



Programmable Controllers  
**MELSEC iQ-R**  
series



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

# 접속 가이드

**MELSEC iQ-R** RD78G (H) and

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

미쓰비시 전기 제품

RD78G4 / RD78G8 / RD78G16  
RD78G32 / RD78G64  
RD78G4HV / RD78GHW

파스텍 제품

Ezi-STEP CC-Link IE TSN ALL

# 시작하기 전에

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- 저희 회사의 제품을 이용해 주셔서 감사합니다.
- Ezi-STEP CC-Link IE TSN ALL은 32비트 고성능 ARM 프로세서를 탑재한 드라이브와 다양한 모터로 구성된 스테핑모터 유닛으로, CC-Link IE TSN 네트워크에서 리모트국으로 사용됩니다.
- Ezi-STEP CC-Link IE TSN ALL은 산업용 제품입니다. 다른 용도로는 사용하지 말아 주십시오. 이를 준수하지 않아 손해가 발생한 경우에 저희 회사에서는 어떠한 책임도 지지 않습니다.
- 저희 회사에서 제공하는 이 접속 가이드는 미쓰비시 전기의 MELSEC iQ-R RD78G(H)에 Ezi-STEP CC-Link IE TSN ALL을 연결하는 방법을 안내하는 자료로, CSP+ 파일 등록과 시스템 구성, 파라미터 설정, 프로그램 방법 등을 설명합니다.
- PLC 프로그램을 작성하기 전에 이 접속 가이드를 반드시 읽고, 내용을 정확히 이해하신 후 제품을 올바르게 사용하시기 바랍니다.
- 이 접속 가이드는 예고 없이 변경될 수 있습니다. 최신 버전이 필요하신 경우에는 저희 회사의 CC-Link IE TSN 홈페이지 ([cltsn.fastech-motions.com](http://cltsn.fastech-motions.com))를 참고하시기 바랍니다.

# 매뉴얼 정보

- Ezi-STEP CC-Link IE TSN ALL 매뉴얼은 파스텍 홈페이지에서 다운로드할 수 있습니다.  
<https://cltsn.fastech-motions.com/download/quick>

매뉴얼 명칭	매뉴얼 번호
[매뉴얼][Ezi-STEP][CC-Link IE TSN ALL]Open Loop Stepping System	
[접속가이드] [KOR] MELSEC RD78G(H) and Ezi-STEP CC-Link IE TSN ALL	

- MELSEC iQ-R RD78G(H) 매뉴얼은 미쓰비시 전기 홈페이지에서 다운로드할 수 있습니다.  
<https://www.MitsubishiElectric.co.jp/fa>

매뉴얼 명칭	매뉴얼 번호
MELSEC iQ-R モーションユニット ユーザーズマニュアル(スタートアップ編)	IB-0300405
MELSEC iQ-R モーションユニット ユーザーズマニュアル(応用編)	IB-0300410
MELSEC iQ-R モーションユニット ユーザーズマニュアル(ネットワーク編)	IB-0300425
MELSEC iQ-R プログラミングマニュアル(モーションユニット用命令/汎用FUN/汎用FB編)	IB-0300430
MELSEC iQ-R プログラミングマニュアル(モーション制御FB編)	IB-0300532
MELSEC iQ-R モーションユニット ユーザーズマニュアル(シンプルモーションモード応用編)	IB-0300571
MELSEC iQ-R モーションユニット ユーザーズマニュアル(シンプルモーションモードアドバンスト同期制御編)	IB-0300574
GX Works3 オペレーティングマニュアル	SH-081214

# 용어

- 접속 가이드에서 사용되는 용어와 관련된 내용입니다.

용어	내용
CC-Link IE TSN	표준 이더넷 규격을 확장한 'TSN(Time-Sensitive Networking)'을 채택하여, 실시간성을 확보한 제어와 다른 오픈 네트워크의 정보를 동시에 처리할 수 있는 오픈 네트워크입니다.
마스터국(매니저국)	네트워크 전체를 관리하는 국으로, 모든 국과 사이클릭 전송 및 트랜지언트 전송을 할 수 있습니다. MELSEC iQ-R RD78G(H)가 이에 해당합니다.
리모트국	비트 단위의 입출력 신호와 워드 단위의 입출력 데이터를 사이클릭 전송하는 국으로, 트랜지언트 전송도 가능합니다. Ezi-STEP CC-Link IE TSN ALL이 이에 해당합니다.
PDO	Process Data Object의 약칭입니다. 여러 CANopen 노드 간에 주기적으로 전송되는 애플리케이션 오브젝트의 집합체입니다.
오브젝트	CANopen에 대응하는 디바이스국이 보유한 다양한 데이터입니다.

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### 부록

- [동작확인] Axis Monitor
- [동작확인] 원점복귀 방법 변경
- [동작확인] 원점복귀
- [동작확인] Jog 운전
- [동작확인] 트러블슈팅
- [파라미터] 원점복귀 파라미터 설정

# 1. 개요

# 1-1. 개요

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- MELSEC iQ-R RD78G(H)와 Ezi-STEP CC-Link IE TSN ALL 접속 가이드

- ◆ 마스터국: RD78G4(4축) / RD78G8(8축) / RD78G16(16축) / RD78G32(32축) / RD78G64(64축)  
RD78G4HV(128축) / RD78GHW(256축)

- PLCopen®Motion Control FB(Function Block)

- 국제 표준 규격인 PLCopen Motion Control FB 라이브러리를 사용하여 제어 프로그램을 쉽게 작성할 수 있습니다.
    - 이 프로그램은 제3자도 내용을 쉽게 파악할 수 있기 때문에 설계 및 유지보수 시간을 크게 단축할 수 있습니다.

- ◆ 엔지니어링 소프트웨어

- GX Works3 : Ver. 1.105K 이상
  - 모션 제어 설정 기능 : Ver. 1.055H 이상
- ※ 최신 파일은 미쓰비시 전기 홈페이지를 참조하시기 바랍니다.  
(<https://www.mitsubishielectric.com/fa/download/index.html>)

- ◆ 리모트국: Ezi-STEP CC-Link IE TSN ALL

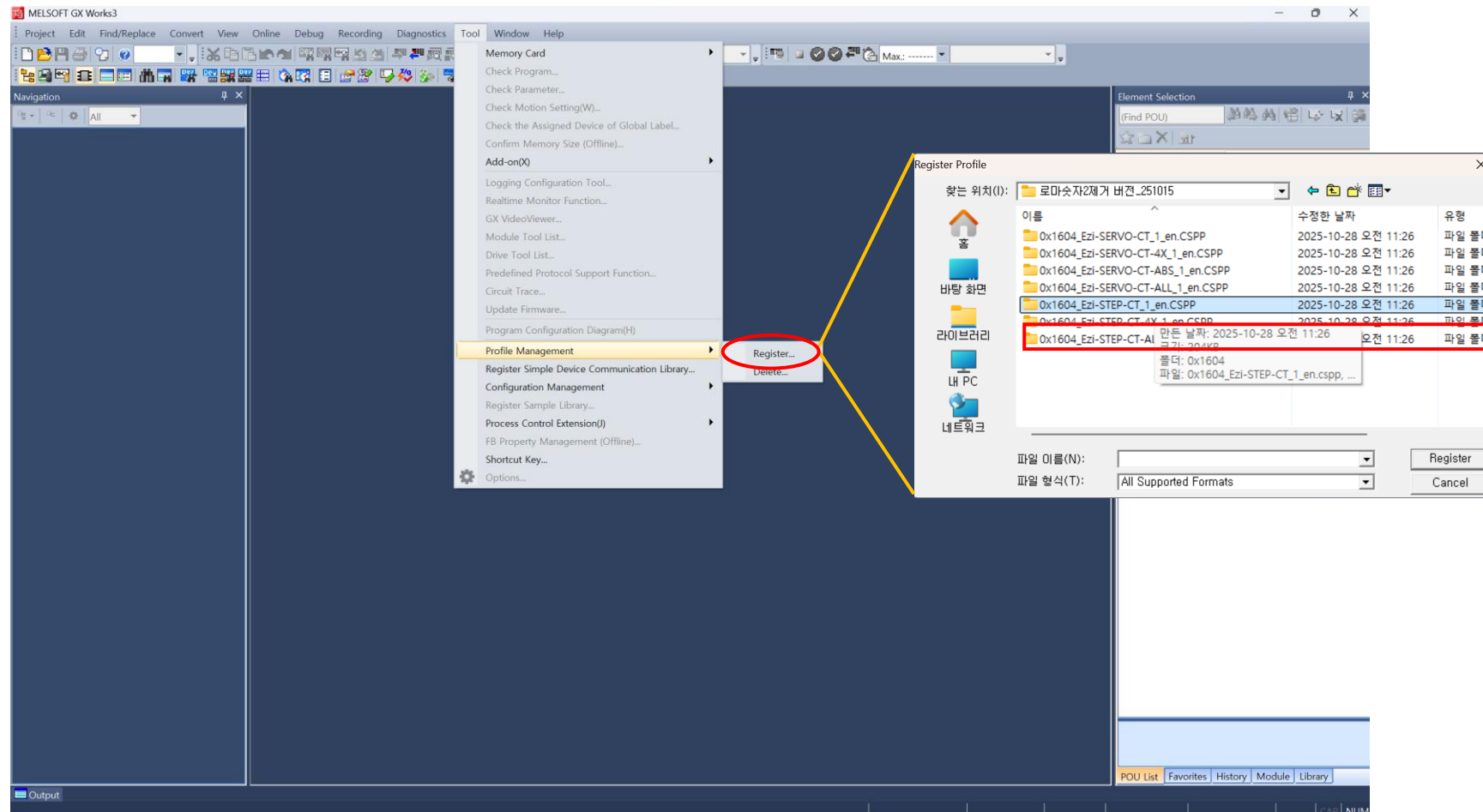
- CSP+ 파일 다운로드 주소: <https://cltsn.fastech-motions.com/download/quick>
  - 파일명 : 0x1604\_Ezi-STEP-ALL-CT\_1\_en\_CSPP

※ CSP+(Cyclic Synchronous Position Plus)는 산업용 네트워크를 통해 위치 명령을 주기적으로 전달하면서, 위치·속도·가속도(또는 토크) 정보를 함께 활용하여 보다 부드럽고 정밀한 궤적 제어를 가능하게 하는 제어 방식입니다.

# 1-2. Ezi-STEP CC-Link IE TSN ALL CSP+ 파일 등록

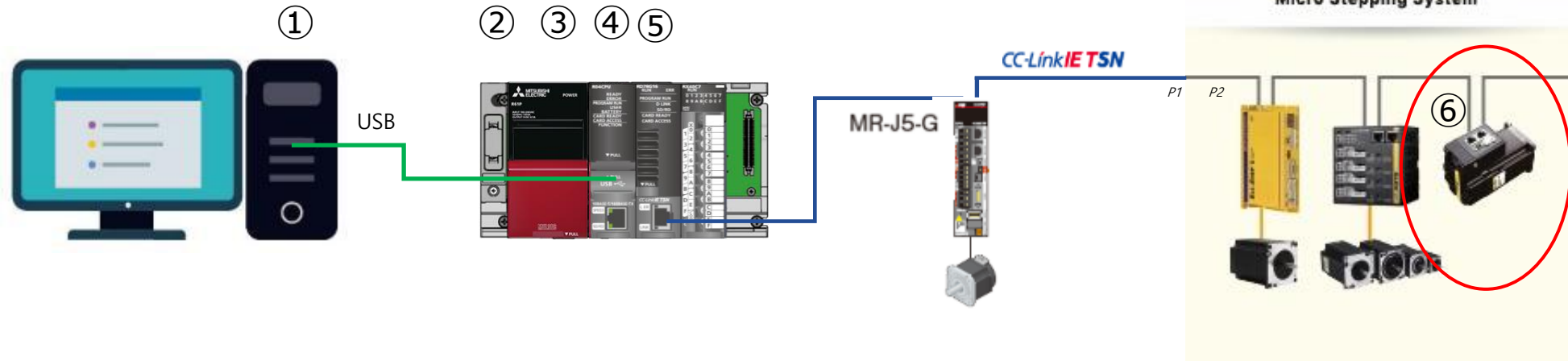
## ● CSP+ 등록

- [GX Works3] Tool / Profile Management / Register ※ Project를 열기 전에만 등록할 수 있습니다.



