MITSUBISHI ELECTRIC

Programmable Controller

CC-Link IE Field Network Remote I/O Module User's Manual

-NZ2GF2B2-16A
-NZ2GF2S2-16A
-NZ2GF2B1-16D
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-NZ2GF2S1-16D
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-NZ2GF2B1-32TE
-NZ2GF2S1-16T
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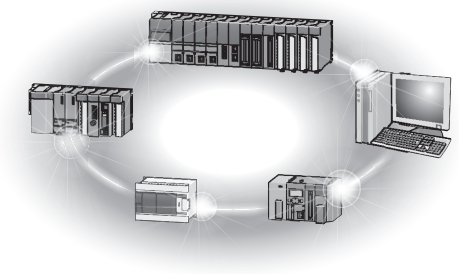
-NZ2EX2S1-16T
-NZ2EX2S1-16TE



SAFETY PRECAUTIONS

(Read these precautions before using this product.)
Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.
The precautions given in this manual are concerned with this product only. For the safety precautions of the programmable controller system, refer to the user's manual for the CPU module used.
In this manual, the safety precautions are classified into two levels: "⚠ WARNING" and "⚠ CAUTION".

⚠ **WARNING**	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ **CAUTION**	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.
Observe the precautions of both levels because they are important for personal and system safety.
Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

⚠ WARNING

- When a communication failure occurs in the network, data in the master module are held. Check Data link status (each station) (SW00B0 to SW00B7) and configure an interlock circuit in the program to ensure that the entire system will operate safely.
- When the module is disconnected due to a communication failure in the network or the CPU module is in the STOP status, all outputs are held or turned off according to the parameter setting. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even in such a case. If not, an accident may occur due to an incorrect output or malfunction.
- Outputs may remain on or off due to a failure of the module. Configure an external circuit for monitoring output signals that could cause a serious accident.
- Do not use any "use prohibited" signals as a remote input or output signal. These signals are reserved for system use. Do not write any data to the "use prohibited" areas in the remote register. Doing so may result in an accident due to an incorrect output or malfunction.

[Design Precautions]

⚠CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- During control of an inductive load such as a lamp, heater, or solenoid valve, a large current (approximately ten times greater than normal) may flow when the output is turned from off to on. Therefore, use a module that has a sufficient current rating.

[Security Precautions]

⚠WARNING

- To maintain the security (confidentiality, integrity, and availability) of the programmable controller and the system against unauthorized access, denial-of-service (DoS) attacks, computer viruses, and other cyberattacks from external devices via the network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.

[Installation Precautions]

⚠WARNING

- Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may result in electric shock or cause the module to fail or malfunction.

[Installation Precautions]

⚠CAUTION

- Use the module in an environment that meets the general specifications in this manual. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- Do not directly touch any conductive parts and electronic components of the module. Doing so can cause malfunction or failure of the module.
- After the first use of the product, do not connect/remove the extension module more than 50 times (IEC 61131-2 compliant). Exceeding the limit may cause malfunction.
- To connect an extension module to a main module, engage the respective connectors and securely lock the module joint levers. Incorrect interconnection may cause malfunction, failure, or drop of the module.
- Securely connect the cable connectors. Poor contact may cause malfunction.
- After the first use of the product, do not connect/remove the connector more than 50 times (IEC 61131-2 compliant). Exceeding the limit may cause malfunction.
- When connecting an extension module to a main module, turn off the module power supply of the main module. Failure to do so may cause malfunction.

[Wiring Precautions]

⚠WARNING

- Shut off the external power supply (all phases) used in the system before wiring. Failure to do so may result in electric shock or cause the module to fail or malfunction.

[Wiring Precautions]

⚠CAUTION

- Individually ground the FG terminal of the programmable controller with a ground resistance of 100 ohms or less. Failure to do so may result in electric shock or malfunction.
- Tighten any unused terminal screws within the specified torque range. Undertightening can cause a short circuit due to contact with a solderless terminal.
- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when a terminal block screw comes loose, resulting in failure.
- Check the rated voltage and terminal layout before wiring to the module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
- Tighten the terminal block screws within the specified torque range. Undertightening can cause short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.
- Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.
- Place the cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- When an overcurrent caused by an error of an external device or a failure of the programmable controller flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.
- Mitsubishi programmable controllers must be installed in control panels. Wiring and replacement of a module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring methods, refer to "INSTALLATION AND WIRING" in this manual.

[Startup and Maintenance Precautions]

⚠WARNING

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
- Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal block screws or connector screws. Failure to do so may cause the module to fail or malfunction.

[Startup and Maintenance Precautions]

⚠CAUTION

- Do not disassemble or modify the module. Doing so may cause failure, malfunction, injury, or a fire.
- Do not drop or apply strong shock to the module. Doing so may damage the module.
- Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may cause the module to fail or malfunction.
- After the first use of the product, do not connect/remove the terminal block more than 50 times (IEC 61131-2 compliant). Exceeding the limit may cause malfunction.
- Before handling the module or connection cables, touch a conducting object such as a grounded metal to discharge the static electricity from the human body. Failure to do so may cause the module to fail or malfunction.
- Startup and maintenance of a control panel must be performed by qualified maintenance personnel with knowledge of protection against electric shock. Lock the control panel so that only qualified maintenance personnel can operate it.

[Disposal Precautions]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.

CONDITIONS OF USE FOR THE PRODUCT

(1) MELSEC programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI ELECTRIC SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI ELECTRIC USER'S, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above restrictions, Mitsubishi Electric may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi Electric and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact the Mitsubishi Electric representative in your region.

(3) Mitsubishi Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.

INTRODUCTION

Thank you for purchasing the CC-Link IE Field Network remote I/O module (hereafter abbreviated as I/O module).
This manual describes the procedures, system configuration, parameter settings, functions, and troubleshooting of the I/O module.
Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the I/O module to handle the product correctly.
When applying the program examples introduced in this manual to an actual system, ensure the applicability and confirm that it will not cause system control problems.

■ Relevant products

NZ2GF2B2-16A, NZ2GF2S2-16A, NZ2GF2B1-16D, NZ2GF2B1N-16D, NZ2GF2B1N1-16D, NZ2GF2B1-32D, NZ2GF2S1-16D, NZ2GFCE3-16D, NZ2GFCE3-32D, NZ2GFCE3N-32D, NZ2GFCE3-16DE, NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCF1-32D, NZ2GF2B2-16R, NZ2GF2B2-16S, NZ2GF2S2-16R, NZ2GF2S2-16S, NZ2GF2B1-16T, NZ2GF2B1N-16T, NZ2GF2B1N1-16T, NZ2GF2B1-32T, NZ2GF2B1-16TE, NZ2GF2B1N-16TE, NZ2GF2B1N1-16TE, NZ2GF2B1-32TE, NZ2GF2S1-16T, NZ2GF2S1-16TE, NZ2GFCE3-16T, NZ2GFCE3-32T, NZ2GFCE3N-32T, NZ2GFCE3-16TE, NZ2GFCM1-16T, NZ2GFCM1-16TE, NZ2GFCF1-32T, NZ2GF2B1-32DT, NZ2GF2B1-32DTE, NZ2GFCE3-32DT, NZ2GFCE3N-32DT, NZ2GFCF1-32DT, NZ2EX2B1-16D, NZ2EX2B1N-16D, NZ2EX2S1-16D, NZ2EX2B1-16T, NZ2EX2B1N-16T, NZ2EX2B1-16TE, NZ2EX2B1N-16TE, NZ2EX2S1-16T, NZ2EX2S1-16TE

Point

Unless otherwise specified, this manual describes the program examples in which the remote I/O signals and remote registers are assigned for an I/O module as follows.

- Remote input signals (16-point modules): RX0 to RX3F (main I/O module: RX0 to RXF, extension I/O module 1: RX10 to RX1F, extension I/O module 2: RX20 to RX2F, extension I/O module 3: RX30 to RX3F)
- Remote input signals (32-point modules): RX0 to RX2F (main I/O module: RX0 to RX1F, extension I/O module 1: RX20 to RX2F)
- Remote output signals (16-point modules): RY0 to RY3F (main I/O module: RY0 to RYF, extension I/O module 1: RY10 to RY1F, extension I/O module 2: RY20 to RY2F, extension I/O module 3: RY30 to RY3F)
- Remote output signals (32-point modules): RY0 to RY2F (main I/O module: RY0 to RY1F, extension I/O module 1: RY20 to RY2F)
- Remote register: RWr0 to RWr53, RWw0 to RWw53 (main I/O module only)

For the assignment of remote I/O signals and remote registers, refer to the following.

User's manual for the master/local module used

CONTENTS

RELEVANT MANUALS

CC-Link IE Field Network relevant manuals

When using CC-Link IE Field Network for the first time, refer to CC-Link IE Field Network master/local module user's manuals or Simple Motion module user's manuals first. The following shows the structure of CC-Link IE Field Network manuals.

Manual name [manual number]	Description	Available form
MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual [SH-080917ENG]	Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the QJ71GF11-T2	Print book e-Manual PDF
MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual [SH-080972ENG]	Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the LJ71GF11-T2	Print book e-Manual PDF
MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup) [SH-081256ENG]	Specifications, procedures before operation, system configuration, wiring, and communication examples of Ethernet, CC-Link IE Controller Network, and CC-Link IE Field Network	Print book e-Manual PDF
MELSEC iQ-R CC-Link IE Field Network User's Manual (Application) [SH-081259ENG]	Functions, parameter settings, programming, troubleshooting, I/O signals, and buffer memory of CC-Link IE Field Network	Print book e-Manual PDF
MELSEC iQ-R Inter-Module Synchronization Function Reference Manual [SH-081401ENG]	Inter-module synchronization function, which controls multiple modules synchronously	e-Manual PDF
MELSEC-Q QD77GF Simple Motion Module User's Manual (Network) [IB-0300203]	Functions, programming, and troubleshooting for CC-Link IE Field Network of the QD77GF	Print book PDF
MELSEC-Q QD77GF Simple Motion Module User's Manual (Positioning Control) [IB-0300202]	Specifications of the QD77GF and information on how to establish a system, maintenance and inspection, and troubleshooting. Functions, programming and buffer memory for the positioning control of the QD77GF	Print book PDF
MELSEC iQ-R Simple Motion Module User's Manual (Network) [IB-0300307ENG]	Functions, parameter settings, troubleshooting, and buffer memory of CC-Link IE Field Network	Print book e-Manual PDF
MELSEC iQ-R Simple Motion Module User's Manual (Application) [IB-0300247ENG]	Functions, parameter settings, I/O signals, buffer memory, programming, and troubleshooting of the Simple Motion module	Print book e-Manual PDF
MELSEC iQ-R Simple Motion Module User's Manual (Advanced Synchronous Control) [IB-0300249ENG]	Functions and programming related to synchronous control of the Simple Motion module	Print book e-Manual PDF

Operating manuals

Manual name [manual number]	Description	Available form
GX Works2 Version 1 Operating Manual (Common) [SH-080779ENG]	System configuration, parameter settings, and online operations of GX Works2, which are common to Simple projects and Structured projects	Print book e-Manual PDF
GX Works3 Operating Manual [SH-081215ENG]	System configuration, parameter settings, and online operations of GX Works3	e-Manual PDF

Others

Manual name [manual number]	Description	Available form
iQ Sensor Solution Reference Manual [SH-081133ENG]	Operation methods of the online functions for iQ Sensor Solution	Print book e-Manual PDF

TERMS

Unless otherwise specified, this manual uses the following terms.

Term	Description
Buffer memory	Buffer memory in a remote device station and intelligent device station
CC-Link IE Field Network	A high-speed and large-capacity open field network that is based on Ethernet (1000BASE-T)
Cyclic transmission	A function by which data are periodically exchanged among stations on the same network using link devices (RX, RY, RWw, and RWr)
Dedicated instruction	An instruction that simplifies programming for using functions of intelligent function modules
Engineering tool	A tool used for setting up programmable controllers, programming, debugging, and maintenance
Extension module	A remote module with no CC-Link IE Field Network communication function. This module cannot be used as a single module. However, connecting the module to the main module will increase the number of I/O points per station.
Intelligent device station	A station that exchanges I/O signals (bit data) and I/O data (word data) with the master station by cyclic transmission. This station can perform transient transmission as well. This station responds to a transient transmission request from another station and also issues a transient transmission request to another station.
Link device	A device (RX, RY, RWr, RWw, SB, or SW) in a module or a board on CC-Link IE Field Network
Local station	A station that performs cyclic transmission and transient transmission with the master station and other local stations
Main module	A module with the CC-Link IE Field Network communication function, which can be used as a single remote module. Extension modules can be connected to this module.
Master station	A station that controls the entire network. This station can perform cyclic transmission and transient transmission with all stations. Only one master station can be used in a network.
Relay station	A station that includes two or more network modules. Data are passed through this station to stations on other networks
Remote buffer memory	Buffer memory in a remote device station and intelligent device station
Remote device station	A station that exchanges I/O signals (bit data) and I/O data (word data) with the master station by cyclic transmission. This station responds to a transient transmission request from another station.
Remote I/O station	A station that exchanges I/O signals (bit data) with the master station by cyclic transmission
Reserved station	A station reserved for future use. This station is not actually connected, but counted as a connected station
Slave station	A station other than a master station: a local station, a remote I/O station, a remote device station, and an intelligent device station
Transient transmission	A function of communication with another station, which is used when requested by a dedicated instruction or a programming tool

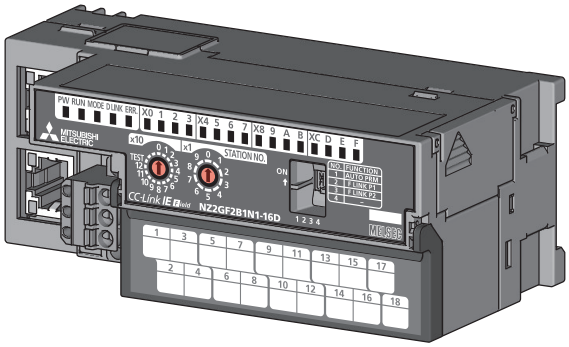
GENERIC TERMS AND ABBREVIATIONS

Generic term and abbreviation	Description
Data link	A generic term for cyclic transmission and transient transmission
Extension I/O module	A generic term for extension input modules and extension output modules
Extension input module	A generic term for extension modules where a digital signal can be input
Extension output module	A generic term for extension modules where a digital signal can be output
I/O module	An abbreviation for the CC-Link IE Field Network remote I/O module
Main A/D converter module	An abbreviation for the CC-Link IE Field Network analog-digital converter module
Main D/A converter module	An abbreviation for the CC-Link IE Field Network digital-analog converter module
Main I/O combined module	A generic term for main modules where a digital signal can be input and output
Main I/O module	A generic term for main input modules, main output modules, and main I/O combined modules
Main input module	A generic term for main modules where a digital signal can be input
Main output module	A generic term for main modules where a digital signal can be output
Master/local module	An abbreviation for the CC-Link IE Field Network master/local module
Network module	A generic term for the following modules: • CC-Link IE Field Network module • CC-Link IE Controller Network module • Ethernet interface module • MELSECNET/H module • MELSECNET/10 module
REMFR	An abbreviation for ZP.REMFR
REMTO	An abbreviation for ZP.REMTO
RnENCPU	A generic term for the R04ENCPU, R08ENCPU, R16ENCPU, R32ENCPU, and R120ENCPU
Simple Motion module	A generic term for MELSEC iQ-R series Simple Motion modules and MELSEC-Q series Simple Motion modules

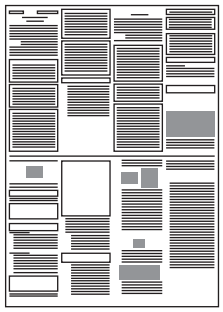
PACKING LIST

The following items are included in the package of this product. Before use, check that all the items are included.

I/O module



Module (The figure above shows the main I/O module (screw terminal block).)



Before Using the Product

LIST OF DISCONTINUED MODELS

The following table lists discontinued models described in this manual. For onerous repair term after discontinuation of production, refer to WARRANTY in this manual.

Model	Production discontinuation
NZ2GF2B1-16D	November, 2015
NZ2GF2B1-16T	
NZ2GF2B1-16TE	
NZ2EX2B1-16D	October, 2017
NZ2EX2B1-16T	
NZ2EX2B1-16TE	
NZ2GF2B1N-16D	September, 2018
NZ2GF2B1N-16T	
NZ2GF2B1N-16TE	
NZ2GFCE3-32D	
NZ2GFCE3-32T	
NZ2GFCE3-32DT	

1 PRODUCT LINEUP

1.1 Main I/O module

Main input module

Module name		Input specifications	Module power supply current	Weight	Model	Reference
AC input module		Screw terminal block 100 to 120VAC, 16 points	130mA	0.4kg	NZ2GF2B2-16A	Page 40 NZ2GF2B2-16A main AC input module
		Spring clamp terminal block 100 to 120VAC, 16 points	130mA	0.4kg	NZ2GF2S2-16A	Page 44 NZ2GF2S2-16A main AC input module
DC input module	Positive common/ negative common shared type	Screw terminal block 24VDC, 16 points	180mA	0.31kg	NZ2GF2B1-16D NZ2GF2B1N-16D	Page 47 NZ2GF2B1(N, N1)-16D main DC input module
			120mA	0.30kg	NZ2GF2B1N1-16D	
		Screw terminal block 24VDC, 32 points	120mA	0.38kg	NZ2GF2B1-32D	Page 50 NZ2GF2B1-32D main DC input module
		Spring clamp terminal block 24VDC, 16 points	180mA	0.31kg	NZ2GF2S1-16D	Page 52 NZ2GF2S1-16D main DC input module
	Positive common type	e-CON 24VDC, 16 points	180mA	0.27kg	NZ2GFCE3-16D	Page 54 NZ2GFCE3-16D main DC input module
		e-CON 24VDC, 32 points		0.35kg	NZ2GFCE3-32D	Page 57 NZ2GFCE3(N)-32D main DC input module
			100mA	0.30kg	NZ2GFCE3N-32D	
	Negative common type	e-CON 24VDC, 16 points	180mA	0.27kg	NZ2GFCE3-16DE	Page 60 NZ2GFCE3-16DE main DC input module
	Positive common type	MIL connector 24VDC, 16 points	180mA	0.24kg	NZ2GFCM1-16D	Page 63 NZ2GFCM1-16D main DC input module
	Negative common type				NZ2GFCM1-16DE	Page 66 NZ2GFCM1-16DE main DC input module
	Positive common/ negative common shared type	FCN connector 24VDC, 32 points	100mA	0.26kg	NZ2GFCF1-32D	Page 69 NZ2GFCF1-32D main DC input module

Main output module

Module name		Output specifications	Module power supply current	Weight	Model	Reference
Contact output module		Screw terminal block 240VAC/24VDC, 2A/1 point, 16 points	190mA	0.45kg	NZ2GF2B2-16R	Page 71 NZ2GF2B2-16R main contact output module
		Spring clamp terminal block 240VAC/24VDC, 2A/1 point, 16 points	190mA	0.45kg	NZ2GF2S2-16R	Page 74 NZ2GF2S2-16R main contact output module
Triac output module		Screw terminal block 100 to 240VAC, 0.6A/1 point, 16 points	170mA	0.45kg	NZ2GF2B2-16S	Page 76 NZ2GF2B2-16S main triac output module
		Spring clamp terminal block 100 to 240VAC, 0.6A/1 point, 16 points	170mA	0.45kg	NZ2GF2S2-16S	Page 78 NZ2GF2S2-16S main triac output module
Transistor output module	Sink type	Screw terminal block 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.31kg	NZ2GF2B1-16T NZ2GF2B1N-16T	Page 80 NZ2GF2B1(N, N1)-16T main transistor output module
			130mA	0.30kg	NZ2GF2B1N1-16T	
		Screw terminal block 12 to 24VDC, 0.5A/1 point, 32 points	130mA	0.38kg	NZ2GF2B1-32T	Page 83 NZ2GF2B1-32T main transistor output module
		Spring clamp terminal block 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.31kg	NZ2GF2S1-16T	Page 86 NZ2GF2S1-16T main transistor output module
	Source type	Screw terminal block 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.31kg	NZ2GF2B1-16TE NZ2GF2B1N-16TE	Page 88 NZ2GF2B1(N, N1)-16TE main transistor output module
			130mA	0.30kg	NZ2GF2B1N1-16TE	
		Screw terminal block 12 to 24VDC, 0.5A/1 point, 32 points	130mA	0.38kg	NZ2GF2B1-32TE	Page 91 NZ2GF2B1-32TE main transistor output module
		Spring clamp terminal block 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.31kg	NZ2GF2S1-16TE	Page 94 NZ2GF2S1-16TE main transistor output module
	Sink type	e-CON 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.27kg	NZ2GFCE3-16T	Page 96 NZ2GFCE3-16T main transistor output module
		e-CON 12 to 24VDC, 0.5A/1 point, 32 points		0.35kg	NZ2GFCE3-32T	Page 99 NZ2GFCE3(N)-32T main transistor output module
			120mA	0.30kg	NZ2GFCE3N-32T	
	Source type	e-CON 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.27kg	NZ2GFCE3-16TE	Page 102 NZ2GFCE3-16TE main transistor output module
	Sink type	MIL connector 12 to 24VDC, 0.5A/1 point, 16 points	190mA	0.24kg	NZ2GFCM1-16T	Page 105 NZ2GFCM1-16T main transistor output module
	Source type				NZ2GFCM1-16TE	Page 107 NZ2GFCM1-16TE main transistor output module
	Sink type	FCN connector 12 to 24VDC, 0.5A/1 point, 32 points	110mA	0.26kg	NZ2GFCF1-32T	Page 109 NZ2GFCF1-32T main transistor output module

Main I/O combined module

Module name		Input specifications, output specifications	Module power supply current	Weight	Model	Reference
DC input/ transistor output module	Input part: Positive common type	Screw terminal block 24VDC, 16 points	120mA	0.38kg	NZ2GF2B1-32DT	Page 111 NZ2GF2B1-32DT main DC input/transistor output module
	Output part: Sink type	Screw terminal block 24VDC, 0.5A/1 point, 16 points				
	Input part: Negative common type	Screw terminal block 24VDC, 16 points	120mA	0.38kg	NZ2GF2B1-32DTE	Page 115 NZ2GF2B1-32DTE main DC input/transistor output module
	Output part: Source type	Screw terminal block 24VDC, 0.5A/1 point, 16 points				
	Input part: Positive common type	e-CON 24VDC, 16 points	180mA	0.35kg	NZ2GFCE3-32DT	Page 118 NZ2GFCE3(N)-32DT main DC input/transistor output module
	Output part: Sink type	e-CON 12 to 24VDC, 0.5A/1 point, 16 points				
	Input part: Positive common type	e-CON 24VDC, 16 points	110mA	0.30kg	NZ2GFCE3N-32DT	
	Output part: Sink type	e-CON 24VDC, 0.5A/1 point, 16 points				
	Input part: Positive common/ negative common shared type	FCN connector 24VDC, 16 points	110mA	0.26kg	NZ2GFCF1-32DT	Page 122 NZ2GFCF1-32DT main DC input/transistor output module
	Output part: Sink type	FCN connector 12 to 24VDC, 0.1A/1 point, 16 points				

1.2 Extension I/O Module

Extension input module

Module name		Input specifications	Module power supply current	Weight	Model	Reference
DC input module	Positive common/ negative common shared type	Screw terminal block 24VDC, 16 points	20mA	0.19kg	NZ2EX2B1-16D*1 NZ2EX2B1N-16D*1	Page 125 NZ2EX2B1(N)-16D extension DC input module
		Spring clamp terminal block 24VDC, 16 points			NZ2EX2S1-16D*1	Page 127 NZ2EX2S1-16D extension DC input module

*1 When this module is connected with the main A/D converter module or the main D/A converter module, there are restrictions on the input response time setting. For details, refer to the following.

☞ Page 253 Input Response Time Setting Function

For details on each module, refer to the following.

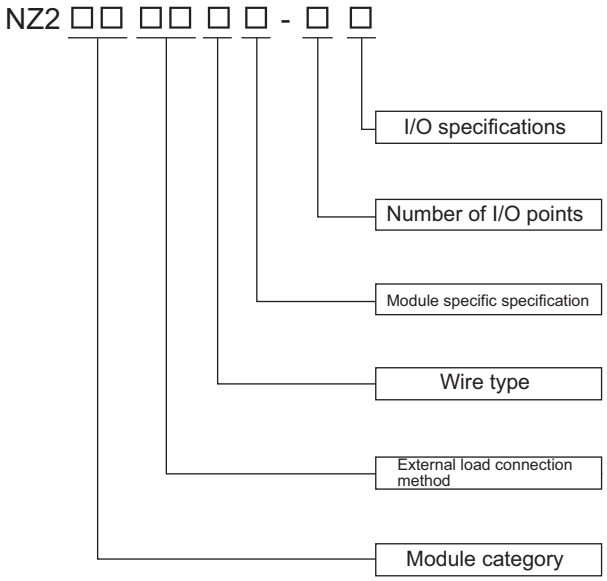
📖 User's manual for the main module used

Extension output module

Module name		Output specifications	Module power supply current	Weight	Model	Reference
Transistor output module	Sink type	Screw terminal block 12 to 24VDC, 0.5A/1 point, 16 points	30mA	0.19kg	NZ2EX2B1-16T NZ2EX2B1N-16T	Page 129 NZ2EX2B1(N)-16T extension transistor output module
		Spring clamp terminal block 12 to 24VDC, 0.5A/1 point, 16 points			NZ2EX2S1-16T	Page 131 NZ2EX2S1-16T extension transistor output module
	Source type	Screw terminal block 12 to 24VDC, 0.5A/1 point, 16 points			NZ2EX2B1-16TE NZ2EX2B1N-16TE	Page 133 NZ2EX2B1(N)-16TE extension transistor output module
		Spring clamp terminal block 12 to 24VDC, 0.5A/1 point, 16 points			NZ2EX2S1-16TE	Page 135 NZ2EX2S1-16TE extension transistor output module

1.3 How to Read a Model Name

This section describes how to read a model name of an I/O module.



Item	Symbol	Description
I/O specifications	A	AC input
	D	Input (positive common, positive common/negative common shared type)
	DE	Input (negative common)
	T	Transistor output (sink type)
	TE	Transistor output (source type)
	R	Contact output
	S	Triac output
	DT	Input (positive common, positive common/negative common shared type), transistor output (sink type)
	DTE	Input (negative common), transistor output (source type)
Number of I/O points	16	16 points
	32	32 points
Module specific specification	N, N1	Improved version or its version
Wire type	1	1-wire type
	2	2-wire type
	3	3-wire type
External load connection method	2B	Two-piece screw terminal block
	2S	Two-piece spring clamp terminal block
	CE	e-CON type
	CM	MIL connector type
	CF	FCN connector type
Module category	GF	CC-Link IE Field Network module
	EX	Extension module

1.4 Separately-sold Parts

e-CON and MIL connector

The e-CON or MIL connector type module requires a plug of connector for power supply and FG.

The following table lists the applicable plugs.

Product name	Model name of Mitsubishi product	Parts model (manufacturer)	Specifications			Cover color
			Core wire size of applicable cable	Outer diameter of applicable cable	Maximum rated current	
One-touch connector plug for power supply and FG[*1*3*4]	A6CON-PW5P	35505-6080-A00 GF (3M Japan Limited)	0.75mm² (0.66 to 0.98mm²) (18 AWG) 0.16mm or larger for strand diameter Insulating coating material PVC (heat resistant vinyl)	ϕ2.2 to 3.0mm	7A[*5]	Gray
	A6CON-PW5P-SOD	35505-6180-A00 GF (3M Japan Limited)		ϕ2.0 to 2.3mm		Blue
Online connector for power supply and FG[*2]	A6CON-PWJ5P	35720-L200-A00 AK (3M Japan Limited)	—	—	—	—

*1 One order of Mitsubishi A6CON-□□5P includes 10 plugs.
*2 One order of Mitsubishi A6CON-□□J5P includes 5 plugs.
*3 One-touch connector plugs cannot be reused once crimped.
*4 Check the outer diameter of the applicable cable before selecting a connector.
*5 The allowable current value of the cable connected must be observed.

FCN connector

The FCN connector type module requires a plug for a FCN connector.

The following table lists the applicable plugs.

■40-pin connector

Type	Model	Applicable wire size
Soldering type connector (straight type)	A6CON1[*1]	0.08 to 0.3mm² (28 to 22 AWG), (stranded wire)
Crimping type connector (straight type)	A6CON2	0.08 to 0.24mm² (28 to 24 AWG), (stranded wire)
IDC type connector (straight type)	A6CON3	0.08mm² (28 AWG) (stranded wire) ϕ0.25mm (30 AWG) (solid wire) Flat cable (intervals of 1.27mm)
Soldering type connector (dual purpose (straight/oblique) type)	A6CON4[*1]	0.08 to 0.3mm² (28 to 22 AWG), (stranded wire)

*1 When using 40 pins, use cables whose sheath outside diameters are 1.3mm or shorter. Select cables depending on the current value used.

■40-pin connector crimping tool and pressure-displacement tool

Type	Model	Contact
Crimping tool	FCN-363T-T005/H	FUJITSU COMPONENT LIMITED
Pressure-displacement tool	FCN-367T-T012/H (locator plate)	
	FCN-707T-T001/H (cable cutter)	
	FCN-707T-T101/H (hand press)	

For the wiring method of connectors and the usage of the crimping tool and pressure-displacement tools, contact FUJITSU COMPONENT LIMITED.

1.5 Recommended Connector List

The following table lists the sensor connector (e-CON). For the wiring method of the sensor connector (e-CON), refer to the catalogs of each manufacturer.

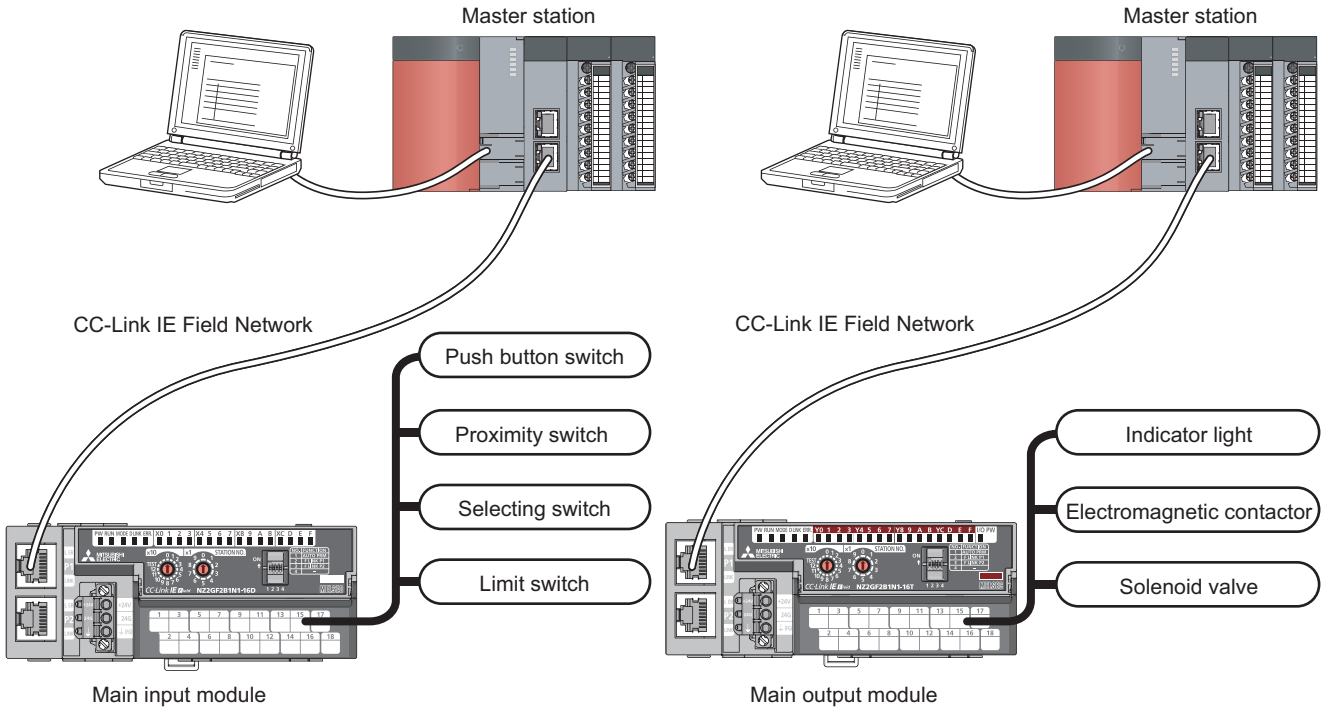
Model name	Manufacturer	Specifications			Cover color
		Core wire size of applicable cable	Outer diameter of applicable cable	Maximum rated current	
ECN-M014R	Mitsubishi Electric System & Service Co., Ltd.	0.14 to 0.30㎟ (26 to 24 AWG)	ϕ0.8 to 1.0mm	2.0A	Red
ECN-M024Y			ϕ1.0 to 1.2mm		Yellow
ECN-M034OR			ϕ1.2 to 1.6mm		Orange
ECN-M044GN		0.30 to 0.50㎟ (22 to 20 AWG)	ϕ1.0 to 1.2mm		Green
ECN-M054BL			ϕ1.2 to 1.6mm		Blue
ECN-M064GY			ϕ1.6 to 2.0mm		Gray

2 I/O MODULE

This chapter describes the applications and features of the I/O module.

2.1 Application

This module exchanges signals with the external devices and communicates with the master module in CC-Link IE Field Network as follows.



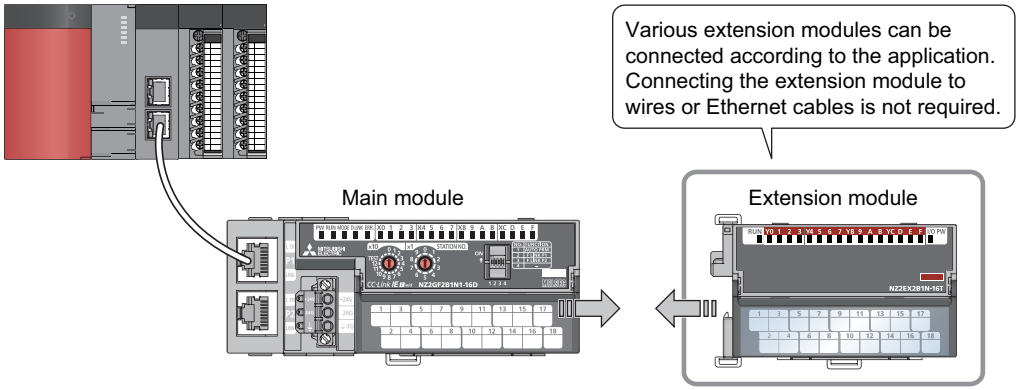
Point

The main I/O combined module provides the functions that require both one main input module and one main output module.

2.2 Features

Flexible system configuration available

Adopting the connection block type enables the combination of the main module and extension module.
With the combination of the input and output modules, a flexible configuration can be achieved. In addition, a poor contact can be found promptly because the main module always monitors the connection status of the extension module.
For some main modules, three extension modules can be connected. (☞ Page 201 Installation of extension modules)



Easy station number setting

Because of the rotary switch on the front of the module, setting and checking the station number are easy.

Input response time selectable

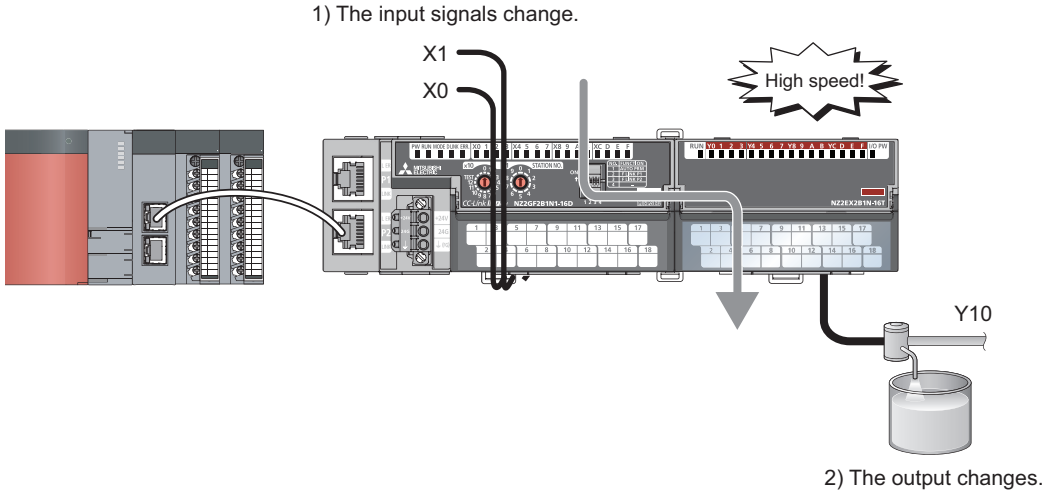
For the DC input module and main I/O combined module, the input response time is selectable.
In a circumstance where noise tends to occur, the noise in an input can be reduced by making the input response time longer, which makes the input status more stable. (☞ Page 253 Input Response Time Setting Function)

Output hold/clear selectable at the STOP of the CPU module

For output modules and main I/O combined modules, whether to hold or clear the digital values (ON/OFF) output from the module immediately before the following cases can be set: the operating status of the CPU module becomes STOP; the output module or main I/O combined module becomes disconnected from data link. (☞ Page 254 Output HOLD/CLEAR Setting Function)

Fast I/O control available with a single module

With a combination of an input module and an output module or only with a main I/O combined module, output without a master module is available when the set specific input conditions have been satisfied. (Fast logic function) With this function, the fast I/O control is provided out of the effect of sequence scan and link scan. (☞ Page 260 Fast Logic Function)



OFF delay action available on the input signals

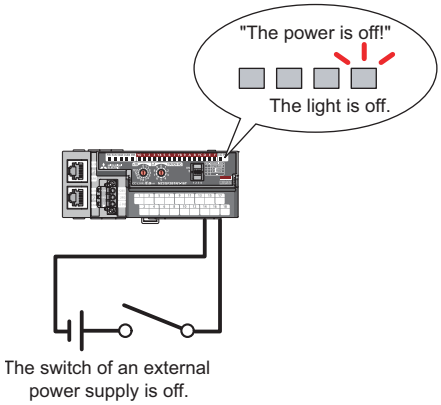
The input OFF delay function of the input module or main I/O combined module delays the timing on which X signals turn off when input signals turn off. The function is effective for the secure execution of when input signals turn on for a very short period. (☞ Page 251 Input OFF Delay Function)

Monitoring the total number of output ON times

The number of ON times integration function of the output module or main I/O combined module counts the total number of ON times for each output point. This function can be used for a reference for when to replace external devices such as a relay. (☞ Page 256 Number of ON Times Integration Function)

Indicating a wiring problem by monitoring the external power supply

With the output module and main I/O combined module, the status of the power supplied from the external power supply can be checked. The LEDs on a module indicates the status. (☞ Page 259 External Power Supply Monitoring Function)



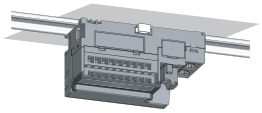
CC-Link IE Field Network synchronous communication function available

I/O operations can be performed together with the synchronization cycle of the master station that supports the CC-Link IE Field Network synchronous communication function.

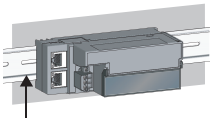
This enables the I/O module to operate at the same timing of other slave stations on the same network. (☞ Page 268 CC-Link IE Field Network Synchronous Communication Function)

Various installation methods

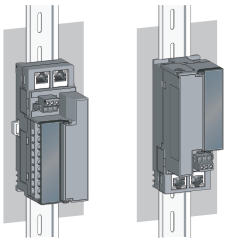
The module also can be installed in six directions.



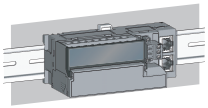
Downward installation



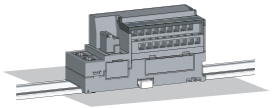
Horizontal installation



Vertical installation



Horizontal installation (upside down)



Upward installation

Easy module replacement

Because the 2-piece structure is adopted for the terminal block for module power supply and FG and I/O terminal block, the module can be replaced with the wire connected. In addition, because I/O terminal block is the lift-up structure, the terminal block can be lifted only by loosening the terminal block mounting screw to be removed easily.

Wirable without tools

The push-in type spring clamp terminal block is employed for the I/O terminal block and the connector for power supply. Thus, if a bar solderless terminal or solid wire is used, wiring can be easily set only by inserting it into the terminal.

Any tool usable to remove wiring

Because the button system has been used for removing wiring of the spring clamp terminal block, only a Phillips screwdriver or flathead screwdriver is needed. This eliminates the need for changing tools to remove wiring, reducing the man-hour.

Easy wiring check

Because the spring clamp terminal block has a terminal for signal check, wiring and signals can be easily checked with a tester.

No need for retightening screws

Because the spring clamp terminal block does not require tightening of screws, the time taken for wiring can be reduced. In addition, because screws would not be loosened, periodic maintenance of retightening screws is not needed.

Easy sensor connection

Because the e-CON connector is adopted, 2-wire or 3-wire sensor can be connected directly. No relay terminal block is required with this connection method, and the cost of relay terminal block and its space can be reduced. The man-hour for wiring or maintenance can be reduced because sensors can be replaced by only disconnecting the connectors and tightening screws is not required.

Easy connection to relay terminal or terminal block module

Because the MIL connector is adopted, connection to a relay terminal, terminal block converter module, or solenoid valve can be done easily. When used with a relay terminal module, this I/O module can be easily applied to various applications, such as relay output and AC input. The man-hour for wiring or maintenance can be reduced because the module can be replaced by only disconnecting the connectors and tightening screws is not required.

Easy transition wiring of the module power supply part

Because e-CON and MIL connectors are one-touch connectors, transition wiring of the module power supply part can be easily installed. Power supply is no longer needed for each module, leading to improvement on wiring and reduction in wiring hours and in required space.

Saving wiring and man hours

FCN connectors are used in the FCN connector type modules, saving wiring and time taken for wiring. Because an FCN connector has a connector type interface, wiring is easy and incorrect wiring can be avoided.

Error history confirmation

The history of 15 errors and occurrence time are stored in the main I/O module.
The error history helps the investigation for the cause when a problem occurs.

Easy settings by CC IE Field configuration of the engineering tool

The CC IE Field configuration of the engineering tool makes it possible to set parameters on its window, thereby reducing the programs. In addition, setting status and operation status of modules can be checked easily.

I/O module operable without parameter settings

Users can operate some I/O modules without setting parameters (automatic I/O parameter setting). When the I/O module is used as a general-purpose remote I/O, users can shorten the start-up time of the I/O module using this function.

Fast link-up function

This function shortens the time taken for data link establishment with the master station at power-on. With this function, the time taken to change tools can be shortened in the system with a tool change mechanism (such as a tool changer) for tools that can be installed at the end of an industrial robot arm. The data link time varies depending on the number of connected modules or cable length. When eight main modules have been connected (excluding the main module directly connected to the master module) and the station-to-station distance is 30m, data link is established in 0.5s on average.

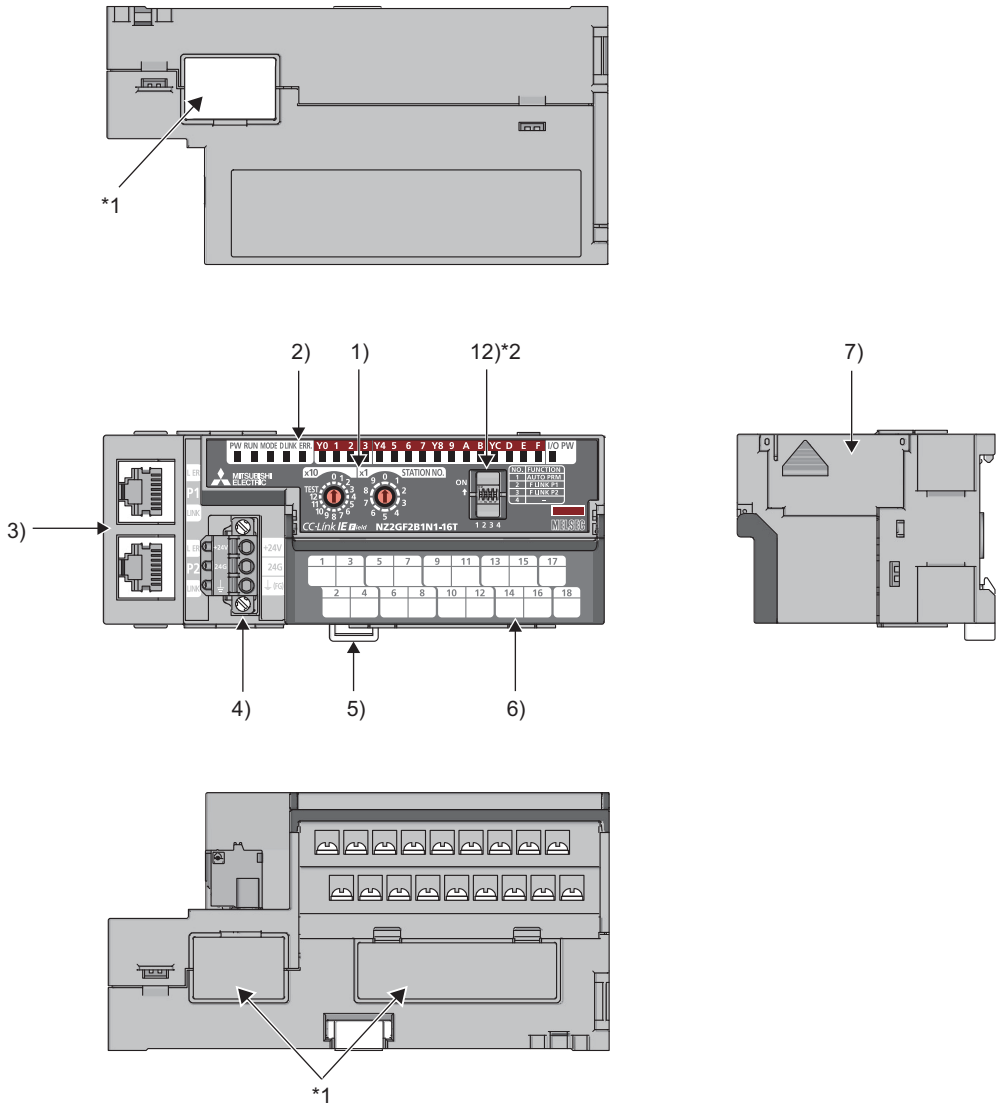
Easy AC external device connection

For an AC input module, contact output module, and triac output module, since a 2-wire system is adopted for inputs and outputs, an external device can be directly connected.
No relay terminal block is required with this connection method, and the cost of relay terminal block and its space can be reduced.

3 PART NAMES

This section describes part names of the I/O module.

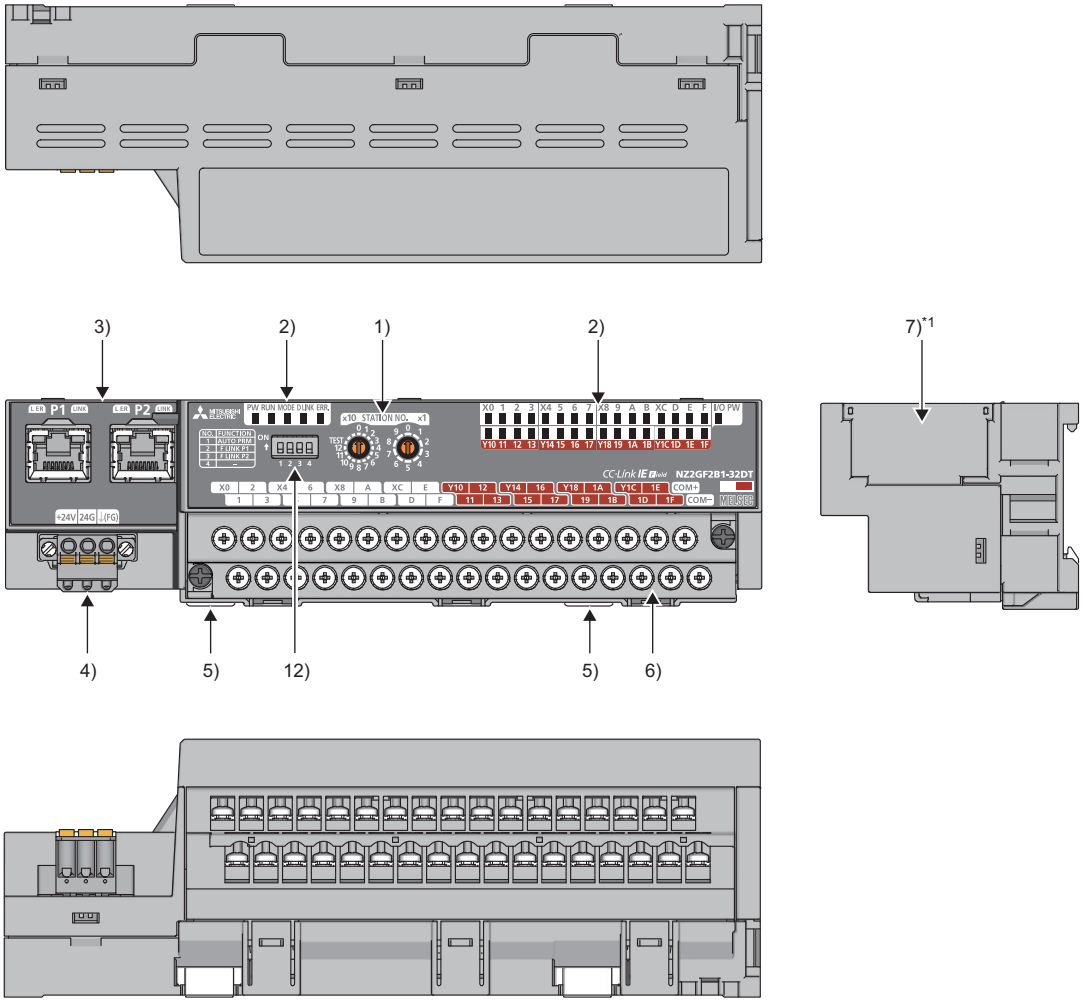
- Main I/O module (18-point screw terminal block type)



*1 Do not remove this seal because it is used for a maintenance purpose.

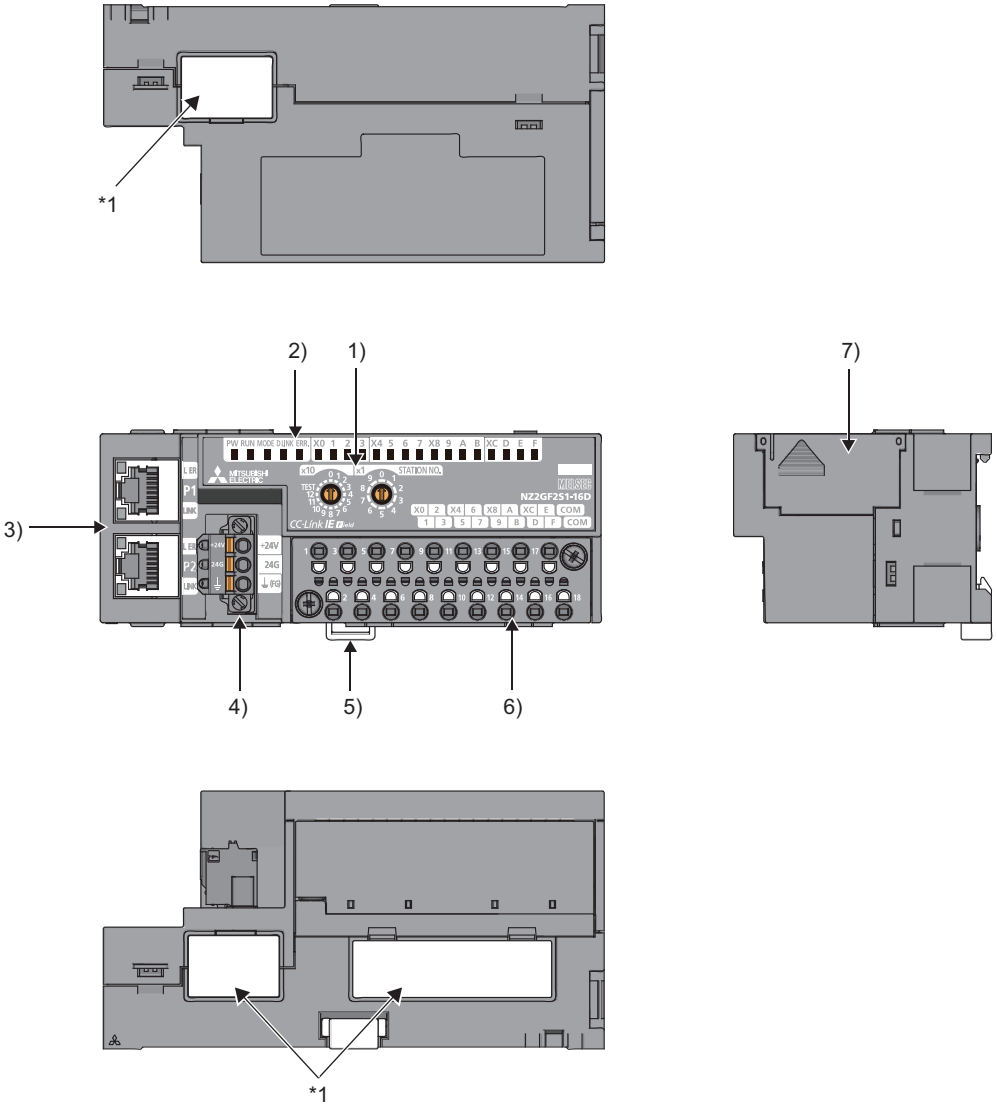
*2 The NZ2GF2B1(N)-16D, NZ2GF2B1(N)-16T, and NZ2GF2B1(N)-16TE do not have function setting switches.

• Main I/O module (34-point screw terminal block type)



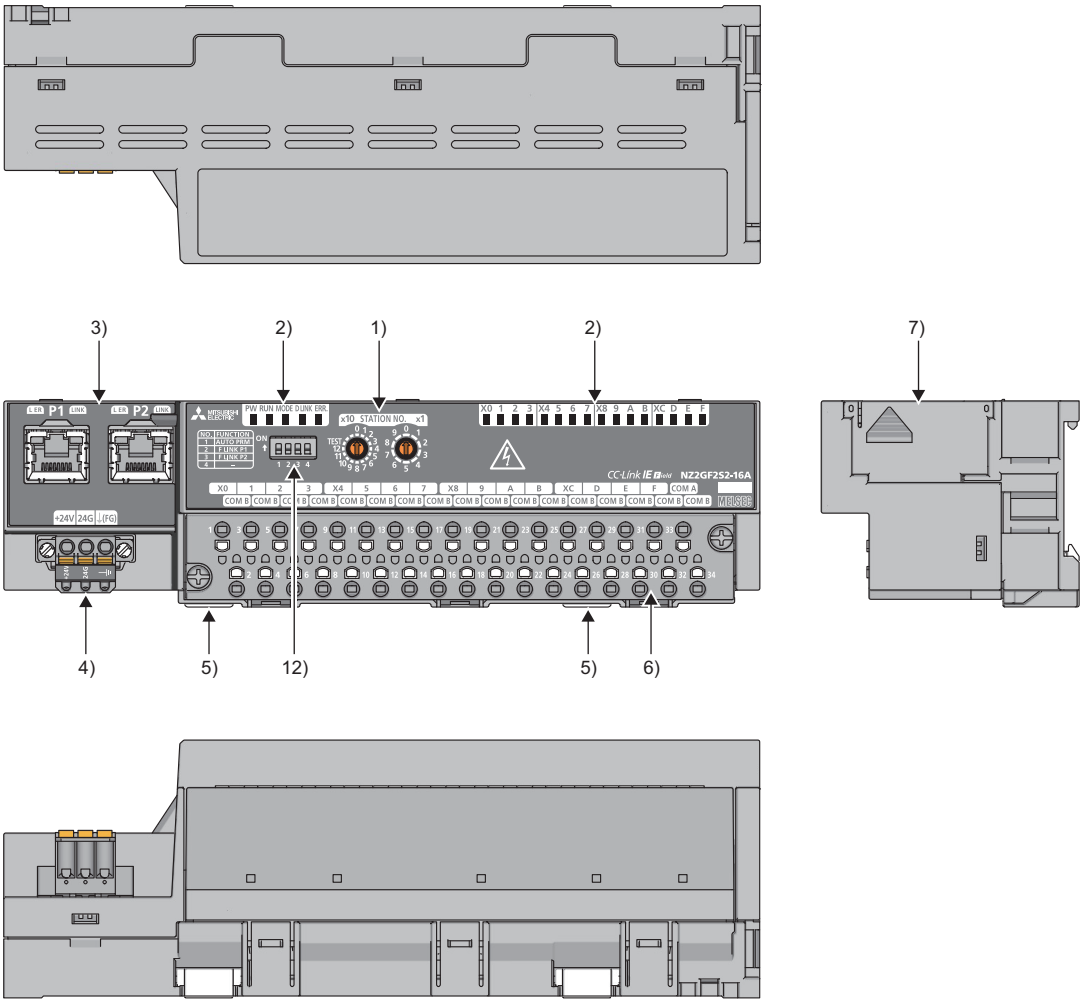
*1 For the NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, and NZ2GF2B1-32DTE, do not remove the cover because it is used for our maintenance purpose. If it is removed, a failure may occur.

• Main I/O module (18-point spring clamp terminal block type)

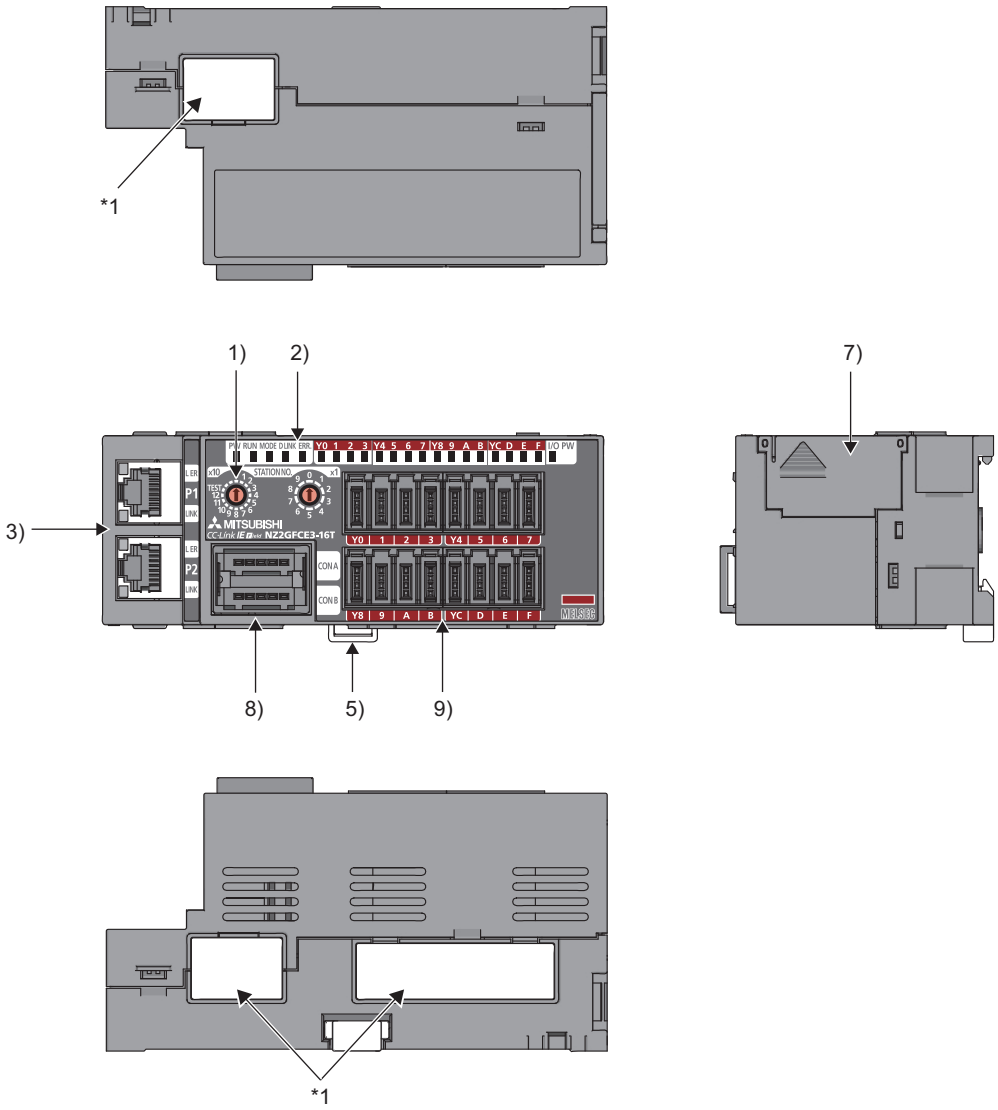


*1 Do not remove this seal because it is used for a maintenance purpose.

• Main AC I/O module (34-point spring clamp terminal block type)

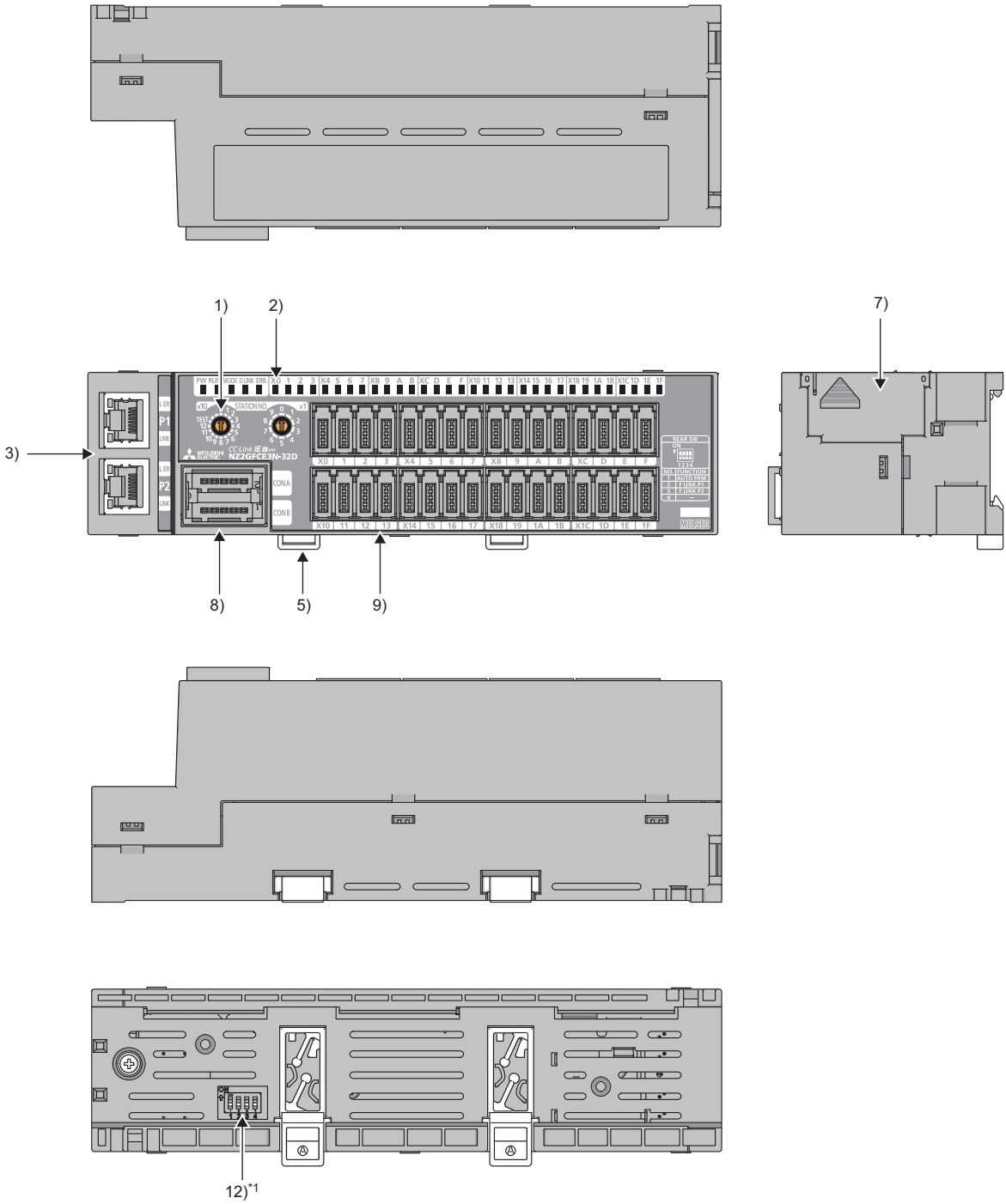


• Main I/O module (e-CON (16-point module))



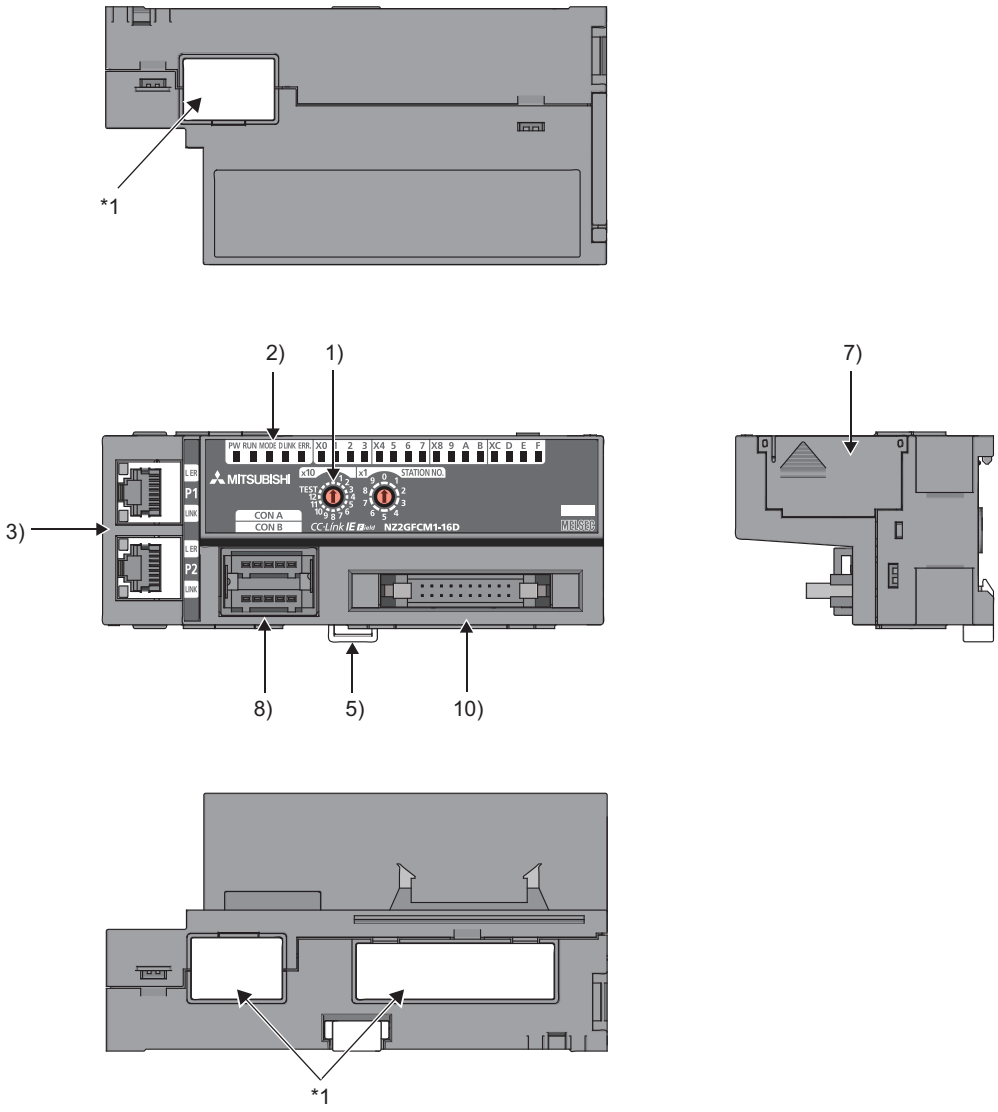
*1 Do not remove this seal because it is used for a maintenance purpose.

• Main I/O module (e-CON (32-point module))



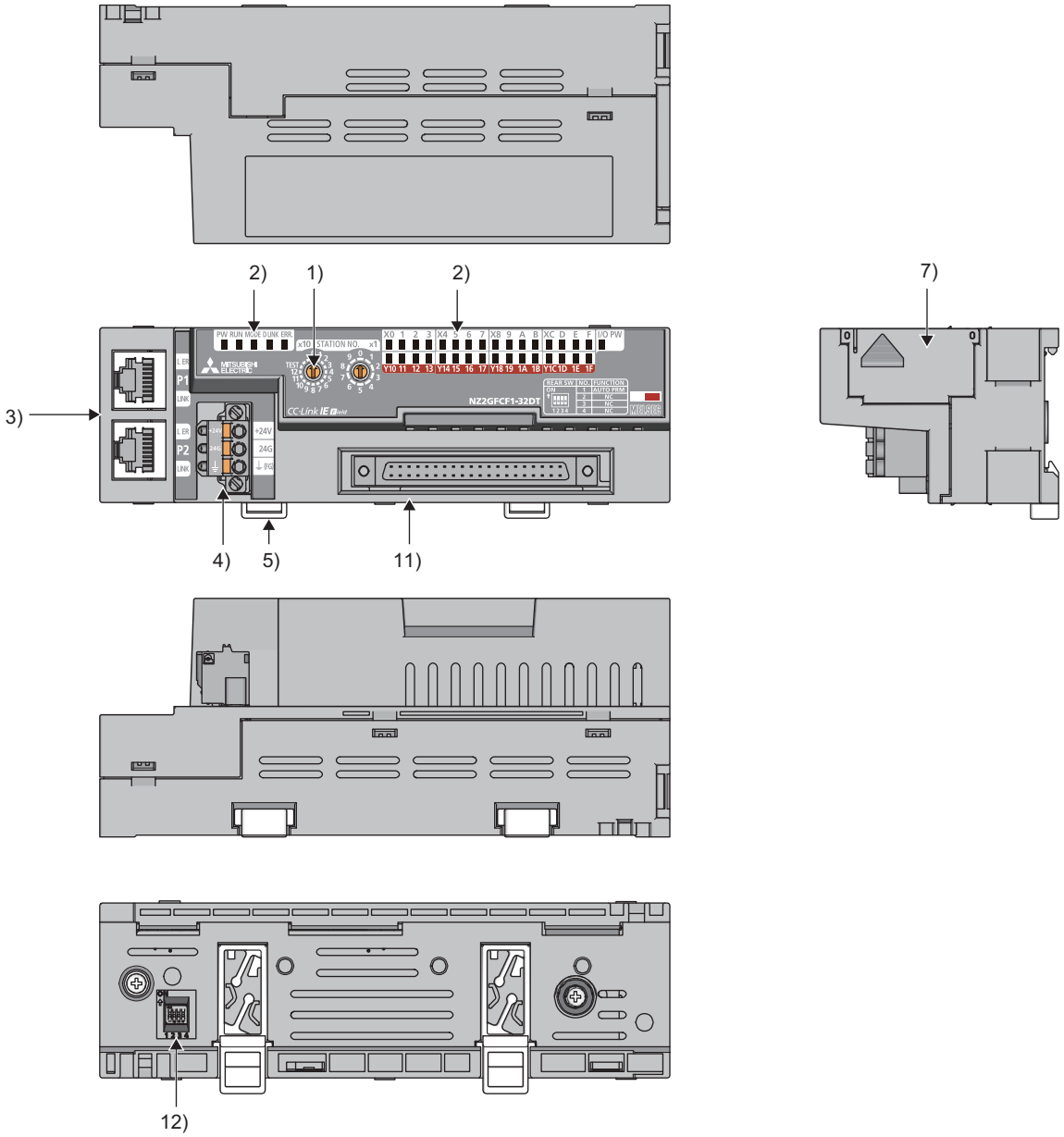
*1 The NZ2GFCE3-32D, NZ2GFCE3-32T, and NZ2GFCE3-32DT do not have function setting switches.

• Main I/O module (MIL connector)

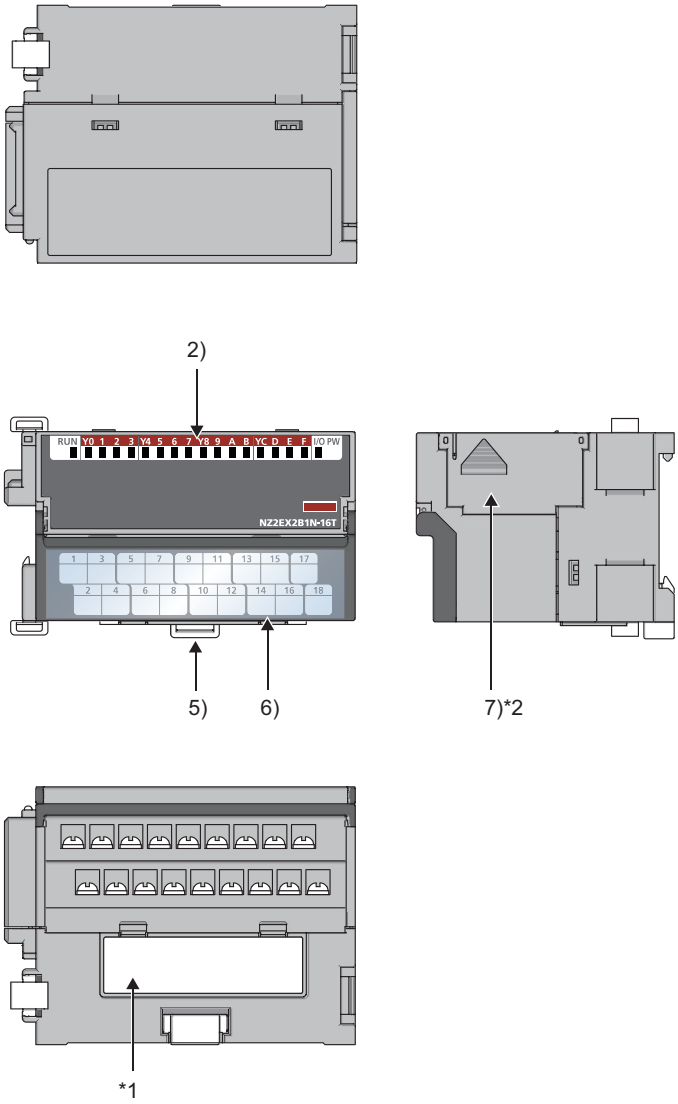


*1 Do not remove this seal because it is used for a maintenance purpose.

• Main I/O module (FCN connector type)



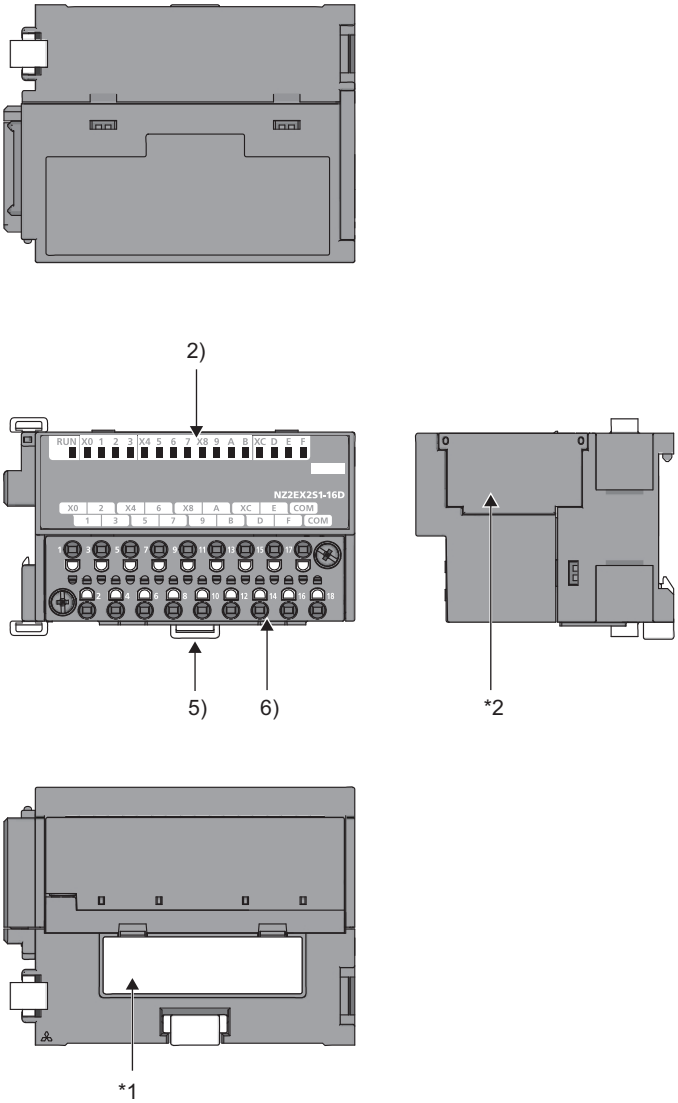
- Extension I/O module (screw terminal block type)



*1 Do not remove this seal because it is used for a maintenance purpose.

*2 Do not remove the covers of the NZ2EX2B1-16D, NZ2EX2B1-16T, and NZ2EX2B1-16TE because they are used for a maintenance purpose.

• Extension I/O module (spring clamp terminal block type)



*1 Do not remove this seal because it is used for a maintenance purpose.

*2 Do not remove this cover because it is used for our maintenance purpose.

No.	Name	Application
1)	Station number setting switch	A rotary switch for the following setting and test. ☞ Page 197 Station number setting with the station number setting switch ☞ Page 327 Unit Test When operating the station number setting switch, use a flathead screwdriver with 3.5mm or less width of the tip.
2)	X0 LED to X1F LED (green)	Indicates the ON/OFF status of the inputs.*3 • On: Input ON • Off: Input OFF
	Y0 LED to Y1F LED (green)	Indicates the ON/OFF status of the outputs.*4 • On: Output ON • Off: Output OFF
	I/O PW LED (green)	Indicates the status of the power supply from the external power supply. • On: External power supply ON • Off: External power supply OFF
	RUN LED (green)	Indicates the operating status of the I/O module. • On: Operating normally. • Off: A major error has occurred.
	PW LED (green)	Indicates the power supply status of the main I/O module. • On: Power supply ON • Off: Power supply OFF
	MODE LED (green)	Indicates the mode of the main I/O module. • On: Online mode • Flashing: Unit test mode • Off: The unit test is completed.
	ERR. LED (red)	Indicates the error status of the main I/O module. • On: A module error has occurred. • Flashing: A minor error has occurred. • Off: Operating normally.
	D LINK LED (green)	Indicates the data link status of the main I/O module. • On: Data link in operation. (cyclic transmission in progress) • Flashing: Data link in operation. (cyclic transmission stopped) • Off: Data link not performed. (disconnected)
3)	P1	PORT1 connector for CC-Link IE Field Network (RJ45 connector) Connect an Ethernet cable. (☞ Page 214 Wiring of Ethernet Cable) There are no restrictions on the connection order of the cables for the P1 connector and P2 connector.
	L ER LED (red)	• On: Module received abnormal data, or module performing loopback • Off: Module received normal data, or module not performing loopback
	LINK LED (green)	• On: Linkup in progress • Off: Linkdown in progress
	P2	PORT2 connector for CC-Link IE Field Network (RJ45 connector) Connect an Ethernet cable. (☞ Page 214 Wiring of Ethernet Cable) There are no restrictions on the connection order of the cables for the P1 connector and P2 connector.
	L ER LED (red)	(Same as the LEDs of P1 connector)
	LINK LED (green)	
4)	Terminal block for module power supply and FG	A terminal block to connect the module power supply (24VDC) and FG.
5)	DIN rail hook	A hook to mount an I/O module on a DIN rail
6)	Terminal cover	Covers for preventing electric shock while the power is on
	I/O terminal block	A terminal block for I/O power supply and I/O signals
7)	Extension connector cover	A cover to protect a connector of an extension module.
8)	Connector for power supply and FG	A connector to connect the module power supply (24VDC), external power supply for I/O part, and FG
9)	Sensor connector (e-CON)	Connector for I/O signals
10)	MIL connector	
11)	FCN connector	
12)	Function setting switch	A switch for the setting of following function ☞ Page 198 Function setting switch setting When operating the function setting switch, use a flathead screwdriver with 0.9mm or less width of the tip.

*3 The status of actual input signals that are externally input is indicated on the LEDs regardless of the setting of the input OFF delay function.

*4 Output commands from the module are indicated on the LEDs regardless of the status of the external power supply.

I/O module status and LED status

The following table lists the correspondence between the I/O module status and the LED status.

I/O module status		Data link status	LED status				
			PW LED	RUN LED	MODE LED	D LINK LED	ERR. LED
Disconnected		Disconnection	On	On	On	Off	Off
Data link in operation		Data link in operation	On	On	On	On	Off
Reserved station setting in progress		Cyclic stop	On	On	On	Flashing	Off
Data link stop		Cyclic stop	On	On	On	Flashing	Off
Unit test	In progress	—	On	On	Flashing	Off	Off
	Normal completion	—	On	On	Off	Off	Off
	Abnormal completion	—	On	On	Off	Off	On
Communication error		Cyclic stop	On	On	On	Flashing	Off
Error	Major error	—	On	Off	*1	*2	On*3
	Moderate error	—	On	On	*1	*2	On
Warning	Minor error	—	On	On	*1	*2	Flashing

*1 Either of On or Off.
*2 Either of On, Flashing, or Off.
*3 When the module is failed, the LED may not turn on.

4 SPECIFICATIONS

This chapter describes the specifications of the I/O module.

4.1 General Specifications

Item	Specifications					
Operating ambient temperature	0 to 55℃					
Storage ambient temperature	-25 to 75℃					
Operating ambient humidity	5 to 95%RH, non-condensing					
Storage ambient humidity						
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2		Frequency	Constant acceleration	Half amplitude	Number of sweeps
		Under intermittent vibration	5 to 8.4Hz	—	3.5mm	10 times each in X, Y, and Z directions
			8.4 to 150Hz	9.8m/s²	—	
		Under continuous vibration	5 to 8.4Hz	—	1.75mm	—
			8.4 to 150Hz	4.9m/s²	—	
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147m/s², 3 times each in X, Y, and Z directions)					
Operating atmosphere	No corrosive gases					
Operating altitude*1	0 to 2000m					
Installation location	Inside a control panel*2					
Overvoltage category*3	Ⅱ or less					
Pollution degree*4	2 or less					
Equipment class	Class Ⅰ					

*1 Do not use or store the I/O module under pressure higher than the atmospheric pressure of altitude 0m. Doing so may cause malfunction. When using the I/O module under pressure, please consult your local Mitsubishi representative.

*2 If the environment satisfies the operating ambient temperature, operating ambient humidity and other conditions, the module can be used even outside the control panel.

*3 This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises.
Category Ⅱ applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for the equipment with the rated voltage of 300V or less is 2500V.

*4 This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used. Pollution degree 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.

Point

To use the I/O module complying with the EMC Directive, refer to "EMC and Low Voltage Directives" in this manual. (☞ Page 379 EMC and Low Voltage Directives)

4.2 Main I/O Module Specifications

Main input module

NZ2GF2B2-16A main AC input module

Item		NZ2GF2B2-16A			
Station type		Remote device station			
Number of input points		16 points			
Rated input voltage, frequency		100 to 120VAC (+10%/-15%), 50/60Hz (±3Hz)			
Rated input current		8.2mA (100VAC, 60Hz), 6.8mA (100VAC, 50Hz)			
Inrush current		200mA maximum within 1ms			
Input voltage distortion ratio		Within 5%			
Max. number of simultaneous input points		Refer to the derating chart.			
ON voltage/ON current		80VAC or more/5mA or more (50Hz, 60Hz)			
OFF voltage/OFF current		30VAC or less/1.7mA or less (50Hz, 60Hz)			
Input impedance		Approx. 15kΩ (60Hz), approx. 18kΩ (50Hz)			
Input response time	OFF → ON	20ms or less (100VAC 60Hz)			
	ON → OFF	20ms or less (100VAC 60Hz)			
Withstand voltage		1400VACrms for 1 minute between all AC external terminals and the ground 510VACrms for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all AC external terminals and the ground, all DC external terminals and the ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage: 1500Vp-p (AC type), 500Vp-p (DC type), noise width 1μs, noise frequency 25 to 60Hz (noise simulator condition)			
Protection degree		IP1X			
Wiring method for common		16 points/common (2-wire, screw terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*1]			
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)			
Applicable solderless terminal	Terminal block for module power supply and FG[*2]	Model	Applicable wire size	Solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for input	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			

Item		NZ2GF2B2-16A
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	130mA or less (24VDC, all points ON)
Weight		0.4kg

*1 Use bar solderless terminals for wiring.

