-Link IE TSN ALL's Encoder Resolution Setting Range is 10,000 pulses/revolution

The gear ratio setting method is the same as the existing method

1. Position Command Unit

2. Encoder Resolution

3. Calculate Axis Para

4. Calculation Result

5. Apply

6. Apply

Output

No.	Result	Data Name	Category	Content
1	Success	Position Command Unit	Unit	degree
2	Success	Encoder Resolution	Resolution	10000 pulse/rev
3	Success	Position Command Unit String	String	degree
4	Success	Velocity Command Unit	Unit	U/s
5	Success	Velocity Bias Value	Value	0.0 degree/s

2-5. Module Extended Parameter – Motion Control Setting Function

- Axis – Position Command Unit (Gear Ratio Setting) ※ Ezi-STEP ALL 10,000 ppr

Ezi-STEP CC-Link IE TSN ALL Encoder 10,000 pulses/rev

Set Travel Distance/Angle per Motor Revolution

Robot or Stage Movement Unit Selection

Item	Axis0001	Axis0002	Axis0003
Acceleration Limit Value	2147483647.0 degree/s ²	2147483647.0 pulse/s ²	2147483647.0 pulse/s ²
Operation Selection at Start Acceleration	-1:Error (Not Started)	-1:Error (Not Started)	-1:Error (Not Started)
Command In-position Width	100.0 degree	100.0 pulse	100.0 pulse
Deceleration Limit Value	2147483647.0 degree/s ²	2147483647.0 pulse/s ²	2147483647.0 pulse/s ²
Driver Unit Conversion Numerator	10000	1	1
Driver Unit Conversion Denominator	360 degree	1 pulse	1 pulse
Forced Stop Signal	1:Homming Required or Not	1:Homming Required	1:Homming Required
Jerk Limit Value	2147483647.0 degree/s ³	2147483647.0 pulse/s ³	2147483647.0 pulse/s ³
Operation Setting at Overrun	1:Immediate Stop	1:Immediate Stop	1:Immediate Stop
Start Permission at Homming Uncomplete	0:Disabled	0:Disabled	0:Disabled
Deceleration at Stop	0.0 degree/s ²	0.0 pulse/s ²	0.0 pulse/s ²
Stop Selection at Deceleration to Stop	1:Recreate Deceleration Curve	1:Recreate Deceleration Curve	1:Recreate Deceleration Curve
Stop Selection at Stop Cause Occurrence	3:Alternative Acceleration/Deceleration	3:Alternative Acceleration/Deceleration	3:Alternative Acceleration/Deceleration
Stop Selection at H/W Stroke Limit Error	1:Immediate Stop	1:Immediate Stop	1:Immediate Stop
Process Selection at Servo OFF Correction	0:Ignore	0:Ignore	0:Ignore
Stop Selection at S/W Stroke Limit Error	1:Immediate Stop	1:Immediate Stop	1:Immediate Stop
Driver Command Discard Detection Signal	1:Detection Enabled	1:Detection Enabled	1:Detection Enabled
Signal			
Target			
Signal Detection Method	0:Detection at TRUE	0:Detection at TRUE	0:Detection at TRUE
Compensation Time	0.0 s	0.0 s	0.0 s
Filter Time	0.0 s	0.0 s	0.0 s
Software Stroke Limit Lower Value	-10000000000.0 degree	-10000000000.0 pulse	-10000000000.0 pulse
Software Stroke Limit Target	-1:Invalid	-1:Invalid	-1:Invalid
Software Stroke Limit Upper Value	10000000000.0 degree	10000000000.0 pulse	10000000000.0 pulse
Position Command Unit	degree	pulse	pulse
Position Command Unit String			
Velocity Command Unit	U/s	U/s	U/s
Velocity Bias Value	0.0 degree/s	0.0 pulse/s	0.0 pulse/s

Output: Parameter Check Error: 0 Warning: 0 Information CheckWarning: 0

No. Result Data Name Category Content

Apply

2-5. Module Extended Parameter – Motion Control Setting Function

- Axis – Absolute Position Control Setting: Set to Disable

Ezi-STEP CC-Link IE TSN ALL is Select Disable Absolute Position System

Item	Axis0001	Axis0002	Axis0003
Axis Information			
Axis No.	1	2	3
Axis Parameter Constant	Expands setting values at axis variable initialization. Re-importing to the control data is not executed after axis variable initialization.		
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Upper Limit Signal			
Lower Limit Signal			
Master-slave Operation Setting	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle
Control Cycle Setting	3:Machine Feed Value	3:Machine Feed Value	3:Machine Feed Value
Absolute Position Control Setting	0:Disable Absolute Position System	-1:Automatic Setting (Acquire from Connected Device)	-1:Automatic Setting (Acquire from Connected Device)
Ring Counter Enabled Selection	0:Disabled	0:Disabled	0:Disabled
Ring Counter Lower Limit Value	1:Enable Absolute Position System	100000.0 mm	-10000000000.0 mm
Ring Counter Upper Limit Value	-1:Automatic Setting (Acquire from Connected Device)	10000.0 mm	10000000000.0 mm
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Object Data			
Torque Limit Maximum Value	1000.0 %	1000.0 %	1000.0 %
Negative Direction Torque Limit Initial	300.0 %	300.0 %	300.0 %
Positive Direction Torque Limit Initial	300.0 %	300.0 %	300.0 %
Fast Operation Mode Setting	0000	0000	0000
Axis Parameter	Expands initial values at axis variable initialization. Re-importing to the control data is also executed after axis variable initialization.		
Acceleration Limit Value	2147483647.0 degree/s ²	2147483647.0 mm/s ²	2147483647.0 mm/s ²
Operation Selection at Start Acceleration	-1:Error (Not Started)	-1:Error (Not Started)	-1:Error (Not Started)
Width	100.0 degree	100.0 mm	100.0 mm
	2147483647.0 degree/s ²	2147483647.0 mm/s ²	2147483647.0 mm/s ²
Denominator	10000	10000	10000
	360 degree	5 mm	10 mm
Jerk Limit Value	1:Homming Required	1:Homming Required	1:Homming Required
Operation Setting at Overrun	2147483647.0 degree/s ³	2147483647.0 mm/s ³	2147483647.0 mm/s ³
Start Permission at Homming	1:Immediate Stop	1:Immediate Stop	1:Immediate Stop
	0:Flashlight	0:Flashlight	0:Flashlight
Explanation	Axis.PrConst.PosRestoration_AbsPosEnable		
Item List	Find Result	Restore the Defa	With Selected
		Write Variables	Read Variables
Output			
Parameter Check Error: 0 Warning: 0 Information CheckWarning: 0			
No.	Result	Data Name	Category Content
Error Code			

2-5. Module Extended Parameter – Motion Control Setting Function

● Network I/O Setting – Per-Axis Digital Input/Output Configuration

The screenshot displays the MELSOFT GX Works3 interface, specifically the Network Label Setting window. The window is divided into several panes. On the left is the Navigation pane showing the project structure. The main area contains a table with columns for IP Address, Model Name, Device Label/Structure, Data Type, Labeling Target, Arranged Target, Data Type, Label Name, and English Name. The table lists configurations for three axes (1, 2, and 3) under the Ezi-STEP-... model. Red circles and numbers 1, 2, and 3 highlight specific elements: 1. A red circle around the 'Label Name' column header. 2. A red circle around the 'Create Label' button at the bottom right. 3. A red circle around the '예(Y)' button in a confirmation dialog box.

Digital Output Label Settings

Digital Input Label Settings - Limit +/-, ORG, Input

Explanation

The I/O data exchanged between the device stations of built-in CC-Link IE TSN and the CPU module by cyclic communication can be registered. If 'Create Label' is executed, the label selected in 'Labeling Target' will be registered to the global label list (NW+Global).

[Caution]

- If 'Create Label' is executed, the all labels/structured data types created from this window last time will be deleted and new labels/structured data types will be created.
- The background of 'No.' in the window will be displayed in yellow for the device for which addition/change exists in the network configuration. 'Create Label' again if necessary.
- If 'Create Label' is not executed, the edited content in this window will not be saved in the project.

MELSOFT GX Works3

Start creating the label on the basis of the existing content.

Are you sure you want to continue?