# 1-3. CC-Link IE TSN 구성

- 시스템 구성



구성	품명	IP 주소	
①	엔지니어링 소프트웨어	GX Works3	-
②	기본 베이스	R33B	-
③	전원 모듈	R61P	-
④	CPU 모듈	iQ-R04	-
⑤	모션 모듈	RD78G4	192.168.3.253
⑥	드라이브 + 모터	Ezi-STEP CC-Link IE TSN ALL	192.168.3.1




# 1-3. CC-Link IE TSN 구성

- Ezi-STEP 규격

항목		규격
통신 프로토콜		CC-Link IE TSN Class B
통신 속도		1Gbps / 100Mbps
동작 모드		CiA402 드라이브 프로파일 : 사이클릭 동기 위치 모드 (CSP) / 프로파일 위치 모드 (PP) / 원점복귀 모드 (HM)
동기 방식	시각 동기 방식	IEEE1588 / IEEE802.1AS
	통신 주기	최소 250 $\mu$ s
	네트워크 동기 통신	동기 통신 (CSP, PP, HM) / 비동기 통신 (PP, HM)
인코더 타입		인크리멘탈 타입

# 1-4. 설정 순서

## ● Ezi-STEP, RD78GH 파라미터 설정

No	항목	내용
1	Ezi-STEP 설정 	드라이브 설정 프로그램(Ezi-CT Manager)을 이용하여 파라미터를 설정합니다. 설정 프로그램과 사용 방법은 <a href="http://www.fastech.com">www.fastech.com</a> 홈페이지에서 다운로드하시기 바랍니다. ※ 주소: <a href="https://cltsn.fastech-motions.com/download/quick">https://cltsn.fastech-motions.com/download/quick</a>
2	RD78GH 설정 	GX-Works3를 사용해 RD78GH의 프로젝트를 만든 다음, 유닛 파라미터(통신 방식, 접속 대상)와 축 파라미터(모션 제어용)를 설정합니다.
3	RD78GH + Ezi-STEP 동작 확인 	RD78GH와 Ezi-STEP이 올바르게 설정되어 있는지 확인하기 위한 프로그램을 작성합니다. 라벨을 조작해 모터가 정상적으로 작동하는지 확인합니다

# 1-4. 설정 순서

## ● Ezi-STEP 설정 참고 사항

항목	내용
IP 주소 설정	<ul style="list-style-type: none"> <li>① 드라이브의 로터리 스위치로 설정</li> <li>② 로터리 스위치 → '00', IP address (Index: 2101h, Subindex: 01~04h) 값으로 설정</li> </ul>
드라이브 원점복귀 방법 설정	<ul style="list-style-type: none"> <li>① Homing method (Index: 6098h, Subindex:00h) 설정 - '0'(초깃값) → '33' 등 원점복귀 방법 설정 ※ [부록] 원점복귀 방법 참조</li> <li>② Home offset (Index: 607Ch, Subindex:00h) → '0' 설정 필요 주의) 0이 아닌 값을 설정하면, 원점복귀가 완료될 때 급가속하거나 급감속하는 경우가 있습니다.</li> </ul>
리미트 정지 방법 설정	<ul style="list-style-type: none"> <li>① Limit stop method (Index:2003h, Subindex:00h) 설정 - 0: PP, HM → 급정지 / CSP → 정지하지 않음 - 1: PP, HM → 감속 정지 / CSP → 정지하지 않음</li> <li>② '0' 또는 '1'이 아닌 값을 설정하면, 하드웨어 스트로크 리미트를 감지할 때 '1ED0H: 드라이브 오류'가 발생할 수 있습니다</li> </ul>
인포지션 범위	<ul style="list-style-type: none"> <li>① In-position range (Index:2B21h, Subindex:00h, Data type:Unsigned32) 설정 - 사용 환경을 고려하여 인포지션 범위(5~20000 pulse) 내의 값을 등록</li> <li>② [Md.102: 편차 카운터 값]이 이 설정값보다 작을 경우, [Md.108: 서보 상태 1: 인포지션]이 ON됩니다. 이 오브젝트는 공개하지 않는 것이 원칙이므로 FX5 CPU 모듈의 서보 트랜지언트 전송 기능을 이용하여 설정해 주십시오.</li> </ul>

# 1-5. 제약 사항

## ● 모션 제어 기능 제약 사항 (RD78GH와 Ezi-STEP)

항목	제약 사항
토크 제한 기능	<p>드라이브가 아래 오브젝트를 지원하지 않아 토크 제한 기능을 사용할 수 없습니다.</p> <ul style="list-style-type: none"> <li>• Positive torque limit value (Index:60E0h, Subindex:00h)</li> <li>• Negative torque limit value (Index:60E1h, Subindex:00h)</li> </ul>
절대 위치 시스템	인코더가 인크리멘탈 타입이기 때문에 절대 위치 시스템을 사용할 수 없습니다.
가상 서보 앰프 기능	MR-J5-G로 에뮬레이트됩니다.
폴로 업(Follow up) 기능	<p>이 제품은 반드시 서보 ON 시에 원점복귀를 실시해 주십시오.          오픈 루프 제어 시스템이므로 서보 OFF 상태에서는 'Position actual value (Index:6064h, Subindex: 00h)'를 업데이트하지 않습니다.          폴로 업 기능에서는 'Position actual value (Index:6064h, Subindex:00h)'를 기준으로 모터의 회전량을 컨트롤러의 명령에 반영하기 때문에, 서보 OFF 중에 모터가 회전한 만큼 컨트롤러 명령과 모터의 위치가 어긋납니다.</p>
마크 검출 기능	[Pr.800: 마크 검출 신호 설정]에 드라이브의 TPR1(터치 프로브 1)을 사용할 수 없습니다.
임의 데이터 모니터 기능	<p>임의 데이터 모니터 기능을 사용할 경우, [Pr.91~94: 임의 데이터 모니터 데이터 종류 설정 1~4]와 [Pr.591~594: 임의 데이터 모니터 데이터 종류 확장 설정 1~4]에 모니터링할 오브젝트를 설정해 주십시오.          초깃값은 "0: 미설정"입니다. 따라서 [Md.109~112: 임의 데이터 모니터 출력 1~4]는 '0'이 됩니다.</p>

# 1-5. 제약 사항

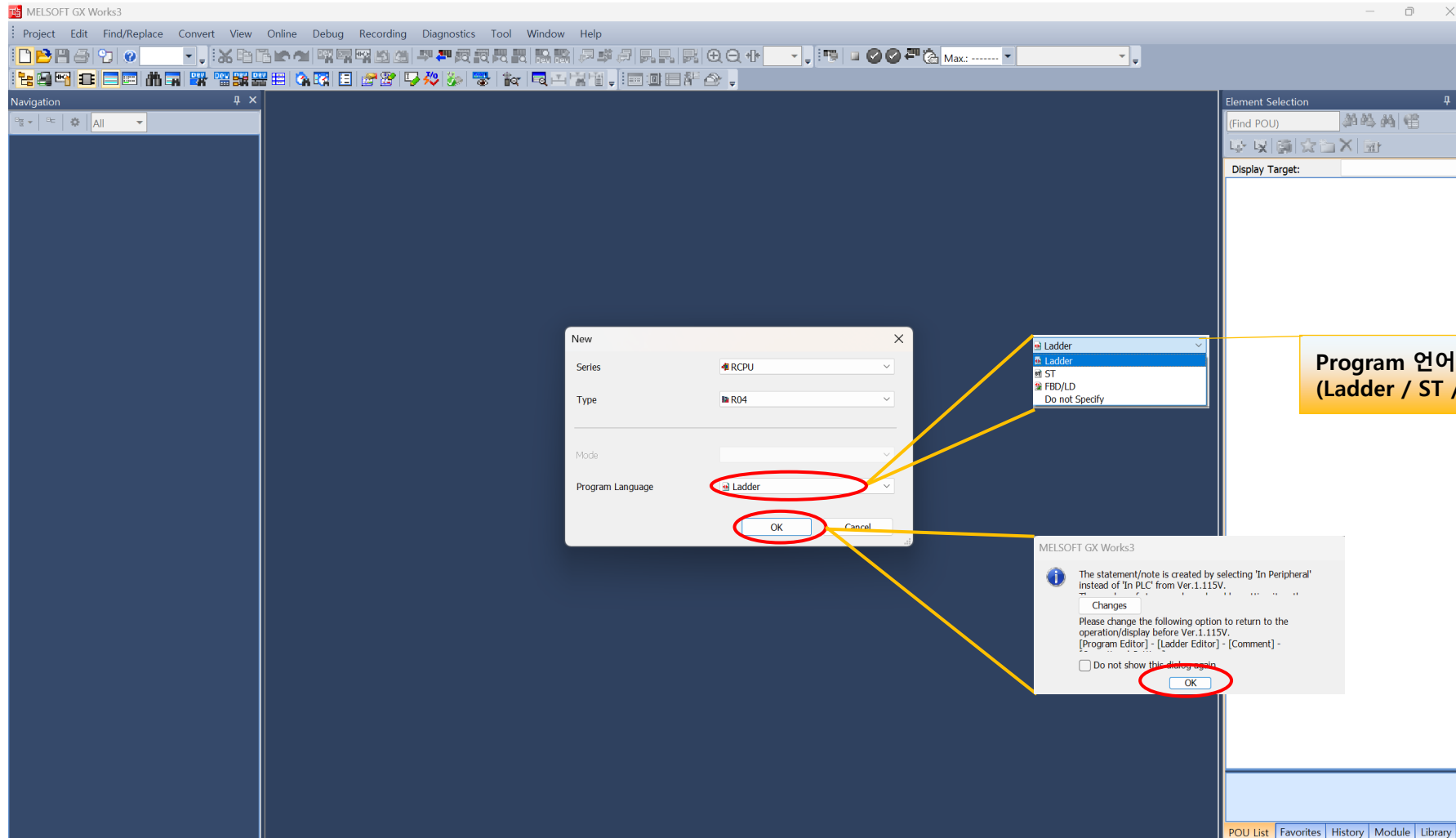
## ● 모션 제어 기능 제약 사항 (RD78GH와 Ezi-STEP)

항목	제약 사항
Md.103: 모터 회전수	드라이브가 'SI unit velocity (Index:60A9h, Subindex:00h)'를 지원하지 않기 때문에 pulse/s 단위로 모터 회전수를 출력합니다.
Md.104: 모터 전류값	드라이브가 'Torque actual value (Index:6077h, Subindex:00h)'를 지원하지 않기 때문에 항상 "0"으로 표시됩니다.
Md.108: 서보 상태 1	모니터 데이터 중 아래 비트는 항상 'OFF' 상태입니다. <ul style="list-style-type: none"> <li>· 게인 전환 중 (b4)</li> <li>· 풀 클로즈드 제어 전환 중(b5)</li> <li>· 토크 제한 중(b13)</li> <li>· 절대 위치 소실 중 (b14)</li> <li>· 경고 중(b15)</li> </ul>
Md.119: 서보 상태 2	모니터 데이터 중 아래 비트는 항상 'OFF' 상태입니다. <ul style="list-style-type: none"> <li>· 영점 통과(b0)</li> <li>· 영속도 중(b3)</li> <li>· 속도 제한 중(b4)</li> <li>· PID 제어 중(b8)</li> </ul>
Md.115: 서보 알람 상세 번호	지원되지 않습니다. 이 모니터 데이터는 항상 '0'으로 표시됩니다
Cd.108: 게인 전환 명령 플래그	지원되지 않습니다. MELSERVO만 이 데이터에 대응합니다.
Cd.133: 세미-풀 전환 요구	지원되지 않습니다. MELSERVO만 이 데이터에 대응합니다..
Cd.136: PI-PID 전환 요구	지원되지 않습니다. MELSERVO만 이 데이터에 대응합니다.