*2 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

Point

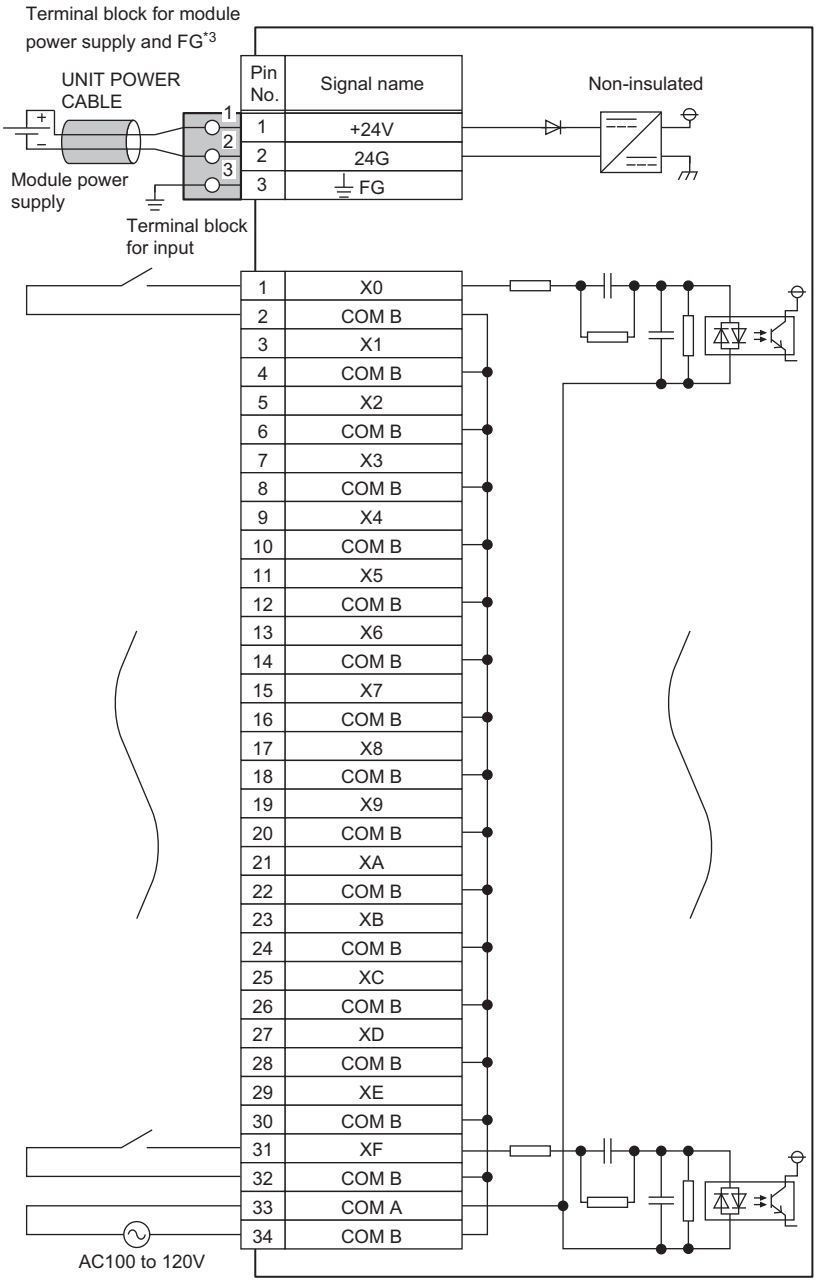
The processing time of the remote device station/intelligent device station (input) is used for calculating the delay time of the cyclic transmission from the remote device station/intelligent device station (input) to the master station (RX/RWr). The processing time is the time period for internal processing, and calculate it by using the following formula.

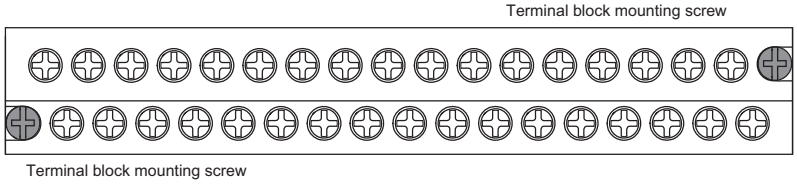
- Processing time of remote device station/intelligent device station (input) = Input response time + Internal processing time (0.2ms)

For the delay time of the cyclic transmission from the remote device station/intelligent device station (input) to the master station (RX/RWr), refer to the following.

User's manual for the master/local module used

External wiring

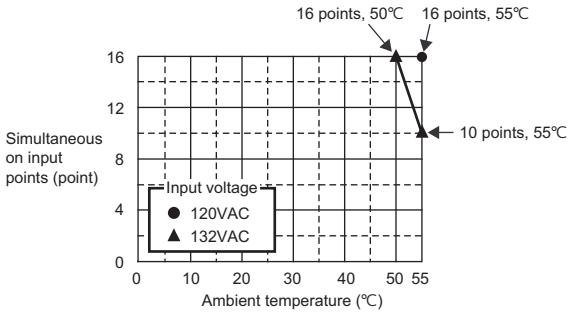




Terminal block																			
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33		
Signal name	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	XA	XB	XC	XD	XE	XF	COM A		
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	
Signal name		COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	

*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

Derating chart



NZ2GF2S2-16A main AC input module

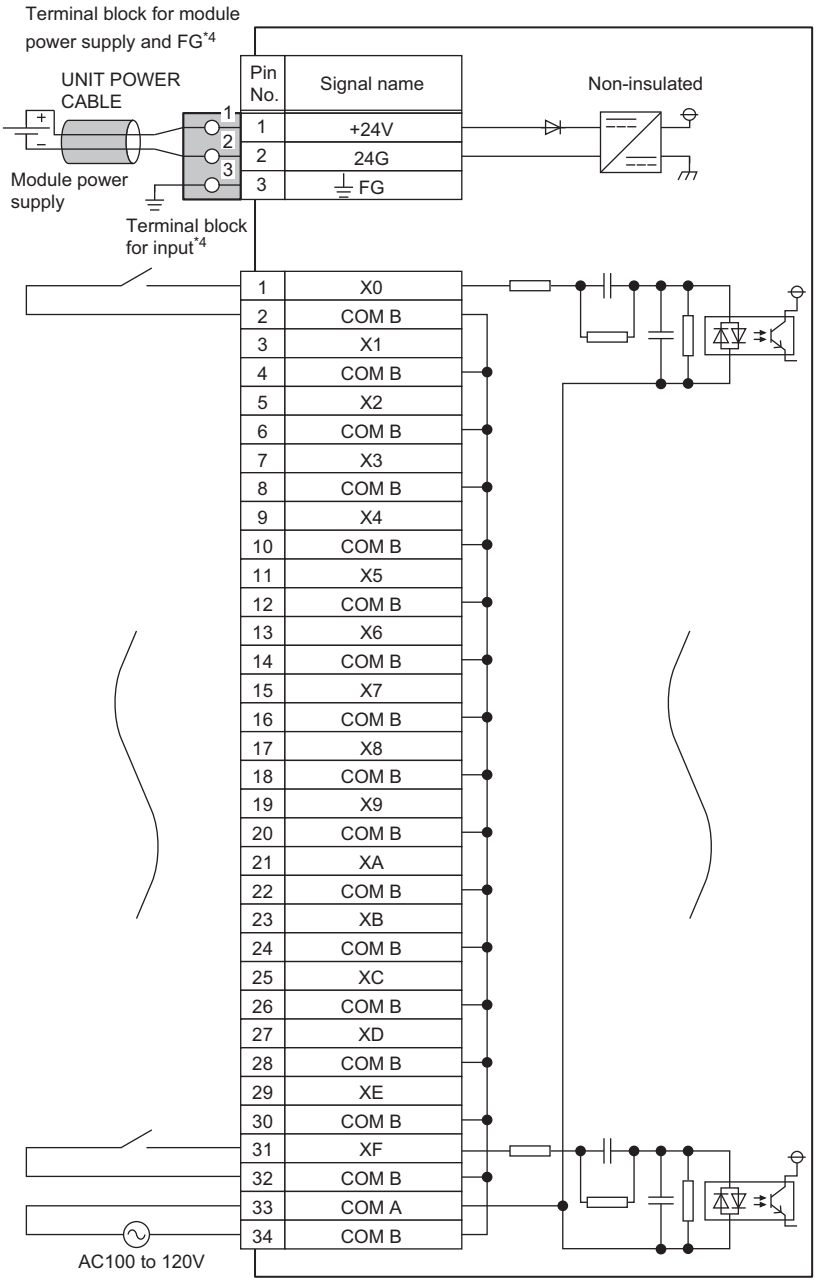
Item		NZ2GF2S2-16A			
Station type		Remote device station			
Number of input points		16 points			
Rated input voltage, frequency		100 to 120VAC (+10%/-15%), 50/60Hz (±3Hz)			
Rated input current		8.2mA (100VAC, 60Hz), 6.8mA (100VAC, 50Hz)			
Inrush current		200mA maximum within 1ms			
Input voltage distortion ratio		Within 5%			
Max. number of simultaneous input points		Refer to the derating chart.			
ON voltage/ON current		80VAC or more/5mA or more (50Hz, 60Hz)			
OFF voltage/OFF current		30VAC or less/1.7mA or less (50Hz, 60Hz)			
Input impedance		Approx. 15kΩ (60Hz), approx. 18kΩ (50Hz)			
Input response time[*1]	OFF → ON	20ms or less (100VAC 60Hz)			
	ON → OFF	20ms or less (100VAC 60Hz)			
Withstand voltage		1400VACrms for 1 minute between all AC external terminals and the ground 510VACrms for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all AC external terminals and the ground, all DC external terminals and the ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage: 1500Vp-p (AC type), 500Vp-p (DC type), noise width 1μs, noise frequency 25 to 60Hz (noise simulator condition)			
Protection degree		IP1X			
Wiring method for common		16 points/common (2-wire, spring clamp terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*2]			
	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm[*2]			
Applicable solderless terminal	Terminal block for module power supply and FG, terminal block for input[*3]	Model	Applicable wire size	Solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	130mA or less (24VDC, all points ON)			
Weight		0.4kg			

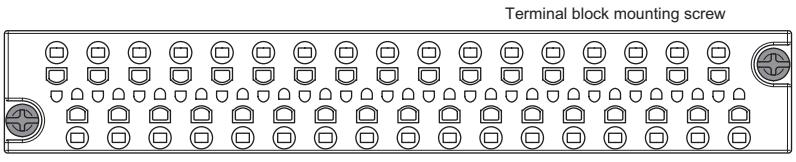
*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 Use bar solderless terminals for wiring.

*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG or terminal block for input. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

External wiring

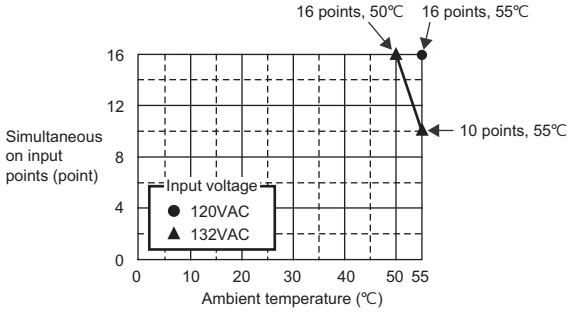




Terminal block																			
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33		
Signal name	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	XA	XB	XC	XD	XE	XF	COM A		
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	
Signal name		COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	

*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG or terminal block for input. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

Derating chart



NZ2GF2B1(N, N1)-16D main DC input module

Item		NZ2GF2B1-16D, NZ2GF2B1N-16D, NZ2GF2B1N1-16D
Station type		Remote device station
Number of input points		16 points
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Rated input current		6.0mA TYP. (for 24VDC)
Isolation method		Photocoupler isolation
Max. number of simultaneous input points		100%
ON voltage/ON current		15VDC or more/4mA or more
OFF voltage/OFF current		5VDC or less/1.5mA or less
Input resistance		3.8kΩ
Input response time[*6]	OFF → ON	0ms[*1]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)
	ON → OFF	
Input type		Positive common/negative common shared type
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity[*2]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (two points) (1-wire, screw terminal block type)
External interface	Communication part	RJ45 connector
	Module power supply part (NZ2GF2B1-16D, NZ2GF2B1N-16D)	Terminal block for module power supply and FG Tightening torque range for terminal screw (M2.5 screw): 0.5 to 0.6N·m
	Module power supply part (NZ2GF2B1N1-16D)	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)
	I/O part	18-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply (NZ2GF2B1-16D, NZ2GF2B1N-16D)	Core: 0.3 to 1.5mm² (22 to 16 AWG)
	For power supply (NZ2GF2B1N1-16D)	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*5]
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)

Item		NZ2GF2B1-16D, NZ2GF2B1N-16D, NZ2GF2B1N1-16D			
Applicable solderless terminal	Terminal block for module power supply and FG*3 (NZ2GF2B1-16D, NZ2GF2B1N-16D)	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-10	0.75mm²		
		TE 1.0-10	1.0mm²		
		TE 1.5-10	1.5mm²		
		AI 0.5-10WH	0.5mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.75-10GY	0.75mm²		
		AI 1-10RD	1.0mm²		
		AI 1.5-10BK	1.5mm²		
	Terminal block for module power supply and FG*3 (NZ2GF2B1N1-16D)	TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for input	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (NZ2GF2B1-16D, NZ2GF2B1N-16D: Max. one module, NZ2GF2B1N1-16D: Max. three modules)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	NZ2GF2B1-16D, NZ2GF2B1N-16D: 180mA or less (24VDC, all points ON)*4 NZ2GF2B1N1-16D: 120mA or less (24VDC, all points ON)*4			
Weight		NZ2GF2B1-16D, NZ2GF2B1N-16D: 0.31kg NZ2GF2B1N1-16D: 0.30kg			

*1 If the input response time is set to "0ms", the actual input response time is 80μs at OFF → ON, and 140μs at ON → OFF.

*2 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

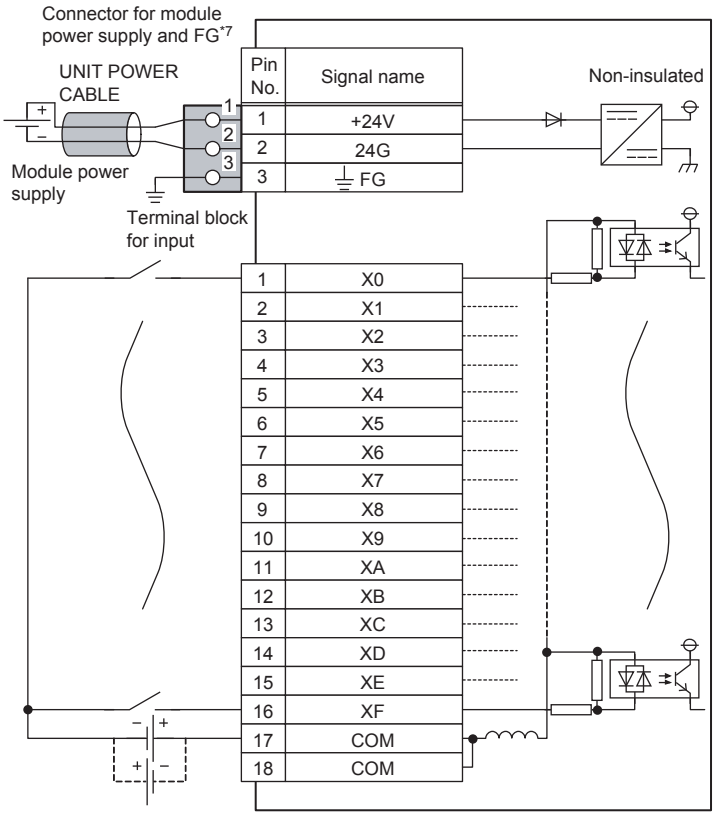
*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

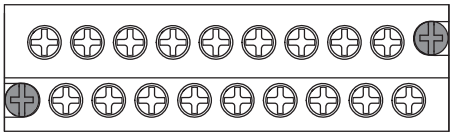
*5 Use bar solderless terminals for wiring.

*6 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

External connection



Terminal block mounting screw



Terminal block mounting screw

Terminal block										
Pin number	1	3	5	7	9	11	13	15	17	
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	COM	
Pin number		2	4	6	8	10	12	14	16	18
Signal name		X1	X3	X5	X7	X9	XB	XD	XF	COM

*7 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

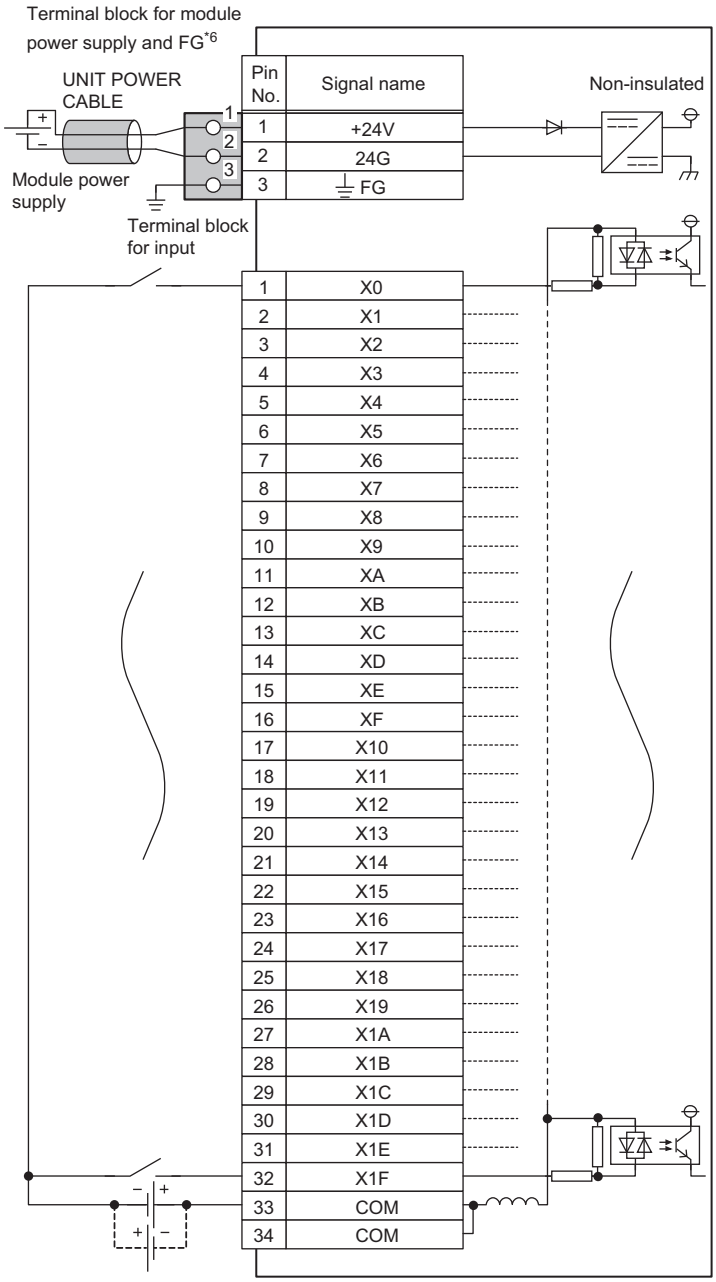
NZ2GF2B1-32D main DC input module

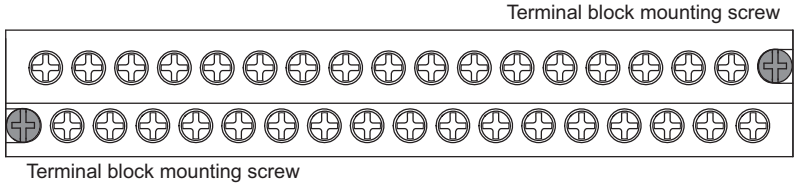
Item		NZ2GF2B1-32D			
Station type		Intelligent device station			
Number of input points		32 points			
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
Rated input current		6.0mA TYP. (for 24VDC)			
Isolation method		Photocoupler isolation			
Max. number of simultaneous input points		100%			
ON voltage/ON current		15VDC or more/4mA or more			
OFF voltage/OFF current		5VDC or less/1.5mA or less			
Input resistance		3.8kΩ			
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)			
	ON → OFF				
Input type		Positive common/negative common shared type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity[*3]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		32 points/common (two points) (1-wire, screw terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*5]			
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)			
Applicable solderless terminal	Terminal block for module power supply and FG[*4]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for input	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	32 points			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Not available			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	120mA or less (24VDC, all points ON)			
Weight		0.38kg			

*1 For how to calculate the processing time of the intelligent device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 80µs at OFF → ON, and 160µs at ON → OFF.
*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.
*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*5 Use bar solderless terminals for wiring.

External connection





Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	X10	X12	X14	X16	X18	X1A	X1C	X1E	COM	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		X1	X3	X5	X7	X9	XB	XD	XF	X11	X13	X15	X17	X19	X1B	X1D	X1F	COM

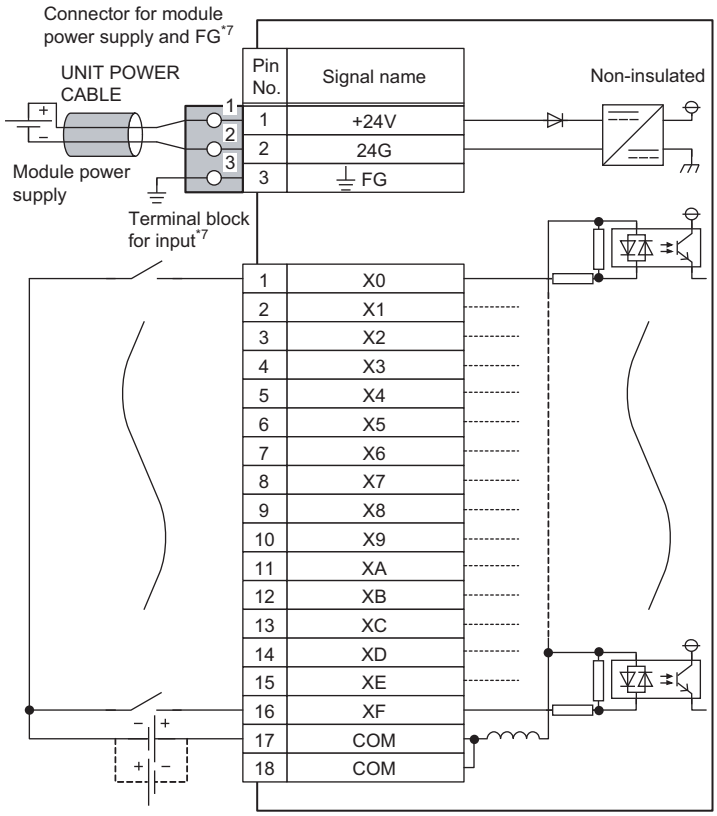
*6 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

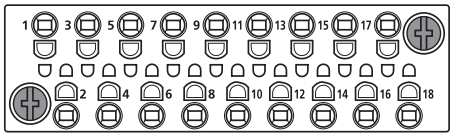
NZ2GF2S1-16D main DC input module

Item		NZ2GF2S1-16D			
Station type		Remote device station			
Number of input points		16 points			
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
Rated input current		6.0mA TYP. (for 24VDC)			
Isolation method		Photocoupler isolation			
Max. number of simultaneous input points		100%			
ON voltage/ON current		15VDC or more/4mA or more			
OFF voltage/OFF current		5VDC or less/1.5mA or less			
Input resistance		3.8kΩ			
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)			
	ON → OFF				
Input type		Positive common/negative common shared type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity[*3]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		16 points/common (two points) (1-wire, spring clamp terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*4]			
	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm[*4]			
Applicable solderless terminal	Terminal block for module power supply and FG, terminal block for input[*5]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	180mA or less (24VDC, all points ON)[*6]			
Weight		0.31kg			

*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module
*2 If the input response time is set to "0ms", the actual input response time is 90µs at OFF → ON, and 140µs at ON → OFF.
*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.
*4 Use bar solderless terminals for wiring.
*5 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*6 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection





Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	COM
Pin number	2	4	6	8	10	12	14	16	18
Signal name	X1	X3	X5	X7	X9	XB	XD	XF	COM

*7 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GFCE3-16D main DC input module

Item		NZ2GFCE3-16D
Station type		Remote device station
Number of input points		16 points
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Rated input current		4.0mA TYP. (for 24VDC)
Isolation method		Photocoupler isolation
Max. number of simultaneous input points		Refer to the derating chart.
ON voltage/ON current		17VDC or more/3mA or more
OFF voltage/OFF current		5VDC or less/1.5mA or less
Input resistance		5.7kΩ
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)
	ON → OFF	
Input type		Positive common (sink type)
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity[*3]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (3-wire, sensor connector (e-CON) type)
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.[*4]
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)[*4]
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	180mA or less (24VDC, all points ON)[*5]
Weight		0.27kg

*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

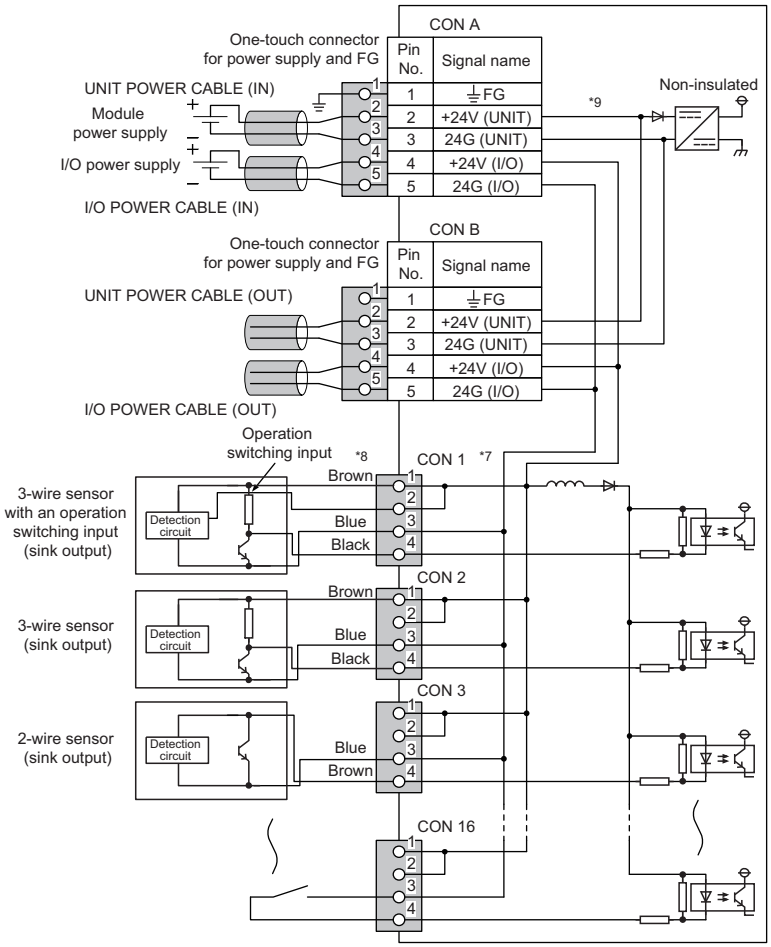
*2 If the input response time is set to "0ms", the actual input response time is 120μs at OFF → ON, and 140μs at ON → OFF.

*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

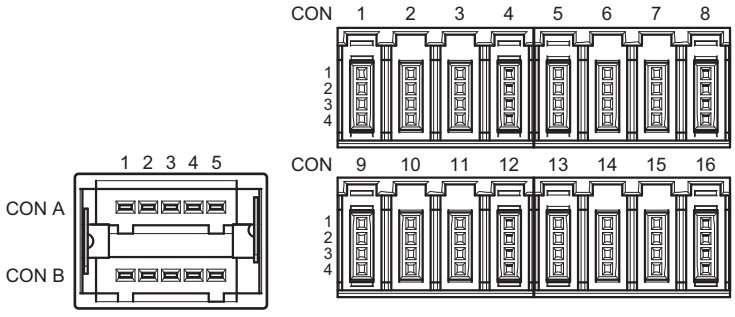
*4 For details, refer to the following.
☞ Page 21 Recommended Connector List

*5 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin layout



Pin number		Signal name
CON A CON B *6	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Pin number		Signal name	Pin number		Signal name
CON 1 (X0)	1	+24V	CON 9 (X8)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X0		4	X8
CON 2 (X1)	1	+24V	CON 10 (X9)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X1		4	X9
CON 3 (X2)	1	+24V	CON 11 (XA)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X2		4	XA
CON 4 (X3)	1	+24V	CON 12 (XB)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X3		4	XB
CON 5 (X4)	1	+24V	CON 13 (XC)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X4		4	XC
CON 6 (X5)	1	+24V	CON 14 (XD)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X5		4	XD
CON 7 (X6)	1	+24V	CON 15 (XE)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X6		4	XE
CON 8 (X7)	1	+24V	CON 16 (XF)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X7		4	XF

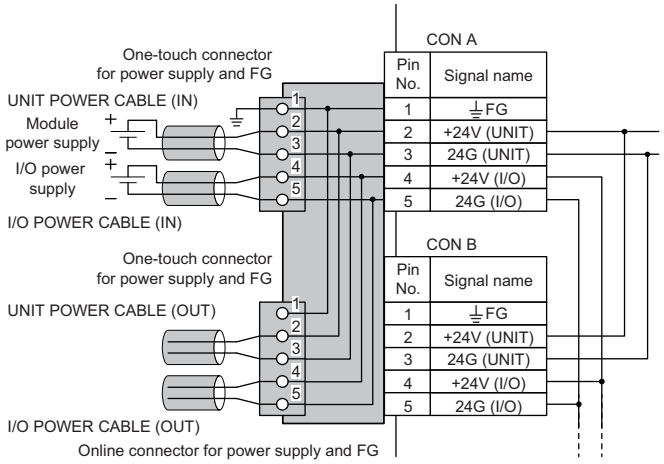
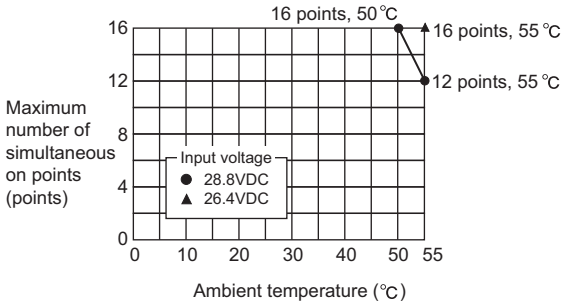
*6 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*7 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.

*8 The colors of leads correspond to IEC 60947-5-2.

*9 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*10 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

External connection	Derating chart
• When an online connector is connected 	

NZ2GFCE3(N)-32D main DC input module

Item		NZ2GFCE3-32D, NZ2GFCE3N-32D
Station type		Remote device station
Number of input points		32 points
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Rated input current		4.0mA TYP. (for 24VDC)
Isolation method		Photocoupler isolation
Max. number of simultaneous input points		100%
ON voltage/ON current		17VDC or more/3mA or more
OFF voltage/OFF current		5VDC or less/1.5mA or less
Input resistance		5.7kΩ
Input response time*1	OFF → ON	0ms*2/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)
	ON → OFF	
Input type		Positive common (sink type)
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity*3		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		32 points/common (3-wire, sensor connector (e-CON) type)
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.*4
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)*4
Cyclic transmission	RX/RY points	32 points +16 points × Number of extension modules
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	NZ2GFCE3-32D: 180mA or less (24VDC, all points ON)*5 NZ2GFCE3N-32D: 100mA or less (24VDC, all points ON)*5
Weight		NZ2GFCE3-32D: 0.35kg NZ2GFCE3N-32D: 0.30kg

*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

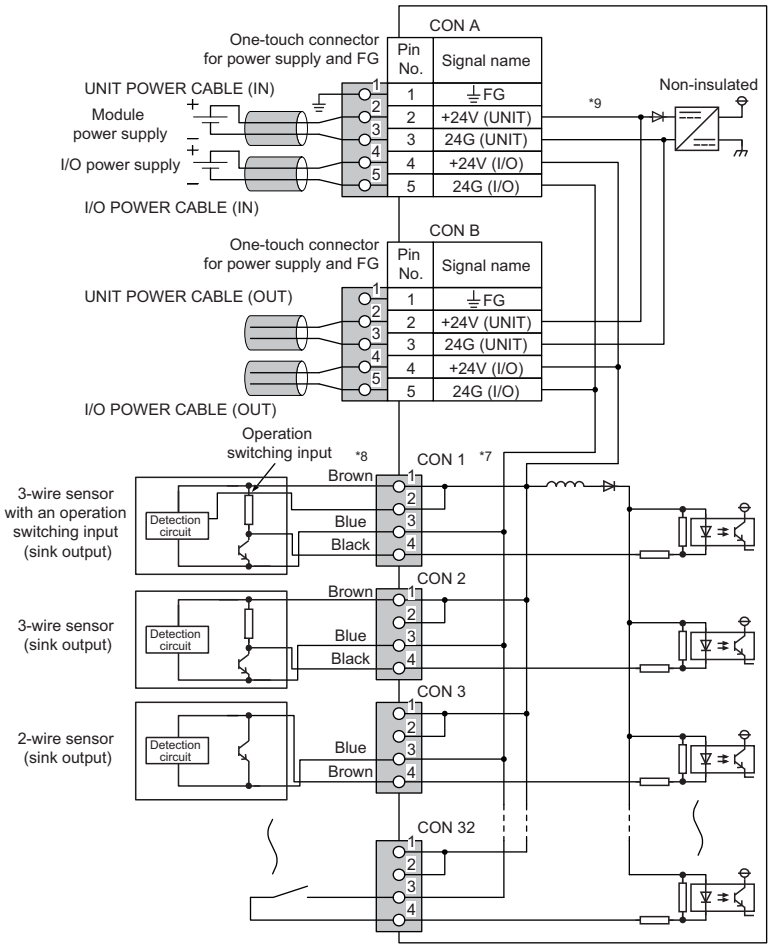
*2 If the input response time is set to "0ms", the actual input response time is 120μs at OFF → ON, and 140μs at ON → OFF.

*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

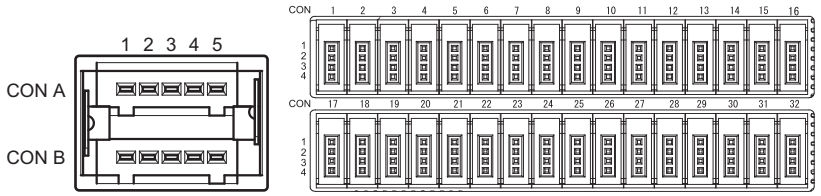
*4 For details, refer to the following.
☞ Page 21 Recommended Connector List

*5 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin layout

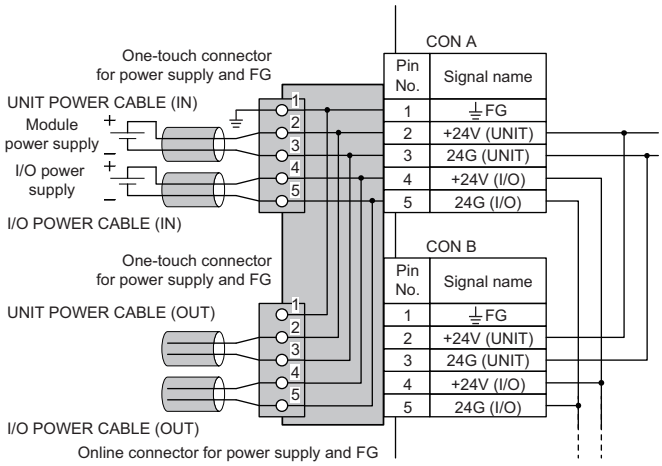


Pin number		Signal name
CON A CON B *6	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Pin number		Signal name	Pin number		Signal name
CON 1 (X0)	1	+24V	CON 17 (X10)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X0		4	X10
CON 2 (X1)	1	+24V	CON 18 (X11)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X1		4	X11
CON 3 (X2)	1	+24V	CON 19 (X12)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X2		4	X12
CON 4 (X3)	1	+24V	CON 20 (X13)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X3		4	X13
CON 5 (X4)	1	+24V	CON 21 (X14)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X4		4	X14
CON 6 (X5)	1	+24V	CON 22 (X15)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X5		4	X15
CON 7 (X6)	1	+24V	CON 23 (X16)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X6		4	X16
CON 8 (X7)	1	+24V	CON 24 (X17)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X7		4	X17

External connection

When an online connector is connected



CON 9 (X8)	1	+24V	CON 25 (X18)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X8		4	X18
CON 10 (X9)	1	+24V	CON 26 (X19)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X9		4	X19
CON 11 (XA)	1	+24V	CON 27 (X1A)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	XA		4	X1A
CON 12 (XB)	1	+24V	CON 28 (X1B)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	XB		4	X1B
CON 13 (XC)	1	+24V	CON 29 (X1C)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	XC		4	X1C
CON 14 (XD)	1	+24V	CON 30 (X1D)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	XD		4	X1D
CON 15 (XE)	1	+24V	CON 31 (X1E)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	XE		4	X1E
CON 16 (XF)	1	+24V	CON 32 (X1F)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	XF		4	X1F

*6 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*7 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.

*8 The colors of leads correspond to IEC 60947-5-2.

*9 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*10 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

NZ2GFCE3-16DE main DC input module

Item		NZ2GFCE3-16DE
Station type		Remote device station
Number of input points		16 points
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Rated input current		4.0mA TYP. (for 24VDC)
Isolation method		Photocoupler isolation
Max. number of simultaneous input points		Refer to the derating chart.
ON voltage/ON current		17VDC or more/3mA or more
OFF voltage/OFF current		5VDC or less/1.5mA or less
Input resistance		5.7kΩ
Input response time*1	OFF → ON	0ms*2/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)
	ON → OFF	
Input type		Negative common (source type)
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity*3		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (3-wire, sensor connector (e-CON) type)
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.*4
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)*4
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	180mA or less (24VDC, all points ON)*5
Weight		0.27kg

*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

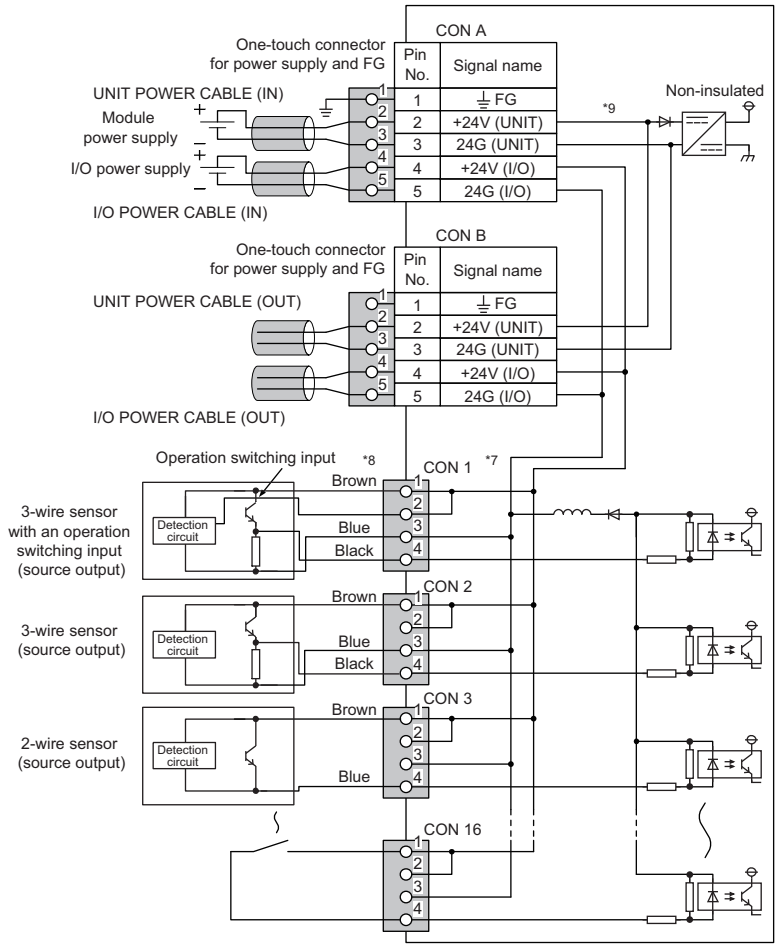
*2 If the input response time is set to "0ms", the actual input response time is 120μs at OFF → ON, and 140μs at ON → OFF.

*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

*4 For details, refer to the following.
☞ Page 21 Recommended Connector List

*5 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

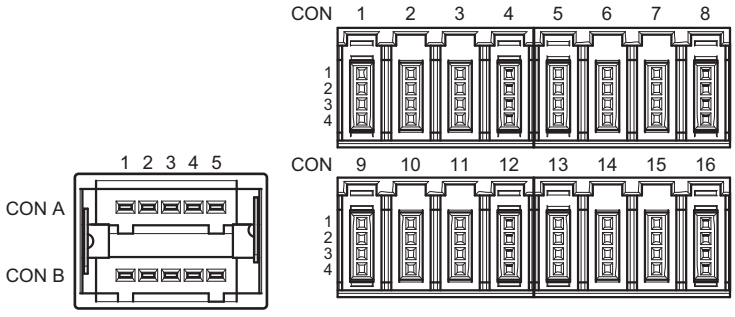
External connection



Pin number		Signal name
CON A CON B *6	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Pin number		Signal name	Pin number		Signal name
CON 1 (X0)	1	+24V	CON 9 (X8)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X0		4	X8
CON 2 (X1)	1	+24V	CON 10 (X9)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X1		4	X9
CON 3 (X2)	1	+24V	CON 11 (XA)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X2		4	XA
CON 4 (X3)	1	+24V	CON 12 (XB)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X3		4	XB
CON 5 (X4)	1	+24V	CON 13 (XC)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X4		4	XC
CON 6 (X5)	1	+24V	CON 14 (XD)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X5		4	XD
CON 7 (X6)	1	+24V	CON 15 (XE)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X6		4	XE
CON 8 (X7)	1	+24V	CON 16 (XF)	1	+24V
	2	+V		2	+V
	3	24G		3	24G
	4	X7		4	XF

Pin layout



*6 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

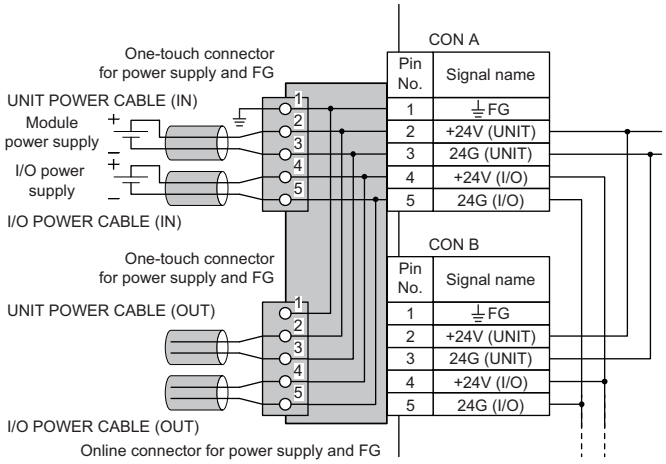
*7 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.

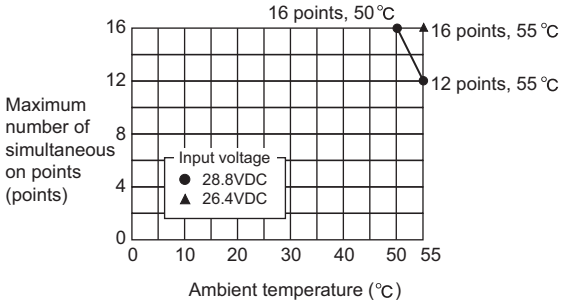
*8 The colors of leads correspond to IEC 60947-5-2.

*9 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*10 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

External connection	Derating chart
• When an online connector is connected	





NZ2GFCM1-16D main DC input module

Item		NZ2GFCM1-16D
Station type		Remote device station
Number of input points		16 points
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Rated input current		4.0mA TYP. (for 24VDC)
Isolation method		Photocoupler isolation
Max. number of simultaneous input points		Refer to the derating chart.
ON voltage/ON current		17VDC or more/3mA or more
OFF voltage/OFF current		5VDC or less/1.5mA or less
Input resistance		5.7kΩ
Input response time*1	OFF → ON	0ms*2/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)
	ON → OFF	
Input type		Positive common (sink type)
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity*3		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (1-wire, MIL connector type)
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	MIL connector (20 pins) The connector plug is sold separately.
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	180mA or less (24VDC, all points ON)*4
Weight		0.24kg

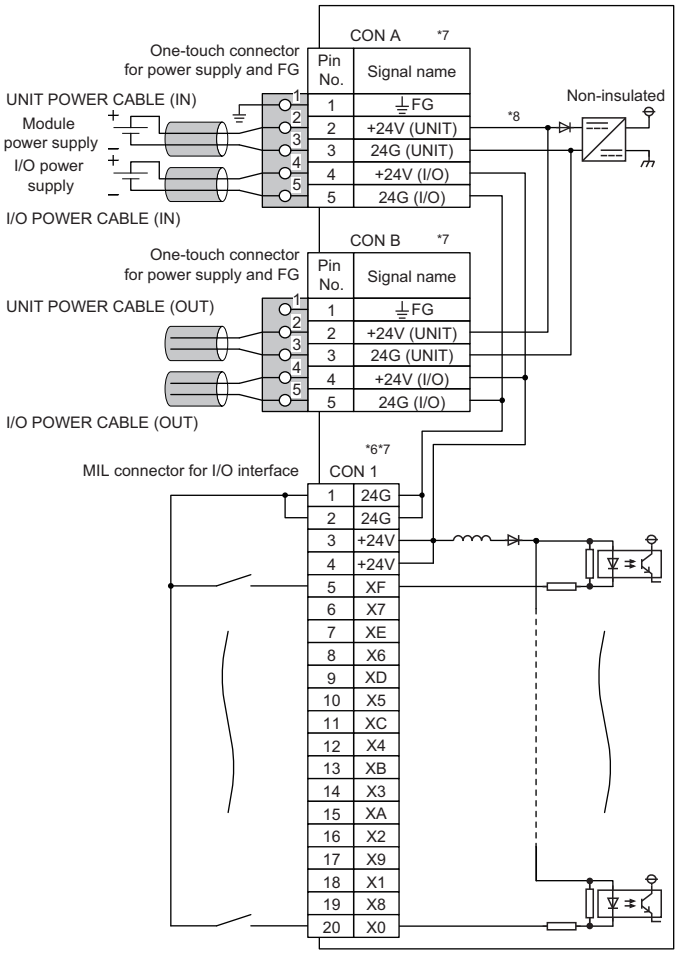
*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 120μs at OFF → ON, and 140μs at ON → OFF.

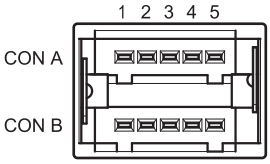
*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection

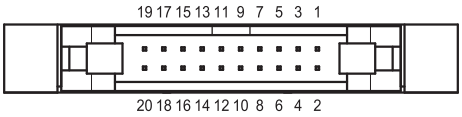


• One-touch connector for power supply and FG



Pin No.	CON A/CON B*5				
	1	2	3	4	5
Signal name	⏚ FG	+24V (UNIT)	24G (UNIT)	+24V (I/O)	24G (I/O)

• MIL connector for I/O interface



Pin No.	19	17	15	13	11	9	7	5	3	1
Signal name	X8	X9	XA	XB	XC	XD	XE	XF	+24V	24G
Pin No.	20	18	16	14	12	10	8	6	4	2
Signal name	X0	X1	X2	X3	X4	X5	X6	X7	+24V	24G

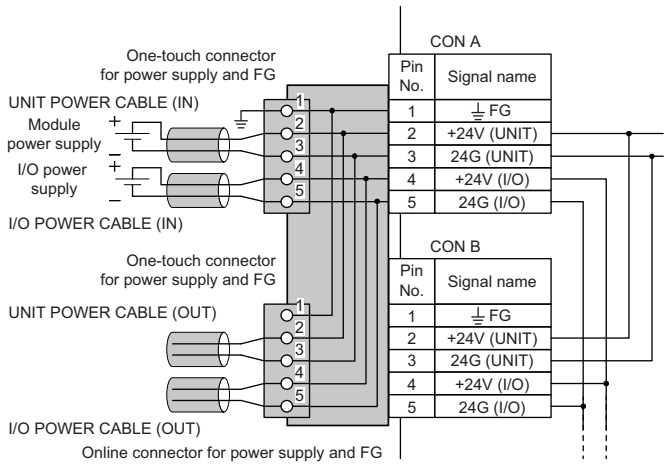
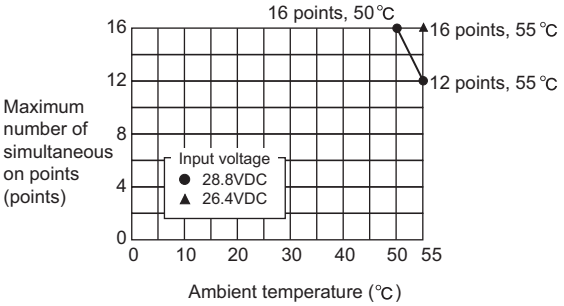
*5 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*6 An incorrect wiring of the MIL connector may lead to a malfunction or short-circuit of the power supply, causing a failure.

*7 Do not use both pin 4 and 5 of the one-touch connector for power supply and FG (CON A, B) and pin 1 to 4 of the MIL connector for I/O interface (CON1) together to supply power.

*8 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*9 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

External connection	Derating chart
• When an online connector is connected 	

NZ2GFCM1-16DE main DC input module

Item		NZ2GFCM1-16DE
Station type		Remote device station
Number of input points		16 points
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Rated input current		4.0mA TYP. (for 24VDC)
Isolation method		Photocoupler isolation
Max. number of simultaneous input points		Refer to the derating chart.
ON voltage/ON current		17VDC or more/3mA or more
OFF voltage/OFF current		5VDC or less/1.5mA or less
Input resistance		5.7kΩ
Input response time*1	OFF → ON	0ms*2/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)
	ON → OFF	
Input type		Negative common (source type)
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity*3		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (1-wire, MIL connector type)
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	MIL connector (20 pins) The connector plug is sold separately.
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	180mA or less (24VDC, all points ON)*4
Weight		0.24kg

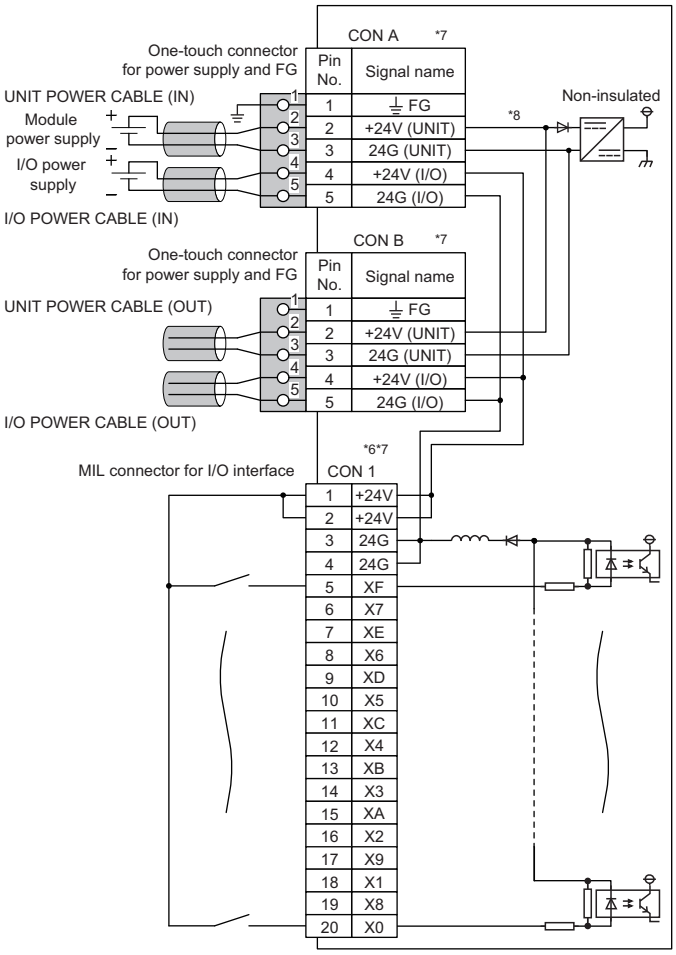
*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 120μs at OFF → ON, and 140μs at ON → OFF.

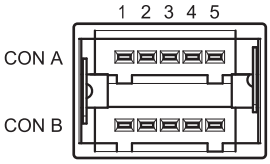
*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection

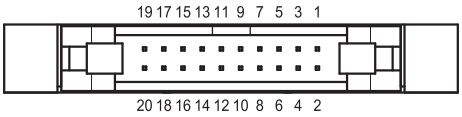


• One-touch connector for power supply and FG



Pin No.	CON A/CON B*5				
	1	2	3	4	5
Signal name	FG	+24V (UNIT)	24G (UNIT)	+24V (I/O)	24G (I/O)

• MIL connector for I/O interface



Pin No.	19	17	15	13	11	9	7	5	3	1
Signal name	X8	X9	XA	XB	XC	XD	XE	XF	24G	+24V
Pin No.	20	18	16	14	12	10	8	6	4	2
Signal name	X0	X1	X2	X3	X4	X5	X6	X7	24G	+24V

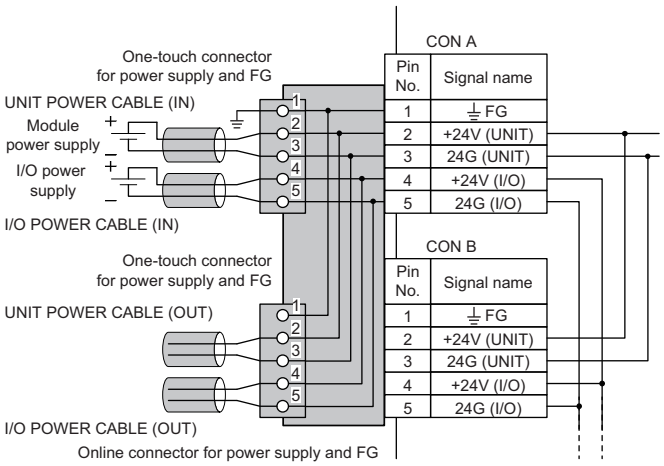
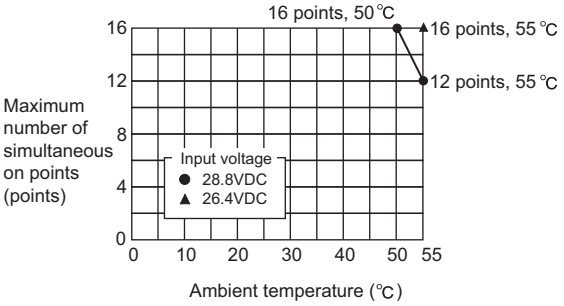
*5 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*6 An incorrect wiring of the MIL connector may lead to a malfunction or short-circuit of the power supply, causing a failure.

*7 Do not use both pin 4 and 5 of the one-touch connector for power supply and FG (CON A, B) and pin 1 to 4 of the MIL connector for I/O interface (CON1) together to supply power.

*8 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*9 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

External connection	Derating chart
• When an online connector is connected 	

NZ2GFCF1-32D main DC input module

Item		NZ2GFCF1-32D			
Station type		Intelligent device station			
Number of input points		32 points			
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
Rated input current		4.0mA TYP. (for 24VDC)			
Isolation method		Photocoupler isolation			
Max. number of simultaneous input points		100%			
ON voltage/ON current		19VDC or more/3mA or more			
OFF voltage/OFF current		5VDC or less/1.5mA or less			
Input resistance		5.7kΩ			
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)			
	ON → OFF				
Input type		Positive common/negative common shared type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity[*3]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		32 points/common (1-wire, FCN connector type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	FCN connector (40 pins): The connector plug is sold separately (A6CON1, A6CON2, A6CON3, and A6CON4).			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	0.5 to 1.5mm² (20 to 16 AWG) (stranded wire)			
	For I/O	A6CON1, A6CON4: 0.08 to 0.3mm² (28 to 22 AWG) (stranded wire) A6CON2: 0.08 to 0.24mm² (28 to 24 AWG) (stranded wire) A6CON3: 0.08mm² (28 AWG) (stranded wire), ϕ0.25mm (30 AWG) (solid wire)			
Applicable solderless terminal	Terminal block for module power supply and FG[*4]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	32 points +16 points × Number of extension modules			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	100mA or less (24VDC, all points ON)[*5]			
Weight		0.26kg			

*1 For how to calculate the processing time of the intelligent device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

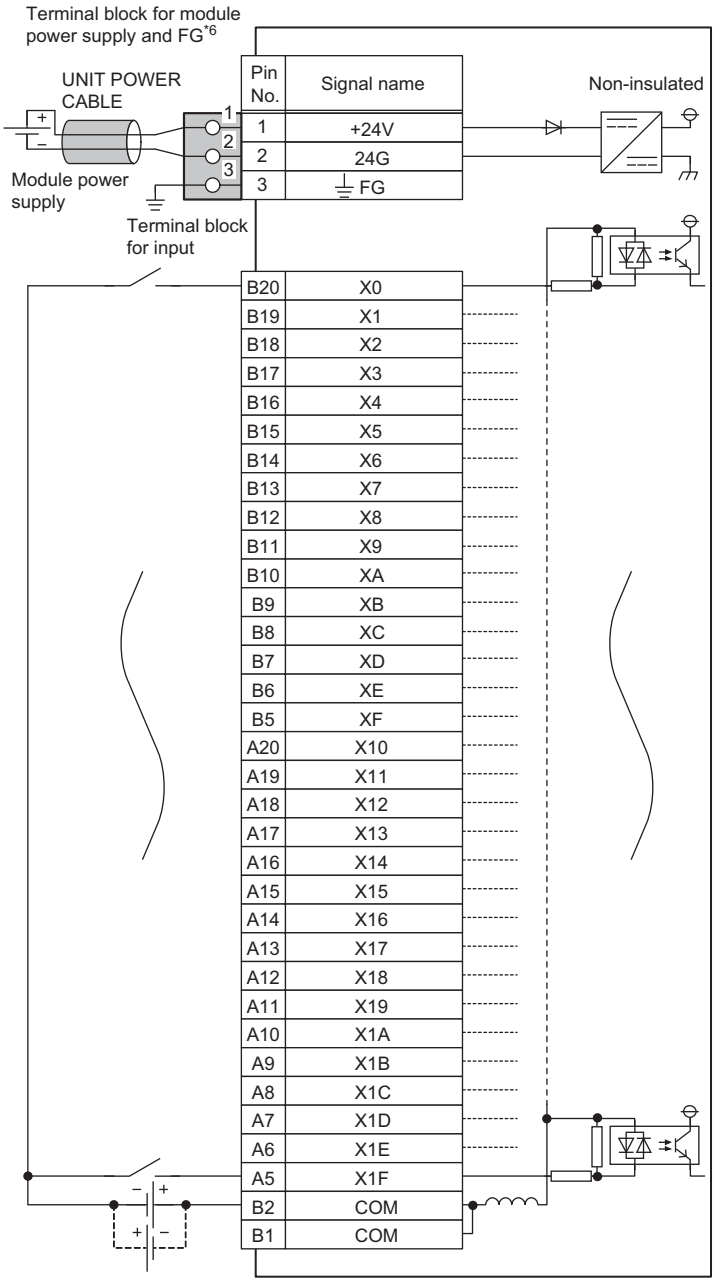
*2 If the input response time is set to "0ms", the actual input response time is 80µs at OFF → ON, and 140µs at ON → OFF.

*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

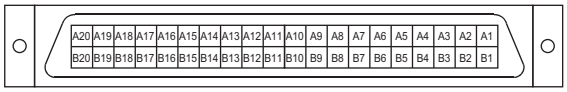
*4 Only one wire can be inserted to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*5 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin number	Signal name	Pin number	Signal name
B20	X0	A20	X10
B19	X1	A19	X11
B18	X2	A18	X12
B17	X3	A17	X13
B16	X4	A16	X14
B15	X5	A15	X15
B14	X6	A14	X16
B13	X7	A13	X17
B12	X8	A12	X18
B11	X9	A11	X19
B10	XA	A10	X1A
B9	XB	A9	X1B
B8	XC	A8	X1C
B7	XD	A7	X1D
B6	XE	A6	X1E
B5	XF	A5	X1F
B4	Empty	A4	Empty
B3	Empty	A3	Empty
B2	COM	A2	Empty
B1	COM	A1	Empty



*6 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

Main output module

NZ2GF2B2-16R main contact output module

Item		NZ2GF2B2-16R			
Station type		Remote device station			
Number of output points		16 points			
Rated switching voltage/current		24VDC 2A (resistance load)/point, 8A/common 240VAC 2A (COSϕ = 1)/point, 8A/common			
Min. switching load		DC5V 1mA			
Max. switching load		AC264V DC125V			
Output response time	OFF → ON	10ms or less			
	ON → OFF	12ms or less			
Life	Mechanical	20 million times or more			
	Electrical	Rated switching voltage/current load 100 thousand times or more ☞ Page 192 Relay life (contact switching life)			
Max. switching frequency		3600 times/hour			
Surge suppressor		None			
Fuse		None			
Withstand voltage		2300VACrms for 1 minute between all AC external terminals and the ground 510VACrms for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all AC external terminals and the ground, all DC external terminals and the ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage: 1500Vp-p (AC type), 500Vp-p (DC type), noise width 1μs, noise frequency 25 to 60Hz (noise simulator condition)			
Protection degree		IP1X			
Wiring method for common		16 points/common (2-wire, screw terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm [*1]			
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)			
Applicable solderless terminal	Terminal block for module power supply and FG [*2]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for output	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	For RX/RY	16 points × (1 + number of extension modules)			
	For RWr/RWw	20 points			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			

Item		NZ2GF2B2-16R
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	190mA or less (24VDC, all points ON)
Weight		0.45kg

*1 Use bar solderless terminals for wiring.

*2 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

Point

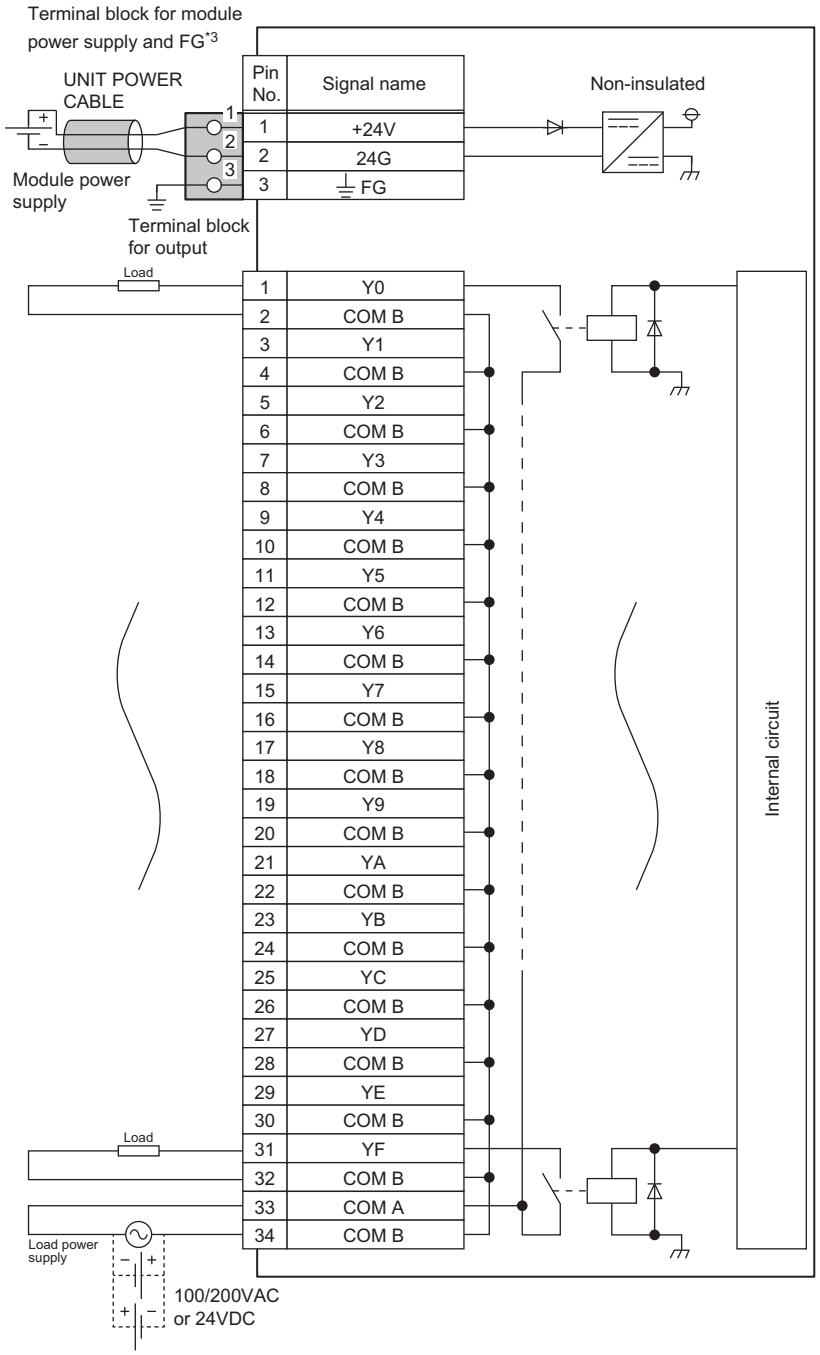
The processing time of the remote device station/intelligent device station (output) is used for calculating the delay time of the cyclic transmission from the master station (RY/RWw) to the remote device station/intelligent device station (output). The processing time is the time period for internal processing, and calculate it by using the following formula.

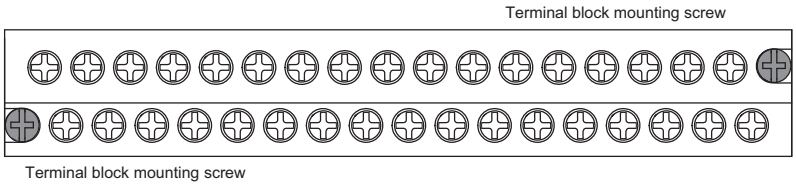
- Processing time of remote device station/intelligent device station (output) = Output response time (1.5ms) + Internal processing time (0.2ms) = 1.7ms

For the delay time of the cyclic transmission from the master station (RY/RWw) to the remote device station/intelligent device station (output), refer to the following.

User's manual for the master/local module used

External connection





Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	YA	YB	YC	YD	YE	YF	COM A	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B

*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GF2S2-16R main contact output module

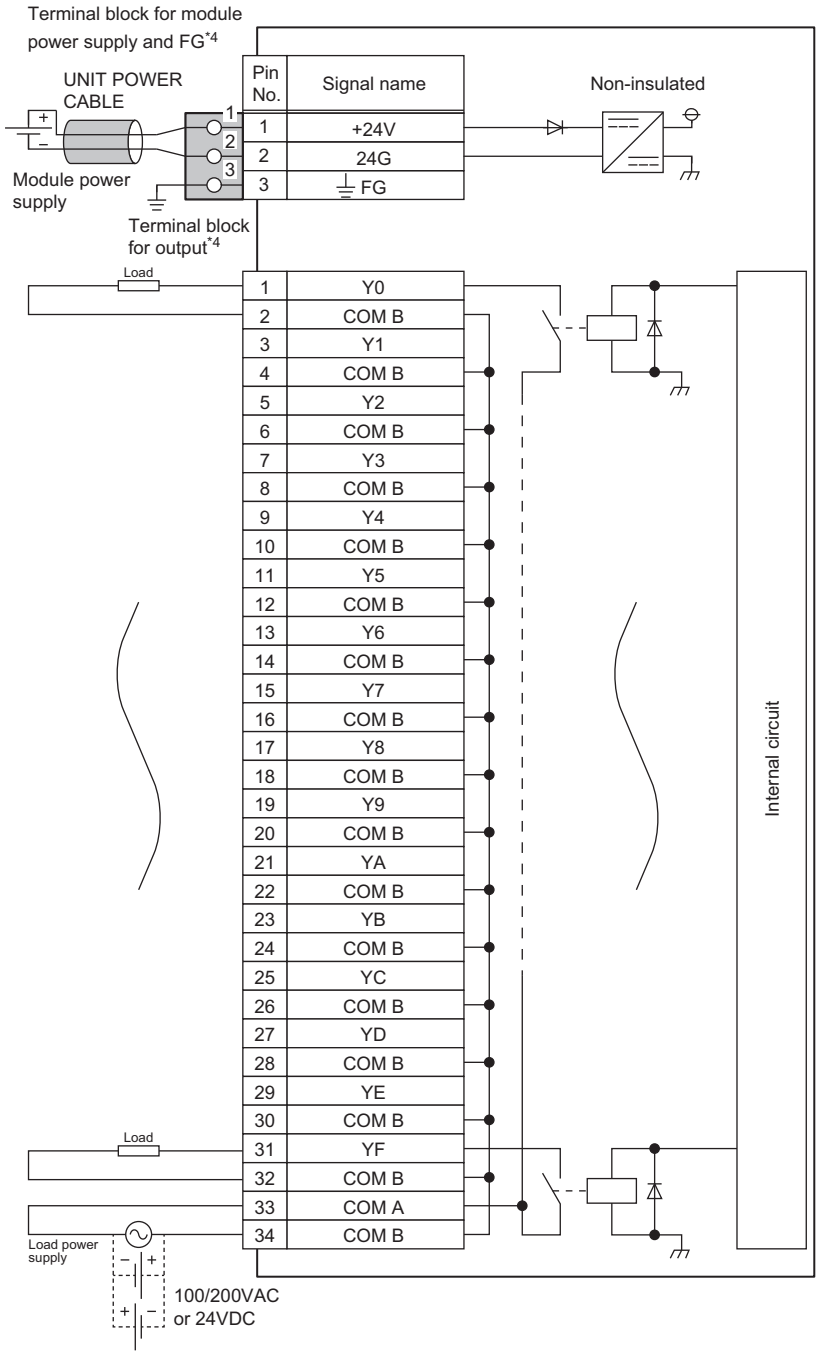
Item		NZ2GF2S2-16R			
Station type		Remote device station			
Number of output points		16 points			
Rated switching voltage/current		24VDC 2A (resistance load)/point, 8A/common 240VAC 2A (COSϕ = 1)/point, 8A/common			
Min. switching load		DC5V 1mA			
Max. switching load		AC264V DC125V			
Output response time*1	OFF → ON	10ms or less			
	ON → OFF	12ms or less			
Life	Mechanical	20 million times or more			
	Electrical	Rated switching voltage/current load 100 thousand times or more ☞ Page 192 Relay life (contact switching life)			
Max. switching frequency		3600 times/hour			
Surge suppressor		None			
Fuse		None			
Withstand voltage		2300VACrms for 1 minute between all AC external terminals and the ground 510VACrms for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all AC external terminals and the ground, all DC external terminals and the ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage: 1500Vp-p (AC type), 500Vp-p (DC type), noise width 1µs, noise frequency 25 to 60Hz (noise simulator condition)			
Protection degree		IP1X			
Wiring method for common		16 points/common (2-wire, spring clamp terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm*2			
	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm*2			
Applicable solderless terminal	Terminal block for module power supply and FG, terminal block for output*3	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	For RX/RY	16 points × (1 + number of extension modules)			
	For RWr/RWw	20 points			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	190mA or less (24VDC, all points ON)			
Weight		0.45g			

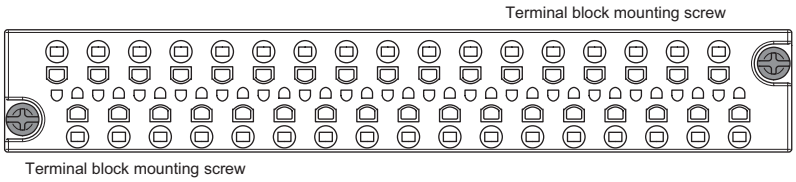
*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*2 Use bar solderless terminals for wiring.

*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG or terminal block for output. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

External connection





Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	YA	YB	YC	YD	YE	YF	COM A	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B

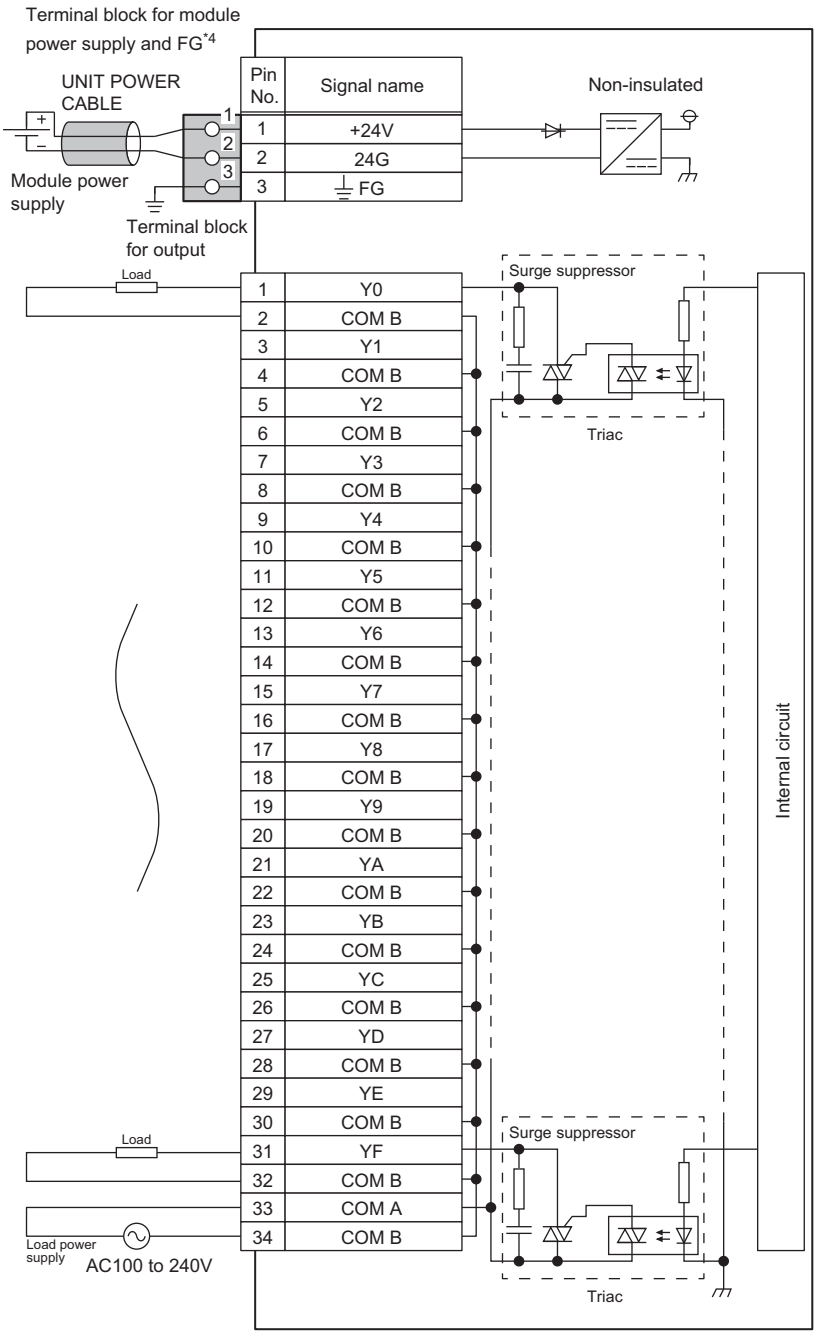
*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG or terminal block for output. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

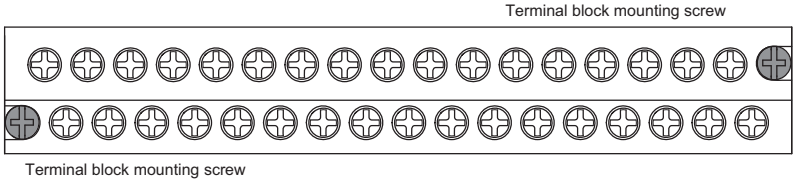
NZ2GF2B2-16S main triac output module

Item		NZ2GF2B2-16S			
Station type		Remote device station			
Number of output points		16 points			
Rated load voltage, frequency		100 to 240VAC (+10%/-15%), 50/60Hz (±3Hz)			
Max. load current		0.6A/point, 4.8A/common			
Load voltage distortion ratio		Within 5%			
Min. load voltage/current		50VAC/100mA, 100VAC/10mA, 240VAC/10mA			
Max. inrush current		25A, 10ms or less			
Leakage current at OFF		3mA or less (at 200VAC, 60Hz), 1.5mA or less (at 100VAC, 60Hz)			
Max. voltage drop at ON		1.5V or lower (at load current of 0.6A)			
Output response time[*1]	OFF → ON	1ms or less			
	ON → OFF	Total of 1ms and 0.5 cycles or less (rated load, resistance load)			
Surge suppressor		CR absorber			
Fuse		None (Attaching a fuse to each external wiring is recommended.)			
Withstand voltage		2300VACrms for 1 minute between all AC external terminals and the ground 510VACrms for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all AC external terminals and the ground, all DC external terminals and the ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage: 1500Vp-p (AC type), 500Vp-p (DC type), noise width 1μs, noise frequency 25 to 60Hz (noise simulator condition)			
Protection degree		IP1X			
Wiring method for common		16 points/common (2-wire, screw terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*2]			
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)			
Applicable solderless terminal	Terminal block for module power supply and FG[*3]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for output	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	For RX/RY	16 points × (1 + number of extension modules)			
	For RWr/RWw	20 points			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	170mA or less (24VDC, all points ON)			
Weight		0.45kg			

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module
*2 Use bar solderless terminals for wiring.
*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

External connection





Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	YA	YB	YC	YD	YE	YF	COM A	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B

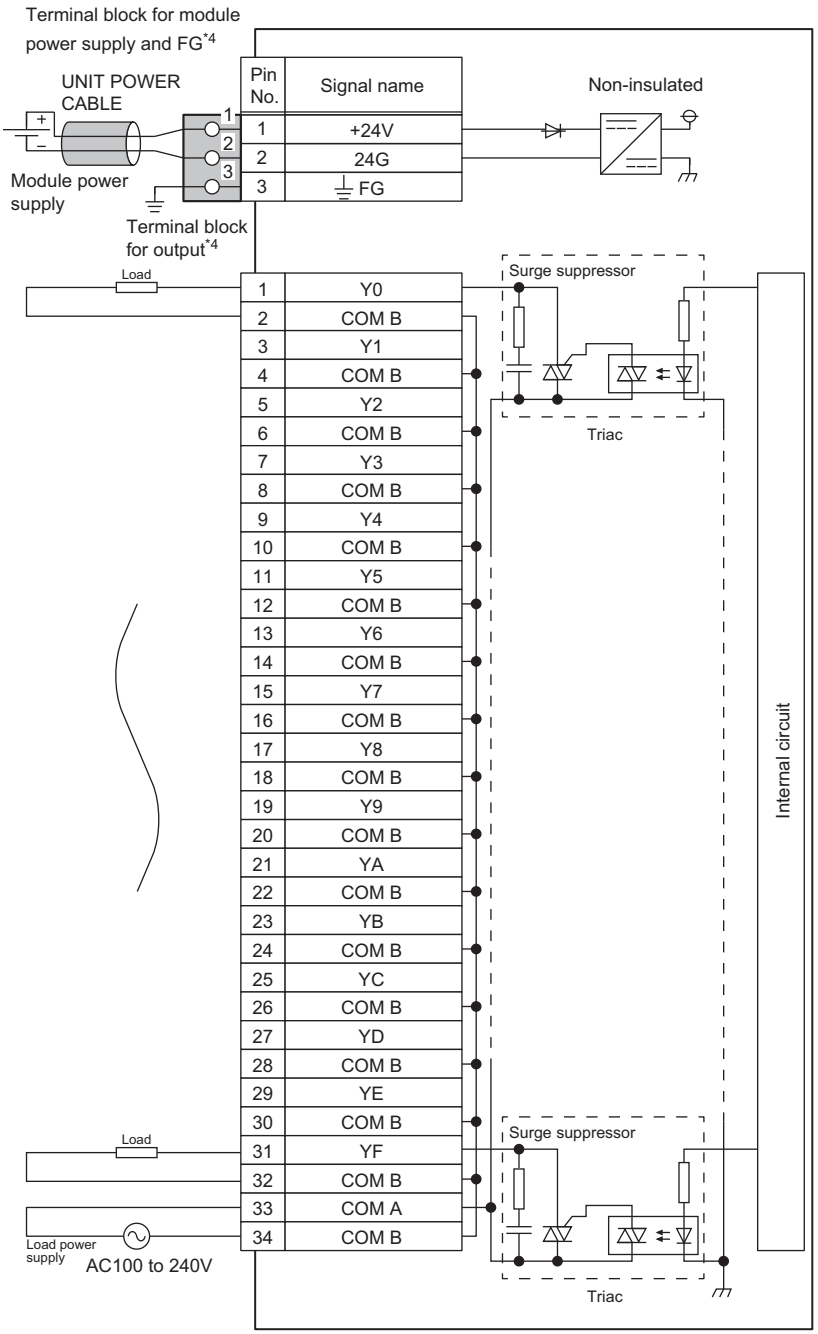
*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

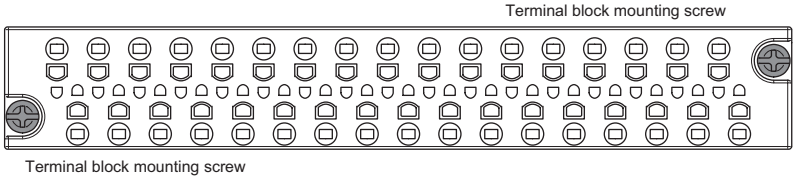
NZ2GF2S2-16S main triac output module

Item		NZ2GF2S2-16S			
Station type		Remote device station			
Number of output points		16 points			
Rated load voltage, frequency		100 to 240VAC (+10%/-15%), 50/60Hz (±3Hz)			
Max. load current		0.6A/point, 4.8A/common			
Load voltage distortion ratio		Within 5%			
Min. load voltage/current		50VAC/100mA, 100VAC/10mA, 240VAC/10mA			
Max. inrush current		25A, 10ms or less			
Leakage current at OFF		3mA or less (at 200VAC, 60Hz), 1.5mA or less (at 100VAC, 60Hz)			
Max. voltage drop at ON		1.5V or lower (at load current of 0.6A)			
Output response time[*1]	OFF → ON	1ms or less			
	ON → OFF	Total of 1ms and 0.5 cycles or less (rated load, resistance load)			
Surge suppressor		CR absorber			
Fuse		None (Attaching a fuse to each external wiring is recommended.)			
Withstand voltage		2300VACrms for 1 minute between all AC external terminals and the ground 510VACrms for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all AC external terminals and the ground, all DC external terminals and the ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage: 1500Vp-p (AC type), 500Vp-p (DC type), noise width 1μs, noise frequency 25 to 60Hz (noise simulator condition)			
Protection degree		IP1X			
Wiring method for common		16 points/common (2-wire, spring clamp terminal block type)			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*2]			
	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm[*2]			
Applicable solderless terminal	Terminal block for module power supply and FG, terminal block for output[*3]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	For RX/RY	16 points × (1 + number of extension modules)			
	For RWr/RWw	20 points			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	170mA or less (24VDC, all points ON)			
Weight		0.45kg			

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module
*2 Use bar solderless terminals for wiring.
*3 Only one wire can be connected to a terminal of the terminal block for module power supply and FG or terminal block for output. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

External connection





Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	YA	YB	YC	YD	YE	YF	COM A	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B	COM B

*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG or terminal block for output. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GF2B1(N, N1)-16T main transistor output module

Item		NZ2GF2B1-16T, NZ2GF2B1N-16T, NZ2GF2B1N1-16T
Station type		Remote device station
Number of output points		16 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 4A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*4]	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	8mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Sink type
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (1-wire, screw terminal block type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part (NZ2GF2B1-16T, NZ2GF2B1N-16T)	Terminal block for module power supply and FG (M3 screw) Tightening torque range for terminal screw (M2.5 screw): 0.5 to 0.6N·m
	Module power supply part (NZ2GF2B1N1-16T)	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)
	I/O part	18-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply (NZ2GF2B1-16T, NZ2GF2B1N-16T)	Core: 0.3 to 1.5mm² (22 to 16 AWG)
	For power supply (NZ2GF2B1N1-16T)	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*3]
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)

Item		NZ2GF2B1-16T, NZ2GF2B1N-16T, NZ2GF2B1N1-16T			
Applicable solderless terminal	Terminal block for module power supply and FG[*1] (NZ2GF2B1-16T, NZ2GF2B1N-16T)	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-10	0.75mm²		
		TE 1.0-10	1.0mm²		
		TE 1.5-10	1.5mm²		
		AI 0.5-10WH	0.5mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.75-10GY	0.75mm²		
		AI 1-10RD	1.0mm²		
		AI 1.5-10BK	1.5mm²		
	Terminal block for module power supply and FG[*1] (NZ2GF2B1N1-16T)	TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for output	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (NZ2GF2B1-16T, NZ2GF2B1N-16T: Max. one module, NZ2GF2B1N1-16T: Max. three modules)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	NZ2GF2B1-16T, NZ2GF2B1N-16T: 190mA or less (24VDC, all points ON)[*2] NZ2GF2B1N1-16T: 130mA or less (24VDC, all points ON)[*2]			
Weight		NZ2GF2B1-16T, NZ2GF2B1N-16T: 0.31kg NZ2GF2B1N1-16T: 0.30kg			

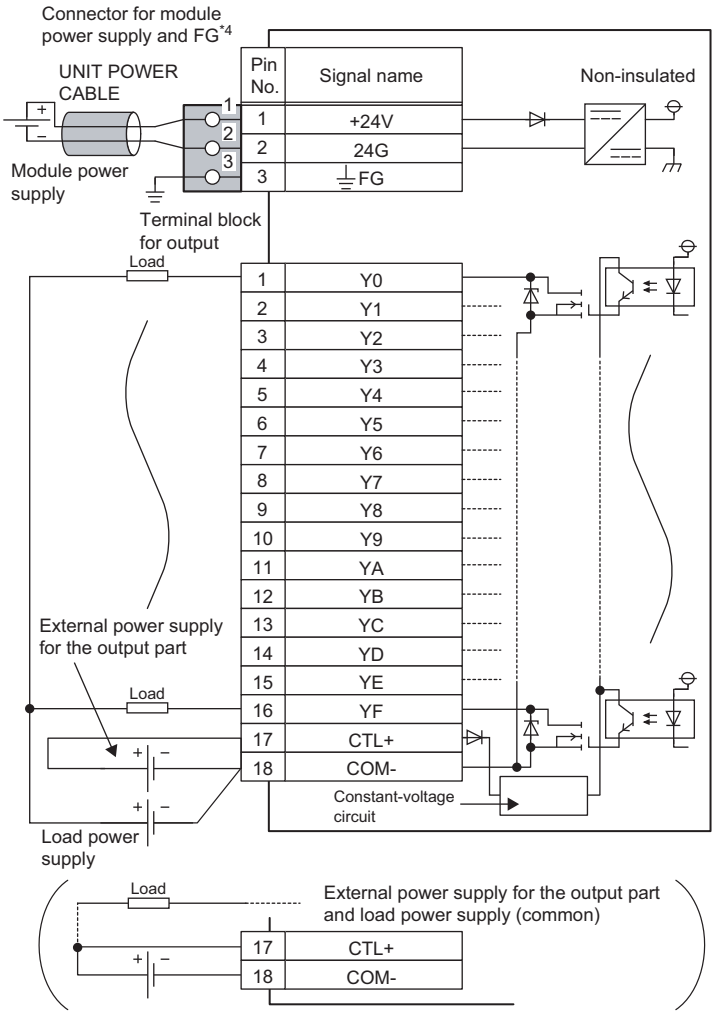
*1 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

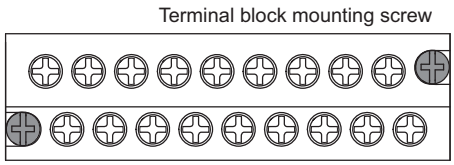
*2 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

*3 Use bar solderless terminals for wiring.

