

# MR-JEC Basic Training



## General-Purpose AC Servo MELSERVO-JE Series Ethernet Compatible Servo Amplifier MR-JE-C 0.1 kW to 3 kW

August 2017

New Product Release  
SV1703-2E-A

CC-Link IE Field Basic  
SLMP  
MODBUS®/TCP

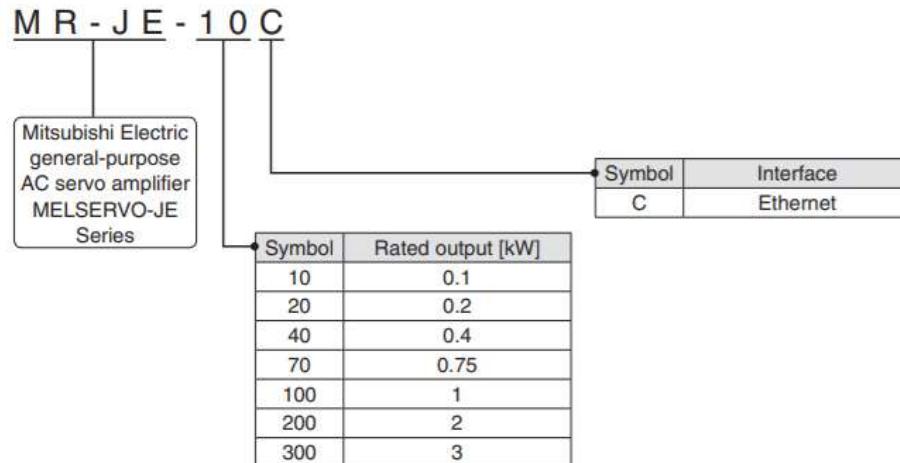


eFactory

CC-Link IE Field Network Basic Compatible  
Servo Amplifier MR-JE-C

# Model Designation

## Model Designation for Servo Amplifier



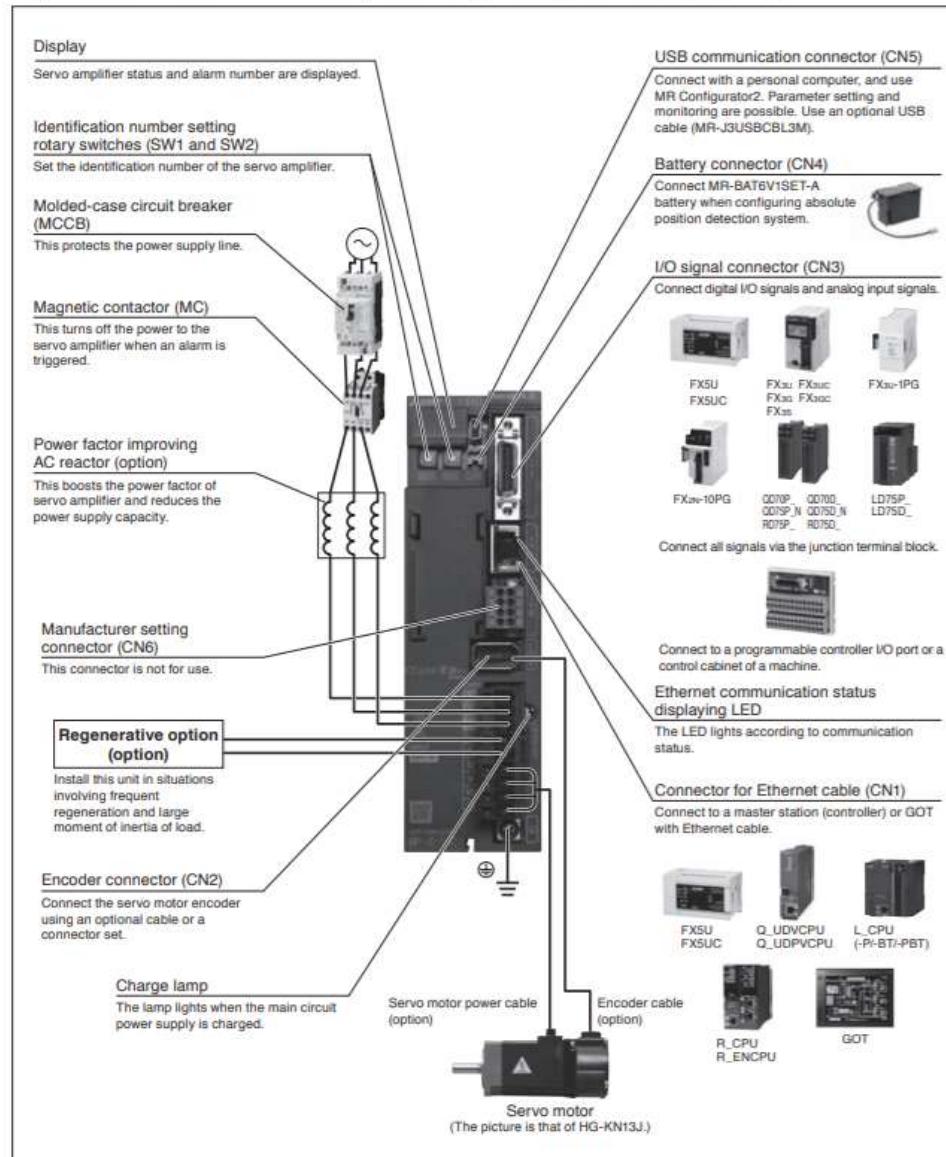
## Combinations of Servo Amplifier and Servo Motor

Servo amplifier	Servo motor	
	HG-KN series	HG-SN series
MR-JE-10C	HG-KN13(B)J	-
MR-JE-20C	HG-KN23(B)J	-
MR-JE-40C	HG-KN43(B)J	-
MR-JE-70C	HG-KN73(B)J	HG-SN52(B)J
MR-JE-100C	-	HG-SN102(B)J
MR-JE-200C	-	HG-SN152(B)J, HG-SN202(B)J
MR-JE-300C	-	HG-SN302(B)J

# MR-JEC Connections and Peripherals Equipment

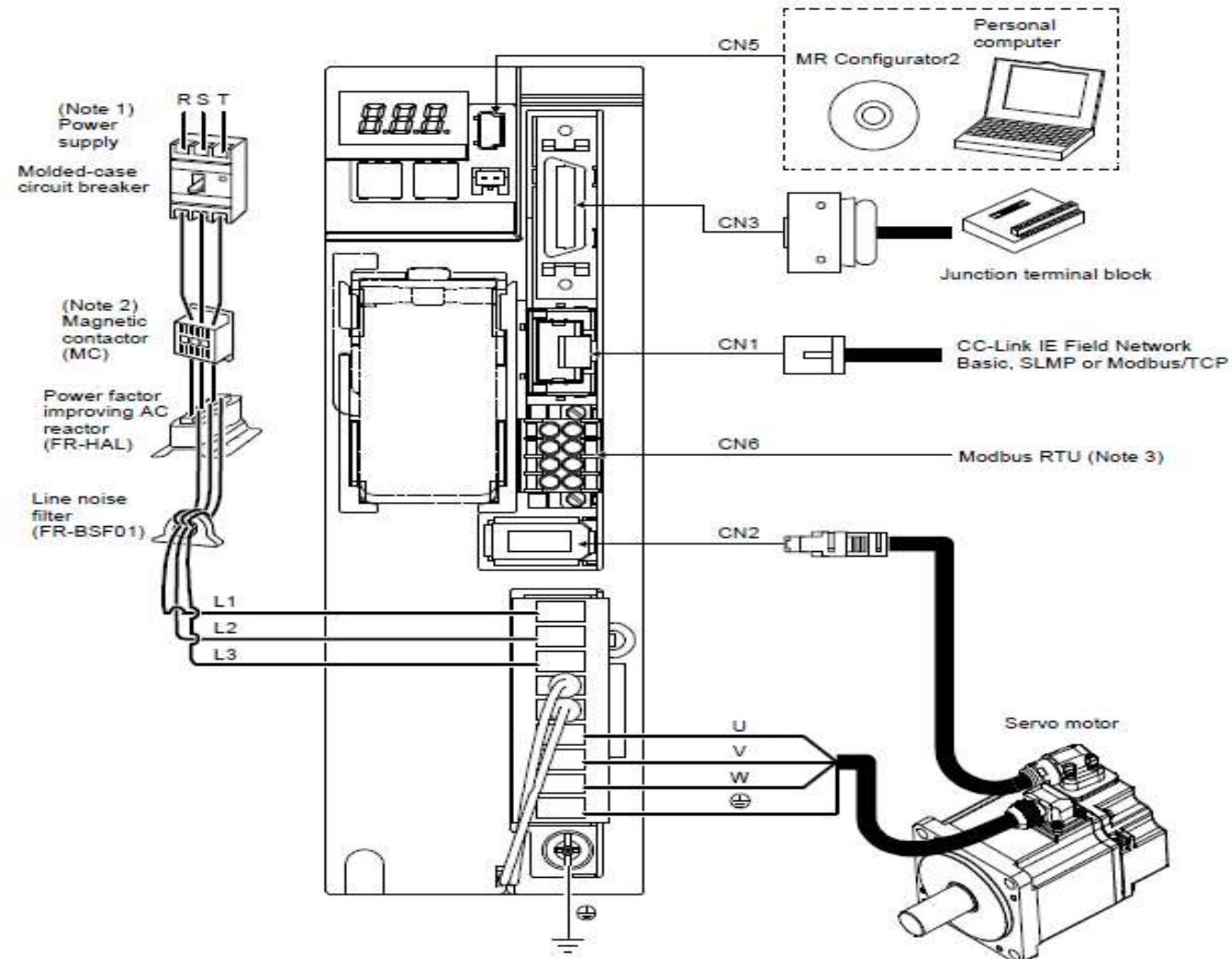
## MR-JE-C Connections with Peripheral Equipment (Note 1)

Peripheral equipment is connected to MR-JE-C as described below. Connectors, cables, options, and other necessary equipment are available so that users can set up the servo amplifier easily and start using it right away.



# MR-JEC Connections and Peripherals Equipment

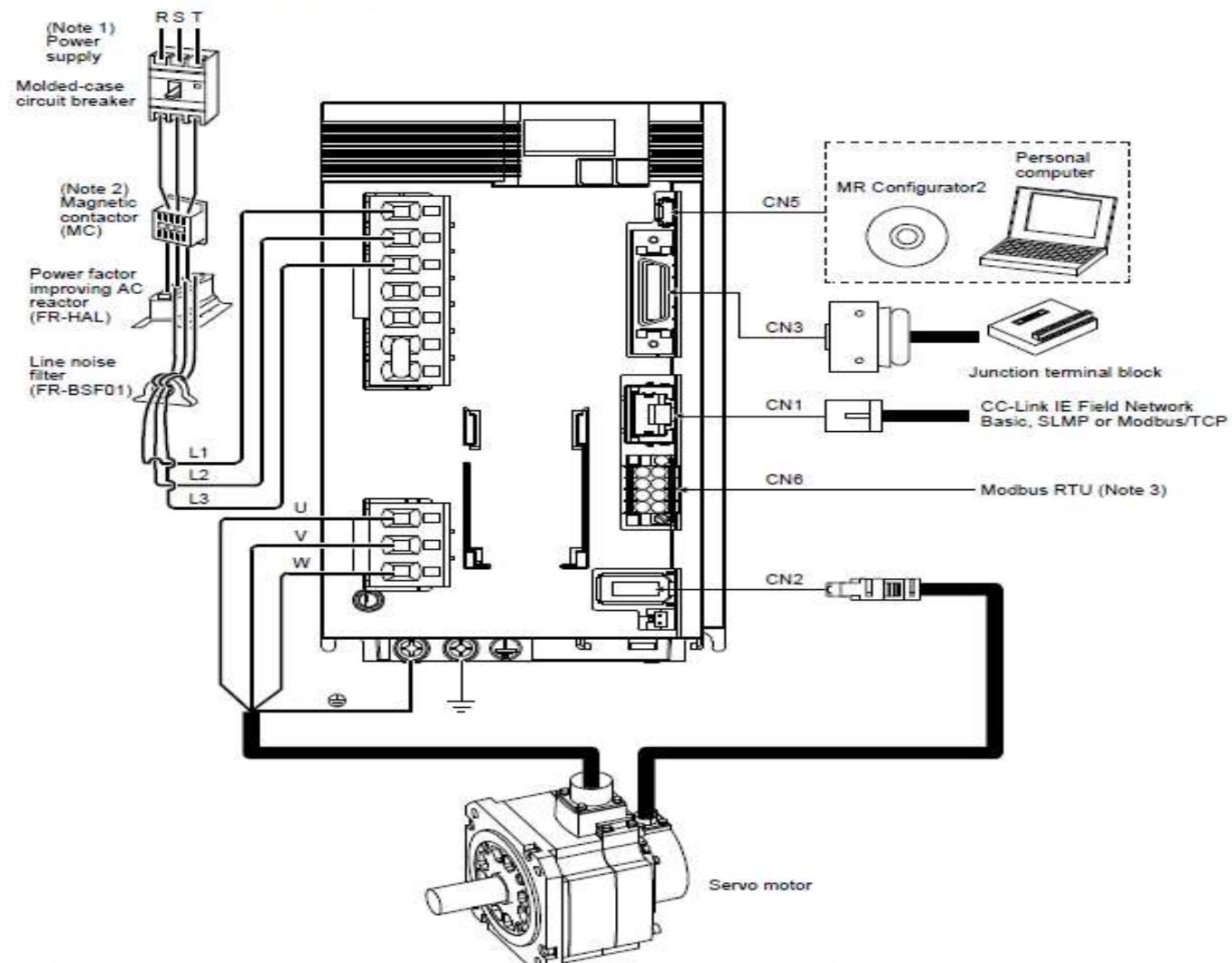
- (1) MR-JE-100C or less  
 The diagram shows MR-JE-10C.



# MR-JEC Connections and Peripherals Equipment

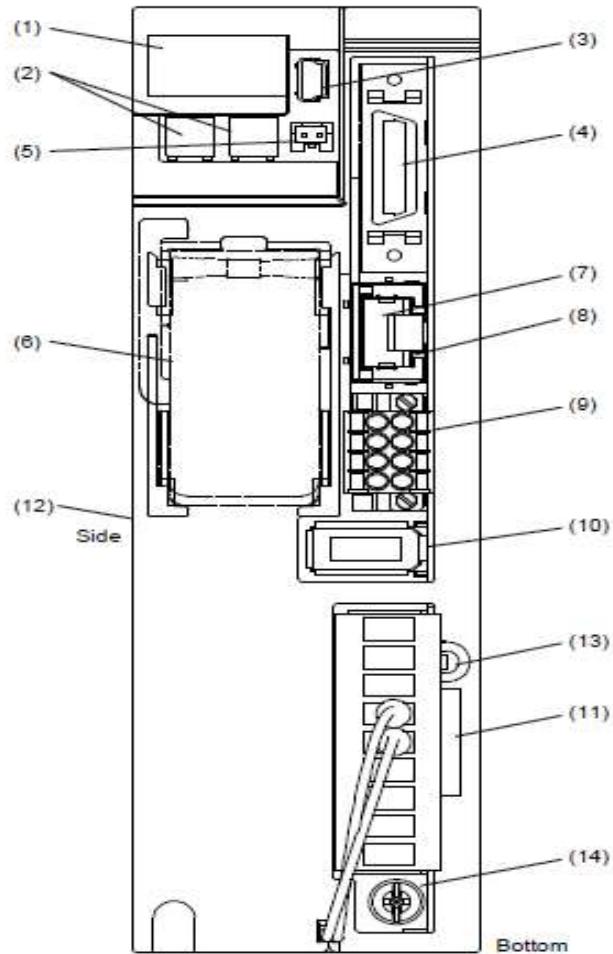
(2) MR-JE-200C or more

The diagram shows MR-JE-200C.



# Architecture-1

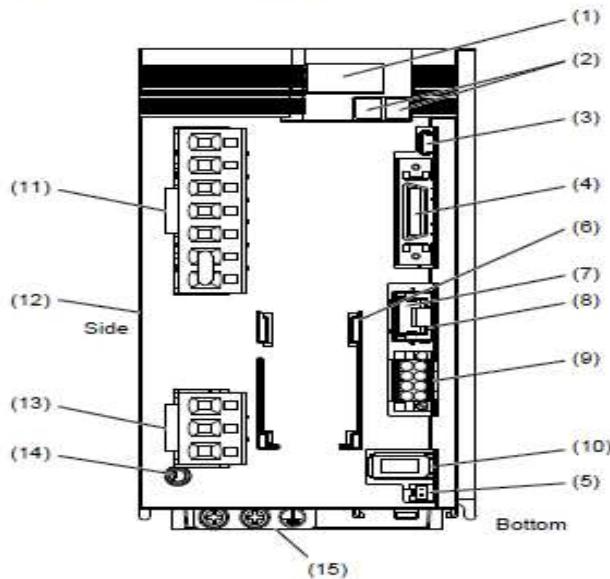
## (1) MR-JE-100C or less



No.	Name/Application	Detailed explanation
(1)	Display The 3-digit, 7-segment LED shows the servo status and the alarm number.	Section 4.5
(2)	Identification number setting rotary switch (SW1/SW2) Used to set the identification number of the servo amplifier.	
(3)	USB communication connector (CN5) Connect with the personal computer.	Section 11.4
(4)	I/O signal connector (CN3) Connect digital I/O signal and analog output signal.	Section 3.2 Section 3.4
(5)	Battery connector (CN4) Connect the battery for absolute position data backup.	Section 11.5
(6)	Battery holder Install the battery for absolute position data backup.	
(7)	Ethernet cable connector (CN1) Connect the Ethernet cable.	Section 11.1.3
(8)	Ethernet communication status displaying LED	Section 4.5.4
(9)	RS-485 communication connector (CN6) Connect with the Modbus RTU communication device.	Section 3.4
(10)	Encoder connector (CN2) Connect the servo motor encoder.	Section 3.4
(11)	Power connector (CNP1) Used to connect the input power supply, built-in regenerative resistor, regenerative option, and servo motor.	Section 3.1 Section 3.3
(12)	Rating plate	Section 1.6
(13)	Charge lamp When the main circuit is charged, this will light up. While this lamp is lit, do not reconnect the wires.	
(14)	Protective earth (PE) terminal	Section 3.1 Section 3.3

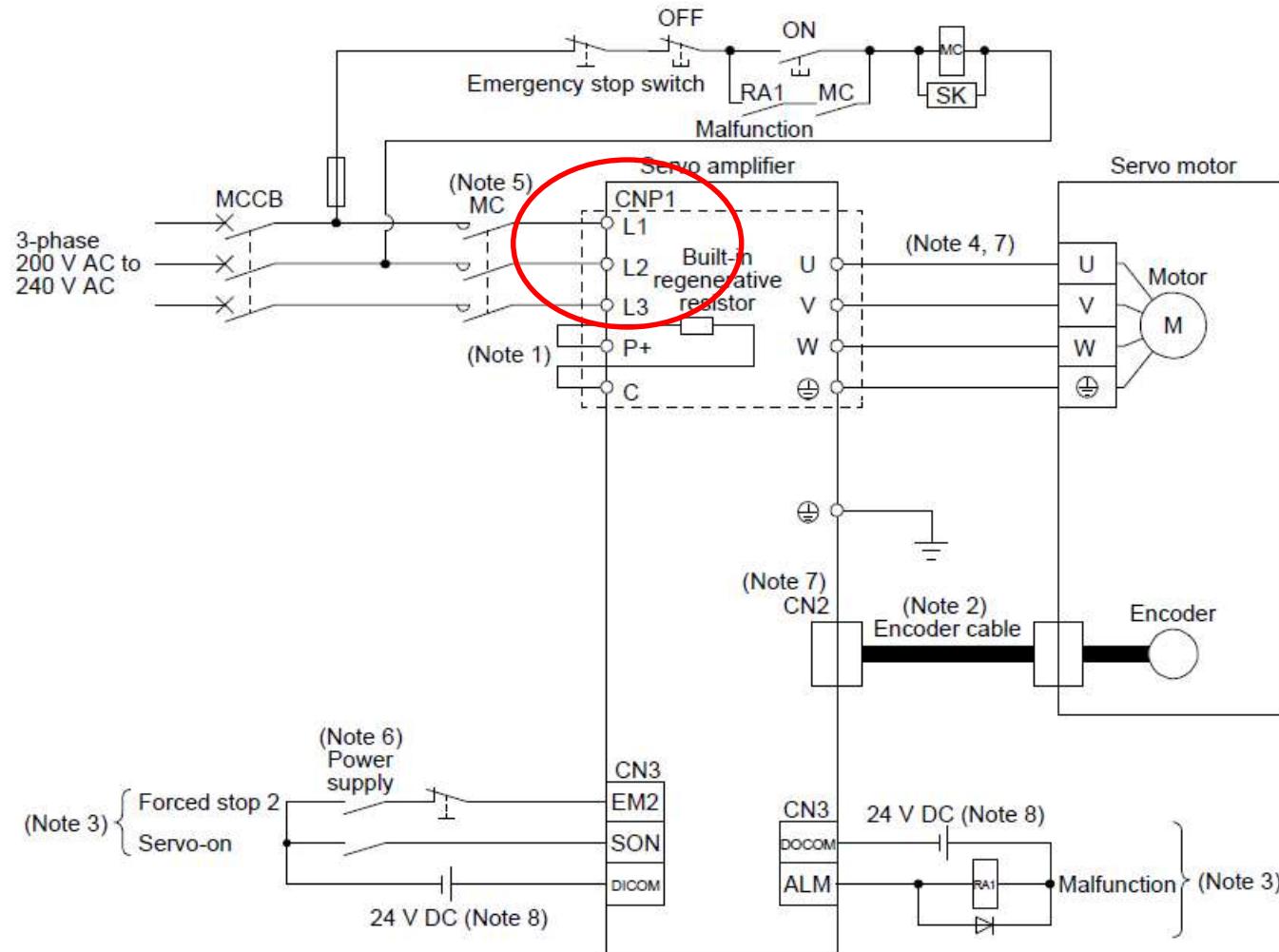
## Architecture-2

### (2) MR-JE-200C or more



No.	Name/Application	Detailed explanation
(1)	Display The 3-digit, 7-segment LED shows the servo status and the alarm number.	
(2)	Identification number setting rotary switch (SW1/SW2) Used to set the identification number of the servo amplifier.	Section 4.5
(3)	USB communication connector (CN5) Connect with the personal computer.	Section 11.4
(4)	I/O signal connector (CN3) Connect digital I/O signal and analog output signal.	Section 3.2 Section 3.4
(5)	Battery connector (CN4) Connect the battery for absolute position data backup.	
(6)	Battery holder Install the battery for absolute position data backup.	Section 11.5
(7)	Ethernet cable connector (CN1) Connect the Ethernet cable.	Section 11.1.3
(8)	Ethernet communication status displaying LED	Section 4.5.4
(9)	RS-485 communication connector (CN6) Connect with the Modbus RTU communication device.	Section 3.4
(10)	Encoder connector (CN2) Connect the servo motor encoder.	Section 3.4
(11)	Power connector (CNP1)	Section 3.1 Section 3.3
(12)	Rating plate	Section 1.6
(13)	Servo motor power connector (CNP2) Used to connect the servo motor.	Section 3.1 Section 3.3
(14)	Charge lamp When the main circuit is charged, this will light up. While this lamp is lit, do not reconnect the wires.	
(15)	Protective earth (PE) terminal	Section 3.1 Section 3.3