## 2. RD78G 모션 모듈 설정

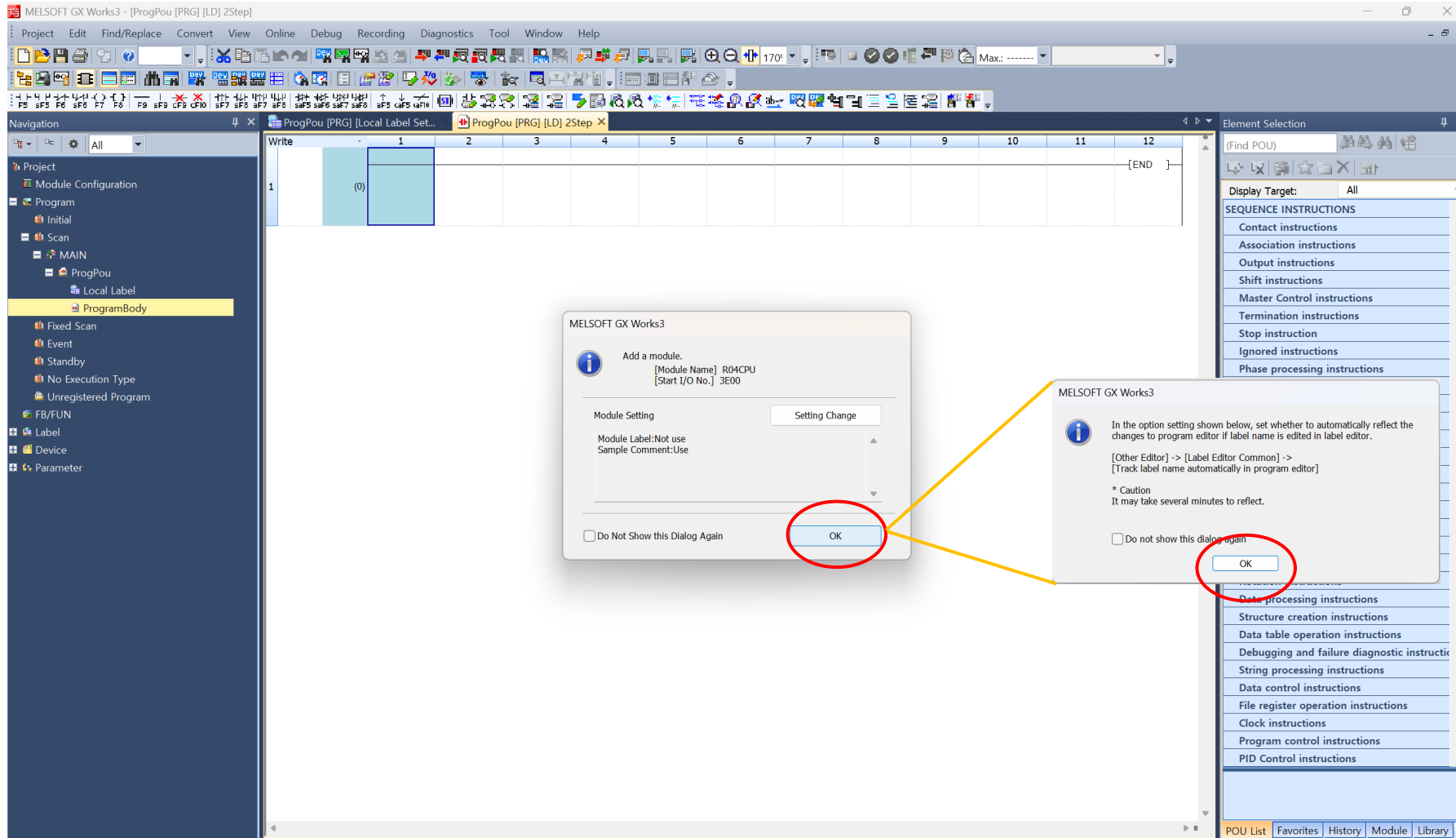
# 2-1. Project 생성

- 신규 Project 생성 시 iQ-R RD78G(H), 모델명, 사용 축수, Program 언어를 선택



# 2-2. Module 등록

- iQ-R CPU 등록



## 2-3. Module Configuration – H/W

- 마우스로 클릭&드래그 하여 Main Base, CPU Module, Power Supply를 구성

The screenshot shows the MELSOFT GX Works3 software interface for Module Configuration. The interface includes a menu bar, a toolbar, a navigation tree on the left, a central workspace, and an element selection panel on the right. A dialog box is open in the bottom-left corner, and a callout box is in the bottom-center.

**1** Points to the 'Module Configuration' menu item in the navigation tree.

**2** Points to the '마우스 클릭 & 드래그' (Mouse Click & Drag) text in the callout box.

**3** Points to the 'CPU iQ-R 장착' (CPU iQ-R Installation) step in the callout box.

**4** Points to the 'RD78(H) 장착' (RD78(H) Installation) step in the callout box.

**5** Points to the 'Motion Module' section in the element selection panel.

The element selection panel on the right contains the following table:

Module Name	Slots	Requirements
Main Base	2 Slots	Type requirein
R32SB	3 Slots	Type requirein
R33B	3 Slots	Type requirein
R35B	3 Slots	Type requirein
R35B	5 Slots	Type requirein
SIL2 Process CPU		
Safety CPU		
C Controller		
MELSECWinCPU		
Head Module		
Motion CPU		
NCCPU		
Robot CPU		
Power Supply		
R61SP	2.5A output	(Slim typ
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		

**[클릭 & 드래그]**  
1. Main Base  
2. Power Supply  
3. CPU iQ-R 장착  
4. RD78(H) 장착

## 2-3. Module Configuration – H/W

- 마우스의 오른쪽 버튼을 클릭하여 Fix(S) 선택으로 Module 구성 완료

MELSOFT GX Works3 (Untitled Project) - [Module Configuration \*]

Navigation: ProgPou [PRG] [Local Label Set...], ProgPou [PRG] [ST], Module Configuration \*

Element Selection: (Find POU), Display Target: All, MX Controller, MX-R Model

MELSOFT GX Works3

Fix the parameter.  
Are you sure you want to continue?

[Caution]

- (1) If other PLC CPU module is deleted, refresh setting between multiple CPUs will be deleted.
- (2) Interlink transmission setting will be deleted if the following operations are executed for the module which can use interlink transmission setting.
  - When the module is deleted
  - When the start I/O No. is changed
  - When the control CPU is changed from the host CPU to the other CPU.
- (3) Redundant module group setting will be deleted if the following operations are executed for the module which can use the redundant module group setting.
  - When the module is deleted
  - When the start I/O No. is changed
  - When the control CPU is changed from the host CPU to the other CPU
- (4) Copied module parameters and module extended parameters are copied to the pasted module. The setting value will be default ones for the following cases.
  - When the station type is different between copied module and pasted module
  - When the module that was copied in different project was pasted.

예(Y) 아니오(N)

Output  
I/O  
NC Dedicated Module  
R325B  
[Outline]  
Main Base Unit  
POU List Favorites History Module Library

# 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 navigation tree on the left (1) shows the 'Module Parameter (Network)' option selected. The central 'Setting Item' table (2) lists the following parameters:

Item	Setting
Station Type	Master Station
Network No.	1
Station No./IP Address Setting	0
Station No.	0
IP Address Setting	192.168.3.253
IP Address	
Subnet Mask	
Default Gateway	

The right-hand 'Element Selection' panel (3) shows the 'Apply' button. A yellow callout box provides the IP address: 'IP Address : 192.168.3.253' and a note: '※ 참고: Ezi-STEP CC-Link IE TSN ALL Default IP는 192.168.3.xxx'.

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

## ● Module Parameter(Network) : Basic Settings / Network Configuration Settings

The screenshot displays the MELSOFT GX Works3 software interface for configuring the 0000:RD78G4 module. The interface is divided into several key areas:

- Navigation Tree (Left):** A tree view showing the project structure. The 'Module Parameter (Network)' option is highlighted with a red box and a red circle labeled '1'.
- Setting Item List (Top Left):** A list of configuration items. 'Network Configuration Settings' is highlighted with a red box and a red circle labeled '2'.
- Setting Item (Top Right):** A table of settings. The 'Network Configuration Settings' row is highlighted with a red box and a red circle labeled '3'. A '<Detailed Setting>' button is visible next to it.
- CC-Link IE TSN Configuration Dialog (Center):** A detailed configuration window for the CC-Link IE TSN module. It includes a 'Module List' section with a tree view of available modules, such as 'General CC-Link IE TSN Module' and 'CC-Link IE TSN Module (Mitsubishi Ele...'. A red box highlights the 'Module List' section.

The interface also shows a 'Host Station' table with columns for 'req.', 'mode', 'master', 'STA#', and 'Station Type'. The 'Host Station' table shows a 'Host Station' with 'req.' set to 0 and 'Station Type' set to 'Master Station'. A red box highlights the 'Host Station' table.

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

- CC-Link IE TSN Configuration : Module을 수동(클릭&드래그)으로 구성

등록에 따라 생성됨

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		

**2**  
[Ezi-STEP CC-Link IE TSN ALL IP Address 임의로 수정]  
1. 192.168.3.17  
2. 192.168.3.18  
3. 192.168.3.19

**1**  
마우스 클릭 & 드래그 (반복)

**[참고] Ezi-STEP CC-Link IE TSN ALL IP Address 설정 16진수 로터리 스위치**

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

- CC-Link IE TSN Configuration : Module을 Motion Control Station 및 Synchronous 선택

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#, Control Station, RX Setting, Communication Period Interval (Min.), Synchronous Setting, PDO Mapping Setting, IP Address, Subnet Mask, Default Gateway, Reserved/Error Invalid Station, Network Synchronous Communication, and Communication Period Setting.

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

Annotations in the image:

- 1**: A red circle highlights the 'Control Station' column for STA# 1, 2, and 3, with a callout box stating 'Motion Control Station - Check (마우스 클릭)'. A red box highlights the checked checkboxes for STA# 1, 2, and 3.
- 2**: A red circle highlights the 'Synchronous Setting' dropdown menu for STA# 2, which is set to 'Synchronous'. A callout box states 'Synchronous 선택'.