예(Y) 아니요(N)

2

Structure Array Setting... Update Network Configuration Info Create Label

POU List Favorites History Module Library

2-5. Module Extended Parameter – Motion Control Setting Function

● Axis – Upper/Lower Limit Signal – Signal Detection Method setting

The screenshot displays the 'Axis Parameter Setting' window for Axis0001. The 'Setting Item List' on the left shows the 'Upper Limit Signal' and 'Lower Limit Signal' items selected. The main table shows the following settings:

Item	Axis0001	Axis0002	Axis0003
Axis No.	1	2	3
Axis Parameter Constant	Expands setting values at axis variable initialization. Re-importing to the control data is not executed after axis variable initialization.		
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Upper Limit Signal	[VAR](BOOL)Ezi_STEP_CT_001_DigitalInputs.1		
Signal Detection Method	0:Detection at TRUE	0:Detection at TRUE	0:Detection at TRUE
Compensation Time	0.0 s	0.0 s	0.0 s
Filter Time	0.0 s	0.0 s	0.0 s
Lower Limit Signal	[VAR](BOOL)Ezi_STEP_CT_001_DigitalInputs.0		
Signal Detection Method	0:Detection at TRUE	0:Detection at TRUE	0:Detection at TRUE
Compensation Time	0.0 s	0.0 s	0.0 s
Filter Time	0.0 s	0.0 s	0.0 s
Master-slave Operation Setting	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle
Control Cycle Setting	3:Machine Feed Value	3:Machine Feed Value	3:Machine Feed Value
Absolute Position Reference Setting	0:Disable Absolute Position System	0:Disable Absolute Position System	0:Disable Absolute Position System
Absolute Position Control Setting	0:Disable	0:Disable	0:Disable
Ring Counter Enabled Selection	0:Disabled	0:Disabled	0:Disabled
Ring Counter Lower Limit Value	-10000000000.0 degree	-10000000000.0 mm	-10000000000.0 mm
Ring Counter Upper Limit Value	10000000000.0 degree	10000000000.0 mm	10000000000.0 mm
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Object Data	Torque Limit Maximum Value: 1000.0 %		
Torque Limit Maximum Value	1000.0 %	1000.0 %	1000.0 %
Negative Direction Torque Limit Initial	300.0 %	300.0 %	300.0 %
Positive Direction Torque Limit Initial	300.0 %	300.0 %	300.0 %
Fast Operation Mode Setting	0000	0000	0000
Axis Parameter	Expands initial values at axis variable initialization. Re-importing to the control data is also executed after axis variable initialization.		
Acceleration Limit Value	2147483647.0 degree/s^2	2147483647.0 mm/s^2	2147483647.0 mm/s^2
Operation Selection at Start Acceleration	-1>Error (Not Started)	-1>Error (Not Started)	-1>Error (Not Started)

Ezi-STEP CC-Link IE TSN ALL + Limit Switch Settings
Ezi_STEP_CT_001_DigitalInputs.1

Ezi-STEP CC-Link IE TSN ALL -Limit Switch settings are
Ezi_STEP_CT_001_DigitalInputs.0

Note) If the label setting for Ezi_STEP_CT_xxx_DigitalInputs.x fails, 1. Check Network Settings (page 27)

Apply

2-5. Module Extended Parameter – Motion Control Setting Function

- Label – Global Label – Sys+Global

The screenshot displays the 'Motion Control Setting Function' software interface. The left sidebar shows a tree view with 'Sys+Global' selected under the 'Label' category, marked with a red circle and the number 1. The main window shows the 'Sys+Global [Global Label Setting]' tab, which contains a table of labels. The 'Public Label' column for the 'MotionControl_AdvancedSync_System' label is highlighted with a red circle and the number 2, showing a dropdown menu with 'Enabled' and 'Disabled' options. A yellow callout box points to this dropdown with the text: 'To use Labels in GX Works3, specify Enable.'

Label Name	Data Type	Class	Initial Value	Constant	English(Display Target)	Rem	Public Label	Motion Control Attribute
1	System	SYSTEM	VAR_GLOBAL	<Detailed Settings>			Enabled	-
2	MotionControl_AdvancedSync_System	MotionControl_AdvancedSync_SYS	VAR_GLOBAL	<Detailed Settings>			Disabled	-
3								

Label Name	Data Type	Comment	Initial Value	Public Label
MotionControl_AdvancedSync_System	MotionControl_AdvancedSync_SYS	System Parameter Constant	Disabled	Disabled
ADDON_PARAM	ADDON_PARAM	Add-on MotionControl_AdvancedSync	Disabled	Disabled
RamSizeMax	Double Word (Unsigned) Bit String [32]	Maximum RAM Size	2048	Disabled
BackupRamSizeMax	Double Word (Unsigned) Bit String [32]	Maximum Backup RAM Size	16	Disabled
Md	Md	System Monitor Data	Disabled	Disabled
ADDON_MONI	ADDON_MONI	System Memory Usage	Disabled	Disabled
RamUsage	Double Word (Unsigned) Bit String [32]	RAM Usage	Disabled	Disabled
RamMaxUsage	Double Word (Unsigned) Bit String [32]	RAM Usage Maximum	Disabled	Disabled
BackupRamUsage	Double Word (Unsigned) Bit String [32]	Backup RAM Usage	Disabled	Disabled
BackupRamMaxUsage	Double Word (Unsigned) Bit String [32]	Backup RAM Usage Maximum	Disabled	Disabled

Extd Dspl

Progress

Assigning global label...

Error: 0, Warning: 0

===== Rebuild All Ends Error: 0, Warning: 0, End Time: 2026/01/16 19:49:54, Processing Time (Seconds): 5.475 =====

----- Rebuild All/Parameter Check Starts Start Time: 2026/01/16 19:50:25 -----

--- Start checking: Target: Basic Setting ---

Checking Basic Setting...

--- Start checking: Target: System Setting ---

Checking System Setting...

--- Start checking: Target: Axis ---

Checking Axis...

--- Start checking: Target: Operation Profile Data ---

Checking Operation Profile Data...

--- Start checking: Target: I/O Data ---

Checking I/O Data...

--- Start checking: Target: Advanced Synchronous Control ---

===== Rebuild All/Parameter Check Ends Error: 0, Warning: 0, End Time: 2026/01/16 19:50:29, Processing Time: 4 Seconds =====

2-5. Module Extended Parameter – Motion Control Setting Function

- Label – Global Label – Ax+Global

1

2

To use Label in GX Works3, specify Enable

Label Name	Data Type	Class	Initial Value	Constant	English(Display Target)	Rem	Public Label	Motion Control Attribute
1 Axis0001	AXIS_REAL	VAR_GLOBAL	<Detailed Settings>				Enabled	-
2 Axis0002	AXIS_REAL	VAR_GLOBAL	<Detailed Settings>				Enabled	-
3 Axis0003	AXIS_REAL	VAR_GLOBAL	<Detailed Settings>				Enabled	-
4							Enabled	-

Label Name	Data Type	Comment	Initial Value	Public Label
Axis0003	AXIS_REAL			Enabled
AxisRef	AXIS_REF	Axis Information		Enabled
AxisNo	Word [Unsigned/Bit String [16-bit]]	Axis No.	3	Enabled
StartIO	Word [Unsigned/Bit String [16-bit]]	IO Number	0	Enabled
PrConst	AXIS_REAL_PRM_CONST	Axis Parameter Constant		Disabled
AddressOfStation	String [Unicode](53)	Station Address Setting	"192.168	Disabled
AxisType	Word [Signed]	Axis Type Setting	0	Disabled
HasStrokeLimit_FlxSignal	SIGNAL_SELECT	Upper Limit Signal		Disabled
Source	TARGET_REF	Signal		Disabled
StartIO	Word [Unsigned/Bit String [16-bit]]	IO Number	0	Disabled
Target	String [Unicode](53)	Target		Disabled

Extd Dspl

Progress

Assigning global label...

Error: 0, Warning: 0

==== Rebuild All/Parameter Check Starts Start Time: 2026/01/16 19:49:54, Processing Time (Seconds): 5.475 =====

--- Start checking: Target: Basic Setting ---

Checking Basic Setting...

--- Start checking: Target: System Setting ---

Checking System Setting...

--- Start checking: Target: Axis ---

Checking Axis...