(1) Using 3-phase 200 V AC to 240 V AC power supply for MR-JE-10C to MR-JE-100C

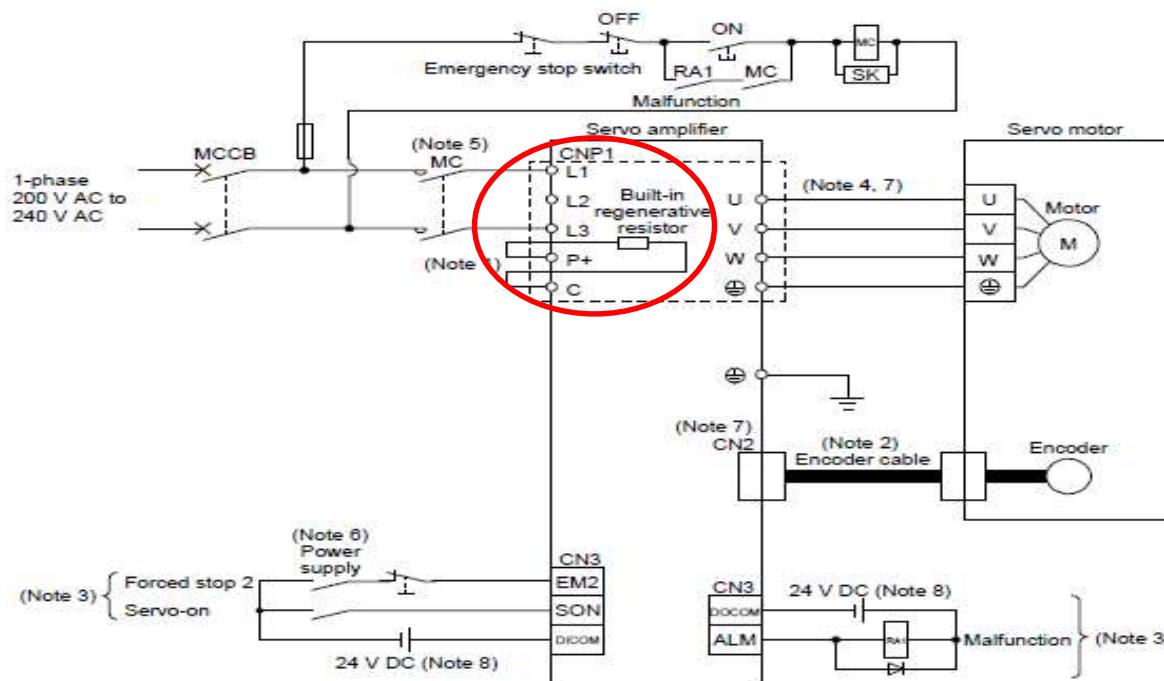


Note 1. MR-JE-40C to MR-JE-100C have a built-in regenerative resistor. (factory-wired) When using the regenerative option, refer to section 11.2.

# Power Supply Connections (2)

(2) Using 1-phase 200 V AC to 240 V AC power supply for MR-JE-10C to MR-JE-100C

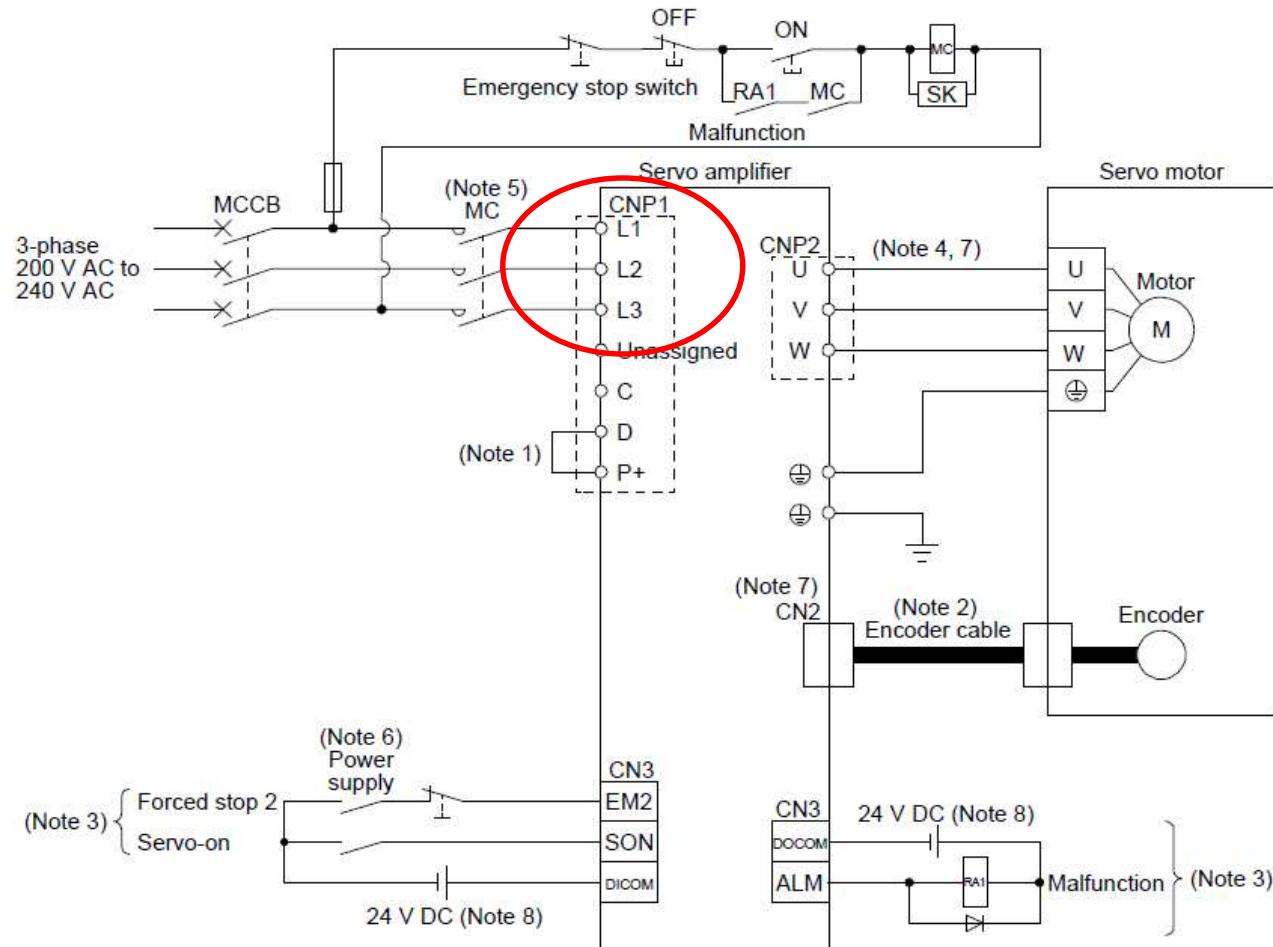
POINT
<ul style="list-style-type: none"> <li>● Connect the 1-phase 200 V AC to 240 V AC power supply to L1 and L3. One of the connecting destinations is different from MR-JE-200C Servo Amplifier's.</li> <li>● You can use the neutral point of a 3-phase 400 V AC class power supply to input a 1-phase 200 V AC class power supply to the servo amplifier. Refer to app. 6 for details.</li> </ul>



Note 1. MR-JE-40C to MR-JE-100C have a built-in regenerative resistor. (factory-wired) When using the regenerative option, refer to section 11.2.  
 2. For the encoder cable, use of the option cable is recommended. For selecting cables, refer to "HG-KN/HG-SN Servo Motor Instruction Manual".  
 3. This diagram shows sink I/O interface. For source I/O interface, refer to section 3.9.3.

# Power Supply Connections (3)

(3) Using 3-phase 200 V AC to 240 V AC power supply for MR-JE-200C or MR-JE-300C

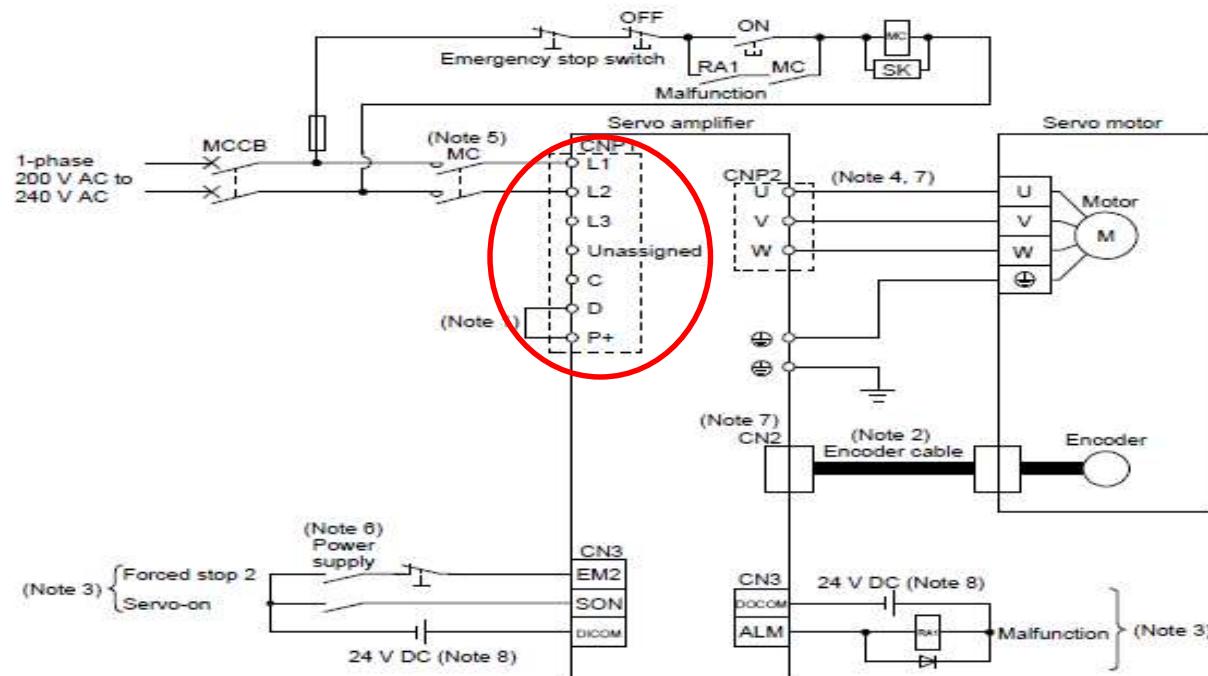


- Note 1. Always connect between P+ and D terminals. (factory-wired) When using the regenerative option, refer to section 11.2.  
 2. For the encoder cable, use of the option cable is recommended. For selecting cables, refer to "HG-KN/HG-SN Servo Motor Instruction Manual".  
 3. This diagram shows sink I/O interface. For source I/O interface, refer to section 3.9.3.  
 4. For connecting servo motor power wires, refer to "HG-KN/HG-SN Servo Motor Instruction Manual".

# Power Supply Connections (4)

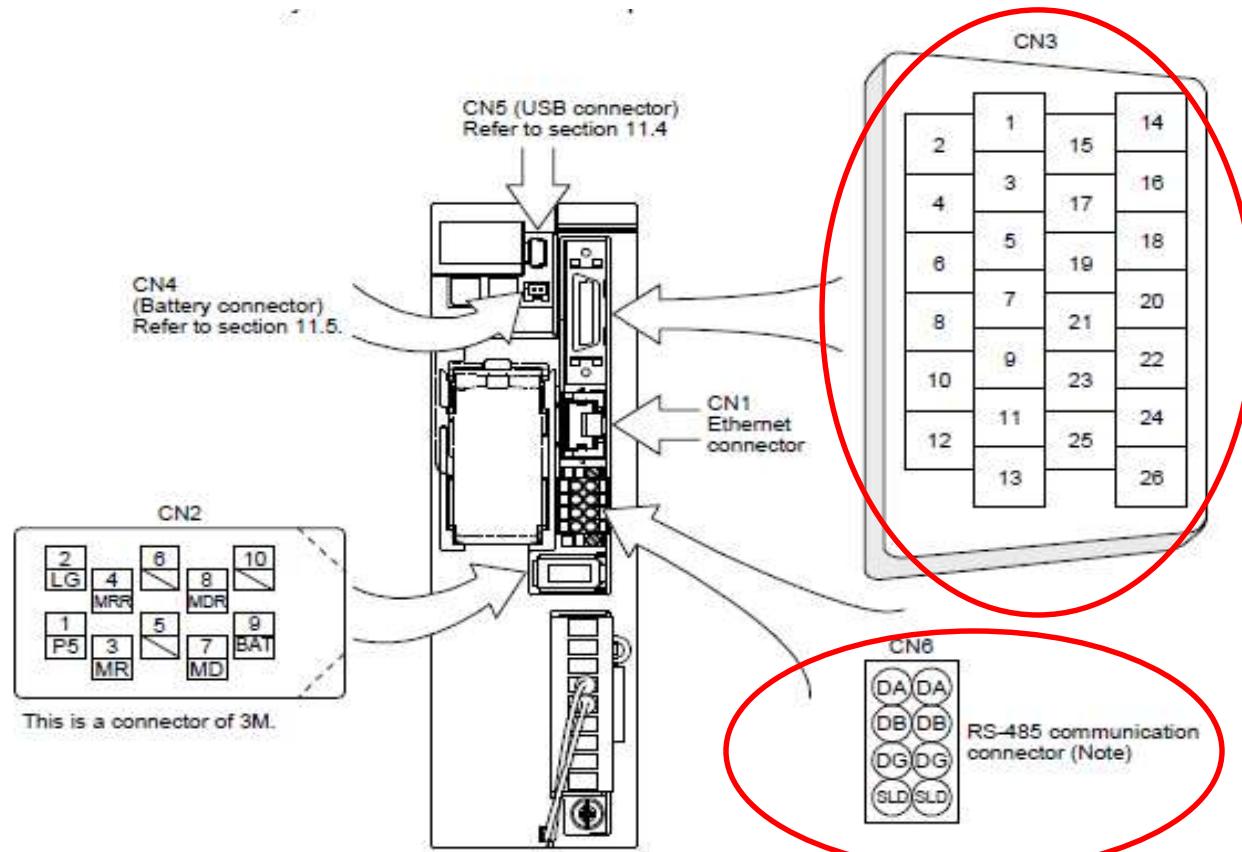
(4) Using 1-phase 200 V AC to 240 V AC power supply for MR-JE-200C

POINT
<ul style="list-style-type: none"> <li>● Connect the 1-phase 200 V AC to 240 V AC power supply to L1 and L2. One of the connecting destinations is different from MR-JE-100C or less Servo Amplifier's.</li> <li>● You can use the neutral point of a 3-phase 400 V AC class power supply to input a 1-phase 200 V AC class power supply to the servo amplifier. Refer to app. 7 for details.</li> </ul>



- Note 1. Always connect between P+ and D terminals. (factory-wired) When using the regenerative option, refer to section 11.2.  
 2. For the encoder cable, use of the option cable is recommended. For cable selection, refer to "HG-KN/HG-SN Servo Motor Instruction Manual".  
 3. This diagram shows sink I/O interface. For source I/O interface, refer to section 3.9.3.

# Connector Pins CN1,CN2,CN3 & CN6

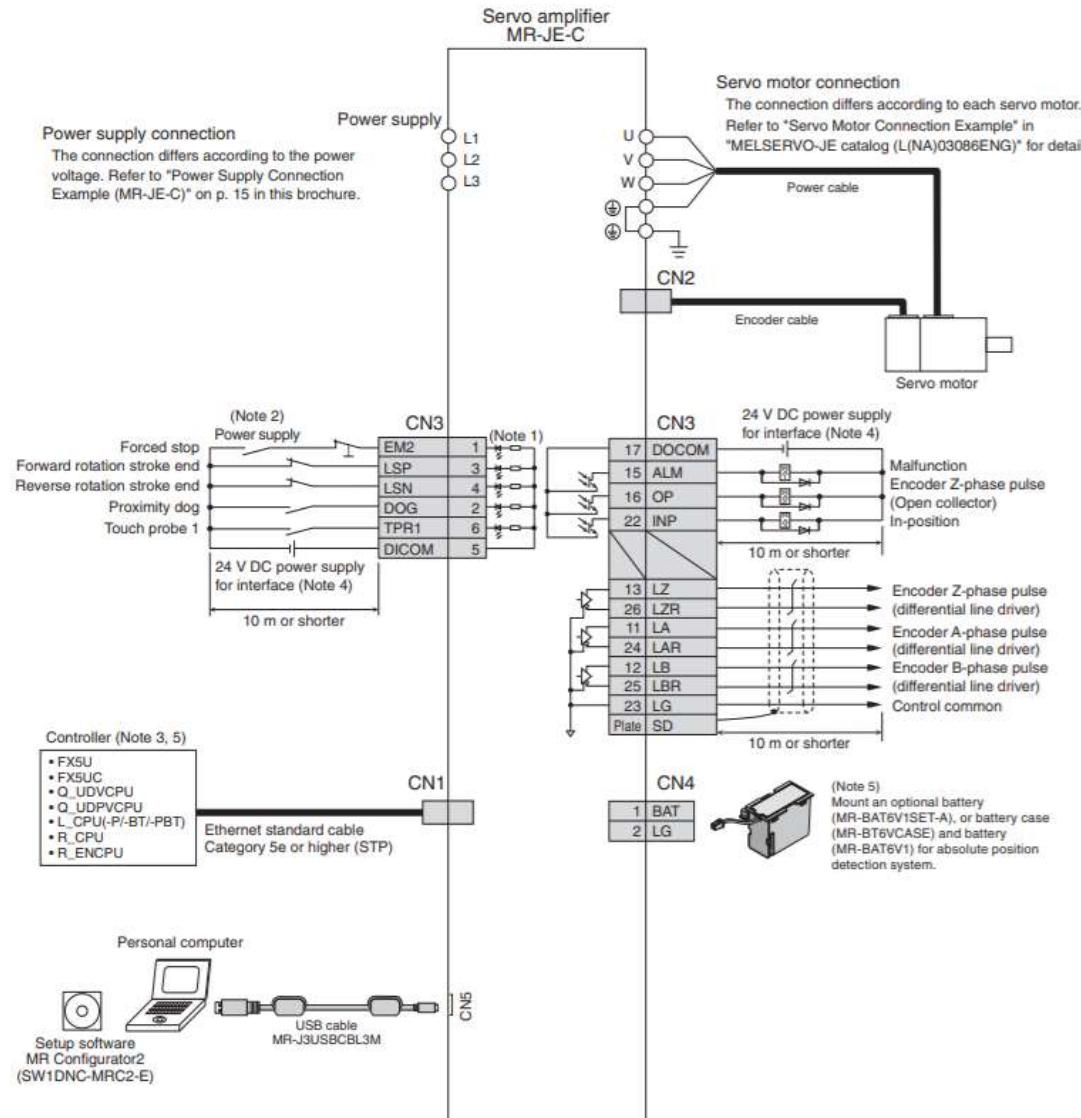


The frames of the CN2 and CN3 connectors are connected to the protective earth terminal in the servo amplifier.

Note. RS-485 communication function can be used only on Modbus RTU.