The 'Module List' panel on the right shows a tree view of modules. The 'Ezi-STEP-CT-ALL' module is highlighted in red. The 'Outline' panel at the bottom right shows the configuration details for the selected module, including 'Step Drive, All-in-One', 'Specification', 'Motor: Max. NEMA 24', 'Mode: Homing, CSP, FP', 'Manufacturer Name: FASTECH Co. Ltd', and 'Station Type'.

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

## ● CC-Link IE TSN Configuration : Module PDO Mapping Setting (축별 설정)

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

Mode Setting: Online (Unicast Mode) Assignment Method:

No.	Model Name	STA#	Station Type	RX Setting Points	RY Setting Points	RW Setting Points	RWw 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	Esi-STEP-CT-ALL	1	Remote Station			16	16		<Detail Setting>	192.168.3.17		
2	Esi-STEP-CT-ALL	2	Remote Station			16	16		<Detail Setting>	192.168.3.18		
3	Esi-STEP-CT-ALL	3	Remote Station			16	16		<Detail Setting>	192.168.3.19		

등록에 따라 생성됨

Link Device Points: [ ]

PDO Mapping Parameter

Link Device (RW) Points: [16]

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

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

Back Next Cancel

Link Device (RWw) Points: [16]

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

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

Back OK Cancel

Network Label

Output

Error:0 Warning:0 Information:0

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

## ● CC-Link IE TSN Configuration : Module PDO Mapping Setting (축별 설정)

등록에 따라 생성됨

PDO Mapping Setting

Link Device Points: 16

PDO Mapping Parameter

Link Device	Index [Hexadecimal]	Sub-Index [Hexadecimal]	Entry Name	Comment	Data Type
RW0000	1002	01	Watchdog counter UL 1		UNSIGNED16
RW0001	6041	00	Statusword		UNSIGNED16
RW0002	6061	00	Modes of operation display		INTEGER8
RW0003	603F	00	Error code		UNSIGNED16
RW0004	6064	00	Position actual value		INTEGER32
RW0005	6064	00	Position actual value		INTEGER32
RW0006	6072	00	Digital Inputs		UNSIGNED32
RW0007	6072	00	Digital Inputs		UNSIGNED32
RW0008					
RW0009					
RW000a					
RW000b					
RW000c					
RW000d					
RW000e					
RW000f					

PDO Mapping Pattern Selection...

OK Cancel

Module List

- CC-Link IE TSN Selection
- Find Module
- My
- General CC-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Electr
- Master/Local Module
- Motion Module
- GOT3000 Series

CC-Link IE TSN Module (FASTECH Co. L

- Closed-loop Step Drive
- Open-loop Step Drive
- Ezi-STEP-CT
- Ezi-STEP-CT-ALL
- 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

## ● CC-Link IE TSN Configuration : Module Setting 반영

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?' and features two buttons: '예(Y)' (Yes) and '아니요(N)' (No). The '예(Y)' button is circled in red. Below the dialog box, a table lists the configuration for three stations:

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

Below the table, there is a diagram showing three stations (STA#1, STA#2, STA#3) connected to a Host Station. Each station is represented by a motor icon and labeled 'Ezi-STEP-CT-ALL'. The Host Station is labeled 'STAN0 Master Station Total STA#s:3 LineStar'. At the bottom right, there is an 'Output' panel showing 'Error:0', 'Warning:0', and 'Information:0'. A 'Network Label' panel is also visible at the bottom left.

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

- Network Configuration Settings 적용

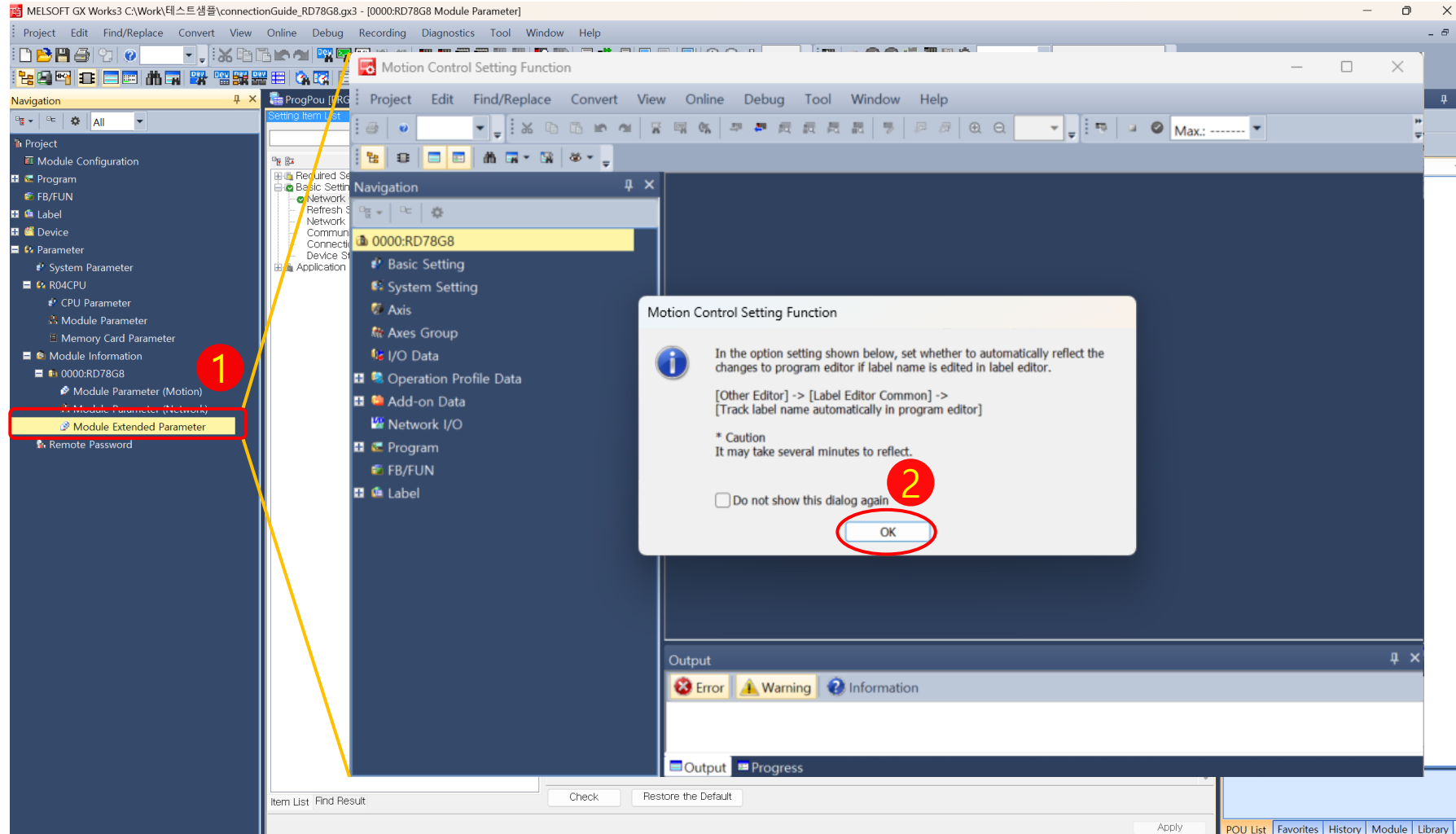
The screenshot displays the MELSOFT GX Works3 interface for configuring the 0000:RD78G8 module. The main window is titled '0000:RD78G8 Module Parameter' and shows a tree view of settings on the left and a detailed configuration table on the right. The 'Network Configuration Settings' section is expanded, revealing several sub-sections:

- Network Configuration Settings**: Includes a '<Detailed Setting>' dropdown.
- Refresh Settings**: Includes a '<Detailed Setting>' dropdown.
- Network Topology**: Set to 'Line/Star'.
- Communication Period Setting**: Includes a 'Basic Period Setting' section with the following values:
  - Setting in Units of 1us: Not Set
  - Communication Period Interval Setting (Do not Set it in Units of 1us): 1000.00 us
  - Communication Period Interval Setting (Set it in Units of 1us): 1000.00 us
  - System Reservation Time: 20.00 us
  - Cyclic Transmission Time: 500.00 us
  - Transient Transmission Time: 480.00 us
- Multiple Period Setting**: Includes 'Normal-Speed' (x4) and 'Low-Speed' (x16).
- Connection Device Information**: Includes 'CC-Link IE TSN Class Setting' (CC-Link IE TSN Class B Only) and 'TSN HUB Setting' (Not to Use TSN HUB).
- Device Station Setting**: Includes 'Disconnection Detection Setting' (4 times).

At the bottom of the window, there are buttons for 'Check', 'Restore the Default', and 'Apply'. The 'Apply' button is circled in red. An 'Explanation' section at the bottom provides context: 'Set parameters of device stations (the number of points and assignment of link devices) in the master station.'

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

## ● Module Extended Parameter



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

## ● Axis - Axis0001 생성

1

2

3

마우스 오른쪽 클릭

New Data

Basic Setting

Data Type Axis

(Data Name) Axis0001

Detailed Setting

Axis Information

Axis No. 1

Axis Parameter Constant

Station Address Setting

Axis Type Setting 0:Real Drive Axis

Control Cycle Setting 0:Operate in the First Operation C

OK Cancel

New Data

Basic Setting

Data Type Axis

(Data Name) Axis0001

Detailed Setting

Axis Information

Axis No. 1

Axis Parameter Constant

Station Address Setting 192.168.3.17

Axis Type Setting 0:Real Drive Axis

Control Cycle Setting 0:Operate in the First Operation C

OK Cancel

Station Address Setting

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

OK Cancel

Output

Error Warning Information

Output Progress

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

- Axis - Axis0001, Axis0002, Axis0003 생성 (반복)

The screenshot shows the 'Axis Parameter Setting' window in a software application. The interface includes a navigation tree on the left, a search bar, and a main table of parameters. A red circle highlights the 'Global' label in the navigation tree, and another red circle highlights the column headers of the parameter table.

Item	Axis0001	Axis0002	Axis0003
<b>Axis Information</b>			
Axis No.	1	2	3
<b>Axis Parameter Constant</b>	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			
<b>Master-slave Operation Setting</b>			
Control Cycle Setting	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle
Absolute Position Reference	3:Machine Feed Value	3:Machine Feed Value	3:Machine Feed Value
Absolute Position Reference	3:Machine Feed Value	3:Machine Feed Value	3:Machine Feed Value
Absolute Position Control Se	-1:Automatic Setting (Acquire from Connected D	-1:Automatic Setting (Acquire from Connected Dev	-1:Automatic Setting (Acquire from Connected Device)
Ring Counter Enabled Select	0:Disabled	0:Disabled	0:Disabled
Ring Counter Lower Limit Val	-10000000000.0 pulse	-10000000000.0 pulse	-10000000000.0 pulse
Ring Counter Upper Limit Val	10000000000.0 pulse	10000000000.0 pulse	10000000000.0 pulse
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
<b>Object Data</b>			
ControlWord	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0120	[OBJ]0x608F0120
FollowingErrActualValue	[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

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

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

The screenshot displays the 'Axis Parameter Setting' window for Axis0001. The 'Object Data' tab is active, showing a table of parameters for Axis0001, Axis0002, and Axis0003. The 'Object Data Setting (Axis0001)' dialog box is open, showing the 'ControlWord' parameter set to '[OBJ]0x60400010'. A yellow callout box points to this value with the text 'Ezi-STEP CC-Link IE TSN ALL Object Data'. Another yellow callout box points to the 'Restore the Defa' button. A third yellow callout box points to the '예(Y)' button in the dialog. A fourth yellow callout box points to the '예(Y)' button in the 'MELSOFT GX Works3' warning dialog. A fifth yellow callout box points to the '예(Y)' button in the 'MELSOFT GX Works3' warning dialog.