*4 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

External connection





Terminal block										
Pin number	1	3	5	7	9	11	13	15	17	
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	CTL+	
Pin number		2	4	6	8	10	12	14	16	18
Signal name		Y1	Y3	Y5	Y7	Y9	YB	YD	YF	COM-

*5 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GF2B1-32T main transistor output module

Item		NZ2GF2B1-32T			
Station type		Intelligent device station			
Number of output points		32 points			
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
Max. load current		0.5A/point, 5A/common			
Isolation method		Photocoupler isolation			
Max. inrush current		Current is limited by the overload protection function.			
Leakage current at OFF		0.1mA or less			
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A			
Output response time[*1]	OFF → ON	0.5ms or less			
	ON → OFF	1.5ms or less (resistance load)			
Surge suppressor		Zener diode			
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
	Current	25mA or less (TYP. 24VDC per common) External load current is not included.			
Output type		Sink type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		32 points/common (1-wire, screw terminal block type)			
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.			
	Overheat protection function	Activated to each point.			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*3]			
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)			
Applicable solderless terminal	Terminal block for module power supply and FG[*2]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for output	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	32 points			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			

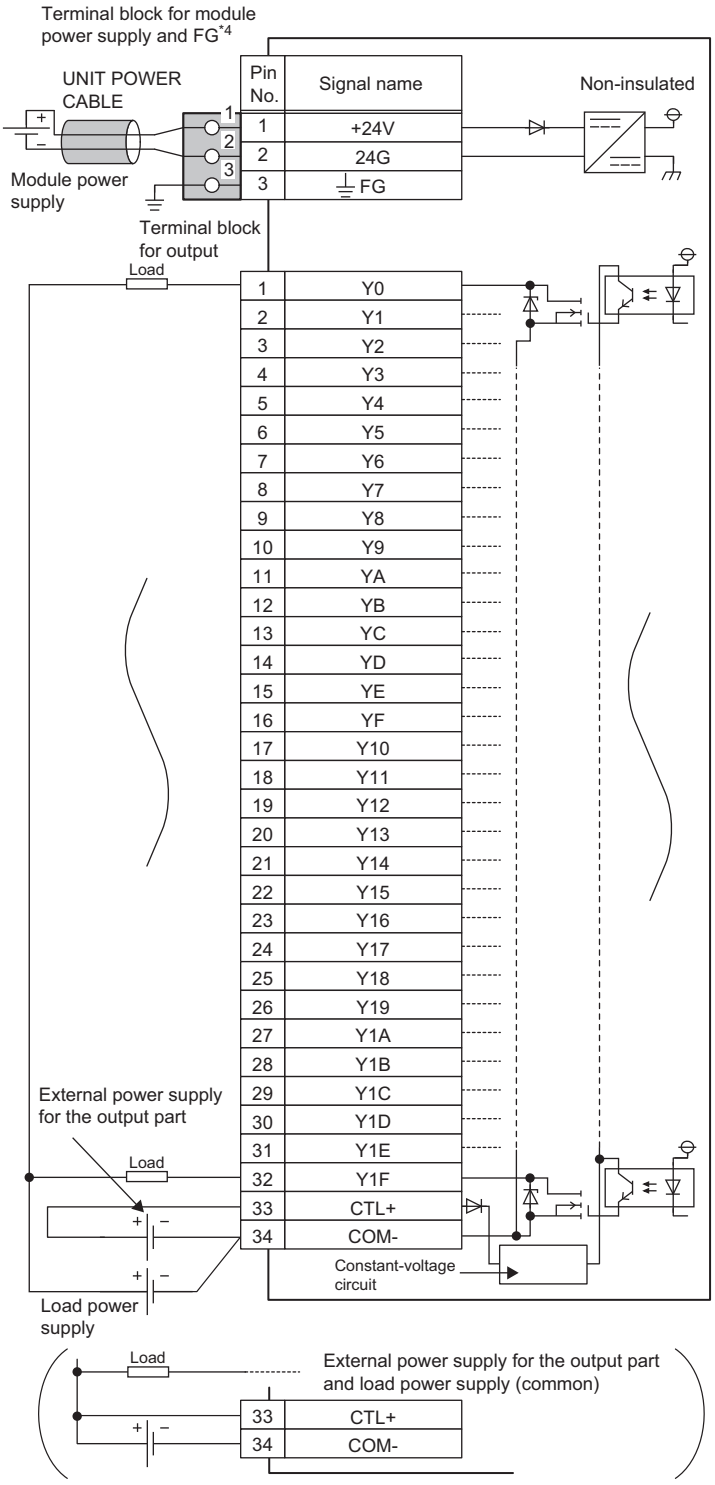
Item		NZ2GF2B1-32T
Availability of connecting extension module		Not available
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	130mA or less (24VDC, all points ON)
Weight		0.38kg

*1 For how to calculate the processing time of the intelligent device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

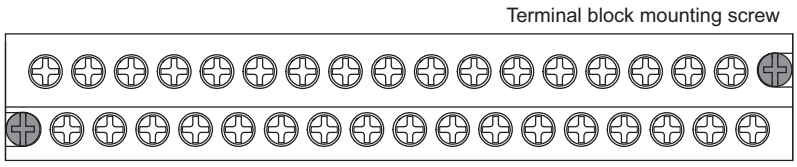
*2 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*3 Use bar solderless terminals for wiring.

External connection



External connection



Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	Y10	Y12	Y14	Y16	Y18	Y1A	Y1C	Y1E	CTL+	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		Y1	Y3	Y5	Y7	Y9	YB	YD	YF	Y11	Y13	Y15	Y17	Y19	Y1B	Y1D	Y1F	COM-

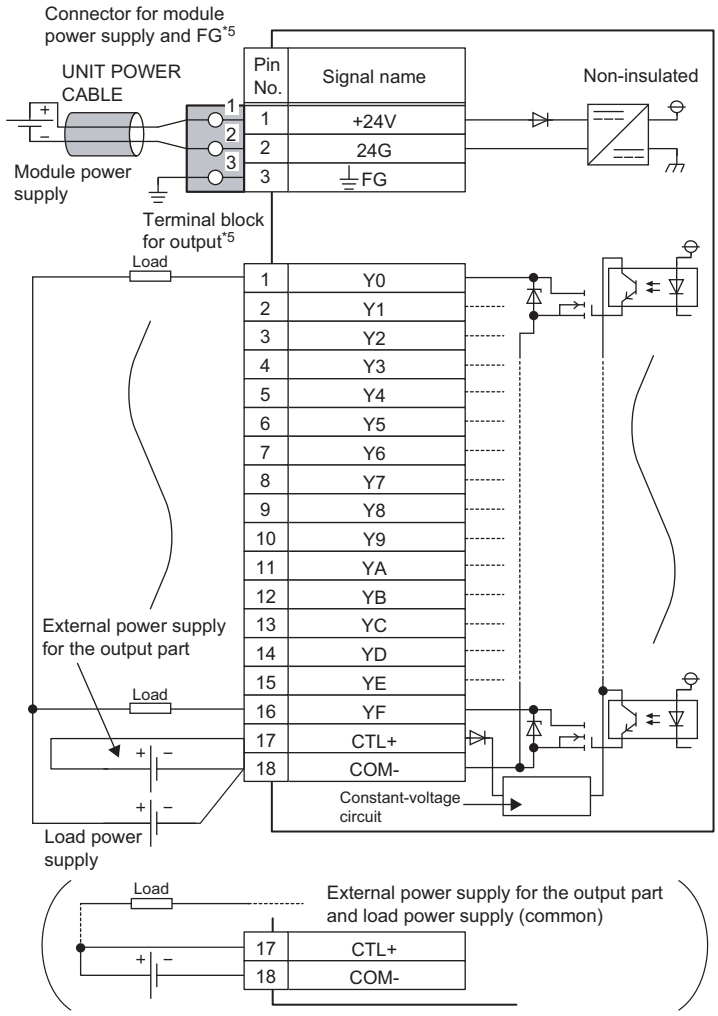
*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

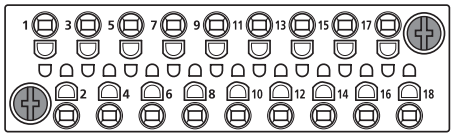
NZ2GF2S1-16T main transistor output module

Item		NZ2GF2S1-16T			
Station type		Remote device station			
Number of output points		16 points			
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
Max. load current		0.5A/point, 4A/common			
Isolation method		Photocoupler isolation			
Max. inrush current		Current is limited by the overload protection function.			
Leakage current at OFF		0.1mA or less			
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A			
Output response time[*1]	OFF → ON	0.5ms or less			
	ON → OFF	1.5ms or less (resistance load)			
Surge suppressor		Zener diode			
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
	Current	8mA or less (TYP. 24VDC per common) External load current is not included.			
Output type		Sink type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		16 points/common (1-wire, spring clamp terminal block type)			
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.			
	Overheat protection function	Activated to each point.			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*2]			
	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 1.65mm[*2]			
Applicable solderless terminal	Terminal block for module power supply and FG, terminal block for output[*3]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	190mA or less (24VDC, all points ON)[*4]			
Weight		0.31kg			

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module
*2 Use bar solderless terminals for wiring.
*3 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection





Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	CTL+
Pin number	2	4	6	8	10	12	14	16	18
Signal name	Y1	Y3	Y5	Y7	Y9	YB	YD	YF	COM-

*5 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GF2B1(N, N1)-16TE main transistor output module

Item		NZ2GF2B1-16TE, NZ2GF2B1N-16TE, NZ2GF2B1N1-16TE
Station type		Remote device station
Number of output points		16 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 4A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.5VDC (TYP.) 0.5A, 0.8VDC (MAX.) 0.5A
Output response time[*1]	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	21mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Source type
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (1-wire, screw terminal block type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1.5A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part (NZ2GF2B1-16TE, NZ2GF2B1N-16TE)	Terminal block for module power supply and FG Tightening torque range for terminal screw (M2.5 screw): 0.5 to 0.6N·m
	Module power supply part (NZ2GF2B1N1-16TE)	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)
	I/O part	18-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply (NZ2GF2B1-16TE, NZ2GF2B1N-16TE)	Core: 0.3 to 1.5mm² (22 to 16 AWG)
	For power supply (NZ2GF2B1N1-16TE)	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*4]
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)

Item		NZ2GF2B1-16TE, NZ2GF2B1N-16TE, NZ2GF2B1N1-16TE			
Applicable solderless terminal	Terminal block for module power supply and FG[*2] (NZ2GF2B1-16TE, NZ2GF2B1N-16TE)	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-10	0.75mm²		
		TE 1.0-10	1.0mm²		
		TE 1.5-10	1.5mm²		
		AI 0.5-10WH	0.5mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.75-10GY	0.75mm²		
		AI 1-10RD	1.0mm²		
		AI 1.5-10BK	1.5mm²		
	Terminal block for module power supply and FG[*2] (NZ2GF2B1N1-16TE)	TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for output	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (NZ2GF2B1-16TE, NZ2GF2B1N-16TE: Max. one module, NZ2GF2B1N1-16TE: Max. three modules)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	NZ2GF2B1-16TE, NZ2GF2B1N-16TE: 190mA or less (24VDC, all points ON)[*3] NZ2GF2B1N1-16TE: 130mA or less (24VDC, all points ON)[*3]			
Weight		NZ2GF2B1-16TE, NZ2GF2B1N-16TE: 0.31kg NZ2GF2B1N1-16TE: 0.30kg			

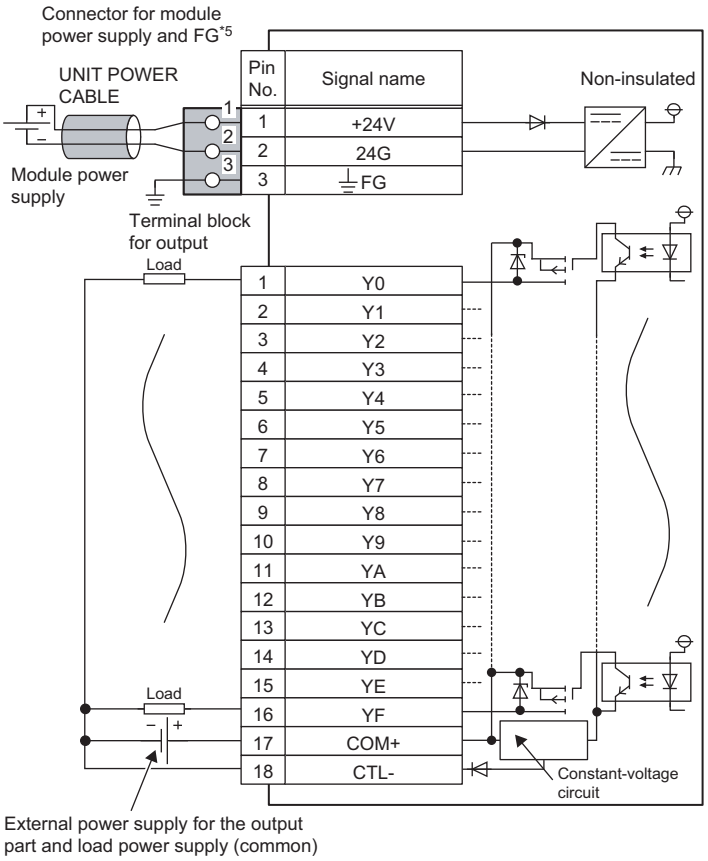
*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

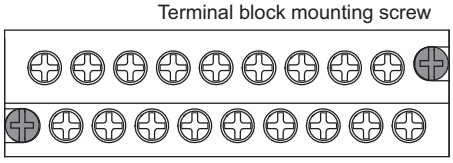
*2 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*3 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

*4 Use bar solderless terminals for wiring.

External connection





Terminal block										
Pin number	1	3	5	7	9	11	13	15	17	
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	COM+	
Pin number		2	4	6	8	10	12	14	16	18
Signal name		Y1	Y3	Y5	Y7	Y9	YB	YD	YF	CTL-

*5 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GF2B1-32TE main transistor output module

Item		NZ2GF2B1-32TE			
Station type		Intelligent device station			
Number of output points		32 points			
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
Max. load current		0.5A/point, 5A/common			
Isolation method		Photocoupler isolation			
Max. inrush current		Current is limited by the overload protection function.			
Leakage current at OFF		0.1mA or less			
Max. voltage drop at ON		0.5VDC (TYP.) 0.5A, 0.8VDC (MAX.) 0.5A			
Output response time[*1]	OFF → ON	0.5ms or less			
	ON → OFF	1.5ms or less (resistance load)			
Surge suppressor		Zener diode			
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
	Current	50mA or less (TYP. 24VDC per common) External load current is not included.			
Output type		Source type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		32 points/common (1-wire, screw terminal block type)			
Protection function	Overload protection function	Limited current when detecting overcurrent: 1.5A or more/point Activated to each point.			
	Overheat protection function	Activated to each point.			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*3]			
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)			
Applicable solderless terminal	Terminal block for module power supply and FG[*2]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	Terminal block for output	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	32 points			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			

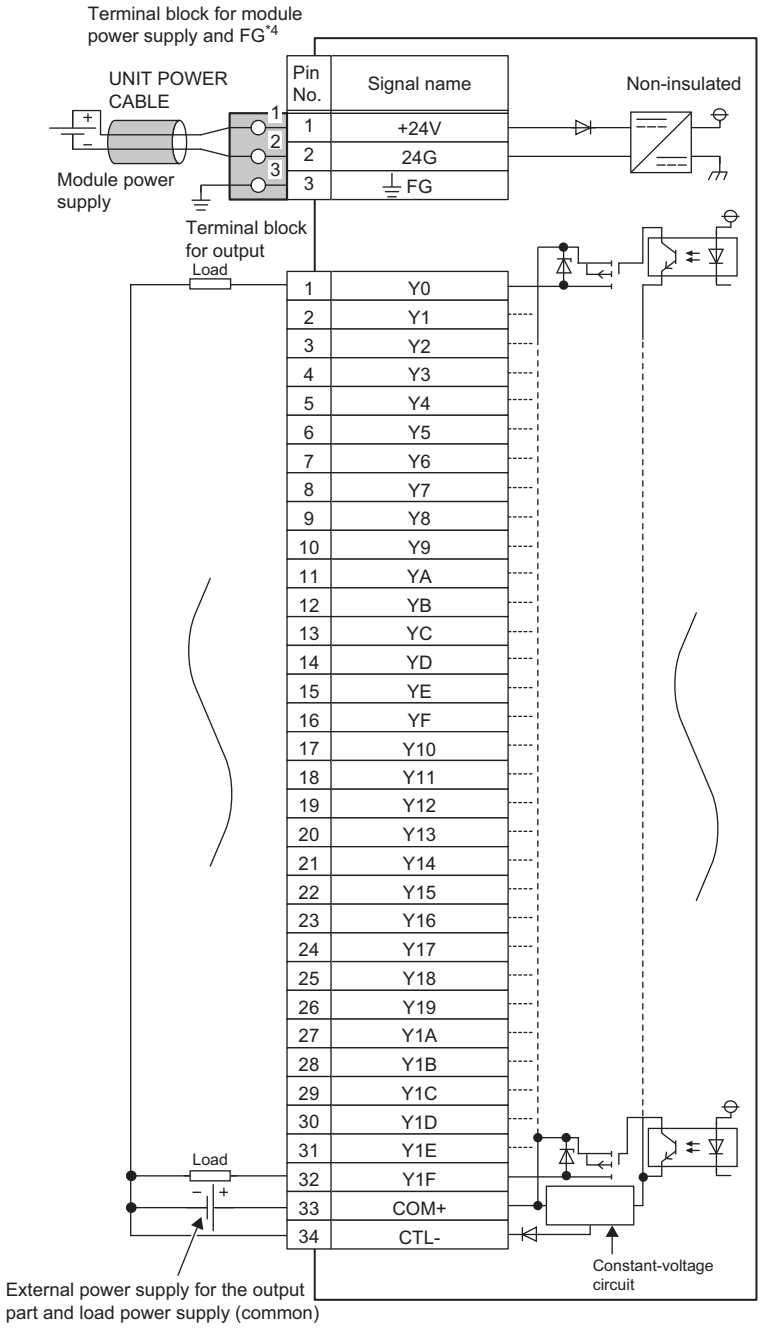
Item		NZ2GF2B1-32TE
Availability of connecting extension module		Not available
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	130mA or less (24VDC, all points ON)
Weight		0.38kg

*1 For how to calculate the processing time of the intelligent device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

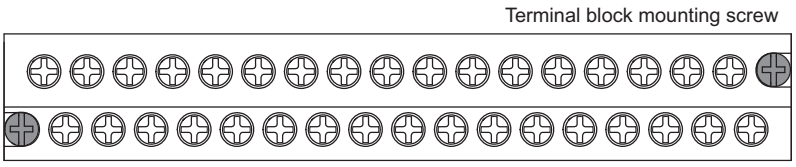
*2 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*3 Use bar solderless terminals for wiring.

External connection



External connection



Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	Y10	Y12	Y14	Y16	Y18	Y1A	Y1C	Y1E	COM+	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		Y1	Y3	Y5	Y7	Y9	YB	YD	YF	Y11	Y13	Y15	Y17	Y19	Y1B	Y1D	Y1F	CTL-

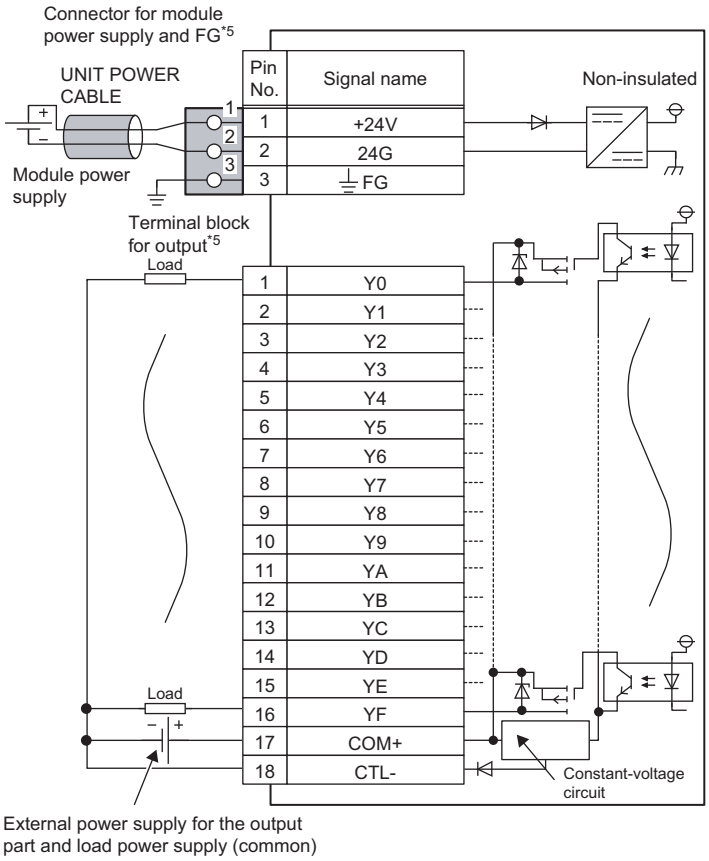
*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

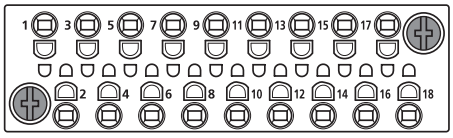
NZ2GF2S1-16TE main transistor output module

Item		NZ2GF2S1-16TE			
Station type		Remote device station			
Number of output points		16 points			
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
Max. load current		0.5A/point, 4A/common			
Isolation method		Photocoupler isolation			
Max. inrush current		Current is limited by the overload protection function.			
Leakage current at OFF		0.1mA or less			
Max. voltage drop at ON		0.5VDC (TYP.) 0.5A, 0.8VDC (MAX.) 0.5A			
Output response time[*1]	OFF → ON	0.5ms or less			
	ON → OFF	1.5ms or less (resistance load)			
Surge suppressor		Zener diode			
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
	Current	21mA or less (TYP. 24VDC per common) External load current is not included.			
Output type		Source type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		16 points/common (1-wire, spring clamp terminal block type)			
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.			
	Overheat protection function	Activated to each point.			
External interface	Communication part	RJ45 connector			
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)			
	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*2]			
	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm[*2]			
Applicable solderless terminal	Terminal block for module power supply and FG, terminal block for output[*3]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to ☞ Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	190mA or less (24VDC, all points ON)[*4]			
Weight		0.31kg			

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module
*2 Use bar solderless terminals for wiring.
*3 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection





Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	COM+
Pin number	2	4	6	8	10	12	14	16	18
Signal name	Y1	Y3	Y5	Y7	Y9	YB	YD	YF	CTL-

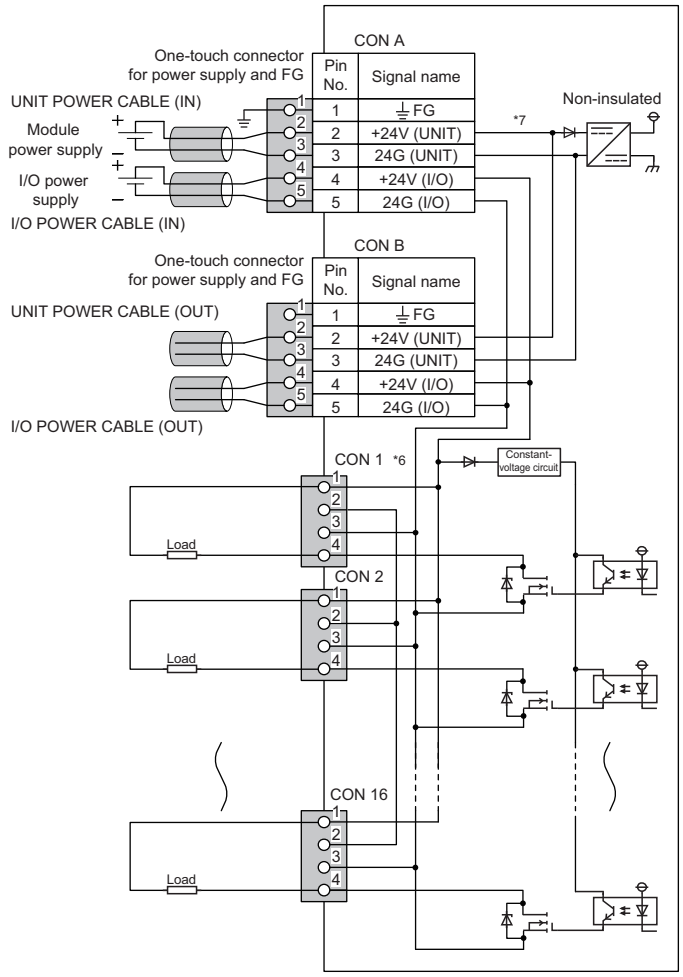
*5 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

NZ2GFCE3-16T main transistor output module

Item		NZ2GFCE3-16T
Station type		Remote device station
Number of output points		16 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 4A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*1]	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	8mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Sink type
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (3-wire, sensor connector (e-CON) type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.[*2]
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)[*2]
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to ☞ Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	190mA or less (24VDC, all points ON)[*3]
Weight		0.27kg

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module
*2 For details, refer to the following.
☞ Page 21 Recommended Connector List
*3 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

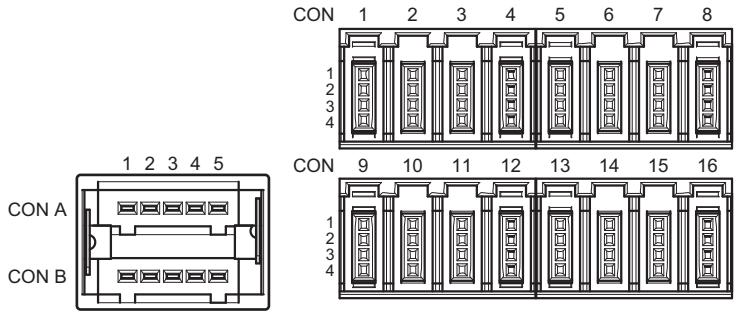
External connection



Pin number		Signal name
CON A CON B *4	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Pin number		Signal name	Pin number		Signal name
CON 1 (Y0)	1	+24V	CON 9 (Y8)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y0		4	Y8
CON 2 (Y1)	1	+24V	CON 10 (Y9)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y1		4	Y9
CON 3 (Y2)	1	+24V	CON 11 (YA)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y2		4	YA
CON 4 (Y3)	1	+24V	CON 12 (YB)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y3		4	YB
CON 5 (Y4)	1	+24V	CON 13 (YC)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y4		4	YC
CON 6 (Y5)	1	+24V	CON 14 (YD)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y5		4	YD
CON 7 (Y6)	1	+24V	CON 15 (YE)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y6		4	YE
CON 8 (Y7)	1	+24V	CON 16 (YF)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y7		4	YF

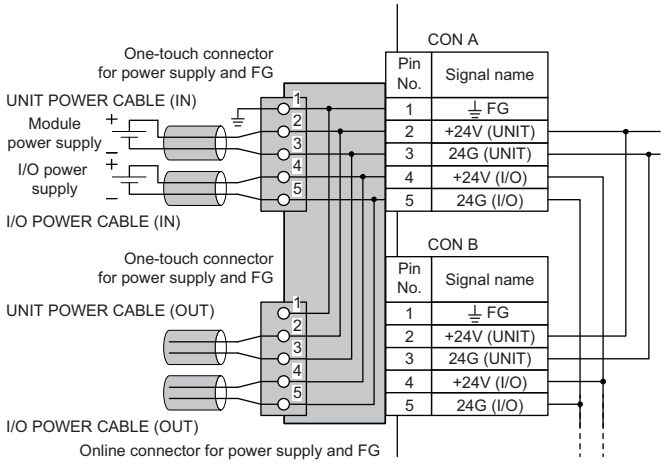
Pin layout



*4 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.
*5 All the pin 2 of CON1 to CON16 cannot be used because they are internally connected.
*6 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.
*7 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG
*8 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

External connection

• When an online connector is connected



NZ2GFCE3(N)-32T main transistor output module

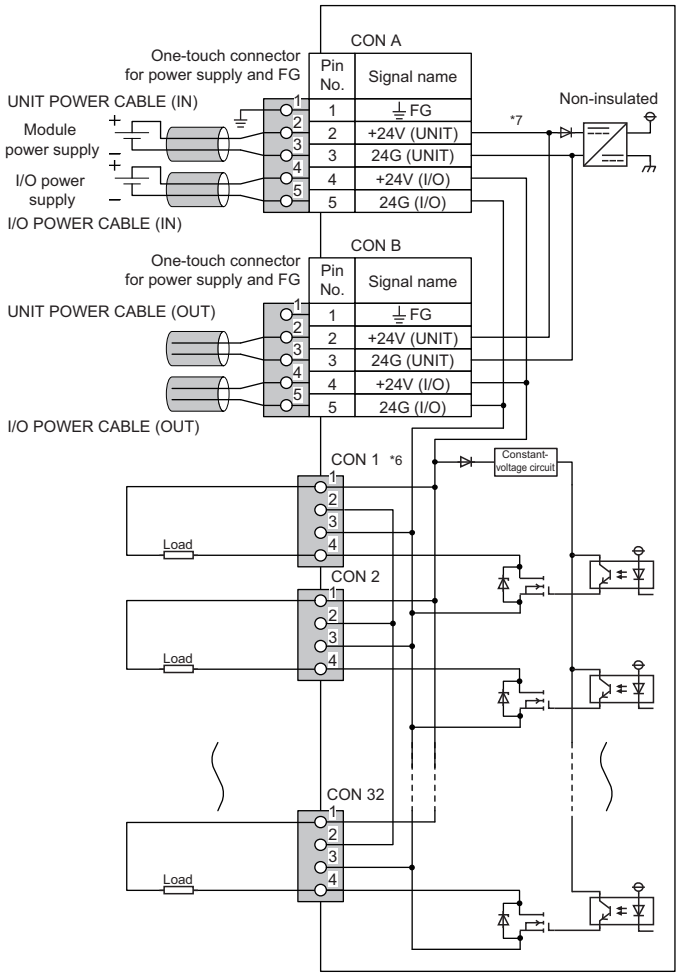
Item		NZ2GFCE3-32T, NZ2GFCE3N-32T
Station type		Remote device station
Number of output points		32 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 6A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*1]	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	NZ2GFCE3-32T: 8mA or less (TYP. 24VDC per common) External load current is not included. NZ2GFCE3N-32T: 20mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Sink type
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		32 points/common (3-wire, sensor connector (e-CON) type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.[*2]
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)[*2]
Cyclic transmission	RX/RY points	32 points +16 points × Number of extension modules
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	NZ2GFCE3-32T: 190mA or less (24VDC, all points ON)[*3] NZ2GFCE3N-32T: 120mA or less (24VDC, all points ON)[*3]
Weight		NZ2GFCE3-32T: 0.35kg NZ2GFCE3N-32T: 0.30kg

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*2 For details, refer to the following.
☞ Page 21 Recommended Connector List

*3 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

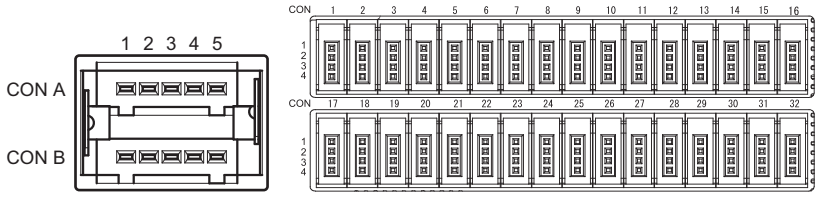
External connection



Pin number		Signal name
CON A CON B *4	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

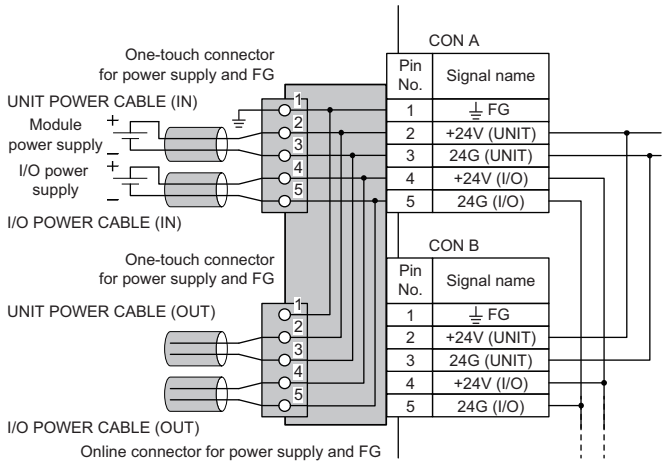
Pin number		Signal name	Pin number		Signal name
CON 1 (Y0)	1	+24V	CON 17 (Y10)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y0		4	Y10
CON 2 (Y1)	1	+24V	CON 18 (Y11)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y1		4	Y11
CON 3 (Y2)	1	+24V	CON 19 (Y12)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y2		4	Y12
CON 4 (Y3)	1	+24V	CON 20 (Y13)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y3		4	Y13
CON 5 (Y4)	1	+24V	CON 21 (Y14)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y4		4	Y14
CON 6 (Y5)	1	+24V	CON 22 (Y15)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y5		4	Y15
CON 7 (Y6)	1	+24V	CON 23 (Y16)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y6		4	Y16
CON 8 (Y7)	1	+24V	CON 24 (Y17)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y7		4	Y17

Pin layout



External connection

When an online connector is connected



CON 9 (Y8)	1	+24V	CON 25 (Y18)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y8		4	Y18
CON 10 (Y9)	1	+24V	CON 26 (Y19)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y9		4	Y19
CON 11 (YA)	1	+24V	CON 27 (Y1A)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	YA		4	Y1A
CON 12 (YB)	1	+24V	CON 28 (Y1B)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	YB		4	Y1B
CON 13 (YC)	1	+24V	CON 29 (Y1C)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	YC		4	Y1C
CON 14 (YD)	1	+24V	CON 30 (Y1D)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	YD		4	Y1D
CON 15 (YE)	1	+24V	CON 31 (Y1E)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	YE		4	Y1E
CON 16 (YF)	1	+24V	CON 32 (Y1F)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	YF		4	Y1F

*4 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*5 All the pin 2 of CON1 to CON32 cannot be used because they are internally connected.

*6 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.

*7 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*8 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

NZ2GFCE3-16TE main transistor output module

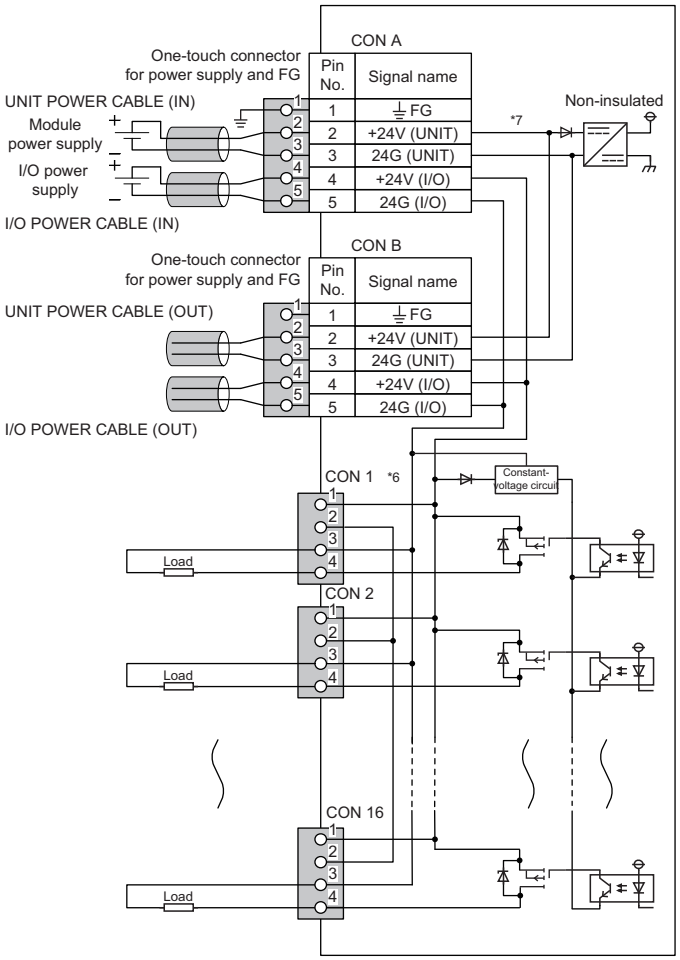
Item		NZ2GFCE3-16TE
Station type		Remote device station
Number of output points		16 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 4A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.5VDC (TYP.) 0.5A, 0.8VDC (MAX.) 0.5A
Output response time[*1]	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	21mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Source type
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (3-wire, sensor connector (e-CON) type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1.5A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.[*2]
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)[*2]
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	190mA or less (24VDC, all points ON)[*3]
Weight		0.27kg

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

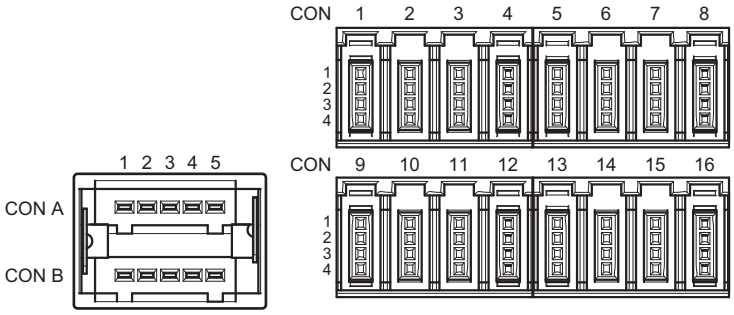
*2 For details, refer to the following.
☞ Page 21 Recommended Connector List

*3 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin layout



Pin number		Signal name
CON A CON B *4	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Pin number		Signal name	Pin number		Signal name
CON 1 (Y0)	1	+24V	CON 9 (Y8)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y0		4	Y8
CON 2 (Y1)	1	+24V	CON 10 (Y9)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y1		4	Y9
CON 3 (Y2)	1	+24V	CON 11 (YA)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y2		4	YA
CON 4 (Y3)	1	+24V	CON 12 (YB)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y3		4	YB
CON 5 (Y4)	1	+24V	CON 13 (YC)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y4		4	YC
CON 6 (Y5)	1	+24V	CON 14 (YD)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y5		4	YD
CON 7 (Y6)	1	+24V	CON 15 (YE)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y6		4	YE
CON 8 (Y7)	1	+24V	CON 16 (YF)	1	+24V
	2	NC*5		2	NC*5
	3	24G		3	24G
	4	Y7		4	YF

*4 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*5 All the pin 2 of CON1 to CON16 cannot be used because they are internally connected.

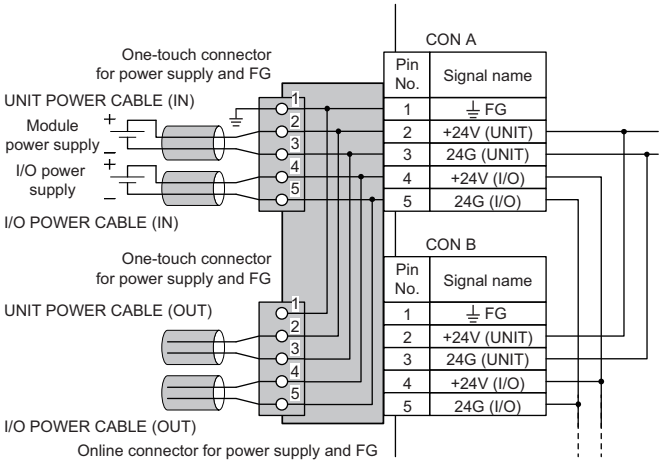
*6 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.

*7 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*8 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

External connection

• When an online connector is connected



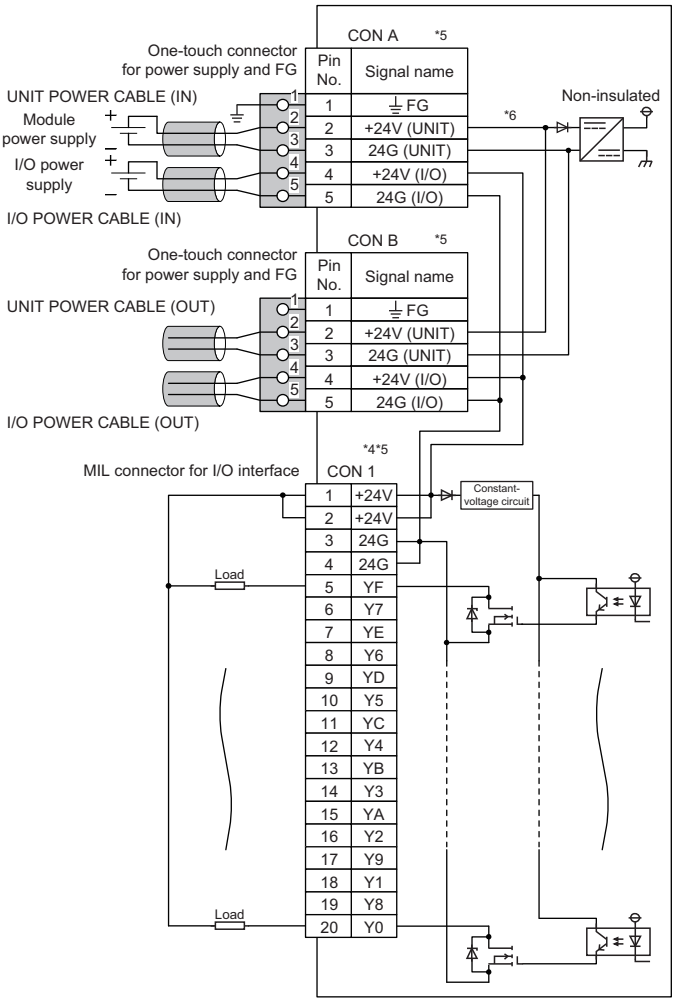
NZ2GFCM1-16T main transistor output module

Item		NZ2GFCM1-16T
Station type		Remote device station
Number of output points		16 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 2A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time*1	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	8mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Sink type
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (1-wire, MIL connector type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	MIL connector (20 pins) The connector plug is sold separately.
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	190mA or less (24VDC, all points ON)*2
Weight		0.24kg

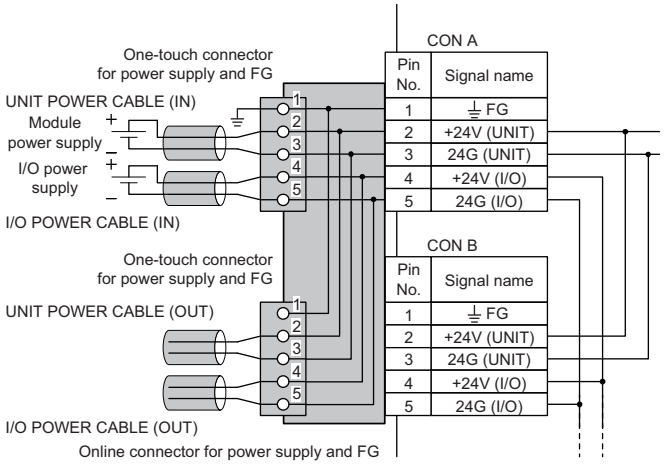
*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*2 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

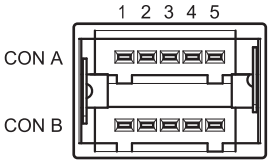
External connection



• When an online connector is connected

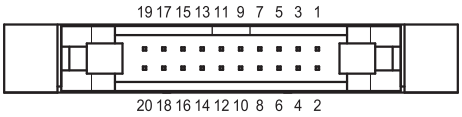


• One-touch connector for power supply and FG



Pin No.	CON A/CON B*3				
	1	2	3	4	5
Signal name	FG	+24V (UNIT)	24G (UNIT)	+24V (I/O)	24G (I/O)

• MIL connector for I/O interface



Pin No.	19	17	15	13	11	9	7	5	3	1
Signal name	Y8	Y9	YA	YB	YC	YD	YE	YF	24G	+24V
Pin No.	20	18	16	14	12	10	8	6	4	2
Signal name	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	24G	+24V

*3 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*4 An incorrect wiring of the MIL connector may lead to a malfunction or short-circuit of the power supply, causing a failure.

*5 Do not use both pin 4 and 5 of the one-touch connector for power supply and FG (CON A, B) and pin 1 to 4 of the MIL connector for I/O interface (CON1) together to supply power.

*6 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*7 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

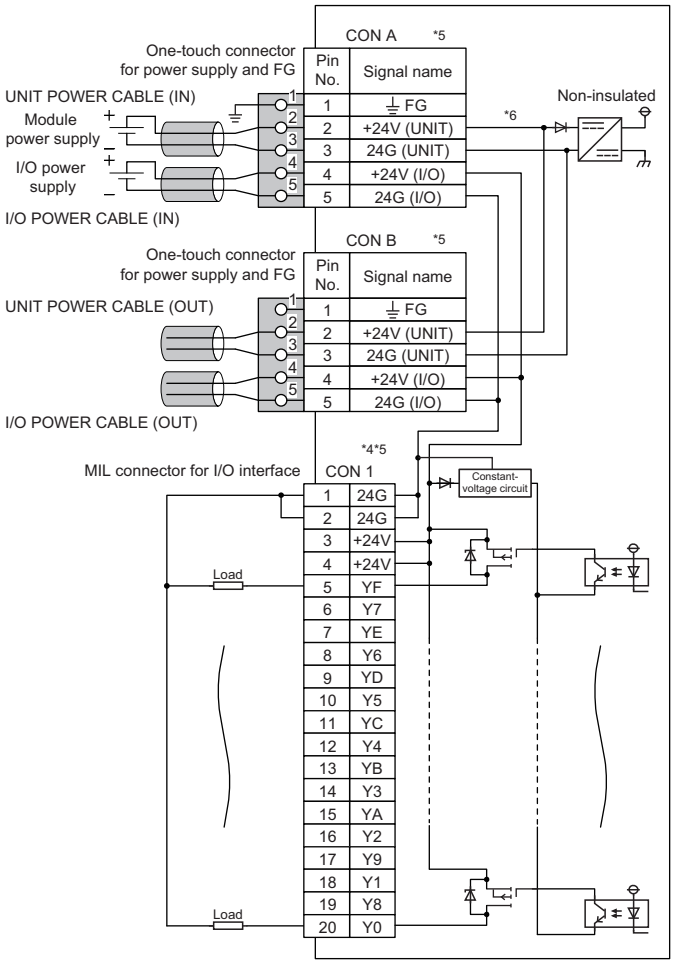
NZ2GFCM1-16TE main transistor output module

Item		NZ2GFCM1-16TE
Station type		Remote device station
Number of output points		16 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.5A/point, 2A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.5VDC (TYP.) 0.5A, 0.8VDC (MAX.) 0.5A
Output response time*1	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	21mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Source type
Withstand voltage		500VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		16 points/common (1-wire, MIL connector type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1.5A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P
	I/O part	MIL connector (20 pins) The connector plug is sold separately.
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)
Cyclic transmission	RX/RY points	16 points × (1 + number of extension modules)
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	190mA or less (24VDC, all points ON)*2
Weight		0.24kg

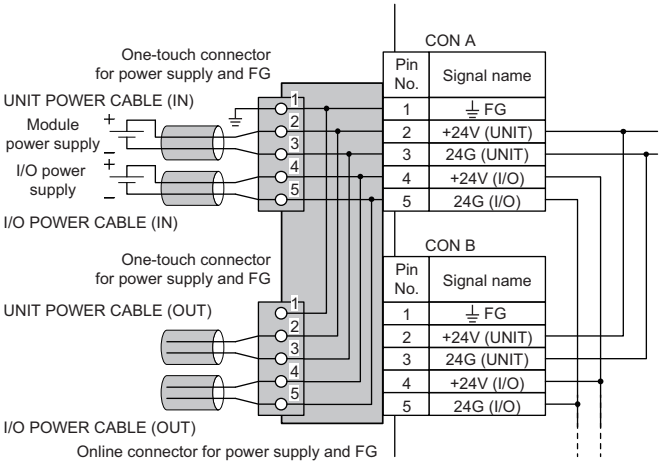
*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*2 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

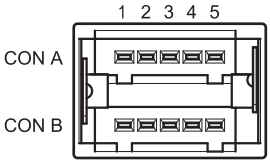
External connection



• When an online connector is connected

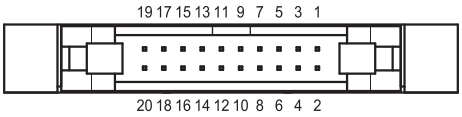


• One-touch connector for power supply and FG



Pin No.	CON A/CON B*3				
	1	2	3	4	5
Signal name	⏚ FG	+24V (UNIT)	24G (UNIT)	+24V (I/O)	24G (I/O)

• MIL connector for I/O interface



Pin No.	19	17	15	13	11	9	7	5	3	1
Signal name	Y8	Y9	YA	YB	YC	YD	YE	YF	+24V	24G
Pin No.	20	18	16	14	12	10	8	6	4	2
Signal name	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	+24V	24G

*3 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*4 An incorrect wiring of the MIL connector may lead to a malfunction or short-circuit of the power supply, causing a failure.

*5 Do not use both pin 4 and 5 of the one-touch connector for power supply and FG (CON A, B) and pin 1 to 4 of the MIL connector for I/O interface (CON1) together to supply power.

*6 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*7 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

NZ2GFCF1-32T main transistor output module

Item		NZ2GFCF1-32T
Station type		Intelligent device station
Number of output points		32 points
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current		0.1A/point, 3.2A/common
Isolation method		Photocoupler isolation
Max. inrush current		Current is limited by the overload protection function.
Leakage current at OFF		0.1mA or less
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*1]	OFF → ON	0.5ms or less
	ON → OFF	1.5ms or less (resistance load)
Surge suppressor		Zener diode
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current	15mA or less (TYP. 24VDC per common) External load current is not included.
Output type		Sink type
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)
Protection degree		IP2X
Wiring method for common		32 points/common (1-wire, FCN connector type)
Protection function	Overload protection function	Limited current when detecting overcurrent: 1 to 3A or more/point Activated to each point.
	Overheat protection function	Activated to each point.
External interface	Communication part	RJ45 connector
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)
	I/O part	FCN connector (40 pins): The connector plug is sold separately (A6CON1, A6CON2, A6CON3, and A6CON4).
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)
Applicable wire size	For power supply	0.5 to 1.5mm² (20 to 16 AWG) (stranded wire)
	For I/O	A6CON1, A6CON4: 0.08 to 0.3mm² (28 to 22 AWG) (stranded wire) A6CON2: 0.08 to 0.24mm² (28 to 24 AWG) (stranded wire) A6CON3: 0.08mm² (28 AWG) (stranded wire), ϕ0.25mm (30 AWG) (solid wire)

Applicable solderless terminal	Terminal block for module power supply and FG[*2]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		

Cyclic transmission	RX/RY points	32 points +16 points × Number of extension modules
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable
Availability of connecting extension module		Connectable (Max. one module)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current	110mA or less (24VDC, all points ON)[*3]

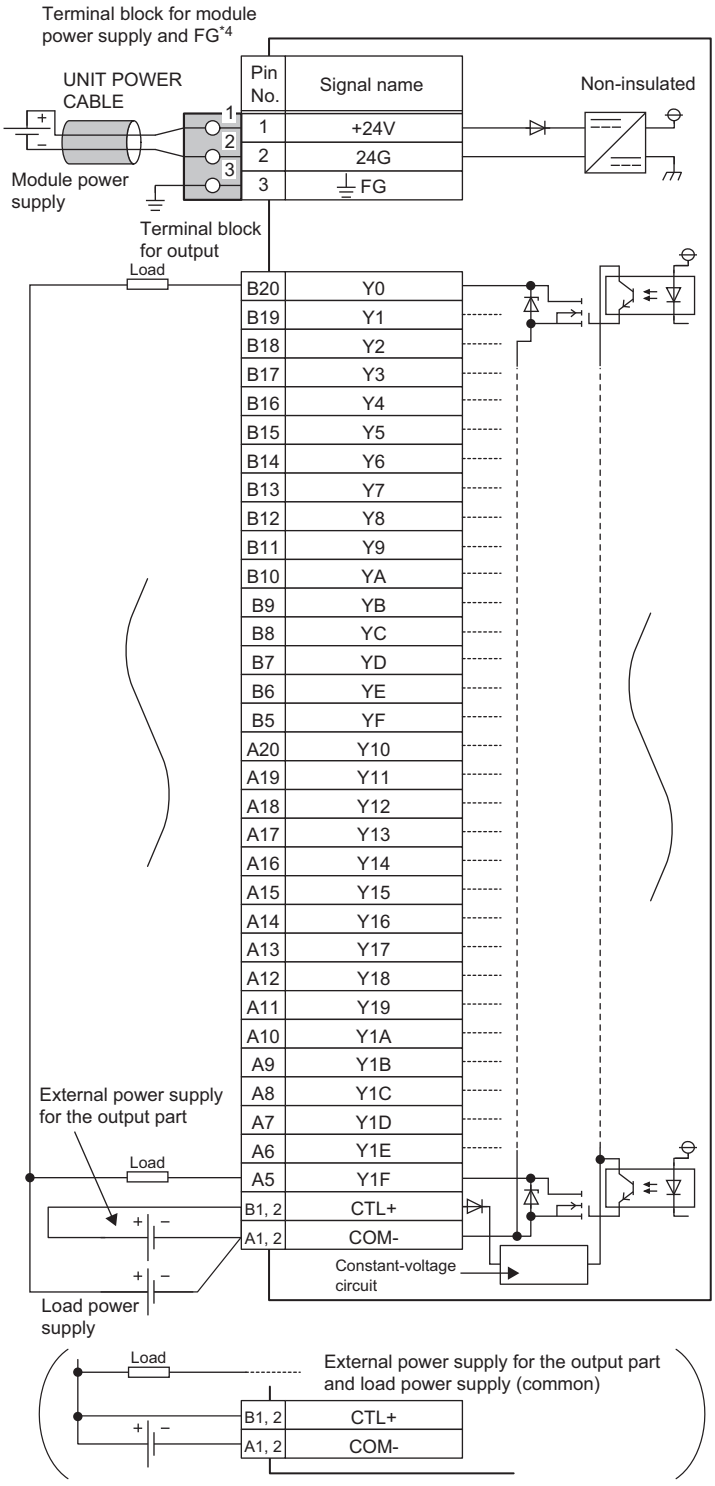
Item	NZ2GFCF1-32T
Weight	0.26kg

*1 For how to calculate the processing time of the intelligent device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

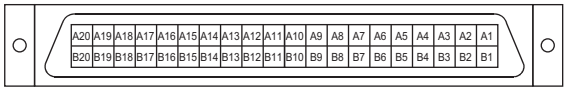
*2 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*3 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin number	Signal name	Pin number	Signal name
B20	Y0	A20	Y10
B19	Y1	A19	Y11
B18	Y2	A18	Y12
B17	Y3	A17	Y13
B16	Y4	A16	Y14
B15	Y5	A15	Y15
B14	Y6	A14	Y16
B13	Y7	A13	Y17
B12	Y8	A12	Y18
B11	Y9	A11	Y19
B10	YA	A10	Y1A
B9	YB	A9	Y1B
B8	YC	A8	Y1C
B7	YD	A7	Y1D
B6	YE	A6	Y1E
B5	YF	A5	Y1F
B4	Empty	A4	Empty
B3	Empty	A3	Empty
B2	CTL+	A2	COM-
B1	CTL+	A1	COM-



*4 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

I/O combined module

NZ2GF2B1-32DT main DC input/transistor output module

Item		NZ2GF2B1-32DT	
		Input specifications	Output specifications
Station type		Intelligent device station	
Number of input points		16 points	—
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)	
Rated input current		6.0mA TYP. (24VDC)	
Isolation method		Photocoupler isolation	
Max. number of simultaneous input points		100%	
ON voltage/ON current		15VDC or more/4mA or more	
OFF voltage/OFF current		5VDC or less/1.5mA or less	
Input resistance		3.8kΩ	
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)	
	ON → OFF		
Input type		Positive common	
Number of output points		—	16 points
Rated load voltage			24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Max. load current			0.5A/point, 4A/common
Isolation method			Photocoupler isolation
Max. inrush current			Current is limited by the overload protection function.
Leakage current at OFF			0.1mA or less
Max. voltage drop at ON			0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*3]	OFF → ON		0.5ms or less
	ON → OFF		1.5ms or less (resistance load)
Surge suppressor			Zener diode
External power supply for output part	Voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current		15mA or less (24VDC, all points ON) External load current is not included.
Output type			Sink type
Protection function	Overload protection function		Limited current when detecting overcurrent: 1A or more/point Activated to each point.
	Overheat protection function		Activated to each point.
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground	
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)	
Noise immunity[*4]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)	
Protection degree		IP2X	
Wiring method for common		16 points/common (two points) (1-wire, screw terminal block type)	16 points/common (1-wire, screw terminal block type)
External interface	Communication part	RJ45 connector	
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)	
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)	
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*6]	
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)	

Item		NZ2GF2B1-32DT			
		Input specifications		Output specifications	
Applicable solderless terminal	Terminal block for module power supply and FG*5	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	I/O terminal block	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	32 points			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Not available			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	120mA or less (24VDC, all points ON)			
Weight		0.38kg			

*1 For how to calculate the processing time of the intelligent device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 80μs at OFF → ON, and 160μs at ON → OFF.

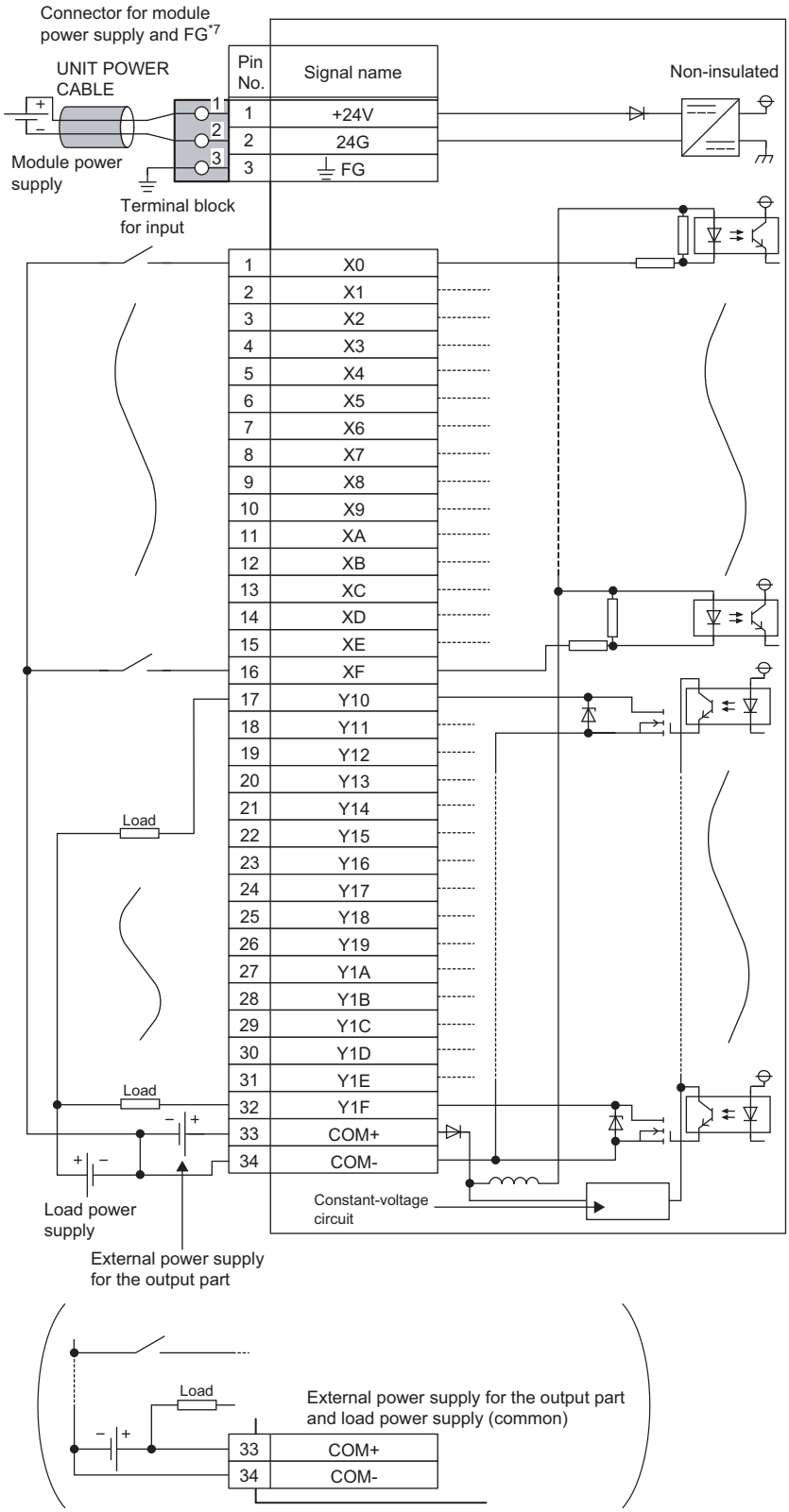
*3 For how to calculate the processing time of the intelligent device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*4 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

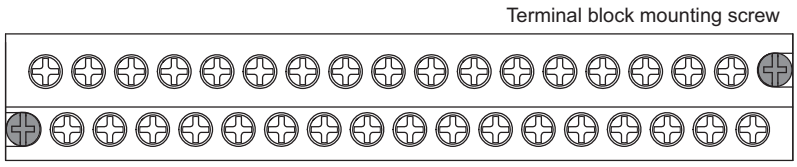
*5 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*6 Use bar solderless terminals for wiring.

External connection



External connection



Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	Y10	Y12	Y14	Y16	Y18	Y1A	Y1C	Y1E	COM+	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		X1	X3	X5	X7	X9	XB	XD	XF	Y11	Y13	Y15	Y17	Y19	Y1B	Y1D	Y1F	COM-

*7 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

NZ2GF2B1-32DTE main DC input/transistor output module

Item		NZ2GF2B1-32DTE	
		Input specifications	Output specifications
Station type		Intelligent device station	
Number of input points		16 points	—
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)	
Rated input current		6.0mA TYP. (24VDC)	
Isolation method		Photocoupler isolation	
Max. number of simultaneous input points		100%	
ON voltage/ON current		15VDC or more/4mA or more	
OFF voltage/OFF current		5VDC or less/1.5mA or less	
Input resistance		3.8kΩ	
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)	
	ON → OFF		
Input type		Negative common	
Number of output points		—	16 points
Rated load voltage			24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Max. load current			0.5A/point, 4A/common
Isolation method			Photocoupler isolation
Max. inrush current			Current is limited by the overload protection function.
Leakage current at OFF			0.1mA or less
Max. voltage drop at ON			0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*3]	OFF → ON		0.5ms or less
	ON → OFF		1.5ms or less (resistance load)
Surge suppressor			Zener diode
External power supply for output part	Voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current		30mA or less (24VDC, all points ON) External load current is not included.
Output type			Source type
Protection function	Overload protection function		Limited current when detecting overcurrent: 1.5A or more/point Activated to each point.
	Overheat protection function		Activated to each point.
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground	
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)	
Noise immunity[*4]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)	
Protection degree		IP2X	
Wiring method for common		16 points/common (two points) (1-wire, screw terminal block type)	16 points/common (1-wire, screw terminal block type)
External interface	Communication part	RJ45 connector	
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)	
	I/O part	34-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)	
Applicable wire size	For power supply	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.8mm × 2.0mm[*6]	
	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)	

Item		NZ2GF2B1-32DTE			
		Input specifications		Output specifications	
Applicable solderless terminal	Terminal block for module power supply and FG*5	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
	I/O terminal block	RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—	—
		V2-MS3	1.25 to 2.0mm²	—	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	—	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	—	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	32 points			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Not available			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	120mA or less (24VDC, all points ON)			
Weight		0.38kg			

*1 For how to calculate the processing time of the intelligent device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 80µs at OFF → ON, and 160µs at ON → OFF.

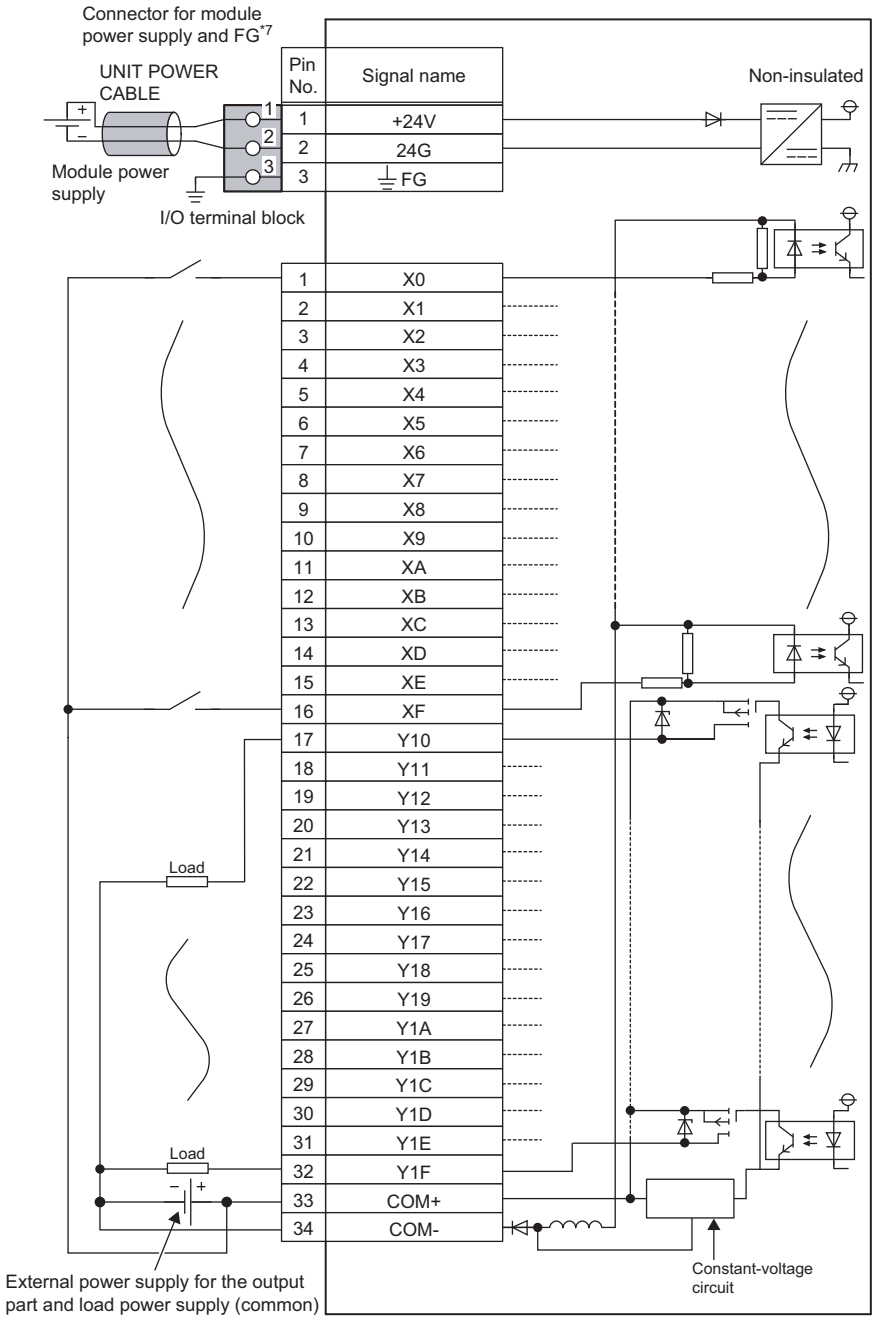
*3 For how to calculate the processing time of the intelligent device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

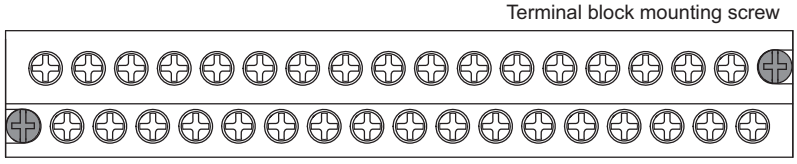
*4 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

*5 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*6 Use bar solderless terminals for wiring.

External connection





Terminal block																		
Pin number	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	Y10	Y12	Y14	Y16	Y18	Y1A	Y1C	Y1E	COM+	
Pin number		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
Signal name		X1	X3	X5	X7	X9	XB	XD	XF	Y11	Y13	Y15	Y17	Y19	Y1B	Y1D	Y1F	COM-

*7 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.
☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

NZ2GFCE3(N)-32DT main DC input/transistor output module

Item		NZ2GFCE3-32DT, NZ2GFCE3N-32DT	
		Input specifications	Output specifications
Station type		Remote device station	
Number of input points		16 points	—
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)	
Rated input current		4.0mA TYP. (20.4V to 28.8VDC)	
Isolation method		Photocoupler isolation	
Max. number of simultaneous input points		100%	
ON voltage/ON current		17VDC or more/3mA or more	
OFF voltage/OFF current		5VDC or less/1.5mA or less	
Input resistance		5.7kΩ	
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)	
	ON → OFF		
Input type		Positive common (sink type)	
Number of output points		—	16 points
Rated load voltage			NZ2GFCE3-32DT: 19.2 to 26.4VDC (ripple rate: 5% or less) NZ2GFCE3N-32DT: 24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
Max. load current			0.5A/point, 4A/common
Isolation method			Photocoupler isolation
Max. inrush current			Current is limited by the overload protection function.
Leakage current at OFF			0.1mA or less
Max. voltage drop at ON			0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*3]	OFF → ON		0.5ms or less
	ON → OFF		1.5ms or less (resistance load)
Surge suppressor			Zener diode
External power supply for output part	Voltage		NZ2GFCE3-32DT: 19.2 to 26.4VDC (ripple rate: 5% or less) NZ2GFCE3N-32DT: 24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)
	Current		NZ2GFCE3-32DT: 5mA or less (24VDC, all points ON) External load current is not included. NZ2GFCE3N-32DT: 10mA or less (24VDC, all points ON) External load current is not included.
Output type			Sink type
Protection function	Overload protection function		Limited current when detecting overcurrent: 1A or more/point Activated to each point.
	Overheat protection function		Activated to each point.
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground	
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)	
Noise immunity[*4]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)	
Protection degree		IP2X	
Wiring method for common		32 points/common (3-wire, sensor connector (e-CON) type)	
External interface	Communication part	RJ45 connector	
	Module power supply part	One-touch connector for power supply and FG (5 pins, crimping type) Connector plug (sold separately): A6CON-PW5P, A6CON-PW5P-SOD <Option> Online connector for power supply: A6CON-PWJ5P	
	I/O part	Sensor connector (e-CON) (4 pins, crimping type) The connector plug is sold separately.[*5]	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)	

Item		NZ2GFCE3-32DT, NZ2GFCE3N-32DT	
		Input specifications	Output specifications
Applicable wire size	For power supply	0.66 to 0.98mm² (18 AWG) [Finishing outer diameter: ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] Strand diameter: 0.16mm or larger Insulating coating material: PVC (heat resistant vinyl)	
	For I/O	0.08 to 0.5mm² (28 to 20 AWG) (depends on the connector plug used (sold separately).)	
Cyclic transmission	RX/RY points	32 points +16 points × Number of extension modules	
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)	
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable	
Availability of connecting extension module		Connectable (Max. one module)	
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)	
	Current	NZ2GFCE3-32DT: 180mA or less (24VDC, all points ON)*6 NZ2GFCE3N-32DT: 110mA or less (24VDC, all points ON)*6	
Weight		NZ2GFCE3-32DT: 0.35kg NZ2GFCE3N-32DT: 0.30kg	

*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 120μs at OFF → ON, and 140μs at ON → OFF.

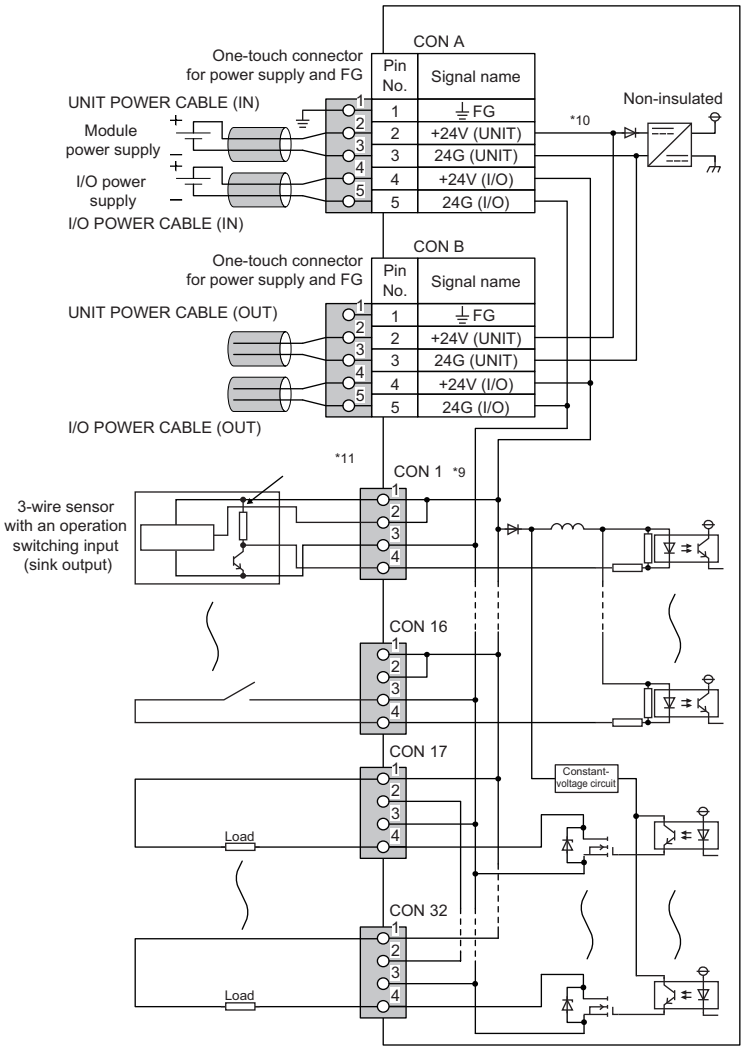
*3 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*4 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

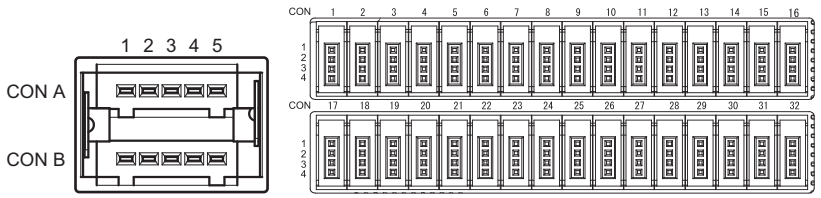
*5 For details, refer to "Recommended Connector List".
☞ Page 21 Recommended Connector List

*6 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin layout

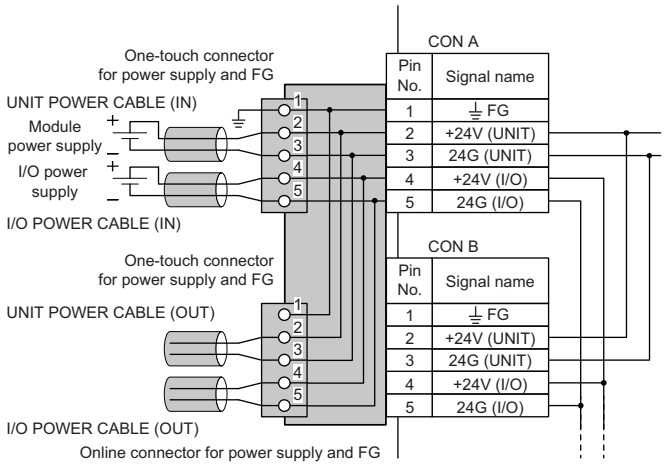


Pin number		Signal name
CON A CON B *7	1	⏚FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Pin number		Signal name	Pin number		Signal name
CON 1 (X0)	1	+24V	CON 17 (Y10)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X0		4	Y10
CON 2 (X1)	1	+24V	CON 18 (Y11)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X1		4	Y11
CON 3 (X2)	1	+24V	CON 19 (Y12)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X2		4	Y12
CON 4 (X3)	1	+24V	CON 20 (Y13)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X3		4	Y13
CON 5 (X4)	1	+24V	CON 21 (Y14)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X4		4	Y14
CON 6 (X5)	1	+24V	CON 22 (Y15)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X5		4	Y15
CON 7 (X6)	1	+24V	CON 23 (Y16)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X6		4	Y16
CON 8 (X7)	1	+24V	CON 24 (Y17)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X7		4	Y17

External connection

When an online connector is connected



CON 9 (X8)	1	+24V	CON 25 (Y18)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X8		4	Y18
CON 10 (X9)	1	+24V	CON 26 (Y19)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	X9		4	Y19
CON 11 (XA)	1	+24V	CON 27 (Y1A)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	XA		4	Y1A
CON 12 (XB)	1	+24V	CON 28 (Y1B)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	XB		4	Y1B
CON 13 (XC)	1	+24V	CON 29 (Y1C)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	XC		4	Y1C
CON 14 (XD)	1	+24V	CON 30 (Y1D)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	XD		4	Y1D
CON 15 (XE)	1	+24V	CON 31 (Y1E)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	XE		4	Y1E
CON 16 (XF)	1	+24V	CON 32 (Y1F)	1	+24V
	2	+V		2	NC*8
	3	24G		3	24G
	4	XF		4	Y1F

*7 A non-wired connector must be connected to the empty slot of the connector for power supply and FG.

*8 All the pin 2 of CON17 to CON32 cannot be used because they are internally connected.

*9 An incorrect wiring of the sensor connector (e-CON) may lead to a malfunction or short-circuit of the power supply, causing a failure.

*10 For the precautions for transition wiring of the one-touch connector for power supply and FG, refer to the following.

☞ Page 138 Precautions for transition wiring of the one-touch connector for power supply and FG

*11 When using an extension module, prepare the I/O power supply for the extension module separately. The I/O power cannot be supplied to the extension module from the I/O power supply connector of the main module.

NZ2GFCF1-32DT main DC input/transistor output module

Item		NZ2GFCF1-32DT	
		Input specifications	Output specifications
Station type		Intelligent device station	
Number of input points		16 points	—
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)	
Rated input current		4.0mA TYP. (for 24VDC)	
Isolation method		Photocoupler isolation	
Max. number of simultaneous input points		100%	
ON voltage/ON current		19VDC or more/3mA or more	
OFF voltage/OFF current		5VDC or less/1.5mA or less	
Input resistance		5.7kΩ	
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms (Initial setting: 10ms)	
	ON → OFF		
Input type		Positive common/negative common shared type	
Number of output points		—	16 points
Rated load voltage			12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
Max. load current			0.1A/point, 1.6A/common
Isolation method			Photocoupler isolation
Max. inrush current			Current is limited by the overload protection function.
Leakage current at OFF			0.1mA or less
Max. voltage drop at ON			0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A
Output response time[*3]	OFF → ON		0.5ms or less
	ON → OFF		1.5ms or less (resistance load)
Surge suppressor			Zener diode
External power supply for output part	Voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)
	Current		10mA or less (TYP. 24VDC per common) External load current is not included.
Output type			Sink type
Protection function[*3]	Overload protection function		Limited current when detecting overcurrent: 1 to 3A or more/point Activated to each point.
	Overheat protection function		Activated to each point.
Wiring method for common		16 points/common (1-wire, FCN connector type)	16 points/common (1-wire, FCN connector type)
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground	
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)	
Noise immunity[*4]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)	
Protection degree		IP2X	
External interface	Communication part	RJ45 connector	
	Module power supply part	Terminal block for module power supply and FG (Two-piece spring clamp terminal block)	
	I/O part	FCN connector (40 pins): The connector plug is sold separately (A6CON1, A6CON2, A6CON3, and A6CON4).	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)	
Applicable wire size	For power supply	0.5 to 1.5mm² (20 to 16 AWG) (stranded wire)	
	For I/O	A6CON1, A6CON4: 0.08 to 0.3mm² (28 to 22 AWG) (stranded wire) A6CON2: 0.08 to 0.24mm² (28 to 24 AWG) (stranded wire) A6CON3: 0.08mm² (28 AWG) (stranded wire), ϕ0.25mm (30 AWG) (solid wire)	

Item		NZ2GFCF1-32DT			
		Input specifications	Output specifications		
Applicable solderless terminal	Terminal block for module power supply and FG*5	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	32 points +16 points × Number of extension modules			
	RWr/RWw points	20 points (The default value set by the engineering tool. The number of points can be changed using the engineering tool. For details on how to set the number of points, refer to Page 226 Parameter Setting.)			
Communication cable		An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable			
Availability of connecting extension module		Connectable (Max. one module)			
Module power supply	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	110mA or less (24VDC, all points ON)*6			
Weight		0.26kg			

*1 For how to calculate the processing time of the intelligent device station (input), refer to the point in the following.
☞ Page 40 NZ2GF2B2-16A main AC input module

*2 If the input response time is set to "0ms", the actual input response time is 80μs at OFF → ON, and 140μs at ON → OFF.