# CCLink IE Field Basic-Profile Mode Connection Layout

## MR-JE-C Standard Wiring Diagram Example: Profile (Position/Velocity/Torque) Operation



MELSOFT MR Configurator2 New project - [Parameter Setting]

Project View File Parameter Setting(Z) Parameter Safety Positioning-data Monitor Diagnosis Test Mode Adjustment Tools Window Help

Project      Axis1      Read Set To Default Verify Parameter Copy Parameter Block

Open Save As

Device Setting

Input signal

Pin number	Function				
	Position	Speed	Torque	Positioning	Profile
CN3-1	EM2	EM2	EM2	EM2	EM2
CN3-2	SON	SON	SON	SON	DOG
CN3-3	LSP	LSP	Space	ST1	LSP
CN3-4	LSN	LSN	Space	ST2/MD1	LSN
CN3-6	PP	Space	Space	PP	TPR1
CN3-8	RES	ST1	RS2	DIO	Space
CN3-19	NP	Space	Space	NP	Space
CN3-21	CR	ST2	RS1	MDO	Space

Output signal

Pin number	Function				
	Position	Speed	Torque	Positioning	Profile
CN3-14	RD	RD	RD	RD	RD
CN3-15	ALM	ALM	ALM	ALM	ALM
CN3-16	OP	OP	OP	OP	OP
CN3-22	INP	SA	Always OFF	INP	INP

Fixed function (Cannot modify) There is dup.

OK Cancel

This group displays sub-screens, [Setting the Device](#) and [Setting Auto ON Assignment](#) can be set.

Operation Modes			
Basic Mode	Position Control	Speed Control	Torque Control
Positioning Mode	Point Table Method	Indexer Method	
Profile Mode	Position Control	Speed Control	Torque Control

The current control mode can be read.

The setting value of each control mode is as follows.

Control mode	Setting value
Position control mode	-20
Speed control mode	-21
Torque control mode	-22
Point table mode (pt)	-101
Indexer mode (idx)	-103
Profile position mode (pp)	1
Profile velocity mode (pv)	3
Profile torque mode (tq)	4
Homing mode (hm)	6
Jog mode (jg)	-100
Test mode: JOG operation	-1
Test mode: Positioning operation	-2
Test mode: DO forced output	-4
Test mode: Machine analyzer	-6
Test mode: One-step feed (in the point table mode)	-10

The device assignment of the CN3 connector pins changes depending on the control mode. For the pins which are given parameters in the related parameter column, their devices can be changed using those parameters.

Pin No.	I/O (Note 1)	I/O signals in control modes (Note 2)						Related parameter
		P	P/S	S	S/T	T	T/P	
1	I	EM2	EM2	EM2	EM2	EM2	EM2	
2	I	SON	SON	SON	SON	SON	SON	PD05/PD06
3	I	LSP	LSP	LSP	LSP	LSP	LSP	PD08/PD09
4	I	LSN	LSN	LSN	LSN	LSN	LSN	PD11/PD12
5		DICOM	DICOM	DICOM	DICOM	DICOM	DICOM	
6	I	PP	PPI-	(Note 5)	(Note 5)	(Note 5)	-PP	PD23/PD24
7	I	PG	PG/-				-PG	
8	I	RES	RES/ST1	ST1	ST1/RS2	RS2	RS2/RES	PD14/PD15
9	I	TLA	TLA/TLA (Note 3)	TLA (Note 3)	TLA/TC (Note 3, 4)	TC (Note 4)	TC/TLA (Note 4)	PC29
		-	-/VC (Note 6)	VC (Note 6)				
10		LG	LG	LG	LG	LG	LG	
11	O	LA	LA	LA	LA	LA	LA	
12	O	LB	LB	LB	LB	LB	LB	
13	O	LZ	LZ	LZ	LZ	LZ	LZ	
14	O	RD	RD	RD	RD	RD	RD	PD29
15	O	ALM	ALM	ALM	ALM	ALM	ALM	PD30
16	O	OP	OP	OP	OP	OP	OP	PD31/PD38
17		DOCOM	DOCOM	DOCOM	DOCOM	DOCOM	DOCOM	
18		OPC	OPC/-				-/OPC	
19	I	NP	NP/-	(Note 5)	(Note 5)	(Note 5)	-/NP	PD26/PD27
20	I	NG	NG/-				-/NG	
21	I	CR	CR/ST2	ST2	ST2/RS1	RS1	RS1/CR	PD17/PD18
22	O	INP	INP/SA	SA	SA/-		-/INP	PD32
23		LG	LG	LG	LG	LG	LG	
24	O	LAR	LAR	LAR	LAR	LAR	LAR	
25	O	LBR	LBR	LBR	LBR	LBR	LBR	
26	O	LZR	LZR	LZR	LZR	LZR	LZR	

## 5.2 Control mode

This section describes the control modes of the MR-JE-\_C servo amplifier.

### 5.2.1 Function description

A control mode of the MR-JE-\_C servo amplifier can be selected with Modes of operation (6060h).

The following is the chart of control modes, switchable from the current mode.

		Control mode after switching								
		Position	Speed	Torque	Profile			Positioning		
					pp	pv	tq	pt	idx	jg
Control mode before switching	Position (Note 1)	○	○	×	×	×	×	×	×	×
	Speed (Note 1)	○	○	×	×	×	×	×	×	×
	Torque (Note 1)	○	○	×	×	×	×	×	×	×
	Profile	pp	×	×	×	○	○	×	×	○
		pv	×	×	×	○	○	×	×	○
		tq	×	×	×	○	○	×	×	○
	Positioning (Note 2)	pt	×	×	×	×	×	×	○	○
		idx	×	×	×	×	×	×	○	○
		jg	×	×	×	×	×	○	○	○
	Home position return	×	×	×	○	○	○	○	○	○

○: Switchable ×: Non-switchable

- Note 1. When Modbus RTU communication is not used, switch any one of the control modes (positioning/speed/torque) with [Pr. PA01] and LOP (control switching). When Modbus RTU communication is used, setting [Pr. PC71] "Control switching method selection" to "2 \_ \_ " (object (6060h)) enables the control modes (positioning/speed/torque) to be switched with the objects/registers.
2. When [Pr. PN08] "Command interface selection" is set for the general-purpose interface ( \_ \_ 0), change the control mode with the input devices (MD0, MD1).



**Thank You**

# MR-JEC Programming

Profile mode  
Example of Profile Position

Servo Amplifier MR-JE-C



Features of MR - J E - C

# Read Write Assembly-CiA402 Profile Mode

## 2. CC-Link IE Field Network Basic/SLMP

Master station → Servo amplifier (RYn)			
(Note) Device No.	Device	Symbol	Remark
RYn0 to RY (n + 3) E	Not used	✗	✗
RY (n + 3) F	Cyclic communication ready command	CSR	✗

Servo amplifier → Master station (RXn)			
(Note) Device No.	Device	Symbol	Remark
RXn0 to RX (n + 3) E	Not used	✗	✗
RX (n + 3) F	Cyclic communication ready	SSR	✗

Note. "n" depends on the station No. setting.

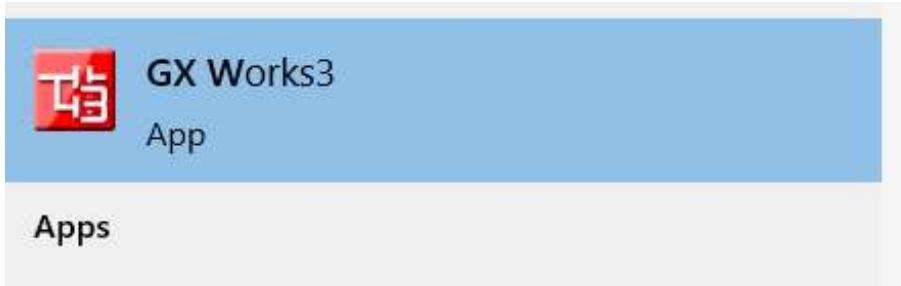
Table 2.2 RWwn/RWm mapping (supporting the position/speed/torque control mode, profile mode, and home position return mode)

Master station → Servo amplifier (RWwn)			
(Note) Device No.	Index	Device	
RWwn00	6060	Control mode	Modes of operation
RWwn01	6040	Control command	Controlword
RWwn02	2D01	Control input 1	Control DI 1
RWwn03	2D02	Control input 2	Control DI 2
RWwn04	2D03	Control input 3	Control DI 3
RWwn05	607A	Position command (pp)	Target position
RWwn06	60FF	Speed command (pv)	Target velocity
RWwn07	6008	Speed limit value (tq)	Velocity limit value
RWwn08	6071	Torque command (tq)	Target torque
RWwn0C	6081	Command speed (pp)	Profile velocity
RWwn0D	6083	Acceleration time constant (pp, pv)	Profile acceleration
RWwn0F	6084	Deceleration time constant (pp, pv)	Profile deceleration
RWwn12	6087	Amount of torque command change (per second) (tq)	Torque slope
RWwn13	60E0	Torque limit value (forward)	Positive torque limit value
RWwn14	60E1	Torque limit value (reverse)	Negative torque limit value
RWwn16	60B8	Touch probe function setting	Touch probe function
RWwn18	60F2	Positioning operation setting	Positioning option code
RWwn19	2D05	Control input 5	Control DI 5
RWwn1A	6000		
RWwn1B	6001		
RWwn1C	6002		
RWwn1D	6003		
RWwn1E	6004		
RWwn1F	6005		

Servo amplifier → Master station (RWm)			
(Note) Device No.	Index	Device	
RWm00	6061	Control mode display	Modes of operation display
RWm01	6001		
RWm02	6041	Control status	Statusword
RWm03	6064	Current position (command unit)	Position actual value
RWm04	6065		
RWm06	606C	Current speed	Velocity actual value
RWm07	60F4	Droop pulses	Following error actual value
RWm08	6008		
RWm09	6077	Current torque	Torque actual value
RWm0A	2D11	Control output 1	Status DO 1
RWm0B	2D12	Control output 2	Status DO 2
RWm0C	2D13	Control output 3	Status DO 3
RWm0D	2A42	Alarm No.	Current alarm 2
RWm0E	60B9	Touch probe function status	Touch probe status
RWm0F	60BA	Touch probe 1 Position latched at the rising edge	Touch probe pos1 pos value
RWm10	60BB	Touch probe 1 Position latched at the falling edge	Touch probe pos1 neg value
RWm11	2C12	Input device status 1	External Input signal display1
RWm15	6000		
RWm16	6001		
RWm17	6002		
RWm18	6003		
RWm19	6004		
RWm1A	6005		
RWm1B	6006		
RWm1C	6007		
RWm1D	6008		
RWm1E	6009		
RWm1F	600A		

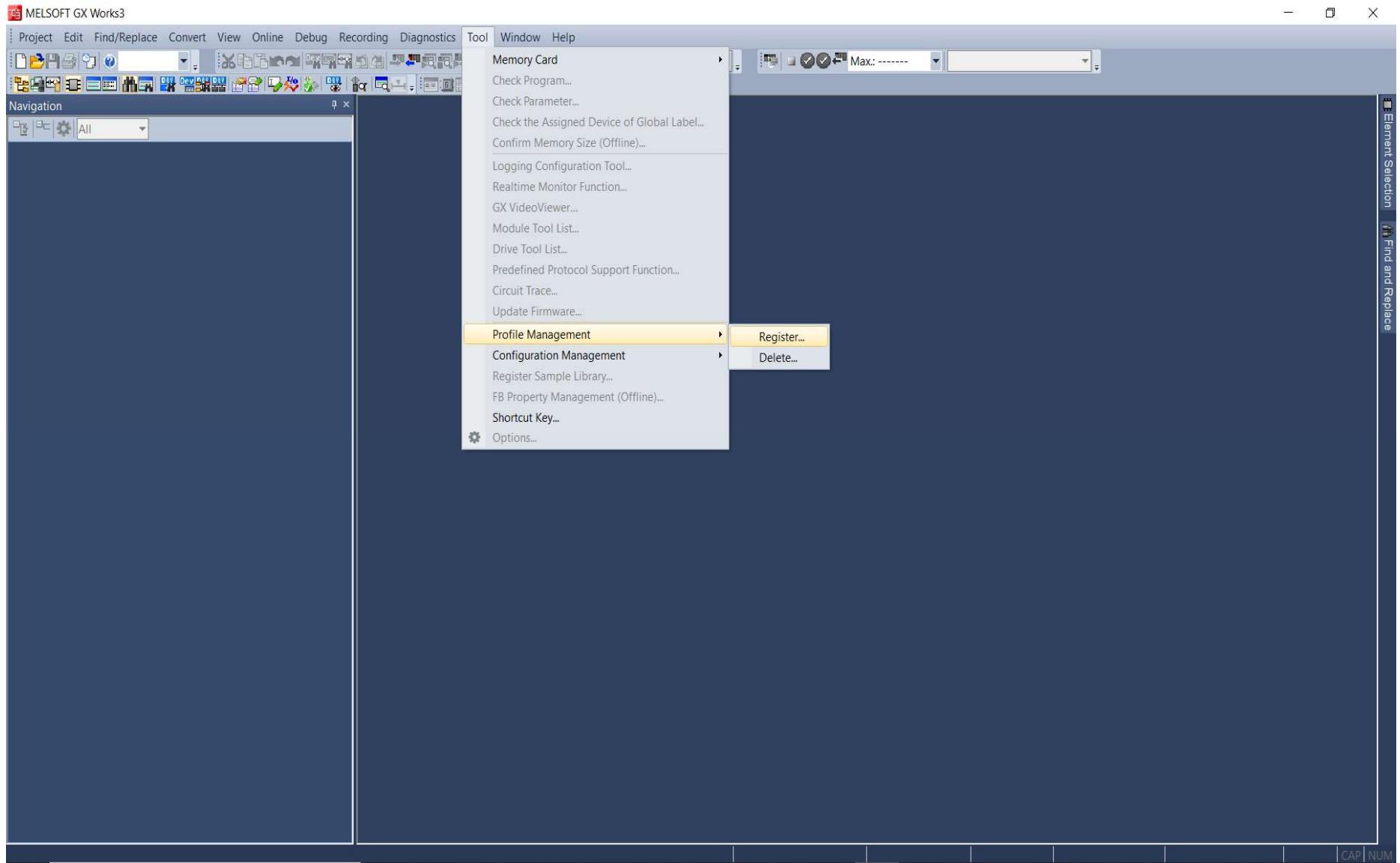
# Creating GX Works3 Program

->Open GX Works3 Software in your PC

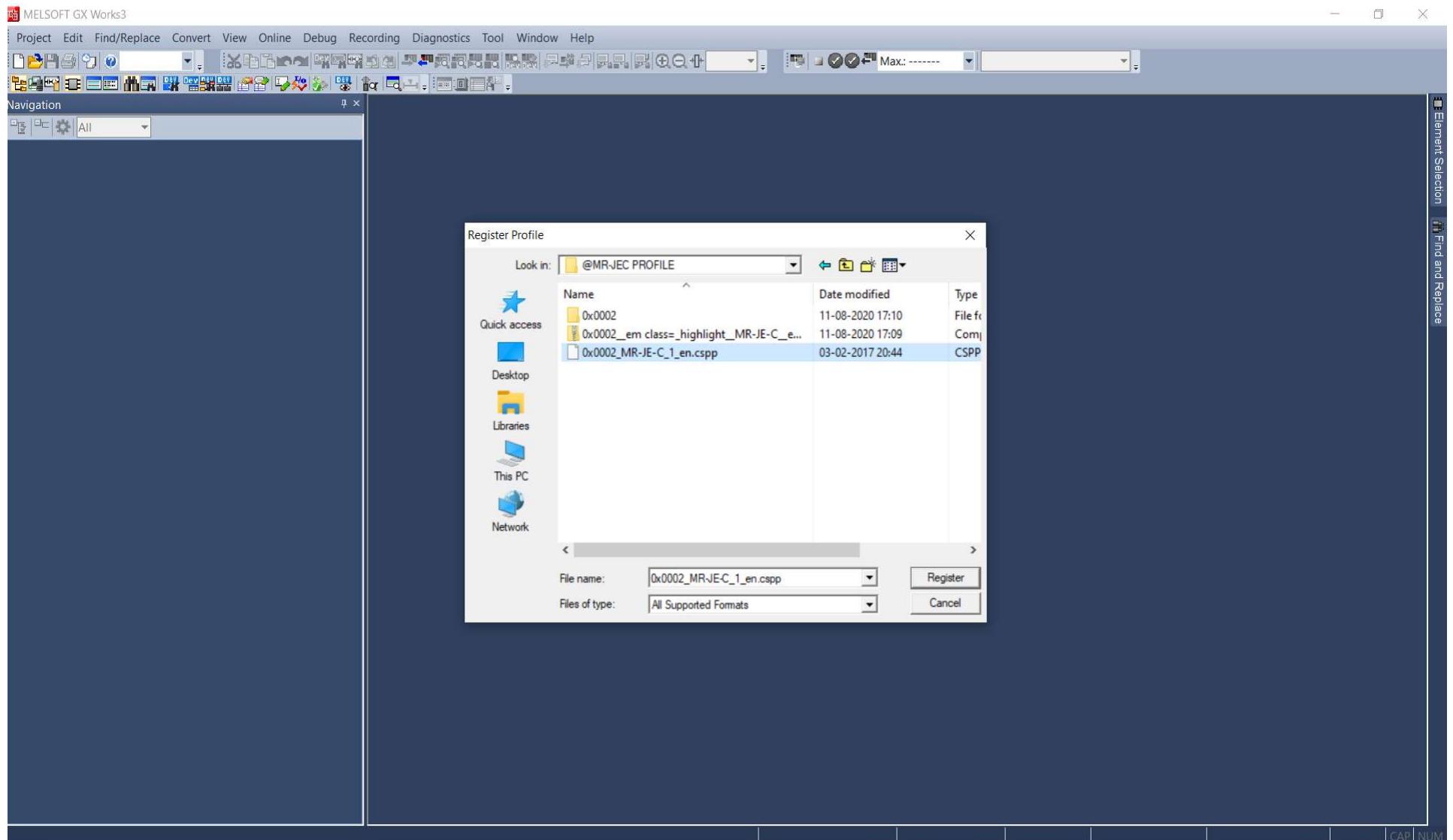


GX Works3

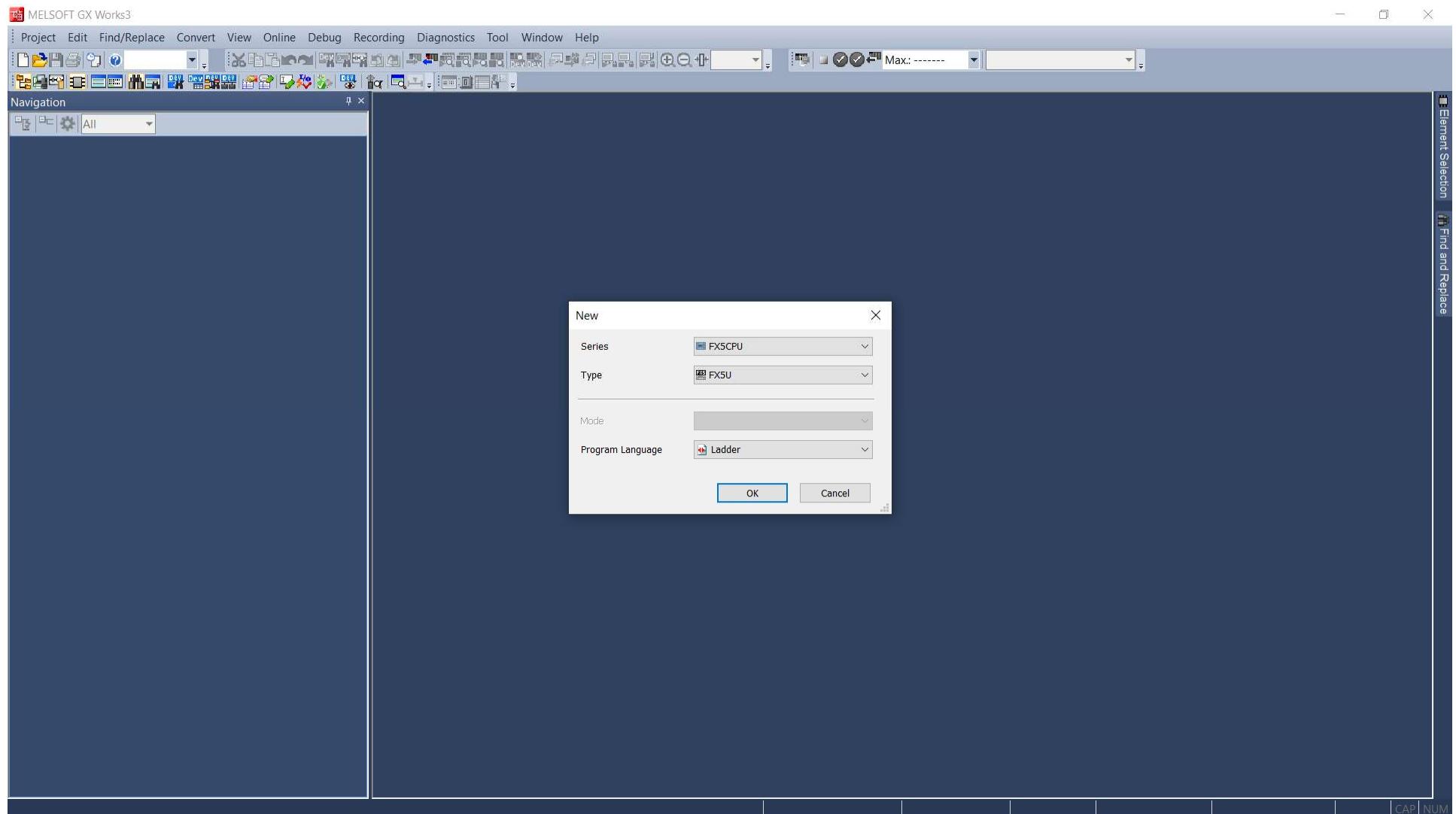
Steps – Open GXWorks3 ->Tool ->Profile Management-> Register->Add .cspp File