Item	Axis0001	Axis0002	Axis0003
Ring Counter Lower Limit Val	-1000000000.0 pulse	-1000000000.0 pulse	-1000000000.0 pulse
Ring Counter Upper Limit Val	1000000000.0 pulse	1000000000.0 pulse	1000000000.0 pulse
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
ControlWord	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0120	[OBJ]0x608F0120
FollowingErrActualValue	[OBJ]0x60F40020	[OBJ]0x60F40020	[OBJ]0x60F40020
ControlWord	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0120	[OBJ]0x608F0120
FollowingErrActualValue	[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
ModesOfOpDiso	[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
StatusWord	[OBJ]0x60410010	[OBJ]0x60410010	[OBJ]0x60410010
SupportedDriveModes	[OBJ]0x65020020	[OBJ]0x65020020	[OBJ]0x65020020

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

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

The screenshot displays the 'Motion Control Setting Function' software interface. The main window shows the 'Axis Parameter Setting' for three axes: Axis0001, Axis0002, and Axis0003. The 'Object Data' section is highlighted with a red oval, and a yellow callout box points to the '[OBJ]' prefix in the values, indicating that it should be changed to '[OBJ]'.

Item	Axis0001	Axis0002	Axis0003
Ring Counter Lower Limit Val	-1000000000.0 pulse	-1000000000.0 pulse	-1000000000.0 pulse
Ring Counter Upper Limit Val	1000000000.0 pulse	1000000000.0 pulse	1000000000.0 pulse
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Object Data	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
ControlWord	[OBJ]0x60400010	[OBJ]0x60400010	[OBJ]0x60400010
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0120	[OBJ]0x608F0120
FollowingErrActualValue	[OBJ]0x60F40020	[OBJ]0x60F40020	[OBJ]0x60F40020
GearRatioMotorRevolutions	[OBJ]0x607C0020	[OBJ]0x607C0020	[OBJ]0x607C0020
HomeOffset	[OBJ]0x60800020	[OBJ]0x60800020	[OBJ]0x60800020
MaxMotorSpeed	[OBJ]0x60720010	[OBJ]0x60720010	[OBJ]0x60720010
MaxTorque	[OBJ]0x60600008	[OBJ]0x60600008	[OBJ]0x60600008
ModesOfOp	[OBJ]0x60610008	[OBJ]0x60610008	[OBJ]0x60610008
ModesOfOpDisp	[OBJ]0x60E10010	[OBJ]0x60E10010	[OBJ]0x60E10010
NegativeTorqueLimitValue	[OBJ]0x607E0008	[OBJ]0x607E0008	[OBJ]0x607E0008
Polarity	[OBJ]0x60640020	[OBJ]0x60640020	[OBJ]0x60640020
PosActualValue	[OBJ]0x608F0008	[OBJ]0x608F0008	[OBJ]0x608F0008
PosEncoderResolution	[OBJ]0x608F0220	[OBJ]0x608F0220	[OBJ]0x608F0220
PosEncoderResolutionMot	[OBJ]0x60E00010	[OBJ]0x60E00010	[OBJ]0x60E00010
PositiveTorqueLimitValue	[OBJ]0x60A80020	[OBJ]0x60A80020	[OBJ]0x60A80020
ShaftRevolutions	[OBJ]0x60A90020	[OBJ]0x60A90020	[OBJ]0x60A90020
SiUnitPos	[OBJ]0x60410010	[OBJ]0x60410010	[OBJ]0x60410010
SiUnitVel	[OBJ]0x65020020	[OBJ]0x65020020	[OBJ]0x65020020
StatusWord			
SupportedDriveModes			

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] 변경된 내용 확인

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

- Axis – Position Command Unit (기어비 설정) ※ Ezi-STEP ALL 10,000 ppr

**Ezi-STEP CC-Link IE TSN ALL의 Encoder Resolution Setting Range는 10,000 pulse/rev**

**기어비 설정 방법은 기존방법과 동일함**

**1** Position Command Unit: pulse

**2** Encoder Resolution: 10000 [pulse/rev]

**3** Calculate Axis Para

**4** Calculate

**5** 예(Y)

Apply

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

- Axis – Position Command Unit (기어비 설정) ※ Ezi-STEP ALL 10,000 ppr

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

**모터 1회전당 이동 거리/각도 설정**

**Robot or Stage 이동 단위 선택**

Item	Axis0001	Axis0002	Axis0003
Acceleration Limit Value	2147483647.0 degree/s <sup>2</sup>	2147483647.0 pulse/s <sup>2</sup>	2147483647.0 pulse/s <sup>2</sup>
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 <sup>2</sup>	2147483647.0 pulse/s <sup>2</sup>	2147483647.0 pulse/s <sup>2</sup>
Driver Unit Conversion Numerator	10000	1	1
Driver Unit Conversion Denominator	360 degree	pulse	1 pulse
Forced Stop signal			
Homing Required or Not	1:Homing Required	1:Homing Required	1:Homing Required
Jerk Limit Value	2147483647.0 degree/s <sup>3</sup>	2147483647.0 pulse/s <sup>3</sup>	2147483647.0 pulse/s <sup>3</sup>
Operation Setting at Overrun	1:Immediate Stop	1:Immediate Stop	1:Immediate Stop
Start Permission at Homing Uncomplete	0:Disabled	0:Disabled	0:Disabled
Deceleration at Stop	0.0 degree/s <sup>2</sup>	0.0 pulse/s <sup>2</sup>	0.0 pulse/s <sup>2</sup>
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
Stop Signal			
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

Apply

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

## ● Axis – Absolute Position Control Setting : Disable로 설정

The screenshot displays the 'Axis Parameter Setting' window for three axes. The 'Absolute Position Control Setting' is set to '0:Disable Absolute Position System' for all three axes. The 'Apply' button is highlighted with a red dashed circle.

Item	Axis0001	Axis0002	Axis0003
Axis No.	1	2	3
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Operate in the First Operation Cycle	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle	0:Operate in the First Operation Cycle
Machine Feed Value	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	10000.0 mm	10000.0 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
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
Acceleration Limit Value	2147483647.0 degree/s <sup>2</sup>	2147483647.0 mm/s <sup>2</sup>	2147483647.0 mm/s <sup>2</sup>
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 mm	100.0 mm
Deceleration Limit Value	2147483647.0 degree/s <sup>2</sup>	2147483647.0 mm/s <sup>2</sup>	2147483647.0 mm/s <sup>2</sup>
Driver Unit Conversion Numerator	10000	10000	10000
Driver Unit Conversion Denominator	360 degree	5 mm	10 mm
Homing Required	1:Homing Required	1:Homing Required	1:Homing Required
Operation Setting at Overrun	1:Immediate Stop	1:Immediate Stop	1:Immediate Stop
Start Permission at Homing Uncomplete	0:DisableStart	0:DisableStart	0:DisableStart

**Ezi-STEP CC-Link IE TSN ALL은 Disable Absolute Position System으로 선택**

Apply

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

- Network I/O Setting – 축별 Digital In/Output 설정

The screenshot shows the 'Network Label Setting' window in MELSOFT GX Works3. The window is divided into a left sidebar with a tree view, a main table, and a right sidebar. The table lists three device stations (Ezi-STEP-CT-001, Ezi-STEP-CT-002, and Ezi-STEP-CT-003) and their associated digital I/O parameters. Red circles and callouts are used to highlight specific settings:

- 1**: A red circle highlights the 'Labeling Target' column for the first station, where several checkboxes are checked.
- 2**: A red circle highlights the 'Create Label' button at the bottom of the window.
- 3**: A red circle highlights the '예(Y)' (Yes) button in a confirmation dialog box that appears over the bottom right of the window.

Callout boxes on the right side of the window provide additional context:

- Digital Output 라벨 설정**: Points to the 'PhysicalOutputs' and 'WatchdogCounterUI1' labels.
- Digital Input 라벨 설정 - Limit +/-, ORG, Input**: Points to the 'DigitalInputs' label.

The confirmation dialog box contains the following text:

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)

Below the dialog box, the 'Create Label' button is highlighted with a red circle and the number 2.

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

## ● Axis – Upper/Lower Limit Signal – Signal Detection Method 설정

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

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 Absolute Position System	0-Disable Absolute Position System	0-Disable Absolute Position System
Ring Counter Enabled Selection	0-Disabled	0-Disabled	0-Disabled
Ring Counter Lower Limit Value	-1000000000.0 degree	-1000000000.0 mm	-1000000000.0 mm
Ring Counter Upper Limit Value	1000000000.0 degree	1000000000.0 mm	1000000000.0 mm
Axis Emulation Enabled	0-Disabled	0-Disabled	0-Disabled
Object Data	Torque Limit Maximum Value: 1000.0 %		
	Negative Direction Torque Limit Initial: 300.0 %		
	Positive Direction Torque Limit Initial: 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 <sup>2</sup>	2147483647.0 mm/s <sup>2</sup>	2147483647.0 mm/s <sup>2</sup>
Operation Selection at Start Acceleration	-1-Error (Not Started)	-1-Error (Not Started)	-1-Error (Not Started)

Callout boxes provide the following information:

- Upper Limit Signal:** Ezi-STEP CC-Link IE TSN ALL +Limit Switch 설정은 Ezi\_STEP\_CT\_001\_DigitalInputs.1
- Lower Limit Signal:** Ezi-STEP CC-Link IE TSN ALL -Limit Switch 설정은 Ezi\_STEP\_CT\_001\_DigitalInputs.0
- Note:** 주) Ezi\_STEP\_CT\_xxx\_DigitalInputs.x 라벨 설정이 안될 경우  
1. Network Setting 확인 (27page)

The 'Apply' button is circled in red at the bottom right of the window.