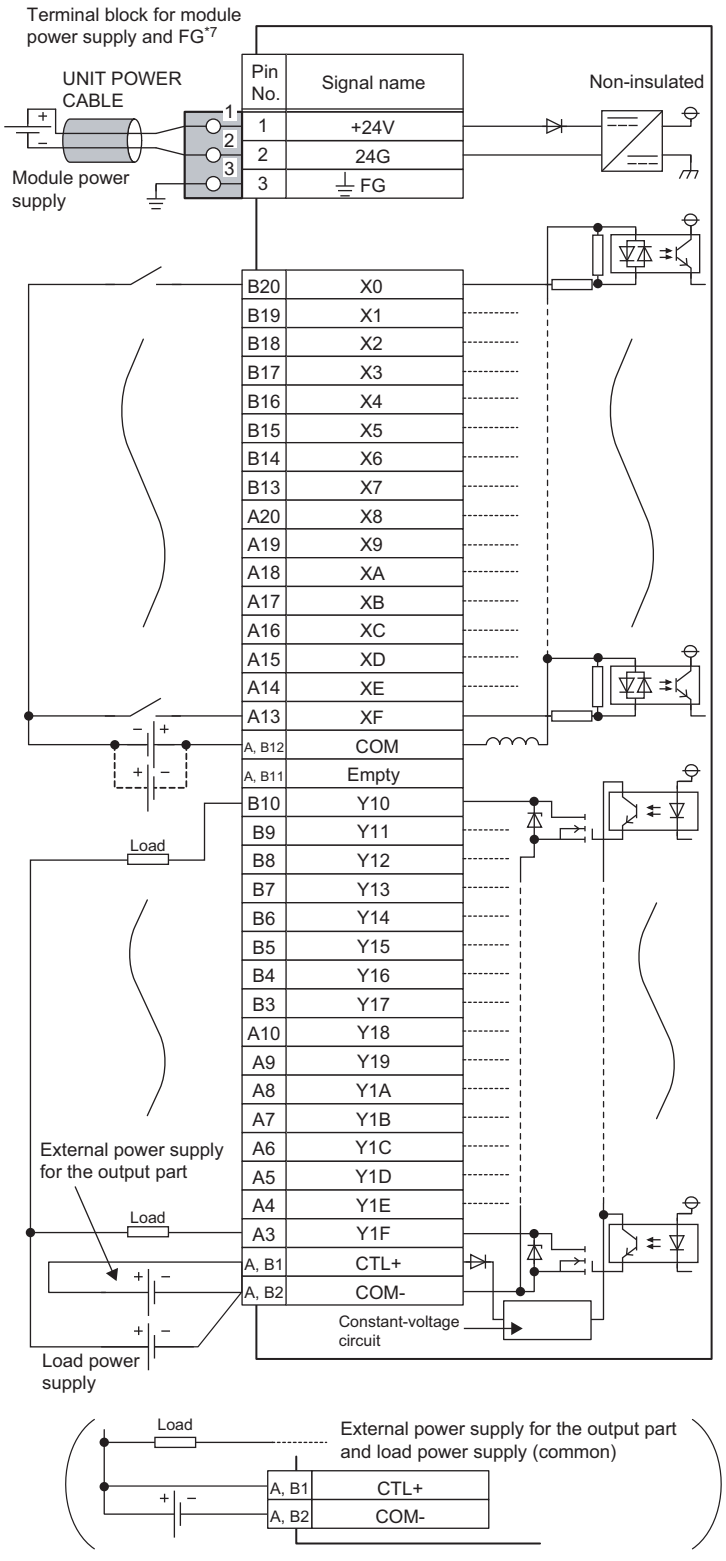
*3 For how to calculate the processing time of the intelligent device station (output), refer to the point in the following.
☞ Page 71 NZ2GF2B2-16R main contact output module

*4 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

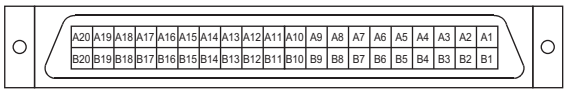
*5 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

*6 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Pin number	Signal name	Pin number	Signal name
B20	X0	A20	X8
B19	X1	A19	X9
B18	X2	A18	XA
B17	X3	A17	XB
B16	X4	A16	XC
B15	X5	A15	XD
B14	X6	A14	XE
B13	X7	A13	XF
B12	COM	A12	COM
B11	Empty	A11	Empty
B10	Y10	A10	Y18
B9	Y11	A9	Y19
B8	Y12	A8	Y1A
B7	Y13	A7	Y1B
B6	Y14	A6	Y1C
B5	Y15	A5	Y1D
B4	Y16	A4	Y1E
B3	Y17	A3	Y1F
B2	COM-	A2	COM-
B1	CTL+	A1	CTL+



*7 Only one wire can be connected to a terminal of the terminal block for module power supply and FG. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.

4.3 Extension I/O Module Specifications

Extension input module

NZ2EX2B1(N)-16D extension DC input module

Item		NZ2EX2B1-16D, NZ2EX2B1N-16D		
Number of input points		16 points		
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)		
Rated input current		6.0mA TYP. (for 24VDC)		
Isolation method		Photocoupler isolation		
Max. number of simultaneous input points		100%		
ON voltage/ON current		15VDC or more/4mA or more		
OFF voltage/OFF current		5VDC or less/1.5mA or less		
Input resistance		3.8kΩ		
Input response time	OFF → ON	0ms[*1]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms Initial setting: 10ms		
	ON → OFF			
Input type		Positive common/negative common shared type		
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground		
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)		
Noise immunity[*2]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)		
Protection degree		IP2X		
Wiring method for common		16 points/common (two points) (1-wire, screw terminal block type)		
External interface	I/O part	18-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m		
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)		
Applicable wire size	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)		
Applicable solderless terminal	Terminal block for input	Model	Applicable wire size	Manufacturer
		RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—
		V2-MS3	1.25 to 2.0mm²	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points		
	RWr/RWw points	0 points		
Module power supply (supplied from the main module)	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)		
	Current	20mA or less (24VDC, all points ON)[*3]		
Weight		0.19kg		

*1 If the input response time is set to "0ms", the actual input response time is 80μs at OFF → ON, and 140μs at ON → OFF.

*2 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.

*3 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

Point

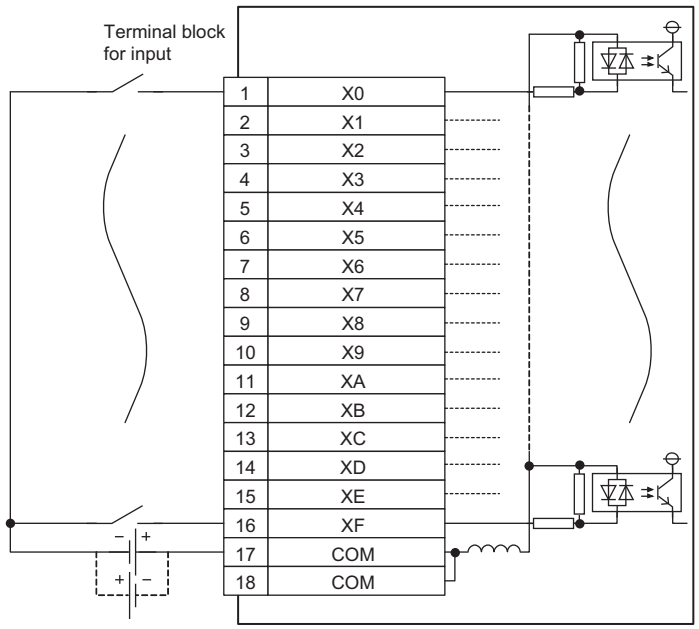
The processing time of the remote device station (input) is used for calculating the delay time of the cyclic transmission from the remote device station (input) to the master station (RX/RWr). The processing time is the time period for internal processing, and calculate it by using the following formula.

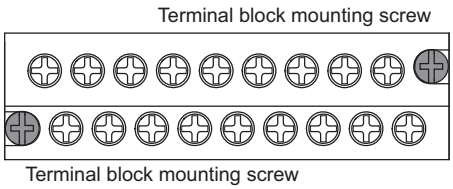
- The processing time of the remote device station (input) of the extension module = The input response time + The internal processing time (0.2ms)

For the delay time of the cyclic transmission from the remote device station (input) to the master station (RX/RWr), refer to the following.

User's manual for the master/local module used

External connection





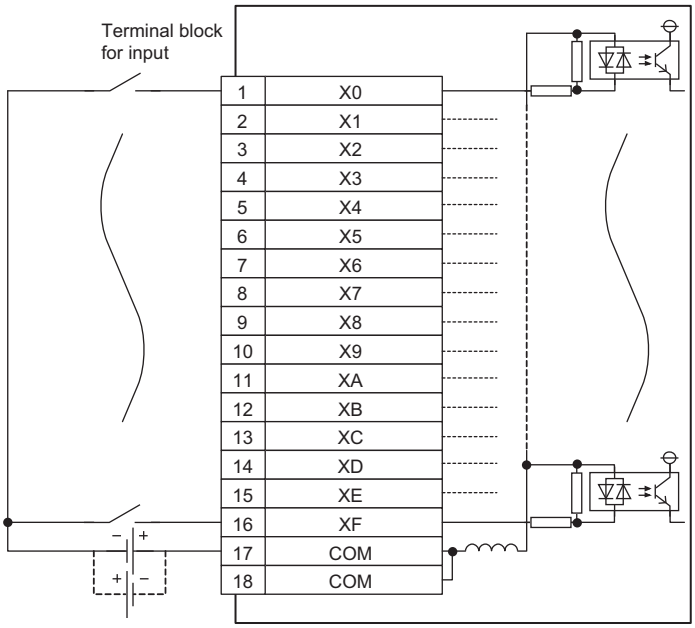
Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	COM
Pin number	2	4	6	8	10	12	14	16	18
Signal name	X1	X3	X5	X7	X9	XB	XD	XF	COM

NZ2EX2S1-16D extension DC input module

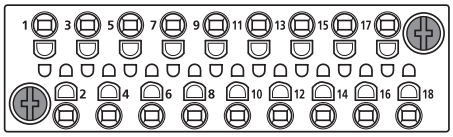
Item		NZ2EX2S1-16D			
Number of input points		16 points			
Rated input voltage		24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
Rated input current		6.0mA TYP. (for 24VDC)			
Isolation method		Photocoupler isolation			
Max. number of simultaneous input points		100%			
ON voltage/ON current		15VDC or more/4mA or more			
OFF voltage/OFF current		5VDC or less/1.5mA or less			
Input resistance		3.8kΩ			
Input response time[*1]	OFF → ON	0ms[*2]/0.2ms/1ms/1.5ms/5ms/10ms/20ms/70ms Initial setting: 10ms			
	ON → OFF				
Input type		Positive common/negative common shared type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity[*3]		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		16 points/common (two points) (1-wire, spring clamp terminal block type)			
External interface	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm[*4]			
Applicable solderless terminal	Terminal block for input[*5]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points			
	RWr/RWw points	0 points			
Module power supply (supplied from the main module)	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	20mA or less (24VDC, all points ON)[*6]			
Weight		0.19kg			

*1 For how to calculate the processing time of the remote device station (input), refer to the point in the following.
☞ Page 125 NZ2EX2B1(N)-16D extension DC input module
*2 If the input response time is set to "0ms", the actual input response time is 90µs at OFF → ON, and 140µs at ON → OFF.
*3 It is the noise immunity of when the input response time setting value is other than "0ms". Note that the module is easily affected by noise if "0ms" is set.
*4 Use bar solderless terminals for wiring.
*5 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*6 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection



Terminal block mounting screw



Terminal block mounting screw

Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	X0	X2	X4	X6	X8	XA	XC	XE	COM
Pin number	2	4	6	8	10	12	14	16	18
Signal name	X1	X3	X5	X7	X9	XB	XD	XF	COM

Extension output module

NZ2EX2B1(N)-16T extension transistor output module

Item		NZ2EX2B1-16T, NZ2EX2B1N-16T		
Number of output points		16 points		
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)		
Max. load current		0.5A/point, 4A/common		
Isolation method		Photocoupler isolation		
Max. inrush current		Current is limited by the overload protection function.		
Leakage current at OFF		0.1mA or less		
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A		
Output response time	OFF → ON	0.5ms or less		
	ON → OFF	1.5ms or less (resistance load)		
Surge suppressor		Zener diode		
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)		
	Current	8mA or less (TYP. 24VDC per common) External load current is not included.		
Output type		Sink type		
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground		
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)		
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)		
Protection degree		IP2X		
Wiring method for common		16 points/common (1-wire, screw terminal block type)		
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.		
	Overheat protection function	Activated to each point.		
External interface	I/O part	18-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m		
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)		
Applicable wire size	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)		
Applicable solderless terminal	Terminal block for output	Model	Applicable wire size	Manufacturer
		RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—
		V2-MS3	1.25 to 2.0mm²	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points		
	RWr/RWw points	0 points		
Module power supply (supplied from the main module)	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)		
	Current	30mA or less (24VDC, all points ON)*1		
Weight		0.19kg		

*1 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

Point

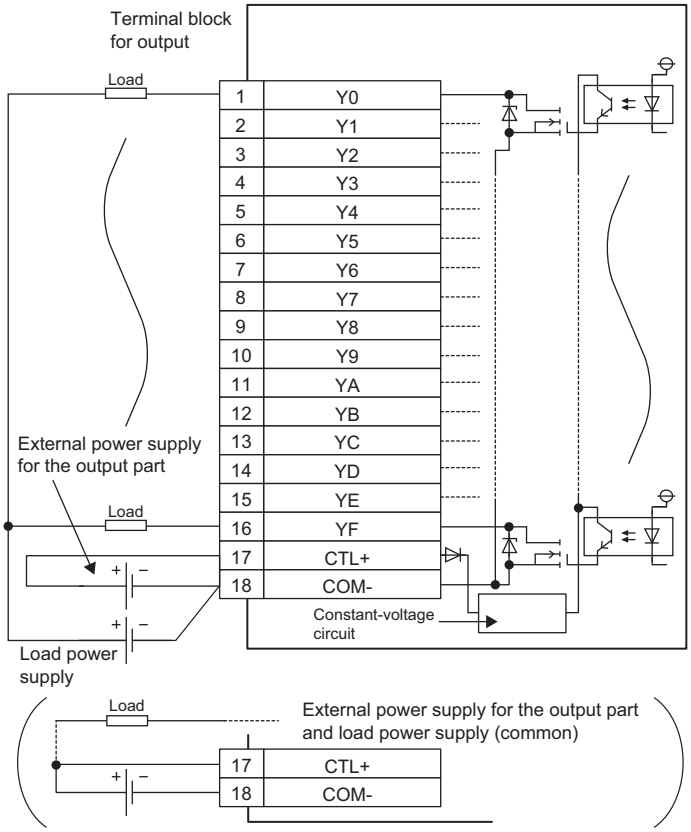
The processing time of the remote device station (output) is used for calculating the delay time of the cyclic transmission from the master station (RY/RWw) to the remote device station (output). The processing time is the time period for internal processing, and calculate it by using the following formula.

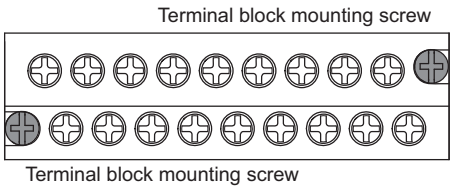
- The processing time of the remote device station (output) of the extension module = The output response time (1.5ms) + The internal processing time (0.2ms) = 1.7ms

For the delay time of the cyclic transmission from the master station (RY/RWw) to the remote device station (output), refer to the following.

User's manual for the master/local module used

External connection





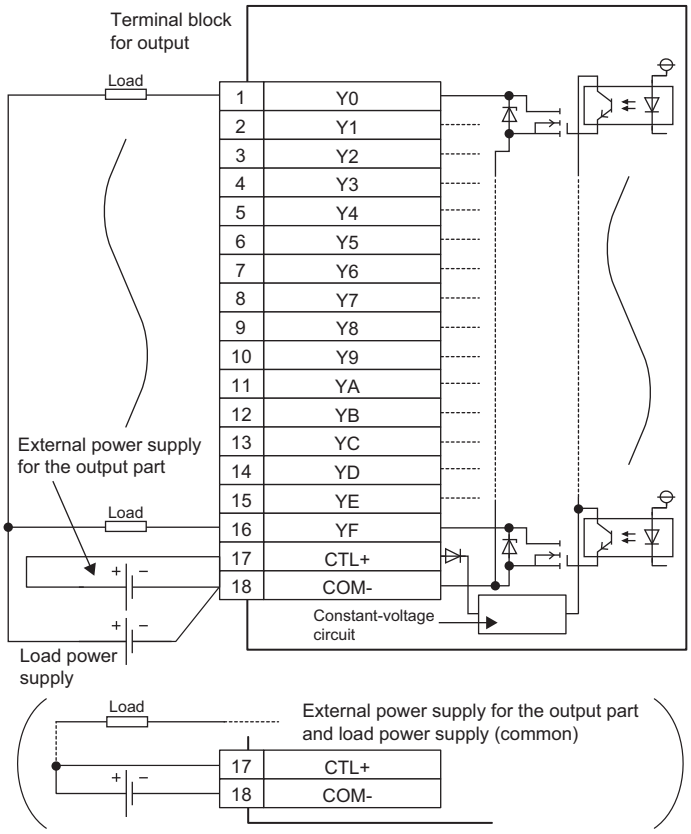
Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	CTL+
Pin number	2	4	6	8	10	12	14	16	18
Signal name	Y1	Y3	Y5	Y7	Y9	YB	YD	YF	COM-

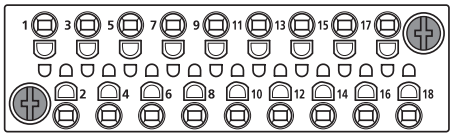
NZ2EX2S1-16T extension transistor output module

Item		NZ2EX2S1-16T			
Number of output points		16 points			
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
Max. load current		0.5A/point, 4A/common			
Isolation method		Photocoupler isolation			
Max. inrush current		Current is limited by the overload protection function.			
Leakage current at OFF		0.1mA or less			
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A			
Output response time[*1]	OFF → ON	0.5ms or less			
	ON → OFF	1.5ms or less (resistance load)			
Surge suppressor		Zener diode			
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
	Current	8mA or less (TYP. 24VDC per common) External load current is not included.			
Output type		Sink type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		16 points/common (1-wire, spring clamp terminal block type)			
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.			
	Overheat protection function	Activated to each point.			
External interface	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (compliant with IEC 60715)			
Applicable wire size	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm[*2]			
Applicable solderless terminal	Terminal block for output[*3]	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
		AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
		AI 1-8RD, AI 1-10RD	1.0mm²		
		AI 1.5-8BK, AI 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points			
	RWr/RWw points	0 points			
Module power supply (supplied from the main module)	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	30mA or less (24VDC, all points ON)[*4]			
Weight		0.19kg			

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 129 NZ2EX2B1(N)-16T extension transistor output module
*2 Use bar solderless terminals for wiring.
*3 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection





Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	CTL+
Pin number	2	4	6	8	10	12	14	16	18
Signal name	Y1	Y3	Y5	Y7	Y9	YB	YD	YF	COM-

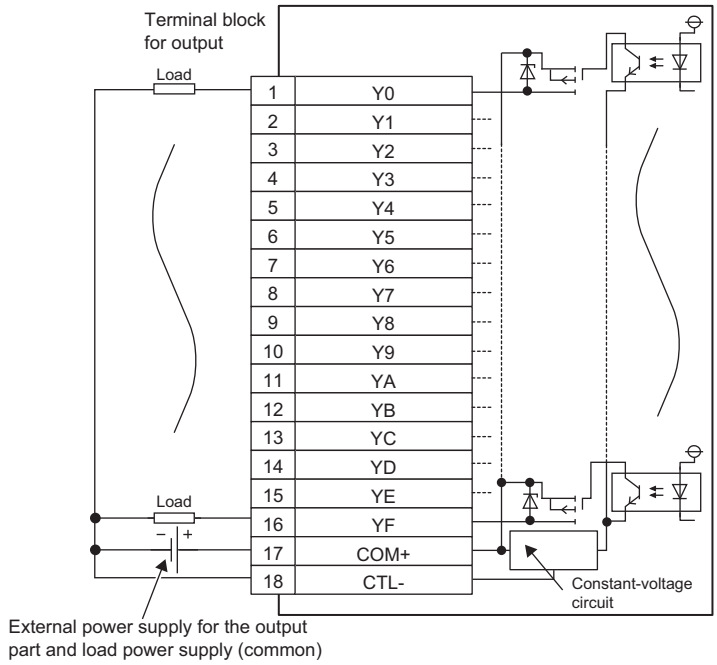
NZ2EX2B1(N)-16TE extension transistor output module

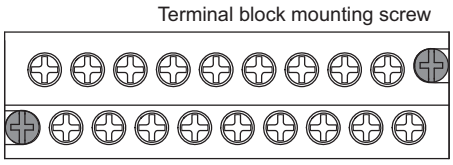
Item		NZ2EX2B1-16TE, NZ2EX2B1N-16TE		
Number of output points		16 points		
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)		
Max. load current		0.5A/point, 4A/common		
Isolation method		Photocoupler isolation		
Max. inrush current		Current is limited by the overload protection function.		
Leakage current at OFF		0.1mA or less		
Max. voltage drop at ON		0.5VDC (TYP.) 0.5A, 0.8VDC (MAX.) 0.5A		
Output response time[*1]	OFF → ON	0.5ms or less		
	ON → OFF	1.5ms or less (resistance load)		
Surge suppressor		Zener diode		
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)		
	Current	21mA or less (TYP. 24VDC per common) External load current is not included.		
Output type		Source type		
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground		
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)		
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)		
Protection degree		IP2X		
Wiring method for common		16 points/common (1-wire, screw terminal block type)		
Protection function	Overload protection function	Limited current when detecting overcurrent: 1.5A or more/point Activated to each point.		
	Overheat protection function	Activated to each point.		
External interface	I/O part	18-point two-piece terminal block Tightening torque range for terminal screw (M3 × 5.2 screw): 0.43 to 0.57N·m		
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)		
Applicable wire size	For I/O	Core: 0.3 to 2.0mm² (22 to 14 AWG)		
Applicable solderless terminal	Terminal block for output	Model	Applicable wire size	Manufacturer
		RAV1.25-3 (compliant with JIS C 2805)	0.3 to 1.25mm²	—
		V2-MS3	1.25 to 2.0mm²	JST Mfg. Co., Ltd.
		RAP2-3SL	1.25 to 2.0mm²	Nippon Tanshi Co., Ltd.
		TGV2-3N	1.25 to 2.0mm²	NICHIFU Co., Ltd.
Cyclic transmission	RX/RY points	16 points		
	RWr/RWw points	0 points		
Module power supply (supplied from the main module)	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)		
	Current	30mA or less (24VDC, all points ON)[*2]		
Weight		0.19kg		

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 129 NZ2EX2B1(N)-16T extension transistor output module

*2 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection





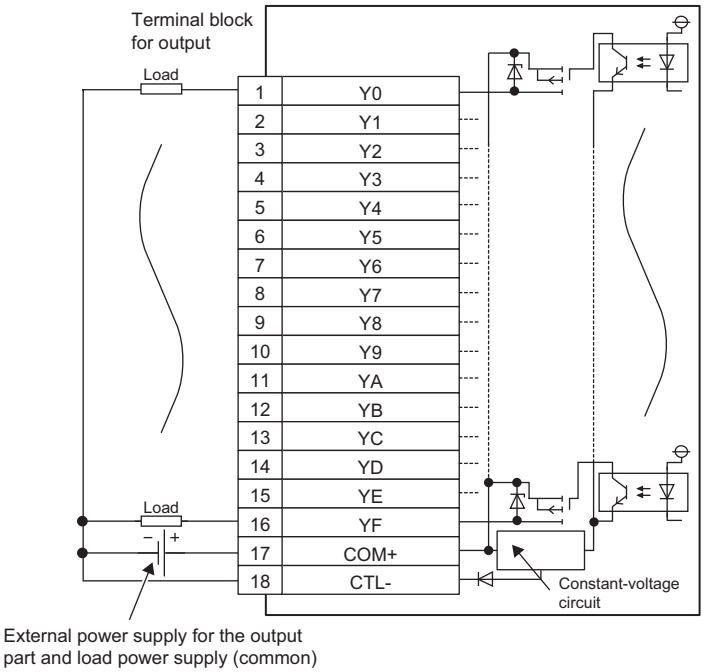
Terminal block									
Pin number	1	3	5	7	9	11	13	15	17
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	COM+
Pin number	2	4	6	8	10	12	14	16	18
Signal name	Y1	Y3	Y5	Y7	Y9	YB	YD	YF	CTL-

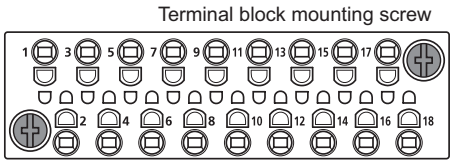
NZ2EX2S1-16TE extension transistor output module

Item		NZ2EX2S1-16TE			
Number of output points		16 points			
Rated load voltage		12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
Max. load current		0.5A/point, 4A/common			
Isolation method		Photocoupler isolation			
Max. inrush current		Current is limited by the overload protection function.			
Leakage current at OFF		0.1mA or less			
Max. voltage drop at ON		0.3VDC (TYP.) 0.5A, 0.6VDC (MAX.) 0.5A			
Output response time*1	OFF → ON	0.5ms or less			
	ON → OFF	1.5ms or less (resistance load)			
Surge suppressor		Zener diode			
External power supply for output part	Voltage	12/24VDC (ripple rate: 5% or less) (Allowable voltage range: 10.2 to 28.8VDC)			
	Current	21mA or less (TYP. 24VDC per common) External load current is not included.			
Output type		Source type			
Withstand voltage		510VAC for 1 minute between all DC external terminals and the ground			
Insulation resistance		10MΩ or higher between all DC external terminals and ground (500VDC insulation resistance tester)			
Noise immunity		Noise voltage 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (DC type noise simulator condition)			
Protection degree		IP2X			
Wiring method for common		16 points/common (1-wire, spring clamp terminal block type)			
Protection function	Overload protection function	Limited current when detecting overcurrent: 1A or more/point Activated to each point.			
	Overheat protection function	Activated to each point.			
External interface	I/O part	Two-piece spring clamp terminal block			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant with IEC 60715)			
Applicable wire size	For I/O	Stranded wire: 0.3 to 1.5mm² (22 to 16 AWG), terminal slot size: 2.2mm × 1.65mm*2			
Applicable solderless terminal	Terminal block for output*3	Model	Applicable wire size	Bar solderless terminal tool	Manufacturer
		TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH-79	NICHIFU Co., Ltd.
		TE 0.75-8, TE 0.75-10	0.75mm²		
		TE 1.0-8, TE 1.0-10	1.0mm²		
		TE 1.5-8, TE 1.5-10	1.5mm²		
		Al 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
		Al 0.5-8WH, Al 0.5-10WH	0.5mm²		
		Al 0.75-8GY, Al 0.75-10GY	0.75mm²		
		Al 1-8RD, Al 1-10RD	1.0mm²		
		Al 1.5-8BK, Al 1.5-10BK	1.5mm²		
Cyclic transmission	RX/RY points	16 points			
	RWr/RWw points	0 points			
Module power supply (supplied from the main module)	Voltage	24VDC (ripple rate: 5% or less) (Allowable voltage range: 20.4 to 28.8VDC)			
	Current	30mA or less (24VDC, all points ON)*4			
Weight		0.19kg			

*1 For how to calculate the processing time of the remote device station (output), refer to the point in the following.
☞ Page 129 NZ2EX2B1(N)-16T extension transistor output module
*2 Use bar solderless terminals for wiring.
*3 Only one wire can be connected to a wire insertion opening. Multiple wires cannot be connected to a terminal. Connecting two or more wires may cause a poor contact.
*4 For how to calculate the current consumption when an extension module is connected, refer to the following.
☞ Page 137 Calculating Current Consumption

External connection





Terminal block										
Pin number	1	3	5	7	9	11	13	15	17	
Signal name	Y0	Y2	Y4	Y6	Y8	YA	YC	YE	COM+	
Pin number		2	4	6	8	10	12	14	16	18
Signal name		Y1	Y3	Y5	Y7	Y9	YB	YD	YF	CTL-

4.4 Calculating Current Consumption

Total current consumption of modules

The total current consumption of the modules is calculated by summing the module power supply current in the main module and extension module.

The total current consumption must not exceed 0.36A.

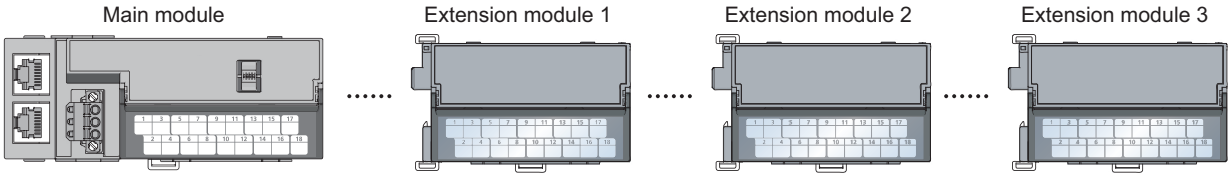
For the value of the module power supply current, refer to the specifications of each module.

☞ Page 40 Main I/O Module Specifications

☞ Page 125 Extension I/O Module Specifications

The value of the module power supply current in the extension module described in the specifications is the value of the module power supply current supplied from the main module.

For some main modules, three extension modules can be connected. (☞ Page 201 Installation of extension modules)



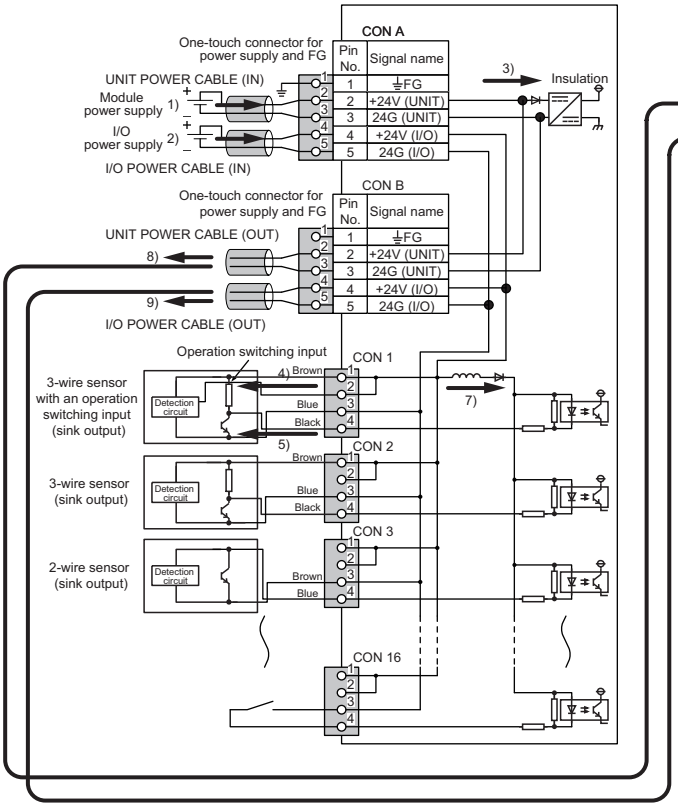
Ex.

The module power supply current of NZ2GF2B1N1-16D: 0.12[A] + The module power supply current of NZ2EX2B1N-16T: 0.03[A] + The module power supply current of NZ2EX2B1N-16D: 0.02[A] + The module power supply current of NZ2EX2B1N-16TE: 0.03[A] = 0.2[A] ≤ 0.36[A]

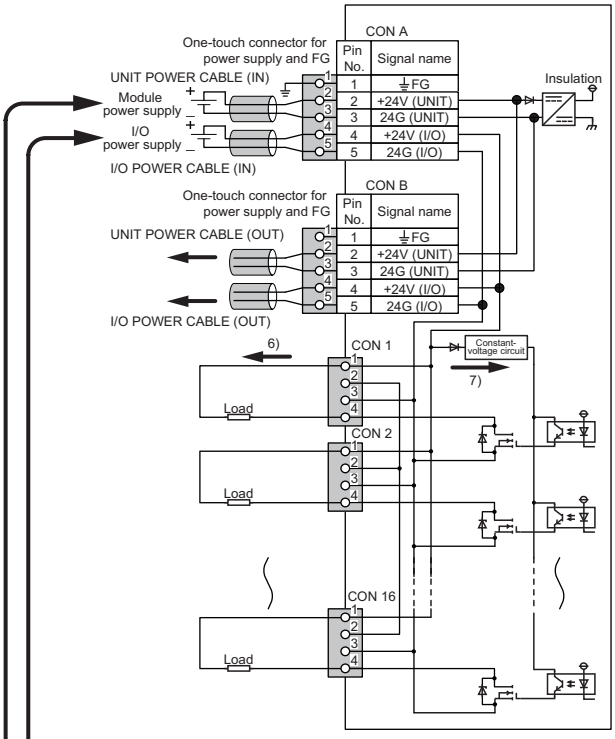
Precautions for transition wiring of the one-touch connector for power supply and FG

Current flows in the modules when they are transition wired through one-touch connectors for power supply and FG. Design the system so that the current equals to or lower than the maximum rated current shown below.

Input module (example: NZ2GFCE3-16D)



Output module (example: NZ2GFCE3-16T)



No.	Power supply port name	Connector	Maximum rated current
1)	Module power supply (IN)	One-touch connector for power supply and FG (pin 2 and 3 of CON A)	7A*1
2)	I/O power supply (IN)	One-touch connector for power supply and FG (pin 4 and 5 of CON A)	7A*1

No.	Power supply name	Supply source (power supply port)	Description	Maximum current consumption value
3)	Module power supply	Module power supply (IN)	Power supply for module operation	Module power supply current
4)	Power supply for input device	I/O power supply (IN)	Power supply for operation power of connected devices such as sensors	Current for connected device
5)	Input current		Input signal from devices such as sensors	Rated input current
6)	External load power supply		Power supply consumed by loads	Maximum load current
7)	External power supply for output part		Power supply for output part circuit	External power supply current for output part
8)	Module power supply (OUT)	Module power supply (IN)	Power supply for modules or external devices connected through transition wiring	Depends on the connected modules or external devices.
9)	I/O power supply (OUT)	I/O power supply (IN)	Power supply to supply I/O power to modules or external devices connected through transition wiring	

*1 The value of 1) equals to the sum of 3) and 8) (increases with the number of connected devices). The value of 2) equals to the sum of 4), 5), 6), 7), and 9) (increases with the number of connected devices). Design the system so that each value of 1) and 2) equals to or lower than the maximum rated current (7A).

4.5 Function List

This section lists the functions of I/O modules.

○: Available, —: Not available

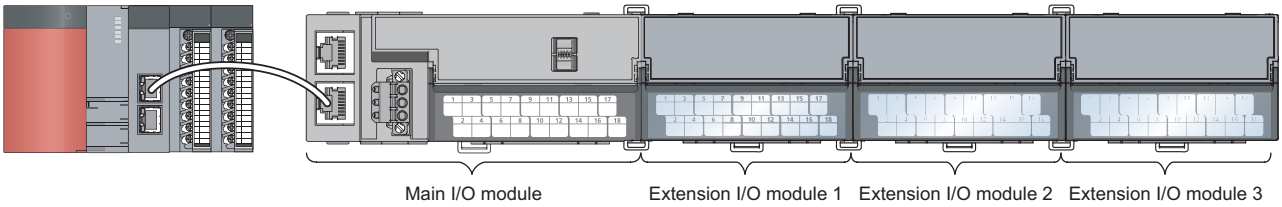
Item	Description	Availability					Reference
		Main input module	Main output module	Main I/O combined module	Extension input module	Extension output module	
Extension module supporting function	The number of input points or output points can be increased by connecting an extension I/O module. This function can be used with an input module and an output module.	○	○	○	—	—	Page 201 Installation of extension modules
Error notification function	When an error or warning occurs, the I/O module notifies the master station of it using remote registers.	○	○	○	○	○	Page 248 Error Notification Function
Input function	The ON/OFF status (X signal) of inputs is notified to Remote input (RX) which is the buffer memory of the master station.	○	—	○	○	—	—
Input OFF delay function	This function turns off an X signal after a predetermined time passed from when an actual input becomes off from on.	○	—	○	○	—	Page 251 Input OFF Delay Function
Input response time setting function	This function prevents an incorrect input due to noise by setting the response time until the module recognizes an actual input as the X signal.	○	—	○	○	—	Page 253 Input Response Time Setting Function
Output function	The ON/OFF status (Y signal) of outputs is controlled with Remote output (RY) which is the buffer memory of the master station.	—	○	○	—	○	—
Output HOLD/ CLEAR setting function	When the I/O module is disconnected from data link, or the CPU module operating status is STOP, whether to hold or clear the last output value can be set.	—	○	○	—	○	Page 254 Output HOLD/ CLEAR Setting Function
Cyclic data update watch function	The update intervals of cyclic data are monitored. The last output value is held or cleared when the cyclic transmission stop status continues longer than the set monitoring time.	—	○	○	—	○	Page 255 Cyclic Data Update Watch Function
Number of ON times integration function	The total number of ON times of each output point is counted with this function. The integration value remains even though the output module is powered off.	—	○	○	—	○	Page 256 Number of ON Times Integration Function
Output ON/OFF information hold function	This function checks if the output has been turned once on or off.	—	○	○	—	○*3	Page 258 Output ON/ OFF Information Hold Function
External power supply monitoring function	The power supply status of the output external power supply is monitored.	—	○	○	—	○	Page 259 External Power Supply Monitoring Function
Fast logic function	This function controls output according to the input status inside of the I/O module and without communication with the master station. High-speed output control can be performed with this function.	○*1	○*1	○	○*1	○*1	Page 260 Fast Logic Function
Initial operation setting function	This function sets whether the initial processing using the program is necessary or not when the data link is established.	○	○	○	○	○	Page 265 Initial Operation Setting Function

Item	Description	Availability					Reference
		Main input module	Main output module	Main I/O combined module	Extension input module	Extension output module	
CC-Link IE Field Network synchronous communication function	This function performs I/O operations with a synchronization cycle of the master station that supports the CC-Link IE Field Network synchronous communication function. This enables the I/O module to operate at the same timing of other slave stations on the same network.	○	○	○	○*2	○*2	Page 268 CC-Link IE Field Network Synchronous Communication Function
Protection function	The output module has the overload protection function and the overheat protection function.	—	○	○	—	○	Page 274 Protection Function
CC-Link IE Field Network diagnostic function	This function allows the presence or absence of a network error to be checked by accessing the engineering tool connected to the CPU module.	○	○	○	○	○	Page 275 CC-Link IE Field Network Diagnostic Function
Synchronous output timing setting function	This function sets the output timing (ON/OFF timing) of the output module that operates synchronously using CC-Link IE Field Network synchronous communication function. The timing is set in increments of 0.1μs.	—	○	○	—	—	Page 279 Synchronous Output Timing Setting Function
Synchronous input timing acquisition function	This function acquires the input timing (ON/OFF timing) of the input module that operates synchronously using CC-Link IE Field Network synchronous communication function. The timing is acquired in increments of 0.1μs.	○	—	○	—	—	Page 282 Synchronous Input Timing Acquisition Function
Automatic I/O parameter setting	This function operates the I/O module without parameter settings. When this function is used and the I/O module is used as a general-purpose remote I/O, parameter settings are not required and users can shorten the start-up time.	○	○	○	—	—	Page 242 Automatic I/O Parameter Setting
Automatic detection of connected device	This function automatically generates "List of devices" and "Device map area" of the device supporting iQSS connected to the master module with an engineering tool.	○	○	○	—	—	📖 iQ Sensor Solution Reference Manual
Sensor parameter read/write	This function reads or writes parameters of the device supporting iQSS.	○	○	○	—	—	📖 iQ Sensor Solution Reference Manual
Data backup/restoration	This function backs up the slave module information in the SD memory card. The function also restores the slave module information backed up in the SD memory card.	○	○	○	—	—	📖 iQ Sensor Solution Reference Manual
Fast link-up function	This function shortens the time taken for data link establishment with the master station at power-on. With this function, the time taken to change tools can be shortened in the system with a tool change mechanism (such as a tool changer) for tools that can be installed at the end of an industrial robot arm.	○	○	—	—	—	Page 285 Fast Link-up Function

*1 In a combination of a main module and an extension module, one must be an input module, and the other must be an output module.
*2 Available only when the extension module is connected to a main module that supports the CC-Link IE Field Network synchronous communication function.
*3 Available only when the extension module is connected to a main module that supports the output ON/OFF information hold function.

4.6 List of Remote I/O Signals

This section lists I/O signals for a master/local module.
The I/O signals shown are the example with the remote I/O signals of the I/O module assigned to the I/O numbers of RX0 to RX3F and RY0 to RY3F.
Remote input (RX) indicates the input signal from the I/O module to the master/local module.
Remote output (RY) indicates the output signal from the master/local module to the I/O module.
The remote I/O signals of the main I/O module and extension I/O module are assigned as shown below.
When no extension I/O modules are used, the use of remote I/O signals for the extension I/O modules is prohibited.



- For a main I/O module (16-point module)

Module	Remote input (RX)	Remote output (RY)
Main I/O module (16-point module)	RX0 to RXF	RY0 to RYF
Extension I/O module 1	RX10 to RX1F	RY10 to RY1F
Extension I/O module 2	RX20 to RX2F	RY20 to RY2F
Extension I/O module 3	RX30 to RX3F	RY30 to RY3F

- For a main I/O module (32-point module)

Module	Remote input (RX)	Remote output (RY)
Main I/O module (32-point module)	RX0 to RX1F	RY0 to RY1F
Extension I/O module 1	RX20 to RX2F	RY20 to RY2F

Point

Do not use any "Use prohibited" remote I/O signals. Doing so may result in an accident due to an incorrect output or malfunction.

Main I/O module

Main input module

■16-point module

Remote input		Remote output	
Signal direction: Input module → Master/local module		Signal direction: Master/local module → Input module	
Device number	Description	Device number	Description
RX0	External input signal X0	RY0	Use prohibited
RX1	External input signal X1	RY1	
RX2	External input signal X2	RY2	
RX3	External input signal X3	RY3	
RX4	External input signal X4	RY4	
RX5	External input signal X5	RY5	
RX6	External input signal X6	RY6	
RX7	External input signal X7	RY7	
RX8	External input signal X8	RY8	
RX9	External input signal X9	RY9	
RXA	External input signal XA	RYA	
RXB	External input signal XB	RYB	
RXC	External input signal XC	RYC	
RXD	External input signal XD	RYD	
RXE	External input signal XE	RYE	
RXF	External input signal XF	RYF	

■32-point module

Remote input		Remote output	
Signal direction: Input module → Master/local module		Signal direction: Master/local module → Input module	
Device number	Description	Device number	Description
RX0	External input signal X0	RY0	Use prohibited
RX1	External input signal X1	RY1	
RX2	External input signal X2	RY2	
RX3	External input signal X3	RY3	
RX4	External input signal X4	RY4	
RX5	External input signal X5	RY5	
RX6	External input signal X6	RY6	
RX7	External input signal X7	RY7	
RX8	External input signal X8	RY8	
RX9	External input signal X9	RY9	
RXA	External input signal XA	RYA	
RXB	External input signal XB	RYB	
RXC	External input signal XC	RYC	
RXD	External input signal XD	RYD	
RXE	External input signal XE	RYE	
RXF	External input signal XF	RYF	
RX10	External input signal X10	RY10	
RX11	External input signal X11	RY11	
RX12	External input signal X12	RY12	
RX13	External input signal X13	RY13	
RX14	External input signal X14	RY14	
RX15	External input signal X15	RY15	
RX16	External input signal X16	RY16	
RX17	External input signal X17	RY17	
RX18	External input signal X18	RY18	
RX19	External input signal X19	RY19	
RX1A	External input signal X1A	RY1A	
RX1B	External input signal X1B	RY1B	
RX1C	External input signal X1C	RY1C	
RX1D	External input signal X1D	RY1D	
RX1E	External input signal X1E	RY1E	
RX1F	External input signal X1F	RY1F	

Main output module

■16-point module

Remote input		Remote output	
Signal direction: Output module → Master/local module		Signal direction: Master/local module → Output module	
Device number	Description	Device number	Description
RX0	Use prohibited	RY0	External output signal Y0
RX1		RY1	External output signal Y1
RX2		RY2	External output signal Y2
RX3		RY3	External output signal Y3
RX4		RY4	External output signal Y4
RX5		RY5	External output signal Y5
RX6		RY6	External output signal Y6
RX7		RY7	External output signal Y7
RX8		RY8	External output signal Y8
RX9		RY9	External output signal Y9
RXA		RYA	External output signal YA
RXB		RYB	External output signal YB
RXC		RYC	External output signal YC
RXD		RYD	External output signal YD
RXE		RYE	External output signal YE
RXF		RYF	External output signal YF

■32-point module

Remote input		Remote output	
Signal direction: Output module → Master/local module		Signal direction: Master/local module → Output module	
Device number	Description	Device number	Description
RX0	Use prohibited	RY0	External output signal Y0
RX1		RY1	External output signal Y1
RX2		RY2	External output signal Y2
RX3		RY3	External output signal Y3
RX4		RY4	External output signal Y4
RX5		RY5	External output signal Y5
RX6		RY6	External output signal Y6
RX7		RY7	External output signal Y7
RX8		RY8	External output signal Y8
RX9		RY9	External output signal Y9
RXA		RYA	External output signal YA
RXB		RYB	External output signal YB
RXC		RYC	External output signal YC
RXD		RYD	External output signal YD
RXE		RYE	External output signal YE
RXF		RYF	External output signal YF
RX10		RY10	External output signal Y10
RX11		RY11	External output signal Y11
RX12		RY12	External output signal Y12
RX13		RY13	External output signal Y13
RX14		RY14	External output signal Y14
RX15		RY15	External output signal Y15
RX16		RY16	External output signal Y16
RX17		RY17	External output signal Y17
RX18		RY18	External output signal Y18
RX19		RY19	External output signal Y19
RX1A		RY1A	External output signal Y1A
RX1B		RY1B	External output signal Y1B
RX1C		RY1C	External output signal Y1C
RX1D		RY1D	External output signal Y1D
RX1E		RY1E	External output signal Y1E
RX1F		RY1F	External output signal Y1F

Main I/O combined module

Remote input		Remote output	
Signal direction: I/O module → Master/local module		Signal direction: Master/local module → I/O module	
Device number	Description	Device number	Description
RX0	External input signal X0	RY0	Use prohibited
RX1	External input signal X1	RY1	
RX2	External input signal X2	RY2	
RX3	External input signal X3	RY3	
RX4	External input signal X4	RY4	
RX5	External input signal X5	RY5	
RX6	External input signal X6	RY6	
RX7	External input signal X7	RY7	
RX8	External input signal X8	RY8	
RX9	External input signal X9	RY9	
RXA	External input signal XA	RYA	
RXB	External input signal XB	RYB	
RXC	External input signal XC	RYC	
RXD	External input signal XD	RYD	
RXE	External input signal XE	RYE	
RXF	External input signal XF	RYF	
RX10	Use prohibited	RY10	External output signal Y10
RX11		RY11	External output signal Y11
RX12		RY12	External output signal Y12
RX13		RY13	External output signal Y13
RX14		RY14	External output signal Y14
RX15		RY15	External output signal Y15
RX16		RY16	External output signal Y16
RX17		RY17	External output signal Y17
RX18		RY18	External output signal Y18
RX19		RY19	External output signal Y19
RX1A		RY1A	External output signal Y1A
RX1B		RY1B	External output signal Y1B
RX1C		RY1C	External output signal Y1C
RX1D		RY1D	External output signal Y1D
RX1E		RY1E	External output signal Y1E
RX1F		RY1F	External output signal Y1F

Extension I/O module

Extension input module

■When connected to a main I/O module (16-point module)

Remote input		Remote output	
Signal direction: Input module → Master/local module		Signal direction: Master/local module → Input module	
Device number	Description	Device number	Description
RX10	External input signal X10	RY10	Use prohibited
RX11	External input signal X11	RY11	
RX12	External input signal X12	RY12	
RX13	External input signal X13	RY13	
RX14	External input signal X14	RY14	
RX15	External input signal X15	RY15	
RX16	External input signal X16	RY16	
RX17	External input signal X17	RY17	
RX18	External input signal X18	RY18	
RX19	External input signal X19	RY19	
RX1A	External input signal X1A	RY1A	
RX1B	External input signal X1B	RY1B	
RX1C	External input signal X1C	RY1C	
RX1D	External input signal X1D	RY1D	
RX1E	External input signal X1E	RY1E	
RX1F	External input signal X1F	RY1F	

■When connected to a main I/O module (32-point module)

Remote input		Remote output	
Signal direction: Input module → Master/local module		Signal direction: Master/local module → Input module	
Device number	Description	Device number	Description
RX20	External input signal X20	RY20	Use prohibited
RX21	External input signal X21	RY21	
RX22	External input signal X22	RY22	
RX23	External input signal X23	RY23	
RX24	External input signal X24	RY24	
RX25	External input signal X25	RY25	
RX26	External input signal X26	RY26	
RX27	External input signal X27	RY27	
RX28	External input signal X28	RY28	
RX29	External input signal X29	RY29	
RX2A	External input signal X2A	RY2A	
RX2B	External input signal X2B	RY2B	
RX2C	External input signal X2C	RY2C	
RX2D	External input signal X2D	RY2D	
RX2E	External input signal X2E	RY2E	
RX2F	External input signal X2F	RY2F	

Extension output module

■When connected to a main I/O module (16-point module)

Remote input		Remote output	
Signal direction: Output module → Master/local module		Signal direction: Master/local module → Output module	
Device number	Description	Device number	Description
RX10	Use prohibited	RY10	External output signal Y10
RX11		RY11	External output signal Y11
RX12		RY12	External output signal Y12
RX13		RY13	External output signal Y13
RX14		RY14	External output signal Y14
RX15		RY15	External output signal Y15
RX16		RY16	External output signal Y16
RX17		RY17	External output signal Y17
RX18		RY18	External output signal Y18
RX19		RY19	External output signal Y19
RX1A		RY1A	External output signal Y1A
RX1B		RY1B	External output signal Y1B
RX1C		RY1C	External output signal Y1C
RX1D		RY1D	External output signal Y1D
RX1E		RY1E	External output signal Y1E
RX1F		RY1F	External output signal Y1F

■When connected to a main I/O module (32-point module)

Remote input		Remote output	
Signal direction: Output module → Master/local module		Signal direction: Master/local module → Output module	
Device number	Description	Device number	Description
RX20	Use prohibited	RY20	External output signal Y20
RX21		RY21	External output signal Y21
RX22		RY22	External output signal Y22
RX23		RY23	External output signal Y23
RX24		RY24	External output signal Y24
RX25		RY25	External output signal Y25
RX26		RY26	External output signal Y26
RX27		RY27	External output signal Y27
RX28		RY28	External output signal Y28
RX29		RY29	External output signal Y29
RX2A		RY2A	External output signal Y2A
RX2B		RY2B	External output signal Y2B
RX2C		RY2C	External output signal Y2C
RX2D		RY2D	External output signal Y2D
RX2E		RY2E	External output signal Y2E
RX2F		RY2F	External output signal Y2F

4.7 List of Remote Register

This section lists remote registers for a master/local module.
The remote registers shown are the example with the remote registers of the I/O module assigned to the remote registers of RWr0 to RWr53 and RWw0 to RWw53.
The remote registers are assigned in station-based units regardless of the main module or extension module.
Remote register (RWr) is the information input from the I/O module to the master/local module.
Remote register (RWw) is the information output from the master/local module to the I/O module.
For details on the remote register, refer to the following.
☞ Page 345 Details of Remote Registers

Point

Do not read or write the data from/to any "Use prohibited" remote registers. Doing so may result in an accident due to an incorrect output or malfunction.

Main input module

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O module → Master/local module		Signal direction: Master/local module → I/O module	
Device number	Name	Device number	Name
RWr0	Module status area	RWw0	Module operation area
RWr1	Error code	RWw1	Use prohibited
RWr2	Warning code	RWw2	Use prohibited
RWr3	Function selection status flag	RWw3	Function selection setting flag
RWr4	Use prohibited	RWw4	Use prohibited
RWr5*2	Output Y current value Y10 to Y1F	RWw5	Use prohibited
RWr6*3	Output Y current value Y20 to Y2F	RWw6	Use prohibited
RWr7*6	Output Y current value Y30 to Y3F	RWw7	Use prohibited
RWr8	Use prohibited	RWw8	Use prohibited
RWr9*2	Output Y ON information Y10 to Y1F	RWw9*2	Output Y ON information clear request Y10 to Y1F
RWrA*3	Output Y ON information Y20 to Y2F	RWwA*3	Output Y ON information clear request Y20 to Y2F
RWrB*6	Output Y ON information Y30 to Y3F	RWwB*6	Output Y ON information clear request Y30 to Y3F
RWrC	Use prohibited	RWwC	Use prohibited
RWrD*2	Output Y OFF information Y10 to Y1F	RWwD*2	Output Y OFF information clear request Y10 to Y1F
RWrE*3	Output Y OFF information Y20 to Y2F	RWwE*3	Output Y OFF information clear request Y20 to Y2F
RWrF*6	Output Y OFF information Y30 to Y3F	RWwF*6	Output Y OFF information clear request Y30 to Y3F
RWr10	Use prohibited	RWw10	Use prohibited
RWr11	Use prohibited	RWw11	Use prohibited
RWr12	Use prohibited	RWw12	Use prohibited
RWr13*1	Use prohibited	RWw13*1	Use prohibited
RWr14*4*7	Synchronous input timing information X0 OFF to ON	RWw14	Use prohibited
RWr15*4*7	Synchronous input timing information X0 ON to OFF	RWw15	Use prohibited
RWr16*4*7	Synchronous input timing information X1 OFF to ON	RWw16	Use prohibited
RWr17*4*7	Synchronous input timing information X1 ON to OFF	RWw17	Use prohibited
RWr18*4*7	Synchronous input timing information X2 OFF to ON	RWw18	Use prohibited
RWr19*4*7	Synchronous input timing information X2 ON to OFF	RWw19	Use prohibited
RWr1A*4*7	Synchronous input timing information X3 OFF to ON	RWw1A	Use prohibited
RWr1B*4*7	Synchronous input timing information X3 ON to OFF	RWw1B	Use prohibited
RWr1C*4*7	Synchronous input timing information X4 OFF to ON	RWw1C	Use prohibited
RWr1D*4*7	Synchronous input timing information X4 ON to OFF	RWw1D	Use prohibited
RWr1E*4*7	Synchronous input timing information X5 OFF to ON	RWw1E	Use prohibited
RWr1F*4*7	Synchronous input timing information X5 ON to OFF	RWw1F	Use prohibited

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O module → Master/local module		Signal direction: Master/local module → I/O module	
Device number	Name	Device number	Name
RWr20[*4*7]	Synchronous input timing information X6 OFF to ON	RWw20	Use prohibited
RWr21[*4*7]	Synchronous input timing information X6 ON to OFF	RWw21	Use prohibited
RWr22[*4*7]	Synchronous input timing information X7 OFF to ON	RWw22	Use prohibited
RWr23[*4*7]	Synchronous input timing information X7 ON to OFF	RWw23	Use prohibited
RWr24[*4*7]	Synchronous input timing information X8 OFF to ON	RWw24	Use prohibited
RWr25[*4*7]	Synchronous input timing information X8 ON to OFF	RWw25	Use prohibited
RWr26[*4*7]	Synchronous input timing information X9 OFF to ON	RWw26	Use prohibited
RWr27[*4*7]	Synchronous input timing information X9 ON to OFF	RWw27	Use prohibited
RWr28[*4*7]	Synchronous input timing information XA OFF to ON	RWw28	Use prohibited
RWr29[*4*7]	Synchronous input timing information XA ON to OFF	RWw29	Use prohibited
RWr2A[*4*7]	Synchronous input timing information XB OFF to ON	RWw2A	Use prohibited
RWr2B[*4*7]	Synchronous input timing information XB ON to OFF	RWw2B	Use prohibited
RWr2C[*4*7]	Synchronous input timing information XC OFF to ON	RWw2C	Use prohibited
RWr2D[*4*7]	Synchronous input timing information XC ON to OFF	RWw2D	Use prohibited
RWr2E[*4*7]	Synchronous input timing information XD OFF to ON	RWw2E	Use prohibited
RWr2F[*4*7]	Synchronous input timing information XD ON to OFF	RWw2F	Use prohibited
RWr30[*4*7]	Synchronous input timing information XE OFF to ON	RWw30	Use prohibited
RWr31[*4*7]	Synchronous input timing information XE ON to OFF	RWw31	Use prohibited
RWr32[*4*7]	Synchronous input timing information XF OFF to ON	RWw32	Use prohibited
RWr33[*4*7]	Synchronous input timing information XF ON to OFF	RWw33	Use prohibited
RWr34[*5]	Synchronous input timing information X10 OFF to ON	RWw34	Use prohibited
RWr35[*5]	Synchronous input timing information X10 ON to OFF	RWw35	Use prohibited
RWr36[*5]	Synchronous input timing information X11 OFF to ON	RWw36	Use prohibited
RWr37[*5]	Synchronous input timing information X11 ON to OFF	RWw37	Use prohibited
RWr38[*5]	Synchronous input timing information X12 OFF to ON	RWw38	Use prohibited
RWr39[*5]	Synchronous input timing information X12 ON to OFF	RWw39	Use prohibited
RWr3A[*5]	Synchronous input timing information X13 OFF to ON	RWw3A	Use prohibited
RWr3B[*5]	Synchronous input timing information X13 ON to OFF	RWw3B	Use prohibited
RWr3C[*5]	Synchronous input timing information X14 OFF to ON	RWw3C	Use prohibited
RWr3D[*5]	Synchronous input timing information X14 ON to OFF	RWw3D	Use prohibited
RWr3E[*5]	Synchronous input timing information X15 OFF to ON	RWw3E	Use prohibited
RWr3F[*5]	Synchronous input timing information X15 ON to OFF	RWw3F	Use prohibited
RWr40[*5]	Synchronous input timing information X16 OFF to ON	RWw40	Use prohibited
RWr41[*5]	Synchronous input timing information X16 ON to OFF	RWw41	Use prohibited
RWr42[*5]	Synchronous input timing information X17 OFF to ON	RWw42	Use prohibited
RWr43[*5]	Synchronous input timing information X17 ON to OFF	RWw43	Use prohibited
RWr44[*5]	Synchronous input timing information X18 OFF to ON	RWw44	Use prohibited
RWr45[*5]	Synchronous input timing information X18 ON to OFF	RWw45	Use prohibited
RWr46[*5]	Synchronous input timing information X19 OFF to ON	RWw46	Use prohibited
RWr47[*5]	Synchronous input timing information X19 ON to OFF	RWw47	Use prohibited
RWr48[*5]	Synchronous input timing information X1A OFF to ON	RWw48	Use prohibited
RWr49[*5]	Synchronous input timing information X1A ON to OFF	RWw49	Use prohibited
RWr4A[*5]	Synchronous input timing information X1B OFF to ON	RWw4A	Use prohibited
RWr4B[*5]	Synchronous input timing information X1B ON to OFF	RWw4B	Use prohibited
RWr4C[*5]	Synchronous input timing information X1C OFF to ON	RWw4C	Use prohibited
RWr4D[*5]	Synchronous input timing information X1C ON to OFF	RWw4D	Use prohibited
RWr4E[*5]	Synchronous input timing information X1D OFF to ON	RWw4E	Use prohibited
RWr4F[*5]	Synchronous input timing information X1D ON to OFF	RWw4F	Use prohibited
RWr50[*5]	Synchronous input timing information X1E OFF to ON	RWw50	Use prohibited
RWr51[*5]	Synchronous input timing information X1E ON to OFF	RWw51	Use prohibited

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O module → Master/local module		Signal direction: Master/local module → I/O module	
Device number	Name	Device number	Name
RWr52*5	Synchronous input timing information X1F OFF to ON	RWw52	Use prohibited
RWr53*5	Synchronous input timing information X1F ON to OFF	RWw53	Use prohibited

*1 RWr13 and RWw13 are used by the system in the synchronous communication mode.
*2 These registers cannot be used in the NZ2GFCE3(N)-32D, NZ2GFCF1-32D, or NZ2GF2B1-32D.
*3 These registers can be used in the NZ2GF2B1N1-16D, NZ2GF2B1-32D, NZ2GFCE3(N)-32D, and NZ2GFCF1-32D.
*4 These registers can be used in the NZ2GF2B1N-16D, NZ2GF2B1-32D, NZ2GF2B1N1-16D, NZ2GF2S1-16D, and NZ2GFCF1-32D.
*5 These registers can be used in the NZ2GFCF1-32D and NZ2GF2B1-32D.
*6 These registers can be used in the NZ2GF2B1N1-16D only.
*7 These registers can be used in the following modules with the serial number (first five digits) of "23022" or later: NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCM1-16D, NZ2GFCM1-16DE.

Point

- When I/O signals have not been assigned because extension modules have not been connected, the use of the remote registers corresponding to the signals is prohibited.
- For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

Main output module

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O module → Master/local module		Signal direction: Master/local module → I/O module	
Device number	Name	Device number	Name
RWr0	Module status area	RWw0	Module operation area
RWr1	Error code	RWw1	Use prohibited
RWr2	Warning code	RWw2	Use prohibited
RWr3	Function selection status flag	RWw3	Function selection setting flag
RWr4	Output Y current value Y0 to YF	RWw4	Use prohibited
RWr5	Output Y current value Y10 to Y1F	RWw5	Use prohibited
RWr6*2	Output Y current value Y20 to Y2F	RWw6	Use prohibited
RWr7*5	Output Y current value Y30 to Y3F	RWw7	Use prohibited
RWr8	Output Y ON information Y0 to YF	RWw8	Output Y ON information clear request Y0 to YF
RWr9	Output Y ON information Y10 to Y1F	RWw9	Output Y ON information clear request Y10 to Y1F
RWrA*2	Output Y ON information Y20 to Y2F	RWwA*2	Output Y ON information clear request Y20 to Y2F
RWrB*5	Output Y ON information Y30 to Y3F	RWwB*5	Output Y ON information clear request Y30 to Y3F
RWrC	Output Y OFF information Y0 to YF	RWwC	Output Y OFF information clear request Y0 to YF
RWrD	Output Y OFF information Y10 to Y1F	RWwD	Output Y OFF information clear request Y10 to Y1F
RWrE*2	Output Y OFF information Y20 to Y2F	RWwE*2	Output Y OFF information clear request Y20 to Y2F
RWrF*5	Output Y OFF information Y30 to Y3F	RWwF*5	Output Y OFF information clear request Y30 to Y3F
RWr10	Use prohibited	RWw10	Use prohibited
RWr11	Use prohibited	RWw11	Use prohibited
RWr12	Use prohibited	RWw12	Use prohibited
RWr13*1	Use prohibited	RWw13*1	Use prohibited
RWr14	Use prohibited	RWw14*3*6	Synchronous output timing setting Y0 OFF to ON
RWr15	Use prohibited	RWw15*3*6	Synchronous output timing setting Y0 ON to OFF
RWr16	Use prohibited	RWw16*3*6	Synchronous output timing setting Y1 OFF to ON
RWr17	Use prohibited	RWw17*3*6	Synchronous output timing setting Y1 ON to OFF
RWr18	Use prohibited	RWw18*3*6	Synchronous output timing setting Y2 OFF to ON
RWr19	Use prohibited	RWw19*3*6	Synchronous output timing setting Y2 ON to OFF
RWr1A	Use prohibited	RWw1A*3*6	Synchronous output timing setting Y3 OFF to ON
RWr1B	Use prohibited	RWw1B*3*6	Synchronous output timing setting Y3 ON to OFF
RWr1C	Use prohibited	RWw1C*3*6	Synchronous output timing setting Y4 OFF to ON
RWr1D	Use prohibited	RWw1D*3*6	Synchronous output timing setting Y4 ON to OFF
RWr1E	Use prohibited	RWw1E*3*6	Synchronous output timing setting Y5 OFF to ON
RWr1F	Use prohibited	RWw1F*3*6	Synchronous output timing setting Y5 ON to OFF
RWr20	Use prohibited	RWw20*3*6	Synchronous output timing setting Y6 OFF to ON
RWr21	Use prohibited	RWw21*3*6	Synchronous output timing setting Y6 ON to OFF
RWr22	Use prohibited	RWw22*3*6	Synchronous output timing setting Y7 OFF to ON
RWr23	Use prohibited	RWw23*3*6	Synchronous output timing setting Y7 ON to OFF
RWr24	Use prohibited	RWw24*3*6	Synchronous output timing setting Y8 OFF to ON
RWr25	Use prohibited	RWw25*3*6	Synchronous output timing setting Y8 ON to OFF
RWr26	Use prohibited	RWw26*3*6	Synchronous output timing setting Y9 OFF to ON
RWr27	Use prohibited	RWw27*3*6	Synchronous output timing setting Y9 ON to OFF
RWr28	Use prohibited	RWw28*3*6	Synchronous output timing setting YA OFF to ON
RWr29	Use prohibited	RWw29*3*6	Synchronous output timing setting YA ON to OFF
RWr2A	Use prohibited	RWw2A*3*6	Synchronous output timing setting YB OFF to ON
RWr2B	Use prohibited	RWw2B*3*6	Synchronous output timing setting YB ON to OFF
RWr2C	Use prohibited	RWw2C*3*6	Synchronous output timing setting YC OFF to ON
RWr2D	Use prohibited	RWw2D*3*6	Synchronous output timing setting YC ON to OFF
RWr2E	Use prohibited	RWw2E*3*6	Synchronous output timing setting YD OFF to ON
RWr2F	Use prohibited	RWw2F*3*6	Synchronous output timing setting YD ON to OFF

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O module → Master/local module		Signal direction: Master/local module → I/O module	
Device number	Name	Device number	Name
RWr30	Use prohibited	RWw30*3*6	Synchronous output timing setting YE OFF to ON
RWr31	Use prohibited	RWw31*3*6	Synchronous output timing setting YE ON to OFF
RWr32	Use prohibited	RWw32*3*6	Synchronous output timing setting YF OFF to ON
RWr33	Use prohibited	RWw33*3*6	Synchronous output timing setting YF ON to OFF
RWr34	Use prohibited	RWw34*4	Synchronous input timing information Y10 OFF to ON
RWr35	Use prohibited	RWw35*4	Synchronous input timing information Y10 ON to OFF
RWr36	Use prohibited	RWw36*4	Synchronous input timing information Y11 OFF to ON
RWr37	Use prohibited	RWw37*4	Synchronous input timing information Y11 ON to OFF
RWr38	Use prohibited	RWw38*4	Synchronous input timing information Y12 OFF to ON
RWr39	Use prohibited	RWw39*4	Synchronous input timing information Y12 ON to OFF
RWr3A	Use prohibited	RWw3A*4	Synchronous input timing information Y13 OFF to ON
RWr3B	Use prohibited	RWw3B*4	Synchronous input timing information Y13 ON to OFF
RWr3C	Use prohibited	RWw3C*4	Synchronous input timing information Y14 OFF to ON
RWr3D	Use prohibited	RWw3D*4	Synchronous input timing information Y14 ON to OFF
RWr3E	Use prohibited	RWw3E*4	Synchronous input timing information Y15 OFF to ON
RWr3F	Use prohibited	RWw3F*4	Synchronous input timing information Y15 ON to OFF
RWr40	Use prohibited	RWw40*4	Synchronous input timing information Y16 OFF to ON
RWr41	Use prohibited	RWw41*4	Synchronous input timing information Y16 ON to OFF
RWr42	Use prohibited	RWw42*4	Synchronous input timing information Y17 OFF to ON
RWr43	Use prohibited	RWw43*4	Synchronous input timing information Y17 ON to OFF
RWr44	Use prohibited	RWw44*4	Synchronous input timing information Y18 OFF to ON
RWr45	Use prohibited	RWw45*4	Synchronous input timing information Y18 ON to OFF
RWr46	Use prohibited	RWw46*4	Synchronous input timing information Y19 OFF to ON
RWr47	Use prohibited	RWw47*4	Synchronous input timing information Y19 ON to OFF
RWr48	Use prohibited	RWw48*4	Synchronous input timing information Y1A OFF to ON
RWr49	Use prohibited	RWw49*4	Synchronous input timing information Y1A ON to OFF
RWr4A	Use prohibited	RWw4A*4	Synchronous input timing information Y1B OFF to ON
RWr4B	Use prohibited	RWw4B*4	Synchronous input timing information Y1B ON to OFF
RWr4C	Use prohibited	RWw4C*4	Synchronous input timing information Y1C OFF to ON
RWr4D	Use prohibited	RWw4D*4	Synchronous input timing information Y1C ON to OFF
RWr4E	Use prohibited	RWw4E*4	Synchronous input timing information Y1D OFF to ON
RWr4F	Use prohibited	RWw4F*4	Synchronous input timing information Y1D ON to OFF
RWr50	Use prohibited	RWw50*4	Synchronous input timing information Y1E OFF to ON
RWr51	Use prohibited	RWw51*4	Synchronous input timing information Y1E ON to OFF
RWr52	Use prohibited	RWw52*4	Synchronous input timing information Y1F OFF to ON
RWr53	Use prohibited	RWw53*4	Synchronous input timing information Y1F ON to OFF

*1 RWr13 and RWw13 are used by the system in the synchronous communication mode.
*2 These registers can be used in the NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GFCE3(N)-32T, and NZ2GFCF1-32T.
*3 These registers can be used in the NZ2GF2B1N-16T, NZ2GF2B1N1-16T, NZ2GF2B1N-16TE, NZ2GF2B1N1-16TE, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2S1-16T, NZ2GF2S1-16TE, and NZ2GFCF1-32T.
*4 These registers can be used in the NZ2GFCF1-32T, NZ2GF2B1-32T, and NZ2GF2B1-32TE.
*5 These registers can be used in the NZ2GF2B1N1-16T and NZ2GF2B1N1-16TE.
*6 These registers can be used in the following modules with the serial number (first five digits) of "23022" or later: NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16T, NZ2GFCM1-16TE.

Point

- When I/O signals have not been assigned because extension modules have not been connected, the use of the remote registers corresponding to the signals is prohibited.
- For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

Main I/O combined module

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O combined module → Master/local module		Signal direction: Master/local module → I/O combined module	
Device number	Name	Device number	Name
RWr0	Module status area	RWw0	Module operation area
RWr1	Error code	RWw1	Use prohibited
RWr2	Warning code	RWw2	Use prohibited
RWr3	Function selection status flag	RWw3	Function selection setting flag
RWr4	Use prohibited	RWw4	Use prohibited
RWr5	Output Y current value Y10 to Y1F	RWw5	Use prohibited
RWr6	Output Y current value Y20 to Y2F	RWw6	Use prohibited
RWr7	Use prohibited	RWw7	Use prohibited
RWr8	Use prohibited	RWw8	Use prohibited
RWr9	Output Y ON information Y10 to Y1F	RWw9	Output Y ON information clear request Y10 to Y1F
RWrA	Output Y ON information Y20 to Y2F	RWwA	Output Y ON information clear request Y20 to Y2F
RWrB	Use prohibited	RWwB	Use prohibited
RWrC	Use prohibited	RWwC	Use prohibited
RWrD	Output Y OFF information Y10 to Y1F	RWwD	Output Y OFF information clear request Y10 to Y1F
RWrE	Output Y OFF information Y20 to Y2F	RWwE	Output Y OFF information clear request Y20 to Y2F
RWrF	Use prohibited	RWwF	Use prohibited
RWr10	Use prohibited	RWw10	Use prohibited
RWr11	Use prohibited	RWw11	Use prohibited
RWr12	Use prohibited	RWw12	Use prohibited
RWr13*1	Use prohibited	RWw13*1	Use prohibited
RWr14*2	Synchronous input timing information X0 OFF to ON	RWw14	Use prohibited
RWr15*2	Synchronous input timing information X0 ON to OFF	RWw15	Use prohibited
RWr16*2	Synchronous input timing information X1 OFF to ON	RWw16	Use prohibited
RWr17*2	Synchronous input timing information X1 ON to OFF	RWw17	Use prohibited
RWr18*2	Synchronous input timing information X2 OFF to ON	RWw18	Use prohibited
RWr19*2	Synchronous input timing information X2 ON to OFF	RWw19	Use prohibited
RWr1A*2	Synchronous input timing information X3 OFF to ON	RWw1A	Use prohibited
RWr1B*2	Synchronous input timing information X3 ON to OFF	RWw1B	Use prohibited
RWr1C*2	Synchronous input timing information X4 OFF to ON	RWw1C	Use prohibited
RWr1D*2	Synchronous input timing information X4 ON to OFF	RWw1D	Use prohibited
RWr1E*2	Synchronous input timing information X5 OFF to ON	RWw1E	Use prohibited
RWr1F*2	Synchronous input timing information X5 ON to OFF	RWw1F	Use prohibited
RWr20*2	Synchronous input timing information X6 OFF to ON	RWw20	Use prohibited
RWr21*2	Synchronous input timing information X6 ON to OFF	RWw21	Use prohibited
RWr22*2	Synchronous input timing information X7 OFF to ON	RWw22	Use prohibited
RWr23*2	Synchronous input timing information X7 ON to OFF	RWw23	Use prohibited
RWr24*2	Synchronous input timing information X8 OFF to ON	RWw24	Use prohibited
RWr25*2	Synchronous input timing information X8 ON to OFF	RWw25	Use prohibited
RWr26*2	Synchronous input timing information X9 OFF to ON	RWw26	Use prohibited
RWr27*2	Synchronous input timing information X9 ON to OFF	RWw27	Use prohibited
RWr28*2	Synchronous input timing information XA OFF to ON	RWw28	Use prohibited
RWr29*2	Synchronous input timing information XA ON to OFF	RWw29	Use prohibited
RWr2A*2	Synchronous input timing information XB OFF to ON	RWw2A	Use prohibited
RWr2B*2	Synchronous input timing information XB ON to OFF	RWw2B	Use prohibited
RWr2C*2	Synchronous input timing information XC OFF to ON	RWw2C	Use prohibited
RWr2D*2	Synchronous input timing information XC ON to OFF	RWw2D	Use prohibited
RWr2E*2	Synchronous input timing information XD OFF to ON	RWw2E	Use prohibited
RWr2F*2	Synchronous input timing information XD ON to OFF	RWw2F	Use prohibited

Remote register (RWr)		Remote register (RWw)	
Signal direction: I/O combined module → Master/local module		Signal direction: Master/local module → I/O combined module	
Device number	Name	Device number	Name
RWr30*2	Synchronous input timing information XE OFF to ON	RWw30	Use prohibited
RWr31*2	Synchronous input timing information XE ON to OFF	RWw31	Use prohibited
RWr32*2	Synchronous input timing information XF OFF to ON	RWw32	Use prohibited
RWr33*2	Synchronous input timing information XF ON to OFF	RWw33	Use prohibited
RWr34	Use prohibited	RWw34*2	Synchronous output timing setting Y10 OFF to ON
RWr35	Use prohibited	RWw35*2	Synchronous output timing setting Y10 ON to OFF
RWr36	Use prohibited	RWw36*2	Synchronous output timing setting Y11 OFF to ON
RWr37	Use prohibited	RWw37*2	Synchronous output timing setting Y11 ON to OFF
RWr38	Use prohibited	RWw38*2	Synchronous output timing setting Y12 OFF to ON
RWr39	Use prohibited	RWw39*2	Synchronous output timing setting Y12 ON to OFF
RWr3A	Use prohibited	RWw3A*2	Synchronous output timing setting Y13 OFF to ON
RWr3B	Use prohibited	RWw3B*2	Synchronous output timing setting Y13 ON to OFF
RWr3C	Use prohibited	RWw3C*2	Synchronous output timing setting Y14 OFF to ON
RWr3D	Use prohibited	RWw3D*2	Synchronous output timing setting Y14 ON to OFF
RWr3E	Use prohibited	RWw3E*2	Synchronous output timing setting Y15 OFF to ON
RWr3F	Use prohibited	RWw3F*2	Synchronous output timing setting Y15 ON to OFF
RWr40	Use prohibited	RWw40*2	Synchronous output timing setting Y16 OFF to ON
RWr41	Use prohibited	RWw41*2	Synchronous output timing setting Y16 ON to OFF
RWr42	Use prohibited	RWw42*2	Synchronous output timing setting Y17 OFF to ON
RWr43	Use prohibited	RWw43*2	Synchronous output timing setting Y17 ON to OFF
RWr44	Use prohibited	RWw44*2	Synchronous output timing setting Y18 OFF to ON
RWr45	Use prohibited	RWw45*2	Synchronous output timing setting Y18 ON to OFF
RWr46	Use prohibited	RWw46*2	Synchronous output timing setting Y19 OFF to ON
RWr47	Use prohibited	RWw47*2	Synchronous output timing setting Y19 ON to OFF
RWr48	Use prohibited	RWw48*2	Synchronous output timing setting Y1A OFF to ON
RWr49	Use prohibited	RWw49*2	Synchronous output timing setting Y1A ON to OFF
RWr4A	Use prohibited	RWw4A*2	Synchronous output timing setting Y1B OFF to ON
RWr4B	Use prohibited	RWw4B*2	Synchronous output timing setting Y1B ON to OFF
RWr4C	Use prohibited	RWw4C*2	Synchronous output timing setting Y1C OFF to ON
RWr4D	Use prohibited	RWw4D*2	Synchronous output timing setting Y1C ON to OFF
RWr4E	Use prohibited	RWw4E*2	Synchronous output timing setting Y1D OFF to ON
RWr4F	Use prohibited	RWw4F*2	Synchronous output timing setting Y1D ON to OFF
RWr50	Use prohibited	RWw50*2	Synchronous output timing setting Y1E OFF to ON
RWr51	Use prohibited	RWw51*2	Synchronous output timing setting Y1E ON to OFF
RWr52	Use prohibited	RWw52*2	Synchronous output timing setting Y1F OFF to ON
RWr53	Use prohibited	RWw53*2	Synchronous output timing setting Y1F ON to OFF

*1 RWr13 and RWw13 are used by the system in the synchronous communication mode.

*2 These registers can be used in the NZ2GF2B1-32DT, NZ2GF2B1-32DTE, and NZ2GFCF1-32DT.

Point

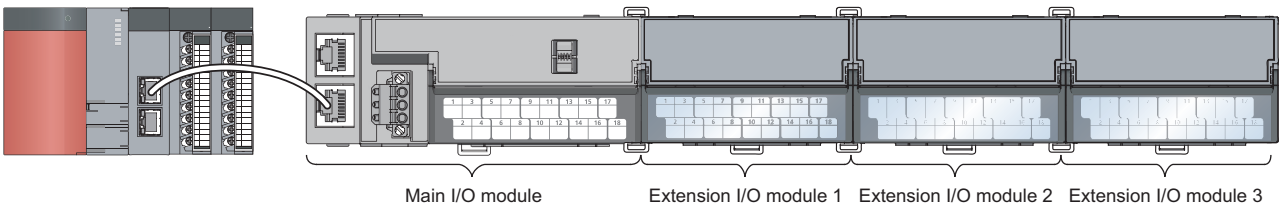
- When I/O signals have not been assigned because extension modules have not been connected, the use of the remote registers corresponding to the signals is prohibited.
- For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

4.8 List of Remote Buffer Memory

This section lists the remote buffer memory areas of the I/O module.

The remote buffer memory areas of the main I/O module and extension I/O module are assigned as shown below.



Notation of remote buffer memory areas

■For I/O response time setting (address: 0000H)

The following table shows the notation of remote buffer memory areas by using "I/O response time setting (address: 0000H)" as an example.

Word	Description
I/O response time setting	Setting item
(address: 0000H)	Address of the remote buffer memory area

■For Input OFF delay setting X☐ (0110H to 014FH, 0210H to 022FH, 0310H to 032FH, 0410H to 042FH)

The following table shows the notation of remote buffer memory areas by using "Input OFF delay setting X☐ (0110H to 014FH, 0210H to 022FH, 0310H to 032FH, 0410H to 042FH)" as an example.

Word	Description
Input OFF delay setting	Setting item
X☐	This symbol shows whether this signal is an input signal or output signal.
(0110H to 014FH, 0210H to 022FH, 0310H to 032FH, 0410H to 042FH)	Addresses of the remote buffer memory area Each set of addresses is for the main module or each of extension modules 1 to 3.

Range of remote buffer memory addresses

The following table lists the ranges of remote buffer memory addresses occupied by I/O modules.

For details on the remote buffer memory, refer to the following.

☞ Page 358 Details of Remote Buffer Memory Addresses

○: Available, ×: Not available

Address		Area	Target		Access method	
Decimal	Hexadecimal				CC IE Field configuration of the engineering tool	REMFR instruction, REMTO instruction*1
0 to 255	0000H to 00FFH	Parameter area	Station-based parameter data		○*2	○
256 to 511	0100H to 01FFH		Module-based parameter data	Main module		
512 to 767	0200H to 02FFH			Extension module 1		
768 to 1023	0300H to 03FFH			Extension module 2*3		
1024 to 1279	0400H to 04FFH			Extension module 3*3		
1280 to 1535	0500H to 05FFH	Monitoring area	Station-based monitor data		×	○
1536 to 1791	0600H to 06FFH		Module-based monitor data	Main module		
1792 to 2047	0700H to 07FFH			Extension module 1		
2048 to 2303	0800H to 08FFH			Extension module 2*3		
2304 to 2559	0900H to 09FFH			Extension module 3*3		
2560 to 4095	0A00H to 0FFFH	Error history area	Station-based error history data		○*2	○
4096 to 4351	1000H to 10FFH	Module control data area	Station-based control data		×	○
4352 to 4607	1100H to 11FFH		Module-based control data	Main module		
4608 to 4863	1200H to 12FFH			Extension module 1		
4864 to 5119	1300H to 13FFH			Extension module 2*3		
5120 to 5375	1400H to 14FFH			Extension module 3*3		

*1 For the REMFR and REMTO instructions, refer to the following.
User's manual for the master/local module used

*2 For the access method, refer to the following.
Parameter Area (☞ Page 226 Parameter Setting)
Error History Area (☞ Page 315 Checking for the Error Codes and the Warning Codes)

*3 The addresses of these modules are available only when the main module can be connected with three extension modules. Otherwise, the use of these addresses is prohibited.

Point

- Do not access the system area using the REMFR or REMTO instruction. Doing so may lead the module to malfunction.
- Do not use the dedicated instruction of the REMFR and REMTO instructions to the areas later than the above areas. If these instructions are used, the error code (0202H) is stored in Warning code (RWr2), Warning status flag (RWr0.b12) turns on, and the ERR. LED flashes.

Main I/O module

Parameter area (address: 0000H to 04FFH)

For the parameter area, parameters can be set by means of the CC IE Field configuration of the engineering tool, or the REMTO instruction.

The parameter in the parameter area is backed up to the nonvolatile memory.

However, Fast logic setting Y□ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH) is not backed up. The parameter backed up to the nonvolatile memory is read to the parameter area when the module power supply is turned off and on or the module returns from remote reset.

For the parameters written from the parameter settings of the CC IE Field configuration of the engineering tool, the write to the nonvolatile memory is also completed at the same time. When the parameter is written using the REMTO instruction, it is written to the nonvolatile memory when Operation condition setting request flag (RWw0.b9) is turned on. At this time, the parameter is written to the nonvolatile memory even though it is incorrect. When the power supply is turned off and on with an incorrect parameter written, the incorrect parameter is read from the nonvolatile memory and an error code is stored to Error code (RWr1). Take corrective action according to the error code list. (☞ Page 318 Error Code List)

■Main input module

Type	Address		Input module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Station-based parameter data	0	0000H	Input response time setting		0005H	R/W
	1	0001H	Output HOLD/CLEAR setting		0000H	R/W
	2	0002H	Cyclic data update watch time setting		0000H	R/W
	3	0003H	Mode switch		0009H	R/W
	4	0004H	Initial operation setting		0000H	R/W
	5 to 255	0005H to 00FFH	System area		—	—
Main module Module-based parameter data	256 to 260	0100H to 0104H	System area		—	—
	261	0105H	Synchronous input timing acquisition function enable		0000H	R/W
	262 to 271	0106H to 010FH	System area		—	—
	272	0110H	Input OFF delay setting X0 to XF	X0	0	R/W
	273	0111H				
	274	0112H		X1	0	R/W
	275	0113H				
	276	0114H		X2	0	R/W
	277	0115H				
	278	0116H		X3	0	R/W
	279	0117H				
	280	0118H		X4	0	R/W
	281	0119H				
	282	011AH		X5	0	R/W
	283	011BH				
	284	011CH		X6	0	R/W
	285	011DH				
	286	011EH		X7	0	R/W
	287	011FH				
	288	0120H		X8	0	R/W
	289	0121H				
	290	0122H		X9	0	R/W
	291	0123H				
	292	0124H		XA	0	R/W
	293	0125H				
	294	0126H		XB	0	R/W
	295	0127H				
	296	0128H		XC	0	R/W
	297	0129H				
	298	012AH		XD	0	R/W
	299	012BH				
	300	012CH		XE	0	R/W
	301	012DH				
	302	012EH		XF	0	R/W
	303	012FH				

Type	Address		Input module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Main module Module-based parameter data	304	0130H	• Input OFF delay setting X10 to X1F (NZ2GF2B1-32D, NZ2GFCE3(N)-32D, and NZ2GFCF1-32D) • System area (except the above)	X10	0	R/W
	305	0131H				
	306	0132H		X11	0	R/W
	307	0133H				
	308	0134H		X12	0	R/W
	309	0135H				
	310	0136H		X13	0	R/W
	311	0137H				
	312	0138H		X14	0	R/W
	313	0139H				
	314	013AH		X15	0	R/W
	315	013BH				
	316	013CH		X16	0	R/W
	317	013DH				
	318	013EH		X17	0	R/W
	319	013FH				
	320	0140H		X18	0	R/W
	321	0141H				
	322	0142H		X19	0	R/W
	323	0143H				
	324	0144H		X1A	0	R/W
	325	0145H				
	326	0146H		X1B	0	R/W
	327	0147H				
	328	0148H		X1C	0	R/W
	329	0149H				
	330	014AH		X1D	0	R/W
	331	014BH				
	332	014CH		X1E	0	R/W
	333	014DH				
	334	014EH		X1F	0	R/W
	335	014FH				
	336 to 511	0150H to 01FFH	System area		—	—
Extension module 1 Module-based parameter data	512 to 767	0200H to 02FFH	The remote buffer memory areas of the connected extension I/O module are assigned.		—	—
Extension module 2 Module-based parameter data	768 to 1023	0300H to 03FFH				
Extension module 3 Module-based parameter data	1024 to 1279	0400H to 04FFH				

*1 This value is the value of factory default or the value of initialization by Parameter area initialization command (address: 1002H).