-> Add .cspp File of MR-JEC & Register



-> Now We will Create FX5U Program & will do CCLink IE Field Basic Settings



## ->Open Ethernet Port Settings

MELSOFT GX Works3 (Untitled Project) - [Module Parameter Ethernet Port]

Project Edit Find/Replace Convert View Online Debug Recording Diagnostics Tool Window Help

Navigation

Setting Item List

Setting Item

Item	Setting
<b>Own Node Settings</b>	
IP Address	
IP Address	
Subnet Mask	
Default Gateway	
Communication Data Code	Binary
<b>CC-Link IEF Basic Settings</b>	
To Use or Not to Use CC-Link IEF Basic Setting	Not to Use
Network Configuration Settings	<Detailed Setting>
Refresh Settings	<Detailed Setting>
<b>MODBUS/TCP Settings</b>	
To Use or Not to Use MODBUS/TCP Setting	Not Used
Device Assignment	<Detailed Setting>
<b>External Device Configuration</b>	
External Device Configuration	<Detailed Setting>

Explanation

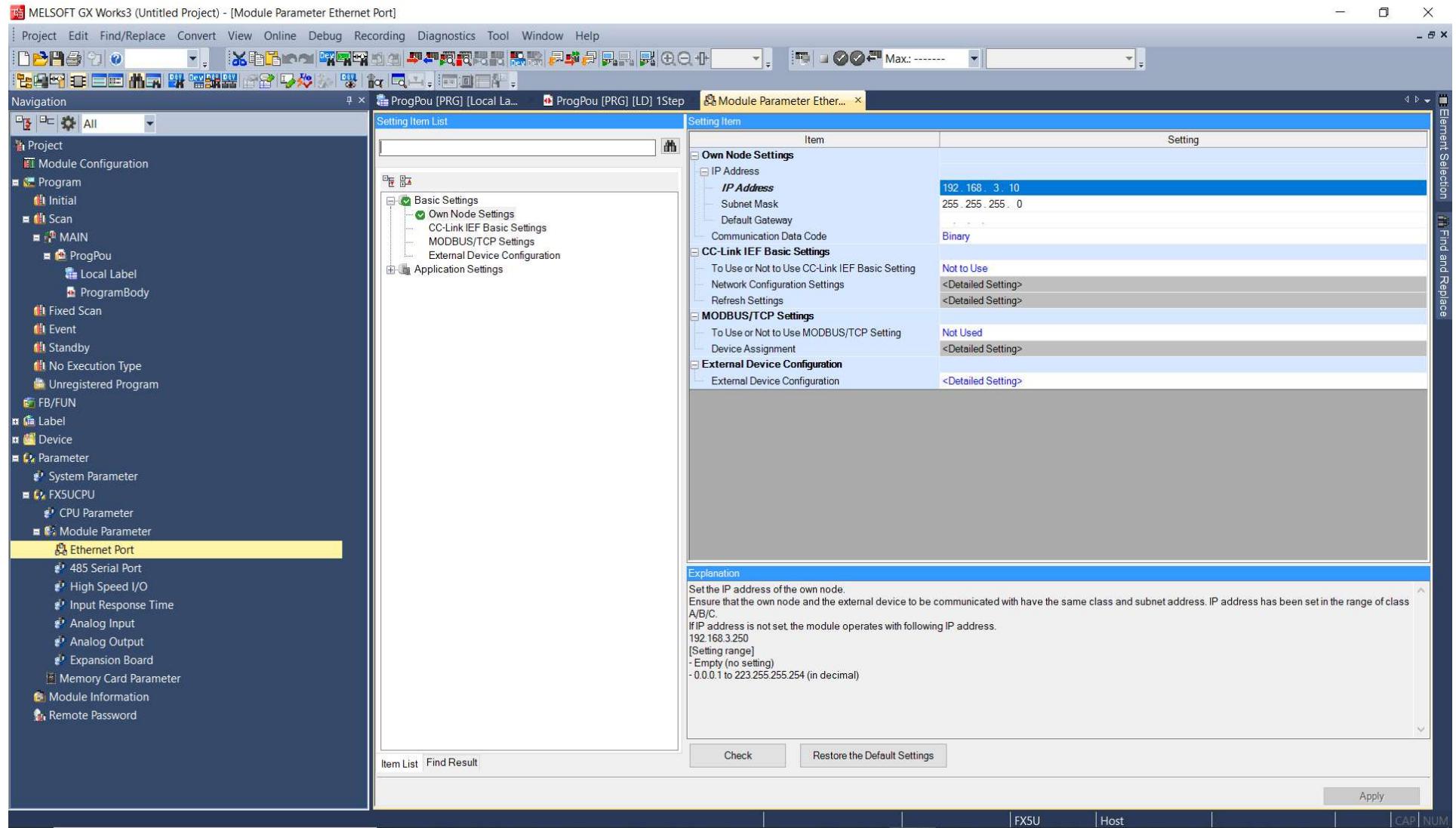
Set the information of the own node such as IP address.

Item List Find Result Check Restore the Default Settings Apply

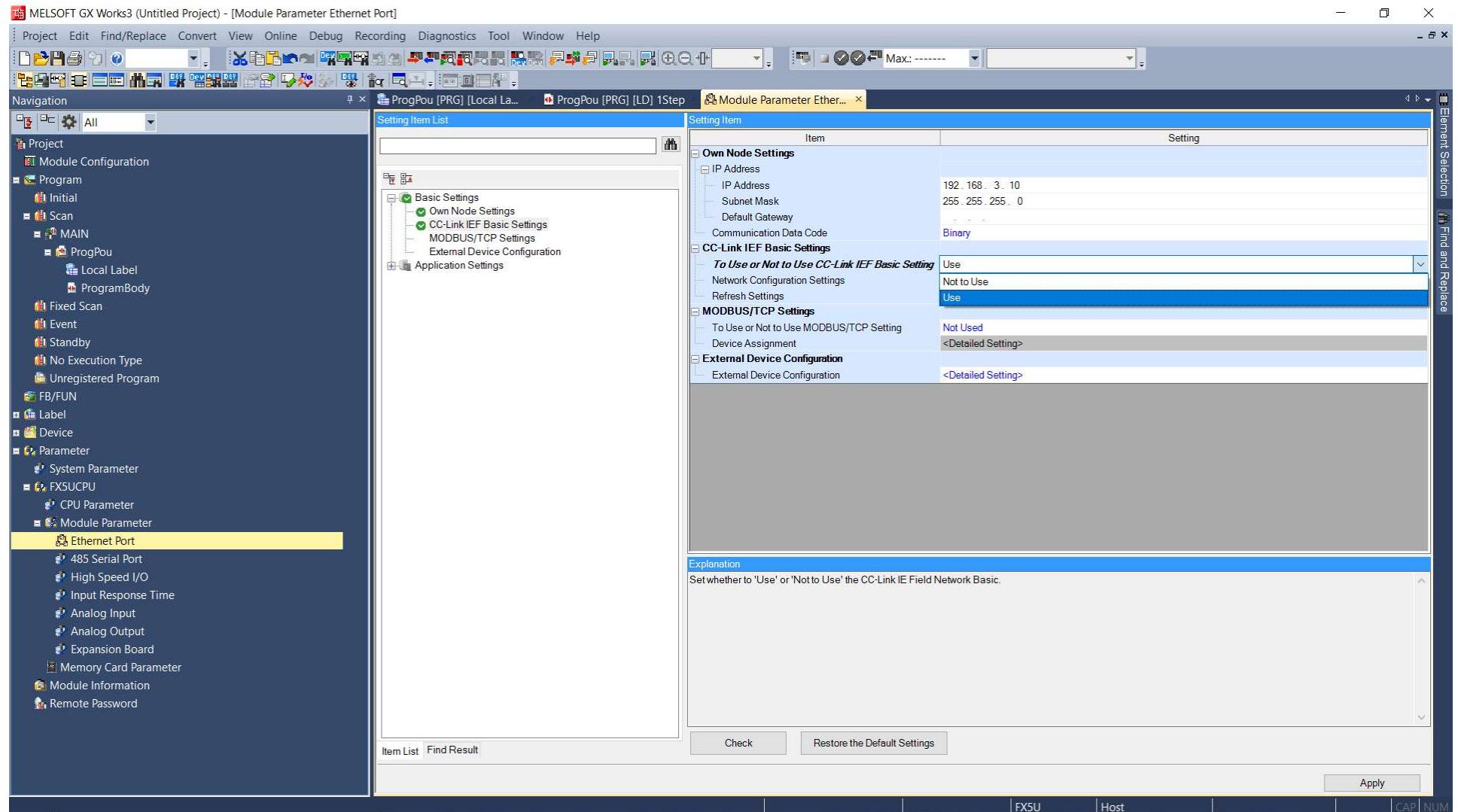
FX5U Host CAP NUM

The screenshot shows the MELSOFT GX Works3 software interface. The left sidebar displays a tree view of project components, with 'Ethernet Port' selected and highlighted in yellow. The main workspace shows the 'Module Parameter Ethernet Port' settings. The 'Setting Item List' pane on the left contains categories like 'Own Node Settings', 'CC-Link IEF Basic Settings', 'MODBUS/TCP Settings', and 'External Device Configuration'. The 'Setting Item' pane on the right lists specific parameters with their current values. The bottom of the screen features a toolbar with buttons for 'Check', 'Restore the Default Settings', and 'Apply'.

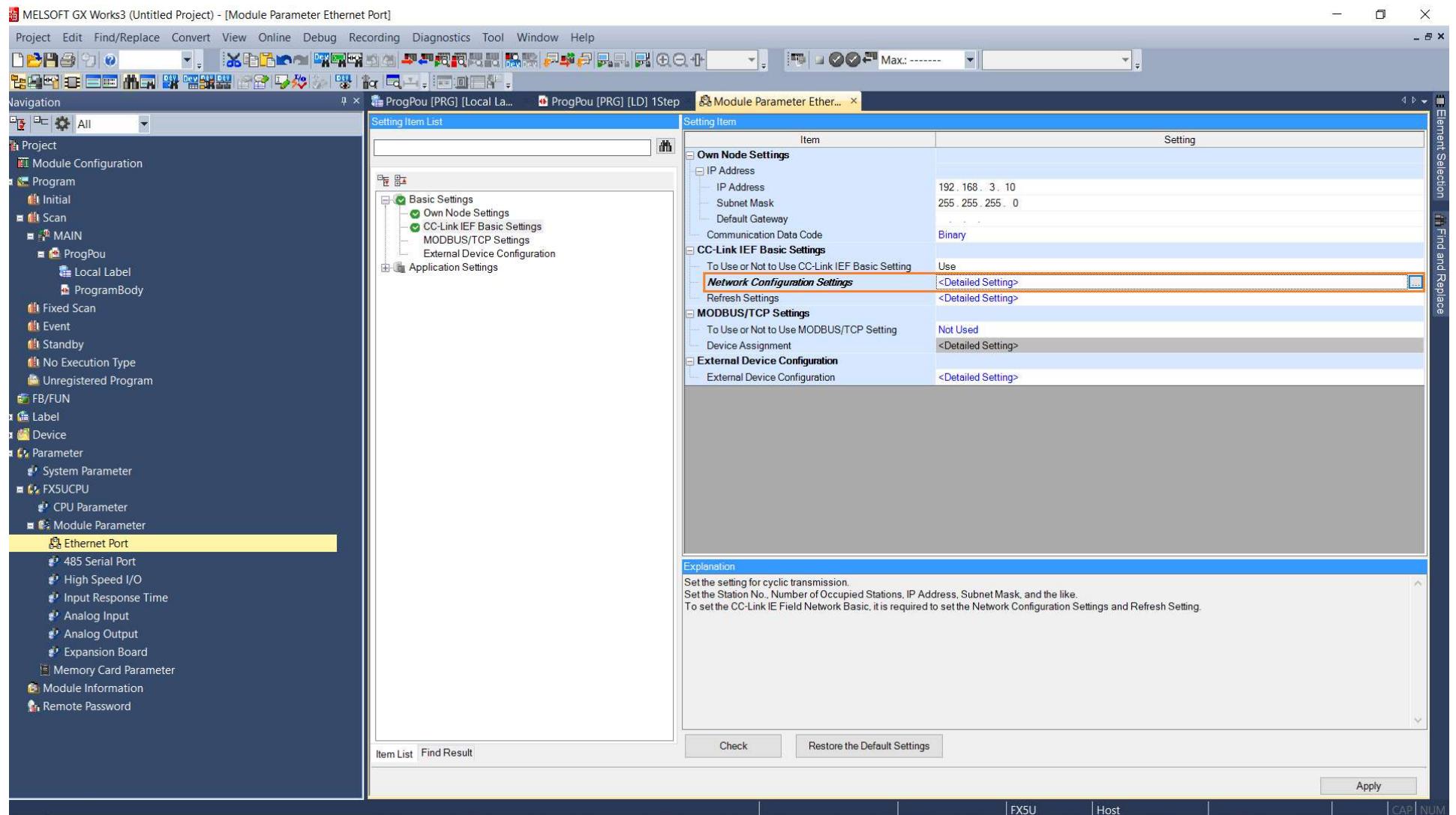
## ->Assign PLC IP Address



->Open CC Link IE Field Basic Setting and Select “Use”



## ->Open Network Configuration Settings



-> Add No. of MR-JEC Axes required and Set the IP Address for each Axis

CC-Link IEF Basic Configuration

CC-Link IEF Basic Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting

No.	Model Name	STA#	Station Type	RX/RY Setting			RWw/RWr Setting			Group No.	RSVD STA	IP Address	Subnet Mask	MAC Address	Comment	
				Points	Start	End	Points	Start	End							
0	Host Station	0	Master Station								192.168.3.10	255.255.255.0				
1	MR-JE-C	1	Slave Station	64 (1 Occupied Station)	0000	003F	32	0000	001F	1	No Setting	192.168.3.11	255.255.255.0			
2	MR-JE-C	2	Slave Station	64 (1 Occupied Station)	0040	007F	32	0020	003F	1	No Setting	192.168.3.12	255.255.255.0			

Module List

- CC-Link IEF Basic Selection
- CC-Link IEF Basic Module
  - Input Module
  - Output Module
  - I/O Combined Module
  - Servo Amplifier(MELSERVO-JE Series)
    - MR-JE-C 0.1 to 1kW
    - Servo Amplifier(MELSERVO-JE Series)
  - GOT2000Series
  - Inverter(FR-A800 Series)
  - Inverter(FR-F800 Series)
- CCIEF Basic Module (Mitsubishi)
- Modular IO
- Slave station

[Outline] Servo Amplifier(MELSERVO-JE Series)

[Specification] Applied motor capacity: 0.1 to 1kW

Output rated voltage: 3~32VDC

Diagram showing the network topology:

```

graph TD
    Host[Host Station] --- STA1[STA#1]
    Host --- STA2[STA#2]
    STA1 --- MR1[MR-JE-C]
    STA2 --- MR2[MR-JE-C]
    
```

Host Station  
STA#0  
All Connected Count:2  
Total STA#2  
MR-JE-C

Output

## -> Observe the Read/Write Assembly Size

CC-Link IEF Basic Configuration

CC-Link IEF Basic Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting

No.	Model Name	STA#	Station Type	RX/RY Setting			RWw/RWr Setting			Group No.	RSVD STA	IP Address	Subnet Mask	MAC Address	Comment
				Points	Start	End	Points	Start	End						
0	Host Station	0	Master Station	64 (1 Occupied Station)	0000	003F	32	0000	001F 1			192.168.3.10	255.255.255.0		
1	MR-JE-C	1	Slave Station	64 (1 Occupied Station)	0040	007F	32	0020	003F 1	No Setting		192.168.3.11	255.255.255.0		
2	MR-JE-C	2	Slave Station	64 (1 Occupied Station)	0040	007F	32	0020	003F 1	No Setting		192.168.3.12	255.255.255.0		

Module List

- CC-Link IEF Basic Selection
- CC-Link IEF Basic Module
  - Input Module
  - Output Module
  - I/O Combined Module
  - Servo Amplifier(MELSER)
  - Servo Amplifier(MELSER)
  - GOT2000Series
  - Inverter(FR-A800 Series)
  - Inverter(FR-F800 Series)
- CCIEF Basic Module (Mitsubishi)
- Modular IO
- Slave station

Diagram:

```

graph TD
    Host[Host Station] --- STA1[STA#1]
    Host --- STA2[STA#2]
    STA1 --- AllConnected[All Connected Count:2]
    STA1 --- TotalSTA[Total STA#:2]
    STA1 --- E_C[E-C]
    STA1 --- MR_JE_C[MR-JE-C]
    
```

Output

## ->Close with Reflecting the Setting, Press Yes

CC-Link IEF Basic Configuration

CC-Link IEF Basic Configuration Edit View Close with Discarding the Setting **Close with Reflecting the Setting**

No.	Model Name	STA#	Station Type	RX/RY Setting			RWw/RWr Setting			Group No.	RSVD STA	IP Address	Subnet Mask	MAC Address	Comment
				Points	Start	End	Points	Start	End						
0	Host Station	0	Master Station	64 (1 Occupied Station)	0000	003F	32	0000	001F	1	No Setting	192.168.3.10	255.255.255.0		
1	MR-JE-C	1	Slave Station	64 (1 Occupied Station)	0040	007F	32	0020	003F	1	No Setting	192.168.3.11	255.255.255.0		
2	MR-JE-C	2	Slave Station	64 (1 Occupied Station)	0040	007F	32	0020	003F	1	No Setting	192.168.3.12	255.255.255.0		

**MELSOFT GX Works3**

Link Scan Setting which is set to group No. that is not used in CC-Link IEF Basic configuration will be initialized.  
Do you want to execute?

Yes      No

STA#1      STA#2

Host Station

STA#0  
All Connected  
Count:2  
Total STA#2

MR-JE-C      MR-JE-C

Output

Module List

- CC-Link IEF Basic Selection
- CC-Link IEF Basic Module (Input Module)
- CC-Link IEF Basic Module (Output Module)
- I/O Combined Module
- Servo Amplifier(MELSERVO-JE Series)
- GOT2000Series
- Inverter(FR-A800 Series)
- Inverter(FR-F800 Series)
- CCIEF Basic Module (Mitsubishi)
- Modular IO
- Slave station

[Outline] Servo Amplifier(MELSERVO-JE Series)  
[Specification] Applied motor capacity: 0.1 to 1kW  
Output rated voltage: 3...

## ->Open Refresh Settings under CC Link IE Field Basic Setting Tab

Screenshot of the MELSOFT GX Works3 software interface showing the configuration of an Ethernet Port module.

The left sidebar shows the project structure, with the "Ethernet Port" module selected.

The main window displays the "Setting Item List" and "Setting Item" tables.

**Setting Item List:**

- Basic Settings
  - Own Node Settings
  - CC-Link IEF Basic Settings
  - MODBUS/TCP Settings
  - External Device Configuration
- Application Settings

**Setting Item:**

Item	Setting
Own Node Settings	<ul style="list-style-type: none"> <li>IP Address                     <ul style="list-style-type: none"> <li>IP Address: 192.168.3.10</li> <li>Subnet Mask: 255.255.255.0</li> <li>Default Gateway</li> <li>Communication Data Code: Binary</li> </ul> </li> </ul>
CC-Link IEF Basic Settings	<ul style="list-style-type: none"> <li>To Use or Not to Use CC-Link IEF Basic Setting: Use</li> <li>Network Configuration Settings: &lt;Detailed Setting&gt;</li> </ul>
<b>Refresh Settings</b>	<Detailed Setting> (highlighted)
MODBUS/TCP Settings	<ul style="list-style-type: none"> <li>To Use or Not to Use MODBUS/TCP Setting: Not Used</li> <li>Device Assignment: &lt;Detailed Setting&gt;</li> </ul>
External Device Configuration	<Detailed Setting>

**Explanation:**

Set the Refresh.  
The setting is necessary to transfer data automatically between the link device (RX/RY/RWr/RWw) and CPU device (user device, file register, and refresh data register).  
To set the CC-Link IE Field Network Basic, it is required to set the Network Configuration Settings and Refresh Setting.

Buttons at the bottom: Check, Restore the Default Settings, Apply.