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

## ● Label – Global Label – Sys+Global

1

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_AdvancedS...	MotionControl_AdvancedSync_SYS...	VAR_GLOBAL	<Detailed Settings>			Disabled	-
3								

2

GX Works3에서 Label을 사용하려면 Enable 지정

Label Name	Data Type	Comment	Initial Value	Public Label
MotionControl_AdvancedSync_System	MotionControl_AdvancedSync_SYST	System Parameter Constant		Disabled
ADDON_PARAM	ADDON_PARAM	Add-on MotionControl_AdvancedSync...		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	MotionControl_AdvancedSync_SYS_...	System Monitor Data		Disabled
ADDON_MONI	ADDON_MONI	System Memory Usage		Disabled
RamUsage	Double Word [Unsigned] Bit String [32]	RAM Usage		Disabled
RamMaxUsage	Double Word [Unsigned] Bit String [32]	RAM Usage Maximum		Disabled
BackupRamUsage	Double Word [Unsigned] Bit String [32]	Backup RAM Usage		Disabled
BackupRamMaxUsage	Double Word [Unsigned] Bit String [32]	Backup RAM Usage Maximum		Disabled

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

Label Name	Data Type	Class	Initial Value	Constant	English/Display Target	Rem...	Public Label	Motion Control Attribute
Axis0001	AXIS_REAL	VAR_GLOBAL	-	-	-	-	Enabled	-
Axis0002	AXIS_REAL	VAR_GLOBAL	-	-	-	-	Enabled	-
Axis0003	AXIS_REAL	VAR_GLOBAL	-	-	-	-	Enabled	-

2

GX Works3에서 Label을 사용하려면 Enable 지정

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_CNST	Axis Parameter Constant		Disabled
AddressOfStation	String [Unicode](S3)	Station Address Setting	*192.168	Disabled
AxisType	Word [Signed]	Axis Type Setting	0	Disabled
HasStrokeLimit_FixSignal	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](S3)	Target	-	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 – Sys+Global

Label Name	Data Type	Class	Initial Value	Constant	English(Disp/Target)	Rem	Public Label	Motion Control Attribute
Ep_STEP_CT_001_Phys	Double Word (Unsigned) Bit String B3	VAR_GLOBAL			R/W#5		Enabled	WRITE (Motion) R/W#
Ep_STEP_CT_001_Digi	Double Word (Unsigned) Bit String B3	VAR_GLOBAL			R/W#5		Enabled	READ (Motion) R/W#
Ep_STEP_CT_002_Phys	Double Word (Unsigned) Bit String B3	VAR_GLOBAL			R/W#5		Enabled	WRITE (Motion) R/W#
Ep_STEP_CT_002_Digi	Double Word (Unsigned) Bit String B3	VAR_GLOBAL			R/W#5		Enabled	READ (Motion) R/W#
Ep_STEP_CT_003_Phys	Double Word (Unsigned) Bit String B3	VAR_GLOBAL			R/W#5		Enabled	WRITE (Motion) R/W#
Ep_STEP_CT_003_vgial	Double Word (Unsigned) Bit String B3	VAR_GLOBAL			R/W#5		Enabled	READ (Motion) R/W#

Label Name | Data Type | Comment | Initial Value

```
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

The screenshot displays the 'Motion Control Setting Function' software interface. The 'Convert' menu is open, with 'Rebuild All' (Shift+Alt+F4) highlighted by a red box and a red circle labeled '1'. A 'Rebuild All' dialog box is shown, containing a warning icon and the text 'Rebuild all programs in the Project.' and 'Execute rebuild with the following settings. Please check details in Options.' Below this, there is a section titled 'Do Not Use the Same Label Name in Global Label and Local Label' and a list of conversion settings. A 'Yes' button in this dialog is circled in red and labeled '2'. A second dialog box asks 'Do you want to execute a parameter check?' with a warning icon and a 'Yes' button circled in red and labeled '3'. The 'Progress' window at the bottom shows the status of the rebuild process, including 'Rebuild All Ends' and 'Rebuild All/Parameter Check Ends' with error and warning counts. A red dashed oval labeled '4' encompasses the 'Progress' window.

Axis No.	Axis0001	Axis0002	Axis0003
Station Address Setting	192.168.3.18	192.168.3.18	192.168.3.19
Upper Limit Signal	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Lower Limit Signal	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Master-slave Operation	0:Detection at TRUE	0:Detection at TRUE	0:Detection at TRUE
Control Cycle Setting	0.0 s	0.0 s	0.0 s
Absolute Position Reference	0.0 s	0.0 s	0.0 s
Absolute Position Control	0:Detection at TRUE	0:Detection at TRUE	0:Detection at TRUE
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 %	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 %

```
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

## ● Reflect Public Labels

The screenshot displays the 'Motion Control Setting Function' software interface. The navigation tree on the left shows the 'Label' section expanded to 'Global Label', with 'Reflect Public Labels' selected. A red circle '1' highlights this selection. The main window shows a table with columns for Data Type, Class, Initial Value, Constant, English/Display Target, Remark, Public Label, and Motion Control Attribute. A red circle '2' highlights the '예(Y)' button in the 'Motion Control Setting Function' dialog box. A second dialog box shows a completion message: 'The public label reflection was completed. Please check the sequence programs.' A red circle '3' highlights the '확인' button in this dialog.

Data Type	Class	Initial Value	Constant	English/Display Target	Remark	Public Label	Motion Control Attribute
Unsigned/Bit String [3]	VAR_GLOBAL			R/W#5		Enabled	WRITE (← Motion) R/W#
Unsigned/Bit String [3]	VAR_GLOBAL			R/W#5		Enabled	READ (Motion →) R/W#
Unsigned/Bit String [3]	VAR_GLOBAL			R/W#5		Enabled	WRITE (← Motion) R/W#
Double Word [Unsigned] Bit String [3]	VAR_GLOBAL			R/W#5		Enabled	READ (Motion →) R/W#
Double Word [Unsigned] Bit String [3]	VAR_GLOBAL			R/W#5		Enabled	READ (Motion →) R/W#
Double Word [Unsigned] Bit String [3]	VAR_GLOBAL			R/W#5		Enabled	WRITE (← Motion) R/W#



# 2-7. Write to PLC

## ● Online Data Operation

The screenshot displays the MELSOFT GX Works3 software interface. The 'Online' menu is open, and the 'Write to PLC...' option is highlighted with a red circle and a yellow arrow pointing to the 'Online Data Operation' dialog box. The dialog box shows a table of memory capacity for various modules and a legend for memory usage.

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:

- 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

Legend:

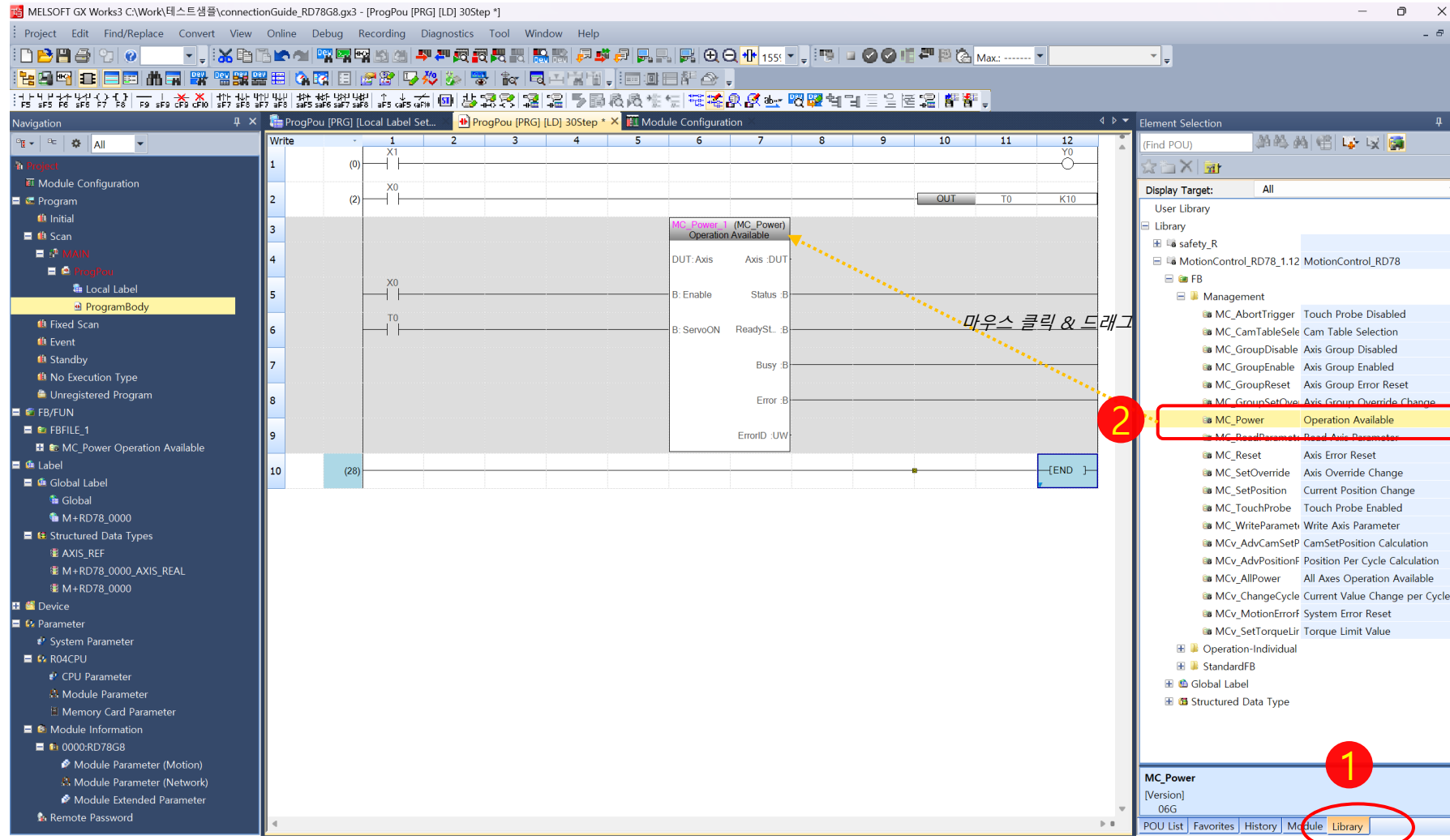
- Used (Green)
- Increased (Blue)
- Decreased (Red)
- Free: 5% or Less (Pink)

Buttons: Execute, Close

### 3. Program 따라 하기

# 3-1. Motion 제어 명령어 살펴보기

## ● Motion Control Function/Function Block 명령어 – Element Selection - Library





# 3-3. [Ladder] Ezi-STEP 원점복귀 방법 지정

원점복귀 방법은 Homing method(6098h)에 설정한 값에 따라 다음과 같이 분류됩니다.

- 원점복귀 방법 지정하기 (MC\_WriteParameter, 33: Homing index pu

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

- 원점복귀 파라미터 주소 : H60980008  
- 원점복귀 방법 : 35 (Set the current position origin)

**FB : MC\_WriteParameter**

DMOV	H60980008	dwAxisParam
EDMOV	33.0	edAxisMethod

MC\_WriteParameter\_1 (MC\_...)

[Axis001.A]	DUT: Axis	Axis: DUT
[dwAxisPara]	UD: Paramet...	Busy: B
[edAxisMeth]	L: Value	Error: B
[ 0 ]	W: Execution...	ErrorID: UW
[ H0 ]	UD: Options	SDOEro...: UD
		SDOStat...: UW

MC\_WriteParameter

[Version] 00A

POU List Favorites History Module Library

# 3-4. [Ladder] Ezi-STEP 원점복귀 실행

- 원점복귀 실행 (MC\_Home)

The screenshot displays the MELSOFT GX Works3 interface for a ladder logic program. The main workspace shows a ladder logic diagram for the function block **MC\_Home\_1 (MC\_Home)**. The diagram includes several rungs with the following elements:

- Rung 12:** A normally open contact labeled **[Axis0001.A]** is connected to the **MC\_WriteParameter\_1 (MC\_...** function block.
- Rung 13:** A normally open contact labeled **bAx1WParam** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 14:** A normally open contact labeled **[WAxisPara]** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 15:** A normally open contact labeled **[eIDAxisMeth]** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 16:** A normally open contact labeled **[ 0 ]** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 17:** A normally open contact labeled **[ H0 ]** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 18:** A normally open contact labeled **[ 0 ]** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 19:** A normally open contact labeled **[ H0 ]** is connected to the **MC\_WriteParameter\_1** function block.
- Rung 20:** A normally open contact labeled **bAx1HomeSL** is connected to the **bAx1HomeDo** coil.
- Rung 21:** A normally open contact labeled **bAx1Home** is connected to the **bAx1HomeDo** coil.
- Rung 22:** A normally open contact labeled **[ 37 ]** is connected to the **bAx1HomeDo** coil.
- Rung 23:** A normally open contact labeled **[Axis0001.A]** is connected to the **MC\_Home\_1 (MC\_Home)** function block.
- Rung 24:** A normally open contact labeled **bAx1Home** is connected to the **MC\_Home\_1 (MC\_Home)** function block.
- Rung 25:** A normally open contact labeled **[ 0.0 ]** is connected to the **MC\_Home\_1 (MC\_Home)** function block.
- Rung 26:** A normally open contact labeled **DUT: AbsSwit...** is connected to the **MC\_Home\_1 (MC\_Home)** function block.
- Rung 27:** A normally open contact labeled **[ H0 ]** is connected to the **MC\_Home\_1 (MC\_Home)** function block.
- Rung 28:** A normally open contact labeled **[ 0 ]** is connected to the **MC\_Home\_1 (MC\_Home)** function block.
- Rung 29:** A normally open contact labeled **[ 0 ]** is connected to the **MC\_Home\_1 (MC\_Home)** function block.