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Main output module

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Station-based parameter data	0	0000H	Input response time setting		0005H	R/W
	1	0001H	Output HOLD/CLEAR setting		0000H	R/W
	2	0002H	Cyclic data update watch time setting		0000H	R/W
	3	0003H	Mode switch		0009H	R/W
	4	0004H	Initial operation setting		0000H	R/W
	5 to 255	0005H to 00FFH	System area		—	—
Main module Module-based parameter data	256	0100H	System area		—	—
	257	0101H				
	258	0102H	Number of ON times integration function enable Y0 to YF		0000H	R/W
	259	0103H	• Number of ON times integration function enable Y10 to Y1F (NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GFCE3(N)-32T, and NZ2GFCF1-32T) • System area (except the above)		0000H	R/W
	260	0104H	Synchronous output timing setting function enable		0000H	R/W
	261 to 271	0105H to 010FH	System area		—	—
	272	0110H	Fast logic setting	Y0	0	R/W
	273	0111H				
	274	0112H		Y1	0	R/W
	275	0113H				
	276	0114H		Y2	0	R/W
	277	0115H				
	278	0116H		Y3	0	R/W
	279	0117H				
	280	0118H		Y4	0	R/W
	281	0119H				
	282	011AH		Y5	0	R/W
	283	011BH				
	284	011CH		Y6	0	R/W
	285	011DH				
	286	011EH		Y7	0	R/W
	287	011FH				
	288 to 511	0120H to 01FFH	System area		—	—
Extension module 1 Module-based parameter data	512 to 767	0200H to 02FFH	The remote buffer memory areas of the connected extension I/O module are assigned.		—	—
Extension module 2 Module-based parameter data	768 to 1023	0300H to 03FFH				
Extension module 3 Module-based parameter data	1024 to 1279	0400H to 04FFH				

*1 This value is the value of factory default or the value of initialization by Parameter area initialization command (address: 1002H).

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Main I/O combined module

Type	Address		I/O module			
	Decimal	Hexadecimal	Name		Default value[*1]	Read/Write[*2]
Station-based parameter data	0	0000H	Input response time setting		0005H	R/W
	1	0001H	Output HOLD/CLEAR setting		0000H	R/W
	2	0002H	Cyclic data update watch time setting		0000H	R/W
	3	0003H	Mode switch		0009H	R/W
	4	0004H	Initial operation setting		0000H	R/W
	5 to 255	0005H to 00FFH	System area		—	—
Main module Module-based parameter data	256 to 258	0100H to 102H	System area		—	—
	259	0103H	Number of ON times integration function enable Y10 to Y1F		0000H	R/W
	260	0104H	Synchronous output timing setting function enable		0000H	R/W
	261	0105H	Synchronous input timing acquisition function enable		0000H	R/W
	262 to 271	0106H to 010FH	System area		—	—
	272	0110H	Input OFF delay setting X0 to XF	X0	0	R/W
	273	0111H				
	274	0112H		X1	0	R/W
	275	0113H				
	276	0114H		X2	0	R/W
	277	0115H				
	278	0116H		X3	0	R/W
	279	0117H				
	280	0118H		X4	0	R/W
	281	0119H				
	282	011AH		X5	0	R/W
	283	011BH				
	284	011CH		X6	0	R/W
	285	011DH				
	286	011EH		X7	0	R/W
	287	011FH				
	288	0120H		X8	0	R/W
	289	0121H				
	290	0122H		X9	0	R/W
	291	0123H				
	292	0124H		XA	0	R/W
	293	0125H				
	294	0126H		XB	0	R/W
	295	0127H				
	296	0128H		XC	0	R/W
	297	0129H				
	298	012AH		XD	0	R/W
	299	012BH				
	300	012CH		XE	0	R/W
	301	012DH				
	302	012EH		XF	0	R/W
	303	012FH				

Type	Address		I/O module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Main module Module-based parameter data	304	0130H	Fast logic setting	Y10	0	R/W
	305	0131H				
	306	0132H		Y11	0	R/W
	307	0133H				
	308	0134H		Y12	0	R/W
	309	0135H				
	310	0136H		Y13	0	R/W
	311	0137H				
	312	0138H		Y14	0	R/W
	313	0139H				
	314	013AH		Y15	0	R/W
	315	013BH				
	316	013CH		Y16	0	R/W
	317	013DH				
	318	013EH		Y17	0	R/W
	319	013FH				
	320 to 511	0140H to 01FFH	System area		—	—
Extension module 1 Module-based parameter data	512 to 767	0200H to 02FFH	The remote buffer memory areas of the connected extension I/O module are assigned.		—	—
System area	768 to 1279	0300H to 04FFH	System area		—	—

*1 This value is the value of factory default or the value of initialization by Parameter area initialization command (address:1002H).

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

Monitoring area (address: 0500H to 09FFH)

■Main input module

Type	Address		Input module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Station-based monitor data	1280 to 1535	0500H to 05FFH	System area	—	—
Main module Module-based monitor data	1536 to 1791	0600H to 06FFH	System area	—	—
Extension module 1 Module-based monitor data	1792 to 2047	0700H to 07FFH	The remote buffer memory areas of the connected extension I/O module are assigned.	—	—
Extension module 2 Module-based monitor data	2048 to 2303	0800H to 08FFH			
Extension module 3 Module-based monitor data	2304 to 2559	0900H to 09FFH			

*1 Default values are not determined in the monitoring area.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Main output module

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Station-based monitor data	1280 to 1535	0500H to 05FFH	System area		—	—
Main module Module-based monitor data	1536	0600H	System area		—	—
	1537	0601H				
	1538	0602H	Fast logic enable status		—	R
	1539 to 1551	0603H to 060FH	System area		—	—
	1552	0610H	Number of ON times integration value Y0 to YF	Y0	—	R
	1553	0611H				
	1554	0612H		Y1	—	R
	1555	0613H				
	1556	0614H		Y2	—	R
	1557	0615H				
	1558	0616H		Y3	—	R
	1559	0617H				
	1560	0618H		Y4	—	R
	1561	0619H				
	1562	061AH		Y5	—	R
	1563	061BH				
	1564	061CH		Y6	—	R
	1565	061DH				
	1566	061EH		Y7	—	R
	1567	061FH				
	1568	0620H		Y8	—	R
	1569	0621H				
	1570	0622H		Y9	—	R
	1571	0623H				
	1572	0624H		YA	—	R
	1573	0625H				
	1574	0626H		YB	—	R
	1575	0627H				
	1576	0628H		YC	—	R
	1577	0629H				
	1578	062AH		YD	—	R
	1579	062BH				
	1580	062CH		YE	—	R
	1581	062DH				
	1582	062EH		YF	—	R
	1583	062FH				

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Main module Module-based monitor data	1589	0630H	• Number of ON times integration value Y10 to Y1F (NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GFCE3(N)-32T, and NZ2GFCF1-32T) • System area (except the above)	Y10	—	R
	1590	0631H				
	1591	0632H		Y11	—	R
	1592	0633H				
	1593	0634H		Y12	—	R
	1594	0635H				
	1595	0636H		Y13	—	R
	1596	0637H				
	1597	0638H		Y14	—	R
	1598	0639H				
	1599	063AH		Y15	—	R
	1600	063BH				
	1601	063CH		Y16	—	R
	1602	063DH				
	1603	063EH		Y17	—	R
	1604	063FH				
	1605	0640H		Y18	—	R
	1606	0641H				
	1607	0642H		Y19	—	R
	1608	0643H				
	1609	0644H		Y1A	—	R
	1610	0645H				
	1611	0646H		Y1B	—	R
	1612	0647H				
	1613	0648H		Y1C	—	R
	1614	0649H				
	1615	064AH		Y1D	—	R
	1616	064BH				
	1617	064CH		Y1E	—	R
	1618	064DH				
	1619	064EH		Y1F	—	R
	1620	064FH				
	1621 to 1791	0650H to 06FFH	System area		—	—
Extension module 1 Module-based monitor data	1792 to 2047	0700H to 07FFH	The remote buffer memory areas of the connected extension I/O module are assigned.	—	—	Extension module 1 Module-based monitor data
Extension module 2 Module-based monitor data	2048 to 2303	0800H to 08FFH				Extension module 2 Module-based monitor data
Extension module 3 Module-based monitor data	2304 to 2559	0900H to 09FFH				Extension module 3 Module-based monitor data

*1 Default values are not determined in the monitoring area.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Main I/O combined module

Type	Address		I/O module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Station-based monitor data	1280 to 1535	0500H to 05FFH	System area		—	—
Main module Module-based monitor data	1536 to 1538	0600H to 0602H	System area		—	—
	1539	0603H	Fast logic enable status Y10 to Y17		—	R
	1540 to 1583	0604H to 062FH	System area		—	—
	1584	0630H	Number of ON times integration value Y10 to Y1F	Y10	—	R
	1585	0631H				
	1586	0632H		Y11	—	R
	1587	0633H				
	1588	0634H		Y12	—	R
	1589	0635H				
	1590	0636H		Y13	—	R
	1591	0637H				
	1592	0638H		Y14	—	R
	1593	0639H				
	1594	063AH		Y15	—	R
	1595	063BH				
	1596	063CH		Y16	—	R
	1597	063DH				
	1598	063EH		Y17	—	R
	1599	063FH				
	1600	0640H		Y18	—	R
	1601	0641H				
	1602	0642H		Y19	—	R
	1603	0643H				
	1604	0644H		Y1A	—	R
	1605	0645H				
	1606	0646H		Y1B	—	R
	1607	0647H				
	1608	0648H		Y1C	—	R
	1609	0649H				
	1610	064AH		Y1D	—	R
	1611	064BH				
	1612	064CH		Y1E	—	R
	1613	064DH				
	1614	064EH		Y1F	—	R
	1615	064FH				
	1616 to 1791	0650H to 06FFH	System area		—	—
Extension module 1 Module-based monitor data	1792 to 2047	0700H to 07FFH	The remote buffer memory areas of the connected extension I/O module are assigned.		—	—
System area	2048 to 2559	0800H to 09FFH	System area		—	—

*1 Default values are not determined in the monitoring area.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

Error history area (address: 0A00H to 0FFFH)

■Main input module, main output module, and main I/O combined module

Type	Address		Input module and output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Station-based error history data	2560	0A00H	Error history data 1	Error code	0000H	R
	2561	0A01H		Order of generation	0000H	R
	2562	0A02H		[Error time] First two digits of the year/Last two digits of the year	0000H	R
	2563	0A03H		[Error time] Month/Day	0000H	R
	2564	0A04H		[Error time] Hour/Minute	0000H	R
	2565	0A05H		[Error time] Second/00H (Fixed)	0000H	R
	2566	0A06H		Error code details 1	0000H	R
	2567	0A07H		Error code details 2	0000H	R
	2568	0A08H		Error code details 3	0000H	R
	2569	0A09H		Error code details 4	0000H	R
	2570	0A0AH		Error code details 5	0000H	R
	2571	0A0BH		Error code details 6	0000H	R
	2572	0A0CH		Error code details 7	0000H	R
	2573	0A0DH		Error code details 8	0000H	R
	2574	0A0EH		Error code details 9	0000H	R
	2575	0A0FH		Error code details 10	0000H	R
	2576 to 2591	0A10H to 0A1FH	Error history data 2	Same as Error history data 1.		
	2592 to 2607	0A20H to 0A2FH	Error history data 3	Same as Error history data 1.		
	2608 to 2623	0A30H to 0A3FH	Error history data 4	Same as Error history data 1.		
	2624 to 2639	0A40H to 0A4FH	Error history data 5	Same as Error history data 1.		
	2640 to 2655	0A50H to 0A5FH	Error history data 6	Same as Error history data 1.		
	2656 to 2671	0A60H to 0A6FH	Error history data 7	Same as Error history data 1.		
	2672 to 2687	0A70H to 0A7FH	Error history data 8	Same as Error history data 1.		
	2688 to 2703	0A80H to 0A8FH	Error history data 9	Same as Error history data 1.		
	2704 to 2719	0A90H to 0A9FH	Error history data 10	Same as Error history data 1.		
	2720 to 2735	0AA0H to 0AAFH	Error history data 11	Same as Error history data 1.		
	2736 to 2751	0AB0H to 0ABFH	Error history data 12	Same as Error history data 1.		
	2752 to 2767	0AC0H to 0ACFH	Error history data 13	Same as Error history data 1.		
	2768 to 2783	0AD0H to 0ADFH	Error history data 14	Same as Error history data 1.		
	2784 to 2799	0AE0H to 0AEFH	Error history data 15	Same as Error history data 1.		
	2800 to 4095	0AF0H to 0FFFH	System area		—	—

*1 This is the value of factory default or the value of initialization by Error history clear command (address: 1000H).

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

Module control data area (address: 1000H to 14FFH)

■Main input module

Type	Address		Input module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Station-based control data	4096	1000H	Error history clear command	0000H	R/W
	4097	1001H	Error history clear completed	0000H	R
	4098	1002H	Parameter area initialization command	0000H	R/W
	4099	1003H	Parameter area initialization completed	0000H	R
	4100	1004H	Module operation information initialization command	0000H	R/W
	4101	1005H	Module operation information initialization completed	0000H	R
	4102 to 4351	1006H to 10FFH	System area	—	—
Main module Module-based control data	4352 to 4607	1100H to 11FFH	System area	—	—
Extension module 1 Module-based control data	4608 to 4863	1200H to 12FFH	The remote buffer memory areas of the connected extension I/O module are assigned.	—	—
Extension module 2 Module-based control data	4864 to 5119	1300H to 13FFH			
Extension module 3 Module-based control data	5120 to 5375	1400H to 14FFH			

*1 This is the value for when the module power supply is turned off and on or at the remote reset.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Main output module

Type	Address		Output module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Station-based control data	4096	1000H	Error history clear command	0000H	R/W
	4097	1001H	Error history clear completed	0000H	R
	4098	1002H	Parameter area initialization command	0000H	R/W
	4099	1003H	Parameter area initialization completed	0000H	R
	4100	1004H	Module operation information initialization command	0000H	R/W
	4101	1005H	Module operation information initialization completed	0000H	R
	4102 to 4351	1006H to 10FFH	System area	—	—
Main module Module-based control data	4352	1100H	Number of ON times integration value clear command Y0 to YF	0000H	R/W
	4353	1101H	Number of ON times integration value clear completed Y0 to YF	0000H	R
	4354	1102H	• Number of ON times integration value clear command Y10 to Y1F (NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GFCE3(N)-32T, and NZ2GFCF1-32T) • System area (except the above)	0000H	R/W
	4355	1103H	• Number of ON times integration value clear completed Y10 to Y1F (NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GFCE3(N)-32T, and NZ2GFCF1-32T) • System area (except the above)	0000H	R
	4356 to 4607	1104H to 11FFH	System area		

Type	Address		Output module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Extension module 1 Module-based control data	4608 to 4863	1200H to 12FFH	The remote buffer memory areas of the connected extension I/O module are assigned.	—	—
Extension module 2 Module-based control data	4864 to 5119	1300H to 13FFH			
Extension module 3 Module-based control data	5120 to 5375	1400H to 14FFH			

*1 This is the value for when the module power supply is turned off and on or at the remote reset.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Main I/O combined module

Type	Address		I/O module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Station-based control data	4096	1000H	Error history clear command	0000H	R/W
	4097	1001H	Error history clear completed	0000H	R
	4098	1002H	Parameter area initialization command	0000H	R/W
	4099	1003H	Parameter area initialization completed	0000H	R
	4100	1004H	Module operation information initialization command	0000H	R/W
	4101	1005H	Module operation information initialization completed	0000H	R
	4102 to 4351	1006H to 10FFH	System area	—	—
Main module Module-based control data	4352	1100H	System area	—	—
	4353	1101H			
	4354	1102H	Number of ON times integration value clear command Y10 to Y1F	0000H	R/W
	4355	1103H	Number of ON times integration value clear completed Y10 to Y1F	0000H	R
	4356 to 4607	1104H to 11FFH	System area		
Extension module 1 Module-based control data	4608 to 4863	1200H to 12FFH	The remote buffer memory areas of the connected extension I/O module are assigned.	—	—
System area	4864 to 5375	1300H to 14FFH	System area	—	—

*1 This is the value for when the module power supply is turned off and on or at the remote reset.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

Parameter area (address: 0200H to 04FFH)

■Extension input module

Type	Address		Input module			
	Decimal	Hexadecimal	Name		Default value[*1]	Read/Write[*2]
Extension module 1 Module-based parameter data	512	0200H	Extension module identification code		0000H	R/W
	513 to 527	0201H to 020FH	System area		—	—
	528	0210H	Input OFF delay setting	X10, X20	0	R/W
	529	0211H				
	530	0212H		X11, X21	0	R/W
	531	0213H				
	532	0214H		X12, X22	0	R/W
	533	0215H				
	534	0216H		X13, X23	0	R/W
	535	0217H				
	536	0218H		X14, X24	0	R/W
	537	0219H				
	538	021AH		X15, X25	0	R/W
	539	021BH				
	540	021CH		X16, X26	0	R/W
	541	021DH				
	542	021EH		X17, X27	0	R/W
	543	021FH				
	544	0220H		X18, X28	0	R/W
	545	0221H				
	546	0222H		X19, X29	0	R/W
	547	0223H				
	548	0224H		X1A, X2A	0	R/W
	549	0225H				
	550	0226H		X1B, X2B	0	R/W
	551	0227H				
	552	0228H		X1C, X2C	0	R/W
	553	0229H				
	554	022AH		X1D, X2D	0	R/W
	555	022BH				
	556	022CH		X1E, X2E	0	R/W
	557	022DH				
	558	022EH		X1F, X2F	0	R/W
	559	022FH				
	560 to 767	0230H to 02FFH	System area		—	—

Type	Address		Input module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Extension module 2 Module-based parameter data	768	0300H	Extension module identification code		0000H	R/W
	769 to 783	0301H to 030FH	System area		—	—
	784	0310H	Input OFF delay setting	X20	0	R/W
	785	0311H				
	786	0312H		X21	0	R/W
	787	0313H				
	788	0314H		X22	0	R/W
	789	0315H				
	790	0316H		X23	0	R/W
	791	0317H				
	792	0318H		X24	0	R/W
	793	0319H				
	794	031AH		X25	0	R/W
	795	031BH				
	796	031CH		X26	0	R/W
	797	031DH				
	798	031EH		X27	0	R/W
	799	031FH				
	800	0320H		X28	0	R/W
	801	0321H				
	802	0322H		X29	0	R/W
	803	0323H				
	804	0324H		X2A	0	R/W
	805	0325H				
	806	0326H		X2B	0	R/W
	807	0327H				
	808	0328H		X2C	0	R/W
	809	0329H				
	810	032AH		X2D	0	R/W
	811	032BH				
	812	032CH		X2E	0	R/W
	813	032DH				
	814	032EH		X2F	0	R/W
	815	032FH				
	816 to 1023	0330H to 03FFH	System area		—	—

Type	Address		Input module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Extension module 3 Module-based parameter data	1024	0400H	Extension module identification code		0000H	R/W
	1025 to 1039	0401H to 040FH	System area		—	—
	1040	0410H	Input OFF delay setting	X30	0	R/W
	1041	0411H				
	1042	0412H		X31	0	R/W
	1043	0413H				
	1044	0414H		X32	0	R/W
	1045	0415H				
	1046	0416H		X33	0	R/W
	1047	0417H				
	1048	0418H		X34	0	R/W
	1049	0419H				
	1050	041AH		X35	0	R/W
	1051	041BH				
	1052	041CH		X36	0	R/W
	1053	041DH				
	1054	041EH		X37	0	R/W
	1055	041FH				
	1056	0420H		X38	0	R/W
	1057	0421H				
	1058	0422H		X39	0	R/W
	1059	0423H				
	1060	0424H		X3A	0	R/W
	1061	0425H				
	1062	0426H		X3B	0	R/W
	1063	0427H				
	1064	0428H		X3C	0	R/W
	1065	0429H				
	1066	042AH		X3D	0	R/W
	1067	042BH				
	1068	042CH		X3E	0	R/W
	1069	042DH				
	1070	042EH		X3F	0	R/W
	1071	042FH				
	1072 to 1279	0430H to 04FFH	System area		—	—

*1 This is the value for when the module power supply is turned off and on or at the remote reset.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Extension output module

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value[*1]	Read/Write[*2]
Extension module 1 Module-based parameter data	512	0200H	Extension module identification code		0000H	R/W
	513	0201H	System area		—	—
	514	0202H	Number of ON times integration function enable		0000H	R/W
	515 to 527	0203H to 020FH	System area		—	—
	528	0210H	Fast logic setting	Y10, Y20	0	R/W
	529	0211H				
	530	0212H		Y11, Y21	0	R/W
	531	0213H				
	532	0214H		Y12, Y22	0	R/W
	533	0215H				
	534	0216H		Y13, Y23	0	R/W
	535	0217H				
	536	0218H		Y14, Y24	0	R/W
	537	0219H				
	538	021AH		Y15, Y25	0	R/W
	539	021BH				
	540	021CH		Y16, Y26	0	R/W
	541	021DH				
	542	021EH		Y17, Y27	0	R/W
	543	021FH				
	544 to 767	0220H to 02FFH	System area		—	—
Extension module 2 Module-based parameter data	768	0300H	Extension module identification code		0000H	R/W
	769	0301H	System area		—	—
	770	0302H	Number of ON times integration function enable		0000H	R/W
	771 to 783	0303H to 030FH	System area		—	—
	784	0310H	Fast logic setting	Y20	0	R/W
	785	0311H				
	786	0312H		Y21	0	R/W
	787	0313H				
	788	0314H		Y22	0	R/W
	789	0315H				
	790	0316H		Y23	0	R/W
	791	0317H				
	792	0318H		Y24	0	R/W
	793	0319H				
	794	031AH		Y25	0	R/W
	795	031BH				
	796	031CH		Y26	0	R/W
	797	031DH				
	798	031EH		Y27	0	R/W
	799	031FH				
	800 to 1023	0320H to 03FFH	System area		—	—

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Extension module 3 Module-based parameter data	1024	0400H	Extension module identification code		0000H	R/W
	1025	0401H	System area		—	—
	1026	0402H	Number of ON times integration function enable		0000H	R/W
	1027 to 1039	0403H to 040FH	System area		—	—
	1040	0410H	Fast logic setting	Y30	0	R/W
	1041	0411H				
	1042	0412H		Y31	0	R/W
	1043	0413H				
	1044	0414H		Y32	0	R/W
	1045	0415H				
	1046	0416H		Y33	0	R/W
	1047	0417H				
	1048	0418H		Y34	0	R/W
	1049	0419H				
	1050	041AH		Y35	0	R/W
	1051	041BH				
	1052	041CH		Y36	0	R/W
	1053	041DH				
	1054	041EH		Y37	0	R/W
	1055	041FH				
	1056 to 1279	0420H to 04FFH	System area		—	—

*1 This is the value for when the module power supply is turned off and on or at the remote reset.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

Monitoring area (address: 0700H to 09FFH)

■Extension input module

Type	Address		Input module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Extension module 1 Module-based monitor data	1792	0700H	Extension module identification code	—	R
	1793 to 2047	0701H to 07FFH	System area	—	—
Extension module 2 Module-based monitor data	2048	0800H	Extension module identification code	—	R
	2049 to 2303	0801H to 08FFH	System area	—	—
Extension module 3 Module-based monitor data	2304	0900H	Extension module identification code	—	R
	2305 to 2559	0901H to 09FFH	System area	—	—

*1 Default values are not determined in the monitoring area.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Extension output module

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value[*1]	Read/Write[*2]
Extension module 1 Module-based monitor data	1792	0700H	Extension module identification code		—	R
	1793	0701H	System area		—	—
	1794	0702H	Fast logic enable status		—	R
	1795 to 1807	0703H to 070FH	System area		—	—
	1808	0710H	Number of ON times integration value	Y10, Y20	—	R
	1809	0711H				
	1810	0712H		Y11, Y21	—	R
	1811	0713H				
	1812	0714H		Y12, Y22	—	R
	1813	0715H				
	1814	0716H		Y13, Y23	—	R
	1815	0717H				
	1816	0718H		Y14, Y24	—	R
	1817	0719H				
	1818	071AH		Y15, Y25	—	R
	1819	071BH				
	1820	071CH		Y16, Y26	—	R
	1821	071DH				
	1822	071EH		Y17, Y27	—	R
	1823	071FH				
	1824	0720H		Y18, Y28	—	R
	1825	0721H				
	1826	0722H		Y19, Y29	—	R
	1827	0723H				
	1828	0724H		Y1A, Y2A	—	R
	1829	0725H				
	1830	0726H		Y1B, Y2B	—	R
	1831	0727H				
	1832	0728H		Y1C, Y2C	—	R
	1833	0729H				
	1834	072AH		Y1D, Y2D	—	R
	1835	072BH				
	1836	072CH		Y1E, Y2E	—	R
	1837	072DH				
	1838	072EH		Y1F, Y2F	—	R
	1839	072FH				
	1840 to 2047	0730H to 07FFH	System area		—	—

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Extension module 2 Module-based monitor data	2048	0800H	Extension module identification code		—	R
	2049	0801H	System area		—	—
	2050	0802H	Fast logic enable status		—	R
	2051 to 2063	0803H to 080FH	System area		—	—
	2064	0810H	Number of ON times integration value	Y20	—	R
	2065	0811H				
	2066	0812H		Y21	—	R
	2067	0813H				
	2068	0814H		Y22	—	R
	2069	0815H				
	2070	0816H		Y23	—	R
	2071	0817H				
	2072	0818H		Y24	—	R
	2073	0819H				
	2074	081AH		Y25	—	R
	2075	081BH				
	2076	081CH		Y26	—	R
	2077	081DH				
	2078	081EH		Y27	—	R
	2079	081FH				
	2080	0820H		Y28	—	R
	2081	0821H				
	2082	0822H		Y29	—	R
	2083	0823H				
	2084	0824H		Y2A	—	R
	2085	0825H				
	2086	0826H		Y2B	—	R
	2087	0827H				
	2088	0828H		Y2C	—	R
	2089	0829H				
	2090	082AH		Y2D	—	R
	2091	082BH				
	2092	082CH		Y2E	—	R
	2093	082DH				
	2094	082EH		Y2F	—	R
	2095	082FH				
	2096 to 2303	0830H to 08FFH	System area		—	—

Type	Address		Output module			
	Decimal	Hexadecimal	Name		Default value*1	Read/Write*2
Extension module 3 Module-based monitor data	2304	0900H	Extension module identification code		—	R
	2305	0901H	System area		—	—
	2306	0902H	Fast logic enable status		—	R
	2307 to 2319	0903H to 090FH	System area		—	—
	2320	0910H	Number of ON times integration value	Y30	—	R
	2321	0911H				
	2322	0912H		Y31	—	R
	2323	0913H				
	2324	0914H		Y32	—	R
	2325	0915H				
	2326	0916H		Y33	—	R
	2327	0917H				
	2328	0918H		Y34	—	R
	2329	0919H				
	2330	091AH		Y35	—	R
	2331	091BH				
	2332	091CH		Y36	—	R
	2333	091DH				
	2334	091EH		Y37	—	R
	2335	091FH				
	2336	0920H		Y38	—	R
	2337	0921H				
	2338	0922H		Y39	—	R
	2339	0923H				
	2340	0924H		Y3A	—	R
	2341	0925H				
	2342	0926H		Y3B	—	R
	2343	0927H				
	2344	0928H		Y3C	—	R
	2345	0929H				
	2346	092AH		Y3D	—	R
	2347	092BH				
	2348	092CH		Y3E	—	R
	2349	092DH				
	2350	092EH		Y3F	—	R
	2351	092FH				
	2352 to 2559	0930H to 09FFH	System area		—	—

*1 Default values are not determined in the monitoring area.

*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

Module control data area (address: 1200H to 14FFH)

■Extension input module

Type	Address		Input module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Extension module 1 Module-based control data	4608 to 4863	1200H to 12FFH	System area	—	—
Extension module 2 Module-based control data	4864 to 5119	1300H to 13FFH	System area	—	—
Extension module 3 Module-based control data	5120 to 5375	1400H to 14FFH	System area	—	—

*1 This is the value for when the module power supply is turned off and on or at the remote reset.
*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

■Extension output module

Type	Address		Output module		
	Decimal	Hexadecimal	Name	Default value*1	Read/Write*2
Extension module 1 Module-based control data	4608	1200H	Number of ON times integration value clear command	0000H	R/W
	4609	1201H	Number of ON times integration value clear completed	0000H	R
	4610 to 4863	1202H to 12FFH	System area	—	—
Extension module 2 Module-based control data	4864	1300H	Number of ON times integration value clear command	0000H	R/W
	4865	1301H	Number of ON times integration value clear completed	0000H	R
	4866 to 5119	1302H to 13FFH	System area	—	—
Extension module 3 Module-based control data	5120	1400H	Number of ON times integration value clear command	0000H	R/W
	5121	1401H	Number of ON times integration value clear completed	0000H	R
	5122 to 5375	1402H to 14FFH	System area	—	—

*1 This is the value for when the module power supply is turned off and on or at the remote reset.
*2 This shows whether reading/writing data from/to a program is possible.
R: Readable
W: Writable

5 PROCEDURES BEFORE OPERATION

This chapter describes the procedures before operation.

1. Station number setting

Set the station number of the main I/O module.

☞ Page 197 Station number setting with the station number setting switch

2. Function setting switch setting

When the module has function setting switches, set the function setting switches.

☞ Page 198 Function setting switch setting

3. Connection

To use extension I/O modules, connect the extension I/O modules to the main I/O module.

Mount the I/O modules on the DIN rail.

☞ Page 199 Installation Environment and Installation Position

☞ Page 201 Installation

4. Wiring

Wire the power supply, Ethernet cables, and external devices to the I/O modules.

☞ Page 207 Wiring with Terminal Block for Module Power Supply and FG

☞ Page 212 Wiring of the One-touch Connector for Power Supply and FG

☞ Page 214 Wiring of Ethernet Cable

☞ Page 217 Wiring of External Device and I/O Terminal Block

5. Parameter setting and programming

Set parameters or import parameters, and create a program.

☞ Page 226 Parameter Setting

☞ Page 237 Changing the Parameter

☞ Page 289 PROGRAMMING

*1 To replace the module, refer to the point below.

Point

To replace the module, follow the procedure described below:

- Export parameters.

☞ Page 226 Parameter Setting

- Turn off the module power supply and remove the I/O module.
- Prepare a new I/O module and perform the procedure above from "Station number setting" to "Parameter setting and programming".
- After checking the operation, restart the control.

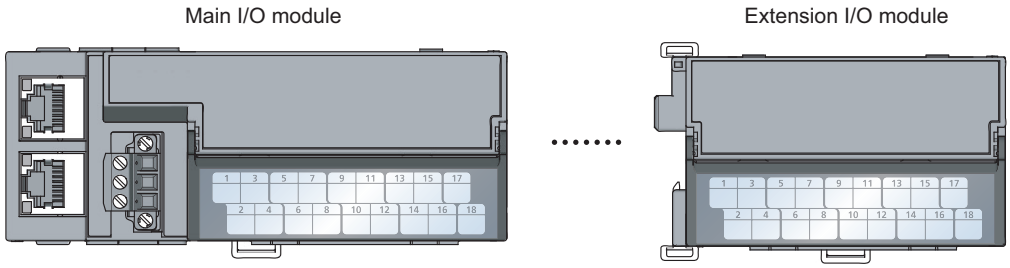
MEMO

6 SYSTEM CONFIGURATION

This chapter describes system configuration using an I/O module.
For CC-Link IE Field Network configuration, refer to the following.
User's manual for the master/local module used

6.1 I/O Module System Configuration

The following shows system configuration using an I/O module.



6.2 Applicable Systems

Applicable master station

When using an I/O module, use the following products as a master station.

Model	First five digits of serial number
R120ENCPU, R32ENCPU, R16ENCPU, R08ENCPU, R04ENCPU	(no restriction)
RJ71GF11-T2	
RJ71EN71	
RD77GF32, RD77GF16, RD77GF8, RD77GF4	
QJ71GF11-T2	"14102" or later
LJ71GF11-T2	
QD77GF16	"14111" or later
QD77GF8, QD77GF4	"17101" or later

The above information of "applicable master station" is information at the time of this revision.
For the latest information, refer to the CC-Link Partner Association's homepage.
www.cc-link.org

The number of connectable modules

For the number of extension I/O modules that can be connected to a main I/O module, refer to the following.
☞ Page 201 Installation of extension modules

Ethernet cable

For the specifications of the Ethernet cable, refer to the following.
📖 User's manual for the master/local module used

Software package

Diagnosing the I/O module requires GX Works2 or GX Works3. Install GX Works2 or GX Works3 with the following version in accordance with the I/O module used.

Main I/O module	Software version	
	GX Works2	GX Works3
NZ2GF2B1-16D	Version 1.91V or later*1	Version 1.000A or later*1
NZ2GF2B1N-16D		
NZ2GF2B1N1-16D		
NZ2GF2B1-16T		
NZ2GF2B1N-16T		
NZ2GF2B1N1-16T		
NZ2GF2B1-16TE	Version 1.98C or later	
NZ2GF2B1N-16TE		
NZ2GF2B1N1-16TE		
NZ2GF2S1-16D	Version 1.530C or later	Version 1.007H or later
NZ2GF2S1-16T		
NZ2GF2S1-16TE		
NZ2GFCE3-16D	Version 1.501X or later	Version 1.000A or later
NZ2GFCE3-16DE		
NZ2GFCM1-16T		
NZ2GFCM1-16TE		
NZ2GFCE3-32D	Version 1.535H or later	Version 1.010L or later
NZ2GFCE3-32T		
NZ2GFCE3-32DT		

Main I/O module	Software version	
	GX Works2	GX Works3
NZ2GFCE3N-32D	Version 1.535H or later	Version 1.010L or later
NZ2GFCE3N-32T		
NZ2GFCE3N-32DT		
NZ2GFCF1-32D	Version 1.540N or later	Version 1.020W or later
NZ2GFCF1-32T		
NZ2GFCF1-32DT		
NZ2GF2B1-32D	Version 1.560J or later	Version 1.032J or later
NZ2GF2B1-32T		
NZ2GF2B1-32TE		
NZ2GF2B1-32DT		
NZ2GF2B1-32DTE		
NZ2GF2B2-16A	Version 1.565P or later	Version 1.035M or later
NZ2GF2B2-16R		
NZ2GF2B2-16S		
NZ2GF2S2-16A		
NZ2GF2S2-16R		
NZ2GF2S2-16S		

*1 To display information of two or three extension modules connected to the main module in the CC IE Field Diagnostics window of the engineering tool, GX Works2 of version 1.545T or later or GX Works3 of version 1.025B or later is required.

Extension I/O module	Software version	
	GX Works2	GX Works3
NZ2EX2B1-16D	Version 1.91V or later	Version 1.000A or later
NZ2EX2B1N-16D		
NZ2EX2B1-16T		
NZ2EX2B1N-16T		
NZ2EX2B1-16TE	Version 1.98C or later	
NZ2EX2B1N-16TE		
NZ2EX2S1-16D	Version 1.530C or later	Version 1.007H or later
NZ2EX2S1-16T		
NZ2EX2S1-16TE		

Applicable profile

To use the parameter setting function of an I/O module, the profile is required.

When the latest profile of the remote I/O module is necessary, please consult your local Mitsubishi representative.

The profile is a setting file that stores information required for the start-up, operation, and maintenance of devices supporting the CC-Link family.

A module is added to "Module List" of the "CC IE Field Configuration" window by profile registration to an engineering tool. For the profile registration, refer to the operating manual for the engineering tool used.

7 INSTALLATION AND WIRING

This chapter describes the installation and wiring of the I/O module.

7.1 Before Using the I/O Modules

Input modules

Precautions common to all input modules

■Number of simultaneous ON points

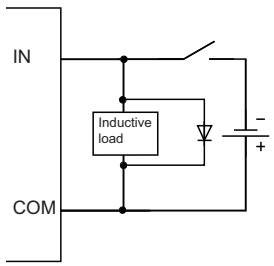
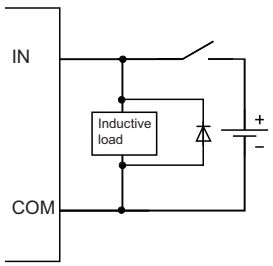
The number of input points that can be turned on at the same time varies depending on the input voltage and ambient temperature. For details, refer to the derating chart of the specifications of each input module. (☞ Page 40 Main input module)

Precautions when using the DC input module

■Measures against back EMF

When connecting an inductive load, connect a diode in parallel with the load. Use the diode that satisfies the following conditions:

- A reverse breakdown voltage is ten times as high as the circuit voltage or more.
- A forward current is twice as high as the load current or more.

Positive common	Negative common
	

Output modules

Precautions common to all output modules

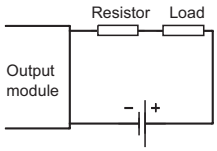
■Maximum switching frequency when L load is driven

The maximum switching frequency imposes a limit on the use; an ON state or an OFF state must not be changed without an interval of at least one second.

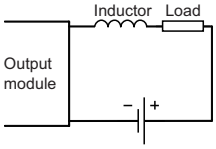
■Load to be connected

When connecting a counter or timer utilizing a DC-DC converter as a load of the output module, select an output module whose maximum load current is higher than the inrush current of a load to be connected. If the selection is based on the average current of a load to be connected, an inrush current flows cyclically from the load while the output module is in an ON state or in operation, which can cause failure of the module. If it is necessary to select a module on the basis of the average current of a load to be connected, to alleviate the effect of the inrush current, take any of the following corrective actions:

- Connecting a resistor in series with the load



- Connecting an inductor in series with the load



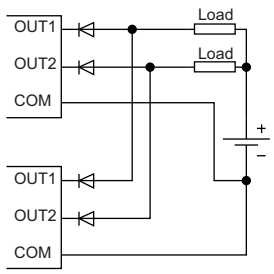
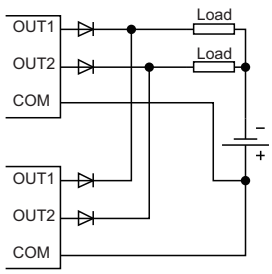
Precautions when using the transistor output module

■Measures against reverse current

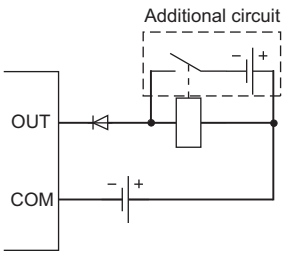
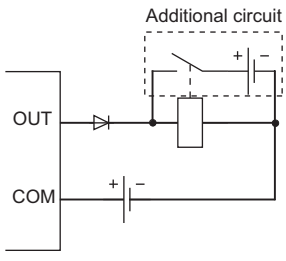
In the following connections, a reverse current flows to the output element, which can cause failure.

When wiring, set up diodes as the following figures show:

- When connecting transistor output modules in parallel

Sink type	Source type
	

- When providing another circuit in parallel with a transistor output module

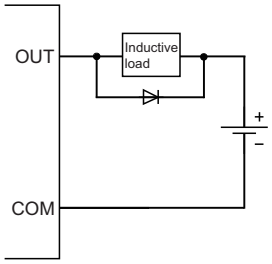
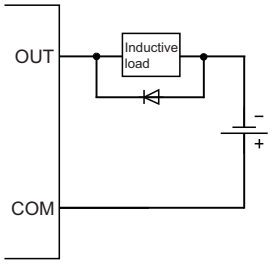
Sink type	Source type
	

■Measures against back EMF

When connecting an inductive load, connect a diode in parallel with the load.

Use the diode that satisfies the following conditions:

- A reverse breakdown voltage is ten times as high as the circuit voltage or more.
- A forward current is twice as high as the load current or more.

Sink type	Source type
	

■About element protection of the output module

If excessive noise affects the terminals of the output module, the output may be turned on to help the protection of the output element. Adjust the voltage between terminals of the output module to fall within the operating load voltage range by taking measures such as the following:

- To use an inductive load such as a relay, a surge suppressor is required on the load side as well. Take appropriate measures with the measures against back EMF as a guide.
- To prevent excessive noise, avoid installing power cables together with I/O cables.

Precautions when using the contact output module

When using the contact output module, carefully consider the following points:

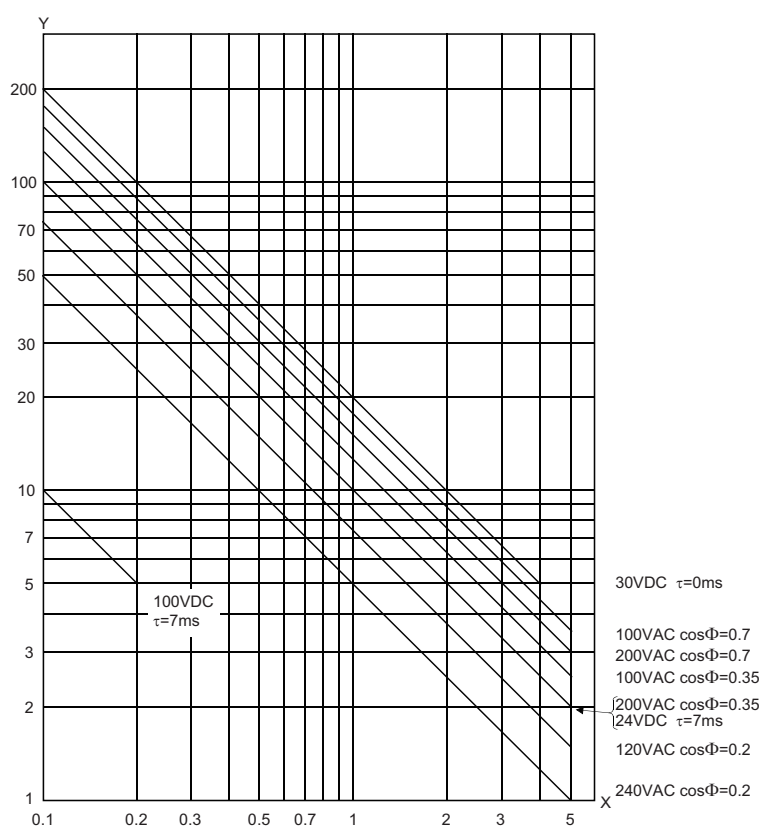
- Relay life (contact switching life)
- Influence on the relay life by a connected load
- Measures against back EMF

■Relay life (contact switching life)

Applicable modules·····NZ2GF2B2-16R and NZ2GF2S2-16R

The relay life varies depending on the environment where a module is used. When using a module, take the use environment into consideration.

The relay life curve below shows the actual service values, not the guaranteed values. Since an actual contact switching life may be shorter than the relay life curve, replace the module with a sufficient margin for the life.



X: Switching current (A)
Y: Switching life (10000 times)
τ(L/R): Time constant
cosϕ: Power factor

Use environment	Contact switching life
Rated switching voltage/current load	100 thousand times
1.5A at 200VAC, 1A at 240VAC (COSϕ = 0.7)	100 thousand times
0.4A at 200VAC, 0.3A at 240VAC (COSϕ = 0.7)	300 thousand times
1A at 200VAC, 0.5A at 240VAC (COSϕ = 0.35)	100 thousand times
0.3A at 200VAC, 0.15A at 240VAC (COSϕ = 0.35)	300 thousand times
1A at 24VDC, 0.1A at 100VDC (L/R = 7ms)	100 thousand times
0.3A at 24VDC, 0.03A at 100VDC (L/R = 7ms)	300 thousand times

Influence on the relay life by a connected load

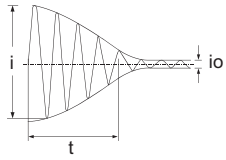
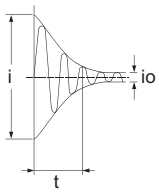
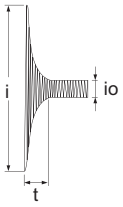
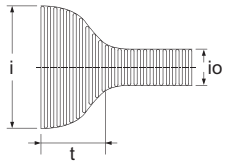
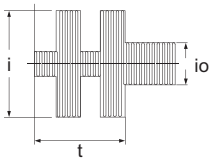
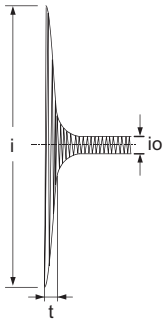
An actual relay life can be substantially shorter than the relay life curve depending on the type of a connected load and the characteristics of its inrush current. (☞ Page 192 Relay life (contact switching life))

The inrush current generated by a connected load can lead to contact welding of the module. To prevent shortening of the relay life and contact welding, take the following measures:

- Considering the possibility of a high inrush current, select a load so that the inrush current generated by the connected load falls within the range of the rated current of the module.
- Connect a relay capable of withstanding the inrush current, outside the module.

The following table lists the relations between typical loads and each inrush current.

Select a load so that the inrush current, i, and rated current, io, fall within the range of the rated switching current described in the module specifications. In some loads, the inrush current flows for a long time.

Load type	Waveform	Inrush current i/ rated current io	Waveform	Inrush current i/ rated current io
Inductive load	Load of a solenoid  i: Inrush current io: Rated current t: 0.07 to 0.1 seconds	Approx. 10 to 20 times	Load of an electromagnetic contactor  i: Inrush current io: Rated current t: 0.017 to 0.033 seconds (1 to 2 cycle)	Approx. 3 to 10 times
Lamp load	Load of an incandescent lamp  i: Inrush current io: Rated current t: Approx. 0.33 seconds	Approx. 3 to 10 times	Load of a mercury lamp  i: Inrush current io: Rated current t: 180 to 300 seconds (3 to 5 minutes)	Approx. 3 times[*1]
	Load of a fluorescent lamp  i: Inrush current io: Rated current t: within 10 seconds	Approx. 5 to 10 times	—	—
Capacitive load	Capacitive load[*2]  i: Inrush current io: Rated current t: 0.008 to 0.33 seconds (0.5 to 2 cycle)	Approx. 20 to 40 times	—	—

*1 A typical discharge lamp circuit is configured with a combination of discharge tubes, transformers, choke coils, capacitors and others. Because of this, be especially careful of the case of a high power factor and a low power supply impedance, where the inrush current flowing into the output module can be 20 to 40 times as high as the rated current.

*2 When the wiring is long, be careful with the cable capacity as well.

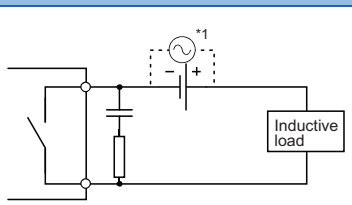
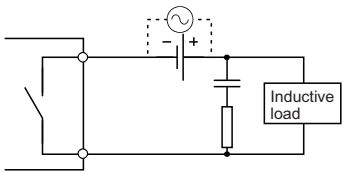
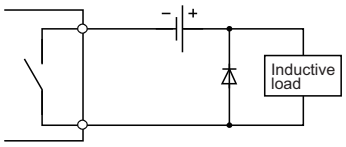
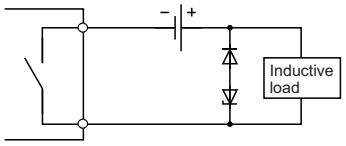
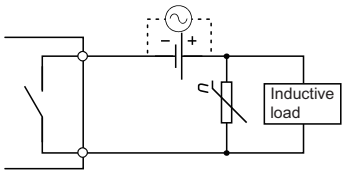
■Measures against back EMF

Provide a contact protection circuit for an extended contact life, noise prevention at contact close, and reduction of the carbides and nitric acids formed by an arc discharge.

An incorrect circuit involves a high risk of contact welding.

With the contact protection circuit, the recovery time may be delayed.

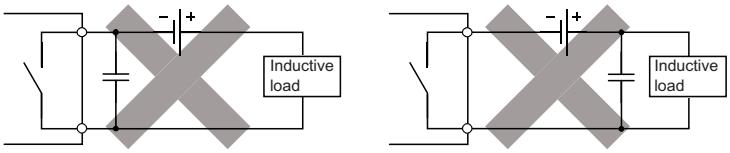
The following table shows typical examples of the contact protection circuit.

Circuit example		Element selection criteria	Remarks
Capacitor + resistance method (CR method)		Estimate the constants of a capacitor and resistance with the following as a guide. Some differences, however, may arise from a variation in the nature and characteristics of the load. • Capacitor: 0.5 to 1 (μF) for a load current of 1A • Resistance: 0.5 to 1 (Ω) for a power supply voltage of 1V Use a capacitor whose withstand voltage is equal to or higher than the rated voltage. In an AC circuit, use a capacitor with no polarity.	When a relay or solenoid is used as the load, the recovery time is delayed. A capacitor has the effect of reducing a discharge at contact OFF, while a resistance has the effect of limiting a current at contact ON.
			
Diode method		Use a diode that satisfies the following conditions: • A reverse breakdown voltage is ten times as high as the circuit voltage or more. • A forward current is twice as high as the load current or more.	The recovery time is delayed than the CR method.
Diode + zener diode method		Use a zener diode whose zener voltage is equal to or higher than the power supply voltage.	This method is suitable for the case where the diode method results in a substantial delay in the recovery time.
Varistor method		Select a varistor whose cut-off voltage (Vc) satisfies the following conditions: • Vc > Power supply voltage × 1.5 (V) • Vc > Power supply voltage × 1.5 (V) × √2 (on AC power supply) Note that selecting an element of an excessively high Vc leads to a weaker effect.	The recovery time is a little delayed.

*1 On AC power supply, the impedance of the CR needs to be sufficiently higher than that of the load (for preventing errors due to the leakage current of the CR).

Point

- Avoid using contact protection circuits like the following. Although they are highly effective in reducing the arc at current cutoff, a charge current flows into the capacitor when the contact turns on or off, which leads to the risk of contact welding. A DC inductive load, generally considered to be more difficult to open and close than a resistive load, can achieve the same performance of a resistive load in an appropriate configuration of the protection circuit.



- Install the protection circuit near the load or contact (module). A long distance between them may inhibit the effect of the protection circuit. As a guide, install it at a distance of no more than 50cm.

Precautions when using the triac output module

Because of characteristics of a triac, a sudden change of voltage or current may cause unstable operations of a triac used for the triac output module.

Whether the voltage or current change causes a problem differs depending on an individual part (each triac), thus check the following when using the triac output module.

■Checking of the load current

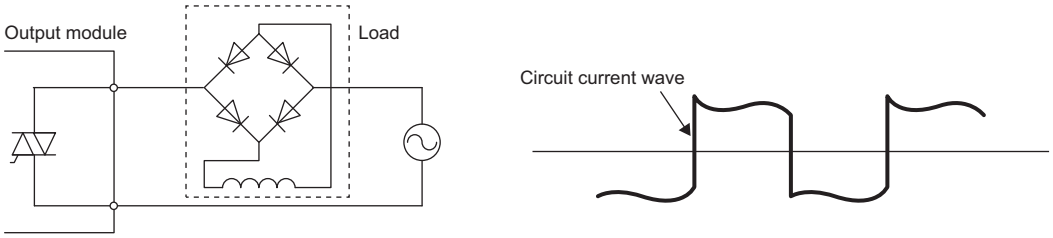
When the current consumption is equal to or smaller than the minimum load current and the margin is low by using an inductive load such as a solenoid valve, a triac may not turn on or off properly. In that case, an action such as connecting a bleeder resistance is required.

For detail on actions, refer to the following.

☞ Page 336 Troubleshooting for output circuit

■Precautions on a full-wave rectifier load

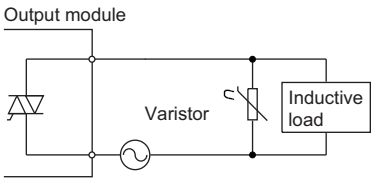
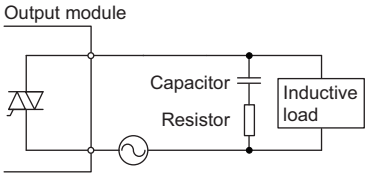
The load current of a full-wave rectifier load forms waves similar to rectangular waves as shown below.



A triac may not operate properly if the current forms rectangular waves associated with sudden current changes. To avoid it, use a load with which the load current does not form rectangular waves.

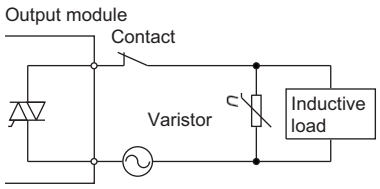
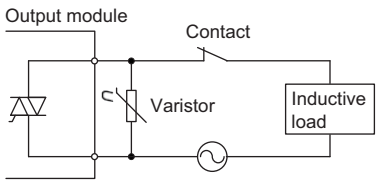
■Measures for connecting an inductive load

To connect an inductive load, take measures to reduce noise to the side where the load is connected as shown below.

Circuit example		Element selection criteria	Remarks
Varistor method		Select a varistor whose cut-off voltage (Vc) satisfies the following condition: • Vc > Power supply voltage × 1.5 (V) × √2 Note that selecting an element of an excessively high Vc leads to a weaker effect.	The recovery time is a little delayed.
Capacitor + resistance method (CR method)		Estimate the constants of a capacitor and resistance with the following as a guide. Some differences, however, may arise from a variation in the nature and characteristics of the load. • Capacitor: 0.5 to 1 (μF) for a load current of 1A • Resistance: 0.5 to 1 (Ω) for a power supply voltage of 1V Use a capacitor whose withstand voltage is equal to or higher than the rated voltage. Use a capacitor with no polarity.	When a relay or solenoid is used as the load, the recovery time is delayed.

In addition, to install a contact (such as an interlock) between the load and the output terminal, take measures to reduce noise as shown below.

Though measures (varistor method, capacitor + resistance method) are normally taken to the load side as shown in the above figure, in some cases, it is more efficient to take the measures to the module side considering the contact effect.

Circuit example		Element selection criteria	Remarks
Varistor method		Select a varistor whose cut-off voltage (Vc) satisfies the following condition: • Vc > Power supply voltage × 1.5 (V) × √2 Note that selecting an element of an excessively high Vc leads to a weaker effect.	The recovery time is a little delayed.
			

7.2 Setting Switch

Station number setting with the station number setting switch

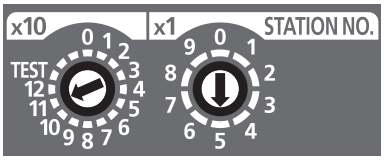
Setting procedure

Set the station number with the rotary switch on the front of the module. The setting value of the station number becomes valid when the module is powered on. Thus, set the station number when the module is powered off.

- The hundreds and tens places of the station number are set with x10.
- The ones place of the station number is set with x1.

Ex.

To set the station to 115, set the switch as shown below.



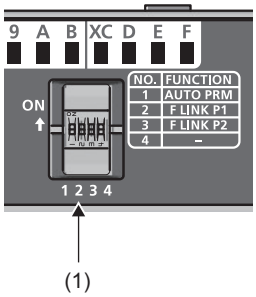
Setting range

Set the station number from 1 to 120. Setting the value other than 1 to 120 causes a communication error and the D LINK LED flashes.

Point

- Do not change the station number setting switch while the module is powered on. Changing the station number setting switch causes a minor error and flashes the ERR. LED. Returning the station number setting switches to the previous setting eliminates the error after five seconds and turns off the ERR. LED.
- Do not set a station number duplicated with other station numbers. If the station number is duplicated, a communication error occurs and the D LINK LED does not turn on.

Function setting switch setting



(1) Function setting switch

Set the following function with the function setting switch.

No.	Switch name	Function name	Setting details
1	Function setting switch 1 (AUTO PRM)	Automatic I/O parameter setting	Set whether to enable or disable the automatic I/O parameter setting. The setting with this switch is enabled when the module is powered on. Thus, set this function when the module is powered off. The automatic I/O parameter setting is enabled or disabled as follows depending on the status of the function setting switch 1. On: Enable Off: Disable For details, refer to the following. ☞ Page 242 Automatic I/O Parameter Setting
2	Function setting switch 2 (F LINK P1)	Fast link-up function	Set whether to enable or disable the fast link-up function of PORT1 with the function setting switch 2 and the fast link-up function of PORT2 with the function setting switch 3. The fast link-up function of each PORT is enabled or disabled as follows depending on the status of each of the function setting switches. On: Enable Off: Disable The use of these switches is prohibited for the modules that do not support the fast link-up function. For the modules that support the fast link-up function, refer to the following. ☞ Page 285 Fast Link-up Function
3	Function setting switch 3 (F LINK P2)		
4	—	Use prohibited	—

7.3 Installation Environment and Installation Position

Installation environment

Installation location

Do not install the I/O module to the place where:

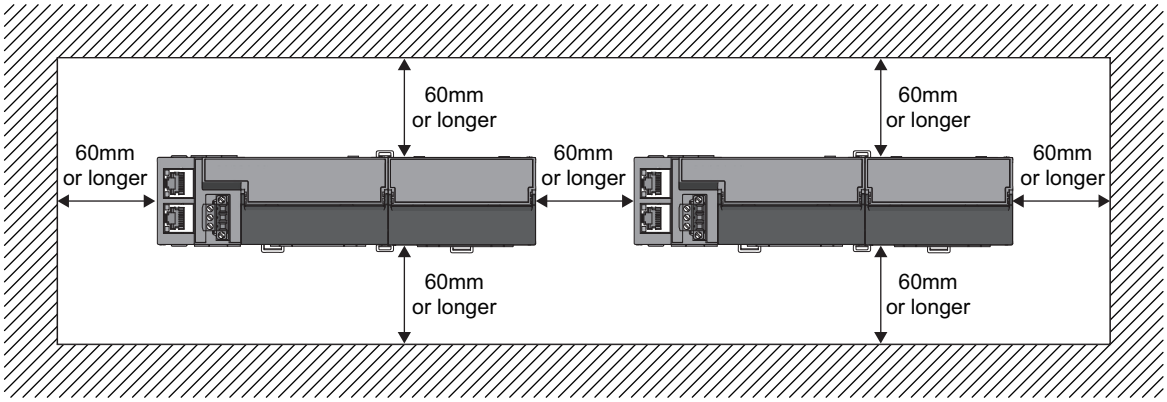
- Ambient temperature is outside the range from 0 to 55℃;
- Ambient humidity is outside the range from 5 to 95% RH;
- Condensation occurs due to rapid temperature change;
- Corrosive gas or combustible gas is present;
- Conductive powder such as dust and iron powder, oil mist, salinity, or organic solvent is filled;
- The I/O module is exposed to direct sunlight;
- A strong electric field or strong magnetic field is generated; and
- The I/O module is subject to vibration and shock.

Installation surface

Install the I/O module on the flat surface. When the installation surface is uneven, excessive force is applied to the printed-circuit board and may cause a defect.

Installation position

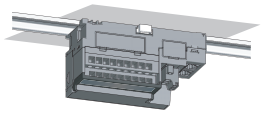
When installing the I/O module in a control panel, provide clearance of 60mm or longer between the module and the sides of control panel or neighboring modules to ensure good ventilation and an easy module change.



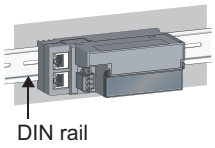
Installation direction

The I/O module can be installed in six directions.

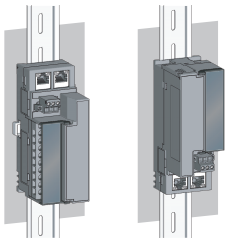
Use the DIN rail to install the module.



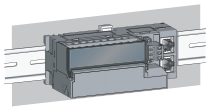
Downward installation



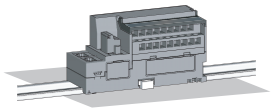
Horizontal installation



Vertical installation



Horizontal installation (upside down)

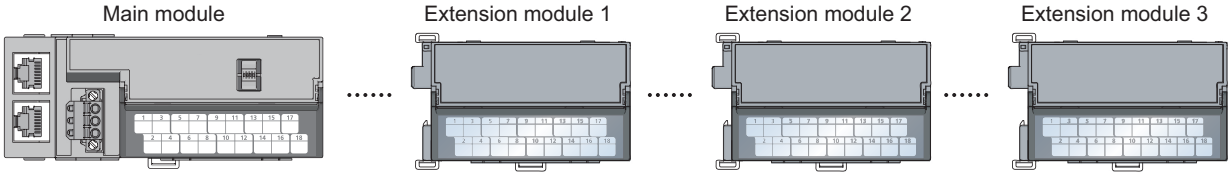


Upward installation

7.4 Installation

Installation of extension modules

The numbers of input points and output points can be increased by connecting extension modules.
For the lineup of extension modules, refer to the following.
☞ Page 18 Extension I/O Module
If an extension module is disconnected during operation, a major error will occur and all outputs will be turned off.



Number of extension modules connectable to a main module

The following table lists the number of extension modules connectable to a main module.

Module model name	No. of connectable extension modules
NZ2GF2B1N1-16D, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE	3
NZ2GF2B1N-16D, NZ2GF2B1N-16T, NZ2GF2B1N-16TE	1
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE	
NZ2GF2S1-16D, NZ2GF2S1-16T, NZ2GF2S1-16TE	
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE	
NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	
NZ2GFCE3-32D, NZ2GFCE3-32T, NZ2GFCE3-32DT	
NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT	
NZ2GFCF1-32D, NZ2GFCF1-32T, NZ2GFCF1-32DT	
NZ2GF2B2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S	
NZ2GF2S2-16A, NZ2GF2S2-16R, NZ2GF2S2-16S	
NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE	0 (No extension module available)

Connection of multiple extension modules

To connect two or three extension modules, use the extension modules that support the connection of multiple extension modules. The following table shows if each extension module supports the connection of multiple extension modules.

Module model name	Connection of multiple extension modules
NZ2EX2B1N-16D, NZ2EX2B1N-16T, NZ2EX2B1N-16TE	Supported
NZ2EX2B1-16D, NZ2EX2B1-16T, NZ2EX2B1-16TE	Not supported
NZ2EX2S1-16D, NZ2EX2S1-16T, NZ2EX2S1-16TE	

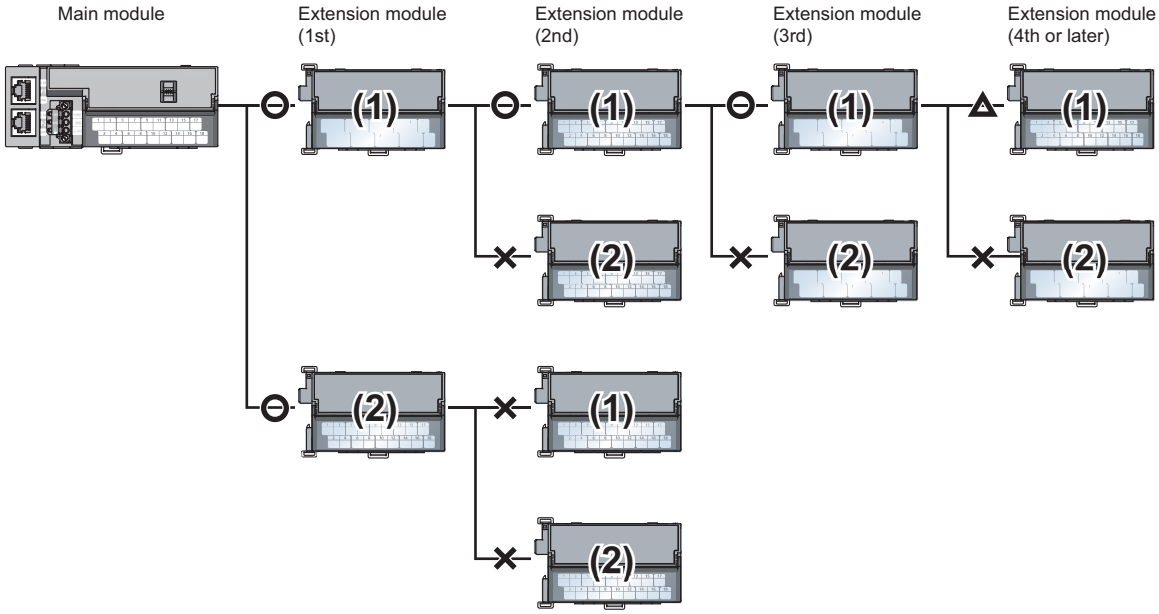
Number of connectable extension modules in combination with a main module

The following table lists the number of connectable extension modules in combination with a main module.

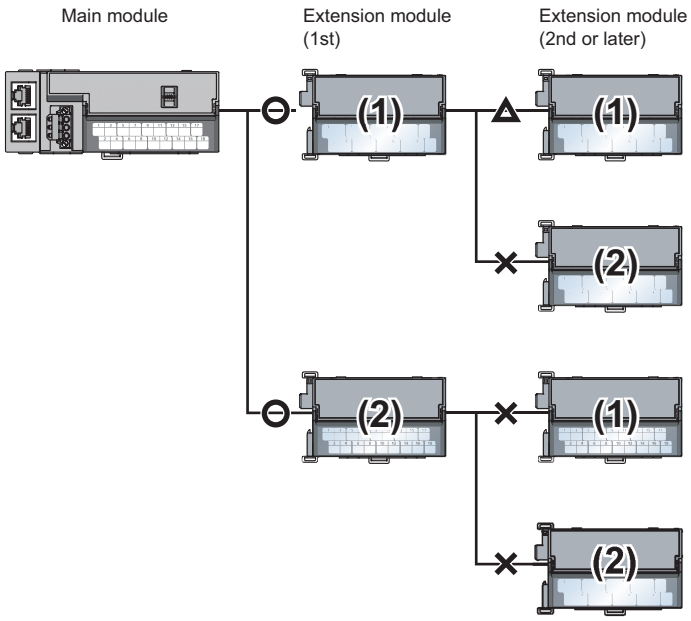
No. of extension modules connectable to a main module	Connection of multiple extension modules	No. of connectable extension modules
3	Supported	3
	Not supported	1
1	Supported	1
	Not supported	1

When connecting two or three extension modules, the extension modules that support the connection of multiple extension modules and the extension modules that do not support the connection of multiple extension modules cannot be used together.

■When using a main module that allows up to three extension module connection



■When using a main module that allows one extension module connection



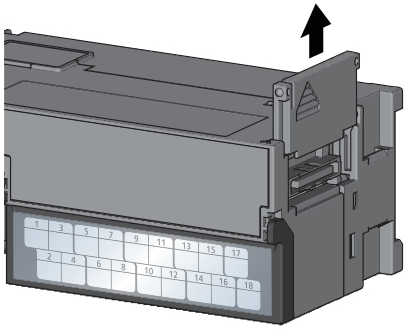
(1) Extension module that supports the connection of multiple extension modules
(2) Extension module that does not support the connection of multiple extension modules
○: Connectable
×: Physically not connectable
△: Physically connectable, but do not connect this extension module. If this module is connected, correct operation of the module cannot be guaranteed.

Point

To use the parameter settings or the CC IE Field diagnostic function with two or three extension modules connected, use the engineering tool of the following version.
☞ Page 187 Software package

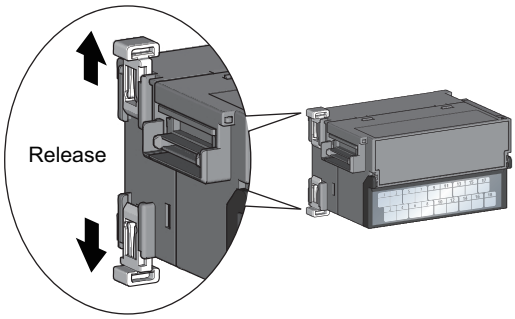
Connecting extension modules

Connecting procedure

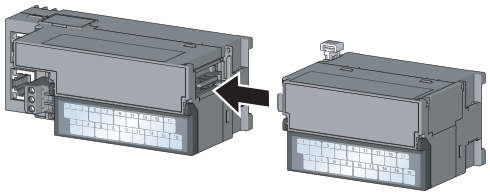


1. Remove the cover on the side of the module.

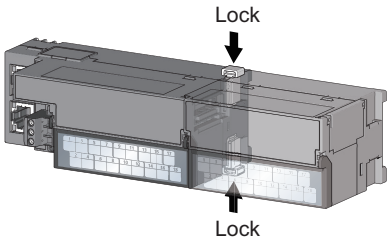
Do not dispose the removed cover, but store it.



2. Release the module joint levers (two points) on the side of the extension module. Slide the levers vertically.



3. Insert the connector of the extension module into that of the I/O module so that they are securely engaged.



4. Lock the module joint levers (two points) on the side of the extension module. Slide the levers toward the module.

Check that the modules are securely connected.

Removal procedure

Disconnect the modules by reversing the procedure above.

Point

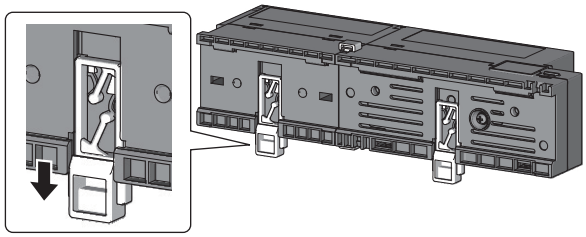
- Shut off the external power supply for the system in all phases before connecting or disconnecting extension modules.
- Lock the module joint levers securely. Failure to do so may cause malfunction, failure, or drop of the module.

Mounting the modules on a DIN rail

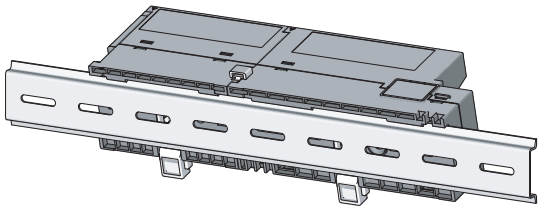
Point

An example of the use of the DIN rail stopper is described in the following procedure. Fix the module according to the manual of the DIN rail stopper used.

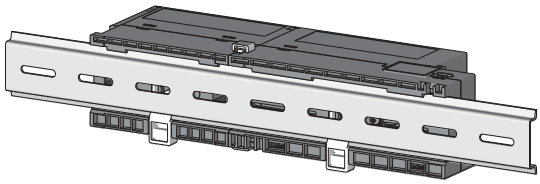
Mounting procedure



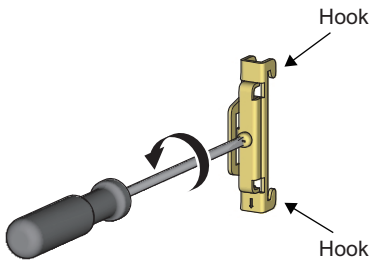
1. Pull down all DIN rail hooks on the back of the modules.
The levers should be pulled down until they click.



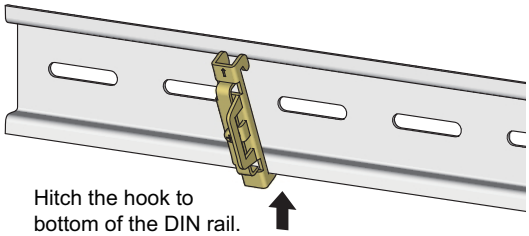
2. Hang the upper tabs of the modules on a DIN rail, and push the modules in position.



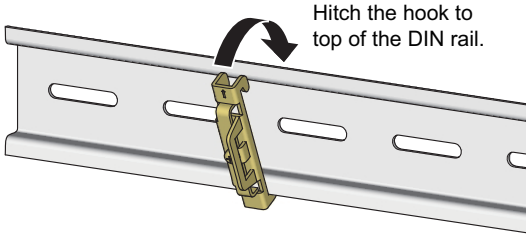
3. Lock the DIN rail hooks to the DIN rail to secure the modules in position.
Push each hook up until it clicks. If the hooks are beyond the reach, use a tool such as a driver.



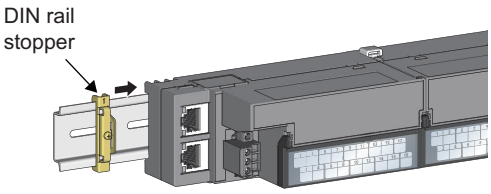
4. Loosen the screw on DIN rail stopper.



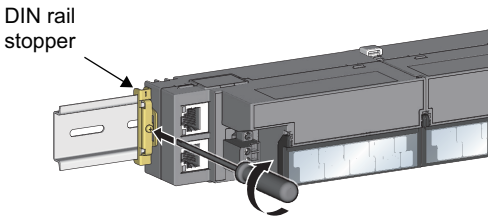
5. Hitch the bottom hook of the DIN rail stopper to the bottom of the DIN rail.
Hitch the hook according to the orientation of the arrow on the front of the stopper.



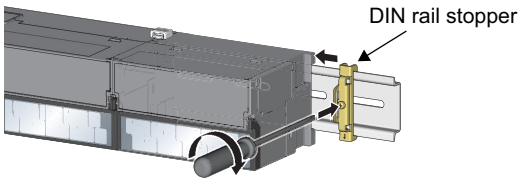
6. Hitch the upper hook of the DIN rail stopper to the top of the DIN rail.



7. Slide the DIN rail stopper up to the left side of the modules.



8. Hold the DIN rail stopper in the direction opposite to the arrow on the stopper and tighten the screw with a driver.

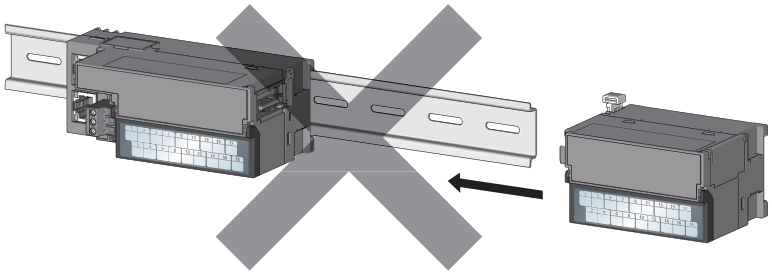


9. Install the DIN rail stopper on the right side of the module in the same procedure.

Install the stopper upside down for the right side.

Point

Do not slide modules from the edge of the DIN rail when mounting them. The modules may be damaged.



Removal procedure

Remove the modules from the DIN rail by reversing the above procedure.

Applicable DIN rail model (compliant with IEC 60715)

- TH35-7.5Fe
- TH35-7.5Al

Interval between DIN rail mounting screws

Tighten the screws at intervals of 200mm or less.

DIN rail stopper

Use a stopper that is attachable to the DIN rail.

7.5 Wiring with Terminal Block for Module Power Supply and FG

Wiring of screw terminal block

Tightening torque

Tighten the terminal block screws within the following specified torque range.

Tightening the screws too much may damage the module case.

Screw type	Tightening torque range
Terminal block mounting screw (M2.5 screw)	0.2 to 0.3 N·m
Terminal screw (M2.5 screw)	0.5 to 0.6N·m

Wire to be used

The following table describes the wire to be connected to the terminal block for module power supply and FG.

Diameter	Type	Material	Temperature rating
20 to 16 AWG	Stranded	Copper	75℃ or more

For applicable solderless terminals, refer to the following.

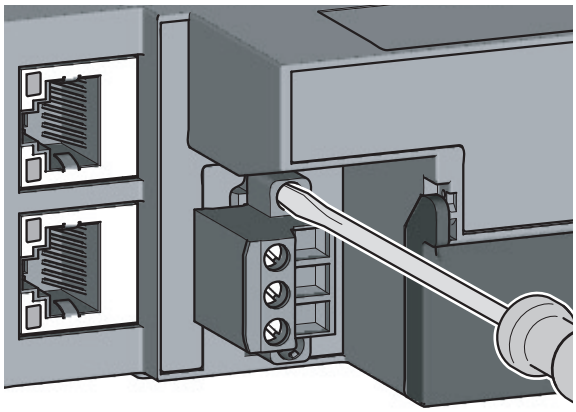
☞ Page 40 Main I/O Module Specifications

Installing and removing the terminal block

To remove the terminal block, loosen the terminal block mounting screw with a flathead screwdriver.

To install the terminal block, tighten the terminal block mounting screw with a flathead screwdriver.

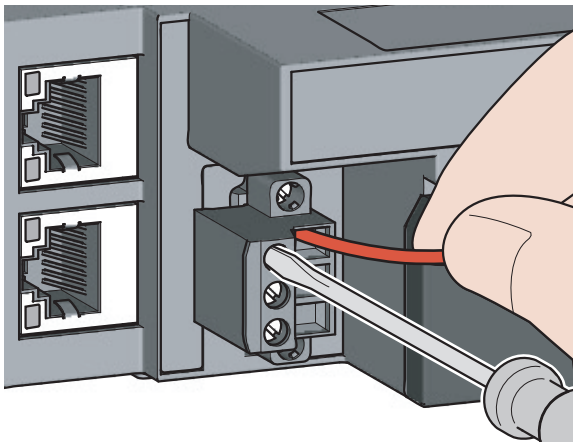
Failure to secure the terminal block may cause drop, short circuit, malfunction.



Connecting and disconnecting the cable

To connect a cable, with the terminal screw loosened using a flathead screwdriver, insert the wire and then tighten the terminal screw.

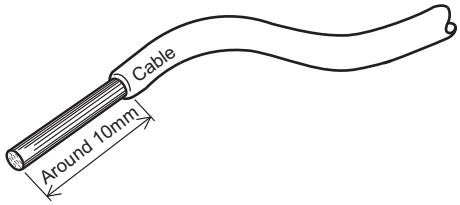
To disconnect the cable, with the terminal screw loosened using a flathead screwdriver, pull out the wire.



Processing method of the cable terminal

Strip the cable about 10mm from the top.

To use a bar solderless terminal, connect it to the stripped part.



List of bar solderless terminals

The following table lists recommended bar solderless terminals.

Product name	Model name	Applicable wire size	Bar solderless terminal tool	Contact
Bar solderless terminal	TE 0.5-10	0.3 to 0.5mm²	NH79	NICHIFU Co., Ltd.
	TE 0.75-10	0.75mm²		
	TE 1.0-10	1.0mm²		
	TE 1.5-10	1.5mm²		
	AI 0,5-10WH	0.5mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
	AI 0,75-10GY	0.75mm²		
	AI 1-10RD	1.0mm²		
	AI 1,5-10BK	1.5mm²		

Wiring of spring clamp terminal block

Tightening torque

Tighten the terminal block mounting screws within the following specified torque range.

Tightening the screws too much may damage the module case.

Screw type	Tightening torque range
Terminal block mounting screw (M2.5 screw)	0.2 to 0.3 N·m

Wire to be used

The following table describes the wire to be connected to the terminal block for module power supply and FG.

Diameter	Type	Material	Temperature rating
22 to 16 AWG	Stranded	Copper	75℃ or more

For applicable solderless terminals, refer to the following.

☞ Page 40 Main I/O Module Specifications

Installing and removing the terminal block

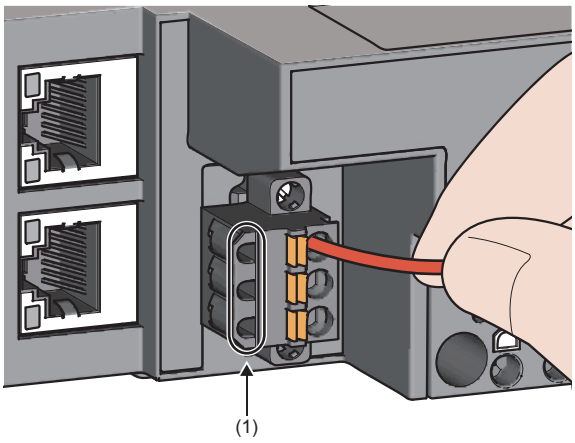
For how to install and remove the terminal block, refer to the following.

☞ Page 207 Installing and removing the terminal block

Connecting and disconnecting the cable

To connect the cable, fully insert a wire having a bar solderless terminal into a wire insertion opening.

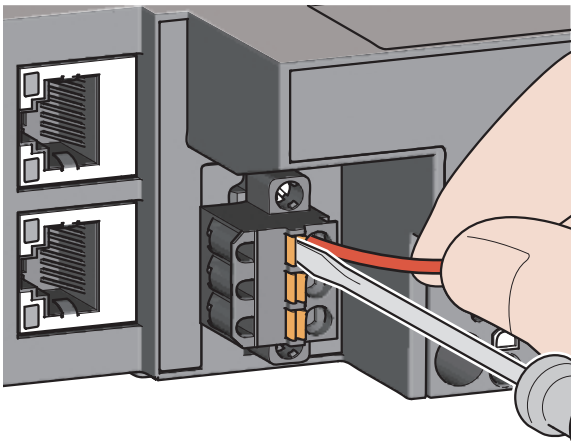
After inserting the wire, pull it lightly to check that it is securely clamped.



Point

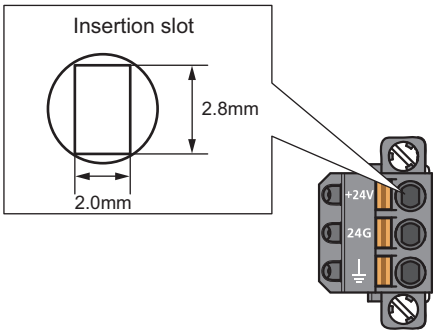
Continuity can be checked with check terminal (1).

To disconnect the cable, push in the open/close button with a Phillips screwdriver or flathead screwdriver.
With the button pushed in, pull out the wire having a bar solderless terminal.



■Precautions

- Use a bar solderless terminal for the wiring to the push-in type spring clamp terminal block. If a stripped wire is inserted into a wire insertion opening, the wire cannot be securely clamped.
- For how long the wire should be stripped, follow the specifications of the bar solderless terminal used. To attach a bar solderless terminal to a wire, use a crimping tool.
- Before inserting a bar solderless terminal into a wire insertion opening, check the shape of the opening and the shape of the terminal. Insert the terminal paying attention to the orientation. If a bar solderless terminal larger than the wire insertion opening is inserted, the terminal block may be damaged.



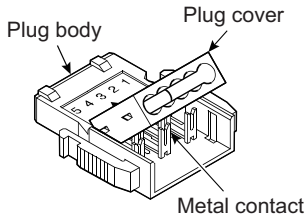
List of bar solderless terminals

The following table lists recommended bar solderless terminals.

Product name	Model name	Applicable wire size	Bar solderless terminal tool	Contact
Bar solderless terminal	TE 0.5-8, TE 0.5-10	0.3 to 0.5mm²	NH79	NICHIFU Co., Ltd.
	TE 0.75-8, TE 0.75-10	0.75mm²		
	TE 1.0-8, TE 1.0-10	1.0mm²		
	TE 1.5-8, TE 1.5-10	1.5mm²		
	AI 0.34-8TQ	0.34mm²	CRIMPFOX6	PHOENIX CONTACT GmbH & Co. KG
	AI 0.5-8WH, AI 0.5-10WH	0.5mm²		
	AI 0.75-8GY, AI 0.75-10GY	0.75mm²		
	AI 1-8RD, AI 1-10RD	1.0mm²		
	AI 1.5-8BK, AI 1.5-10BK	1.5mm²		

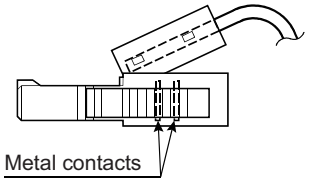
7.6 Wiring of the One-touch Connector for Power Supply and FG

Wiring procedure



1. Check that the plug cover is engaged with the plug body.

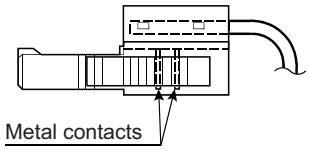
Do not push the plug cover into the plug body before inserting cables. Once clamped, the plug cannot be reused.



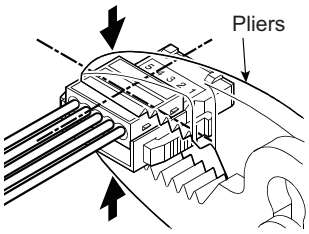
2. Lift the rear part of the plug cover, and insert a cable fully until the end of the cable reaches the inside surface of the plug cover.