- >Specify applicable devices for Rx, Ry, RWr and RWw Assembly and Apply it.
- > **For 1 Station, Rx-64 Bits , RY-64 Bits , RWr- 32 16Bit Register & RWw- 32 16Bit Register required**

MELSOFT GX Works3 (Untitled Project) - [Module Parameter Ethernet Port]

Project Edit Find/Replace Convert View Online Debug Recording Diagnostics Tool Window Help

Navigation

Setting Item List Setting Item

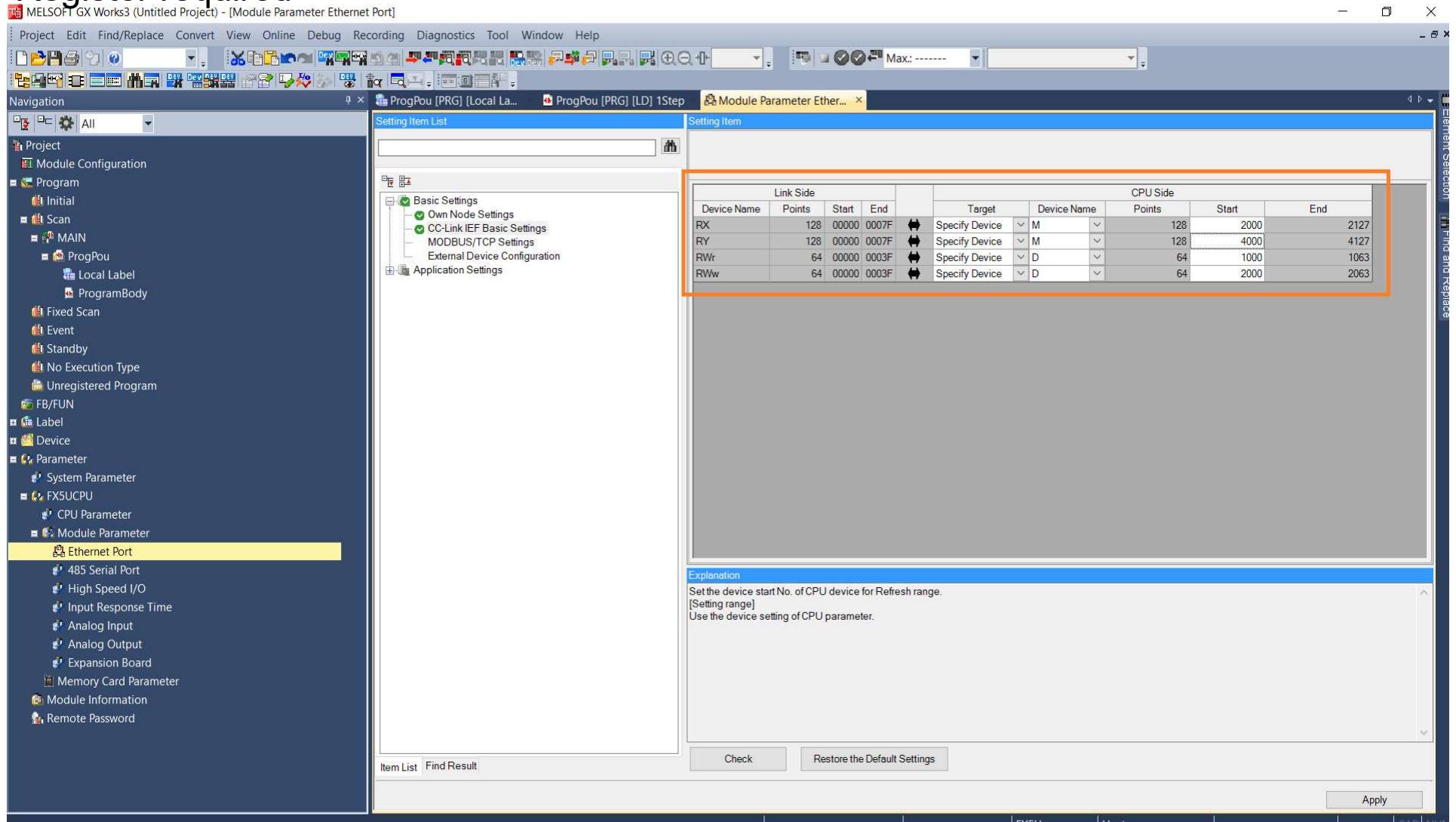
Link Side CPU Side

Device Name	Points	Start	End	Target	Device Name	Points	Start	End
RX	128	00000	0007F	Specify Device	M	128	2000	2127
RY	128	00000	0007F	Specify Device	M	128	4000	4127
RWr	64	00000	0003F	Specify Device	D	64	1000	1063
RWw	64	00000	0003F	Specify Device	D	64	2000	2063

Explanation

Set the device start No. of CPU device for Refresh range.  
 [Setting range]  
 Use the device setting of CPU parameter.

Item List Find Result Check Restore the Default Settings Apply



# MR-JEC Read/Write Assembly (From Network Instruction Manual)

## 2. CC-Link IE Field Network Basic/SLMP

Master station → Servo amplifier (RYn)			
(Note) Device No.	Device	Symbol	Remark
RYn0 to RY (n + 3) E	Not used	X	X
RY (n + 3) F	Cyclic communication ready command	CSR	X

Servo amplifier → Master station (RXn)			
(Note) Device No.	Device	Symbol	Remark
RXn0 to RX (n + 3) E	Not used	X	X
RX (n + 3) F	Cyclic communication ready	SSR	X

Note. "n" depends on the station No. setting.

Table 2.2 RWwn/RWm mapping (supporting the position/speed/torque control mode, profile mode, and home position return mode)

Master station → Servo amplifier (RWwn)			
(Note) Device No.	Index	Device	
RWwn00	6060	Control mode	Modes of operation
RWwn01	6040	Control command	Controlword
RWwn02	2D01	Control input 1	Control DI 1
RWwn03	2D02	Control input 2	Control DI 2
RWwn04	2D03	Control input 3	Control DI 3
RWwn05	607A	Position command (pp)	Target position
RWwn06		Speed command (pv)	Target velocity
RWwn07	60FF	Speed limit value (tq)	Velocity limit value
RWwn08		Torque command (tq)	Target torque
RWwn09	2D20	Command speed (pp)	Profile velocity
RWwn0A		Acceleration time constant (pp, pv)	Profile acceleration
RWwn0B	6071	Deceleration time constant (pp, pv)	Profile deceleration
RWwn11		Amount of torque command change (per second) (tq)	Torque slope
RWwn12	6087	Torque limit value (forward)	Positive torque limit value
RWwn13		Torque limit value (reverse)	Negative torque limit value
RWwn14	60E0	Touch probe function setting	Touch probe function
RWwn15		Positioning operation setting	Positioning option code
RWwn16	60F2	Control input 5	Control DI 5
RWwn17		Control input 6	Control DI 6
RWwn18	2D05	Control input 7	Control DI 7
RWwn19		Control input 8	Control DI 8
RWwn1A	2D06	Control input 9	Control DI 9
RWwn1B		Control input 10	Control DI 10
RWwn1C	2D07	Control input 11	Control DI 11
RWwn1D		Control input 12	Control DI 12
RWwn1E	2D08	Control input 13	Control DI 13
RWwn1F		Control input 14	Control DI 14

Servo amplifier → Master station (RWm)			
(Note) Device No.	Index	Device	
RWm00	6061	Control mode display	Modes of operation display
RWm01	6041	Control status	Statusword
RWm02		Current position (command unit)	Position actual value
RWm03	6064	Current speed	Velocity actual value
RWm04		Droop pulses	Following error actual value
RWm05	606C	Current torque	Torque actual value
RWm06		Control output 1	Status DO 1
RWm07	60F4	Control output 2	Status DO 2
RWm08		Control output 3	Status DO 3
RWm09	2D11	Alarm No.	Current alarm 2
RWm0A		Touch probe function status	Touch probe status
RWm0B	60B9	Touch probe 1 Position latched at the rising edge	Touch probe pos1 pos value
RWm0C		Touch probe 1 Position latched at the falling edge	Touch probe pos1 neg value
RWm0D	2D12	Input device status 1	External Input signal display1
RWm0E		Input device status 2	External Input signal display2
RWm0F	60BA	Input device status 3	External Input signal display3
RWm0G		Input device status 4	External Input signal display4
RWm0H	60BB	Input device status 5	External Input signal display5
RWm0I		Input device status 6	External Input signal display6
RWm0J	2C12	Input device status 7	External Input signal display7
RWm0K		Input device status 8	External Input signal display8
RWm0L	60BC	Input device status 9	External Input signal display9
RWm0M		Input device status 10	External Input signal display10
RWm0N	2C13	Input device status 11	External Input signal display11
RWm0O		Input device status 12	External Input signal display12
RWm0P	60BD	Input device status 13	External Input signal display13
RWm0Q		Input device status 14	External Input signal display14
RWm0R	2C14	Input device status 15	External Input signal display15
RWm0S		Input device status 16	External Input signal display16
RWm0T	60BE	Input device status 17	External Input signal display17
RWm0U		Input device status 18	External Input signal display18
RWm0V	2C15	Input device status 19	External Input signal display19
RWm0W		Input device status 20	External Input signal display20
RWm0X	60BF	Input device status 21	External Input signal display21
RWm0Y		Input device status 22	External Input signal display22
RWm0Z	2C16	Input device status 23	External Input signal display23
RWm0[		Input device status 24	External Input signal display24
RWm0\	60B0	Input device status 25	External Input signal display25
RWm0^		Input device status 26	External Input signal display26
RWm0<	2C17	Input device status 27	External Input signal display27
RWm0>		Input device status 28	External Input signal display28
RWm0@	60B1	Input device status 29	External Input signal display29
RWm0#		Input device status 30	External Input signal display30
RWm0%	2C18	Input device status 31	External Input signal display31
RWm0\$		Input device status 32	External Input signal display32
RWm0&	60B2	Input device status 33	External Input signal display33
RWm0*		Input device status 34	External Input signal display34
RWm0~	2C19	Input device status 35	External Input signal display35
RWm0`		Input device status 36	External Input signal display36
RWm0^	60B3	Input device status 37	External Input signal display37
RWm0<		Input device status 38	External Input signal display38
RWm0>	2C20	Input device status 39	External Input signal display39
RWm0@		Input device status 40	External Input signal display40
RWm0#	60B4	Input device status 41	External Input signal display41
RWm0%		Input device status 42	External Input signal display42
RWm0\$	2C21	Input device status 43	External Input signal display43
RWm0*		Input device status 44	External Input signal display44
RWm0~	60B5	Input device status 45	External Input signal display45
RWm0`		Input device status 46	External Input signal display46
RWm0^	2C22	Input device status 47	External Input signal display47
RWm0<		Input device status 48	External Input signal display48
RWm0>	60B6	Input device status 49	External Input signal display49
RWm0@		Input device status 50	External Input signal display50
RWm0#	2C23	Input device status 51	External Input signal display51
RWm0%		Input device status 52	External Input signal display52
RWm0\$	60B7	Input device status 53	External Input signal display53
RWm0*		Input device status 54	External Input signal display54
RWm0~	2C24	Input device status 55	External Input signal display55
RWm0`		Input device status 56	External Input signal display56
RWm0^	60B8	Input device status 57	External Input signal display57
RWm0<		Input device status 58	External Input signal display58
RWm0>	2C25	Input device status 59	External Input signal display59
RWm0@		Input device status 60	External Input signal display60
RWm0#	60B9	Input device status 61	External Input signal display61
RWm0%		Input device status 62	External Input signal display62
RWm0\$	2C26	Input device status 63	External Input signal display63
RWm0*		Input device status 64	External Input signal display64
RWm0~	60BA	Input device status 65	External Input signal display65
RWm0`		Input device status 66	External Input signal display66
RWm0^	2C27	Input device status 67	External Input signal display67
RWm0<		Input device status 68	External Input signal display68
RWm0>	60BB	Input device status 69	External Input signal display69
RWm0@		Input device status 70	External Input signal display70
RWm0#	2C28	Input device status 71	External Input signal display71
RWm0%		Input device status 72	External Input signal display72
RWm0\$	60BC	Input device status 73	External Input signal display73
RWm0*		Input device status 74	External Input signal display74
RWm0~	60BD	Input device status 75	External Input signal display75
RWm0`		Input device status 76	External Input signal display76
RWm0^	2C29	Input device status 77	External Input signal display77
RWm0<		Input device status 78	External Input signal display78
RWm0>	60BE	Input device status 79	External Input signal display79
RWm0@		Input device status 80	External Input signal display80
RWm0#	2C2A	Input device status 81	External Input signal display81
RWm0%		Input device status 82	External Input signal display82
RWm0\$	60BF	Input device status 83	External Input signal display83
RWm0*		Input device status 84	External Input signal display84
RWm0~	2C2B	Input device status 85	External Input signal display85
RWm0`		Input device status 86	External Input signal display86
RWm0^	60B0	Input device status 87	External Input signal display87
RWm0<		Input device status 88	External Input signal display88
RWm0>	2C2C	Input device status 89	External Input signal display89
RWm0@		Input device status 90	External Input signal display90
RWm0#	60B1	Input device status 91	External Input signal display91
RWm0%		Input device status 92	External Input signal display92
RWm0\$	2C2D	Input device status 93	External Input signal display93
RWm0*		Input device status 94	External Input signal display94
RWm0~	60B2	Input device status 95	External Input signal display95
RWm0`		Input device status 96	External Input signal display96
RWm0^	2C2E	Input device status 97	External Input signal display97
RWm0<		Input device status 98	External Input signal display98
RWm0>	60B3	Input device status 99	External Input signal display99
RWm0@		Input device status 100	External Input signal display100
RWm0#	2C2F	Input device status 101	External Input signal display101
RWm0%		Input device status 102	External Input signal display102
RWm0\$	60B4	Input device status 103	External Input signal display103
RWm0*		Input device status 104	External Input signal display104
RWm0~	60B5	Input device status 105	External Input signal display105
RWm0`		Input device status 106	External Input signal display106
RWm0^	2C2G	Input device status 107	External Input signal display107
RWm0<		Input device status 108	External Input signal display108
RWm0>	60B6	Input device status 109	External Input signal display109
RWm0@		Input device status 110	External Input signal display110
RWm0#	2C2H	Input device status 111	External Input signal display111
RWm0%		Input device status 112	External Input signal display112
RWm0\$	60B7	Input device status 113	External Input signal display113
RWm0*		Input device status 114	External Input signal display114
RWm0~	60B8	Input device status 115	External Input signal display115
RWm0`		Input device status 116	External Input signal display116
RWm0^	2C2I	Input device status 117	External Input signal display117
RWm0<		Input device status 118	External Input signal display118
RWm0>	60B9	Input device status 119	External Input signal display119
RWm0@		Input device status 120	External Input signal display120
RWm0#	2C2J	Input device status 121	External Input signal display121
RWm0%		Input device status 122	External Input signal display122
RWm0\$	60B0	Input device status 123	External Input signal display123
RWm0*		Input device status 124	External Input signal display124
RWm0~	2C2K	Input device status 125	External Input signal display125
RWm0`		Input device status 126	External Input signal display126
RWm0^	60B1	Input device status 127	External Input signal display127
RWm0<		Input device status 128	External Input signal display128
RWm0>	60B2	Input device status 129	External Input signal display129
RWm0@		Input device status 130	External Input signal display130
RWm0#	2C2L	Input device status 131	External Input signal display131
RWm0%		Input device status 132	External Input signal display132
RWm0\$	60B3	Input device status 133	External Input signal display133
RWm0*		Input device status 134	External Input signal display134
RWm0~	60B4	Input device status 135	External Input signal display135
RWm0`		Input device status 136	External Input signal display136
RWm0^	2C2M	Input device status 137	External Input signal display137
RWm0<		Input device status 138	External Input signal display138
RWm0>	60B5	Input device status 139	External Input signal display139
RWm0@		Input device status 140	External Input signal display140
RWm0#	2C2N	Input device status 141	External Input signal display141
RWm0%		Input device status 142	External Input signal display142
RWm0\$	60B6	Input device status 143	External Input signal display143
RWm0*		Input device status 144	External Input signal display144
RWm0~	60B7	Input device status 145	External Input signal display145
RWm0`		Input device status 146	External Input signal display146
RWm0^	2C2O	Input device status 147	External Input signal display147
RWm0<		Input device status 148	External Input signal display148
RWm0>	60B8	Input device status 149	External Input signal display149
RWm0@		Input device status 150	External Input signal display150
RWm0#	2C2P	Input device status 151	External Input signal display151
RWm0%		Input device status 152	External Input signal display152
RWm0\$	60B9	Input device status 153	External Input signal display153
RWm0*		Input device status 154	External Input signal display154
RWm0~	60B0	Input device status 155	External Input signal display155
RWm0`		Input device status 156	External Input signal display156
RWm0^	2C2Q	Input device status 157</td	

# Adding Device Assembly Comment

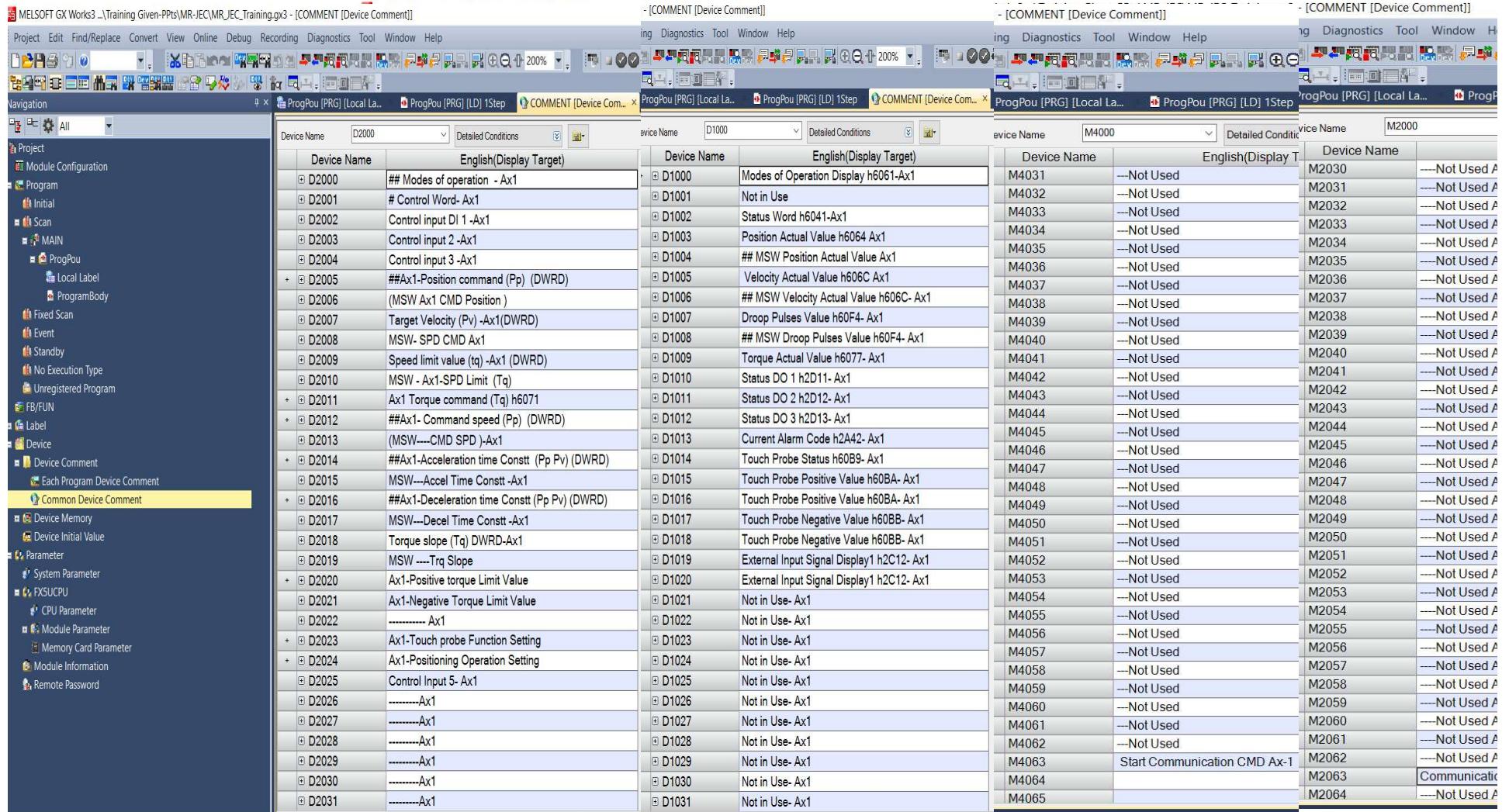
->Add Device Comment in GX Works3 as per manual