--- Start checking: Target: Operation Profile Data ---

Checking Operation Profile Data...

--- Start checking: Target: I/O Data ---

Checking I/O Data...

--- Start checking: Target: Advanced Synchronous Control ---

==== Rebuild All/Parameter Check Ends Error: 0, Warning: 0, End Time: 2026/01/16 19:50:29, Processing Time: 4 Seconds =====

2-5. Module Extended Parameter – Motion Control Setting Function

- Label – Global Label – System + Global

1

2

To use Label in GX Works3, specify Enable

Label Name	Data Type	Class	Initial Value	Constant	ReadWrite	English(Display Target)	Rem	Public Label	Motion Control Attribute
Es_STEP_CT_001_Ph	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	WRITE (+ Motion) R/W
Es_STEP_CT_001_Dig	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	READ (+ Motion) R/W
Es_STEP_CT_002_Ph	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	WRITE (+ Motion) R/W
Es_STEP_CT_002_Dig	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	READ (+ Motion) R/W
Es_STEP_CT_003_Ph	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	WRITE (+ Motion) R/W
Es_STEP_CT_003_hys	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	WRITE (+ Motion) R/W
Es_STEP_CT_003_vgtal	Double Word (Unsigned) Bit String B	VAR_GLOBAL			R/W			Enabled	READ (+ Motion) R/W

Progress

Assigning global label...

Error: 0, Warning: 0

===== Rebuild All Ends Error: 0, Warning: 0, End Time: 2026/01/16 19:49:54, Processing Time (Seconds): 5.475 =====

----- Rebuild All/Parameter Check Starts Start Time: 2026/01/16 19:50:25 -----

--- Start checking: Target: Basic Setting ---

Checking Basic Setting...

--- Start checking: Target: System Setting ---

Checking System Setting...

--- Start checking: Target: Axis ---

Checking Axis...

--- Start checking: Target: Operation Profile Data ---

Checking Operation Profile Data...

--- Start checking: Target: I/O Data ---

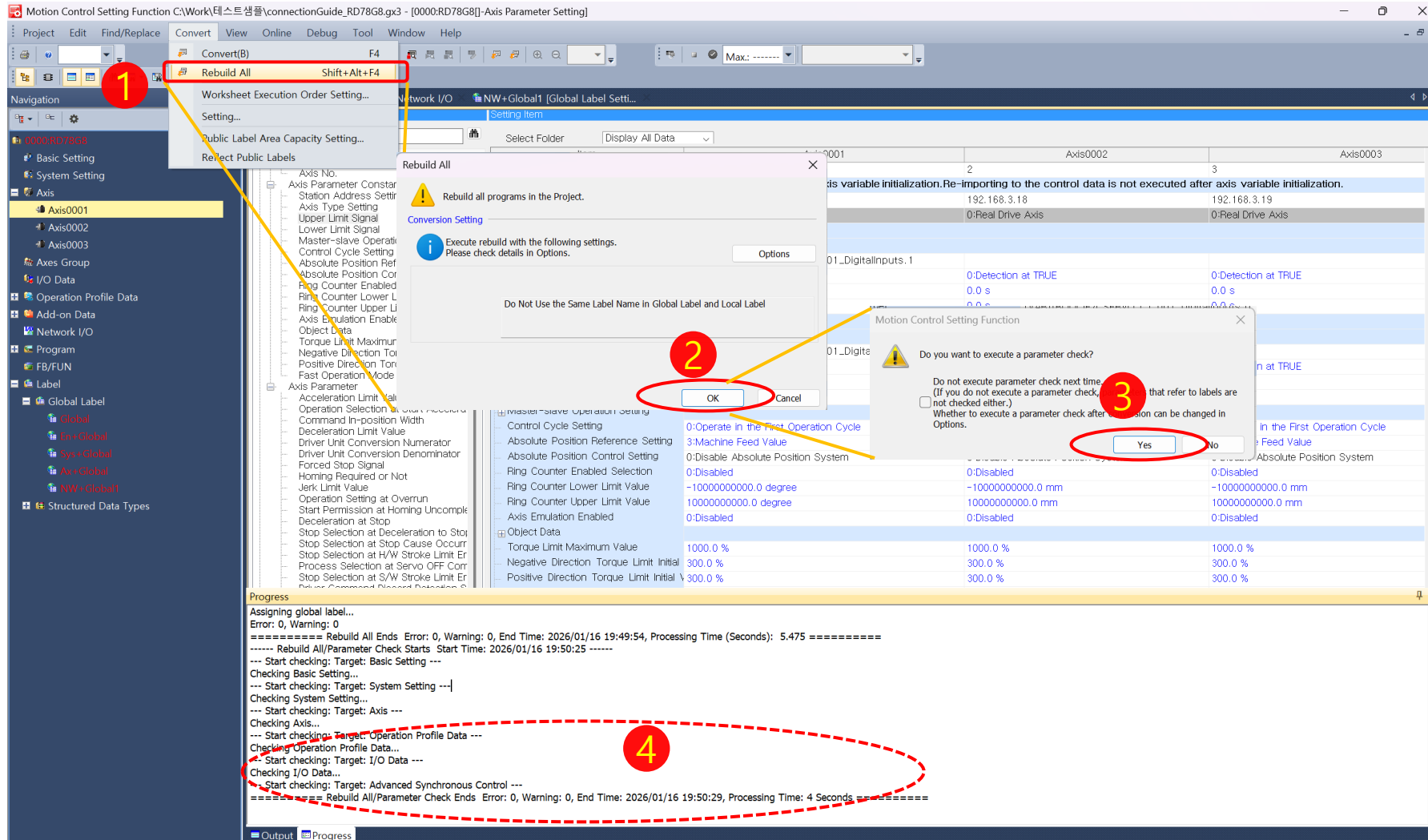
Checking I/O Data...

--- Start checking: Target: Advanced Synchronous Control ---

===== Rebuild All/Parameter Check Ends Error: 0, Warning: 0, End Time: 2026/01/16 19:50:29, Processing Time: 4 Seconds =====

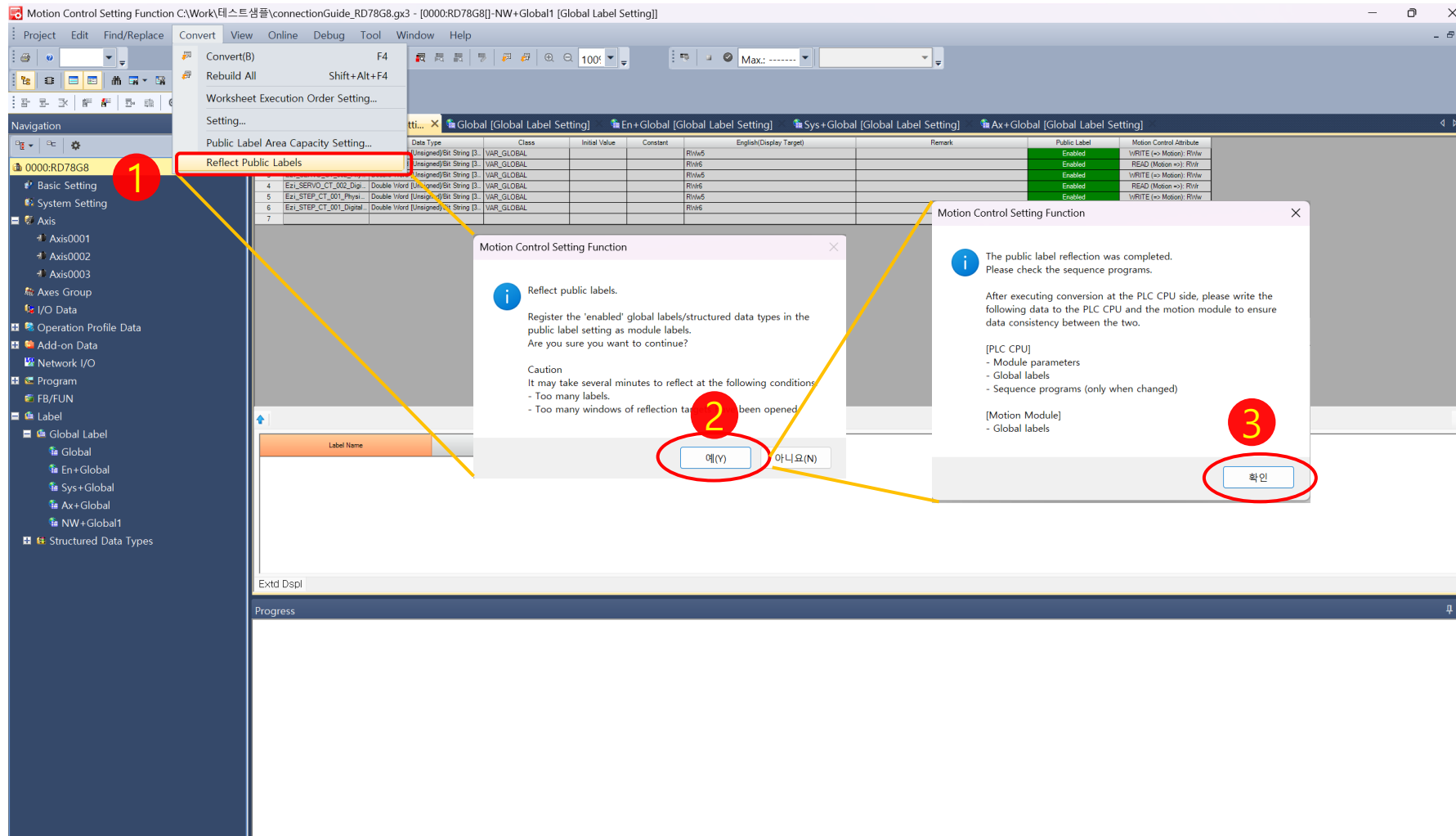
2-5. Module Extended Parameter – Motion Control Setting Function