Failure to do so may cause a poor crimping.

Precautions: Use an applicable cable.



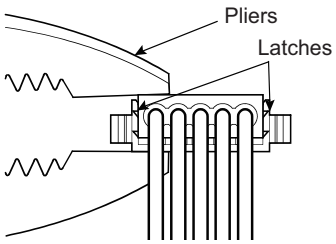
3. After inserting the cable, align the plug cover along the plug body horizontally so that the metal contacts of the plug body can be inserted into the plug cover.



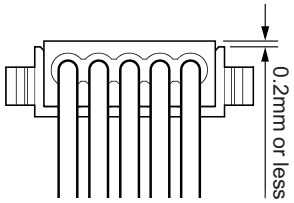
4. Hold the center of the plug cover and press it vertically.

Fully push the supports of the latches at both edges of the plug cover. Check that the latches are engaged with the plug body.

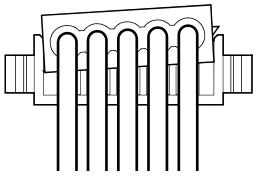
Side view



Example of correct crimping



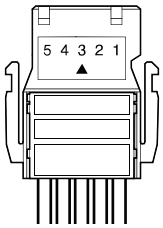
Example of incorrect crimping



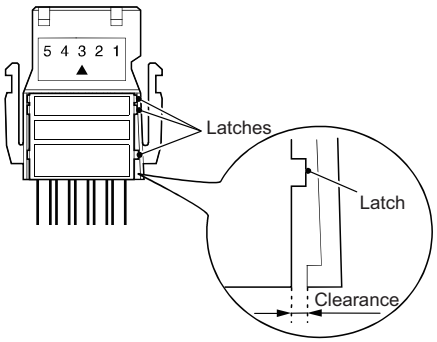
5. Check that the plug body and plug cover are aligned horizontally seen from the wire side. The floating part of the plug cover must be within 0.2mm.

As shown in the example of incorrect crimping, if the plug cover is lifted aslant or protruded from the plug body by more than 0.2mm, it may result in improper crimping. Push the plug cover correctly and fully with pliers as shown in the example of correct crimping.

Example of correct crimping



Example of incorrect crimping



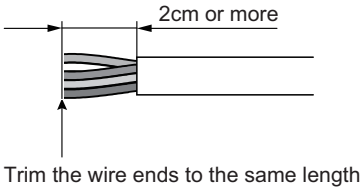
6. Check that there is no clearance between the plug body and plug cover by seeing them from the top.

As shown in the example of incorrect crimping, clearance occurs if the latches are not properly engaged. Push the plug cover correctly and fully with pliers as shown in the example of correct crimping.

7

Point

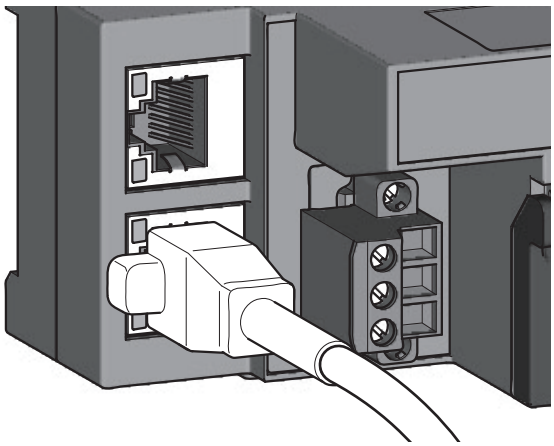
When using a cabtyre cable, strip the jacket of the cable by 2cm or more. If the wires have different length, cut the ends of the wires straight with a tool, such as a nipper, when inserting the connector so that they have the same length.

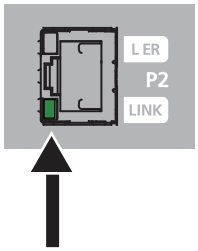


7.7 Wiring of Ethernet Cable

Connecting the Ethernet cable

■Connecting





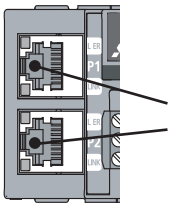
1. Power off the power supplies of the main I/O module and the external device.
2. Push the Ethernet cable connector into the main I/O module until it clicks. Pay attention to the connector's direction.
3. Power on the module.
4. Power on the external device.
5. Check if the LINK LED on the port into which the Ethernet cable is connected is on.*1

*1 The time taken for the LINK LED to turn on after connection of the cable may vary. The LINK LED normally turns on in a few second. However, if link-up processing is repeated due to a condition of a device on the line, the longer time may be required. If the LINK LED does not turn on, refer to the following and take a corrective action.
☞ Page 326 When the LINK LED turns off

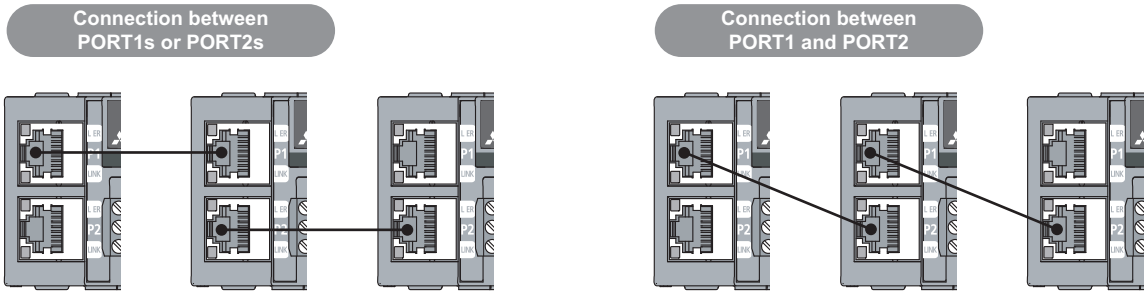
Point

- When the fast link-up function is not used, PORT1 and PORT2 connectors do not need to be distinguished. When only one connector is used in star topology, either PORT1 or PORT2 can be connected. For how to connect Ethernet cables for using the fast link-up function, refer to the following.

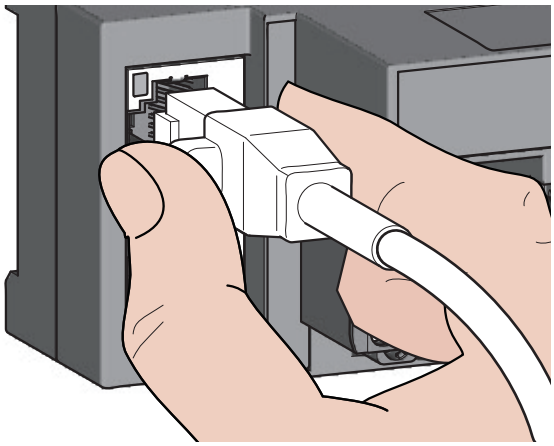
☞ Page 285 Fast Link-up Function



- When two connectors are used in line topology or ring topology, an Ethernet cable can be connected to the connectors in any combination. For example, the cable can be connected between PORT1s and between PORT1 and PORT2.



■Disconnecting



1. Power off the module.
2. Press the latch down and unplug the Ethernet cable.

Precautions

■Laying Ethernet cables

- Place the Ethernet cable in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Do not touch the core of the connector of the cable or the module, and protect it from dirt and dust. If any oil from your hand, or any dirt or dust sticks to the core, it can increase transmission loss, causing data link to fail.
- Check the following:
  - Is any Ethernet cable disconnected?
  - Does any Ethernet cable short?
  - Are the connectors securely connected?

■Broken cable latch

Do not use Ethernet cables with broken latches. Doing so may cause the cable to unplug or malfunction.

■Connecting and disconnecting the Ethernet cable

Hold the connector part when connecting and disconnecting the Ethernet cable. Pulling the cable connected to the module may result in damage to the module or cable or malfunction due to poor contact.

■Connectors without Ethernet cable

To prevent dust from entering the module, attach the provided connector cover.

■Maximum station-to-station distance (Maximum Ethernet cable length)

The maximum station-to-station distance is 100m. However, the distance may be shorter depending on the operating environment of the cable. For details, contact the manufacturer of the cables used.

■Bending radius of the Ethernet cable

There are restrictions on the bending radius of the Ethernet cable. Check the bending radius in the specifications of the Ethernet cables used.

7.8 Wiring of External Device and I/O Terminal Block

Wiring of screw terminal block

Tightening torque

Tighten the terminal block screws within the following specified torque range.

Tightening the screws too much may damage the module case.

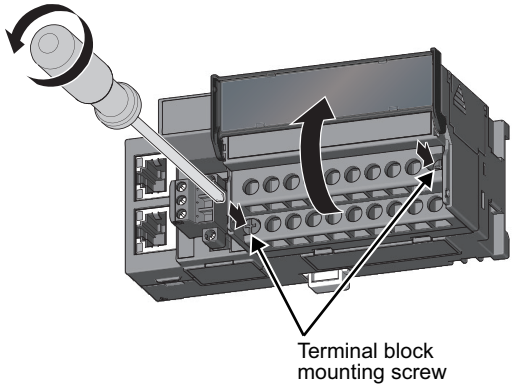
Screw type	Tightening torque range
Terminal screw (M3 × 5.2 screw)	0.43 to 0.57N·m
Terminal block mounting screw (M3.5 screw)	0.68 to 0.92N·m

The following table shows applicable solderless terminals connected to the terminal block. For wiring, use applicable wires in the following table and an appropriate tightening torque. Use UL listed solderless terminals. For processing, use a tool recommended by manufacturers of solderless terminals. Sleeved solderless terminals cannot be used.

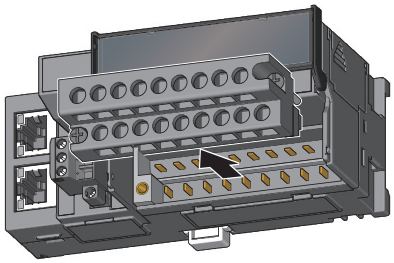
Solderless terminal		Wire			
Model	Applicable tightening torque	Diameter	Type	Material	Temperature rating
R1.25-3	0.43 to 0.57N·m	22 to 14 AWG	Stranded	Copper	75℃ or more
V2-MS3					
RAP2-3SL					
TGV2-3N					

Removing and installing the terminal block

■Removal procedure

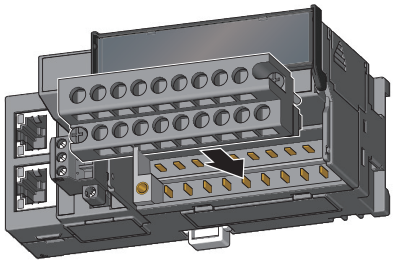


1. Open the terminal block cover and loosen the terminal block mounting screws.

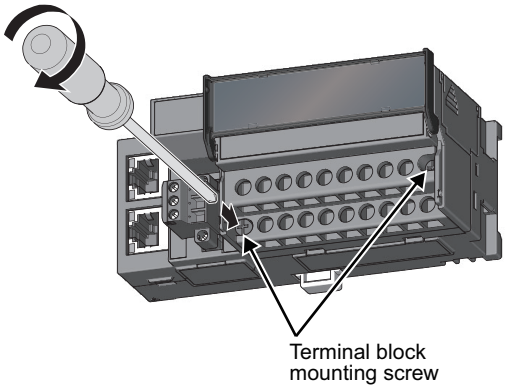


2. When the terminal block mounting screws are loosened, the terminal block can be removed.

■Installation procedure



1. Open the terminal cover to install the terminal block.



2. Tighten the terminal block mounting screws.

Point

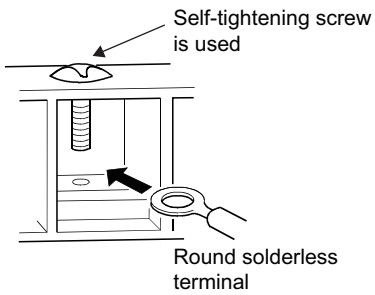
The module of the 34-point terminal block type has no terminal cover.

Wiring of the external device and terminal block

■Signal name and wiring

For the signal names of the terminal block and wiring of the external device, refer to the section about external connection in specifications of each module. Incorrect wiring can cause malfunction of or damage on the module. (☞ Page 40 Main I/O Module Specifications, Page 125 Extension I/O Module Specifications)

■Wiring method



1. Loosen the terminal screw. Connect the round solderless terminal as it is.

Point

- Do not put oil on the terminal and screw. Failure to do so may damage the screw.
- The number of the applicable solderless terminals must be two or less. When inserting two applicable solderless terminals, insert them back-to-back. Otherwise the screw cannot be tightened and it may damage the screw.
- Tighten the terminal screw with an applicable driver. Tightening with an inapplicable driver may damage the screw.

Wiring of spring clamp terminal block

Tightening torque

Tighten the terminal block mounting screws within the following specified torque range.

Tightening the screws too much may damage the module case.

Screw type	Tightening torque range
Terminal block mounting screw (M3.5 screw)	0.68 to 0.92N·m

The following table shows applicable bar solderless terminals connected to the terminal block. For wiring, use applicable wires in the following table. Use UL listed solderless terminals. For processing, use a tool recommended by manufacturers of solderless terminals.

Bar solderless terminal	Wire			
Model	Diameter	Type	Material	Temperature rating
TE 0.5-8, TE 0.5-10	22 to 16 AWG	Stranded	Copper	75℃ or more
TE 0.75-8, TE 0.75-10				
TE 1.0-8, TE 1.0-10				
TE 1.5-8, TE 1.5-10				
AI 0.34-8TQ				
AI 0.5-8WH, AI 0.5-10WH				
AI 0.75-8GY, AI 0.75-10GY				
AI 1-8RD, AI 1-10RD				
AI 1.5-8BK, AI 1.5-10BK				

Removing and installing the terminal block

For how to remove and install the terminal block, refer to the following.

☞ Page 217 Removing and installing the terminal block

Point

The module of the spring clamp terminal block type has no terminal cover.

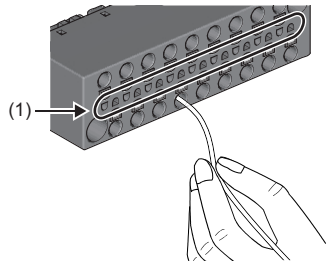
Wiring of the external device and terminal block

■Signal name and wiring

For the signal names of the terminal block and wiring of the external device, refer to the section about external connection in specifications of each module. Incorrect wiring can cause malfunction of or damage on the module. (☞ Page 40 Main I/O Module Specifications, Page 125 Extension I/O Module Specifications)

■Wiring method

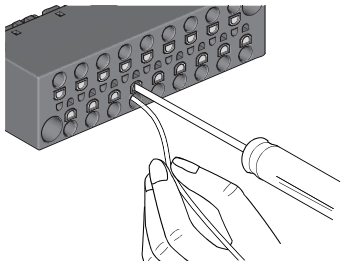
To connect the cable, fully insert a wire having a bar solderless terminal into a wire insertion opening.
After inserting the wire, pull it lightly to check that it is securely clamped.



Point

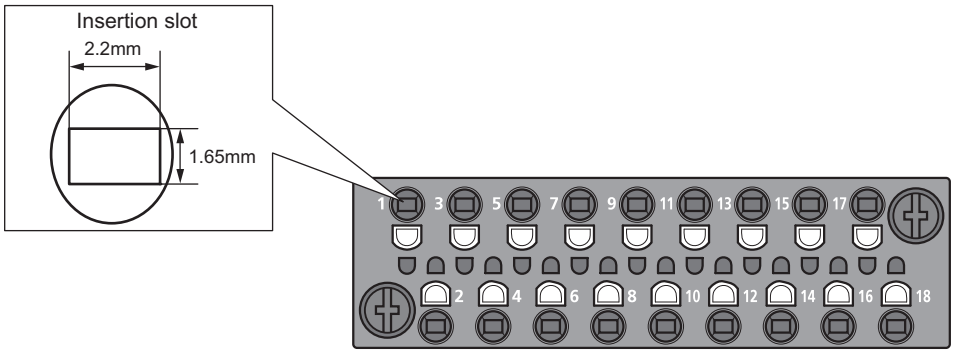
Signals can be checked with check terminal (1).

To disconnect the cable, push in the open/close button with a Phillips screwdriver or flathead screwdriver.
With the button pushed in, pull out the wire having a bar solderless terminal.



■Precautions

- Use a bar solderless terminal for the wiring to the push-in type spring clamp terminal block. If a stripped wire is inserted into a wire insertion opening, the wire cannot be securely clamped.
- For how long the wire should be stripped, follow the specifications of the bar solderless terminal used. To attach a bar solderless terminal to a wire, use a crimping tool.
- Before inserting a bar solderless terminal into a wire insertion opening, check the shape of the opening and the shape of the terminal. Insert the terminal paying attention to the orientation. If a bar solderless terminal larger than the wire insertion opening is inserted, the terminal block may be damaged.



FCN connector type wiring

Tightening torque

Tighten the connector screws within the following specified tightening torque range.

Tightening the screws too much may damage the connector case.

Screw type	Tightening torque range
Connector screw (M2.6 screw)	0.20 to 0.29N·m

Applicable connector

Separately prepare 40-pin connectors for the input module, output module, and I/O combined module.

The following tables list the types of connectors, applicable models, and reference products of crimping tools and pressure-displacement tools.

■40-pin connector

Type	Model	Applicable wire size
Soldering type connector (straight type)	A6CON1*1	0.08 to 0.3mm² (28 to 22 AWG), (stranded wire)
Crimping type connector (straight type)	A6CON2	0.08 to 0.24mm² (28 to 24 AWG), (stranded wire)
IDC type connector (straight type)	A6CON3	0.08mm² (28 AWG) (stranded wire) ϕ0.25mm (30 AWG) (solid wire) Flat cable (intervals of 1.27mm)
Soldering type connector (dual purpose (straight/oblique) type)	A6CON4*1	0.08 to 0.3mm² (28 to 22 AWG), (stranded wire)

*1 When using 40 pins, use cables whose sheath outside diameters are 1.3mm or shorter. Select cables depending on the current value used.

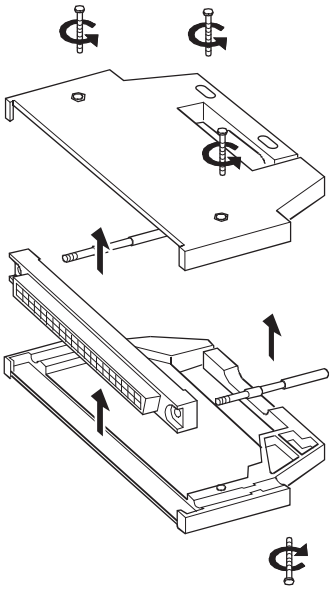
■40-pin connector crimping tool and pressure-displacement tool

Type	Model	Contact
Crimping tool	FCN-363T-T005/H	FUJITSU COMPONENT LIMITED
Pressure-displacement tool	FCN-367T-T012/H (locator plate)	
	FCN-707T-T001/H (cable cutter)	
	FCN-707T-T101/H (hand press)	

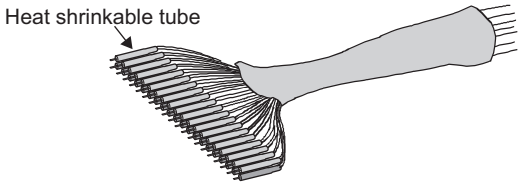
For the wiring method of connectors and the usage of the crimping tool and pressure-displacement tools, contact FUJITSU COMPONENT LIMITED.

Wiring a 40-pin connector

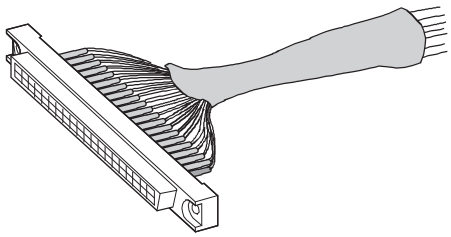
■For A6CON1 and A6CON4



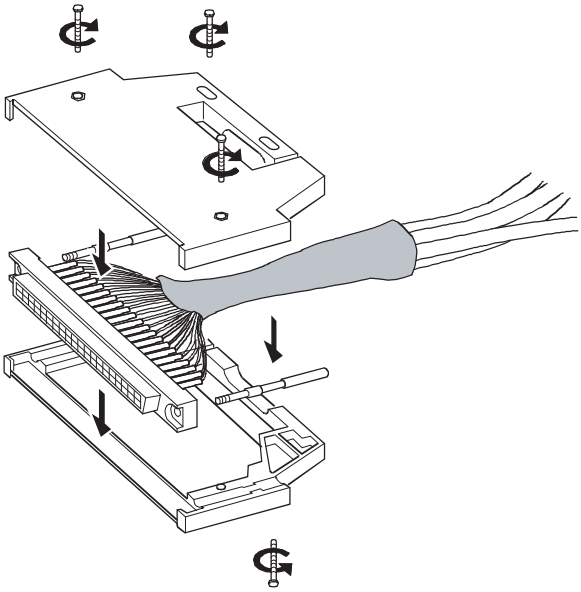
1. Loosen four screws of the connector and remove the screws. Then, open the connector cover from the connector side.



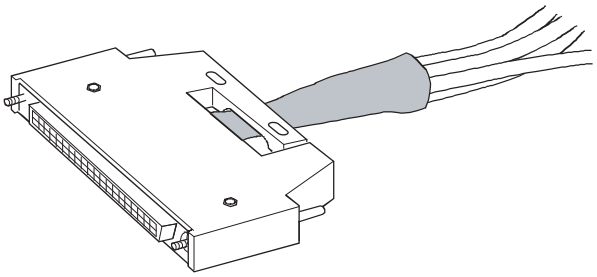
2. Solder the wires and cover the wires with heat shrinkable tubes.



3. Check the terminal layout and wire the connector.



4. Set the connector in one connector cover and put the fixing screws in the screw holes. Install the other connector cover.



5. Tighten the four screws.

■For A6CON2

The following table shows the specifications of the FCN-363T-T005/H to be used for the A6CON2.

Applicable wire size	Cross-section area	Crimp height	Sheath outside diameter	Stripping length
24 AWG	0.20 to 0.24mm²	1.25 to 1.30	ϕ1.2 or less	3.0 to 4.0
26 AWG	0.13 to 0.16mm²	1.20 to 1.25	ϕ1.2 or less	3.0 to 4.0
28 AWG	0.08 to 0.096mm²	1.15 to 1.20	ϕ1.2 or less	3.0 to 4.0

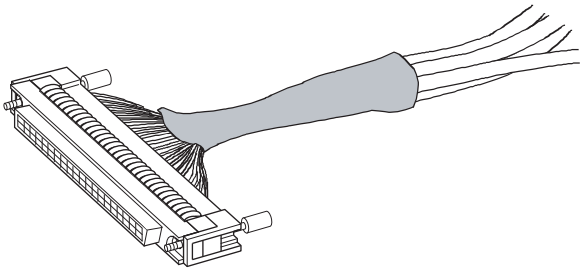
For wiring of the A6CON2, a special tool is required.

For the usage and adjustment of the tools, contact FUJITSU COMPONENT LIMITED.

■For A6CON3

For wiring of the A6CON3, a special tool is required.

For the usage and adjustment of the tools, contact FUJITSU COMPONENT LIMITED.

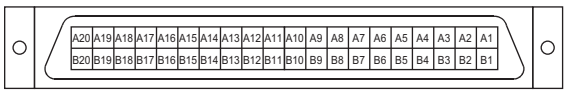


1. Check the terminal layout and crimp the wires to the connector.

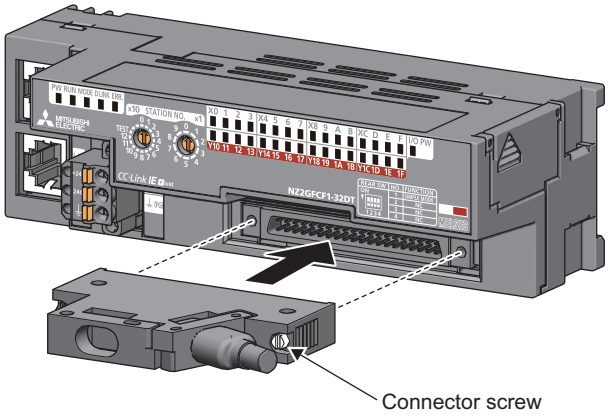
Point

The following figure shows the array of terminals for a flat cable.

A1 → B1 → A2.....

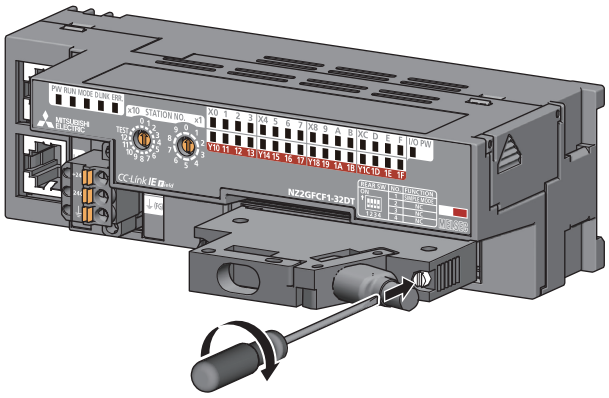


Installation procedure of the FCN connector



1. Connecting a connector

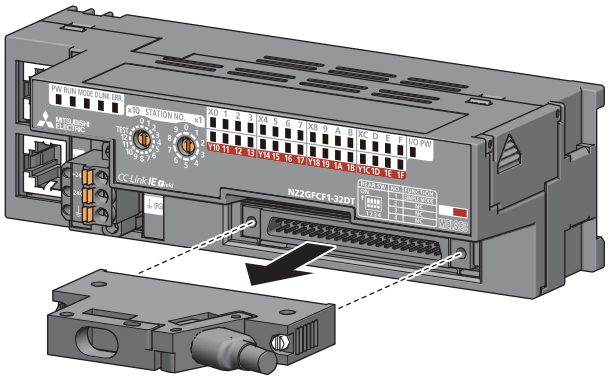
Connect the wired connector to the I/O module.



2. Tightening connector screws

Tighten two connector screws (M2.6 screw).

Removal procedure of the FCN connector



1. Removing a connector

Loosen two connector screws and pull out the connector horizontally from the module.

Precautions

■Laying cables

- To connect the cables with the I/O module, securely connect them and tighten the two screws.
- Place the cables in a duct or clamp them. If not, a dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.

■40-pin connector

- Properly solder the wires or crimp them to the 40-pin connector (A6CON□).
- Use copper wires whose temperature rating is 75℃ or more as the wires to be connected to the 40-pin connector (A6CON□).

Point

To ensure that this product complies with the EMC Directive and the Low Voltage Directive, refer to the following.

☞ Page 379 EMC and Low Voltage Directives

Even though this product does not need to comply with the EMC Directive and the Low Voltage Directive, the product complying with the EMC Directive may reduce effects of the external noise.

8 VARIOUS SETTINGS

This chapter describes the setting procedures of the I/O module.
This chapter uses GX Works2 for explanations.

8.1 Parameter Setting

Set the parameter of this module with the network parameter written to the CPU module of the master station. For the setting procedure of the master station, refer to the following.
📖 User's manual for the master/local module used

Precautions

■Precautions before parameter settings

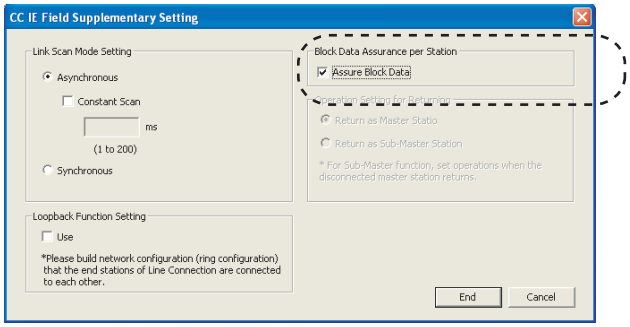
For the precautions before parameter settings, refer to the following.

📖 GX Works3 Operating Manual

📖 GX Works2 Version 1 Operating Manual (Common)

■Precautions for parameter settings

- When using the I/O module, always enable the block data assurance per station. When it is disabled, correct operation of the I/O module cannot be guaranteed. For details on the block data assurance per station, refer to the following: User's manual for the master/local module used.



Do not uncheck the box.

- To select a main module listed below in the "CC IE Field Configuration" window, select the following models from the "Module List" window.

Module model name	Selection for the "CC IE Field Configuration" window.
NZ2GF2B1N1-16D NZ2GF2B1N-16D	NZ2GF2B1-16D
NZ2GF2B1N1-16T NZ2GF2B1N-16T	NZ2GF2B1-16T
NZ2GF2B1N1-16TE NZ2GF2B1N-16TE	NZ2GF2B1-16TE
NZ2GFCE3N-32D	NZ2GFCE3-32D
NZ2GFCE3N-32T	NZ2GFCE3-32T
NZ2GFCE3N-32DT	NZ2GFCE3-32DT

- To select an extension module in the "CC IE Field Configuration" window, select the following models from the "Module List" window.

Extension module type	Name
Extension Digital Input Module	NZ2EX-16(DI)
Extension Digital Output Module	NZ2EX-16(DO)

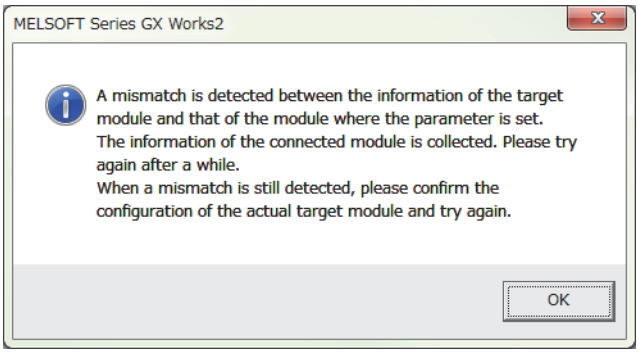
- When using the extension module, write the module parameter. (☞ Page 229 Operation procedure) If the parameter of the extension module has not been written, the error code (0501H) is stored in Error code (RWr1), Error status flag (RWr0.b10) turns on, and the ERR. LED turns on.
- Do not set the parameter using the CCPASET instruction in the master station. Correct operation of the I/O module cannot be guaranteed because the module operates with the block data assurance per station disabled when the CCPASET instruction is executed. (The CCPASET instruction is intended to configure parameters for a master/local module. For details on the CCPASET instruction, refer to the following: User's manual for the master/local module used.)
- When points less than the ones of the main module and extension module are set for the remote I/O signal and remote register, no error occurs. The cyclic transmission is performed for the data of the points set from the start.

■Precautions for the module configuration with the parameter settings

Since profiles of the following modules are common, the modules are handled as the same module in the "CC IE Field Configuration" window.

Module model name	No. of connectable extension modules	Notation in the "CC IE Field Configuration" window
NZ2GF2B1N1-16D	3	NZ2GF2B1-16D*1
NZ2GF2B1N-16D	1	
NZ2GF2B1-16D	1	
NZ2GF2B1N1-16T	3	NZ2GF2B1-16T*1
NZ2GF2B1N-16T	1	
NZ2GF2B1-16T	1	
NZ2GF2B1N1-16TE	3	NZ2GF2B1-16TE*1
NZ2GF2B1N-16TE	1	
NZ2GF2B1-16TE	1	
NZ2GFCE3N-32D	1	NZ2GFCE3-32D
NZ2GFCE3-32D	1	
NZ2GFCE3N-32T	1	NZ2GFCE3-32T
NZ2GFCE3-32T	1	
NZ2GFCE3N-32DT	1	NZ2GFCE3-32DT
NZ2GFCE3-32DT	1	

*1 Up to three extension modules can be connected to the module in the "CC IE Field Configuration" window. Note that an error will occur in the engineering tool and parameters will not be written if the number of actual extension modules connected has exceeded the number of connectable extension modules and writing of the parameters is attempted.



The main module does not recognize the connected extension modules more than the number of connectable extension modules. When the above error has occurred, check the number of extension modules and the model name of the main module targeted for the parameter writing.

Operation procedure

1. Open the "CC IE Field Configuration" window.

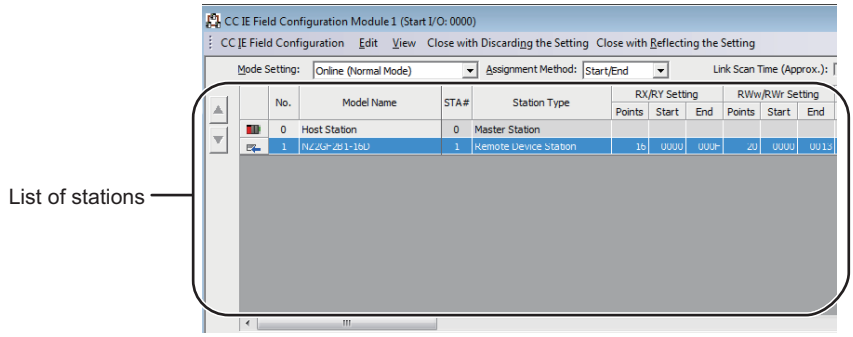
• For the master/local module QJ71GF11-T2

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ [CC IE Field Configuration Setting] button

• For the master/local module LJ71GF11-T2

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE Field] ⇨ [CC IE Field Configuration Setting] button

2. Select the I/O module in "List of stations" on the "CC IE Field Configuration" window.



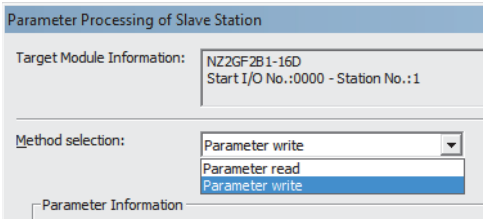
Point

The points of "RWw/RWr Setting" can be increased/decreased in increments of four points. Decreasing the points of "RWw/RWr Setting" shortens the link refresh time when some remote register areas are not used.

3. Open the "Parameter Processing of Slave Station" window.

[CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

4. Set "Method selection" to "Parameter write".



5. Double-click the item to change the setting, and input the setting value.

• Items to input from the pull-down list

Double-click the item to set, to display the pull-down list. Select the item.

• Items to input from the text box

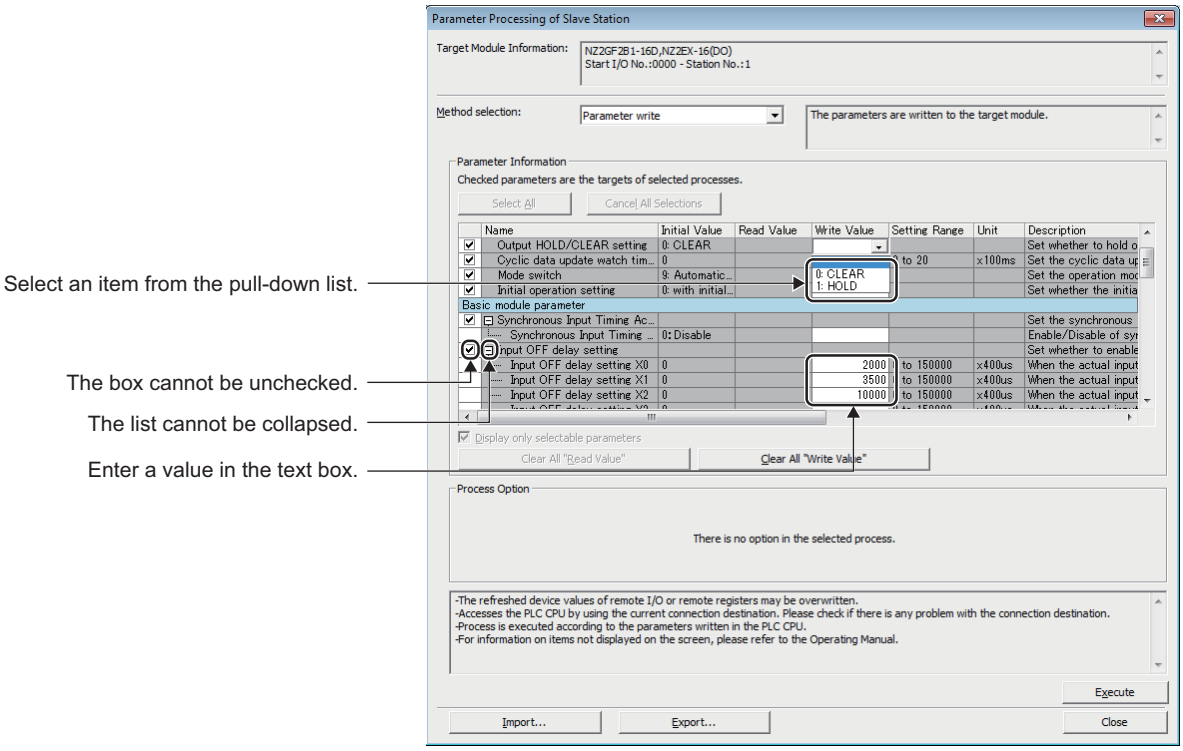
Double-click the item to set, and input the setting value.

• To save parameter information in a CSV file

Click the "Export" button and save parameter information that is displayed in a CSV file.

• To read parameter information from a CSV file

Click the "Import" button and read parameter information from a CSV file.



Module type	Setting item		Reference
Main input module	Input response time setting		Page 253 Input Response Time Setting Function
	Output HOLD/CLEAR setting[*1]		Page 254 Output HOLD/CLEAR Setting Function
	Cyclic data update watch time setting		Page 255 Cyclic Data Update Watch Function
	Mode switch[*5]		Page 246 Drive Mode Switch
	Initial operation setting[*6]		Page 265 Initial Operation Setting Function
	Synchronous Input Timing Acquisition Function[*7]	Synchronous Input Timing Acquisition Function Valid	Page 282 Synchronous Input Timing Acquisition Function
	Input OFF delay setting	Input OFF delay setting X0	Page 251 Input OFF Delay Function
		Input OFF delay setting X1	
		Input OFF delay setting X2	
		Input OFF delay setting X3	
		Input OFF delay setting X4	
		Input OFF delay setting X5	
		Input OFF delay setting X6	
		Input OFF delay setting X7	
		Input OFF delay setting X8	
		Input OFF delay setting X9	
		Input OFF delay setting XA	
		Input OFF delay setting XB	
		Input OFF delay setting XC	
		Input OFF delay setting XD	
		Input OFF delay setting XE	
		Input OFF delay setting XF	
Main input module	Input OFF delay setting	Input OFF delay setting X10[*8]	Page 251 Input OFF Delay Function
		Input OFF delay setting X11[*8]	
		Input OFF delay setting X12[*8]	
		Input OFF delay setting X13[*8]	
		Input OFF delay setting X14[*8]	
		Input OFF delay setting X15[*8]	
		Input OFF delay setting X16[*8]	
		Input OFF delay setting X17[*8]	
		Input OFF delay setting X18[*8]	
		Input OFF delay setting X19[*8]	
		Input OFF delay setting X1A[*8]	
		Input OFF delay setting X1B[*8]	
		Input OFF delay setting X1C[*8]	
		Input OFF delay setting X1D[*8]	
		Input OFF delay setting X1E[*8]	
		Input OFF delay setting X1F[*8]	

Module type	Setting item		Reference
Main output module	Input response time setting[*2]		Page 253 Input Response Time Setting Function
	Output HOLD/CLEAR setting		Page 254 Output HOLD/CLEAR Setting Function
	Cyclic data update watch time setting		Page 255 Cyclic Data Update Watch Function
	Mode switch[*5]		Page 246 Drive Mode Switch
	Initial operation setting[*6]		Page 265 Initial Operation Setting Function
	Number of ON times integration function enable	Number of ON times integration function enable Y0	Page 256 Number of ON Times Integration Function
		Number of ON times integration function enable Y1	
		Number of ON times integration function enable Y2	
		Number of ON times integration function enable Y3	
		Number of ON times integration function enable Y4	
		Number of ON times integration function enable Y5	
		Number of ON times integration function enable Y6	
		Number of ON times integration function enable Y7	
		Number of ON times integration function enable Y8	
		Number of ON times integration function enable Y9	
		Number of ON times integration function enable YA	
		Number of ON times integration function enable YB	
		Number of ON times integration function enable YC	
		Number of ON times integration function enable YD	
		Number of ON times integration function enable YE	
		Number of ON times integration function enable YF	
Main output module	Number of ON times integration function enable	Number of ON times integration function enable Y10[*9]	Page 256 Number of ON Times Integration Function
		Number of ON times integration function enable Y11[*9]	
		Number of ON times integration function enable Y12[*9]	
		Number of ON times integration function enable Y13[*9]	
		Number of ON times integration function enable Y14[*9]	
		Number of ON times integration function enable Y15[*9]	
		Number of ON times integration function enable Y16[*9]	
		Number of ON times integration function enable Y17[*9]	
		Number of ON times integration function enable Y18[*9]	
		Number of ON times integration function enable Y19[*9]	
		Number of ON times integration function enable Y1A[*9]	
		Number of ON times integration function enable Y1B[*9]	
		Number of ON times integration function enable Y1C[*9]	
		Number of ON times integration function enable Y1D[*9]	
		Number of ON times integration function enable Y1E[*9]	
		Number of ON times integration function enable Y1F[*9]	
	Synchronous Output Timing Setting Function[*7]	Synchronous Output Timing Setting Function Valid	Page 279 Synchronous Output Timing Setting Function
	Fast logic setting[*2]	Fast logic setting Y0	Page 260 Fast Logic Function
		Fast logic setting Y1	
		Fast logic setting Y2	
		Fast logic setting Y3	
		Fast logic setting Y4	
		Fast logic setting Y5	
		Fast logic setting Y6	
		Fast logic setting Y7	

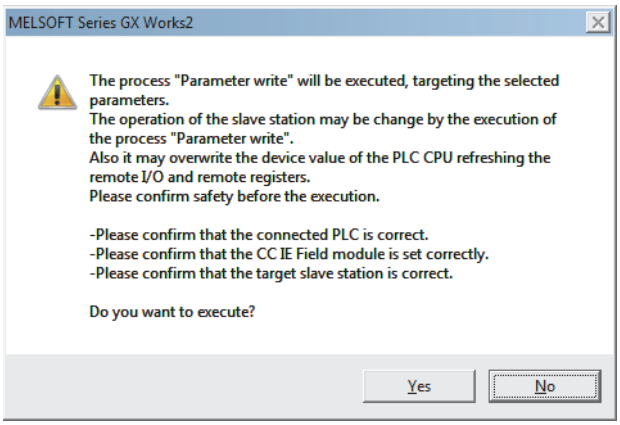
Module type	Setting item		Reference
Main I/O combined module	Input response time setting		Page 253 Input Response Time Setting Function
	Output HOLD/CLEAR setting		Page 254 Output HOLD/CLEAR Setting Function
	Cyclic data update watch time setting		Page 255 Cyclic Data Update Watch Function
	Mode switch*5		Page 246 Drive Mode Switch
	Initial operation setting*6		Page 265 Initial Operation Setting Function
	Synchronous Input Timing Acquisition Function*7	Synchronous Input Timing Acquisition Function Valid	Page 282 Synchronous Input Timing Acquisition Function
	Input OFF delay setting	Input OFF delay setting X0	Page 251 Input OFF Delay Function
		Input OFF delay setting X1	
		Input OFF delay setting X2	
		Input OFF delay setting X3	
		Input OFF delay setting X4	
		Input OFF delay setting X5	
		Input OFF delay setting X6	
		Input OFF delay setting X7	
		Input OFF delay setting X8	
		Input OFF delay setting X9	
		Input OFF delay setting XA	
		Input OFF delay setting XB	
		Input OFF delay setting XC	
		Input OFF delay setting XD	
		Input OFF delay setting XE	
		Input OFF delay setting XF	
Main I/O combined module	Number of ON times integration function enable	Number of ON times integration function enable Y10	Page 256 Number of ON Times Integration Function
		Number of ON times integration function enable Y11	
		Number of ON times integration function enable Y12	
		Number of ON times integration function enable Y13	
		Number of ON times integration function enable Y14	
		Number of ON times integration function enable Y15	
		Number of ON times integration function enable Y16	
		Number of ON times integration function enable Y17	
		Number of ON times integration function enable Y18	
		Number of ON times integration function enable Y19	
		Number of ON times integration function enable Y1A	
		Number of ON times integration function enable Y1B	
		Number of ON times integration function enable Y1C	
		Number of ON times integration function enable Y1D	
		Number of ON times integration function enable Y1E	
		Number of ON times integration function enable Y1F	
	Synchronous Output Timing Setting Function*7	Synchronous Output Timing Setting Function Valid	Page 279 Synchronous Output Timing Setting Function
	Fast logic setting	Fast logic setting Y0	Page 260 Fast Logic Function
		Fast logic setting Y1	
		Fast logic setting Y2	
		Fast logic setting Y3	
		Fast logic setting Y4	
		Fast logic setting Y5	
		Fast logic setting Y6	
		Fast logic setting Y7	

Module type	Setting item		Reference
Extension Digital Input Module[*10]	Extension 1_Input OFF delay setting	Extension 1_Input OFF delay setting X0[*4]	Page 251 Input OFF Delay Function
		Extension 1_Input OFF delay setting X1[*4]	
		Extension 1_Input OFF delay setting X2[*4]	
		Extension 1_Input OFF delay setting X3[*4]	
		Extension 1_Input OFF delay setting X4[*4]	
		Extension 1_Input OFF delay setting X5[*4]	
		Extension 1_Input OFF delay setting X6[*4]	
		Extension 1_Input OFF delay setting X7[*4]	
		Extension 1_Input OFF delay setting X8[*4]	
		Extension 1_Input OFF delay setting X9[*4]	
		Extension 1_Input OFF delay setting XA[*4]	
		Extension 1_Input OFF delay setting XB[*4]	
		Extension 1_Input OFF delay setting XC[*4]	
		Extension 1_Input OFF delay setting XD[*4]	
		Extension 1_Input OFF delay setting XE[*4]	
		Extension 1_Input OFF delay setting XF[*4]	
Extension Digital Output Module[*10]	Extension 1_Number of ON times integration function enable	Extension 1_Number of ON times integration function enable Y0[*4]	Page 256 Number of ON Times Integration Function
		Extension 1_Number of ON times integration function enable Y1[*4]	
		Extension 1_Number of ON times integration function enable Y2[*4]	
		Extension 1_Number of ON times integration function enable Y3[*4]	
		Extension 1_Number of ON times integration function enable Y4[*4]	
		Extension 1_Number of ON times integration function enable Y5[*4]	
		Extension 1_Number of ON times integration function enable Y6[*4]	
		Extension 1_Number of ON times integration function enable Y7[*4]	
		Extension 1_Number of ON times integration function enable Y8[*4]	
		Extension 1_Number of ON times integration function enable Y9[*4]	
		Extension 1_Number of ON times integration function enable YA[*4]	
		Extension 1_Number of ON times integration function enable YB[*4]	
		Extension 1_Number of ON times integration function enable YC[*4]	
		Extension 1_Number of ON times integration function enable YD[*4]	
		Extension 1_Number of ON times integration function enable YE[*4]	
		Extension 1_Number of ON times integration function enable YF[*4]	
	Extension 1_Fast logic setting[*3*11]	Extension 1_Fast logic setting Y0[*4]	Page 260 Fast Logic Function
		Extension 1_Fast logic setting Y1[*4]	
		Extension 1_Fast logic setting Y2[*4]	
		Extension 1_Fast logic setting Y3[*4]	
		Extension 1_Fast logic setting Y4[*4]	
		Extension 1_Fast logic setting Y5[*4]	
		Extension 1_Fast logic setting Y6[*4]	
		Extension 1_Fast logic setting Y7[*4]	

*1 This setting is used only when an extension output module is connected with the main input module.

*2 This setting is used only when an extension input module is connected with the main output module.
*3 This setting is used only when an extension output module is connected with the main input module.
*4 The I/O signal display of extension modules in the parameter setting is offset to X0 to XF, and Y0 to YF.
*5 This area can be set only when a main module that supports the CC-Link IE Field Network synchronous communication function is used.
*6 This area can be set only when a main module that supports the initial operation setting function is used.
*7 This area can be set when GX Works2 of version 1.530C or later or GX Works3 of version 1.007H or later is used.
*8 This area can be set when the NZ2GF2B1-32D, NZ2GFCE3(N)-32D, or NZ2GFCF1-32D is used.
*9 This area can be set when the NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GFCE3(N)-32T, or NZ2GFCF1-32T is used.
*10 The setting items for when one extension module has been connected are described. When two or three extension modules have been connected, the beginning of each setting item name for a corresponding module will be "Extension 2" or "Extension 3".
*11 The fast logic function cannot be used for the extension module 2 and extension module 3.

6. Click the [Execute] button, and the following window is displayed.

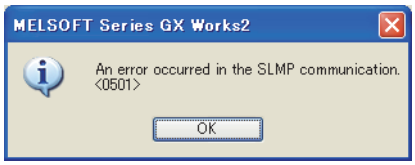


7. Click the [Yes] button.

8. The parameter is written to the I/O module.

Point

- Set all the items for the parameter. If any blank exists, the parameter cannot be written to the I/O module.
- To read the parameter from the I/O module, set "Method selection" to "Parameter read" and click the [Execute] button.
- When the following message is displayed, take corrective action for the error code in < >.



For details on the error code, refer to the following.

☞ Page 318 Error Code List

(📖 User's manual for the master/local module used)

8.2 Changing the Parameter

This section describes the procedure for changing the parameter.

The precautions for changing the parameter are the same as those in the following section.

☞ Page 227 Precautions

Changing the network configuration

When changing the network configuration diverting the created project, set the parameter in the following procedure.

1. Power off the module.
2. Connect the modules again according to the desired network configuration.
3. Power on the module.
4. Open the "CC IE Field Configuration" window.

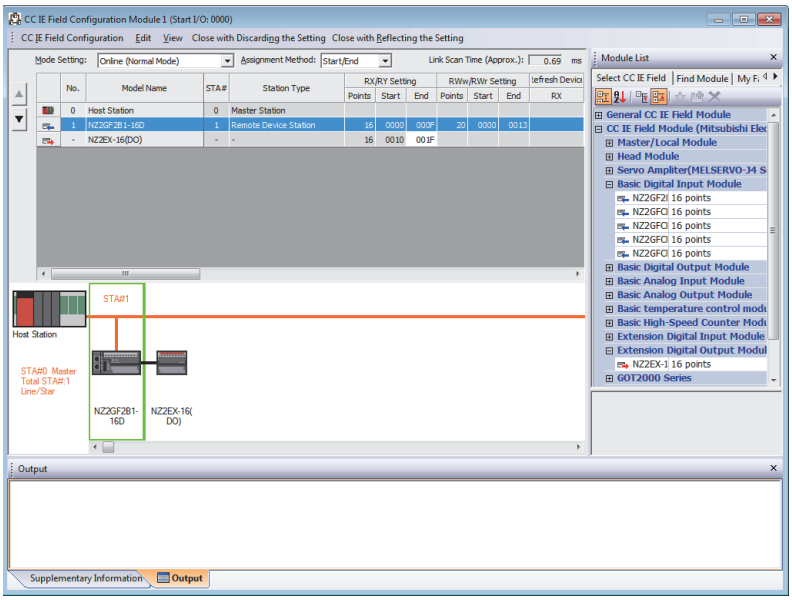
• For the master/local module QJ71GF11-T2

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ [CC IE Field Configuration Setting] button

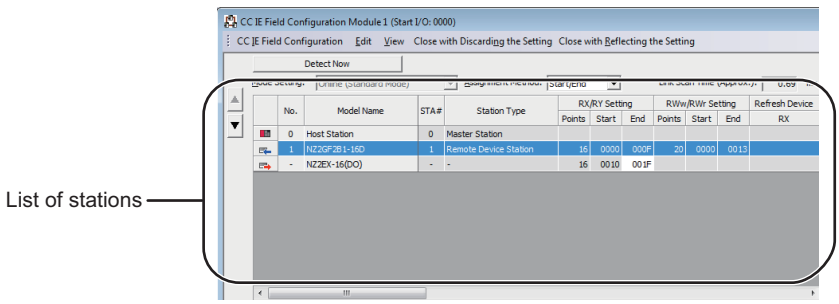
• For the master/local module LJ71GF11-T2

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE Field] ⇨ [CC IE Field Configuration Setting] button

5. Drag and drop a module to set the slave station. Input a numerical value to set the station number of the station. Change the value as necessary.



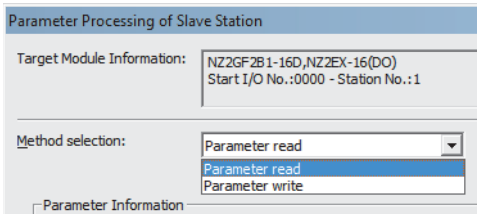
6. Select the I/O module in "List of stations" on the "CC IE Field Configuration" window.



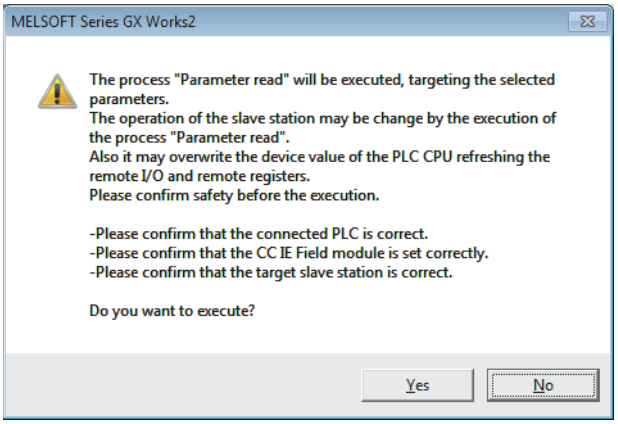
7. Open the "Parameter Processing of Slave Station" window.

[CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

8. Set "Method selection" to "Parameter read".



9. Click the [Execute] button and the following window is displayed.

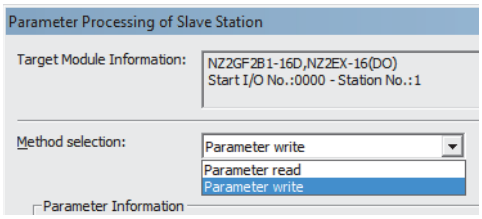


10. Click the [Yes] button.

11. The parameter is read from the I/O module.

	Name	Initial Value	Read Value	Write Value	Setting Range	Unit
Station parameter						
☑	Input response time setting	5: 10ms	5: 10ms			
☑	Output HOLD/CLEAR setting	0: CLEAR	0: CLEAR			
☑	Cyclic data update watch tim...	0	0		0 to 20	x100ms
☑	Mode switch	9: Automatic...	9: Automatic...			
☑	Initial operation setting	0: with initial...	0: with initial...			
Basic module parameter						
☑	Synchronous Input Timing Ac...					
	Synchronous Input Timing ...	0: Disable	0: Disable			
☑	Input OFF delay setting					
	Input OFF delay setting X0	0	0		0 to 150000	x400us

12. Set "Method selection" to "Parameter write".

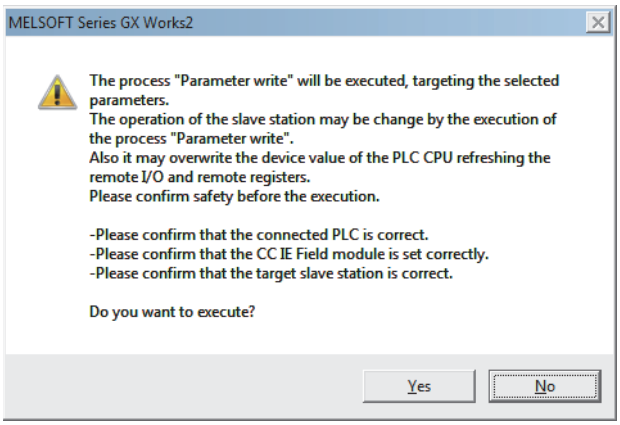


13. Set "Write Value". The following are the procedure.

- Click the title cell of "Read Value" to select all the items and copy them.
- Click the title cell of "Write Value" to select all the items and paste the copy.
- Select the items to be changed, and set new values.

	Name	Initial Value	Read Value	Write Value	Setting Range	Unit
Station parameter						
☑	Input response time setting	5: 10ms	5: 10ms	5: 10ms		
☑	Output HOLD/CLEAR setting	0: CLEAR	0: CLEAR	0: CLEAR		
☑	Cyclic data update watch tim...	0	0	0	0 to 20	x100ms
☑	Mode switch	9: Automatic...	9: Automatic...	9: Automatic...		
☑	Initial operation setting	0: with initial...	0: with initial...	0: with initial...		
Basic module parameter						
☑	Synchronous Input Timing Ac...					
	Synchronous Input Timing ...	0: Disable	0: Disable	0: Disable		
☑	Input OFF delay setting					
	Input OFF delay setting X0	0	0	0	0 to 150000	x400us

14. Click the [Execute] button and the following window is displayed.



15. Click the [Yes] button.

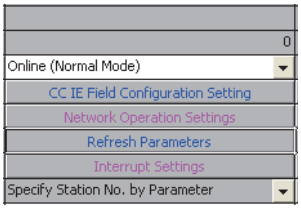
16. The parameter is written to the I/O module.

The module parameter setting of the slave station is completed.

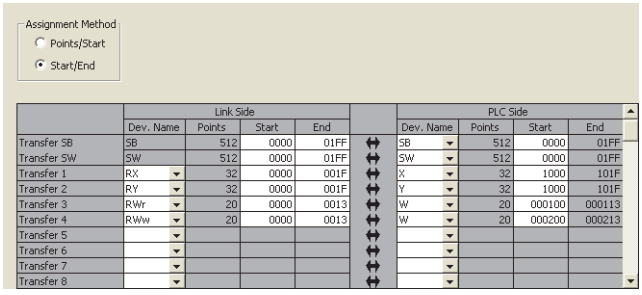
17. Close the "CC IE Field Configuration" window.

[CC IE Field Configuration] ⇨ [Close with Reflecting the Setting]

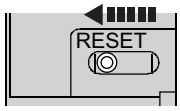
18. Click the [Refresh Parameters] button to display the refresh parameter setting window.



19. Set the refresh parameter. Change the value as necessary.

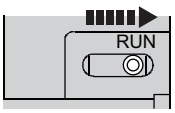


20. Write the set parameter to the CPU module of the master station and reset the CPU module.



21. Change the status of the CPU module of the master station to RUN.

The network configuration setting is now completed.



Changing the parameter without changing the network configuration

To change only the created module parameter of the slave station without changing the network configuration, set the parameter in the following procedure.

1. Open the "CC IE Field Configuration" window.

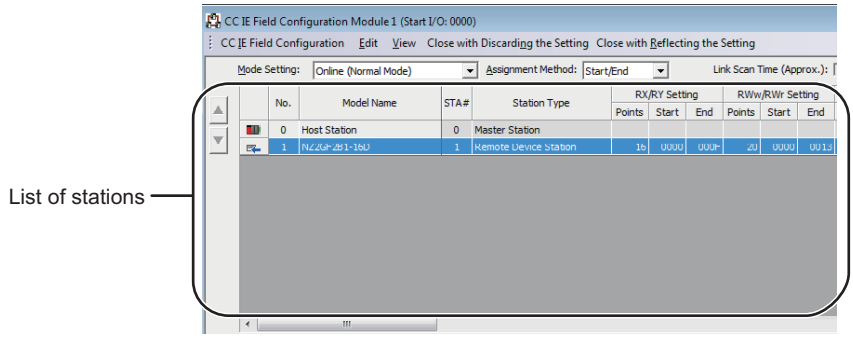
• For the master/local module QJ71GF11-T2

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ [CC IE Field Configuration Setting] button

• For the master/local module LJ71GF11-T2

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE Field] ⇨ [CC IE Field Configuration Setting] button

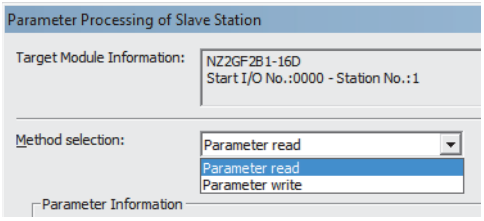
2. Select the I/O module in "List of stations" on the "CC IE Field Configuration" window.



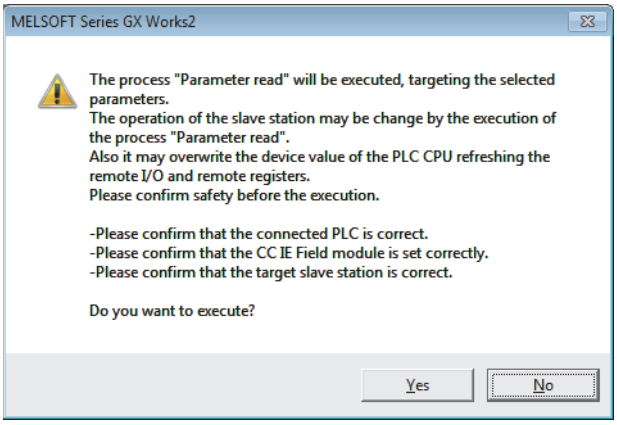
3. Open the "Parameter Processing of Slave Station" window.

[CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

4. Set "Method selection" to "Parameter read".



5. Click the [Execute] button and the following window is displayed.

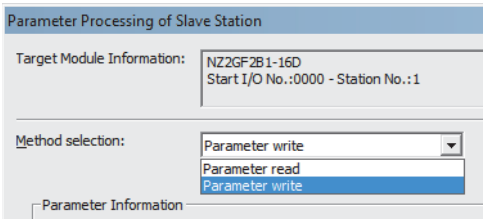


6. Click the [Yes] button.

7. The parameter is read from the I/O module.

	Name	Initial Value	Read Value	Write Value	Setting Range	Unit
Station parameter						
☑	Input response time setting	5: 10ms	5: 10ms			
☑	Output HOLD/CLEAR setting	0: CLEAR	0: CLEAR			
☑	Cyclic data update watch tim...	0	0		0 to 20	x100ms
☑	Mode switch	9: Automatic...	9: Automatic...			
☑	Initial operation setting	0: with initial...	0: with initial...			
Basic module parameter						
☑	Synchronous Input Timing Ac...					
	Synchronous Input Timing ...	0: Disable	0: Disable			
☑	Input OFF delay setting					
	Input OFF delay setting X0	0	0		0 to 150000	x400us

8. Set "Method selection" to "Parameter write".

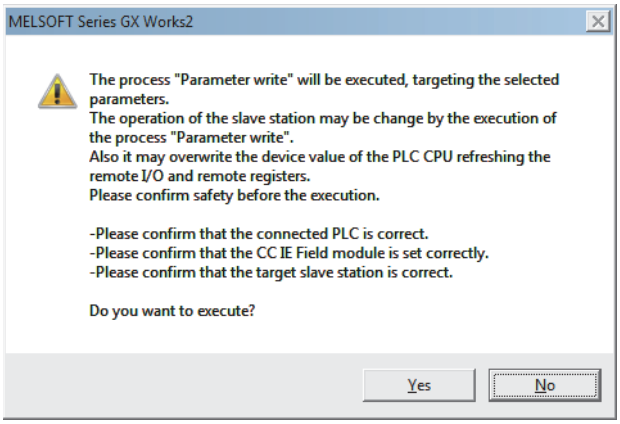


9. Set "Write Value". The following are the procedure.

- Click the title cell of "Read Value" to select all the items and copy them.
- Click the title cell of "Write Value" to select all the items and paste the copy.
- Select the items to be changed, and set new values.

	Name	Initial Value	Read Value	Write Value	Setting Range	Unit
Station parameter						
☑	Input response time setting	5: 10ms	5: 10ms	5: 10ms		
☑	Output HOLD/CLEAR setting	0: CLEAR	0: CLEAR	0: CLEAR		
☑	Cyclic data update watch tim...	0	0	0	0 to 20	x100ms
☑	Mode switch	9: Automatic...	9: Automatic...	9: Automatic...		
☑	Initial operation setting	0: with initial...	0: with initial...	0: with initial...		
Basic module parameter						
☑	Synchronous Input Timing Ac...					
	Synchronous Input Timing ...	0: Disable	0: Disable	0: Disable		
☑	Input OFF delay setting					
	Input OFF delay setting X0	0	0	0	0 to 150000	x400us

10. Click the [Execute] button and the following window is displayed.



11. Click the [Yes] button.

12. The parameter is written to the I/O module.

The module parameter setting of the slave station is completed.

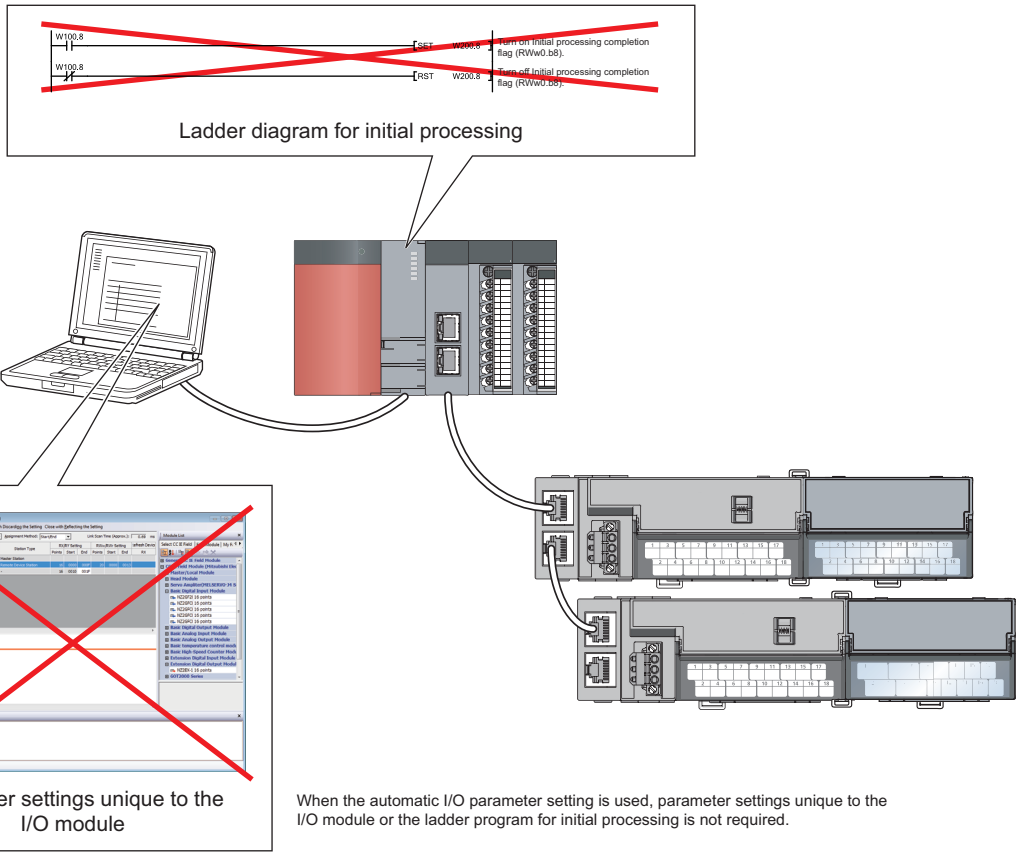
9 FUNCTIONS

This chapter describes the details of the functions available in the I/O module, and the setting procedures for those functions.
For details on remote I/O signals, remote registers, and remote buffer memory, refer to the following.

☞ Page 344 Details of Remote I/O Signals
☞ Page 345 Details of Remote Registers
☞ Page 358 Details of Remote Buffer Memory Addresses

9.1 Automatic I/O Parameter Setting

Automatic I/O parameter setting operates the I/O module without parameter settings. When the automatic I/O parameter setting is enabled, the I/O module operates with the parameters that have already been determined for the automatic I/O parameter setting regardless of the set parameter data.
In addition, the extension module connected to the main module operates as it is at the startup of the I/O module.
The parameters for the automatic I/O parameter setting is for the module that operates as a general-purpose remote I/O.



When the automatic I/O parameter setting is used, parameter settings unique to the I/O module or the ladder program for initial processing is not required.

Point

- When the I/O module is used as a general-purpose remote I/O by using the automatic I/O parameter setting, parameter settings are not required and users can shorten the start-up time.
- When the I/O module is started with the automatic I/O parameter setting enabled, the parameters set in the I/O module are overwritten with the parameters for the automatic I/O parameter setting suitable for the extension module connected to the main module.
- The function setting switch 1 is off at default.

Applicable module

The following modules support the automatic I/O parameter setting.

Module model name
NZ2GFCF1-32D, NZ2GFCF1-32T, NZ2GFCF1-32DT
NZ2GF2B1N1-16D, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE
NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE
NZ2GF2B2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S
NZ2GF2S2-16A, NZ2GF2S2-16R, NZ2GF2S2-16S
NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT

The automatic I/O parameter setting functions with following parameter settings.

Type	Name	Setting to use the automatic I/O parameter setting	Reference
Station-based parameter data	Input response time setting*1	10ms (5H)	Page 358 Input response time setting
	Output HOLD/CLEAR setting	CLEAR (0H)	Page 358 Output HOLD/CLEAR setting
	Cyclic data update watch time setting	Not monitor (0)	Page 359 Cyclic data update watch time setting
	Mode switch	Automatical judgment mode (9H)	Page 359 Mode switch
	Initial operation setting	Without initial processing (1)	Page 360 Initial operation setting
Module-based parameter data	Number of ON times integration function enable	Disable (0)	Page 361 Number of ON times integration function enable
	Synchronous output timing setting function enable	Disable (0)	Page 362 Synchronous output timing setting function enable
	Synchronous input timing acquisition function enable	Disable (0)	Page 363 Synchronous input timing acquisition function enable
	Input OFF delay setting	No delay (0)	Page 364 Input OFF delay setting
	Fast logic setting	Disable (0)	Page 365 Fast logic setting

*1 The input response time setting is not applied to an AC input module.

Setting method for the automatic I/O parameter setting

Whether the automatic I/O parameter setting is enabled or disabled is determined by the function setting switch 1 of the I/O module.

The automatic I/O parameter setting is enabled by the ON state of the function setting switch 1 when the I/O module is on, or is disabled by the OFF state of the switch.

If the function setting switch 1 status has been changed after the I/O module power-on, Function setting switch 1 changed error (0209H) is stored in Warning code (RWr2), and the status of this setting function (enabled/disabled) does not change. To change the status of automatic I/O parameter setting (enabled/disabled), turn off and on the module power supply or perform remote reset.

The current status of the automatic I/O parameter setting (enabled/disabled) can be checked with Automatic I/O parameter setting status flag (RWr3.b1).

Restrictions for using the automatic I/O parameter setting

When the automatic I/O parameter setting is enabled, the following settings have restrictions.

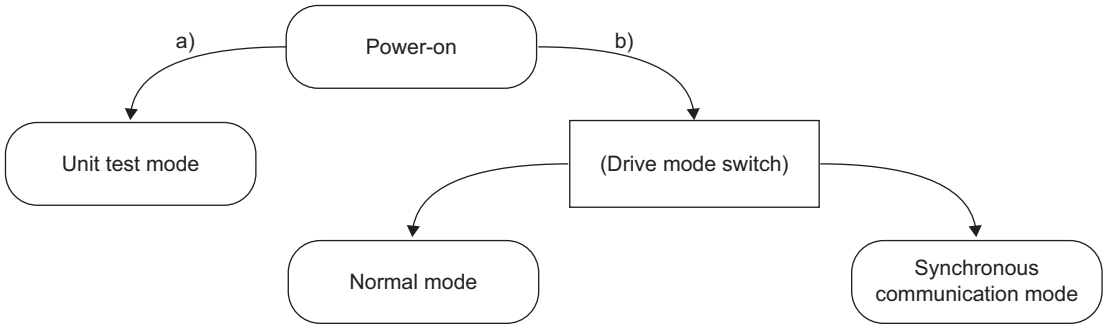
Function name	Restrictions
Data backup/restoration supporting iQ Sensor Solution	The following are operations of data backup/restoration. • This function backs up the parameters for the automatic I/O parameter setting and the identification code of the extension module connected to the main module at the I/O module startup. • Restoration cannot be performed and an error occurs. For details, refer to the following. 📖 iQ Sensor Solution Reference Manual
Operation condition setting request	If the following operations are performed, Operating condition setting change disable error (0208H) occurs and the operation condition does not change. • Turning on Operation condition setting request flag (RWw0.b9) • Writing parameters from the "CC IE Field Configuration" window of the engineering tool • Initializing parameters with Parameter area initialization command When parameters are initialized with Parameter area initialization command, values in parameter areas of the remote buffer memory do not change.

9.2 Mode Shift at Power-on

At power-on, the mode of the I/O module shifts to any of the following.

- Unit test mode
- Normal mode
- Synchronous communication mode

The following table lists conditions where the mode shifts.



Symbol	Mode	Condition
a)	Unit test mode	If "X10" of the station number setting switch is set to "TEST" and "X1" of the switch is set to "0", the mode shifts to the unit test mode. For details, refer to the following. ☞ Page 327 Unit Test
b)	(Drive mode switch)	If the station number setting switch is set to 1 to 120, the mode shifts according to the setting of Mode switch (address: 0003H). For details, refer to the following. ☞ Page 246 Drive Mode Switch

Point

Only when a main module supporting the CC-Link IE Field Network synchronous communication function is used, the drive mode can be switched.

For the CC-Link IE Field Network synchronous communication function, refer to the following.

☞ Page 268 CC-Link IE Field Network Synchronous Communication Function

9.3 Drive Mode Switch

The drive modes of the I/O module are the normal mode and synchronous communication mode.
The following table lists the type and the operation of the mode.

Type	Operation
Normal mode	I/O is performed based on the internal clock of the I/O module.
Synchronous communication mode	I/O is performed with a synchronization cycle of the master station that supports the CC-Link IE Field Network synchronous communication function.

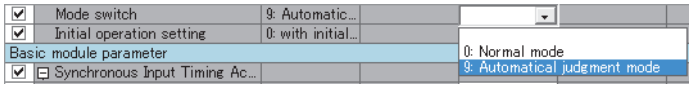
The drive mode can be selected by setting Mode switch (address: 0003H).
For the applicable versions, refer to the following.
☞ Page 268 CC-Link IE Field Network Synchronous Communication Function

Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. Set "Mode switch" to "0: Normal mode" or "9: Automatical judgment mode".



The following table lists the setting value of "Mode switch" and the drive mode.

Setting value of "Mode switch"	Drive mode
"0: Normal mode"	The I/O module operates in the normal mode.
"9: Automatical judgment mode"	The drive mode is automatically set according to the type of the module that operates as the master station of the I/O module.*1

*1 The drive mode varies depending on the module of the master station as shown below.

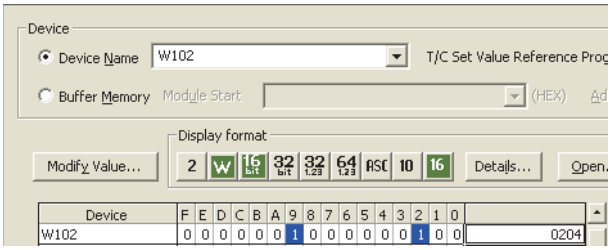
Master station		Setting of the master station*2	Drive mode (when "Mode switch" is set to "9: Automatical judgment mode")
Master/local module (CC-Link IE Field Network synchronous communication function not supported)		—	Normal mode
Master/local module (CC-Link IE Field Network synchronous communication function supported)		The network synchronous communication setting is set to "Asynchronous".	Normal mode
		The network synchronous communication setting is set to "Synchronous".	Synchronous communication mode
Simple Motion module	(First five digits of the serial number are "15091" or earlier.)	—	Normal mode
	(First five digits of the serial number are "15092" or later.)	—	Synchronous communication mode

*2 For the setting of the master station, refer to MELSEC iQ-R Inter-Module Synchronization Function Reference Manual.

3. Click the [Execute] button to write the parameter to the main I/O module.

4. Check that "0204H" is stored in Latest warning code (RWr2).

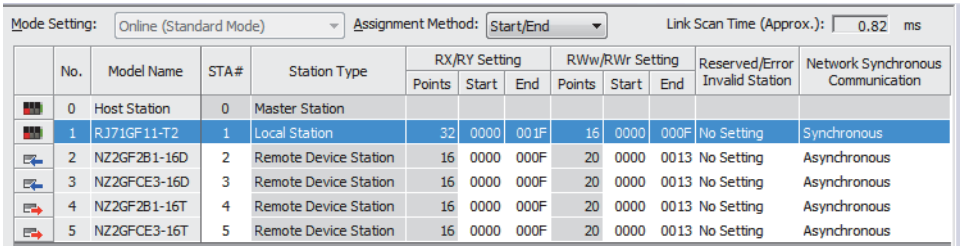
[Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]



5. The main I/O module starts operating in the set drive mode by turning off and on the power or performing the remote reset.

Point

- To operate the I/O module connected to the master station that supports the CC-Link IE Field Network synchronous communication function in normal mode, set to "0: Normal mode".
- The MELSEC iQ-R series master station can collectively control or set the operation of each slave station (synchronous communication mode/normal mode) by setting synchronous/asynchronous to each slave station. However, the settings of an extension module are disabled. The extension module operates according to the settings of the connected main module.



	No.	Model Name	STA#	Station Type	RX/RY Setting			RWw/RWr Setting			Reserved/Error Invalid Station	Network Synchronous Communication
					Points	Start	End	Points	Start	End		
	0	Host Station	0	Master Station								
	1	RJ71GF11-T2	1	Local Station	32	0000	001F	16	0000	000F	No Setting	Synchronous
	2	NZ2GF2B1-16D	2	Remote Device Station	16	0000	000F	20	0000	0013	No Setting	Asynchronous
	3	NZ2GFCE3-16D	3	Remote Device Station	16	0000	000F	20	0000	0013	No Setting	Asynchronous
	4	NZ2GF2B1-16T	4	Remote Device Station	16	0000	000F	20	0000	0013	No Setting	Asynchronous
	5	NZ2GFCE3-16T	5	Remote Device Station	16	0000	000F	20	0000	0013	No Setting	Asynchronous

9.4 Error Notification Function

When an error or warning occurs, the I/O module notifies the master station of it using remote registers.

Point

The notification of the error or warning can be checked on the LED on the front of the module.
For details, refer to the following.
☞ Page 27 PART NAMES

Notification of an error

The I/O module notifies the master station of an error in the following method.

Item	Description	Reference
Error status flag (RWr0.b10)	Turns on when a moderate error or major error occurs.	Page 348 Error status flag (RWr0.b10)
Error clear request flag (RWw0.b10)	Some errors can be cleared by turning on and off Error clear request flag (RWw0.b10).	Page 355 Error clear request flag (RWw0.b10)
Error code (RWr1)	An error code is stored when a moderate error or major error occurs.	Page 349 Error code

Point

Depending on the major error status such as a hardware failure of the module, Error status flag (RWr0.b10) may not be turned on, or an error code may not be stored in Error code (RWr1). When the above error occurs, check the error occurrence with the LED indication on the front of the module, and please consult your local Mitsubishi representative.

■Method for clearing an error

The method for clearing an error depends on the error type.

Error type	Clearing an error
Major error	The error cannot be cleared.
Moderate error	Turn on Error clear request flag (RWw0.b10) or Operation condition setting request flag (RWw0.b9) after removing the error cause.

Notification of a warning

The I/O module notifies the master station of a warning in the following method.

Item	Description	Reference
Warning status flag (RWr0.b12)	Turns on when a minor error occurs.	Page 349 Warning status flag (RWr0.b12)
Warning code (RWr2)	The error code is stored when a minor error occurs.	Page 349 Warning code

■Method for clearing a warning

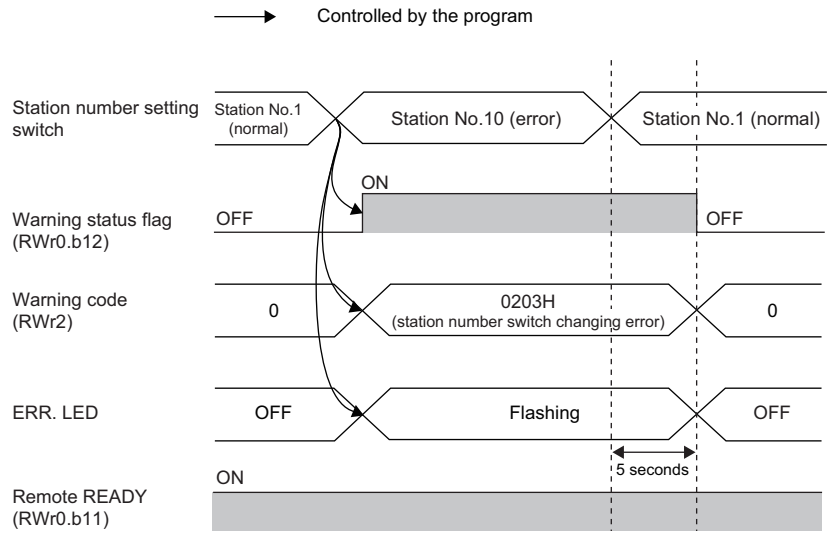
Error type		Clearing an error
Minor error	Warning	A warning is cleared five seconds after the error cause is removed.

A warning results in the following state five seconds after the error cause is removed.

- Warning status flag (RWr0.b12) turns off.
- Warning code (RWr2) is cleared.
- The ERR. LED turns off.

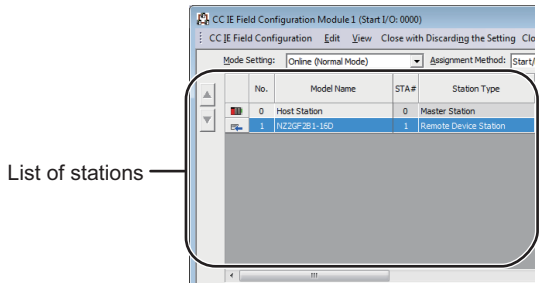
Ex.

Operation to clear Station number switch changing error (error code: 0203H)



Method for clearing an error by executing the command of the slave station

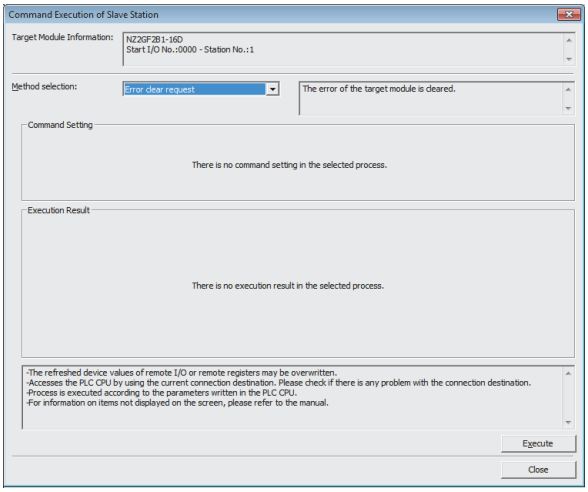
The following shows how to clear an error by executing the command of the slave station.



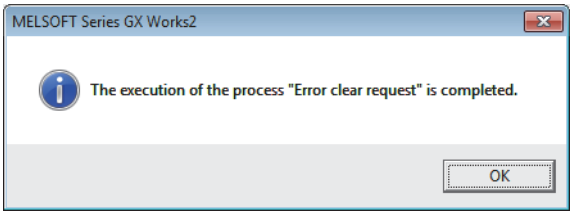
1. Select the main I/O module in "List of stations" on the "CC IE Field Configuration" window.

2. Open the "Command Execution of Slave Station" window.

[CC IE Field Configuration] ⇨ [Online] ⇨ [Command Execution of Slave Station]



3. Set "Method selection" to "Error clear request" and click the [Execute] button.



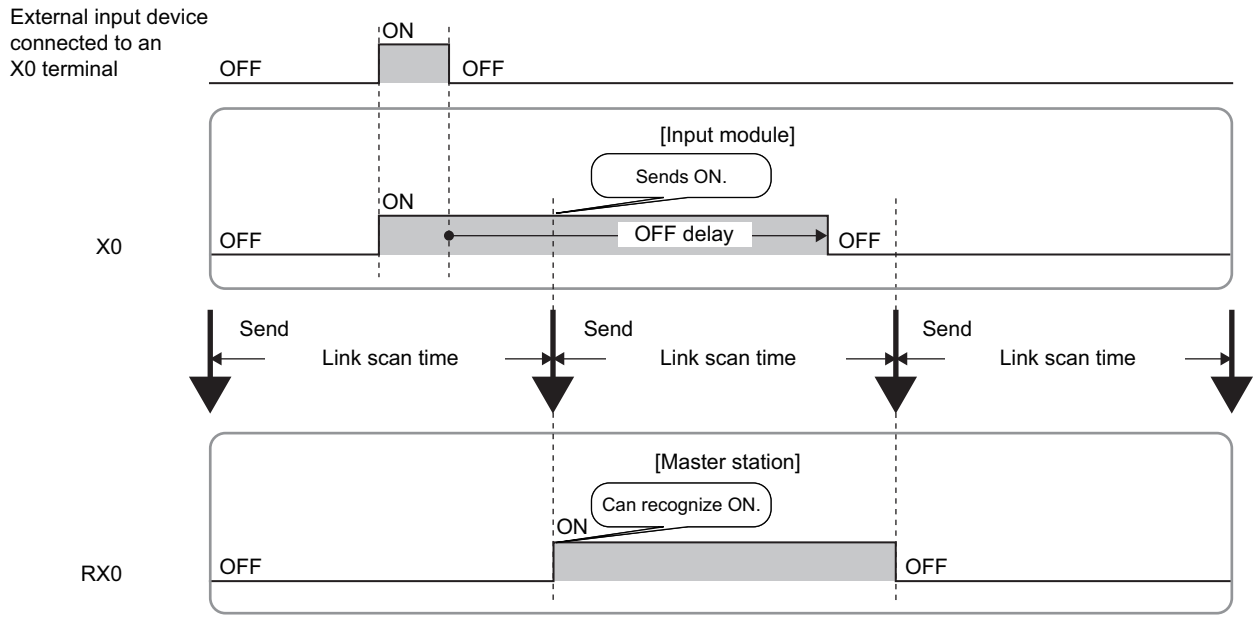
4. In the window that appears (shown left), click the [OK] button.