**Write Assembly  
(Word)**

**Read Assembly  
(Word)**

**Write Assembly  
(Bits)**

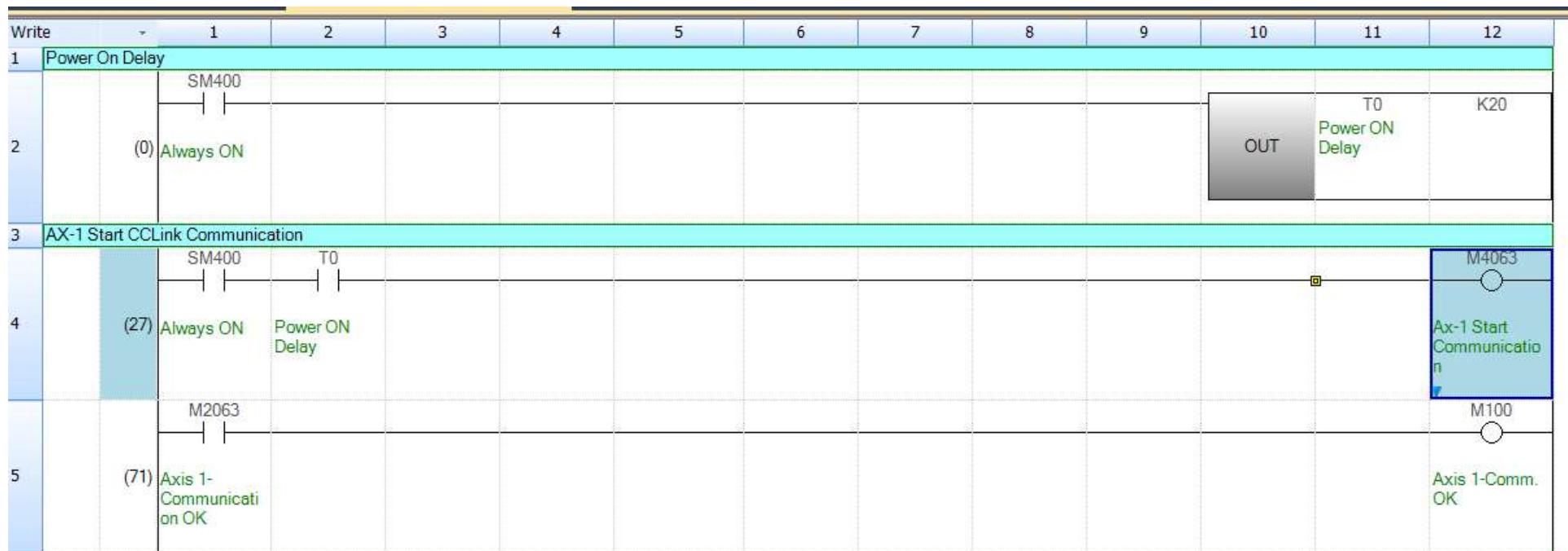
**Read Assembly  
(Bits)**



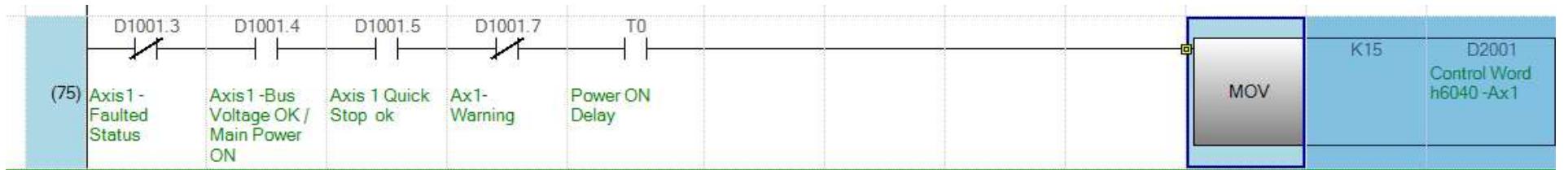
The screenshot shows four windows of the GX Works3 software interface, each demonstrating a different method for adding device assembly comments:

- Write Assembly (Word):** This window shows a table for device D2000. It lists various device names and their corresponding English descriptions. For example, D2000 is described as "English(Display Target)".
- Read Assembly (Word):** This window shows a table for device D1000. It lists various device names and their corresponding English descriptions. For example, D1000 is described as "Modes of Operation Display h6061-Ax1".
- Write Assembly (Bits):** This window shows a table for device M4000. It lists various device names and their corresponding English descriptions. For example, M4031 is described as "Not Used".
- Read Assembly (Bits):** This window shows a table for device M2000. It lists various device names and their corresponding English descriptions. For example, M2030 is described as "Not Used A".

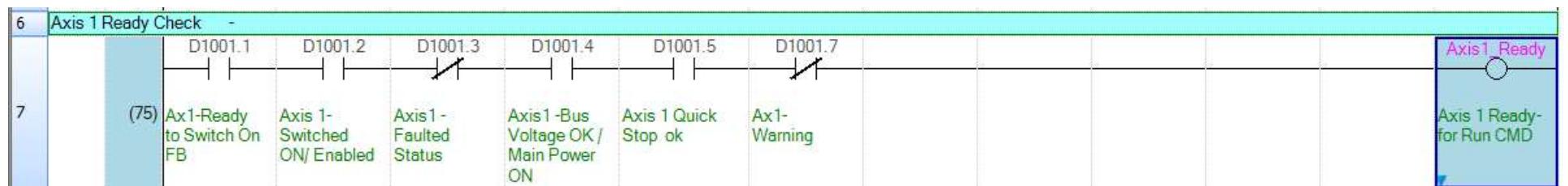
->Step1-Start Cyclic Communication



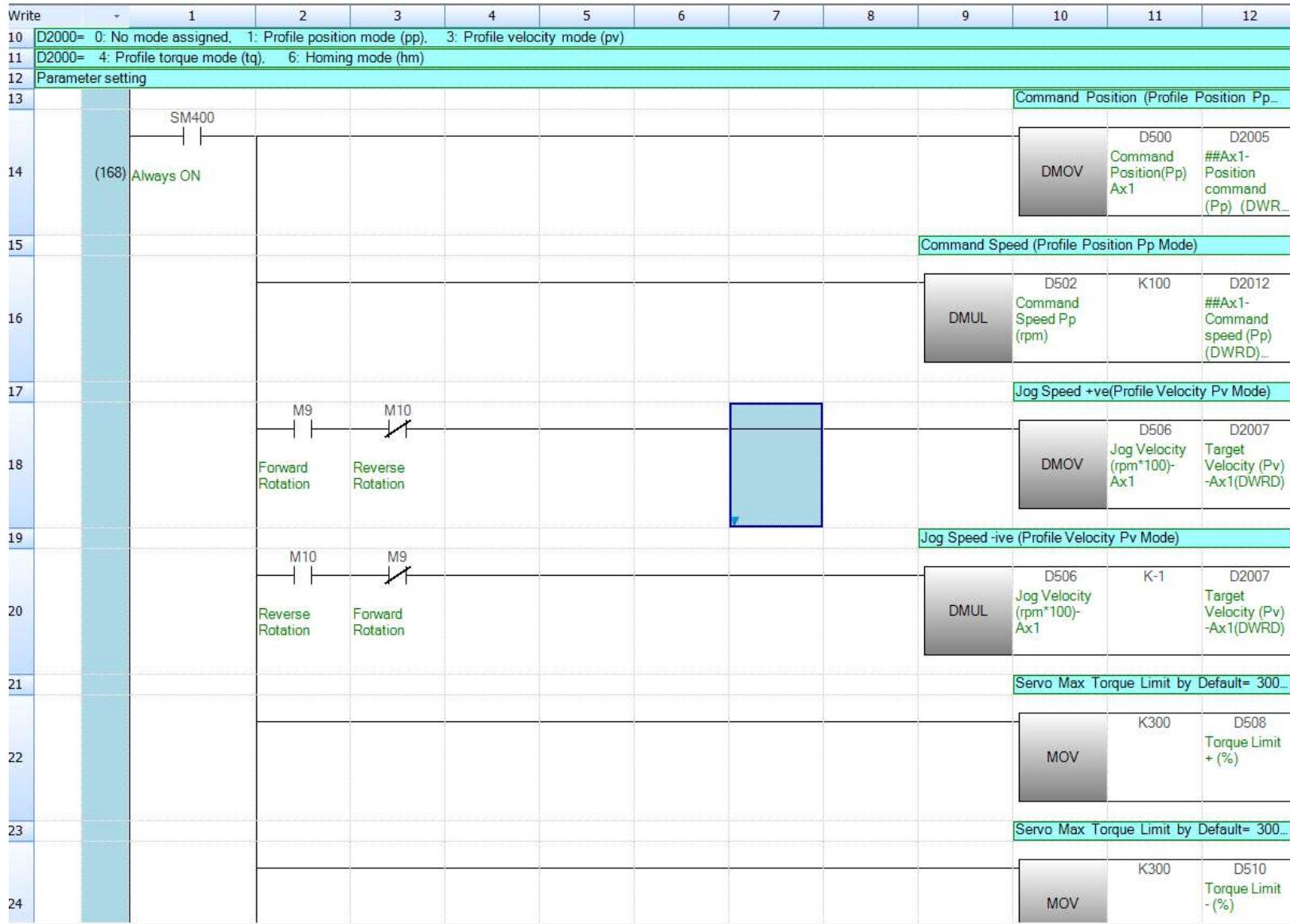
## ->Step2- Enabling the Servo (SON)



## ->Step3-Check for Axis Ready



## ->Step4 – Set & Monitor the Parameters



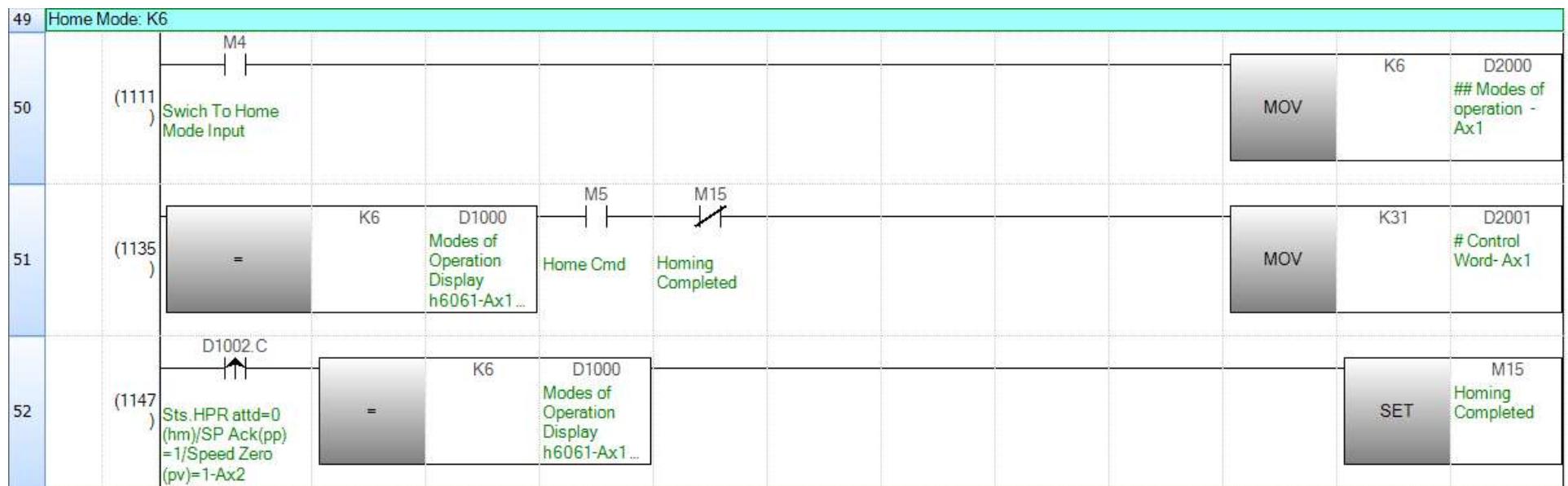
# Write Basic Parameters Values-Page2

Write		1	2	3	4	5	6	7	8	9	10	11	12
23										+ive Toque Limit			
24										MUL	D508 Torque Limit + (%)	K100	D2020 Ax1-Positive torque Limit Value limit value
25										-ve Toque Limit			
26										MUL	D510 Torque Limit - (%)	K100	D2021 Ax1-Negative Torque Limit Value
27										Accel Time (ms) Pp. Pv mode			
28										MOV	K1000	D2014 ##Ax1- Acceleration time Constt (Pp Pv) (DWRD)...	
29										Decel Time (ms) Pp. Pv mode			
30										MOV	K1000	D2016 ##Ax1- Deceleration time Constt (Pp Pv) (DWRD)...	
31										Monitoring Current Mode- Axis1			
32										MOV	D1000 Modes of Operation Display h6061- Ax1...	D5000	
33										Monitoring Status Word- Axis1			
34										MOV	D1002 Status Word h6041-Ax1	D5002	

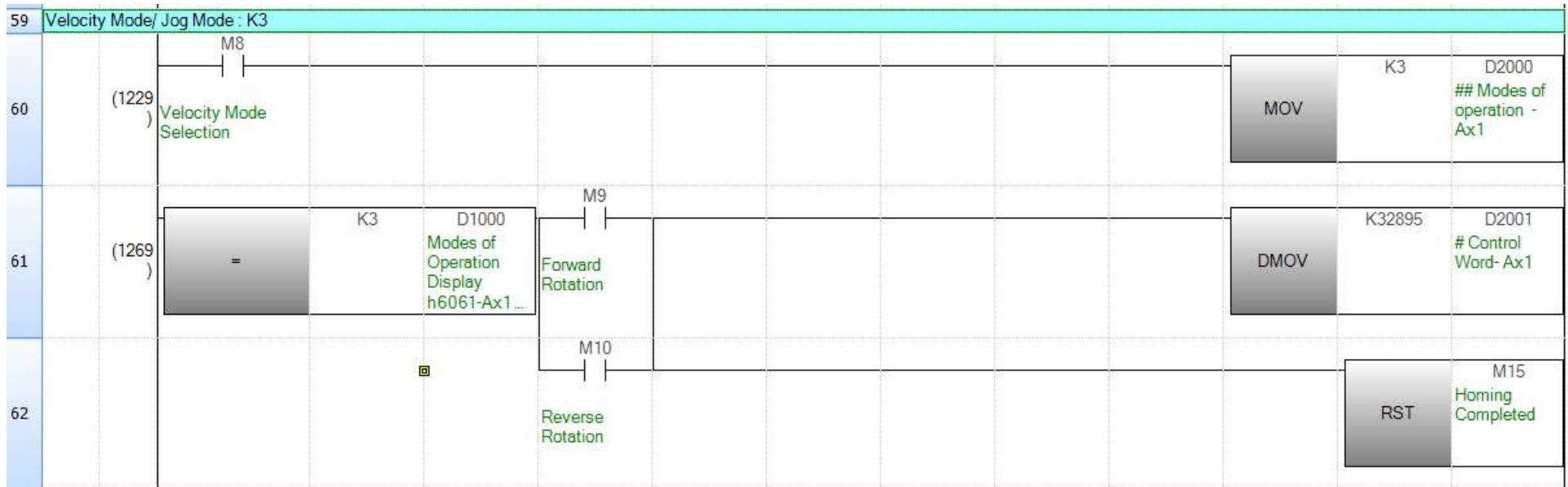
# Write Basic Parameters Values-Page3

Write		1	2	3	4	5	6	7	8	9	10	11	12
35											Actual Position (Feedback)		
36										DMOV	D1003 Position Actual Value h6064 Ax1	D5003 Actual Position Pp Ax1 (Command Unit)	
37											Actual Speed (Feedback)		
38										DDIV	D1005 Velocity Actual Value h606C Ax1	K100	D5005 Actual Speed Pp Pv-Ax1 (RPM)
39											Actual Droop Pulses		
40										DMOV	D1007 Droop Pulses Value h60F4-Ax1	D5007	
41											Actual Torque (Feedback)		
42										MOV	D1009 Torque Actual Value h6077-Ax1	D5009	
43											Profile Torque Mode (Tq)		
44										MOV	D255 Ax1 Torque command (Tq) h6071 (tq)	D2011	
45											Torque Slope Cmd		
46										DMOV	K1000	D2018 Torque slope (Tq) DWRD-Ax1	