The right-hand side of the interface shows the **Element Selection** panel, which lists various function blocks and parameters. The **MC\_Home** function block is highlighted in the list. The **MC\_Home** function block is currently selected, and its parameters are visible in the **Parameter** section of the panel.

# 3-5. [Ladder] Ezi-STEP 이동 동작 실행

- 이동 동작 실행 (MC\_MoveAbsolute)

**임의 설정 이동 Position**

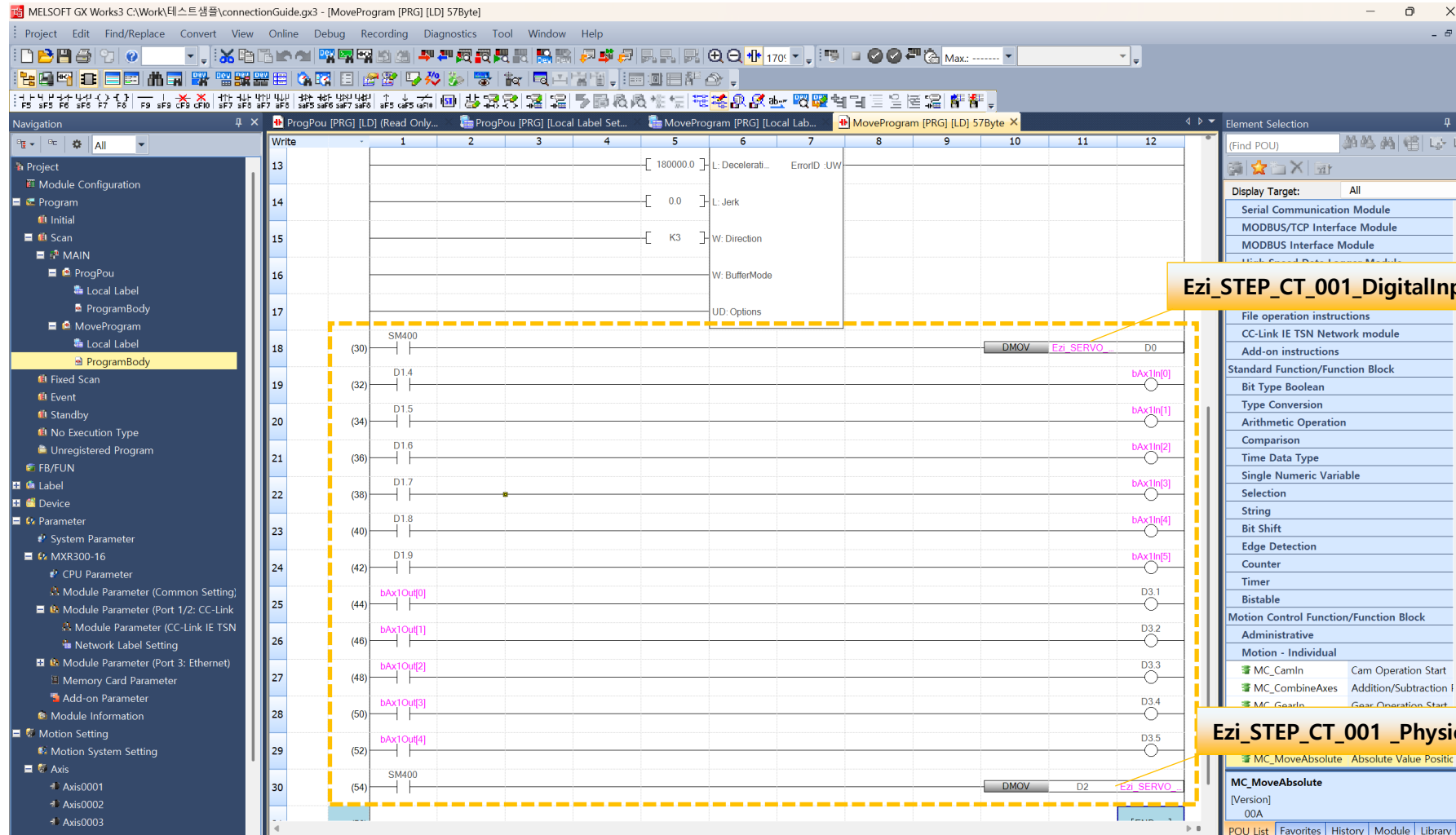
- bAx1PosPos1 ON → 3600.0
- bAx1PosPos1 ON → 0.0
- ※ 3,600 – 10회전

The screenshot shows the following details:

- Ladder Logic:** A sequence of steps (1-18) is shown. Step 10 contains two EDMOV instructions: EDMOV 3600.0 edAx1Pos1 and EDMOV 0.0 edAx1Pos1. Step 11 contains a timer T1 (3000.0) and a coil for bAx1Run. Step 12 contains a coil for bAx1MovDone. Step 13 contains a coil for bAx1Run. Step 14 contains a coil for bAx1Run. Step 15 contains a coil for bAx1Run. Step 16 contains a coil for bAx1Run. Step 17 contains a coil for bAx1Run. Step 18 contains an END instruction.
- MC\_MoveAbsolute Block Parameters:**
  - Axis: DUT: Axis
  - Done: Done B
  - Busy: Busy B
  - Active: Active B
  - Command: Command B
  - Error: Error B
  - ErrorID: ErrorID .UW
  - W: Direction
  - W: BufferMo...
  - UD: Options
- Parameter Values:**
  - [Axis0001 A]
  - [edAx1Pos1]
  - [ 3000.0 ]
  - [ 1800000.0 ]
  - [ 1800000.0 ]
  - [ 0.0 ]
  - [ K3 ]

# 3-6. [Ladder] Ezi-STEP DIO 동작 실행

- Digital Input, Output 동작 실행



## 3-6. [Ladder] Ezi-STEP DIO 동작 실행 : 맵 참조

- Digital Inputs

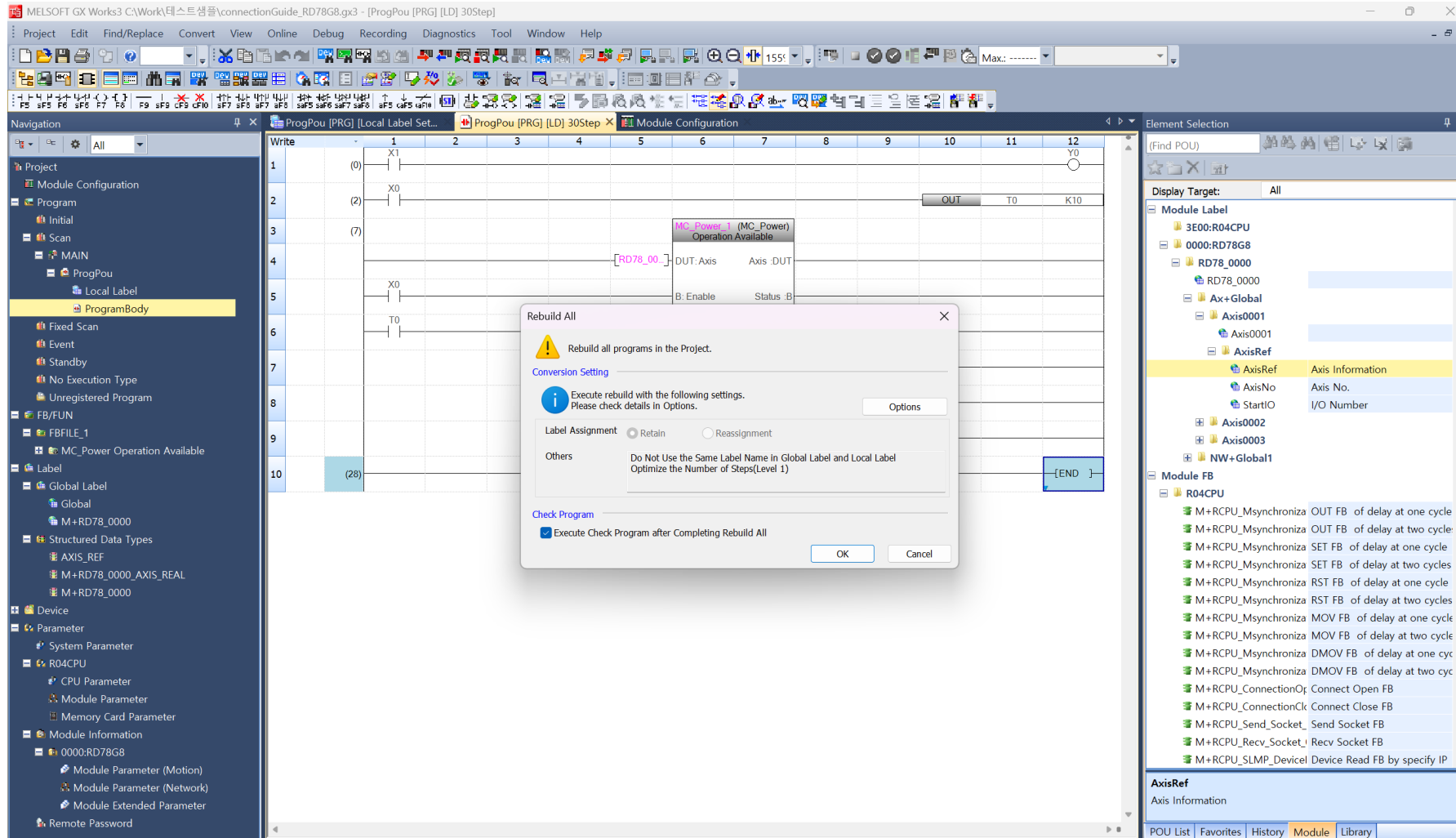
비트 31	비트 30	비트 29	비트 28	비트 27	비트 26	비트 25	비트 24
-	Motor Power	TQOFF2	TQOFF1	-	-	User input 6	User input 5
비트 23	비트 22	비트 21	비트 20	비트 19	비트 18	비트 17	비트 16
User input 4	User input 3	User input 2	User input 1	Reserved	Reserved	Reserved	
비트 15	비트 14	비트 13	비트 12	비트 11	비트 10	비트 9	비트 8
-	-	-	-	-	-	-	-
비트 7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

- Physical Outputs

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

# 3-7. [Ladder] Convert

- Convert – Rebuild All



# 부 록

# [동작 확인] Axis Monitor

- 각 축의 상태, 위치, 원점 복귀, Error 등을 모니터

**Axis Monitor (CPU No. 1) Start I/O No. 3E00**

Display Selection: Upper Pane  
Monitor Type: Real Drive Axis  
Monitor Item Selection  
Monitor Axis Selection