- Convert – Rebuild All → Parameter Check



2-5. Module Extended Parameter – Motion Control Setting Function

● Reflect Public Labels



- **Convert – Rebuild All**



2-7. Write to PLC

- Online Data Operation

The screenshot shows the MELSOFT GX Works3 interface. A red circle with the number '1' highlights the 'Write to PLC...' option in the 'Online' menu. A yellow arrow points from this option to the 'Online Data Operation' dialog box. The dialog box has tabs for 'Display', 'Setting', and 'Related Functions'. The 'Display' tab is active, showing a table of memory areas and their status. Below the table, there is a 'Memory Capacity' section with a bar chart and a legend. The 'Execute' button at the bottom right of the dialog box is circled in red.

Module Name/Data Name	Detail	Title	Last Change	Size (Byte)
MAIN			2026-02-02 ...	Not Calculated
Device Memory				
MAIN		Detail	2026-02-02 ...	-
File Register				
MAIN		Detail	2026-02-02 ...	Not Calculated
Common Device Co...				
COMMENT		Detail	2026-02-02 ...	Not Calculated

Memory Capacity
Size Calculation

Legend
Used
Increased
Decreased
Free: 5% or Less

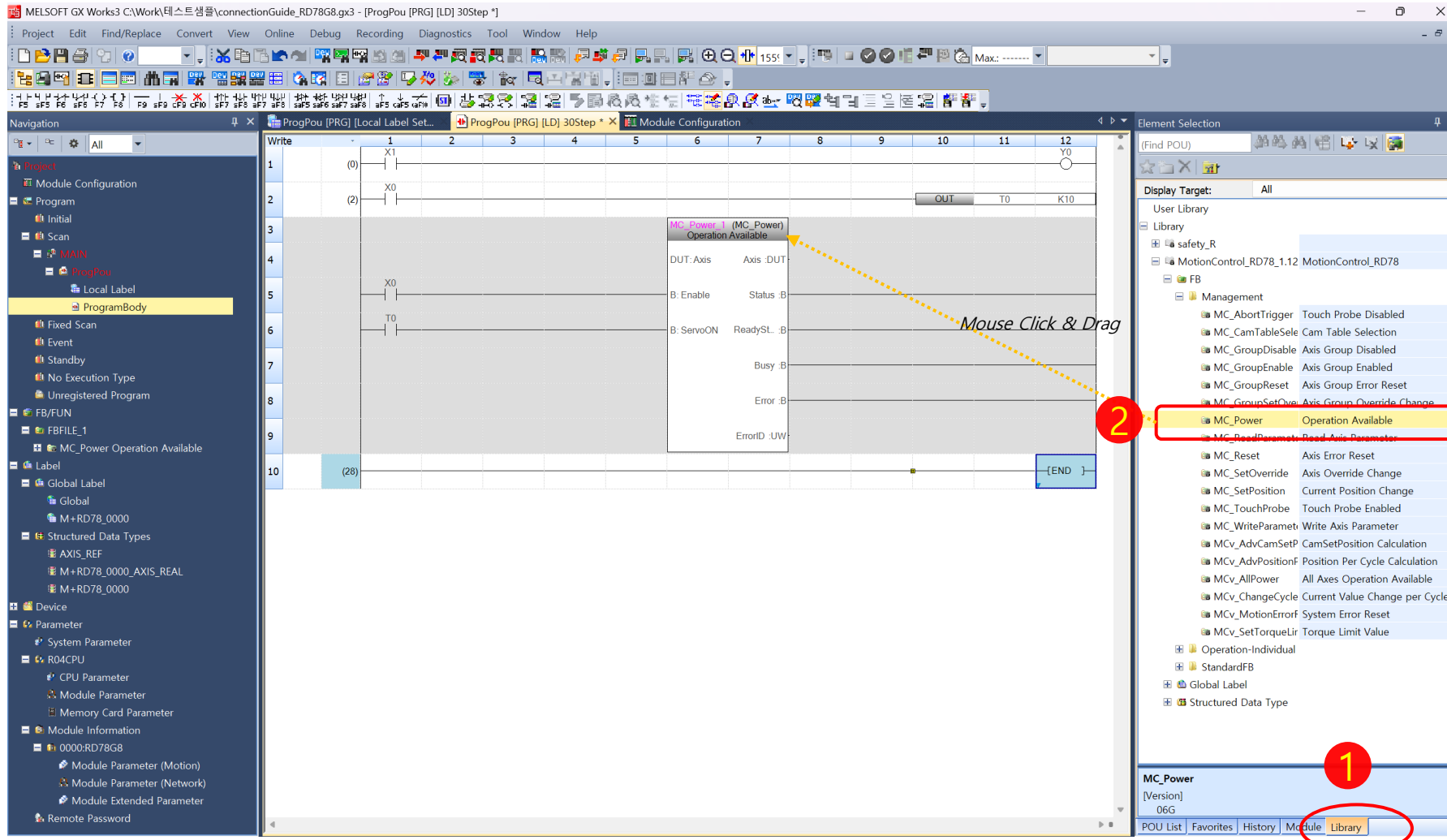
Program Memory: Free 157/160KB
Data Memory: Free 1852/2049KB
Device/Label Memory (File Storage Area): Free 192/256KB
SD Memory Card: Free 0/0KB

Execute Close

3. Follow the Program

3-1. Exploring Motion Control Commands

● Motion Control Function/Function Block Command – Element Selection - Library



3-2. [Ladder] STEP Enable, STEP ON

- Ezi-STEP CC-Link IE TSN Enable/STEP ON Program

The screenshot displays the MELSOFT GX Works3 interface. The main window shows a ladder logic program with a network table. A callout box for 'RD78_00' is visible, listing parameters: MC_Power (MC_Power), Operation Available, B: Enable, Status, B, B: ServoON, ReadySL, B, Busy, B, Error, B, and ErrorID, UW. A yellow dashed arrow labeled 'Mouse Click & Drag' points from the 'RD78_00' callout to the 'AxisRef' element in the Element Selection panel.

The Element Selection panel on the right shows a tree structure. The 'Module Label' section is expanded, showing '3E00:R04CPU' and '0000:RD78G8'. Under 'RD78_0000', 'AxisRef' is highlighted with a red box and a red circle labeled '2'. Below 'AxisRef', 'Axis Information' is also highlighted with a red box. The 'Module FB' section is expanded, showing 'R04CPU' and various function blocks. The 'AxisRef' section is also expanded, showing 'Axis Information' and a list of function blocks. A red circle labeled '1' is placed over the 'AxisRef' section header.

The bottom of the Element Selection panel shows a tabbed interface with 'POU List', 'Favorites', 'History', 'Module', and 'Library' tabs. The 'Module' tab is selected and highlighted with a red circle.