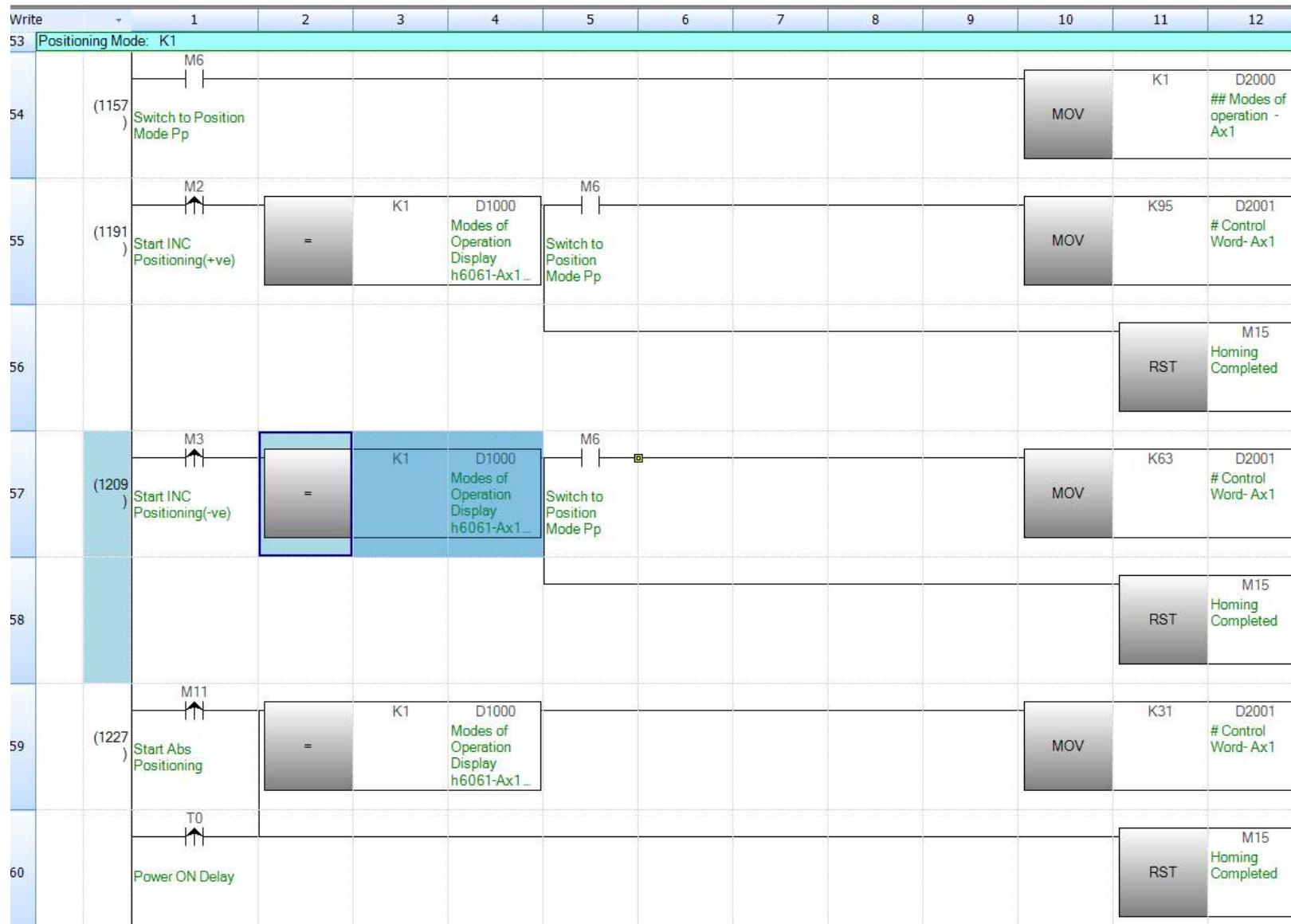
->Step5 – Make the Servo Home



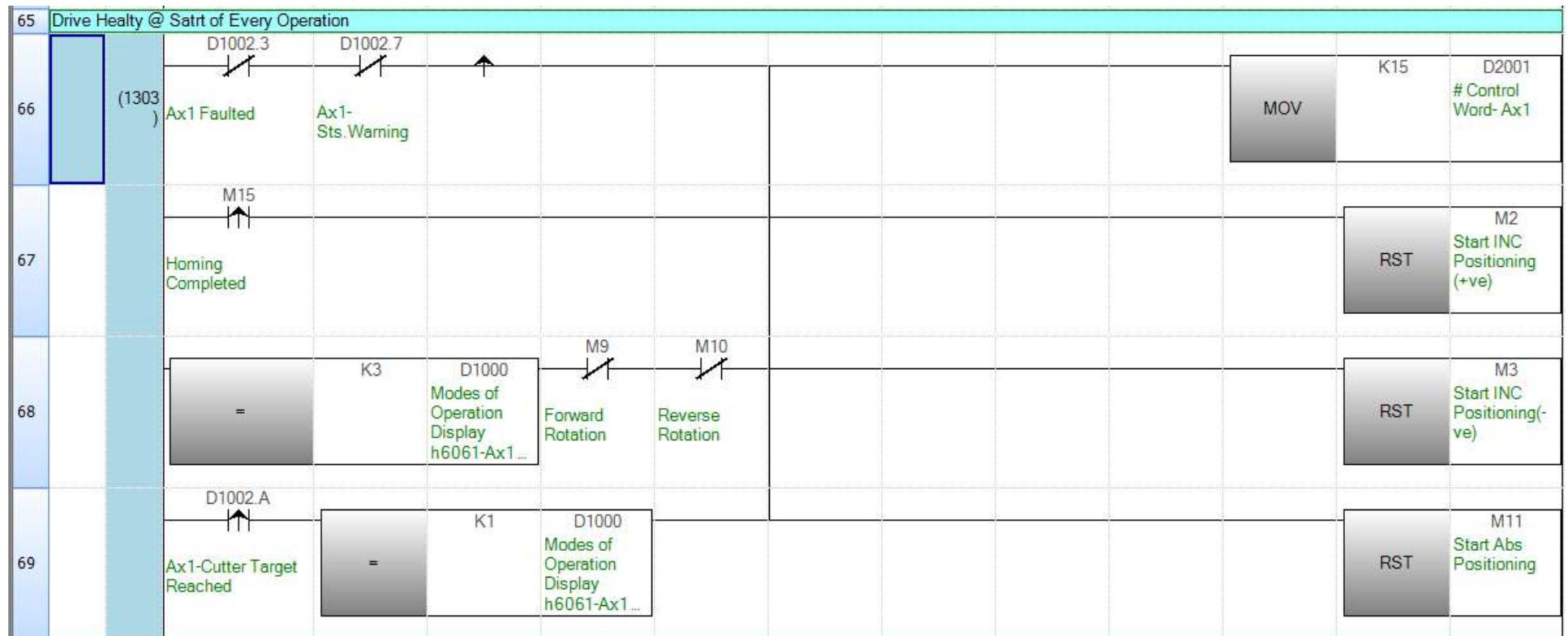
->Step6 – Jog Mode



## ->Step6 – Servo Absolute and Incremental Positioning



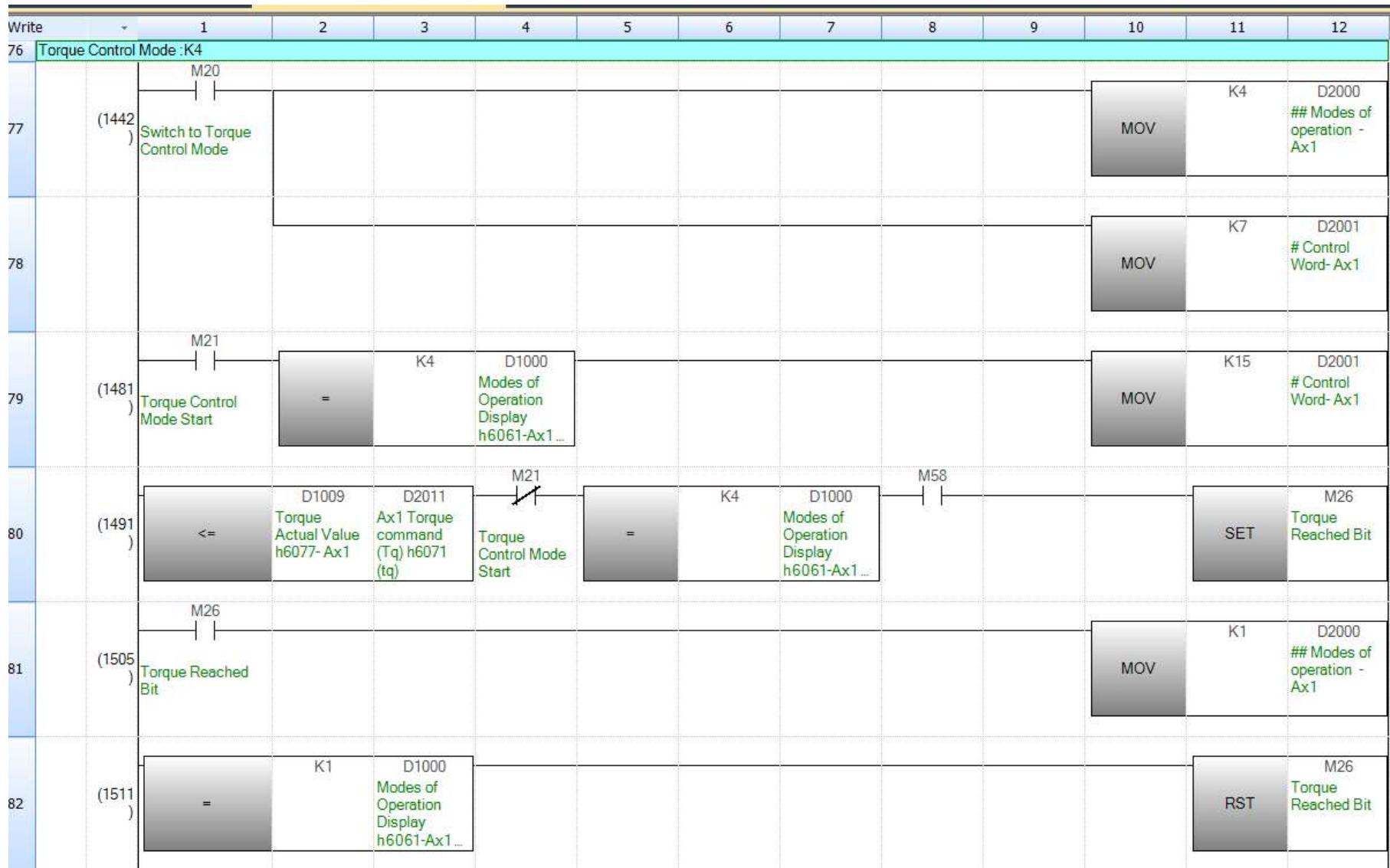
## ->Step7 – Action at the End of Every Operation before Next Start Trigger



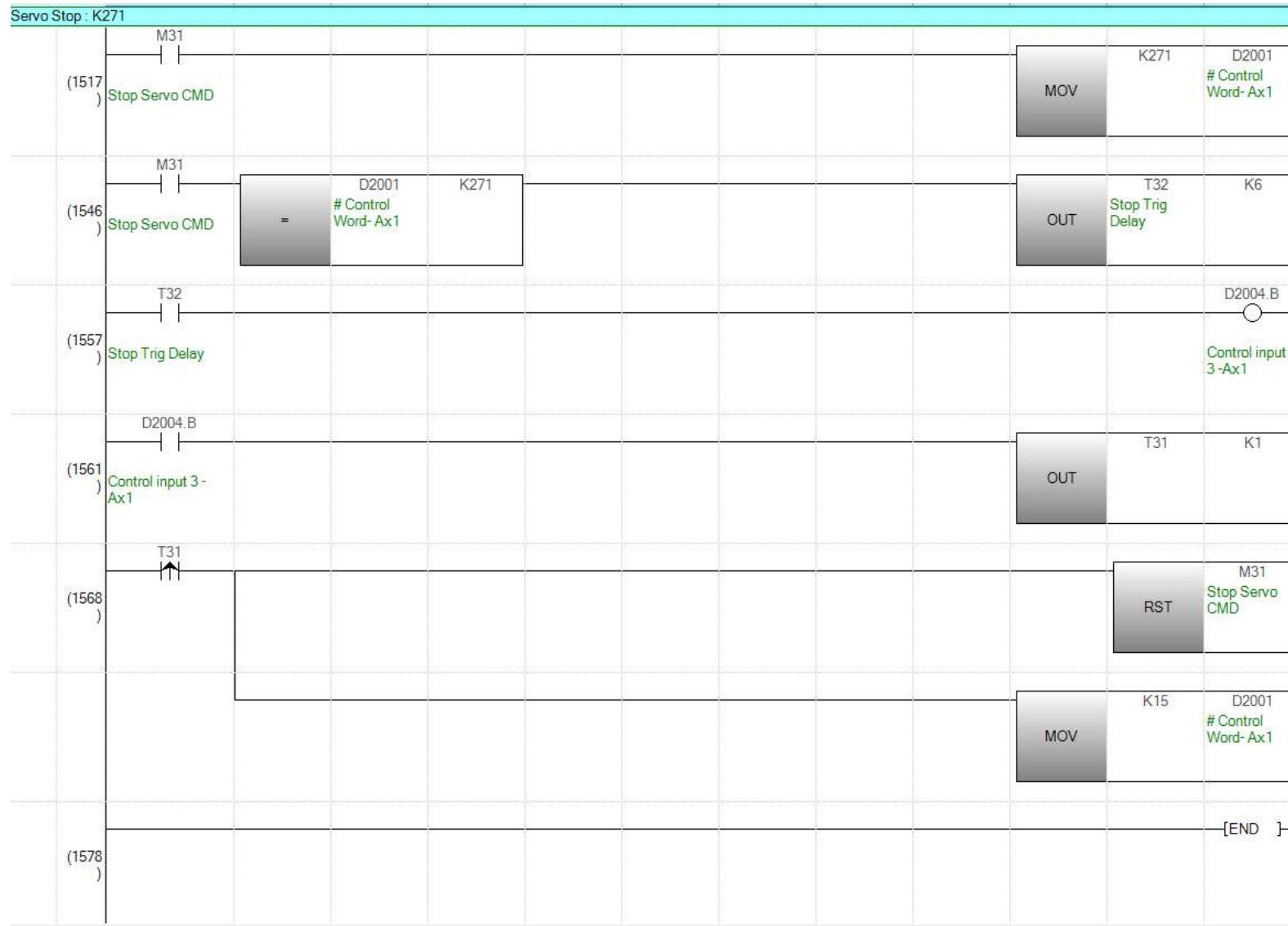
## ->Step7 – Resetting the Servo Fault



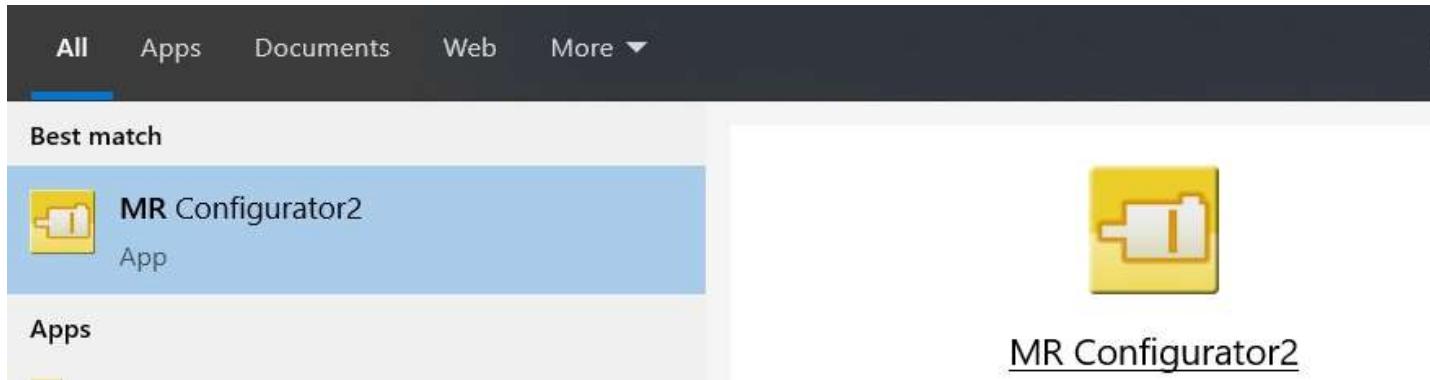
## ->Step7 – Torque Control Mode



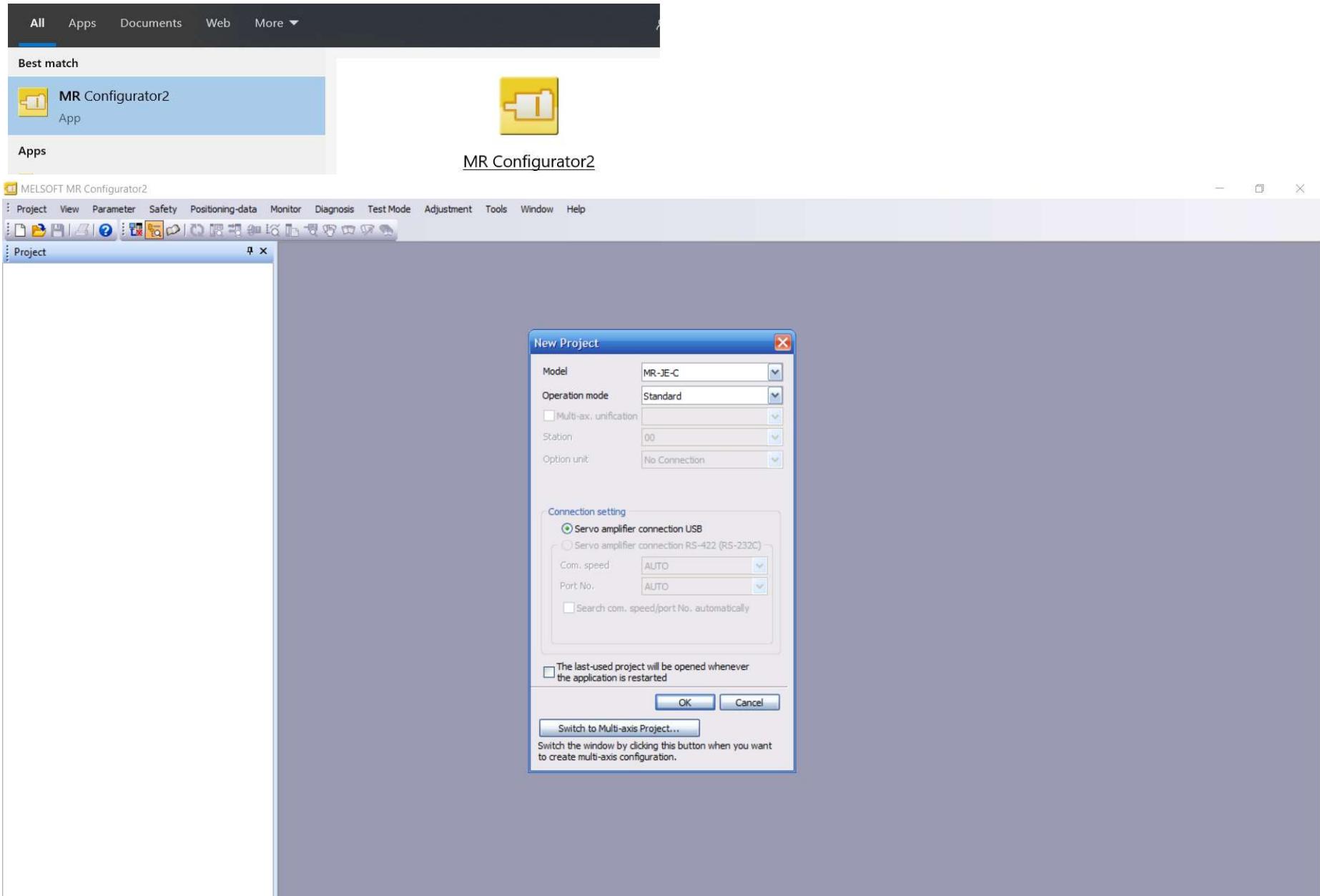
->Step7 – Stopping the Servo While Movement /Interrupting Servo Movement