5. The error for the I/O module is cleared.

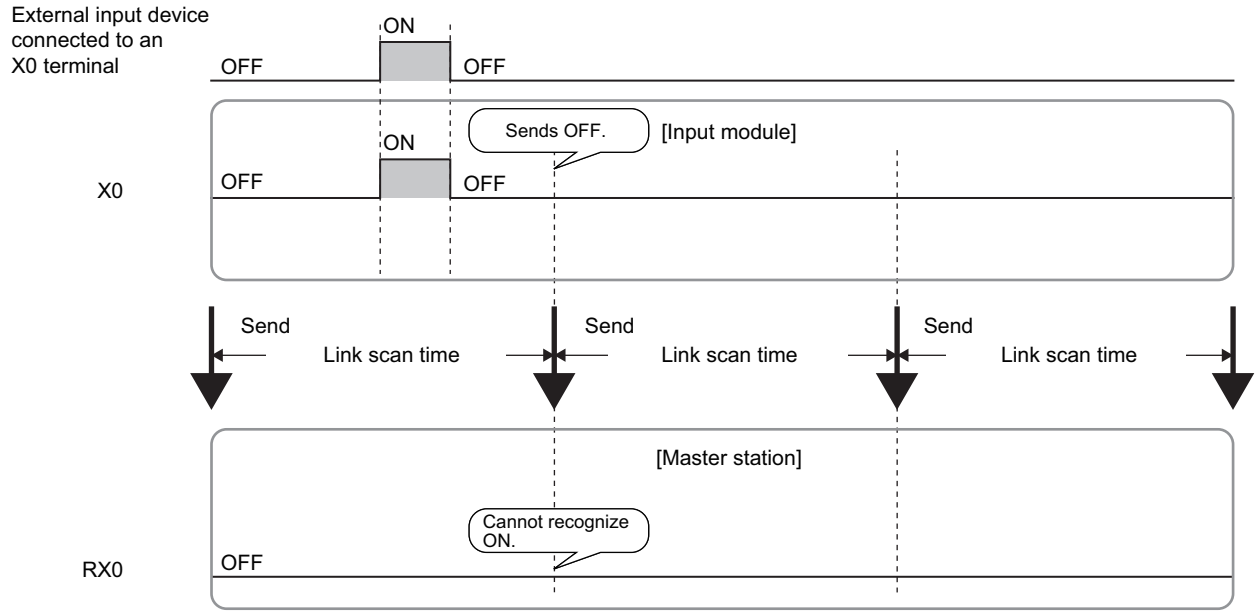
9.5 Input OFF Delay Function

This function turns off an X signal after a predetermined time passed from when an actual input becomes off from on.
With the input OFF delay function, even an input whose ON time is extremely short can be surely recognized on a program.
When an external input device is replaced with a sensitive one, users can use their previous program by only adjusting the delay time.
Set whether to enable or disable the function and set the delay time for each input point from the module parameter setting window of the engineering tool or the program.

Ex.
A short period of ON time can be surely recognized by setting the delay time longer than the period of the link scan time.



When the ON time of the target input signal is less than 100µs, the module cannot recognize ON of the input and the input OFF delay function may not be performed.



Point

- The delay time does not include the hardware response time.
- The accuracy of the delay time is 0 to 400µs.

Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. Set a delay time for "Input OFF delay setting X□".

☑	⊟ Input OFF delay setting			
	Input OFF delay setting X0	0		2500
	Input OFF delay setting X1	0		
	Input OFF delay setting X2	0		

Setting item	Setting range
Input OFF delay setting X□*1	• 0 (No delay) • 1 to 150000 (400μs to 60s, 400μs unit)

*1 X0 to XF have the same setting item and range.

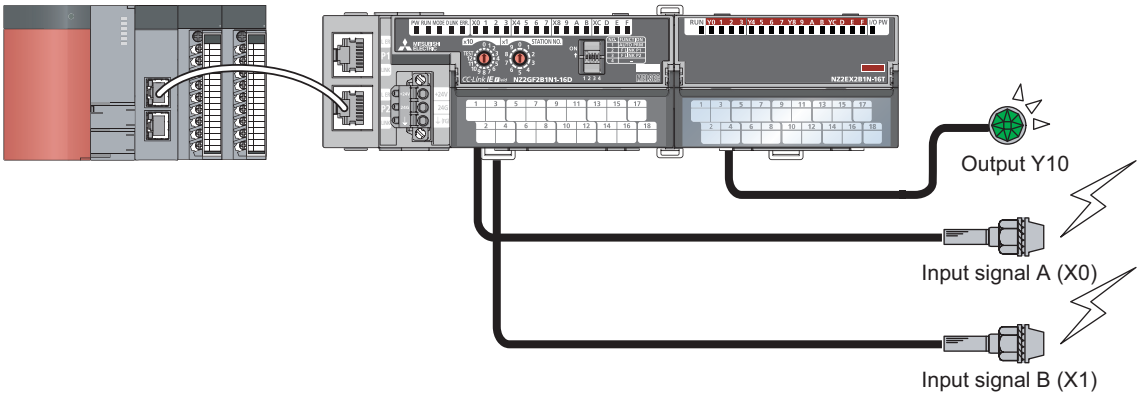
Combination of the input OFF delay function and the fast logic function

Ex.

An application which turns on a lamp for one second or longer responding to a brief turning on of the sensor input on the condition that input module (main module) is connected to an output module (an extension module)

- With the input OFF delay setting, sensor input X0 and X1 are turned off after one second (1000000μs).
- When sensor input X0 (input signal A) and X1 (input signal B) are on, output Y10 of the lamp is turned on.

<Configuration>



Item	Setting
Input OFF delay setting X0	2500
Input OFF delay setting X1	2500
Fast logic setting Y10	Enable

For the fast logic function, refer to the following.

☞ Page 260 Fast Logic Function

9.6 Input Response Time Setting Function

This function prevents an incorrect input due to noise by setting the response time until the module recognizes an actual input as the X signal.

The input response time can be set from the module parameter setting window of the engineering tool or the program.

Point

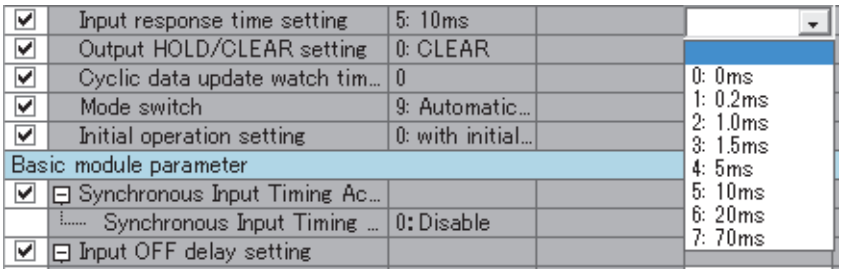
The input response time setting is not applied to an AC input module.

Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. For "Input response time setting", select the appropriate input response time.



Item	Setting range
Input response time setting	0: 0ms*1 1: 0.2ms*1 2: 1.0ms 3: 1.5ms 4: 5ms 5: 10ms 6: 20ms 7: 70ms

*1 For the extension input module connected to the main A/D converter module or the main D/A converter module, "0: 0ms" and "1: 0.2ms" cannot be set. For details on each module, refer to the following: User's manual for the main module used.

Precautions

The input module may take in noise as an input depending on the input response time setting.

The pulse width which is taken in as an input varies depending on the input response time set in parameters.

To set the input response time, consider fully the operating environment.

The following table shows the minimum values of the pulse widths which may be taken in as an input. The pulse widths lower than the values shown below can be filtered as noise.

Value of input response time setting	0ms	0.2ms	1.0ms	1.5ms	5ms	10ms	20ms	70ms
The minimum value of the pulse width which may be taken in as an input (the maximum pulse widths which can be filtered as noise)	—	0.004ms	0.15ms	0.4ms	2ms	4ms	9ms	36ms

9.7 Output HOLD/CLEAR Setting Function

When the I/O module is disconnected from data link, or the CPU module operating status is STOP, whether to hold or clear the last output value can be set. Set whether to hold or clear the values for all the output points of the module in a batch from the module parameter setting window of the engineering tool or the program. The output HOLD/CLEAR setting is applied to a contact whose output is on by the fast logic function.

Output HOLD/CLEAR setting and its operation

When CLEAR or HOLD is set for an output, the output is turned on or off as follows.

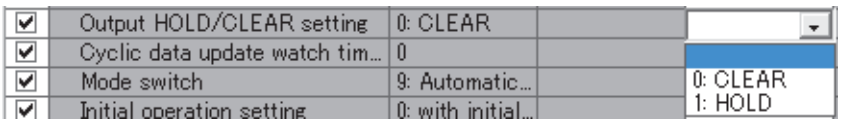
Operating status		HOLD/CLEAR setting CLEAR (default)		HOLD/CLEAR setting HOLD	
		Last output status OFF	Last output status ON	Last output status OFF	Last output status ON
Data link in operation	CPU module in RUN	OFF	ON	OFF	ON
	CPU module in STOP	OFF	OFF	OFF	ON
	CPU module in PAUSE	OFF	ON	OFF	ON
	CPU module in RESET	OFF	OFF	OFF	ON
	CPU module suspended by error	OFF	OFF	OFF	ON
During disconnection/cyclic stop		OFF	OFF	OFF	ON

Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. For "Output HOLD/CLEAR setting", select "0: CLEAR" or "1: HOLD".



Item	Setting range
Output HOLD/CLEAR setting	• 0: CLEAR • 1: HOLD

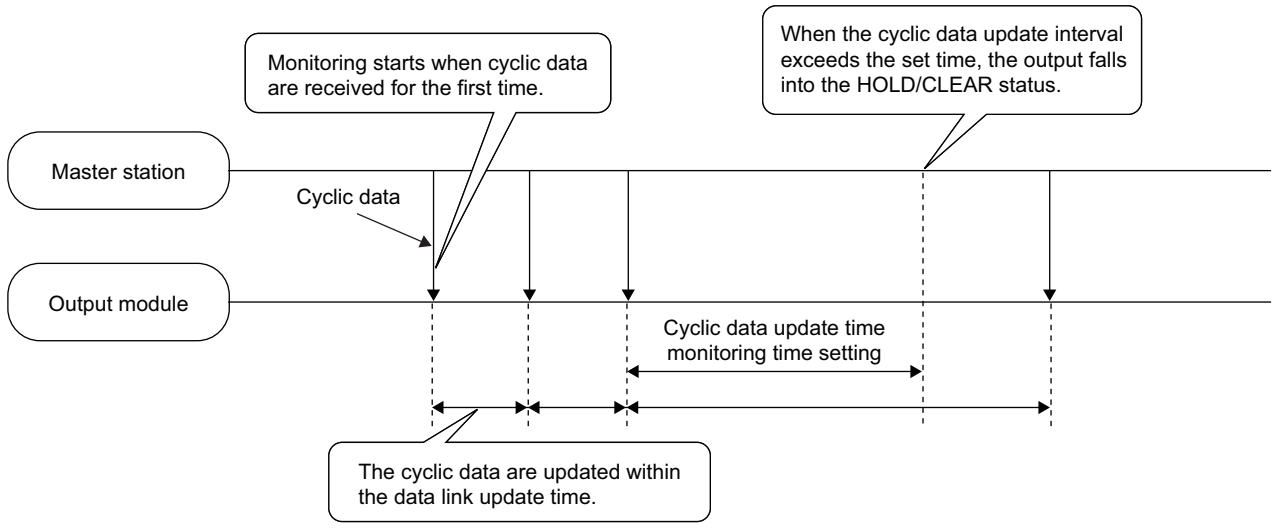
9.8 Cyclic Data Update Watch Function

The update intervals of cyclic data are monitored. The last output value is held or cleared when the cyclic transmission stop status continues longer than the set monitoring time.

The cyclic transmission stop status is the status that the D LINK LED is flashing (Data link in operation (cyclic transmission stopped)) or off (Data link not performed (disconnected)).

Set whether to hold or clear the output value using the output HOLD/CLEAR setting function. For the output HOLD/CLEAR setting function, refer to the following.

☞ Page 254 Output HOLD/CLEAR Setting Function



Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. Set the monitoring time in "Cyclic data update watch time setting".

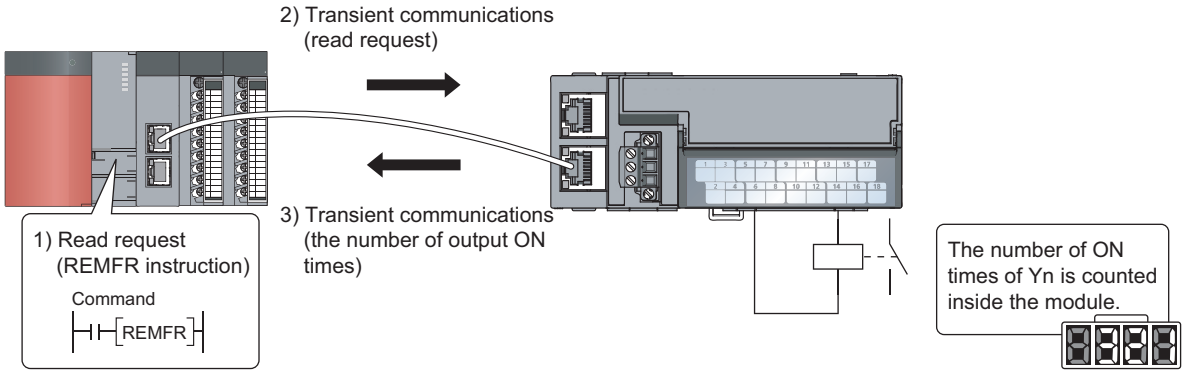
Item	Setting range
Cyclic data update watch time setting	• 0 (Not monitor) • 1 to 20 (0.1 to 2 seconds in units of 100ms)

Point

- Set the greater value for the cyclic data update watch time setting than that of the link scan time.
- While the synchronous communication mode is enabled, the setting of Cyclic data update watch time setting is ignored.

9.9 Number of ON Times Integration Function

The number of ON times of each output point is counted within the range of 0 to 2147483647. The integration value remains even though the output module is powered off. Whether to enable or disable the function can be set for each output point from the module parameter setting window of the engineering tool or the program. When the value for "Number of ON times integration function enable" is "1: Enable", the number of ON times at the corresponding output point is counted. When "0: Disable" is set, the number of ON times at the corresponding output point is not counted.

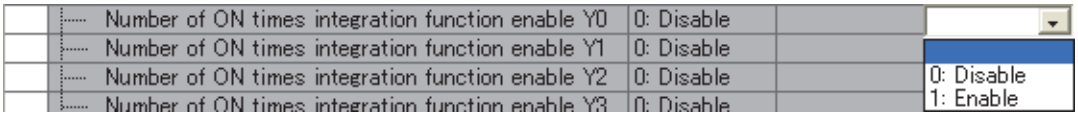


Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. Set whether to enable or disable the number of ON times integration function in "Number of ON times integration function enable".



Item	Setting range
Number of ON times integration function enable YD*1	• 0: Disable • 1: Enable

*1 Y0 to YF have the same item and setting range.

Checking and clearing the number of ON times

The number of ON times can be checked and cleared on the program.

Item	Description	Reference
Number of ON times integration value Y☐ (address: 0610H to 064FH, 0710H to 072FH, 0810H to 082FH, 0910H to 092FH)	Stores the integration value of the number of ON times integration function.	Program example • Page 291 Program Example Details of Remote Buffer Memory Addresses • Page 368 Number of ON times integration value
Number of ON times integration value clear command Y☐ (address: 1100H, 1102H, 1200H, 1300H, 1400H)	When the corresponding bit of output is turned on, the integration value for the output with the number of ON times integration function is cleared to zero.	Program example • Page 300 Program example for clearing the number of ON times Details of Remote Buffer Memory Addresses • Page 376 Number of ON times integration value clear command
Number of ON times integration value clear completed Y☐ (address: 1101H, 1103H, 1201H, 1301H, 1401H)	After the integration value is cleared to zero using Number of ON times integration value clear command Y☐ (address: 1100H, 1102H, 1200H, 1300H, 1400H), the bit of the output which is cleared to zero turns on.	Program example • Page 300 Program example for clearing the number of ON times Details of Remote Buffer Memory Addresses • Page 378 Number of ON times integration value clear completed

Point

- When the ON time and the OFF time of the target output signal are less than 10ms, the output module cannot recognize the output change and the number of ON times may not be counted.
- When the number of ON times integration value exceeds 2147483647, the count stops. To integrate the number of ON times continuously, clear the integration value by using Number of ON times integration value clear command Y☐ (address: 1100H, 1102H, 1200H, 1300H, 1400H).
- The number of ON times is counted also when the fast logic function is enabled.

9.10 Output ON/OFF Information Hold Function

This function checks if the output has been turned once on or off.

Output ON information

Output ON information is stored in Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB).
Whether the output has been turned on or not can be checked with Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB).
Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB) can be cleared using Output Y ON information clear request (RWw8, RWw9, RWwA, RWwB).
For the on and off timing, refer to the following.
☞ Page 353 Output Y ON information

Output OFF information

Output OFF information is stored in Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF).
Whether the output has been turned off or not can be checked with Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF).
Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF) can be cleared using Output Y OFF information clear request (RWwC, RWwD, RWwE, RWwF).
For the on and off timing, refer to the following.
☞ Page 354 Output Y OFF information

Applicable module and software package

The output on/off information hold function cannot be used depending on the combination of the I/O module and software package used. For details, refer to the following.
For I/O modules not listed in the following table, there is no restrictions.

Module	Serial number (first five digits)	Version of GX Works2	Version of GX Works3
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE	"15102" or later	Version 1.501X or later	Version 1.000A or later
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	"16042" or later	Version 1.513K or later	

9.11 External Power Supply Monitoring Function

By using this function, the I/O module monitors the ON/OFF status of the external power supply of a transistor output module and shows it on the I/O PW LED on the output module.
By using External power supply monitor request flag (RWw3.b0), a moderate error is generated when the external power supply is off. Thus, the ON/OFF status of the external power supply is notified and the output module can be stopped.

Operation of the external power supply monitoring function

When the external power supply is turned off while External power supply monitor request flag (RWw3.b0) is on, a moderate error occurs. When using this function, check that the external power supply stabilizes before turning on External power supply monitor request flag (RWw3.b0). When turning off the external power supply, turn off External power supply monitor request flag (RWw3.b0) in advance.

Setting and checking the external power supply monitoring function

Item	Description	Reference
External power supply monitor request flag (RWw3.b0)	Sets whether to enable or disable the external power supply monitoring function.	Page 355 External power supply monitor request flag (RWw3.b0)
External power supply monitor state flag (RWr3.b0)	Indicates whether the external power supply monitoring function is enabled or disabled.	Page 350 External power supply monitor state flag (RWr3.b0)

9.12 Fast Logic Function

This function controls output according to the input status inside the I/O module and without communication with the master station. High-speed output control can be performed with this function.

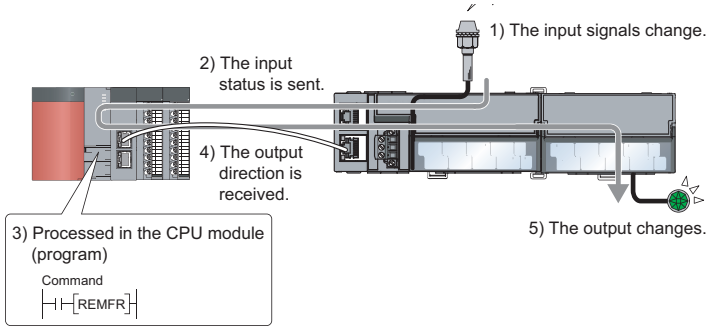
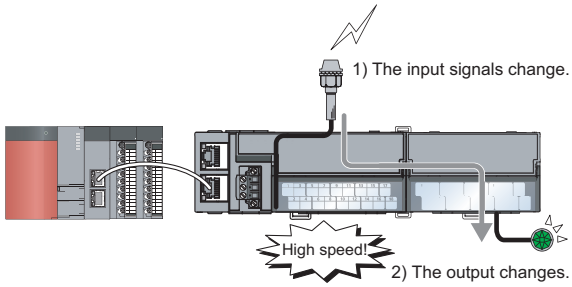
In a combination of a main module and an extension module, one must be an input module, and the other must be an output module. When using a main module and extension modules, the fast logic function can be used only in the combination of a main module and the extension module 1.

When an I/O combined module is used, the fast logic function operates using I/O signals of the I/O combined module regardless of whether an extension module is connected or not.

Set whether to enable or disable the function for each output point from the module parameter setting window of the engineering tool or the program. For the safety at module configuration change, the set parameter data returns to the default value (Disable (0)) when the module is powered off. (The parameter data is not stored to the nonvolatile memory.) To keep the set data, design a program which writes the value for the function at every module power supply on. For the program example, refer to the following.

☞ Page 302 Program example for the fast logic function

Overview of the fast logic function

When the fast logic function is not used	When the fast logic function is used
	

Setting the fast logic function

In the fast logic setting, the combination of input signal A and B, and their output conditions for each output signal is fixed.
When the input OFF delay function is used, a fast logic output is executed using the X signal for which the input OFF delay process has been executed.

■When the main module is an output module

When the main module is an output module, an extension module must be an input module.
The following lists the combinations of output conditions and input signals for each output signal when the main output module (16-point module) is used.

- Y0 to Y7: Output signals of the main output module (16-point module)
- X10 to X1F: Input signals of the extension input module

Item	Logic (output condition)	Output signal Y□	Input signal A	Input signal B
Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y□ is output.)	Y0	X10	X11
Fast logic setting Y1		Y1	X12	X13
Fast logic setting Y2		Y2	X14	X15
Fast logic setting Y3		Y3	X16	X17
Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y□ is output.)	Y4	X18	X19
Fast logic setting Y5		Y5	X1A	X1B
Fast logic setting Y6		Y6	X1C	X1D
Fast logic setting Y7		Y7	X1E	X1F

The following lists the combinations of output conditions and input signals for each output signal of when the NZ2GFCE3(N)-32T or NZ2GFCF1-32T is used.

- Y0 to Y7: Output signals of the NZ2GFCE3(N)-32T or NZ2GFCF1-32T
- X20 to X2F: Input signals of the extension input module

Item	Logic (output condition)	NZ2GFCE3(N)-32T, NZ2GFCF1-32T	Extension input module	
		Output signal Y□	Input signal A	Input signal B
Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y□ is output.)	Y0	X20	X21
Fast logic setting Y1		Y1	X22	X23
Fast logic setting Y2		Y2	X24	X25
Fast logic setting Y3		Y3	X26	X27
Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y□ is output.)	Y4	X28	X29
Fast logic setting Y5		Y5	X2A	X2B
Fast logic setting Y6		Y6	X2C	X2D
Fast logic setting Y7		Y7	X2E	X2F

■When the main module is an input module

When the main module is an input module, an extension module must be an output module.

The following lists the combinations of output conditions and input signals for each output signal when the main input module (16-point module) is used.

- X0 to XF: Input signals of the main input module (16-point module)
- Y10 to Y17: Output signals of the extension output module

Item	Logic (output condition)	Output signal Y☐	Input signal A	Input signal B
Extension 1_Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y☐ is output.)	Y10	X0	X1
Extension 1_Fast logic setting Y1		Y11	X2	X3
Extension 1_Fast logic setting Y2		Y12	X4	X5
Extension 1_Fast logic setting Y3		Y13	X6	X7
Extension 1_Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y☐ is output.)	Y14	X8	X9
Extension 1_Fast logic setting Y5		Y15	XA	XB
Extension 1_Fast logic setting Y6		Y16	XC	XD
Extension 1_Fast logic setting Y7		Y17	XE	XF

The following lists the combinations of output conditions and input signals for each output signal of when the NZ2GFCE3(N)-32D or NZ2GFCF1-32D is used.

- X0 to XF: Input signals of the NZ2GFCE3(N)-32D or NZ2GFCF1-32D
- Y20 to Y27: Output signals of the extension output module

Item	Logic (output condition)	Output signal Y☐	Input signal A	Input signal B
Extension 1_Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y☐ is output.)	Y20	X0	X1
Extension 1_Fast logic setting Y1		Y21	X2	X3
Extension 1_Fast logic setting Y2		Y22	X4	X5
Extension 1_Fast logic setting Y3		Y23	X6	X7
Extension 1_Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y☐ is output.)	Y24	X8	X9
Extension 1_Fast logic setting Y5		Y25	XA	XB
Extension 1_Fast logic setting Y6		Y26	XC	XD
Extension 1_Fast logic setting Y7		Y27	XE	XF

■When the main module is an I/O combined module

The following lists the combinations of output conditions and input signals for each output signal.

- X0 to XF: Input signals of the I/O combined module
- Y10 to Y17: Output signals of the I/O combined module

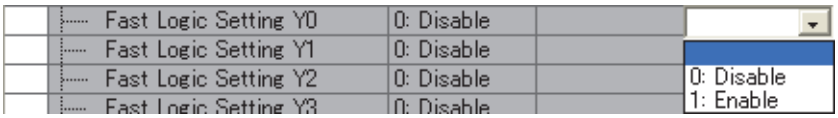
Item	Logic (output condition)	Output signal Y☐	Input signal A	Input signal B
Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y☐ is output.)	Y10	X0	X1
Fast logic setting Y1		Y11	X2	X3
Fast logic setting Y2		Y12	X4	X5
Fast logic setting Y3		Y13	X6	X7
Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y☐ is output.)	Y14	X8	X9
Fast logic setting Y5		Y15	XA	XB
Fast logic setting Y6		Y16	XC	XD
Fast logic setting Y7		Y17	XE	XF

Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. Set whether to enable or disable the fast logic function in "Fast logic setting Y☐".



Item	Setting range
Fast logic setting Y☐*1	• 0: Disable • 1: Enable

*1 Y0 to Y7 have the same item and setting range.

Response time with the fast logic function

The following determines the total response time of the fast logic function from input to output.

Input response time + Response time of the fast logic function + Output response time

Input response time, output response time: Refer to the following.

☞ Page 40 Main I/O Module Specifications

☞ Page 125 Extension I/O Module Specifications

Response time of the fast logic function:

- Without the input OFF delay function: 200µs
- With the input OFF delay function: 300µs or 500µs

Point

The response time of the fast logic function is 500µs in the following cases.

- When the input OFF delay included in both ranges of X0 to XF and X10 to X1F is used in the configuration of the NZ2GFCE3(N)-32D + an extension output module or the NZ2GFCF1-32D + an extension output module
- When the input OFF delay included in both ranges of X0 to XF and X20 to X2F is used in the configuration of the NZ2GFCE3(N)-32DT + an extension input module or the NZ2GFCF1-32DT + an extension input module
- In the ranges from X0 to XF, from X10 to X1F, from X20 to X2F, and from X30 to X3F, when the input OFF delay included in two or more ranges is used in a configuration in which two or more extension modules have been connected

Ex.

The following determines the total response time including I/O with the fast logic function under the condition that the value of the input response time setting is 1.0ms, the fast logic function is used, and the input OFF delay function is not used.

Input response time (1.0ms) + Response time of the fast logic function (0.2ms) + Output response time (OFF → ON) (0.5ms) = 1.7ms

Checking the fast logic function enable status and output

Item	Description	Reference
Fast logic enable status (address: 0602H, 0603H, 0702H)	Stores the fast logic enable or disable status for each signal.	• Program example Page 306 Program example for checking the fast logic enable or disable status • Details of Remote Buffer Memory Addresses Page 368 Fast logic enable status
Output Y current value Y☐ (RWr4, RWr5, RWr6)	Stores ON or OFF status of each output. A control result of the fast logic function can be checked.	Page 352 Output Y current value

Point

The I/O response time of the fast logic function (the time between inputting the condition and updating an output) is 200µs or less (when one input module and one output module are used, and the input OFF delay function is not used).

9.13 Initial Operation Setting Function

This function sets whether the initial processing using the program is necessary or not when the data link is established. The function enables the I/O module to operate (enabling the update of external I/O) with the program for initial processing not being set.

Applicable module and software

The initial operation setting function cannot be used depending on the combination of the I/O module and software package used. For details, refer to the following.

For I/O modules not listed in the following table, there is no restrictions.

Module	Serial number (first five digits)	Version of GX Works2	Version of GX Works3
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT	"16042" or later	Version 1.513K or later	Version 1.000A or later

Operations of when the initial operation setting function is used

The operations of when the initial operation setting function is used vary depending on the setting value of "Initial operation setting". Note that "Initial operation setting" cannot be set to "1: Without initial processing" for the I/O module with a serial number (first five digits) of "16041" or earlier. This module operates only with "0: With initial processing" being set. Also, when setting parameters using Initial processing request flag (RWr0.b8) as an interlock as shown in the program example, set "Initial operation setting" to "0: With initial processing".

For program examples of initial processing, refer to the following.

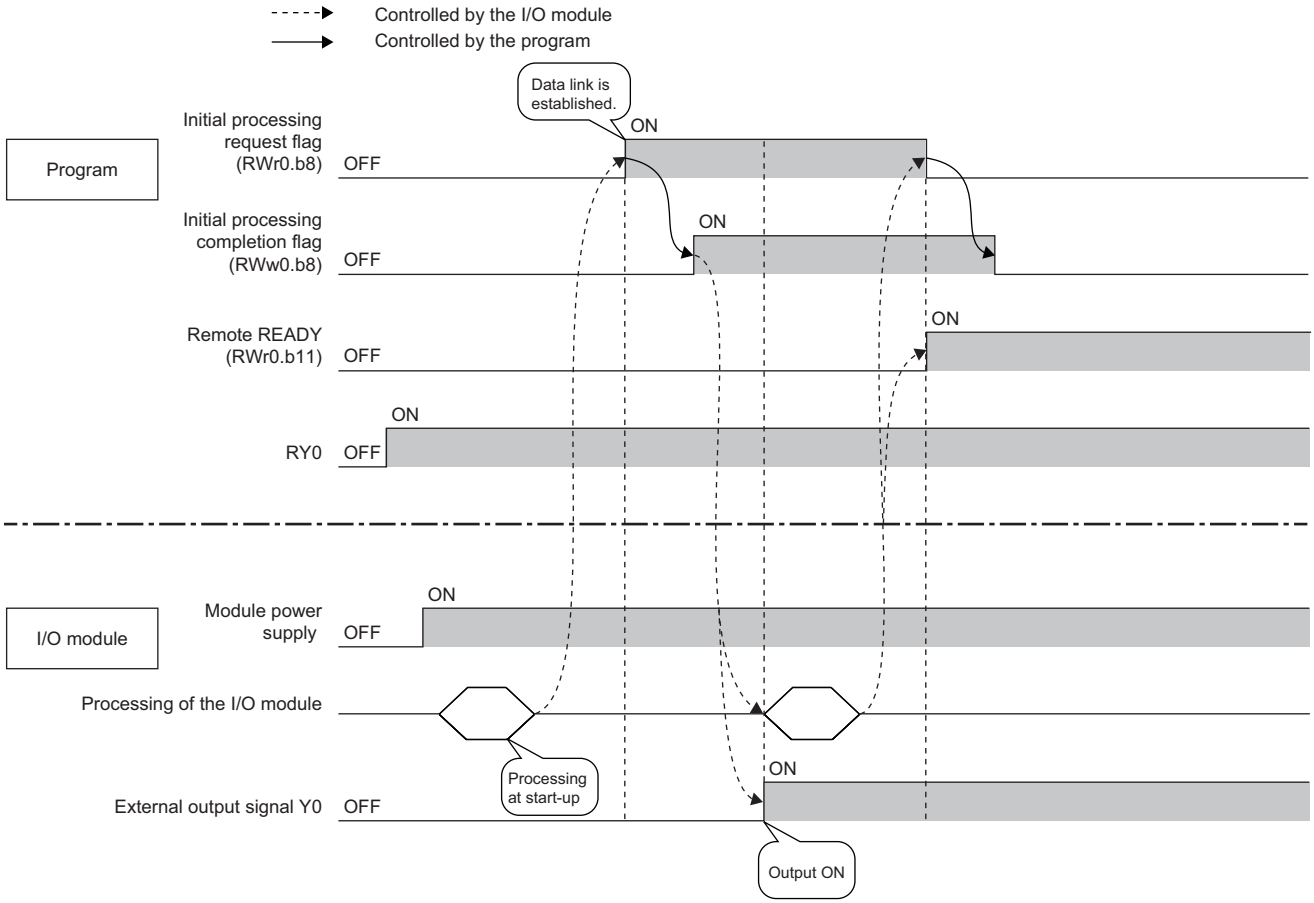
☞ Page 299 Initial processing

■When "0: With initial processing" is set

When the data link is established, Initial processing request flag (RWr0.b8) turns on.

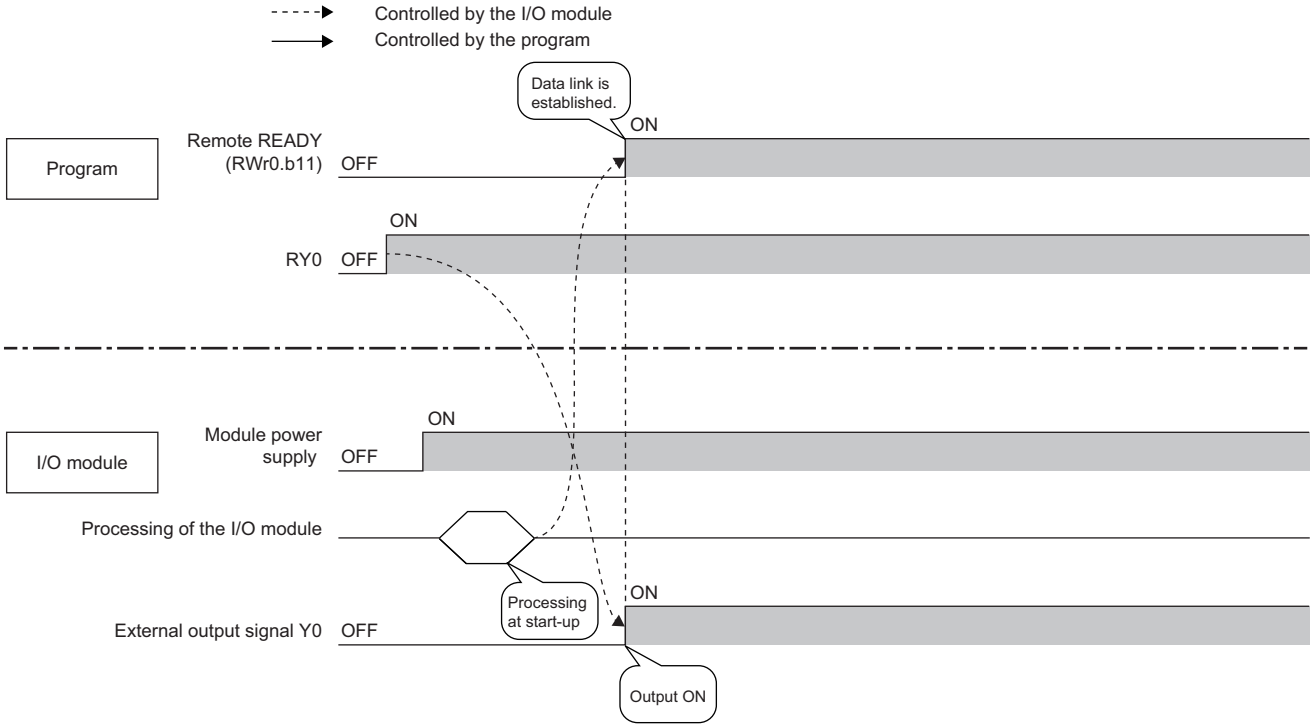
When Initial processing completion flag (RWw0.b8) is turned on, Initial processing request flag (RWr0.b8) turns off and Remote READY (RWr0.b11) turns on.

The external I/O function of the I/O module cannot be used until initial processing is completed.



■When "1: Without initial processing" is set

- When the data link is established, Remote READY (RWr0.b11) turns on.
- At the data link establishment, the external I/O function of the I/O module becomes enabled.

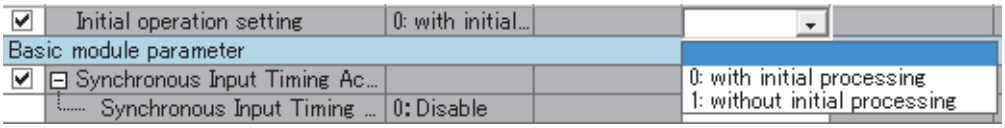


Setting procedure

1. Set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

2. Set "Initial operation setting" to "0: With initial processing" or "1: Without initial processing".



Item	Setting range
Initial operation setting	• 0: With initial processing • 1: Without initial processing

Point

If the setting is changed from "0: With initial processing" to "1: Without initial processing", when the parameter write process is completed, the state of initial processing completion becomes as follows: RWr0.8 turns off; RWr0.B turns on.

9.14 CC-Link IE Field Network Synchronous Communication Function

Using this function, the I/O module performs the I/O with a synchronization cycle of the master station that supports the CC-Link IE Field Network synchronous communication function.
This enables the I/O module to operate at the same timing of other slave stations on the same network.
The operation of the extension I/O module is also synchronized.

Point

This function can be used only when the master station that supports the CC-Link IE Field Network synchronous communication function is used and "Mode switch" is set to "9: Automatical judgment mode".

Applicable module and software

The CC-Link IE Field Network synchronous communication function cannot be used depending on the combination of the I/O module and software package used. For details, refer to the following.
For I/O modules not listed in the following table, there is no restrictions.

■When the master station is a MELSEC Q series Simple Motion module:

Module	Serial number (first five digits)	Serial number (first five digits) of Simple Motion module	Version of GX Works2
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE	"15102" or later	"15092" or later	Version 1.501X or later
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	"16042" or later		Version 1.513K or later
	"23022" or later	"17102" or later	
NZ2GF2B1N-16D, NZ2GF2B1N-16T, NZ2GF2B1N-16TE	(no restriction)	"15092" or later	Version 1.501X or later
NZ2GF2S1-16D, NZ2GF2S1-16T, NZ2GF2S1-16TE	(no restriction)		Version 1.530C or later
NZ2GFCE3-32D, NZ2GFCE3-32T, NZ2GFCE3-32DT	(no restriction)		Version 1.535H or later
NZ2GFCF1-32D, NZ2GFCF1-32T, NZ2GFCF1-32DT	(no restriction)	"17102" or later	Version 1.540N or later
NZ2GF2B1N1-16D, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE	(no restriction)		Version 1.501X or later
NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE	(no restriction)		Version 1.560J or later
NZ2GF2B2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S	(no restriction)		Version 1.565P or later
NZ2GF2S2-16A, NZ2GF2S2-16R, NZ2GF2S2-16S	(no restriction)		
NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT	(no restriction)		Version 1.535H or later

■When the master station is RJ71GF11-T2 or RJ71EN71:

Module	Serial number (first five digits)	Firmware version of the RJ71GF11-T2/ RJ71EN71	Version of GX Works3
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE	"15102" or later	(no restriction)*1	Version 1.000A or later
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	"16042" or later		
	"23022" or later	(no restriction)*2	
NZ2GF2B1N-16D, NZ2GF2B1N-16T, NZ2GF2B1N-16TE	(no restriction)		
NZ2GF2S1-16D, NZ2GF2S1-16T, NZ2GF2S1-16TE	(no restriction)		
NZ2GFCE3-32D, NZ2GFCE3-32T, NZ2GFCE3-32DT	(no restriction)		
NZ2GFCF1-32D, NZ2GFCF1-32T, NZ2GFCF1-32DT	(no restriction)		
NZ2GF2B1N1-16D, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE	(no restriction)		
NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE	(no restriction)		
NZ2GF2B2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S	(no restriction)		
NZ2GF2S2-16A, NZ2GF2S2-16R, NZ2GF2S2-16S	(no restriction)		
NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT	(no restriction)		

*1 The synchronization cycle cannot be set in increments of 0.05ms.

*2 To perform synchronous communications with I/O modules using the synchronization cycle set in increments of 0.05ms, the RJ71GF11-T2 or RJ71EN71 with the firmware version of "03" or later is required.

■When the master station is RnENCPU (network part):

Module	Serial number (first five digits)	Firmware version of RnENCPU (network part)	Version of GX Works3
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE	"15102" or later	(no restriction)*1	Version 1.015R or later
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	"16042" or later		
	"23022" or later	(no restriction)	Version 1.000A or later

*1 The synchronization cycle cannot be set in increments of 0.05ms.

■When the master station is a MELSEC iQ-R series Simple Motion module:

Module	Serial number (first five digits)	Firmware version of Simple Motion module	Version of GX Works3
NZ2GF2B1-16D, NZ2GF2B1-16T, NZ2GF2B1-16TE	(not supporting)	(no restriction)	Version 1.020W or later
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	"23022" or later		Version 1.000A or later

Restrictions

This section describes restrictions to use the CC-Link IE Field Network synchronous communication function.

■Restrictions to use this function with other functions

Function name	Restrictions
Input OFF delay function	The input OFF delay function cannot be used.*1
Fast logic function	The fast logic function cannot be used.*1
Cyclic data update watch function	The setting of Cyclic data update watch time setting (address: 0002H) will be ignored.
Fast link-up function	There are no restrictions on the use of the fast link-up function. Note that the fast link-up function does not shorten the time taken for synchronous communications to start after establishment of data link.

*1 If any of these function is enabled in the synchronous communication mode, Synchronous communication mode setting error (error code: 0107H) occurs.

■Restrictions on the network parameter settings (RWw/RWr)

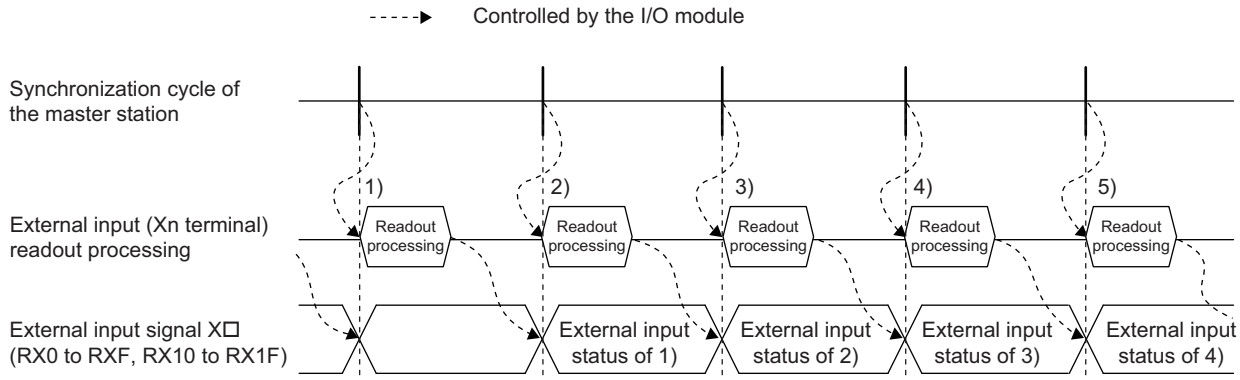
Set the network parameters (RWw/RWr) so that RWw13/RWr13 are assigned to use the synchronous communication function.

Operation using the CC-Link IE Field Network synchronous communication function

The following figure shows the operation when the CC-Link IE Field Network synchronous communication function is used.

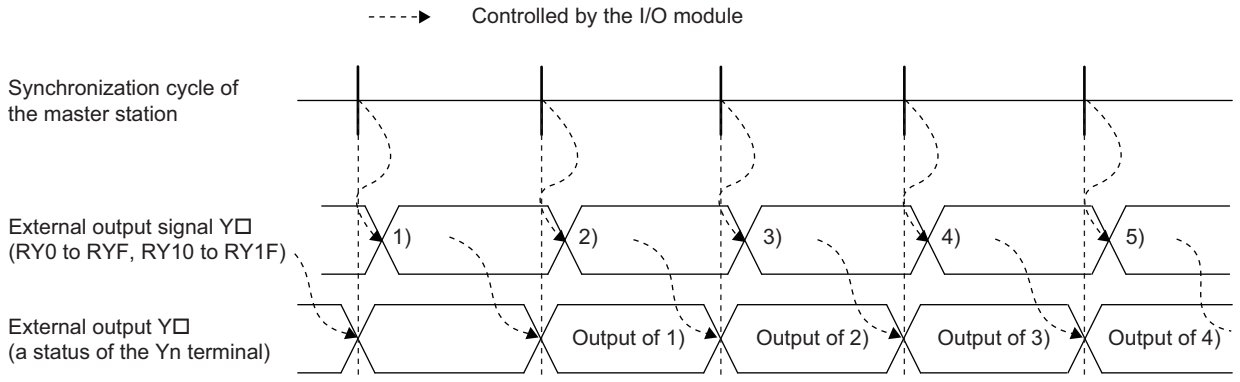
■Operation of an input module

For the main input module or extension input module, input signals are imported in every synchronization cycle of the master station.



■Operation of an output module

For the main output module or extension output module, signals are output in every synchronization cycle of the master station.



■SB/SW signals used with the CC-Link IE Field Network synchronous communication function

To check the operating status of the I/O module (synchronous or asynchronous), use the following link special register (SW) on the master station.

• Synchronous/asynchronous operation status information (each station) (SW01C8 to SW01CF)

For details, refer to the following.

When the master station is a MELSEC Q series Simple Motion module:

📖 MELSEC-Q QD77GF Simple Motion Module User's Manual (Network)

When the master station is RJ71GF11-T2 or RJ71EN71:

📖 MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)

📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

When the master station is RnENCPU (network part):

📖 MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)

📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

When the master station is a MELSEC iQ-R series Simple Motion module:

📖 MELSEC iQ-R Simple Motion Module User's Manual (Network)

📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

When performing I/O control, use the condition of the above mentioned link special register (SW) (the corresponding bit of the register being on) as an interlock.

The following figure shows the program example to control ON/OFF of the main input module and extension output module with station number 17.

(1)Y0 of the extension module is turned on when X0 of the main module turns on.

Device	Description
W100.B	Remote READY
SW1C9.0	Synchronous operation status information (station number 17)
X1000	X0 of the main module with station number 17

Setting method (master station)

1. Set the synchronization cycle of the master station to any of the following:

When the cycle is not set in increments of 0.05ms

Set the cycle to any of the following:

• 0.88ms

• 1.77ms

• 3.55ms

When the cycle is set in increments of 0.05ms

• Set the cycle to 0.8ms or more.

For details on the setting procedure, refer to the following.

When the master station is a Q series Simple Motion module:

📖 MELSEC-Q QD77GF Simple Motion Module User's Manual (Positioning Control)

When the master station is RJ71GF11-T2, RJ71EN71, or RnENCPU (network part):

📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

When the master station is an iQ-R series Simple Motion module:

📖 MELSEC iQ-R Simple Motion Module User's Manual (Application)

📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

Setting procedure (I/O module)

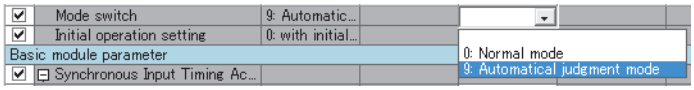
1. Select an I/O module in "List of stations" on the "CC IE Field Configuration" window, and set the values as follows.

- When the master station is the Simple Motion module, set "Station No." to 17 or more.
- Set 16 in "Points" of "RX/RY Setting".
- Set 20 in "Points" of "RWw/RWr Setting".

2. Open the "Parameter Processing of Slave Station" window and set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

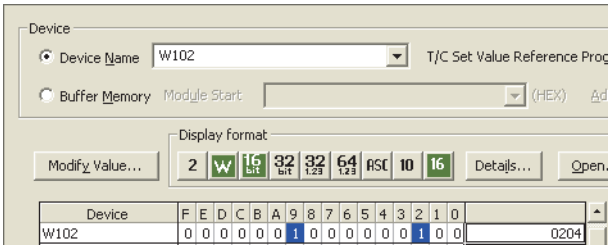
3. Set "Mode switch" to "9: Automatical judgment mode".



4. Click the [Execute] button to write the parameter to the main module.

5. Check that "0204H" is stored in Latest warning code (RWr2).

[Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]



6. The I/O module starts operating in the synchronous communication mode by turning off and on the power or performing the remote reset.

9.15 Protection Function

The transistor output module has the overload protection function and the overheat protection function.
The following describes the operation of each function.

Overload protection function

If the output module detects overcurrent, the module performs the current limiting operation (that imposes a limit on the output current to a constant value and keeps the output).
For the overcurrent detection value and the limited current, refer to "Overload protection function" in the specifications table for each output module.
☞ Page 71 Main output module
☞ Page 129 Extension output module
If the load current becomes equal to the overcurrent detection value or lower, the module returns to normal operation.

Overheat protection function

If the output module keeps outputting the overcurrent caused by an overload, heat is generated inside the module. If the module detects a high heat in its inside, it turns off the output.
The multiple points at which the overheat protection function operates depend on the module. Refer to "Overheat protection function" in the specifications table for each output module.
☞ Page 71 Main output module
☞ Page 129 Extension output module
If the heat descends, the module automatically returns to normal operation.

Point

The overload protection function and the overheat protection function do not protect external devices but protect the internal circuit of the module.
A problem on a load may raise the internal temperature of the module, causing deterioration in output elements and discoloration on the case and the printed-circuit board. Turn off the corresponding output as soon as a problem on a load is found, and remove the cause.

9.16 CC-Link IE Field Network Diagnostic Function

This function allows the presence or absence of a network error to be checked by accessing the engineering tool connected to the CPU module.

The module model names of some modules are displayed as follows in the "CC IE Field Diagnostics" window.

Module model name	Display in "CC IE Field Diagnostics" window
NZ2GF2B1N1-16D NZ2GF2B1N-16D NZ2GF2B1-16D	NZ2GF2B1-16D
NZ2GF2B1N1-16T NZ2GF2B1N-16T NZ2GF2B1-16T	NZ2GF2B1-16T
NZ2GF2B1N1-16TE NZ2GF2B1N-16TE NZ2GF2B1-16TE	NZ2GF2B1-16TE
NZ2GFCE3N-32D NZ2GFCE3-32D	NZ2GFCE3-32D
NZ2GFCE3N-32T NZ2GFCE3-32T	NZ2GFCE3-32T
NZ2GFCE3N-32DT NZ2GFCE3-32DT	NZ2GFCE3-32DT

The module model names of the above modules cannot be distinguished because they are displayed as the same module model name in the engineering tool. Check the module model name of the module itself.

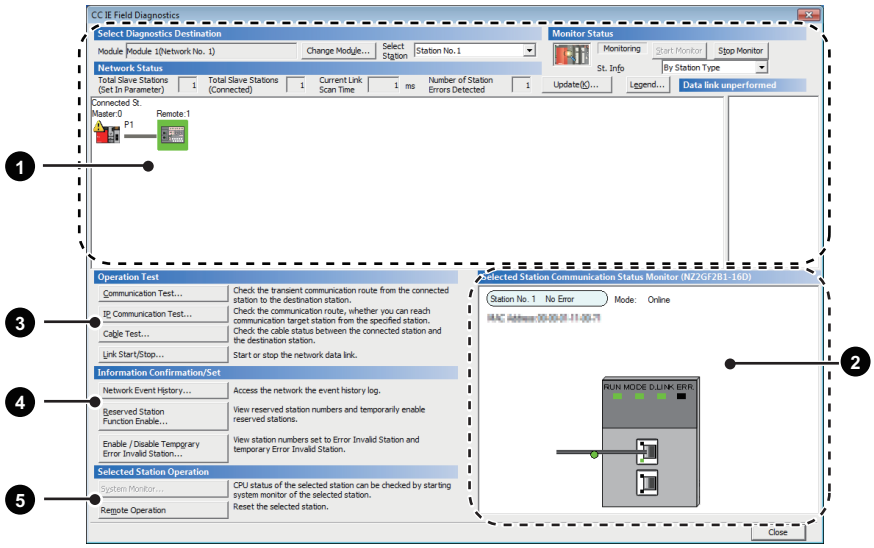
When GX Works2 is used

The following instructions assume the use of GX Works2 as the engineering tool.

How to use

1. Connect GX Works2 to the CPU module.
2. Start CC-Link IE Field Network diagnostics from the menu of GX Works2.

[Diagnostics] ⇨ [CC IE Field Diagnostics]



Item to be diagnosed		Description	Reference
❶	Display of network configuration diagram and error status	The status of the CC-Link IE Field Network can be checked. When an error or warning for the I/O module occurs, the status of the station is displayed on an icon.	User's manual for the master/ local module used
❷	Display of selected-station status and error details	The communication status of the station selected in "Networks Status" can be checked.*1	
❸	Communication Test	The transient communication route and whether the communication is established from the connected station to the destination station can be checked.	
	IP Communication Test	The reaching time and the route of the IP communication from the connected station to the target station can be checked.	
	Cable Test	The cable status between the connected station and the destination station can be checked.	
	Link Start/Stop	The network data link can be started or stopped.	
❹	Network Event History	The history of various events that occurred in the network can be checked.	
	Reserved Station Function Enable	A reservation for a station can be temporarily cancelled, and the cancellation can be disabled. Also, the station numbers for the modules set as reserved stations can be checked on a list.	
	Enable/Disable Ignore Station Errors	A station not set as an error invalid station can be temporarily set as an error invalid station, and the error invalid station setting can be disabled. Also, the station numbers for the modules set as (temporarily) error invalid stations can be checked on a list.	
❺	System monitor	The system monitor on the selected station is activated and the status of the module can be checked. This function is unavailable for the I/O module.	
	Remote Operation	The selected station can be reset through the remote operation.	Page 277 Remote operation

*1 "Selected Station Communication Status Monitor", which appears at the bottom right in the window, indicates the communication status of the I/O module. For the error and warning for the I/O module, refer to the following.
☞ Page 315 Checking for the Error Codes and the Warning Codes

Point

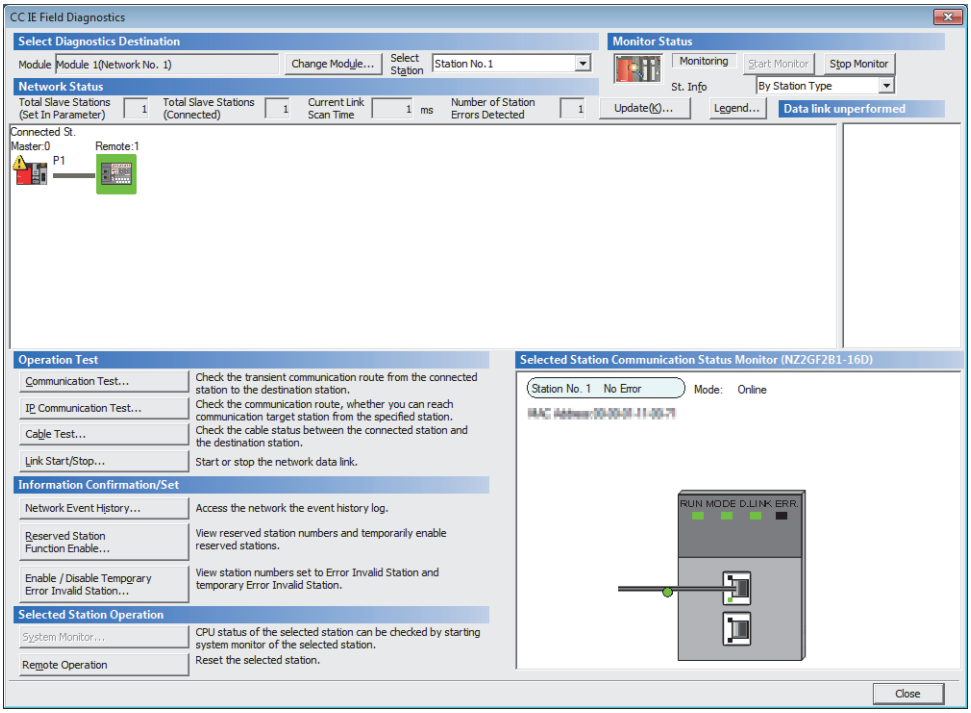
Some of items cannot be diagnosed depending on the master/local module or the Simple Motion module used. For details, refer to the following.

User's manual for the master/local module used

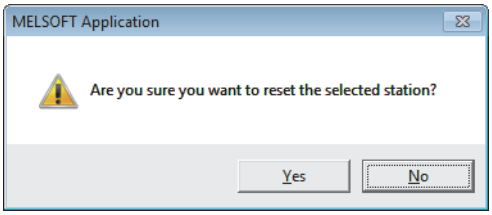
MELSEC-Q QD77GF Simple Motion Module User's Manual (Network)

■Remote operation

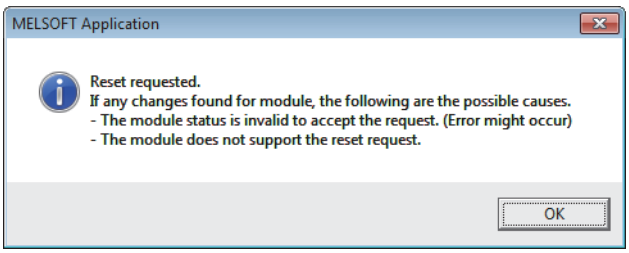
1. Select a slave station to be reset and click the [Remote Operation] button.



2. Clicking the [Yes] button on the following window starts the remote reset.



3. Click the [OK] button on the following window.



When GX Works3 is used

The following instructions assume the use of GX Works3 as the engineering tool.

How to use

1. Connect GX Works3 to the CPU module.
2. Start CC-Link IE Field Network diagnostics from the menu of GX Works3.

[Diagnostics] ⇨ [CC-Link IE TSN/CC-Link IE Field Diagnostics]

Items to be diagnosed are the same as those of GX Works2. (☞ Page 276 When GX Works2 is used)

■Error history

When GX Works3 is used, error histories of I/O modules can be checked by performing the following.

Select a target I/O module on the network configuration diagram of the diagnostic window. ⇨ Right-click ⇨ [Error History]

For details, refer to the "CC-Link IE TSN/CC-Link IE Field Network diagnostic" described in the following manual.

📖 GX Works3 Operating Manual

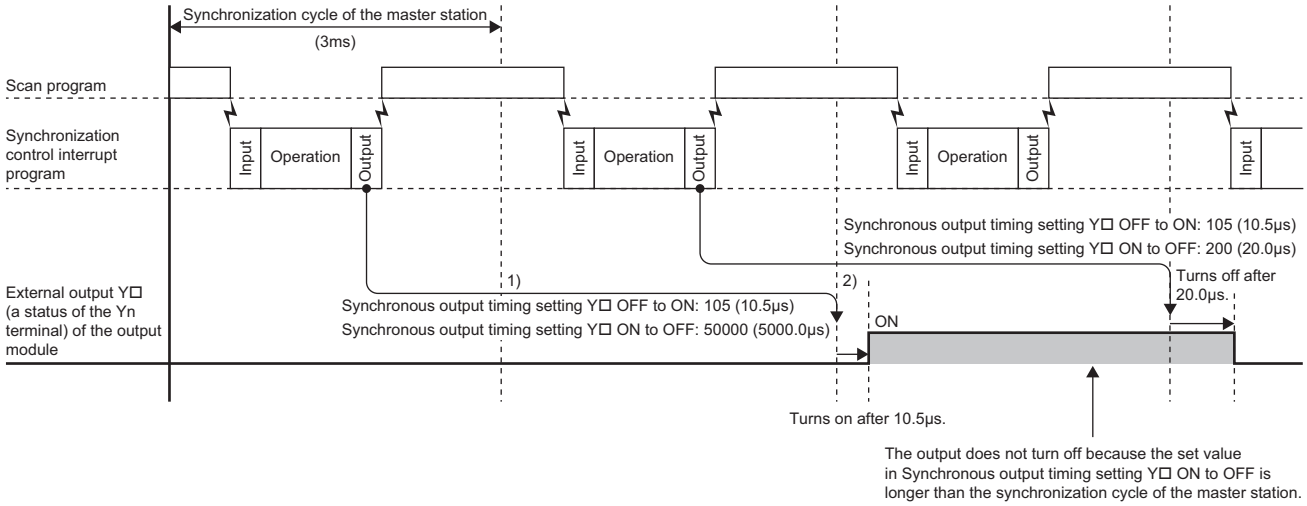
Point

Displaying error histories in CC-Link IE Field Network diagnostics is the function supported by any main I/O modules described in this manual.

☞ Page 15 Main I/O module

9.17 Synchronous Output Timing Setting Function

This function sets the output timing of the main output module or main I/O combined module that operates synchronously using CC-Link IE Field Network synchronous communication function. The ON/OFF of output signal is changed at any timing, regardless of the synchronization cycle, using the function.



The synchronous output timing setting function uses the following devices.

☞ Page 357 Synchronous output timing setting

☞ Page 362 Synchronous output timing setting function enable

Point

- External output signals (RY0 to RY1F) of the output module using the synchronous output timing setting function becomes disabled.
- The CC-Link IE Field Network synchronous communication function is required to use the synchronous output timing setting function. (☞ Page 268 CC-Link IE Field Network Synchronous Communication Function)
- The synchronous output timing setting function is enabled when an I/O module operates in the synchronous communication mode.
- When External output Y☐ is output to a connected device, the device recognizes the output with delay of maximum output response time. Therefore, if the ON/OFF switching period of output is set to be shorter than maximum output response time, the connected device may not turn on or off.

Applicable module

The following table lists the modules that support the synchronous output timing setting function.

Module model name
NZ2GF2B1N-16T, NZ2GF2B1N-16TE
NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE
NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE
NZ2GF2S1-16T, NZ2GF2S1-16TE
NZ2GFCF1-32T, NZ2GFCF1-32DT
NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16T, NZ2GFCM1-16TE*1

*1 The function can be used in the main output modules with the serial number (first five digits) of "23022" or later.

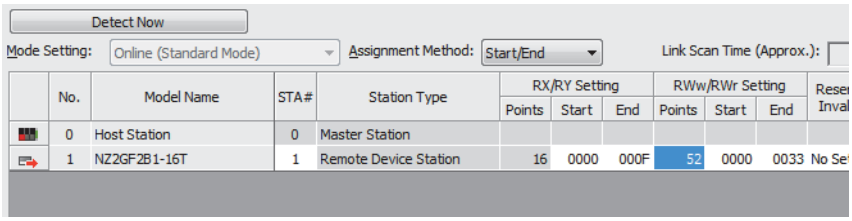
Setting method for the synchronous output timing setting function

The setting method to use a main output module with 16 points is shown below.

■Setting of number of link register points

1. Select a main output module in "List of stations" on the "CC IE Field Configuration" window, and set 52 in "Points" of "RWw/RWr Setting". (When using a main output module with 32 points or a main I/O combined module with 32 points, set 84 in "Points" of "RWw/RWr Setting".)

"CC IE Field Configuration" window ⇨ Select a main output module in "List of stations".

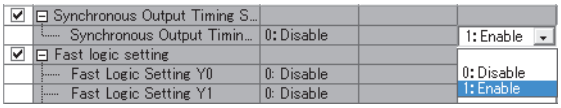


■Setting the synchronous output timing setting function to be enabled

1. Open the "Parameter Processing of Slave Station" window and set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main output module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

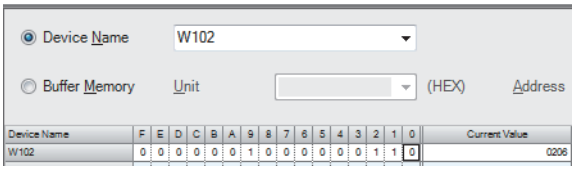
2. Set "Synchronous Output Timing Setting Function Valid" to "1: Enable".



3. Click the [Execute] button to write the parameter to the main output module.

4. Check that "0206H" is stored in Latest warning code (RWr2).

[Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]



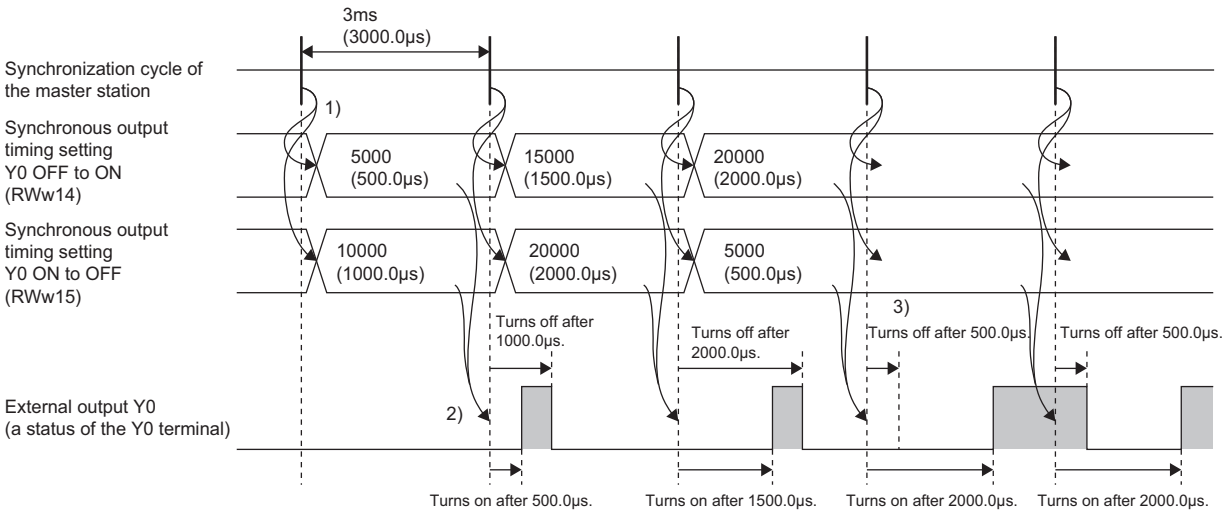
5. The main output module starts operating with the synchronous output timing setting function being enabled by turning off and on the power or performing the remote reset.

Setting method for output timing

- Set the output timing with "Synchronous output timing setting Y0 OFF to ON" to "Synchronous output timing setting Y1F ON to OFF" (RWw14 to RWw53)
- Set the timing when output is turns on from off and turns off from on per synchronization cycle, in increments of 0.1µs.
- The setting range is 0 to 65534 (0.0µs to 6553.4µs). If 65535 is set, the output does not change (neither turning on from off nor turning off from on).
- If the set value is longer than the synchronization cycle, the output does not change (neither turning on from off nor turning off from on).
- If the same value is set both for Synchronous output timing setting Y☐ OFF to ON and Synchronous output timing setting Y☐ ON to OFF of same output, the output does not change (neither turning on from off nor turning off from on).

Operation using the synchronous output timing setting function

The following figure shows the operation example of the function with the synchronization cycle of the master station set to 3ms (3000.0µs) and External output Y0 of the main output module used



1)Synchronous output timing setting Y0 OFF to ON (RWw14) and Synchronous output timing setting Y0 ON to OFF (RWw15) are received at the change timing of the synchronization cycle of the master station.
2)The output processing with the received values are performed at the next synchronization cycle of the master station.
3)When Synchronous output timing setting Y0 OFF to ON (RWw14) is longer than Synchronous output timing setting Y0 ON to OFF (RWw15), External output Y0 turns on or off across the change timing of the synchronization cycle.

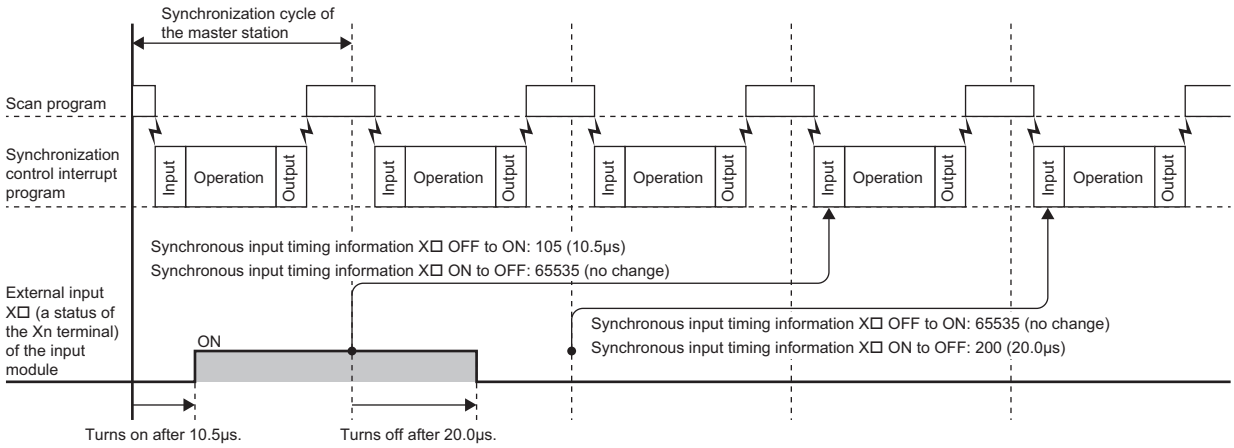
Restrictions to use the synchronous output timing setting function

The following functions of a main output module, main I/O combined module, and an extension I/O module cannot be used with the synchronous output timing setting function.

- Input OFF delay function
- Cyclic data update watch function
- Fast logic function
- Output Y current value (RWr4, RWr5) of the synchronous output timing setting function is fixed to OFF.
- Number of ON times integration function (The number of ON times is not integrated for the output where the synchronous output timing setting function is used.)
- Output ON/OFF information hold function (The output ON/OFF information is not held for the output where the synchronous output timing setting function is used.)

9.18 Synchronous Input Timing Acquisition Function

This function acquires the input timing of the main input module or main I/O combined module that operates synchronously using the CC-Link IE Field Network synchronous communication function. The timing is acquired in increments of 0.1µs. With this function, the accurate timing when an input signal has changed can be acquired regardless of the synchronization cycle.



The synchronous input timing acquisition function uses the following devices.

☞ Page 355 Synchronous input timing information

☞ Page 362 Synchronous output timing setting function enable

Point

- The CC-Link IE Field Network synchronous communication function is required to use the synchronous input timing acquisition function. For details on the CC-Link IE Field Network synchronous communication function, refer to the following.

☞ Page 268 CC-Link IE Field Network Synchronous Communication Function

- The synchronous input timing acquisition function is enabled when an I/O module operates in the synchronous communication mode.

Applicable module

The following table lists the modules that support the synchronous input timing acquisition function.

Module model name
NZ2GF2B1N-16D
NZ2GF2B1N1-16D
NZ2GF2B1-32D, NZ2GF2B1-32DT, NZ2GF2B1-32DTE
NZ2GF2S1-16D
NZ2GFCF1-32D, NZ2GFCF1-32DT
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCM1-16D, NZ2GFCM1-16DE*1

*1 The function can be used in the main input modules with the serial number (first five digits) of "23022" or later.

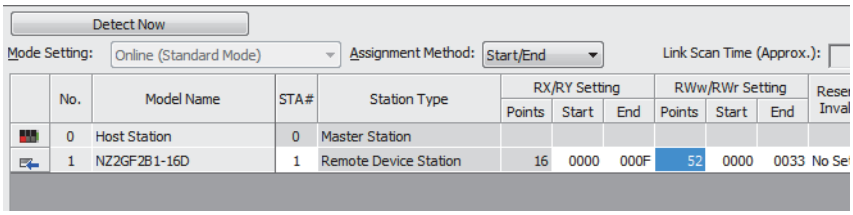
Setting method for the synchronous input timing acquisition function

The setting method to use a main input module with 16 points is shown below.

■Setting of number of link register points

1. Select a main input module in "List of stations" on the "CC IE Field Configuration" window, and set 52 in "Points" of "RWw/RWr Setting". (When using a main input module with 32 points, set 84 in "Points" of "RWw/RWr Setting".)

"CC IE Field Configuration" window ⇨ Select a main input module in "List of stations".

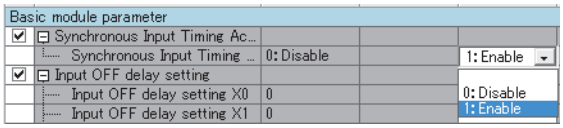


■Setting the synchronous input timing acquisition function to be enabled

1. Open the "Parameter Processing of Slave Station" window and set "Method selection" to "Parameter write".

"CC IE Field Configuration" window ⇨ Select a main I/O module in "List of stations". ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

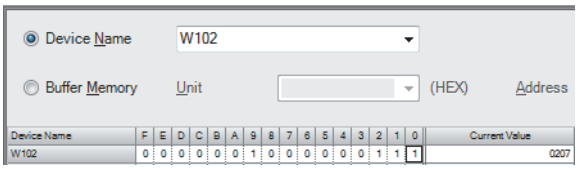
2. Set "Synchronous Input Timing Acquisition Function Valid" to "1: Enable".



3. Click the [Execute] button to write the parameter to the main input module.

4. Check that "0207H" is stored in Latest warning code (RWr2).

[Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]



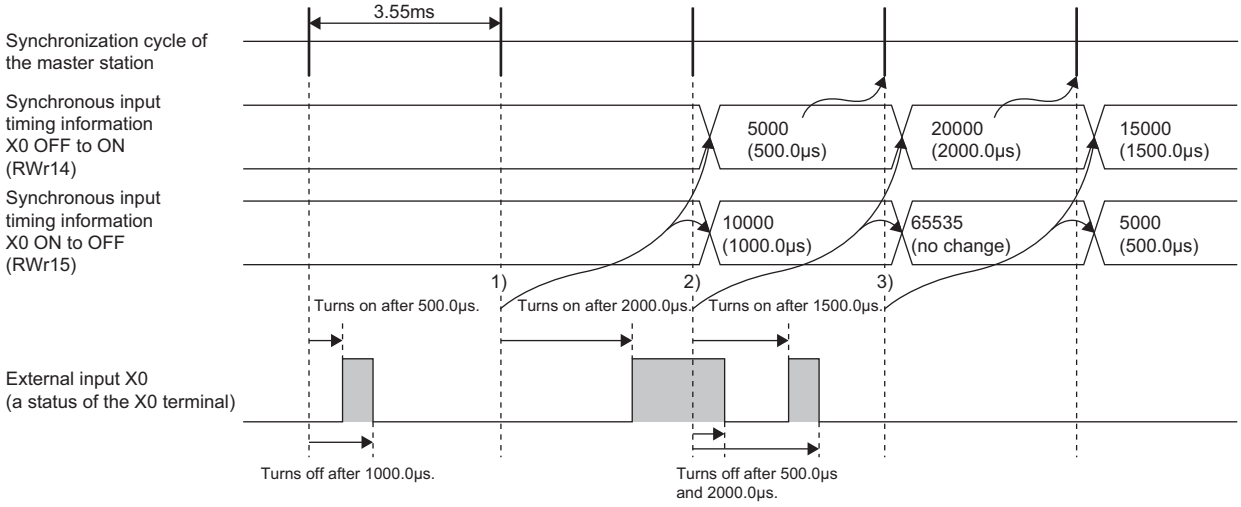
5. The main input module starts operating with the synchronous input timing acquisition function being enabled by turning off and on the power or performing the remote reset.

Input timing

- The input timing is stored in "Synchronous input timing information X0 OFF to ON" to "Synchronous input timing information X1F ON to OFF" (RWr14 to RWr53).
- The timing when an input has turned on from off and turned off from on is stored in increments of 0.1μs, per synchronization cycle.
- The stored value is 0 to 65534 (0.0μs to 6553.4μs). The stored value 65535 indicates that the input has not changed (neither turning on from off nor turning off from on). If the timing when an input has turned on from off and turned off from on is longer than 6553.4μs, the maximum value (6553.4μs) is stored. (If the synchronization cycle is longer than 6.5ms, the maximum value (6553.4μs) may be stored.)
- When an input has turned on from off or turned off from on multiple times for one synchronization cycle, the input timing of the first turning on from off or the first turning off from on is stored.

Operation using the synchronous input timing acquisition function

The following figure shows the operation example when the synchronization cycle of the master station is set to 3.55ms and External input X0 of the main input module is used for the synchronous input timing acquisition function



1)A value is stored in Synchronous input timing information X0 OFF to ON (RWr14) and Synchronous input timing information X0 ON to OFF (RWr15) at the change timing of the synchronization cycle of the master station.
2)When External input X0 has not turned off from on for one synchronization cycle, 65535 (no change) is stored in Synchronous input timing information X0 ON to OFF (RWr15).
3)When External input X0 has turned off from on twice for one synchronization cycle, the timing of the first turning off from on is stored in Synchronous input timing information X0 ON to OFF (RWr15).

Restrictions to use the synchronous input timing acquisition function

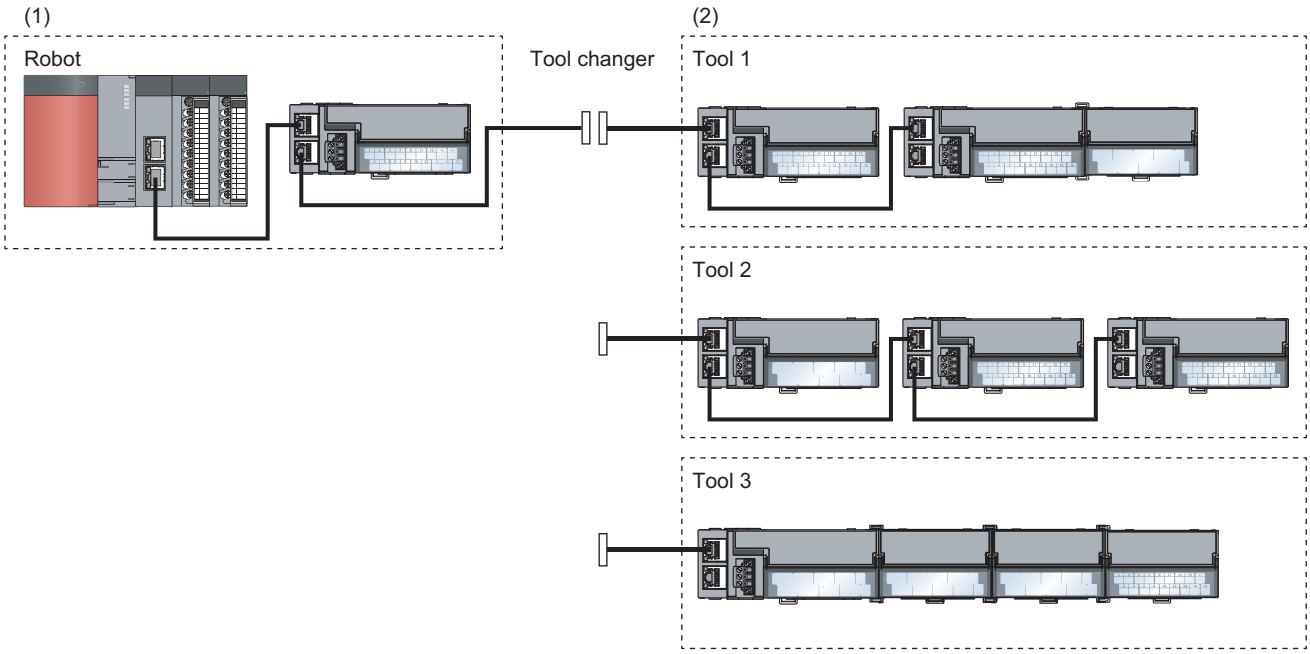
The following functions of a main input module, main I/O combined module, and an extension I/O module cannot be used with the synchronous input timing acquisition function.

- Input OFF delay function
- Cyclic data update watch function
- Fast logic function

9.19 Fast Link-up Function

This function shortens the time taken for data link establishment with the master station at power-on.
With this function, the time taken to change tools can be shortened in the system with a tool change mechanism (such as a tool changer) for tools that can be installed at the end of an industrial robot arm. The data link time varies depending on the number of connected modules or cable length. When eight main modules have been connected (excluding the main module directly connected to the master module) and the station-to-station distance is 30m, data link is established in 0.5s on average.

☞ Page 308 Program Example for Using the Fast Link-up Function



(1) System for the robot
(2) System implemented in the tool at the end of an arm

Applicable module

The following table lists the modules that support the fast link-up function.

Module model name
NZ2GF2B1N1-16D, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE
NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE
NZ2GF2B2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S
NZ2GF2S2-16A, NZ2GF2S2-16R, NZ2GF2S2-16S
NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT

Applicable master station

To use the fast link-up function, use the following modules as master modules. The time taken to establish data link can be shortened by using the following modules as master modules.

■MELSEC-Q/L series

Master module	Serial number (first five digits)
QJ71GF11-T2	"18042" or later
LJ71GF11-T2	"18042" or later

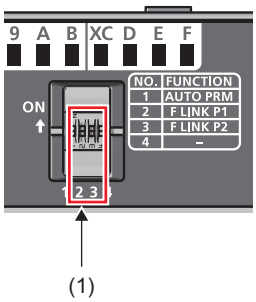
■MELSEC iQ-R series

Master module	Firmware version
RJ71GF11-T2	"11" or later
RJ71EN71	"11" or later
RnENCPU (network part)	"11" or later

Setting procedure

Set the fast link-up function for each port.

Set whether to enable or disable the fast link-up function of PORT1 with the function setting switch 2 of the module and the fast link-up function of PORT2 with the function setting switch 3 of the module.



(1) Function setting switch 2 and function setting switch 3

Switch	State	Setting value
Function setting switch 2 (F LINK P1)	On	Fast link-up function of PORT1: Enabled
	Off	Fast link-up function of PORT1: Disabled
Function setting switch 3 (F LINK P2)	On	Fast link-up function of PORT2: Enabled
	Off	Fast link-up function of PORT2: Disabled

Whether this function is enabled or disabled depends on the state of each function setting switch at the startup of the module. If the state of the function setting switch 2 has been changed after power-on of the module, a function setting switch 2 changed error (warning code: 020AH) will occur. If the state of the function setting switch 3 has been changed after power-on of the module, a function setting switch 3 changed error (warning code: 020BH) will occur. The status of this function (enabled/disabled) will not change. To change the status of this function (enabled/disabled), turn off and on the power supply.

■Checking the status of the fast link-up function (enabled/disabled)

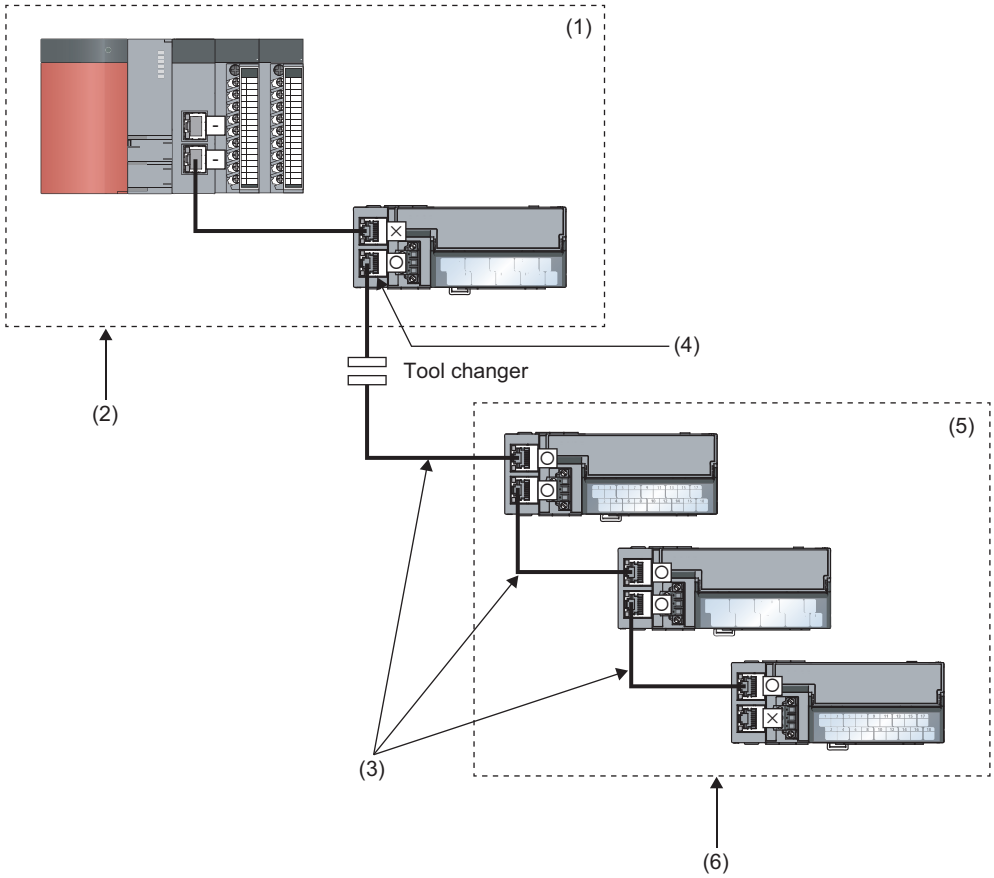
The current status of the fast link-up function (enabled/disabled) can be checked with Fast link-up setting status flag (PORT1) (RWr3.b2) and Fast link-up setting status flag (PORT2) (RWr3.b3).