3-3. [Ladder] Specifying the homing method

- Specifying the Homing Method (MC_WriteParameter, 33: Homing i

FB: MC_WriteParameter

- Homing Parameter Address: H60980008
- Homing Method: 35 (Set the current position origin)

MC_WriteParameter_1 (MC_...)

Parameter	Value
DUT: Axis	Axis001 A
B: Execute	Done: B
UD: Param...	Busy: B
L: Value	Error: B
W: Execution...	ErrorID: UW
UD: Options	SDOEro... UD
SDOStat...	SDOStat... UW

Comparison

Time Data Type	Single Numeric Variable
Selection	String
Bit Shift	Edge Detection
Counter	Timer
Bistable	Motion Control Function/Function Block
Administrative	MC_AbortTrigger
	MC_CamTableSelect
	MC_DigitalCamSwitch
	MC_GroupDisable
	MC_GroupEnable
	MC_GroupReset
	MC_GroupSetOverride
	MC_Power
	MC_ReadParameter
	MC_Reset
	MC_SetOverride
	MC_SetPosition
	MC_TouchProbe
	MC_WriteParameter

MC_WriteParameter

[Version] 00A

POU List Favorites History Module Library

The homing method is classified as follows based on the setting value for Homing method (6098h):

설정값	내용
1	Homing on negative limit switch and index pulse
2	Homing on positive limit switch and index pulse
7	Homing on home switch (positive direction, negative edge) and index pulse
10	Homing on home switch (positive direction, positive edge) and index pulse
11	Homing on home switch (negative direction, positive edge) and index pulse
14	Homing on home switch (negative direction, negative edge) and index pulse
17	Homing on negative limit switch
18	Homing on positive limit switch
24	Homing on home switch (positive direction, negative edge)
25	Homing on home switch (positive direction, positive edge)
28	Homing on home switch (negative direction, positive edge)
29	Homing on home switch (negative direction, negative edge)
33	Homing index pulse (negative direction)
34	Homing index pulse (positive direction)
35	Set the current position origin
37	Set the current position origin and reset current position
-3	Homing on negative mechanical limit
-4	Homing on positive mechanical limit
-5	Homing on negative mechanical limit and index pulse
-6	Homing on positive mechanical limit and index pulse

3-4. [Ladder] Execute Ezi-STEP homing

- Execute Homing (MC_Home)

The screenshot displays the MELSOFT GX Works3 software interface for editing a ladder logic program. The main workspace shows a ladder logic diagram with the following components:

- Network 12:** A normally open contact labeled `bAx1WParam` is connected to a coil labeled `MC_WriteParameter_1 (MC_...`.
- Network 13:** A normally open contact labeled `Axis0001.A` is connected to a coil labeled `DUT: Axis`.
- Network 14:** A normally open contact labeled `bAx1WParam` is connected to a coil labeled `B: Execute`.
- Network 15:** A normally open contact labeled `UD: Paramet...` is connected to a coil labeled `Busy B`.
- Network 16:** A normally open contact labeled `L: Value` is connected to a coil labeled `Error B`.
- Network 17:** A normally open contact labeled `W: Execution...` is connected to a coil labeled `ErrorID_UW`.
- Network 18:** A normally open contact labeled `H0` is connected to a coil labeled `UD: Options`.
- Network 19:** A normally open contact labeled `SDOStat_UW` is connected to a coil labeled `SDOStat_UW`.
- Network 20:** A normally open contact labeled `bAx1HomeSL` is connected to a coil labeled `bAx1HomeDo`.
- Network 21:** A normally open contact labeled `bAx1Home` is connected to a coil labeled `bAx1Home`.
- Network 22:** A normally open contact labeled `Axis0001.A` is connected to a coil labeled `DUT: Axis`.
- Network 23:** A normally open contact labeled `bAx1Home` is connected to a coil labeled `B: Execute`.
- Network 24:** A normally open contact labeled `L: Position` is connected to a coil labeled `Busy B`.
- Network 25:** A normally open contact labeled `DUT: AbsSwit...` is connected to a coil labeled `Active B`.
- Network 26:** A normally open contact labeled `H0` is connected to a coil labeled `UD: Options`.
- Network 27:** A normally open contact labeled `Command...` is connected to a coil labeled `Error B`.
- Network 28:** A normally open contact labeled `ErrorID_UW` is connected to a coil labeled `ErrorID_UW`.

The right-hand pane shows the **Element Selection** dialog with the **Display Target** set to **All**. The **Motion Control Function/Function Block** section is expanded, showing the **MC_Home** function block. The **MC_Home** function block is selected, and its parameters are listed in the table below:

Parameter	Value
MC_CamIn	Cam Operation Start
MC_CombineAxes	Addition/Subtraction I
MC_GearIn	Gear Operation Start
MC_GroupStop	Group Forced Stop
MC_Home	OPR
MC_MoveAbsolute	Absolute Value Positio
MC_MoveRelative	Relative Value Positio
MC_MoveVelocity	Speed Control
MC_Stop	Forced Stop
MC_TorqueControl	Torque Control
MCv_AdvancedSync	Advanced Synchronou
MCv_BacklashComp	Backlash Compensatic
MCv_CyclicPosition	Motion Cyclic Positio

The **MC_Home** function block is also shown in the **MC_Home** section of the right-hand pane, with the **Version** set to **00A**.

3-5. [Ladder] Execute Ezi-STEP Operation

- Execute Movement Action (MC_MoveAbsolute)

Arbitrary Position Setting

- bAx1PosPos1 ON → 3600.0
- bAx1PosPos1 ON → 0.0
- ※ 3,600 – 10 rotations

MC_MoveAbsolute

Parameter	Value	Unit	Comment
DUT: Axis	Axis 0001 A	Axis	DUT
B: Execute	Done	B	
B: Continuou...	Busy	B	
L: Position	edAx1Pos1	Active	B
L: Velocity	3000.0	Command	B
L: Accelerati...	180000.0	Error	B
L: Decelerati...	180000.0	ErrorID	UDW
L: Jerk	0.0		
W: Direction	K3		
W: BufferMo...			
UD: Options			

3-6. [Ladder] Execute Ezi-STEP DIO Operation

- Digital Input, Output Operation Execution

The screenshot displays the MELSOFT GX Works3 interface with a ladder logic program for Ezi-STEP DIO operation. The program is organized into a table with columns for step numbers (1-12) and rows for various parameters and instructions.

Table 1: Program Parameters

Step	Parameter	Value
13	L: Decelerati...	180000.0
14	L: Jerk	0.0
15	W: Direction	K3
16	W: BufferMode	
17	UD: Options	

Table 2: Ladder Logic Instructions

Step	Instruction	Target
18	DMOV	Ezi_SERVO... D0
19		bAx1h[0]
20		bAx1h[1]
21		bAx1h[2]
22		bAx1h[3]
23		bAx1h[4]
24		bAx1h[5]
25		D3.1
26		D3.2
27		D3.3
28		D3.4
29		D3.5
30	DMOV	D2 Ezi_SERVO...

Table 3: Physical Outputs

Step	Physical Output
18	SM400
19	D1.4
20	D1.5
21	D1.6
22	D1.7
23	D1.8
24	D1.9
25	bAx1Out[0]
26	bAx1Out[1]
27	bAx1Out[2]
28	bAx1Out[3]
29	bAx1Out[4]
30	SM400

Annotations:

- Ezi_STEP_CT_001_DigitalInputs**: Points to the digital input section of the ladder logic.
- Ezi_STEP_CT_001_PhysicalOutputs**: Points to the physical output section of the ladder logic.