Display Selection: Lower Pane  
Monitor Type: Real Drive Axis  
Monitor Item Selection  
Monitor Axis Selection

Font Size: 9pt

	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	FALSE	FALSE	FALSE	FALSE	FALSE
Command In-position	FALSE	TRUE	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

**Motion Common Monitor**

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

[Version] 00A  
POU List Favorites History Module Library

# [동작 확인] 원점복귀 방법 변경

- 모션제어 FB을 사용하여 원점복귀 방식 변경 가능

- ① ParameterNumber 지정 : H60980008
- ② Value(Homing Method) 지정 : 33.0
- ③ ExecutionMode : TRUE (쓰기)
- ④ Done : TRUE가 됨

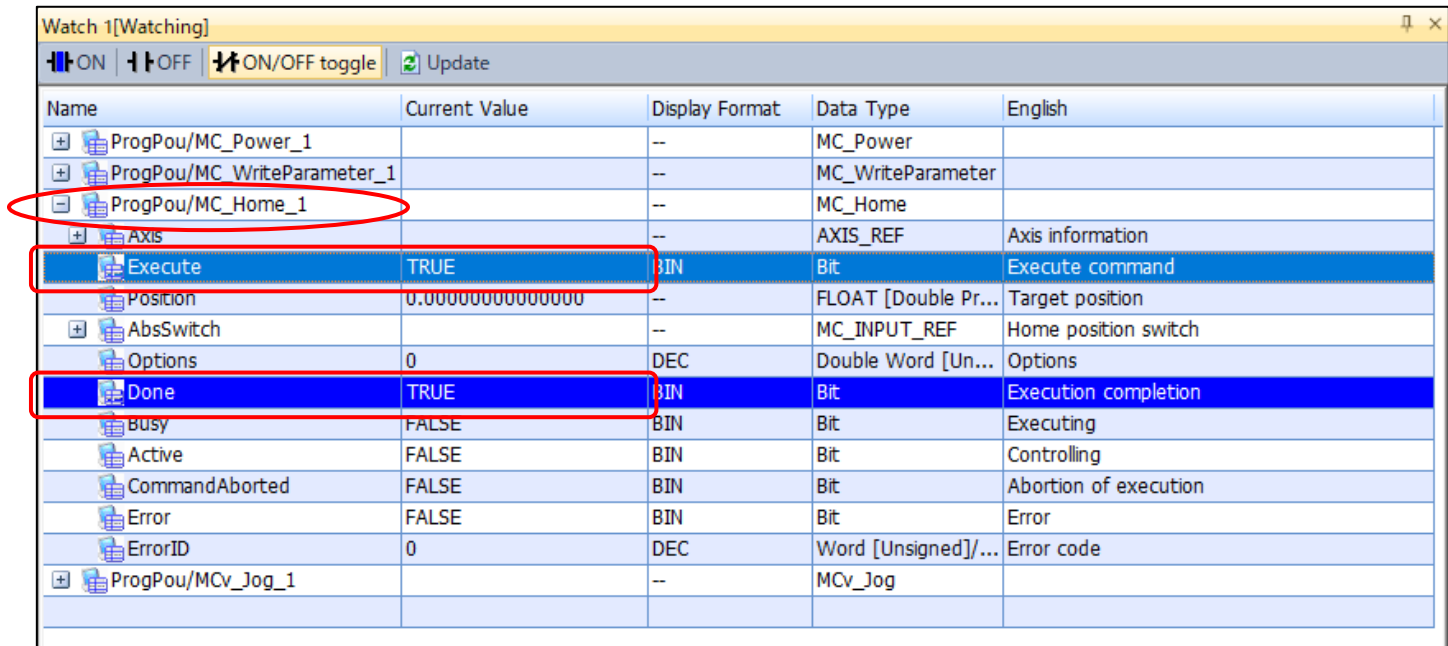
원점복귀 방법은 Homing method(6098h)에 설정한 값에 따라 다음과 같이 분류됩니다.

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

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 [Un...]	Setting value
ExecutionMode	0	DEC	Word [Signed]	Execution mode
Options	0	DEC	Double Word [Un...]	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 [Un...]	Transient error code
SDOStatus	1	DEC	Word [Unsigned]/...	SDO transfer status
ProgPou/MC_Home_1		--	MC_Home	
ProgPou/MCv_Jog_1		--	MCv_Jog	

# [동작 확인] 원점복귀

- 모션제어 FB을 사용하여 원점복귀 실행
  - ① Execute → TRUE (쓰기)
  - ② Done → TRUE가 됨



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	

- Ezi-STEP CC-Link IE TSN ALL의 LIMIT+ / LIMIT- 신호를 하드웨어 스트로크 리밋으로 사용하는 경우, 기동(시작) 전에 아래의 축 제어 데이터를 설정해 주십시오.  
[AxisName.Cd.HwStrokeLimit\_Override] → 'DISABLE'

# [동작 확인] Jog 운전

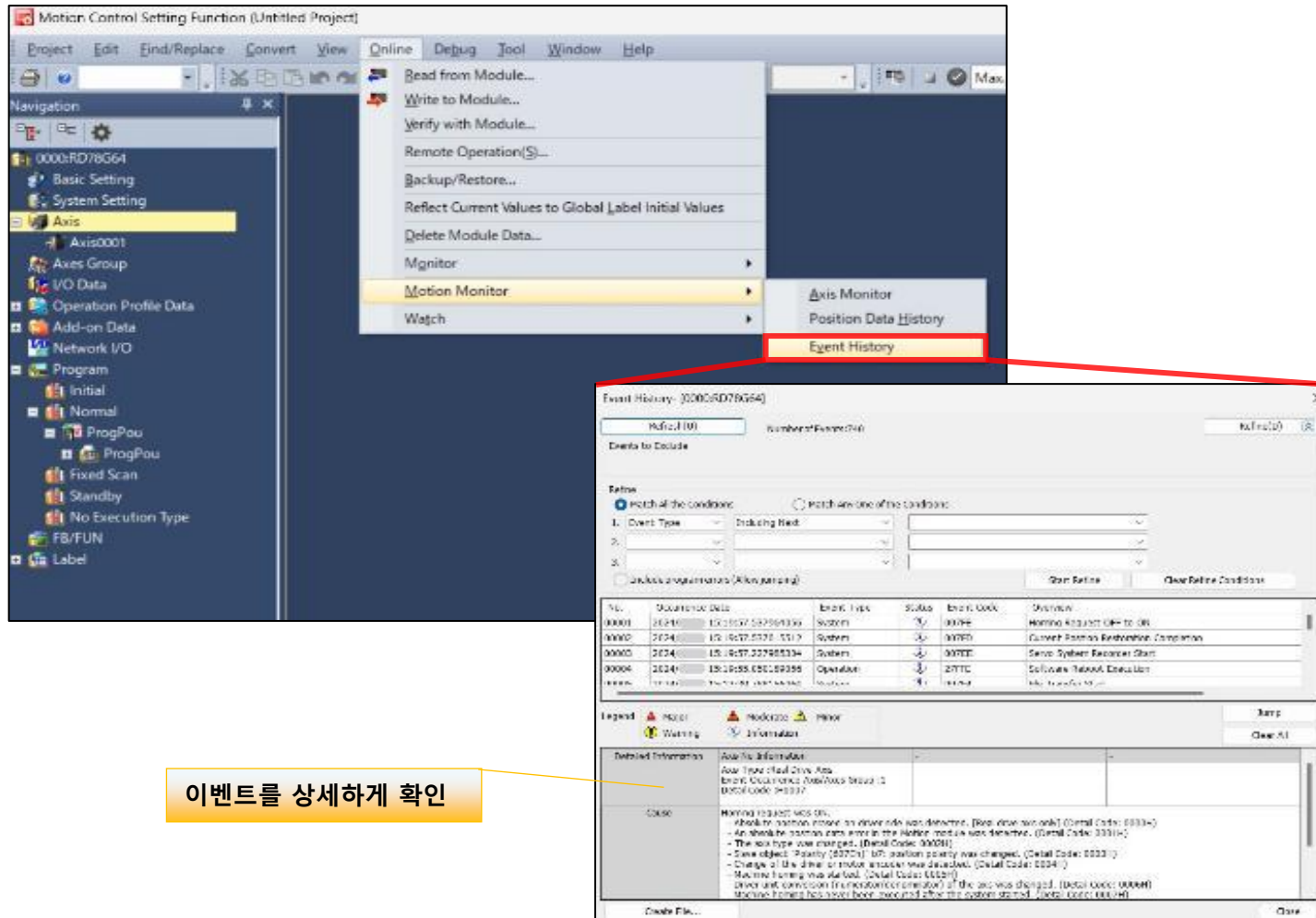
- 모션제어 FB을 사용하여 Jog 운전 실행
  - ① Velocity → 100.0
  - ② Acceleration → 100.0
  - ③ Deceleration → 100.0
  - ④ JogForward → TRUE (쓰기)

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

# [동작 확인] 트러블슈팅

- 에러 발생 시에는 이벤트 이력(기록)에서 원인을 확인

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



# [동작 확인] 트러블슈팅

---

- “SLMP 통신 이상”(1C43h) 이 발생한 경우  
→ 축 파라미터 설정을 참조하여 오브젝트 데이터를 설정해 주십시오.
- “MELSERVO 이외의 드라이브 유닛 접속 설정 오류 경고”(0D4Ch) 가 발생한 경우  
→ 축 파라미터 설정을 참조하여 절대 위치 시스템을 비활성화해 주십시오.
- MC\_Home을 기동하면 “제어 모드 전환 이상”(1A1Dh) 이 발생하는 경우  
→ 네트워크 구성 설정(드라이버 추가)에서  
Network Synchronous Communication을 \*\*“Synchronous”\*\*로 설정해 주십시오.
- 드라이브의 LIMIT+ / - 신호를 사용하는 방식으로 MC\_Home을 기동하면, 상/하한 리미트 신호를 검출하여 정지  
→ [AxisName.Cd.HwStrokeLimit\_Override] 를 ‘DISABLE’ 로 설정하고, 축 제어 데이터를 프로그램 등에서 설정해 주십시오.

# [파라미터] 원점복귀 파라미터 설정

- 원점복귀와 관련된 각종 설정은 다음 오브젝트에서 수행
  - MC\_WriteParameter를 사용하여 설정값을 기록합니다.
  - 각 오브젝트의 상세 내용은 Ezi-STEP CC-Link IE TSN ALL 매뉴얼을 참조해 주십시오.

오브젝트 명	Index: Subindex	설정 내용
Home offset	Obj.607C: 00h	기계 좌표계의 제로 위치와 원점복귀 위치의 차이
Homing method	Obj.6098: 00h	원점복귀 방식
Homing speeds	Obj.6099: 01h	원점복귀 속도
Homing speeds	Obj.6099: 02h	원점복귀 중 Cliff 속도
Homing acceleration	Obj.609A: 00h	원점복귀 중 가속도



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Micro Stepping System

**Ezi-POS**<sup>®</sup>  
Servo Control System

**Ezi-SPEED**<sup>®</sup>  
BLDC Motor Speed Control System

**Ezi-ROBO**<sup>®</sup>  
Precise Actuator System

**Ezi-IO**<sup>®</sup>  
Network Input/Output