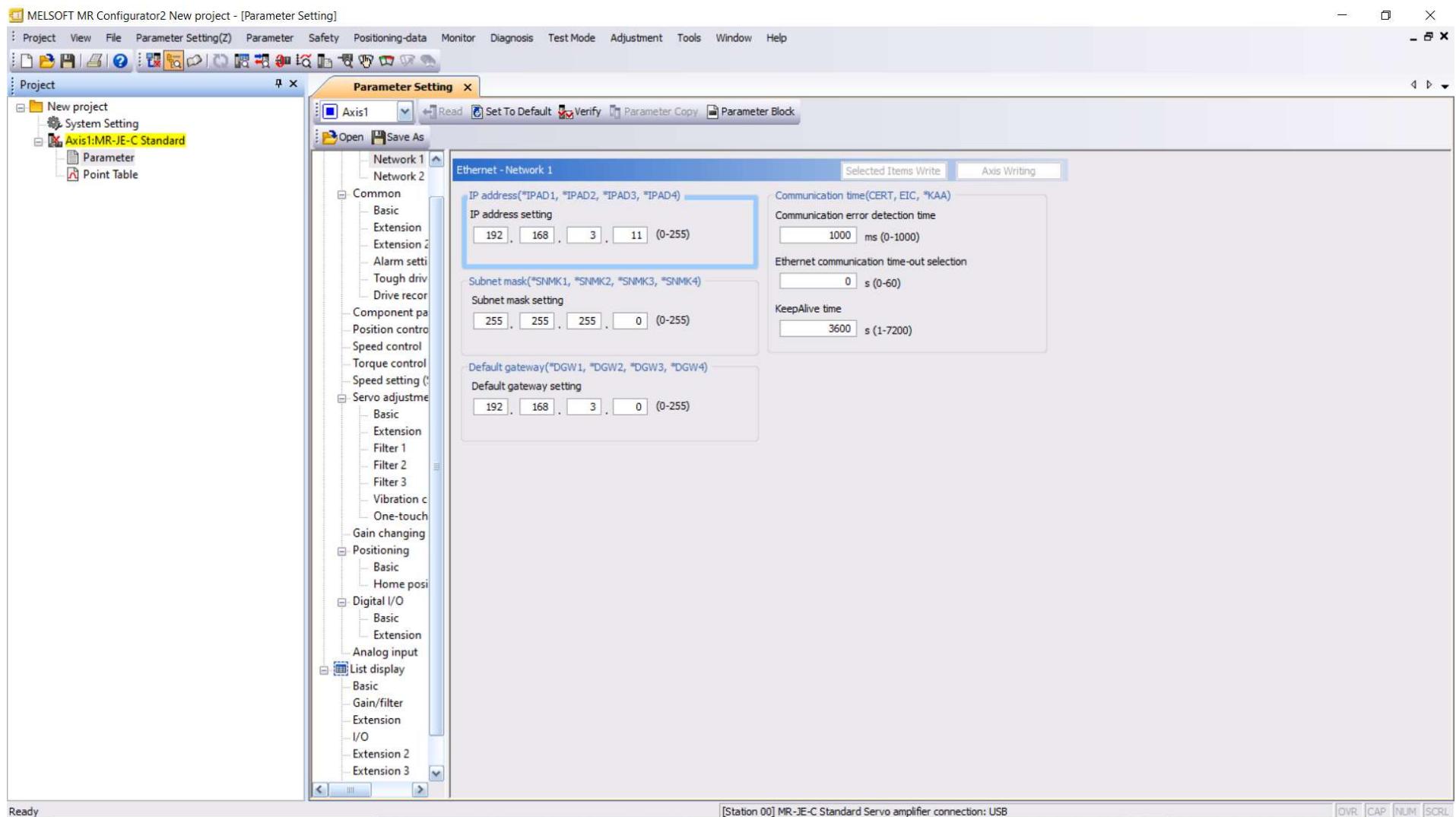
# Creating MR-JEC Servo Program



# Open MR-Configurator2 and Add MR-JEC



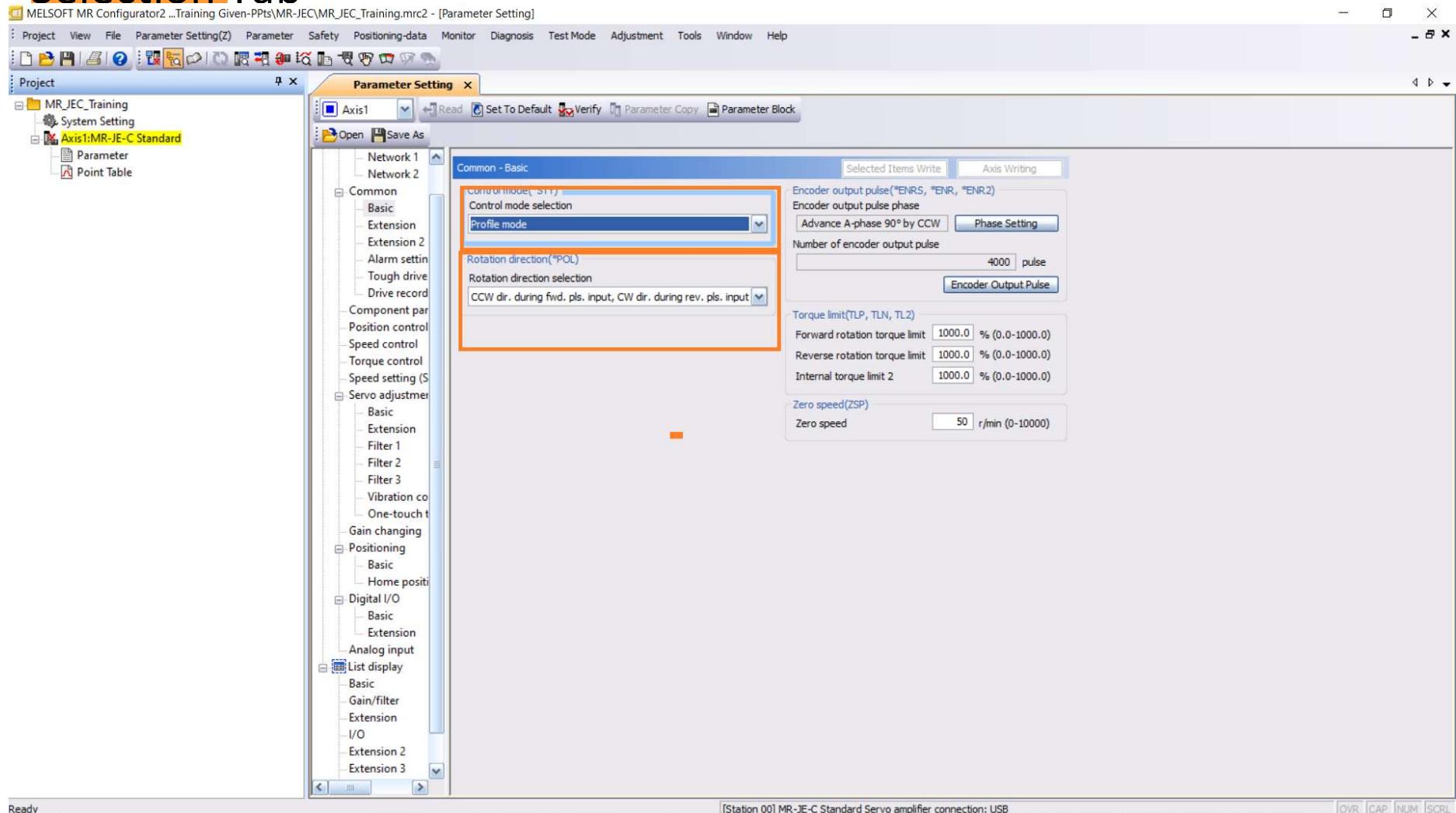
# Assign IP Address to MR-JEC



# Select Control Mode

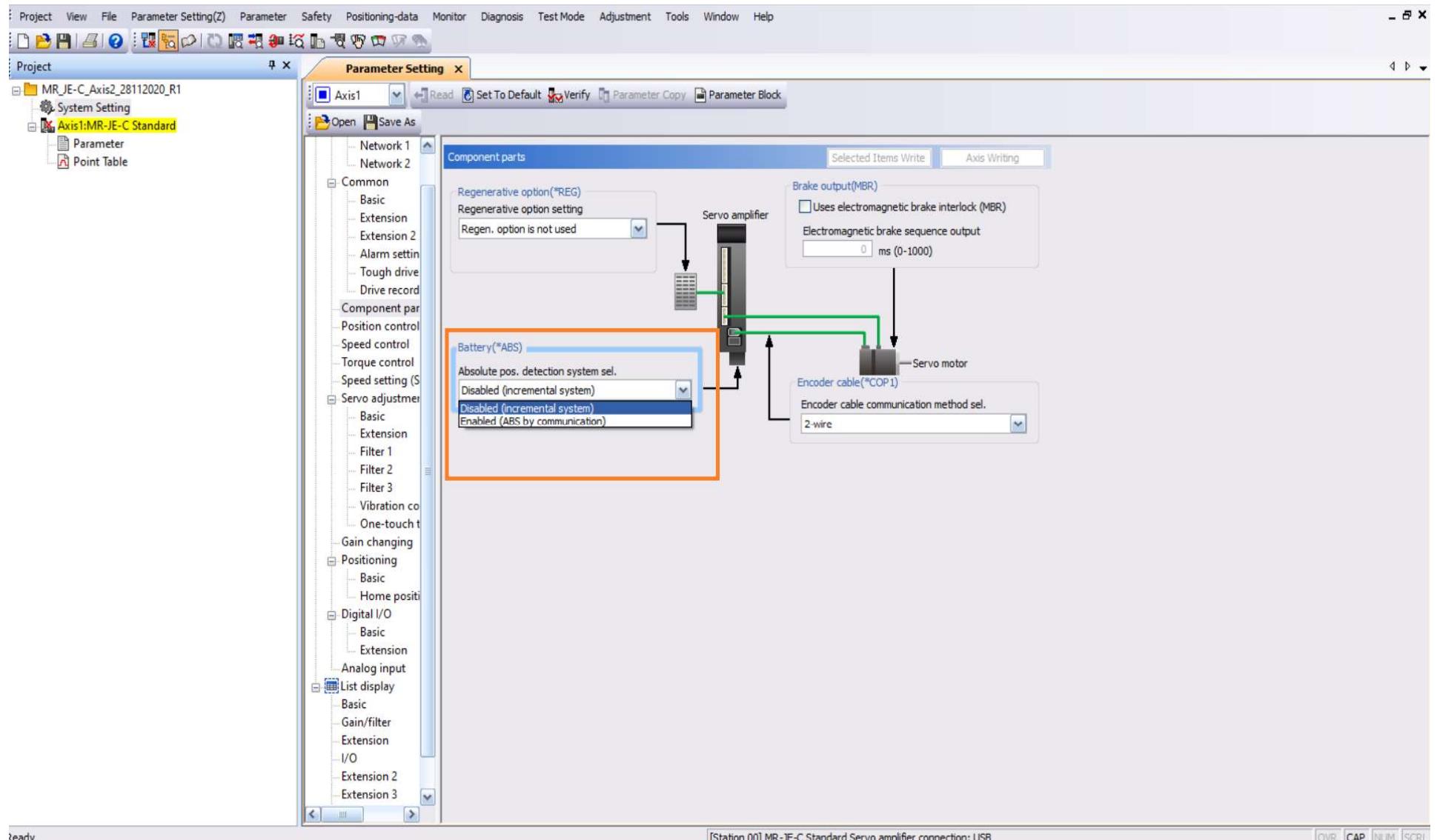
-> Select Control Mode to Profile Mode

-> Rotation direction can be selected from **Rotation Direction Selection Tab**



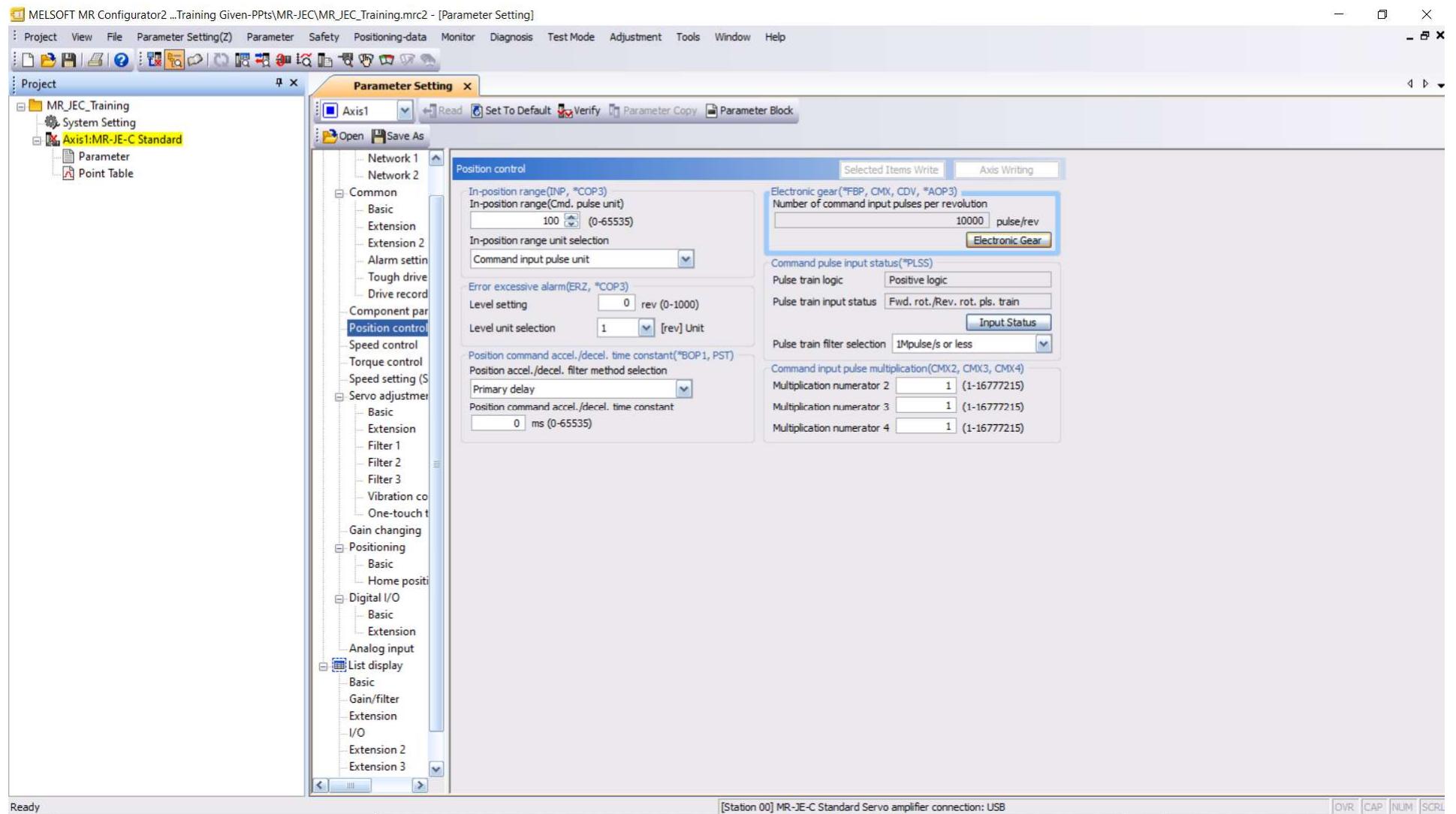
# Select Position Detection Method

-> Select Position detection method selection – **Absolute** or **Incremental**



# Set Electronic Gear

-> Set **Electronic Gear** and **In Position Range** in Position Control Tab



# Setting Electronic Gear

Screenshot of the MELSOFT MR Configurator2 software interface showing the "Electronic Gear Setting" dialog box.

The "Parameter Setting" dialog is open, displaying the "Position control" section under "Axis1". The "Electronic Gear" tab is selected in the sub-menu.

**Electronic Gear Selection:**

- Electronic gear
- No. of cmd. input pulses per revolution (\*FBP)

**Configuration Parameters:**

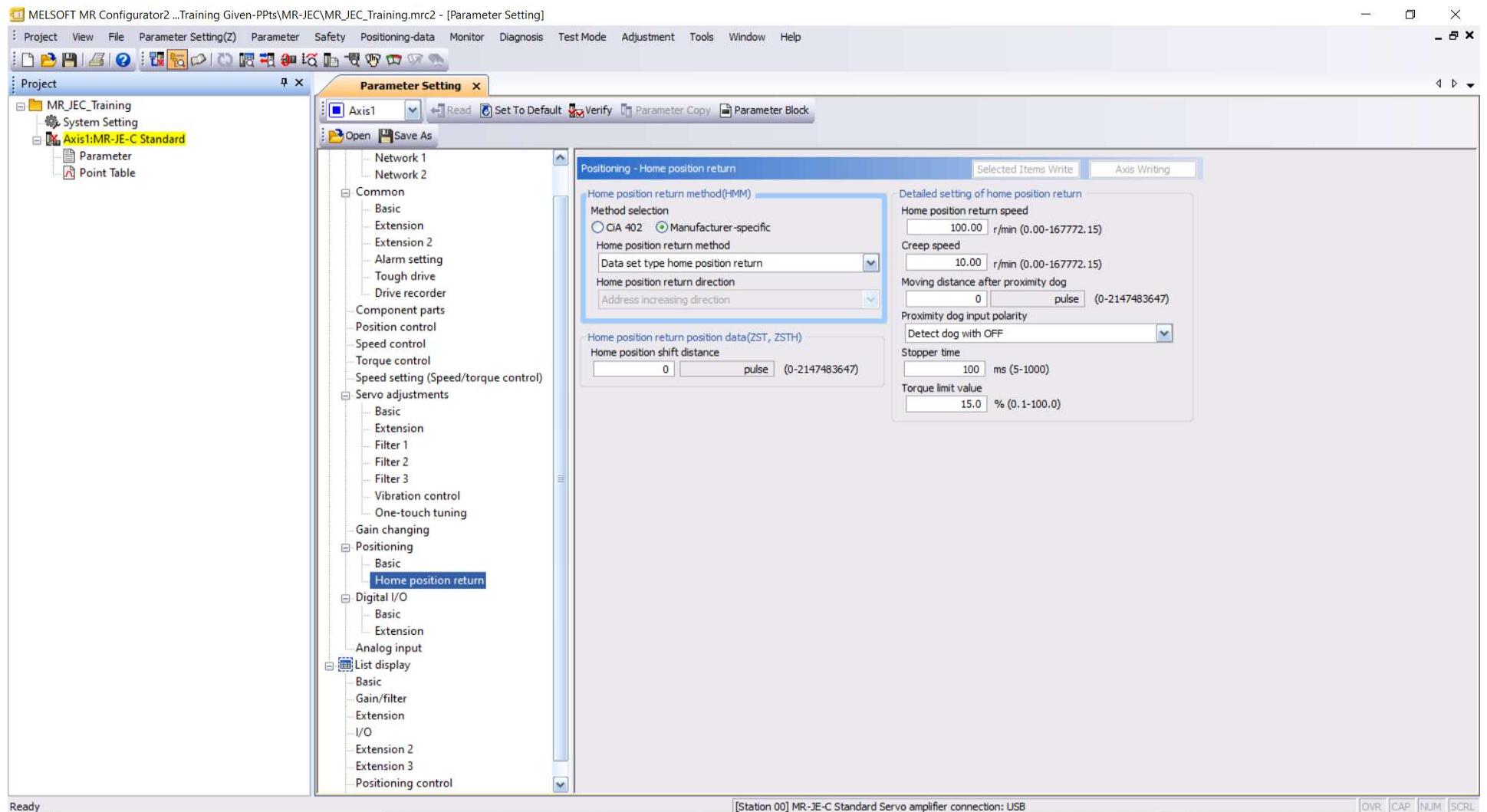
No. of cmd. pulses per revolution = Motor encoder resolution ×	Electronic gear denominator 1000	Electronic gear numerator pulse/rev
Motor encoder resolution	131072	(1-2147483647)
No. of cmd. input pulses per revolution (*FBP)	10000	(1000-1000000)
Electronic gear numerator	131072	(1-16777215)
Electronic gear denominator	10000	(1-16777215)
No. of cmd. pulses per revolution	10000	pulse/rev
Upper speed limit	6000	r/min
* Use in a range that does not exceed the upper speed limit when operating the motor. Or, it will exceed the maximum input frequency and the motor will not operate normally.		
Input frequency		1Mpulse/s or less

**Buttons:**

- OK
- Cancel

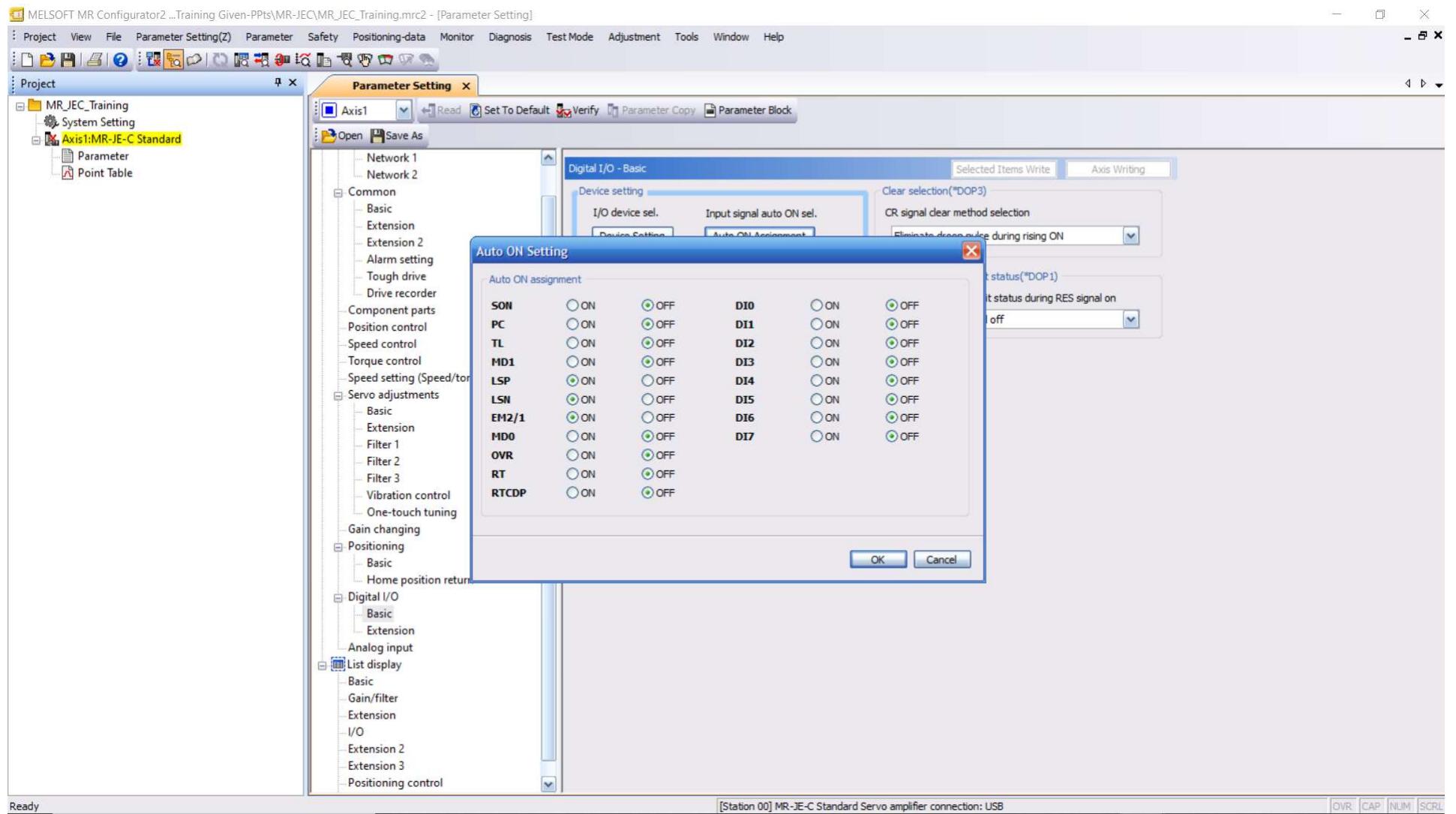
# Select Homing Method

- > Select Home Position Return Method
- > For Dog Based Homing and Limit Sensors , We also need **MR-ECN1 / MR-J2CMP2 CN1 Connector** in **MR-JEC**



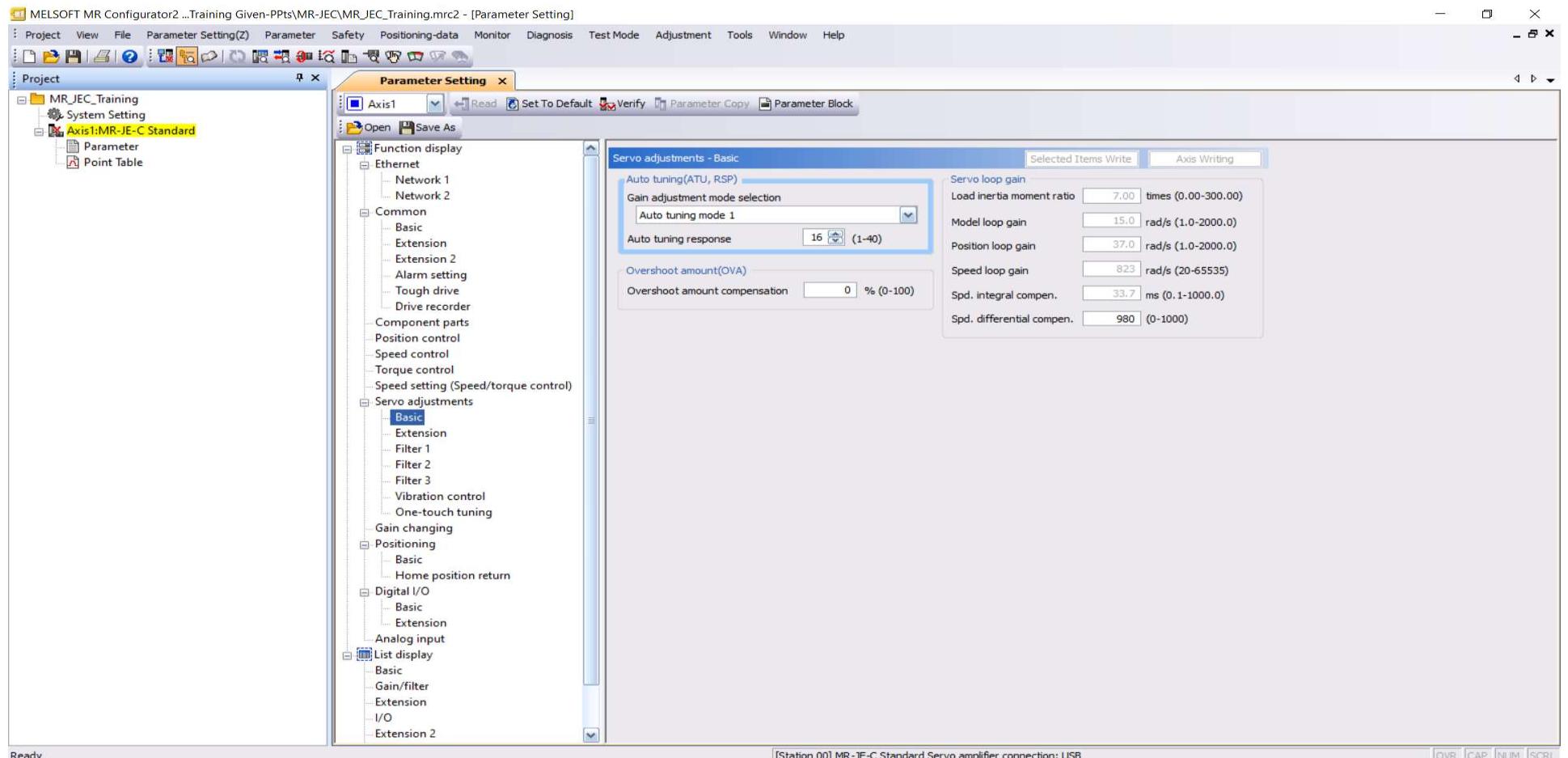
# Make Auto ON assignments

-> If Not Using IO Connector , Make Auto On Assignment Under the **Digital IO Tab** for LSP,LSN & EM2/EM1



# Tuning Mode Selection

-> Keep Gain Adjustment mode/Tuning Mode on Default Setting(Auto Tuning Mode1) at Startup and Later as per the application requirement



**Download the Servo Program using Mini USB Cable**