3-6. [Ladder] Execute Ezi-STEP DIO Operation: Map Reference

- Digital Inputs

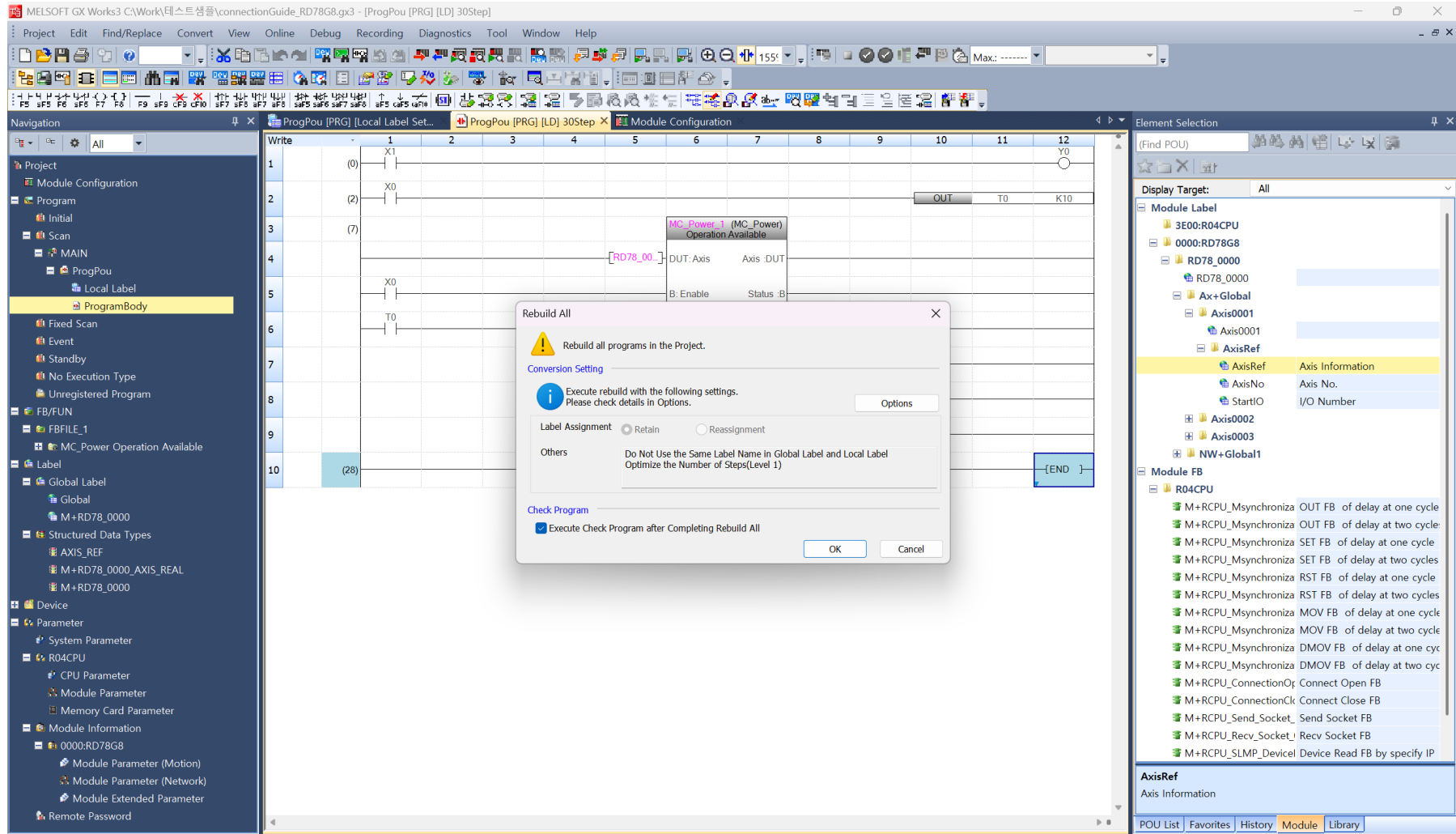
Bit 31	Bit 30	Bit 29	Bit 28	Bit 27	Bit 26	Bit 25	Bit 24
-	Motor Power	TQOFF2	TQOFF1	-	-	User input 6	User input 5
Bit 23	Bit 22	Bit 21	Bit 20	Bit 19	Bit 18	Bit 17	Bit 16
User input 4	User input 3	User input 2	User input 1	Reserved	Reserved	Reserved	
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
-	-	-	-	-	-	-	-
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	Origin switch	Positive limit switch	Negative limit switch

- Physical Outputs

Bit 31	Bit 30	Bit 29	Bit 28	Bit 27	Bit 26	Bit 25	Bit 24
-	-	-	-	-	-	-	-
Bit 23	Bit 22	Bit 21	Bit 20	Bit 19	Bit 18	Bit 17	Bit 16
-	-	-	User output 5	User output 4	User output 3	User output 2	User output 1
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
-	-	-	-	-	-	-	-
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	-	-	Set brake

3-7. [Ladder] Convert

- Convert – Rebuild All



Appendix

[Operation Verification] Axis Monitor

- Monitor the status, position, homing, and error of each axis.

The screenshot displays the MELSOFT GX Works3 interface. On the left, the Project tree shows the 'Program' folder expanded, with 'ProgramBody' selected. The main window shows a ladder logic program with rungs 20 through 30. A red box highlights the 'Motion Monitor(B)' menu item, which is open, showing 'Axis Monitor...' and 'Position Data History...'. The 'Axis Monitor' window is open, displaying a table of axis data for five axes (Axis #1 to Axis #5). The table includes columns for Axis Name, Axis Status, Control Cycle, Position Command Unit Display, Velocity Command Unit Display, Set Position, Actual Position, Commanded Position, Set Velocity, Actual Velocity, Commanded Velocity, Negative Direction Velocity Limit Value, Positive Direction Velocity Limit Value, Automatically Decelerating Command In-position, Negative Direction Torque Limit Value, Positive Direction Torque Limit Value, Execution Profile ID No., Homing Request, Start Permission at Homing Uncompleted, Upper Limit Signal Status, Lower Limit Signal Status, Forced Stop Cancelling, Axis Error Detection, Axis Error Code, Axis Warning Detection, Axis Warning Code, Driver Ready On Status, Driver Servo On Status, Driver Status, Drive Unit Error Detection, Drive Unit Error Code, and Drive Unit Error Detail Code. The 'Homing Request' row is highlighted in green, indicating it is active. The 'Motion Common Monitor' window is also open, showing a table of motion data including Operation Cycle Monitor[1], Operation Cycle Monitor[2], and Operation Cycle Monitor[3]. The 'Motion Common Monitor' window is also highlighted with a red box.

	Axis #1	Axis #2	Axis #3	Axis #4	Axis #5
Axis Name	Axis0001	Axis0002	Axis0003	Axis0004	Axis0005
Axis Status	4:Standstill	4:Standstill	4:Standstill	4:Standstill	4:Standstill
Control Cycle	1	1	1	1	1
Position Command Unit Display	degree	degree	degree	degree	degree
Velocity Command Unit Display	degree/s	degree/s	degree/s	degree/s	degree/s
Set Position	0.10058283805847 d...	0.0 degree	0.0 degree	0.0 degree	0.0 degree
Actual Position	0.1003303527832 de...	0.0 degree	0.0 degree	0.0 degree	0.0 degree
Commanded Position	0.0 degree	0.0 degree	0.0 degree	0.0 degree	0.0 degree
Set Velocity	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s
Actual Velocity	-0.31650066375732 d...	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s
Commanded Velocity	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s
Negative Direction Velocity Limit Value	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s
Positive Direction Velocity Limit Value	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s
Automatically Decelerating Command In-position	FALSE	FALSE	FALSE	FALSE	FALSE
Negative Direction Torque Limit Value	300.0 %	300.0 %	300.0 %	300.0 %	300.0 %
Positive Direction Torque Limit Value	300.0 %	300.0 %	300.0 %	300.0 %	300.0 %
Execution Profile ID No.	0	0	0	0	0
Homing Completed	FALSE	FALSE	FALSE	FALSE	FALSE
Homing Request	TRUE	TRUE	TRUE	TRUE	TRUE
Start Permission at Homing Uncompleted	FALSE	FALSE	FALSE	FALSE	FALSE
Upper Limit Signal Status	FALSE	FALSE	FALSE	FALSE	FALSE
Lower Limit Signal Status	FALSE	FALSE	FALSE	FALSE	FALSE
Forced Stop Cancelling	TRUE	TRUE	TRUE	TRUE	TRUE
Axis Error Detection	FALSE	FALSE	FALSE	FALSE	FALSE
Axis Error Code	H0000	H0000	H0000	H0000	H0000
Axis Warning Detection	FALSE	FALSE	FALSE	FALSE	FALSE
Axis Warning Code	H0000	H0000	H0000	H0000	H0000
Driver Ready On Status	TRUE	TRUE	TRUE	TRUE	TRUE
Driver Servo On Status	TRUE	TRUE	TRUE	TRUE	TRUE
Driver Status	6:Operation Enable	6:Operation Enable	6:Operation Enable	6:Operation Enable	6:Operation Enable
Drive Unit Error Detection	FALSE	FALSE	FALSE	FALSE	FALSE
Drive Unit Error Code	H0000	H0000	H0000	H0000	H0000
Drive Unit Error Detail Code	H0000	H0000	H0000	H0000	H0000

Monitor Item Selection
Ready
Synchronization flag
Operation Cycle Monitor[1].Processing Time
41000 ns
Operation Cycle Monitor[1].Maximum Processing Time
69960 ns
Operation Cycle Monitor[1].Setting Cycle
2000000 ns
Operation Cycle Monitor[1].Cycle Over
Operation Cycle Monitor[2].Processing Time
36800 ns
Operation Cycle Monitor[2].Maximum Processing Time
73120 ns
Operation Cycle Monitor[2].Setting Cycle
8000000 ns
Operation Cycle Monitor[2].Cycle Over
Operation Cycle Monitor[3].Processing Time
44440 ns
Operation Cycle Monitor[3].Maximum Processing Time
95960 ns
Operation Cycle Monitor[3].Setting Cycle
32000000 ns
Operation Cycle Monitor[3].Cycle Over
Forced Stop Cancelling
Motion Area System Error Detection
Latest Motion Area System Error Code
H0000
Motion Area System Warning Detection
Latest Motion Area System Warning Code
H0000

[Operation Verification] Changing the Homing Method

- Change the homing method using Motion Control FB

- ① Specify Parameter Number: H60980008
- ② Value (Homing Method) Specified: 33.0
- ③ ExecutionMode: TRUE (Write)
- ④ Done: Becomes TRUE

The homing method is classified as follows based on the setting value for Homing method (6098h).

설정값	내용
1	Homing on negative limit switch and index pulse
2	Homing on positive limit switch and index pulse
7	Homing on home switch (positive direction, negative edge) and index pulse
10	Homing on home switch (positive direction, positive edge) and index pulse
11	Homing on home switch (negative direction, positive edge) and index pulse
14	Homing on home switch (negative direction, negative edge) and index pulse
17	Homing on negative limit switch
18	Homing on positive limit switch
24	Homing on home switch (positive direction, negative edge)
25	Homing on home switch (positive direction, positive edge)
28	Homing on home switch (negative direction, positive edge)
29	Homing on home switch (negative direction, negative edge)
33	Homing index pulse (negative direction)
34	Homing index pulse (positive direction)
35	Set the current position origin
37	Set the current position origin and reset current position
-3	Homing on negative mechanical limit
-4	Homing on positive mechanical limit
-5	Homing on negative mechanical limit and index pulse
-6	Homing on positive mechanical limit and index pulse

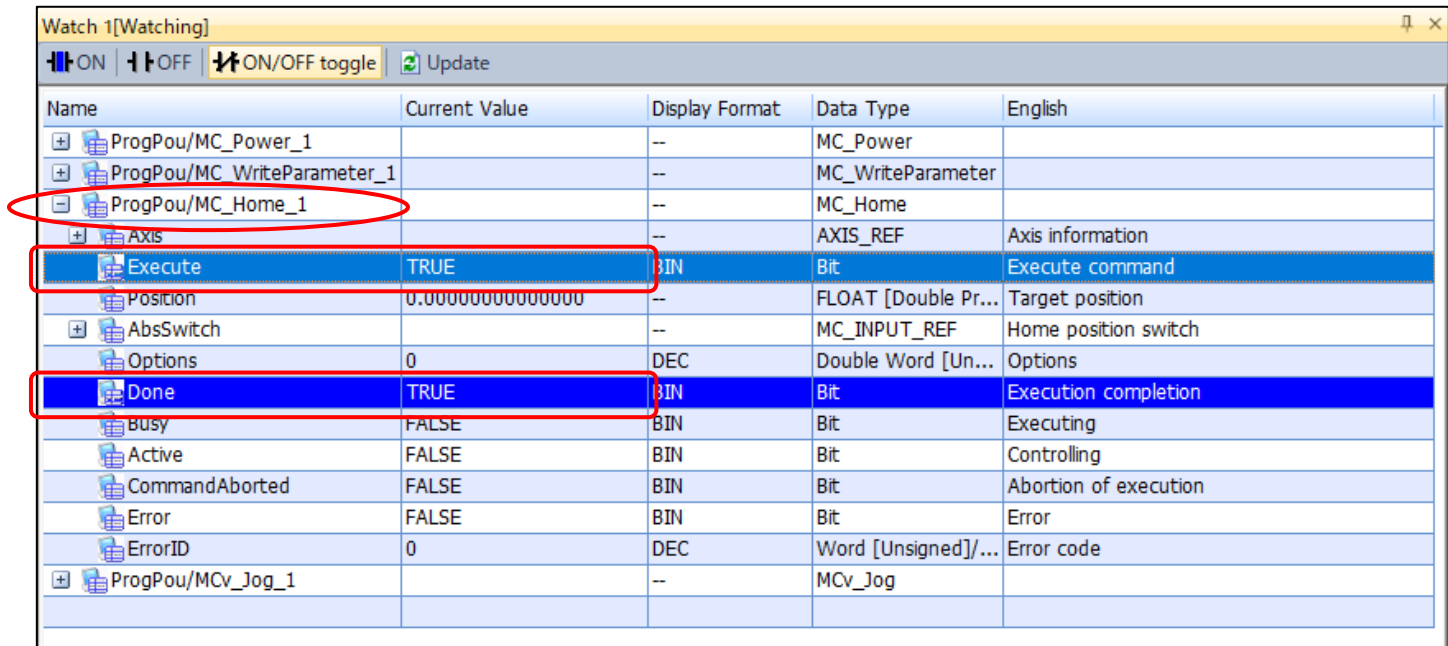
Watch 1[Watching]				
[ON] [OFF] [ON/OFF toggle] [Update]				
Name	Current Value	Display Format	Data Type	English
ProgPou/MC_Power_1		--	MC_Power	
ProgPou/MC_WriteParameter_1		--	MC_WriteParameter	
Axis		--	AXIS_REF	Axis information
Execute	TRUE	BIN	Bit	Execute command
ParameterNumber	H60980008	HEX	Word [Unsigned]	Setting value
Value	37.00000000000000	BIN	Double Word [Unsigned]	Setting value
ExecutionMode	0	DEC	Word [Signed]	Execution mode
Options	0	DEC	Double Word [Unsigned]	Options
Done	TRUE	BIN	Bit	Execution completion
Busy	FALSE	BIN	Bit	Executing
Error	FALSE	BIN	Bit	Error
ErrorID	H0000	HEX	Word [Unsigned]/...	Error code
SDOErrorID	H00000000	HEX	Double Word [Unsigned]	Transient error code
SDOStatus	1	DEC	Word [Unsigned]/...	SDO transfer status
ProgPou/MC_Home_1		--	MC_Home	
ProgPou/MCv_Jog_1		--	MCv_Jog	

Display Format: HEX
selected

[Operation Verification] Homing

- Execute homing using motion control FB

- ① Execute → TRUE (Write)
- ② Done → Becomes TRUE



Name	Current Value	Display Format	Data Type	English
ProgPou/MC_Power_1		--	MC_Power	
ProgPou/MC_WriteParameter_1		--	MC_WriteParameter	
ProgPou/MC_Home_1		--	MC_Home	
Axis		--	AXIS_REF	Axis information
Execute	TRUE	BIN	Bit	Execute command
Position	0.0000000000000000	--	FLOAT [Double Pr...	Target position
AbsSwitch		--	MC_INPUT_REF	Home position switch
Options	0	DEC	Double Word [Un...	Options
Done	TRUE	BIN	Bit	Execution completion
Busy	FALSE	BIN	Bit	Executing
Active	FALSE	BIN	Bit	Controlling
CommandAborted	FALSE	BIN	Bit	Abortion of execution
Error	FALSE	BIN	Bit	Error
ErrorID	0	DEC	Word [Unsigned]/...	Error code
ProgPou/MCv_Jog_1		--	MCv_Jog	

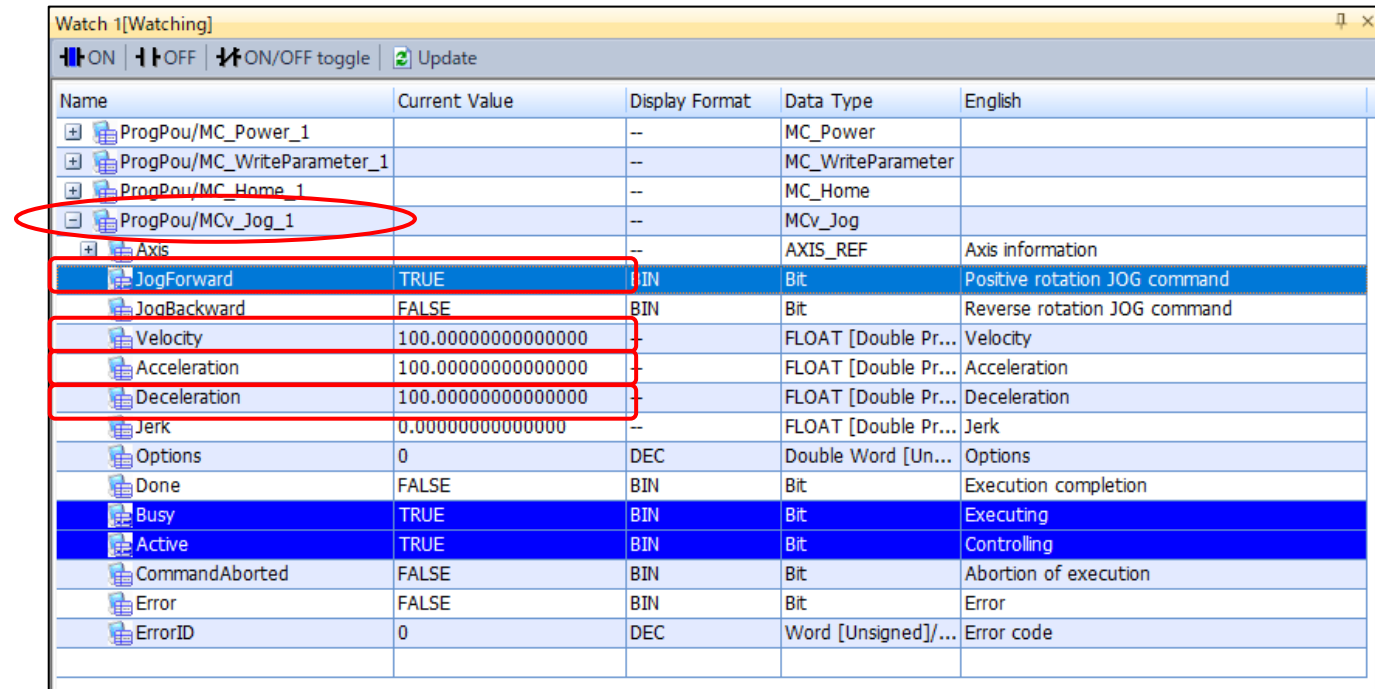
- When using the LIMIT+ / LIMIT- signals of Ezi-STEP CC-Link IE TSN ALL as hardware stroke limits, set the following axis control data before startup (start).

[AxisName.Cd.HwStrokeLimit_Override] → 'DISABLE'

[Operation Verification] Jog Operation

- Execute Jog operation using Motion Control FB

- ① Velocity → 100.0
- ② Acceleration → 100.0
- ③ Deceleration → 100.0
- ④ JogForward → TRUE (Write)



Name	Current Value	Display Format	Data Type	English
ProgPou/MC_Power_1		--	MC_Power	
ProgPou/MC_WriteParameter_1		--	MC_WriteParameter	
ProgPou/MC_Home_1		--	MC_Home	
ProgPou/MCv_Jog_1		--	MCv_Jog	
Axis		--	AXIS_REF	Axis information
JogForward	TRUE	BIN	Bit	Positive rotation JOG command
JogBackward	FALSE	BIN	Bit	Reverse rotation JOG command
Velocity	100.00000000000000		FLOAT [Double Pr...	Velocity
Acceleration	100.00000000000000		FLOAT [Double Pr...	Acceleration
Deceleration	100.00000000000000		FLOAT [Double Pr...	Deceleration
Jerk	0.0000000000000000	--	FLOAT [Double Pr...	Jerk
Options	0	DEC	Double Word [Un...	Options
Done	FALSE	BIN	Bit	Execution completion
Busy	TRUE	BIN	Bit	Executing
Active	TRUE	BIN	Bit	Controlling
CommandAborted	FALSE	BIN	Bit	Abortion of execution
Error	FALSE	BIN	Bit	Error
ErrorID	0	DEC	Word [Unsigned]/...	Error code

[Operation Verification] Troubleshooting

- When an error occurs, check the cause in the event history (log)

① [Online] -> [Motion Monitor] -> [Event History]

The screenshot shows the 'Motion Control Setting Function (Untitled Project)' software. The 'Motion Monitor' menu is open, and 'Event History' is selected. The 'Event History: [0000RD78G64]' window is displayed, showing a table of events. The 'Detailed Information' tab is active, showing details for event 000001.

No.	Occurrence Date	Event Type	Status	Event Code	Description
000001	2024/10/15 15:15:57.512	System	OK	000001	Homing Request (H- to OK)
000002	2024/10/15 15:15:57.512	System	OK	000002	Current Position Extension Completion
000003	2024/10/15 15:15:57.512	System	OK	000003	servo System Extension Start
000004	2024/10/15 15:15:57.512	Operation	OK	000004	Follow-up Motion Execution

Detailed Information

Axis No. Information

Axis Type: Dual Drive Axis

Event Occurrence: 000001

Event Code: 000001

000001

Homing request was OK.

- Absolute position error in driver side was detected. (Data code: 000001)
- An absolute position error in the driver side was detected. (Data code: 000001)
- The axis type was changed. (Data code: 000001)
- Slave object: 'Polarity (000001)' b7 position polarity was changed. (Data code: 000001)
- Change of the drive of motion encoder was detected. (Data code: 000001)
- Machine homing was detected. (Data code: 000001)
- Driver unit connection (frictionless connection) of the axis was detected. (Data code: 000001)
- Machine homing has been detected after the system started. (Data code: 000001)

Review the event in detail

[Operation Verification] Troubleshooting

- If "**SLMP Communication Error**" (1C43h) occurs
→ Please set the object data by referring to the axis parameters.
- If the "**Warning: Connection settings error for drive unit other than MELSERVO**" (0D4Ch) occurs
→ Refer to the axis parameters and disable the Absolute position system.
- If "**Control Mode Switching Error**" (1A1Dh) occurs when **starting MC_Home**
→ In the network configuration settings (add driver),
Set Network Synchronous Communication to ****"Synchronous"****.
- When starting MC_Home using the driver's **LIMIT+ / –** signals, it detects upper/lower limit signals and stops
→ Set [AxisName.Cd.HwStrokeLimit_Override] to 'DISABLE' and configure the axis control data in the program, etc.

[Parameter] Homing Parameter Settings

- Various settings related to homing are performed on the following object
 - Use MC_WriteParameter to write the setting values.
 - For detailed information on each object, refer to the Ezi-STEP CC-Link IE TSN ALL manual.

Object Name	Index: Subindex	Setting Details
Home Offset	Obj.607C: 00h	Difference between the zero position of the machine coordinate system and the homing position
Homing method	Obj.6098: 00h	Homing method
Homing speeds	Obj.6099: 01h	Homing speeds
Homing speeds	Obj.6099: 02h	Cliff speed during homing
Homing acceleration	Obj.609A: 00h	Acceleration during homing



Fast Accurate Smooth Motion

Accelerating the construction of Smart Factories with

CC-Link IE TSN

Ezi-SERVO[®] **25th** ANNIVERSARY
2001-2026
Closed Loop Stepping System

Ezi-STEP[®]
Micro Stepping System

Ezi-POS[®]
Servo Control System

Ezi-SPEED[®]
BLDC Motor Speed Control System

Ezi-ROBO[®]
Precise Actuator System

Ezi-IO[®]
Network Input/Output