Point

The function setting switch 2 and the function setting switch 3 are off at factory default. (The fast link-up function is disabled for both PORT1 and PORT2.)

How to use the fast link-up function

The following describes how to use the fast link-up function.



—: The fast link-up function is not supported.

×: The fast link-up function is disabled.

○: The fast link-up function is enabled.

No.	Description
(1)	In the robot-side system (The power is always on.)
(2)	A master module and an I/O module in the robot-side system ☞ Page 288 Incorporating a master module and an I/O module in the robot-side system The modules in the robot-side system are always on. ☞ Page 288 Keeping the on state of the modules in the robot-side system
(3)	Connect between ports where the fast link-up function is enabled. ☞ Page 288 Connecting between ports where the fast link-up function is enabled Connect PORT1 and PORT2. ☞ Page 288 Connecting PORT1 and PORT2
(4)	Enable the fast link-up function for PORT2 of the I/O module in the robot-side system, and connect the I/O module with the I/O module of the tool-side system. ☞ Page 288 Enabling the fast link-up function for PORT2 of the I/O module in the robot-side system
(5)	In the tool-side system (The modules are powered on only while being connected.)
(6)	Simultaneously power on all of the I/O modules in the tool-side system. ☞ Page 288 Simultaneously powering on all of the I/O modules in the tool-side system Connect a tool in one second after the master station detects a disconnection of the tool. ☞ Page 288 Connecting to a different tool in one second after the master station detects a disconnection of a tool previously used

Setting

■Connecting between ports where the fast link-up function is enabled

Enable the fast link-up function for the ports to be connected each other. If a port where the fast link-up function is enabled is connected with a port where the fast link-up function is not supported or disabled, link-up will not performed.

Installation and configuration

■Incorporating a master module and an I/O module in the robot-side system

Incorporate a master module and an I/O module in the robot-side system. Use the modules described below as master modules.

☞ Page 286 Applicable master station

Disable the fast link-up function for a port of the I/O module that is to be connected to the master module.

■Connecting PORT1 and PORT2

Connect PORT1 and PORT2 of the modules where data link is established using the fast link-up function with cables. Even if the fast link-up function is enabled, link-up will not be performed when PORT1 and PORT1 or PORT2 and PORT2 are connected respectively.

■Enabling the fast link-up function for PORT2 of the I/O module in the robot-side system

Disable the fast link-up function for PORT1 of the I/O module in the robot-side system, and connect it with the master module. Enable the fast link-up function for PORT2 of the I/O module in the robot-side system, and connect it with an I/O module in the tool-side system. For any other connection, it may take longer time to establish data link.

Operation

■Keeping the on state of the modules in the robot-side system

Keep the on state of the master module and I/O module in the robot-side system during operation. In the robot-side system, the master module is connected with the I/O module via a port where the fast link-up function is disabled, and thus the time taken to establish data link after power-on will not be shortened.

■Simultaneously powering on all of the I/O modules in the tool-side system

To establish data link in a short time, simultaneously power on all of the I/O modules in the tool-side system after switching a tool to a different one. If the I/O modules are started up at the different timing, it may take longer time to establish data link.

■Connecting to a different tool in one second after the master station detects a disconnection of a tool previously used

Connect to a tool (cable connection and power-on) in one second or longer after the master station detects a disconnection of a tool previously used. If a tool is connected before a detection of a disconnection or within one second after the detection, it may take longer time to establish data link. A disconnection can be detected by monitoring Data link status (each station) (SW00B0 to SW00B7) of the master station.

Precautions for the fast link-up function

- After the master station is powered on, it may take longer time to establish data link with each I/O module at the first connection.
- Depending on the operating environment, it may take longer time to establish data link.
- If the link scan time of when no tool is connected is long, it may take longer time to establish data link.
- On the network configuration settings, set line topology for the network topology.

10 PROGRAMMING

This chapter describes the programming of the I/O module.

10.1 Precautions for Programming

This section describes precautions to create CC-Link IE Field Network programs.

Cyclic transmission program

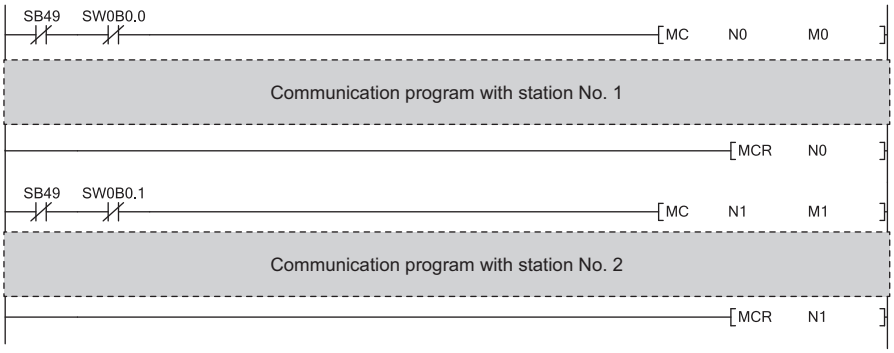
For a cyclic transmission program, interlock with the following link special relay (SB) and link special register (SW).

- Own station data link status (master station) (SB0049)
- Data link status (each station) (SW00B0 to SW00B7)

For details on the link special relay (SB) and link special register (SW), refer to the user's manual for the master/local module used.

Ex.

Interlock example



Transient transmission program

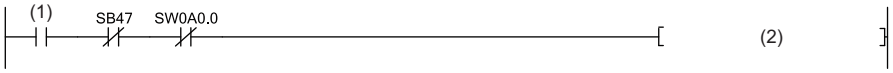
For a transient transmission program, interlock with the following link special relay (SB) and link special register (SW).

- Own station baton pass status (master station) (SB0047)
- Baton pass status (each station) (SW00A0 to SW00A7)

For details on the link special relay (SB) and link special register (SW), refer to the user's manual for the master/local module used.

Ex.

Interlock example



(1)Start contact
(2)Dedicated instruction to the station No.1

Program for Initial processing completion flag (RWw0.b8)

When "Initial operation setting" is set to "1: Without initial processing", the program for Initial processing request flag (RWr0.b8) is not necessary.

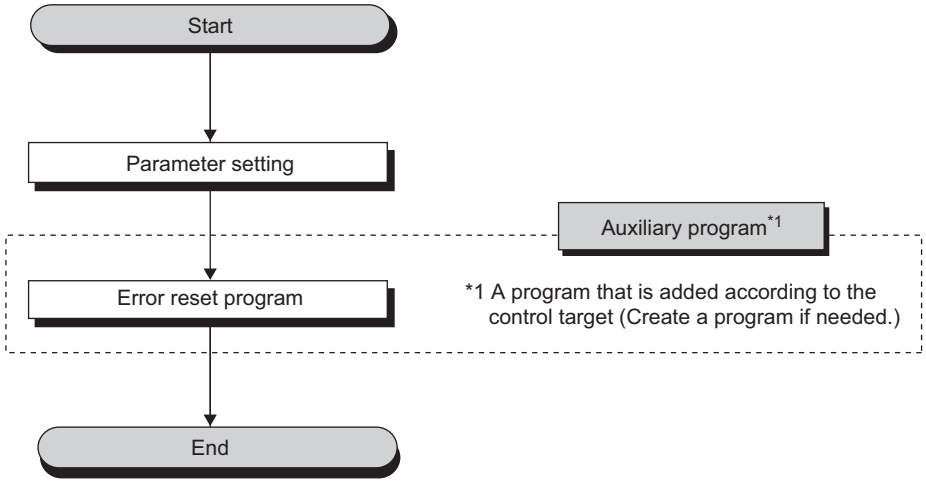
However, when setting parameters using Initial processing request flag (RWr0.b8) as an interlock as shown in the program example, set "Initial operation setting" to "0: With initial processing". After that, perform initial processing and check that Remote READY (RWr0.b11) is on.

For the program for Initial processing completion flag (RWw0.b8), refer to the following.

☞ Page 299 Initial processing

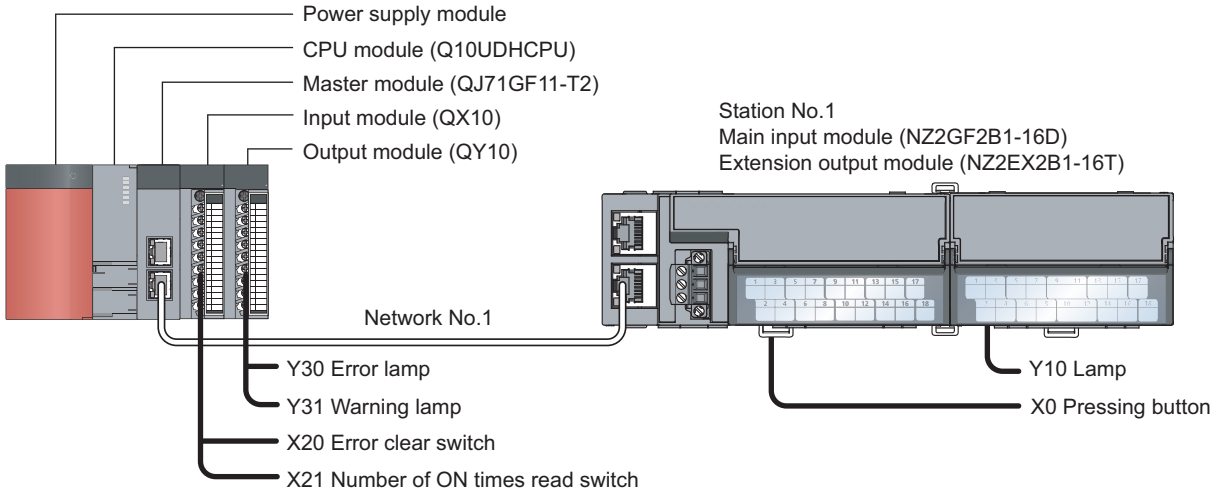
10.2 Procedure for Programming

Create a program to execute each function of the I/O module, according to the following procedure.



10.3 Program Example

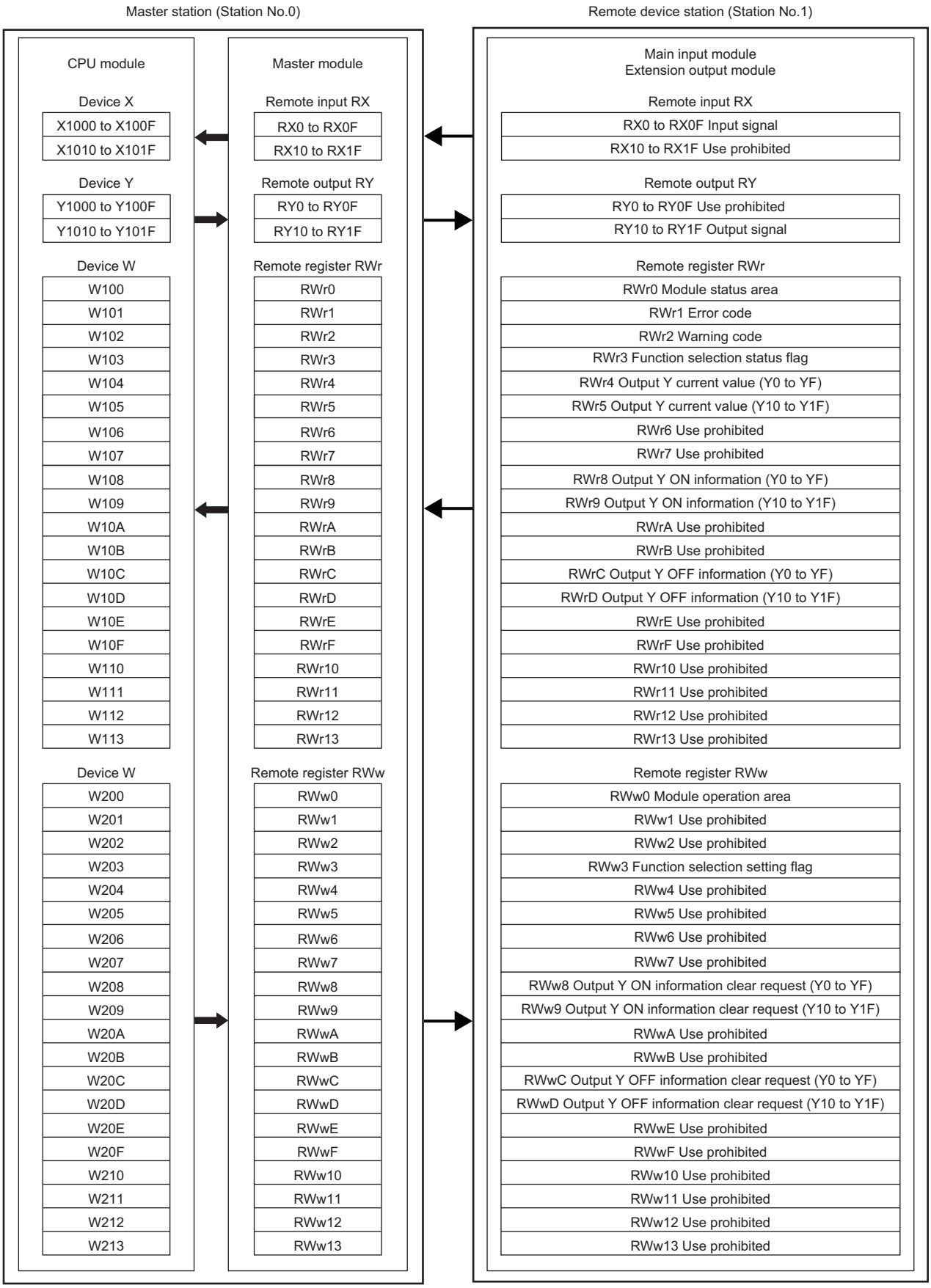
System configuration



Point

The setting procedure assumes the use of GX Works2 as the engineering tool.

■Assignment of link devices



Programming condition

When X0 of the main input module is turned on, Y0 of the extension output module is turned on.

The number of ON times of the extension output module is read.

When an error or a warning occurs, an output module (QY10) outputs a digital signal.

Initial setting description

■Main input module

Item	Description
Input response time setting	1.0ms
Output HOLD/CLEAR setting	CLEAR
Cyclic data update watch time setting	200ms
Mode switch	Automatical judgment mode
Initial operation setting	With initial processing
Input OFF delay setting X0 to XF	0

■Extension output module

Item	Description
Extension module identification code	Extension output module: 16 points
Number of ON times integration function enable Y10 to Y1F	Use
Fast logic setting Y10 to Y17	Disable

Devices used by user

Device	Description	
X20	Error clear switch	QX10 (X20 to X2F)
X21	Number of ON times read switch	
X1000	X0 input signal (pressing button) of the main module	NZGF2B1-16D (X1000 to X100F)
Y30	Error lamp	QY10 (Y30 to Y3F)
Y31	Warning lamp	
Y1010	Y10 output signal (lamp) of the extension module 1	NZEX2B1-16T (Y1010 to Y101F)
D0 to D4	Temporary data for parameter setting	
D100	Latest error code	
D101	Latest warning code	
D110 to D141	Number of ON times of the extension module 1 (Y10 to Y1F)	
M0	Contact for master control	
M1 to M13	Contact for parameter setting	
M14 to M17	Contact for reading the number of ON times	
N0	Nesting	
SB47	Own station baton pass status (master station)	
SB49	Own station data link status (master station)	
SM400	Always ON	
SW0A0.0	Baton pass status (station No.1)	
SW0B0.0	Data link status (station No.1)	
W100.8	Initial processing request flag (RWr0.b8)	Device to be written by link refresh
W100.9	Operation condition setting completion flag (RWr0.b9)	
W100.A	Error status flag (RWr0.b10)	
W100.B	Remote READY (RWr0.b11)	
W100.C	Warning status flag (RWr0.b12)	
W200.8	Initial processing completion flag (RWw0.b8)	
W200.9	Operation condition setting request flag (RWw0.b9)	
W200.A	Error clear request flag (RWw0.b10)	
W101	Latest error code	
W102	Latest warning code	

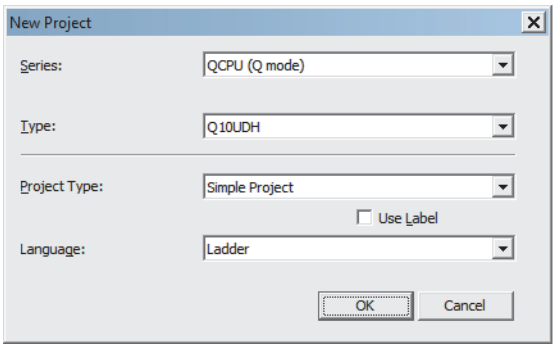
Setting procedure

Connect GX Works2 to the master station to configure the setting.

1. Create a project on GX Works2.

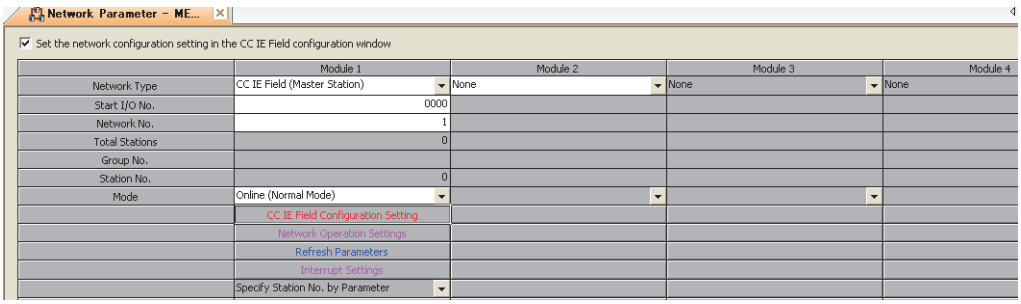
For "Series", select "QCPU (Q mode)" and for "Type", select "Q10UDH".

[Project] ⇨ [New...]



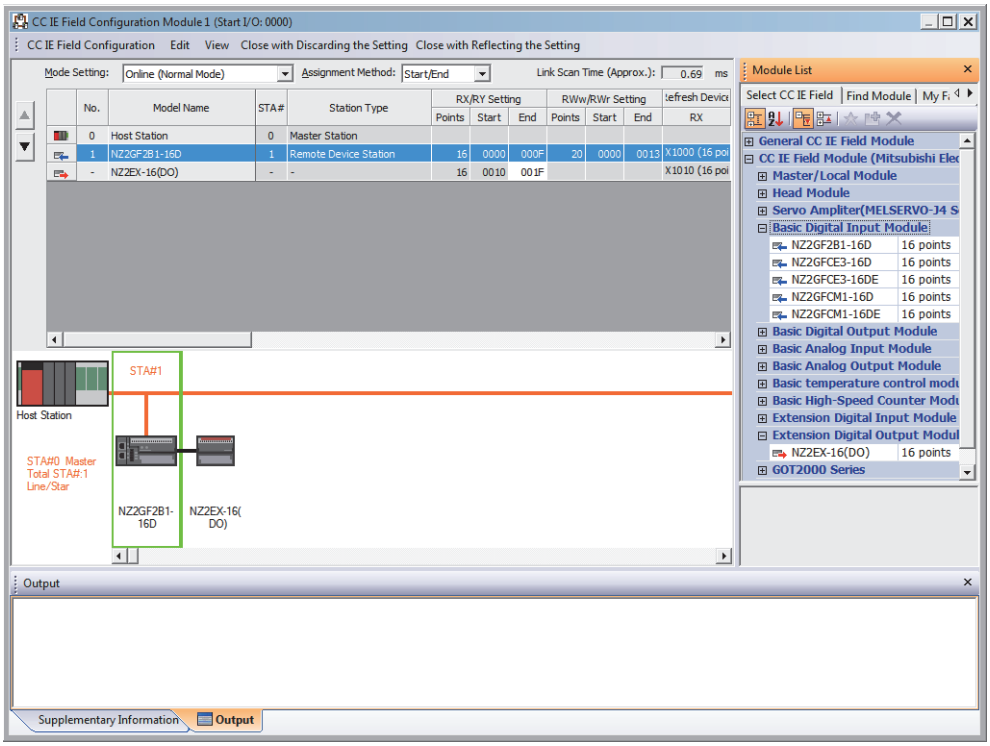
2. Display the network parameter setting window and configure the setting as follows.

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]



3. Display the "CC IE Field Configuration" window and configure the configuration and station number of the slave station as follows.

[CC IE Field Configuration Setting] button

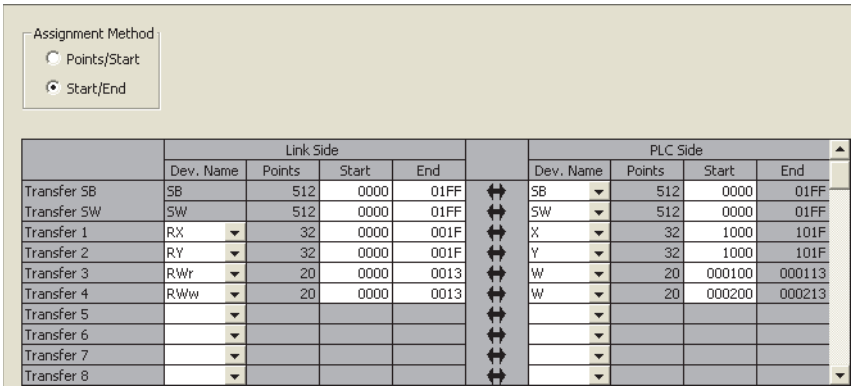


4. Close the "CC IE Field Configuration" window.

[CC IE Field Configuration] ⇨ [Close with Reflecting the Setting]

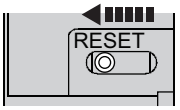
5. Display the refresh parameter setting window and configure the setting as follows.

[Refresh Parameters] button



6. Write the set parameter to the CPU module of the master station and reset the CPU module, or turn off and on the power supply.

[Online] ⇨ [Write to PLC...]

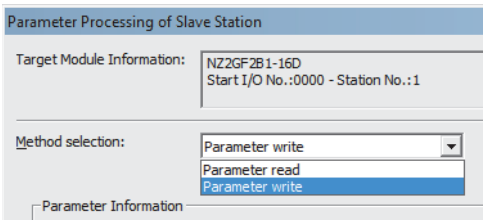


or Power OFF→ON

7. Display the "Parameter Processing of Slave Station" window.

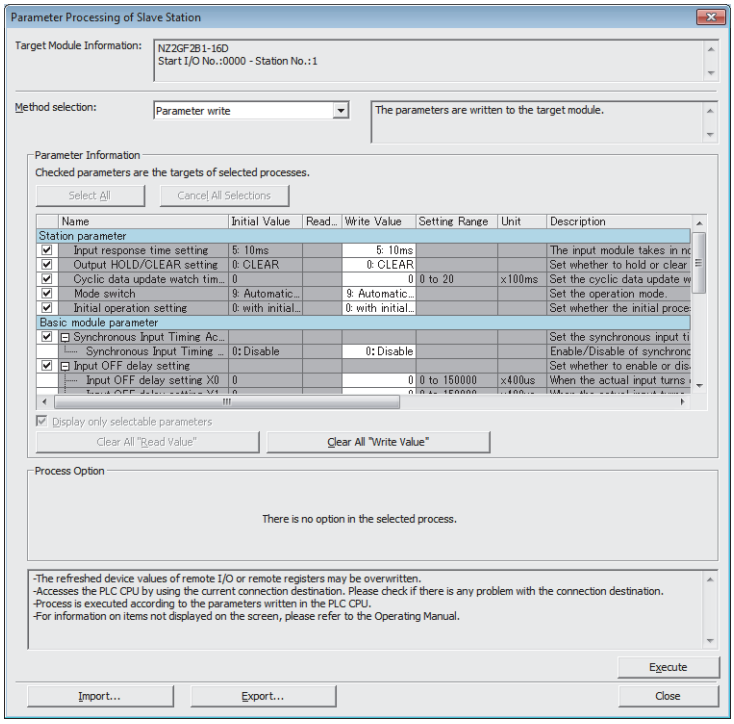
Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ [CC IE Field Configuration Setting] button ⇨ Select an I/O module in "List of stations" ⇨ [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station]

8. Set "Method selection" to "Parameter write".



9. Set "Write Value". The following are the procedure.

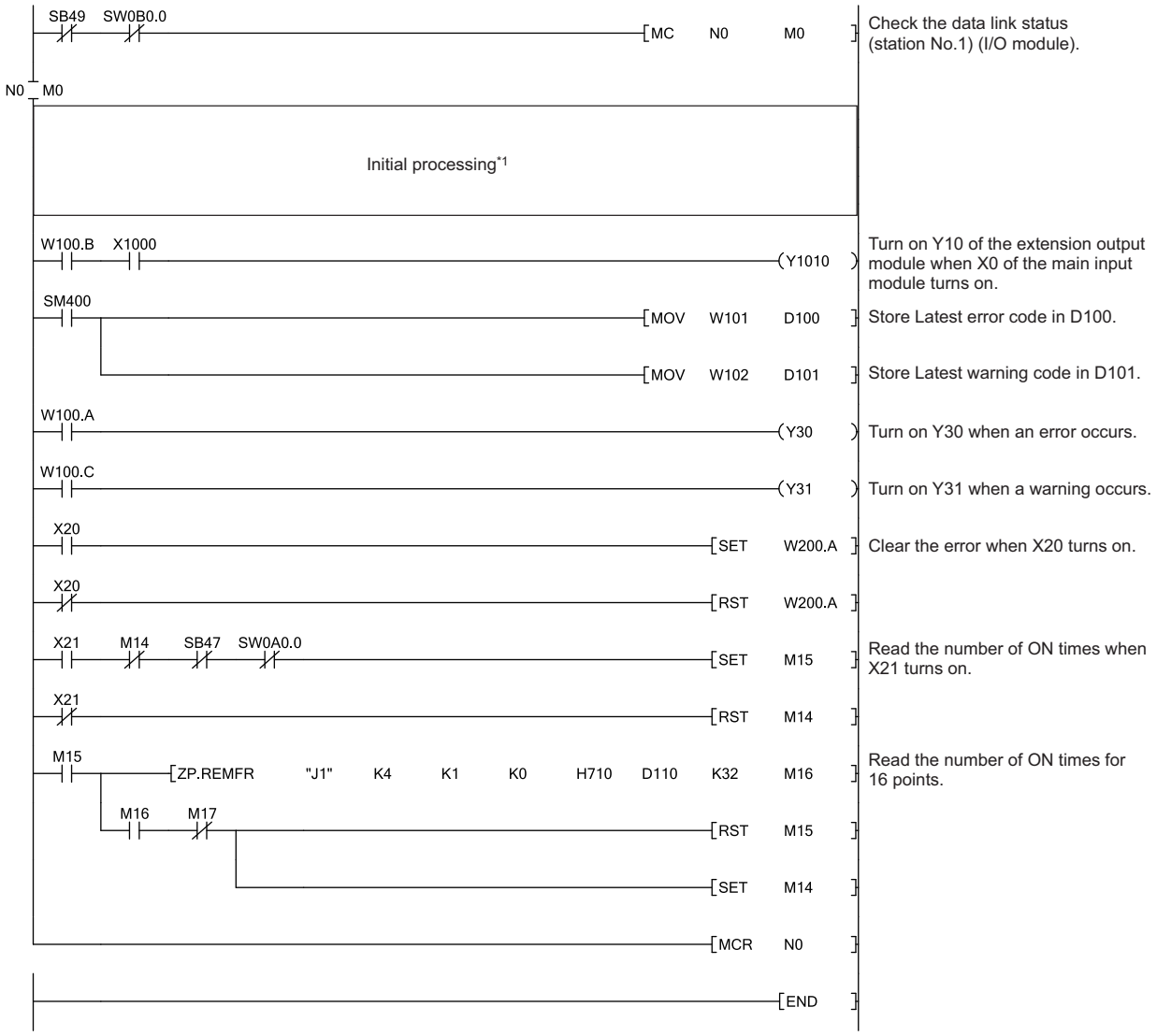
- Click the title cell of "Initial Value" to select all the items and copy them.
- Click the title cell of "Write Value" to select all the items and paste the copy.
- Select the items to be changed, and set new values according to Initial setting description (☞ Page 293 Initial setting description).



10. Click the [Execute] button to write the parameter to the I/O module.

Program example

1. Create the following program with GX Works2.



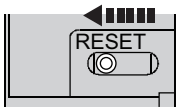
*1 For the initial processing, refer to the following.

☞ Page 299 Initial processing

Point

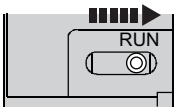
If the master station does not receive a response for several link scans from the I/O module, the I/O module is determined as a cyclic transmission faulty station and the corresponding bit of the data link status (each station) (SW00B0 to SW00B7) turns on.

2. Write the program to the CPU module of the master station, and reset the CPU module, or turn off and on the power supply.



or Power OFF→ON

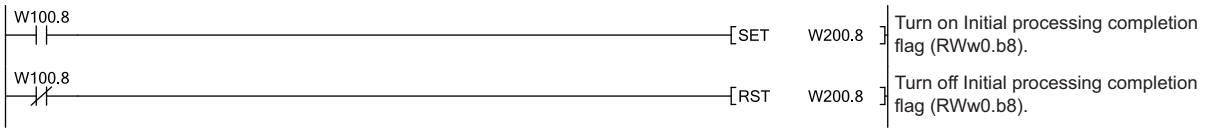
3. Put the CPU module of the master station into RUN.



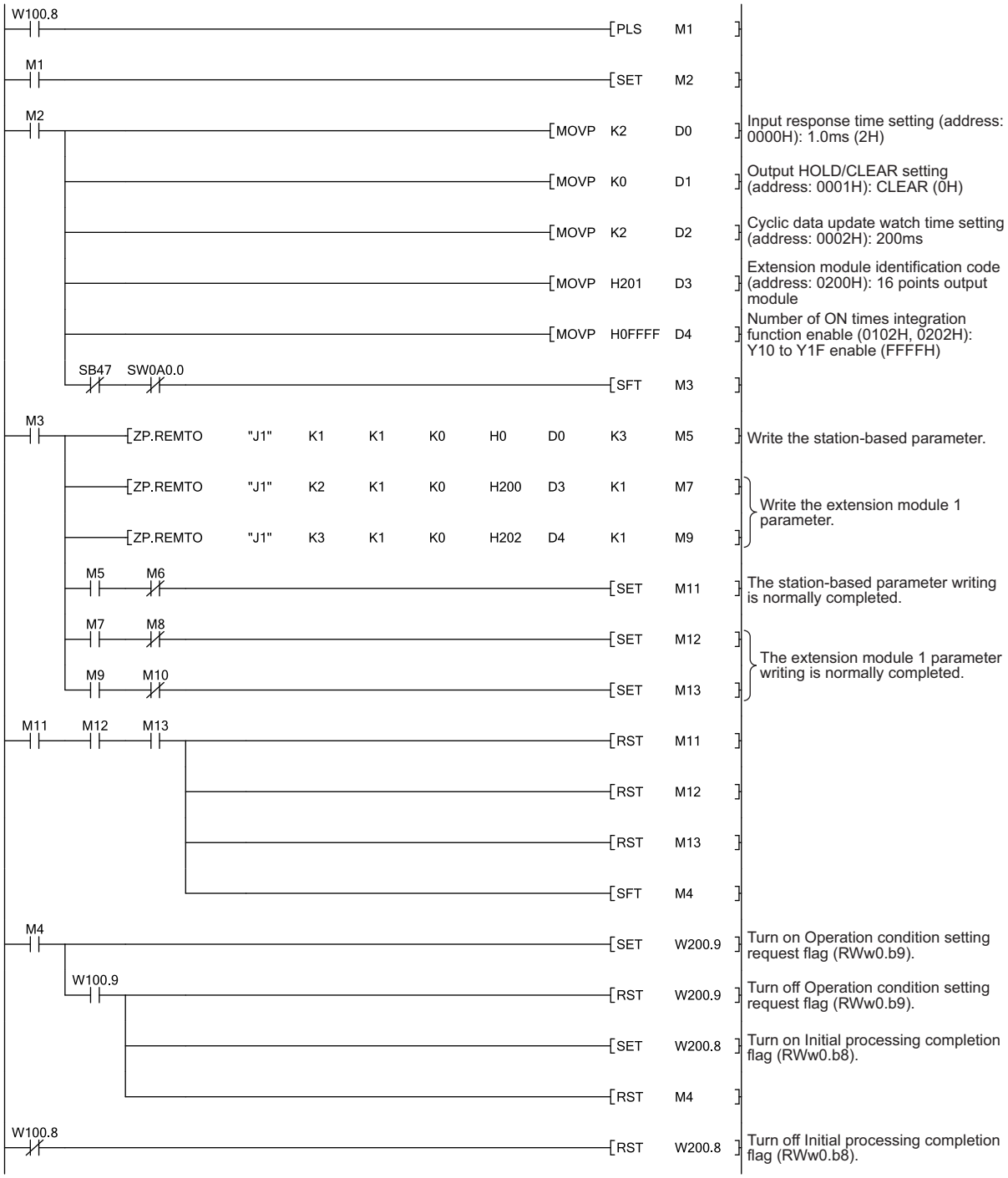
■Initial processing

Use either of the following programs.

- When parameters are not set at initializing (parameters are preset)



- When parameters are set at initializing



10.4 Program Example for the Number of ON Times Integration Function

This section describes the program examples for checking and clearing the number of ON times when the number of ON times integration function is used.

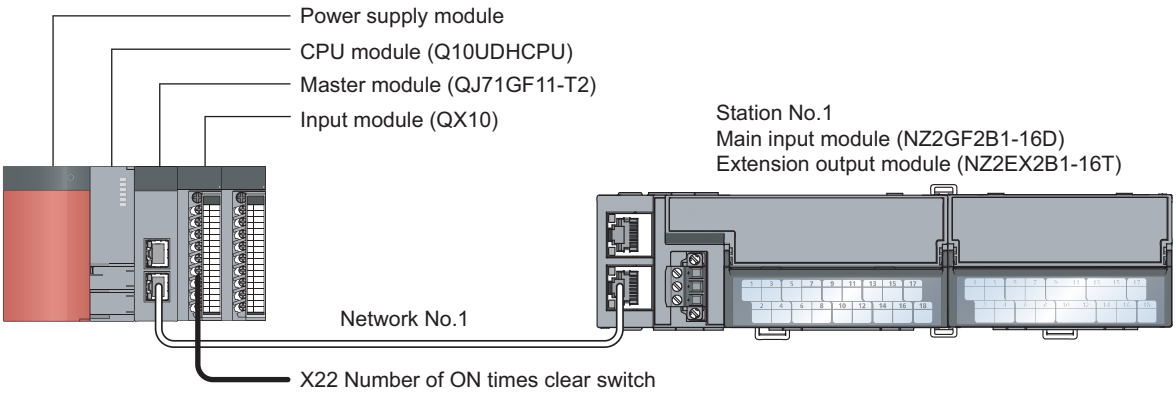
Program example for checking the number of ON times

For the program for checking the number of ON times, refer to the following.

☞ Page 291 Program Example

Program example for clearing the number of ON times

System configuration



■Assignment of link devices

The assignment of link devices is the same as that in the following section.

☞ Page 292 Assignment of link devices

Programming condition

This program clears Number of ON times integration value Y10 of the extension module when X22 is turned on.

Initial setting description

The initial setting contents are the same as those in the following section.

☞ Page 293 Initial setting description

Devices used by user

Device	Description	
X22	Number of ON times clear switch	QX10 (X20 to X2F)
D145	Number of ON times clear target device specification	
D146	Number of ON times integration value clear completed confirmation	
D147	Number of ON times clear target device specification clear	
M30 to M41	Contact for clearing the number of ON times	
SB47	Own station baton pass status (master station)	
SW0A0.0	Baton pass status (station No.1)	

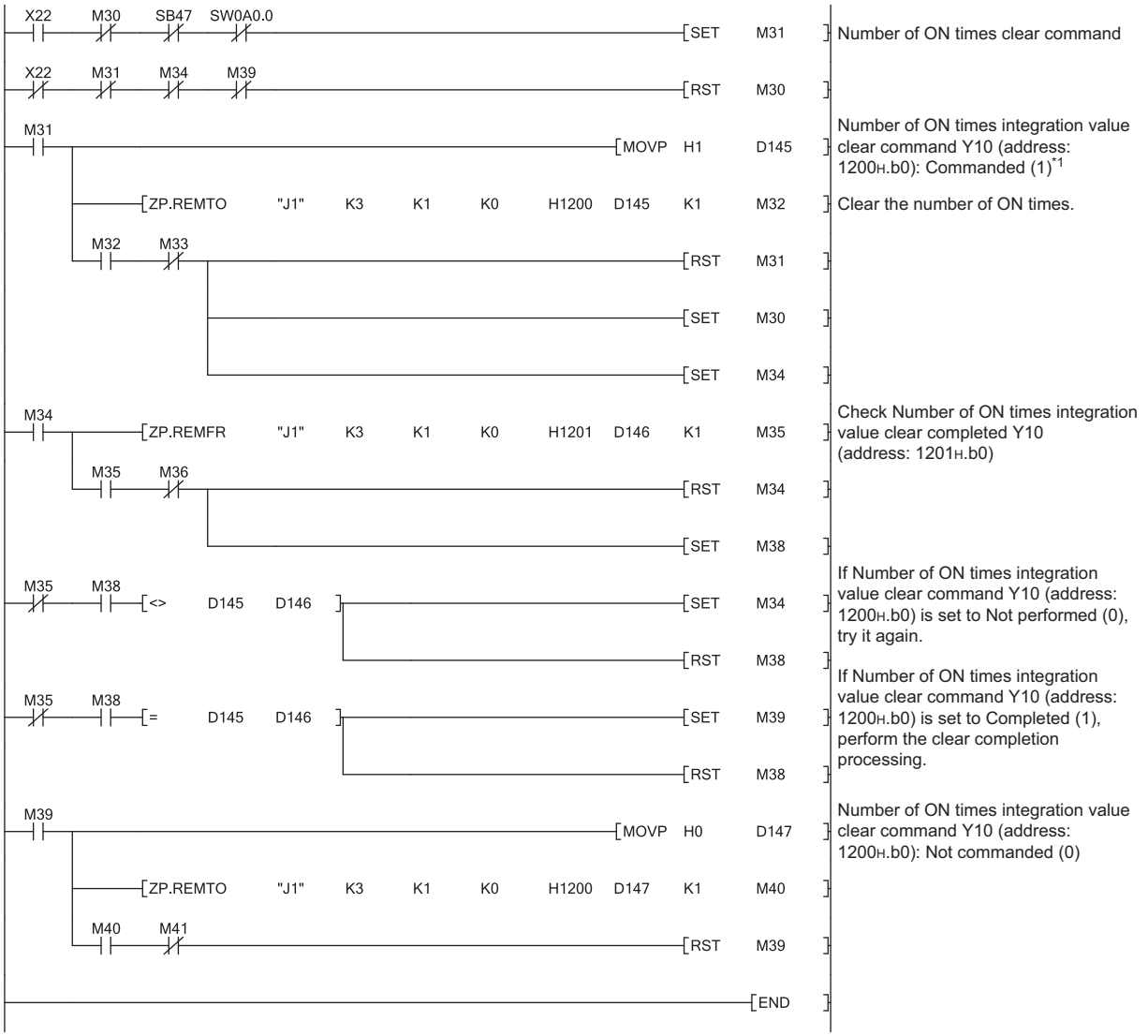
Setting procedure

Set the same contents from procedures 1 to 6 in the following section.

☞ Page 295 Setting procedure

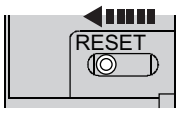
Program example

1. Create the following program with GX Works2.



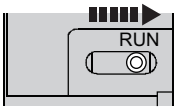
*1 Setting "1" to the bit corresponding to the clear target device clears the number of ON times of any device. (☞ Page 376 Number of ON times integration value clear command)

2. Write the program to the CPU module of the master station, and reset the CPU module, or turn off and on the power supply.



or Power OFF→ON

3. Put the CPU module of the master station into RUN.



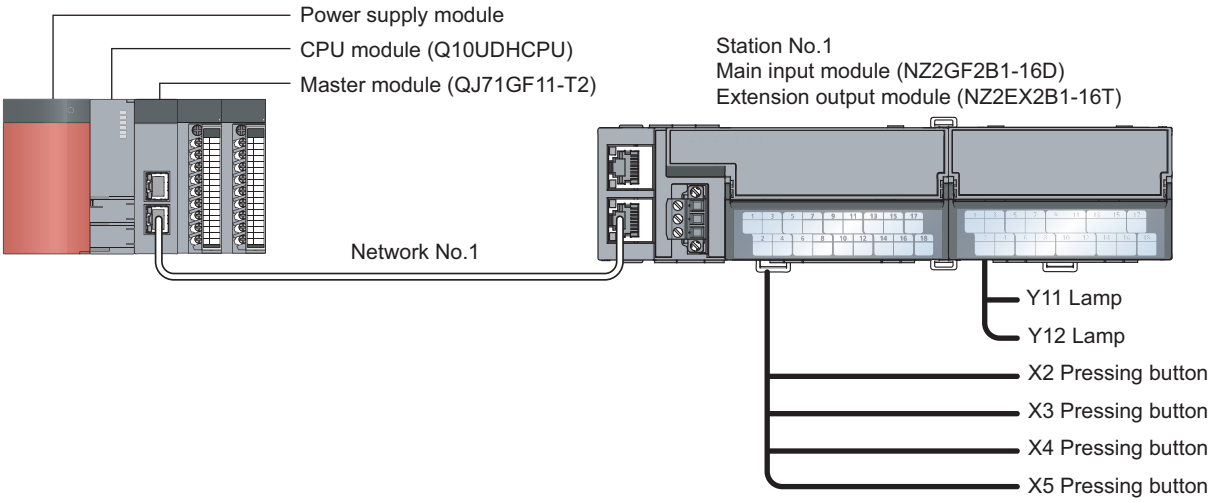
4. Turning on X22 clears Number of ON times Y10 of the extension output module.

10.5 Program Example for the Fast Logic Function

This section describes the program examples for when the fast logic function is used.
Turning off the module power supply returns Fast logic setting Y☐ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH) to the default value (Disable (0)). (The parameter is not stored in the nonvolatile memory.)
Thus, when the fast logic function is set with a program, not by the parameter setting of an engineering tool, the parameter can be set again easily.

Program example for the fast logic function

System configuration



■Assignment of link devices

The assignment of link devices is the same as that in the following section.

☞ Page 292 Assignment of link devices

Programming condition

When both X2 and X3 of the main input module are turned on, Y11 of the extension output module is turned on. When both X4 and X5 are turned on, Y12 of the extension output module is turned on.

Initial setting description

■Main input module

Item	Description
Input response time setting	1.0ms
Output HOLD/CLEAR setting	CLEAR
Cyclic data update watch time setting	200ms
Mode switch	Automatical judgment mode
Input OFF delay setting X0 to XF	0

■Extension output module

Item	Description
Extension module identification code	Extension output module: 16 points
Fast logic setting Y10, Fast logic setting Y13 to Y17	Disable
Fast logic setting Y11	Enable
Fast logic setting Y12	Enable

Devices used by user

Device	Description
D0 to D7	Temporary data for parameter setting
M1 to M9, M20 to M22	Contact for parameter setting
SB47	Own station baton pass status (master station)
SW0A0.0	Baton pass status (station No.1)
W100.8	Initial processing request flag (RWr0.b8)
W100.9	Operation condition setting completion flag (RWr0.b9)
W200.8	Initial processing completion flag (RWw0.b8)
W200.9	Operation condition setting request flag (RWw0.b9)

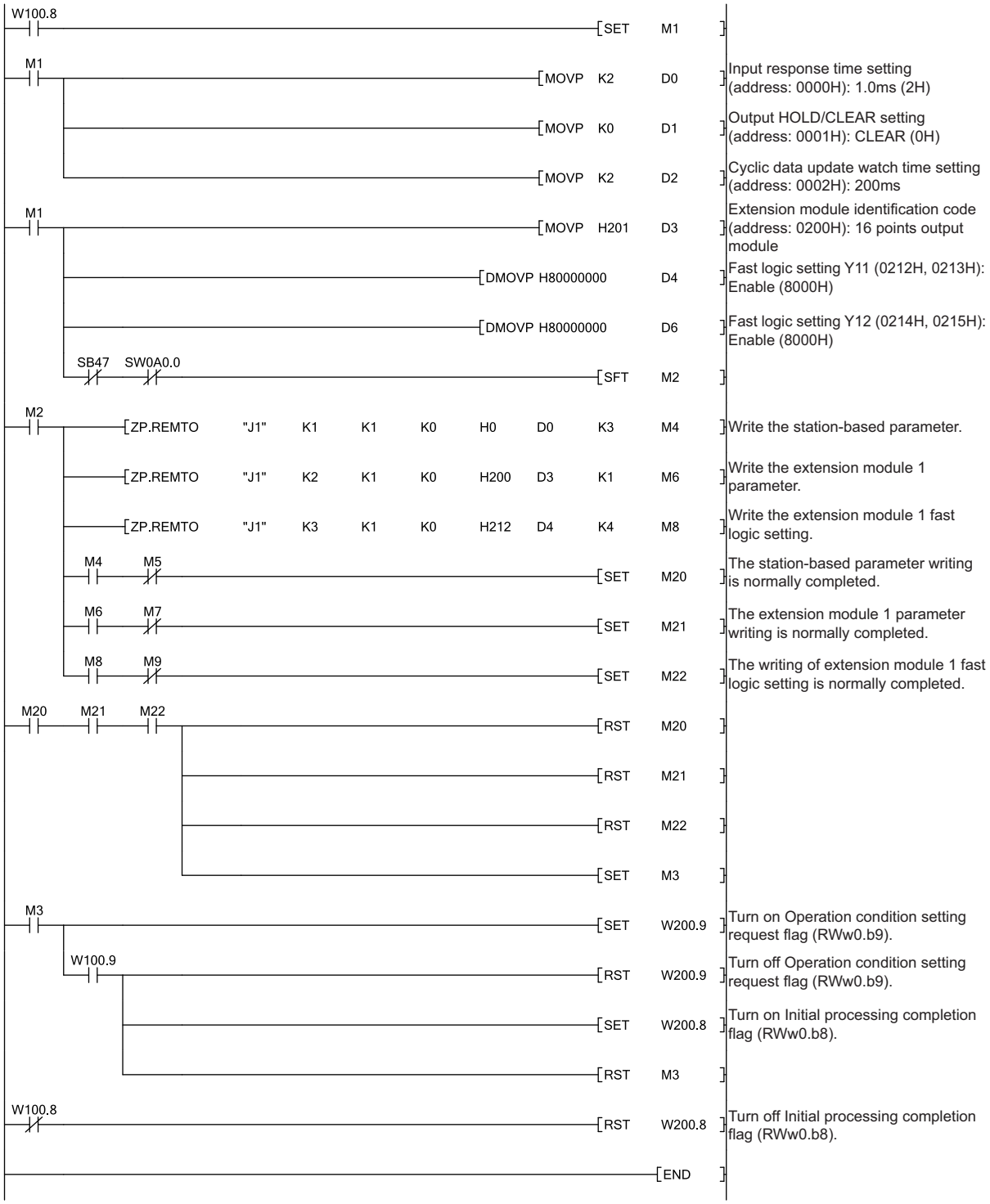
Setting procedure

Set the same contents from procedures 1 to 6 in the following section.

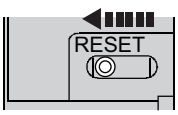
☞ Page 295 Setting procedure

Program example

1. Create the following program with GX Works2.

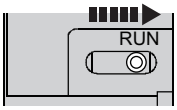


2. Write the program to the CPU module of the master station, and reset the CPU module, or turn off and on the power supply.



or Power OFF→ON

3. Put the CPU module of the master station into RUN.

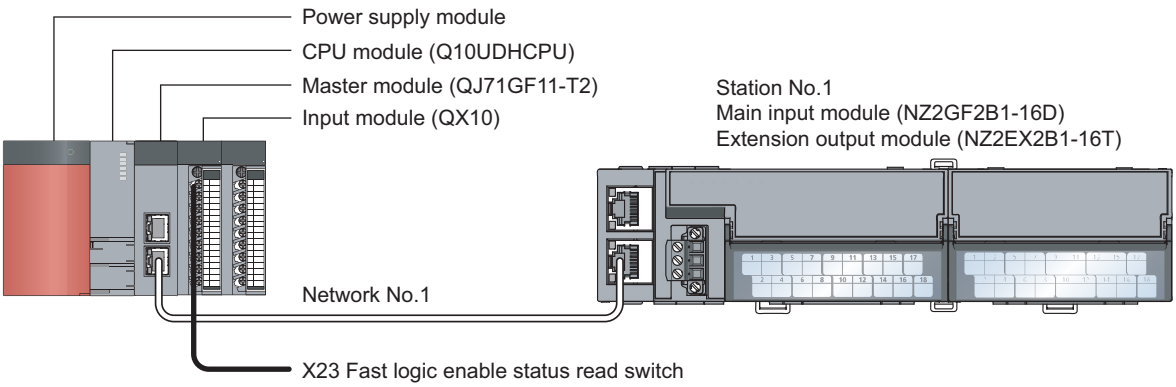


Program example for checking the fast logic enable or disable status

This section describes the program for reading the fast logic enable status.

When the parameter setting of the fast logic function is completed and Remote READY (RWr0.b11) is on, the fast logic enable status can be read.

System configuration



■Assignment of link devices

The assignment of link devices is the same as that in the following section.

☞ Page 292 Assignment of link devices

Programming condition

This program reads the enable status of Fast logic setting Y10 to Y17 of the extension output module.

Initial setting description

The initial setting contents are the same as those in the following section.

☞ Page 303 Initial setting description

Devices used by user

Device	Description	
X23	Fast logic enable status read switch	QX10 (X20 to X2F)
D105	Fast logic enable status acquisition	
M25 to M28	Contact for reading the fast logic enable status	
SB47	Own station baton pass status (master station)	
SW0A0.0	Baton pass status (station No.1)	
W100.B	Remote READY (RWr0.b11)	

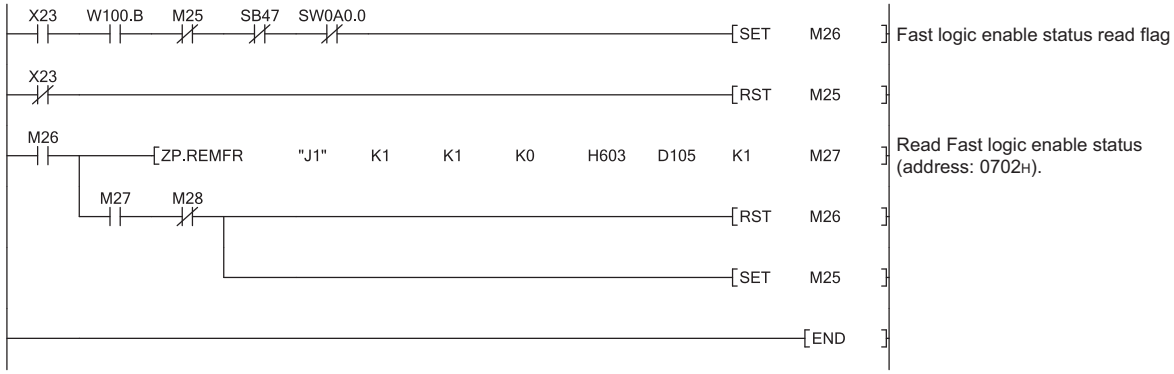
Setting procedure

Set the same contents from procedures 1 to 6 in the following section.

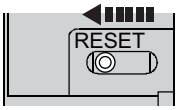
☞ Page 295 Setting procedure

Program example

1. Create the following program with GX Works2.

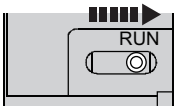


2. Write the program to the CPU module of the master station, and reset the CPU module, or turn off and on the power supply.



or Power OFF→ON

3. Put the CPU module of the master station into RUN.

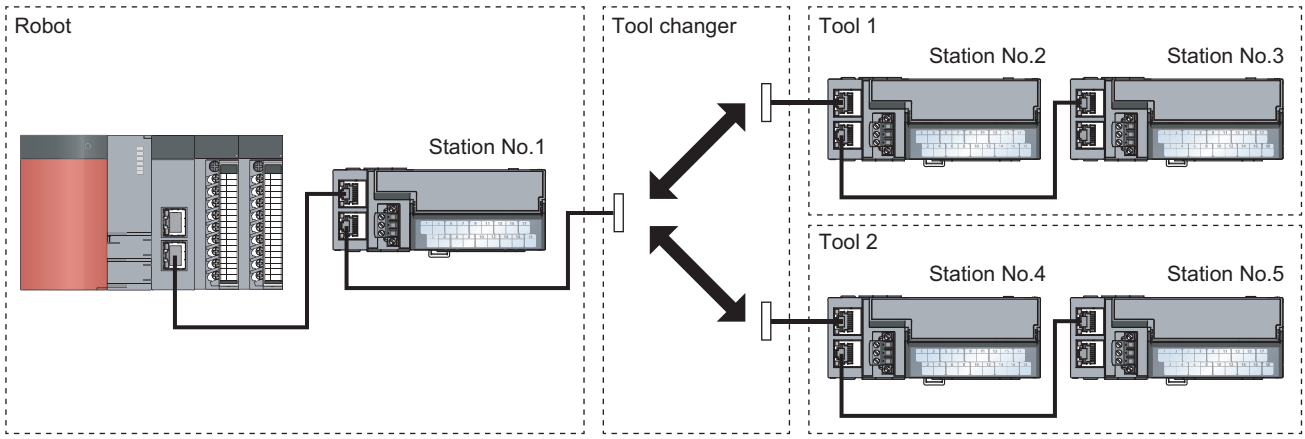


10.6 Program Example for Using the Fast Link-up Function

The following describes tool switching with the fast link-up function using examples.

System configuration

The following figure shows the system configuration. Switch between tools (tool 1 and tool 2) with the tool changer.



Program overview

Prepare for the following processing for each tool.

A series of tool operation will be completed by performing "Connecting", "Control", and "Disconnection" in this order.

■Connecting

Move the arm and control the tool changer to connect to a target tool. Check that data link of all I/O modules in the target tool system has been completed, and proceed to the next processing, "Control".

■Control

Actually input or output values to control the tool. When the control is completed, proceed to the next processing, "Disconnection".

■Disconnection

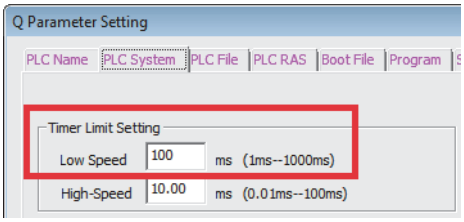
Control the tool changer to disconnect the target tool from the arm. Check a disconnection (data link error) of the I/O modules connected with the tool changer in the target tool system. The tool operation is completed.

Setting PLC parameters

In a program example, the low-speed timer is used.

Set "Low Speed" of "Timer Limit Setting" in the [PLC System] tab to "100ms".

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ [PLC System] tab



Devices used by user

Device	Description
M1000	Indicates that a tool is connected and in operation.
M1100	Turn on this device to connect and operate the tool 1.
M1101	Starts the program to connect the tool 1.
M1102	Starts the program to control the tool 1.
M1103	Starts the program to disconnect the tool 1.
M1104	Turns on at completion of the disconnection of the tool 1.
M1200	Turn on this device to connect and operate the tool 2.
M1201	Starts the program to connect the tool 2.
M1202	Starts the program to control the tool 2.
M1203	Starts the program to disconnect the tool 2.
M1204	Turns on at completion of the disconnection of the tool 2.
SW00B0	Monitor this device to detect a disconnection and return of an I/O module. Use the following. SW00B0.1: Monitoring the module of station No.2 of the tool 1 SW00B0.2: Monitoring the module of station No.3 of the tool 1 SW00B0.3: Monitoring the module of station No.4 of the tool 2 SW00B0.4: Monitoring the module of station No.5 of the tool 2
T0	Counts the waiting time (1 second) required to change a tool (from the tool 1 to the tool 2).

Program condition

To connect and operate the tool 1, turn on M1100 (Tool 1 operation start).

A series of tool 1 operation (connection, control, disconnection at completion of the control) will be automatically performed.

To connect and operate the tool 2, turn on M1200 (Tool 2 operation start).

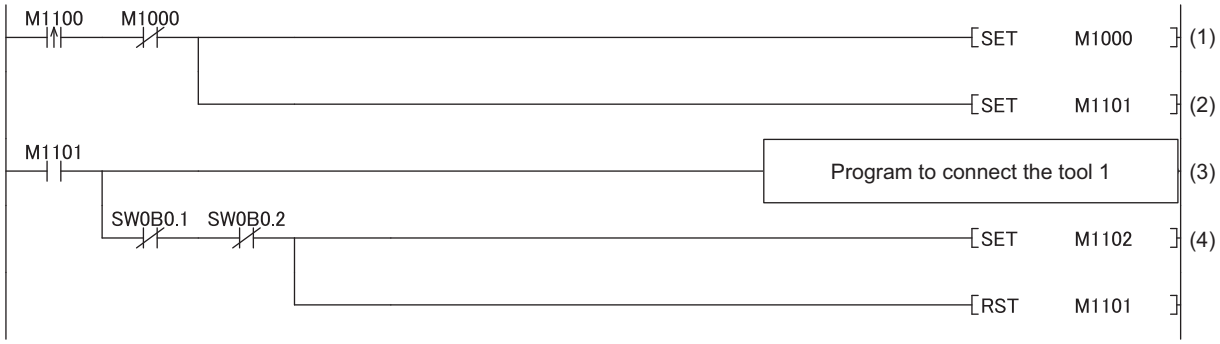
A series of tool 2 operation (connection, control, disconnection at completion of the control) will be automatically performed.

Program example

1. Create the following program with GX Works2.

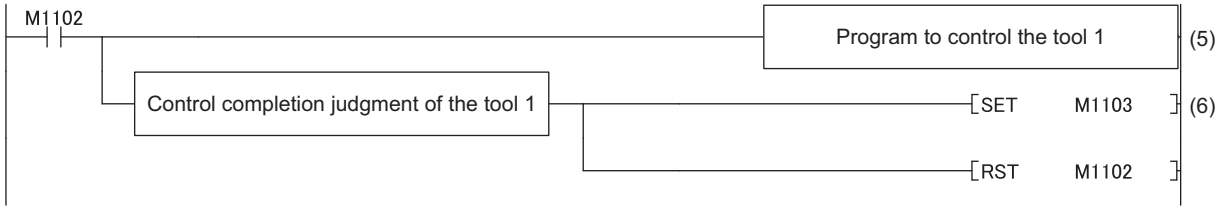
• Tool 1 program

Connection of the tool 1



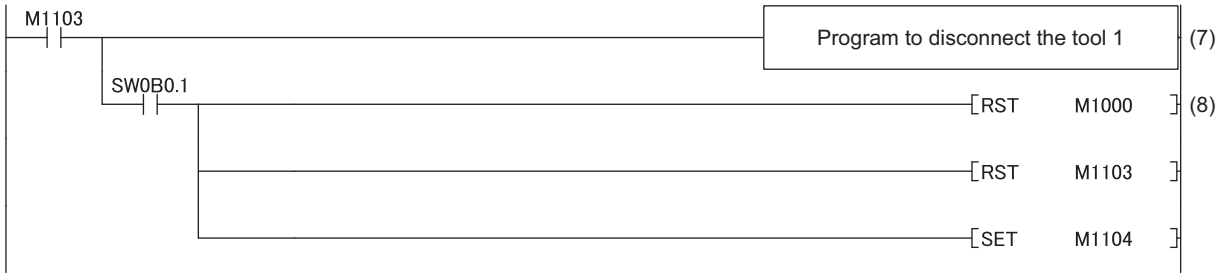
(1) Turn on Tool 1 operation start.
(2) When the tool is not operating, the tool 1 connection command turns on.
(3) Execute the program to connect the tool 1.
(4) The control command turns on after the returns of the modules of the station No.2 and No.3 (data link normally operating stations) are checked.

Control of the tool 1



(5) Execute the program to control the tool 1.
(6) The disconnection command turns on after completion of the control of the tool 1 is checked.

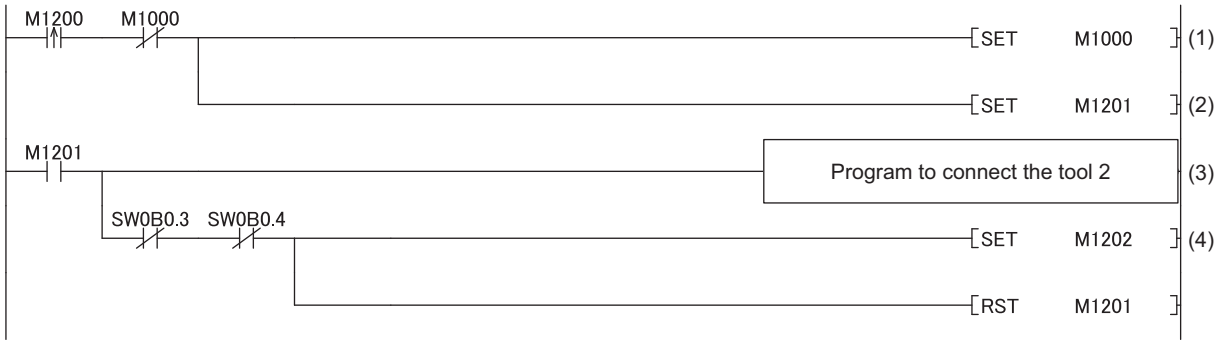
Disconnection of the tool 1



(7) Execute the program to disconnect the tool 1.
(8) Tool operating turns off and Tool 1 operation completed turns on after the disconnection of the module of the station No.2 (data link faulty station) is checked.

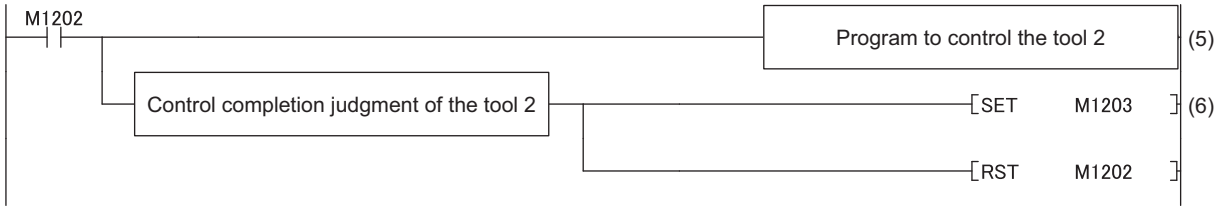
• Tool 2 program

Connection of the tool 2



(1) Turn on Tool 2 operation start.
(2) When the tool is not operating, the tool 2 connection command turns on.
(3) Execute the program to connect the tool 2.
(4) The control command turns on after the returns of the modules of the station No.4 and No.5 (data link normally operating stations) are checked.

Control of the tool 2

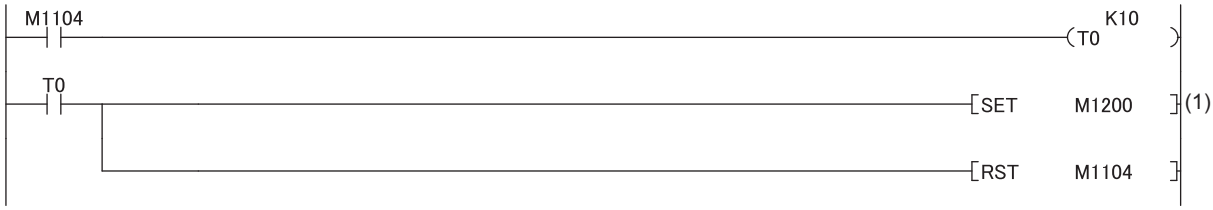


(5) Execute the program to control the tool 2.
(6) The disconnection command turns on after completion of the control of the tool 2 is checked.

Disconnection of the tool 2

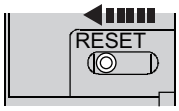
(7) Execute the program to disconnect the tool 2.
(8) Tool operating turns off and Tool 2 operation completed turns on after the disconnection of the module of the station No.4 (data link faulty station) is checked.

• Program to immediately start the tool 2 operation after completion of the tool 1 operation



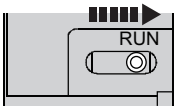
(1) After the tool 1 operation has been completed, the tool 2 operation starts.

2. Write the program to the CPU module of the master station, and reset the CPU module, or turn off and on the power supply.



or Power OFF→ON

3. Put the CPU module of the master station into RUN.



11 MAINTENANCE AND INSPECTION

The I/O module has no special item to be inspected. However, to maintain the best condition of the system, perform the inspection in accordance with the items described in the user's manual of the CPU module used.

MEMO

12 TROUBLESHOOTING

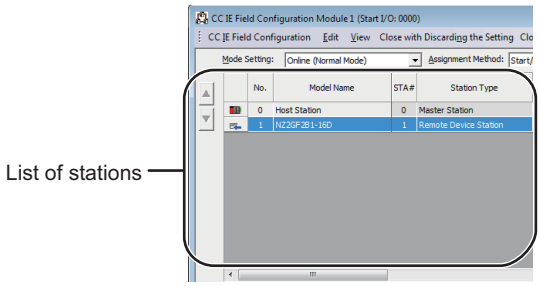
This chapter describes error contents that may occur while the I/O module is used and those troubleshooting.
This chapter uses GX Works2 for explanations.

12.1 Checking for the Error Codes and the Warning Codes

Error codes can be checked by any of the following methods:
☞ Page 315 Checking by executing a command of the slave station
☞ Page 317 Checking by Error code (RWr1)
Warning codes can be checked by any of the following methods:
☞ Page 315 Checking by executing a command of the slave station
☞ Page 317 Checking by Warning code (RWr2)

Checking by executing a command of the slave station

This section describes how to check the errors by executing a command of the slave station.

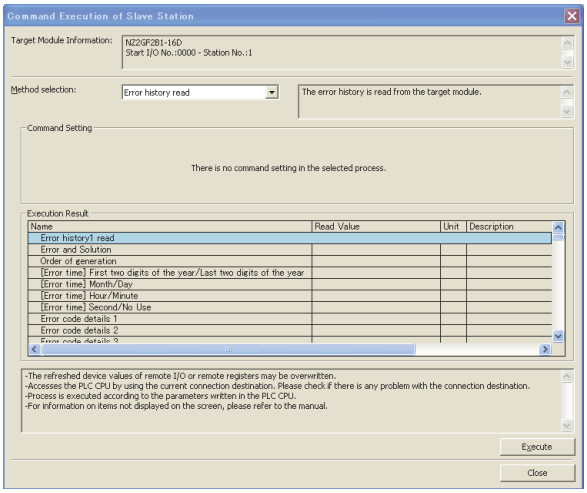


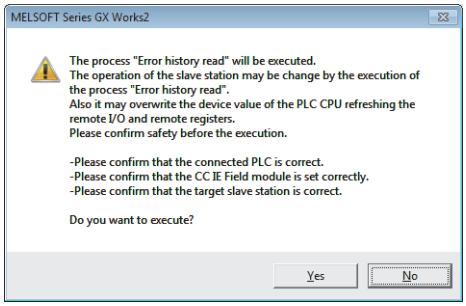
1. Select the main I/O module in "List of stations" on the "CC IE Field Configuration" window.

2. Open the "Command Execution of Slave Station" window.

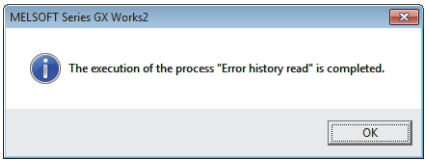
[CC IE Field Configuration] ⇨ [Online] ⇨ [Command Execution of Slave Station]

3. Set "Method selection" to "Error history read" and click the [Execute] button.

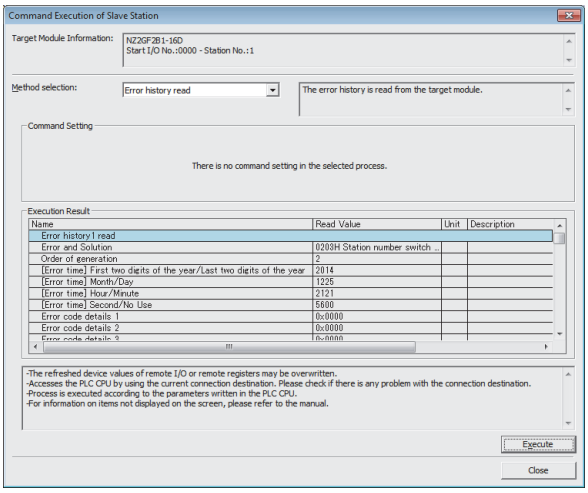




4. In the window that appears (shown left), click the [Yes] button.



5. In the window that appears (shown left), click the [OK] button.



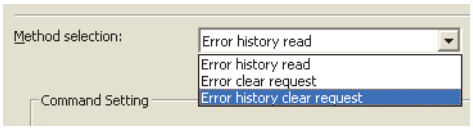
6. The error history of the I/O module is displayed in "Execution Result".

Item	Contents
Error and Solution	The action for the error is displayed.
Order of generation	The order of error occurrence is displayed. (A value between 0 and 65535 is stored.)
[Error time] First two digits of the year/Last two digits of the year*1	The date and hour of error occurrence is displayed. (When the tens place of Month, Hour and Second is "0", "0" is omitted.)
[Error time] Month/Day*1	
[Error time] Hour/Minute*1	
[Error time] Second/No Use*1	
Error code details 1 ⋮ Error code details 10	The value of Error code details ☐ of the remote buffer memory when an error occurs is stored.

*1 "[Error time]" of the error history is based on the clock information acquired from the CPU module of the master station. If an error occurs without data link establishment with the master station, the error time is not recorded because the I/O module does not have clock information used as the reference.

Point

- The error history can be read from a program. For details, refer to Error history data. (☞ Page 370 Error history data)
- The error history registers 15 errors at a maximum. If 16 or more errors occur, errors are deleted from the oldest.
- If the same error occurs continuously, only the error that occurred first is stored to the error history.
- Even after the power of the module is turned off and on, the error history remains.
- To initialize the error history, set "Method selection" to "Error history clear request" on the "Command Execution of Slave Station" window and click the [Execute] button.



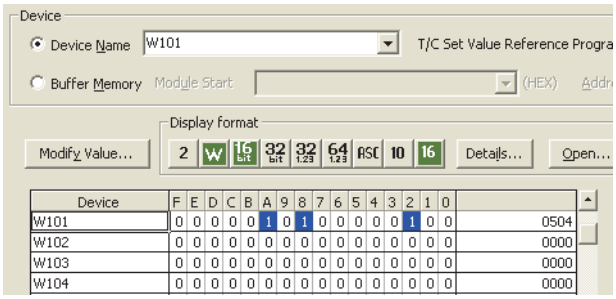
Checking by Error code (RWr1)

Check the latest error code with the remote register of the master/local module.

[Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]

Ex.

When the refresh target device for Error code (RWr1) is W101



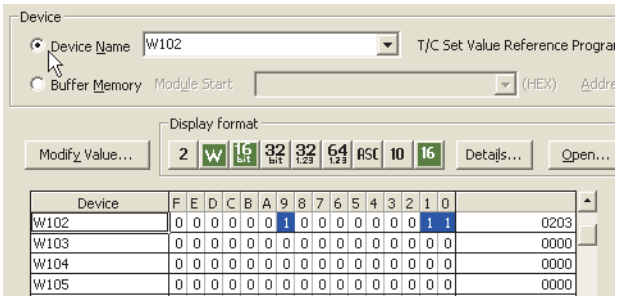
Checking by Warning code (RWr2)

Check the latest warning code with the remote register of the master/local module.

[Online] ⇨ [Monitor] ⇨ [Device/Buffer Memory Batch]

Ex.

When the refresh target device for Warning code (RWr2) is W102



12.2 Error Code List

This section describes error codes.

Error codes are classified by error number as follows.

Error code	Classification	Reference
0000H to 3FFFH D529H, D52BH	I/O module error	Page 318 Error code list (0000H to 3FFFH, D529H, D52BH)
D000H to DFFFH (D529H and D52BH excluded)	CC-Link IE Field Network error	Page 323 Error code list (D000H to DFFFH (D529H and D52BH excluded))

Error code list (0000H to 3FFFH, D529H, D52BH)

The errors are classified into the following three types.

Classification	Description
Major error	An error that cannot be recovered. The RUN LED turns off.
Moderate error	An error where the module cannot continue to operate. The ERR. LED turns on.
Minor error	An error where the module can continue to operate. The ERR. LED flashes.

If an error occurs, check that the D LINK LED is on. Then take corrective actions as listed below.

Error code (hexadecimal)	Classification	Error name	Description and cause	Action
0001H	Major error	WDT error	The WDT (watchdog timer) has timed out.	• Take measures against noise with a shielded cable for connection. Then turn off and on the module. • If this error persists, the module may be in failure. Please consult your local Mitsubishi representative.
0002H	Major error	ROM error	An error has been detected in the ROM diagnostics upon start up.	
0003H	Major error	RAM error	An error has been detected in the RAM diagnostics upon start up.	
0004H	Major error	Non-volatile memory error	The data in the non-volatile memory are faulty.	
0005H	Major error	Non-volatile memory error (module information)	The module information stored in the non-volatile memory are faulty.	
0006H	Major error	I/O circuit error	An error has been detected when the access to the I/O circuit was checked upon start up.	
0007H	Major error	Non-volatile memory access failure	The access to the non-volatile memory has failed.	
000AH	Major error	Module configuration changed	The module configuration has been changed after power on.	• Check the connection status of the extension module. • If the module is connected properly, there may be an influence from noise or a hardware error. If the same error occurs again even after measures have been taken against noise, the module may be in failure. Please consult your local Mitsubishi representative.
000BH	Major error	Communication error 3	Invalid data where the communication LSI setting changes have been received.	There may be an influence from noise or a hardware error. If the same error occurs again even after measures have been taken against noise, the module may be in failure. Please consult your local Mitsubishi representative.
000CH	Major error	Communication error 4	Invalid data where the communication LSI setting changes have been received.	
000DH	Major error	Communication error 5	The communication LSI is faulty.	
0010H	Major error	Hardware failure	Module hardware error	Take measures to reduce noise and reset the module. If the same error is displayed again, it is due to a hardware failure of the module. Please consult your local Mitsubishi representative.

Error code (hexadecimal)	Classification	Error name	Description and cause	Action
0101H	Moderate error	Non-volatile memory error (module working information)	The module working information stored in the non-volatile memory are faulty.	• Set Not commanded (0), Commanded (1), and Not commanded (0) in Module operation information initialization command (address: 1004H) and set the parameters of the non-volatile memory to default. Note that number of ON times integration value will be initialized to zero. • Take measures against noise with a shielded cable for connection. • If this error persists, the module may be in failure. Please consult your local Mitsubishi representative.
0102H	Moderate error	Non-volatile memory error (parameter)	The parameter data stored in the non-volatile memory are faulty.	• Set Not commanded (0), Commanded (1), and Not commanded (0) in Parameter area initialization command (address: 1002H) and set the parameters of the non-volatile memory to default. • Correct the parameter settings. • Take measures against noise with a shielded cable for connection. • If this error persists, the module may be in failure. Please consult your local Mitsubishi representative.
0103H*1	Moderate error	External power supply OFF error	The external power supply is off with External power supply monitor state flag (RWr3.b0) on.	• Set External power supply monitor request flag (RWw3.b0). In addition, check the wiring of the external power supply and status of the power supply device. • Correct the timing of turning on or off External power supply monitor request flag (RWw3.b0) if an error occurs when starting or stopping the system.
0104H	Moderate error	Date out of range error	The clock data acquired from the CPU module is incorrect.	There may be an influence from noise or a hardware error. If the same error occurs again even after measures have been taken against noise, please consult your local Mitsubishi representative.
0105H*1	Moderate error	Improper module connected	A module that cannot be used for extension has been connected.	Check whether the extension module can be connected to the product. If the module is connectable, there may be an influence from noise or a hardware error. If the same error occurs again even after measures have been taken against noise, please consult your local Mitsubishi representative.
0106H	Moderate error	RWw/RWr setting error	RWw13/RWr13 has not been set in RWw/RWr setting when synchronous communication mode is activated.	Reset and turn off and on the power, or execute remote reset to assign system area (RWw13/RWr13) in RWw/RWr setting of network parameter.
0107H	Moderate error	Synchronous communication mode setting error	The unusable function in synchronous communication mode is enabled.	The following functions are not able to use in synchronous communication mode. Please recheck parameter setting and disable the function. • Input OFF delay function • Fast logic function
0108H	Moderate error	Synchronous communication error 1	Synchronous communication with the master station has failed for a certain period of time.	Take the following actions and then turn off and on the power supply, or perform remote reset: • Setting the synchronization cycle of the master station to become longer, or reducing the number of slave stations that operate in synchronous communication mode • Taking measures against noise on the transmission path
0109H	Moderate error	Synchronization cycle setting error	The synchronization cycle set in the master station is not supported by the I/O module.	Adjust the synchronization cycle of the master station and then turn off and on the power supply of the I/O module, or perform remote reset.
010AH	Moderate error	Synchronous communication error 2	Synchronous communication with the master station has failed for a certain period of time.	Take measures against noise on the transmission path and then turn off and on the power supply, or perform remote reset.
010BH	Moderate error	Synchronous output timing setting function setting error	An unusable function with the synchronous output timing setting function is enabled.	The function below cannot be used for the output module that uses the synchronous output timing setting function. Correct the parameter setting and disable the function. • Number of ON times integration function

Error code (hexadecimal)	Classification	Error name	Description and cause	Action
0201H	Minor error	Non-volatile memory data error (error history)	The error history data stored in the non-volatile memory are faulty.	• The module will be automatically recovered immediately after the error occurs. Note that the error history of the errors that have occurred will be lost. • Take measures against noise with a shielded cable for connection. • If this error persists, the module may be in failure. Please consult your local Mitsubishi representative.
0202H[*2]	Minor error	Remote buffer memory access error	Areas other than those of the remote buffer memory have been accessed with the REMFR/ REMTO instructions.	Correct the setting data of the REMFR/REMTO instruction to access the remote buffer memory.
0203H	Minor error	Station number switch changed error	The station number setting switches have been changed with the module power on.	Set the switch again to the station number that has been set before.
0204H[*4]	Minor error	Mode switch setting change	The value set in Mode switch (address: 0003H) has been changed.	Turn off and on the I/O module power, or execute remote reset. The I/O module operates by the value set in Mode switch (address: 0003H).
0205H	Minor error	Incorrect network parameter access error	I/O module was accessed when network parameter was in the incorrect status.	Set network parameter again correctly.
0206H	Minor error	Setting change of synchronous output timing setting function enable	A set value of Synchronous output timing setting function enable (address: 0104H) has been changed.	Turn off and on the module power supply, or perform remote reset. The changed value is enabled after reset.
0207H	Minor error	Setting change of synchronous input timing acquisition function enable	A set value of Synchronous input timing acquisition function enable (address: 0105H) has been changed.	Turn off and on the module power supply, or perform remote reset. The changed value is enabled after reset.
0208H	Minor error	Operating condition setting change disable error	The operation to change the operating condition has been attempted with the condition where the operating condition cannot be changed.	Check if the following operations have been performed for the module with the automatic I/O parameter setting enabled. • Turning on Operation condition setting request flag (RWw0.b9) • Writing parameters from the "CC IE Field Configuration" window of the engineering tool • Performing Parameter area initialization command
0209H	Minor error	Function setting switch 1 changed error	The function setting switch 1 has been changed with the module power supply on.	Set the switch again to the state before the change.
020AH	Minor error	Function setting switch 2 changed error	The function setting switch 2 has been changed with the module power supply on.	Set the switch again to the state before the change.
020BH	Minor error	Function setting switch 3 changed error	The function setting switch 3 has been changed with the module power supply on.	Set the switch again to the state before the change.
0501H[*3]	Moderate error	Parameter data error (module identification code)	The received parameter data values are incorrect or outside the range.	Correct the parameter settings and module configuration. • Check that the settings of Extension module identification code (address: 0200H, 0300H, 0400H) are the same as the actual module configuration (module type and the number of points). 0000H: Extension module not connected 0101H: Extension input module (16 points) 0201H: Extension output module (16 points)

Error code (hexadecimal)	Classification	Error name	Description and cause	Action
0502H[*3]	Moderate error	Parameter data error (fast logic)	• The fast logic setting has been set enabled with a module configuration where the fast logic function cannot be used. • The received parameter data values are incorrect or outside the range.	■When the main module is a 16-point module Correct the parameter settings and module configuration. • Check if Fast logic setting Y☐ (address: 0110H to 011FH, 0210H to 021FH) has been set to Enable (1) with the condition where the fast logic function cannot be used. • To enable Fast logic setting Y0 to Y7 (address: 0110H to 011FH), use the combination of a main output module (16 points) and an extension input module (16 points) as the module configuration. • To enable Fast logic setting Y10 to Y17 (address: 0210H to 021FH), use the combination of a main input module (16 points) and an extension output module (16 points) as the module configuration.
				■When the main module is a 32-point module Correct the parameter settings and module configuration. • Check if Fast logic setting Y☐ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH) has been set to Enable (1) with the condition where the fast logic function cannot be used. • To enable Fast logic setting Y0 to Y7 (address: 0110H to 011FH), use the combination of a main output module (32 points) and an extension input module (16 points) as the module configuration. • To enable Fast logic setting Y10 to Y17 (address: 0130H to 013FH), include a main I/O combined module (32 points) in the module configuration. • To enable Fast logic setting Y20 to Y27 (address: 0210H to 021FH), use the combination of a main input module (32 points) and an extension output module (16 points) as the module configuration.
0503H[*3]	Moderate error	Parameter data error (input OFF delay)	The received parameter data values are incorrect or outside the range.	■When the main module is a 16-point module Correct the parameter settings. • Correct the set value in Input OFF delay setting X☐ (address: 0110H to 012FH, 0210H to 022FH, 0310H to 032FH, 0410H to 042FH) to a value within the setting range (0 to 150000). (Check the addresses of 0110H to 012FH of a main input module and 0210H to 022FH, 0310H to 032FH, 0410H to 042FH of an extension input module.)
				■When the main module is a 32-point module Correct the parameter settings. • Correct the set value in Input OFF delay setting X☐ (address: 0110H to 014FH, 0110H to 012FH, 0210H to 022FH) to a value within the setting range (0 to 150000). (Check the addresses of 0110H to 014FH of a main input module, 0110H to 012FH of a main I/O combined module, and 0210H to 022FH of an extension input module.)
0504H[*3]	Moderate error	Parameter data error (cyclic data update watch time setting)	The received parameter data values are incorrect or outside the range.	Correct the parameter settings. • Check that the set value in Cyclic data update watch time setting (address: 0002H) is within the setting range (0 to 20).
0505H[*3]	Moderate error	Parameter data error (mode switch)	The received parameter data values are incorrect or outside the range.	Correct the parameter settings. • Check that the set value in Mode switch (address: 0003H) is within the setting range (Normal mode (0), Automatical judgment mode (9)).
0506H[*3]	Moderate error	Parameter data error (initial operation setting)	The received parameter data values are incorrect or outside the range.	Correct the parameter settings. • Check that the set value in Initial operation setting (address: 0004H) is within the setting range (With initial processing (0), Without initial processing (1)).

Error code (hexadecimal)	Classification	Error name	Description and cause	Action
D529H	Major error	Communication error 1	A hardware error has occurred in the communication LSI.	• A malfunction may have occurred due to noise or others. Check the cable distance or grounding condition of each device. Then take measures against noise. • If the same error occurs again, the hardware of the module may be in failure. Please consult your local Mitsubishi representative.
D52BH	Major error	Communication error 2	A hardware error has occurred in the communication LSI.	

*1 Information of the module that has detected an error is stored in Error code details 1 of Error history data ☐ (address: 0A00H to 0AEFH). (The following is an example of Error history data 1 (address: 0A00H to 0A0FH).)

• Error code details 1 (address: 0A06H)

b15 to b4	b3	b2	b1	b0
0 (fixed)	0: The extension module 3 is normal. 1: The extension module 3 has an error.	0: The extension module 2 is normal. 1: The extension module 2 has an error.	0: The extension module 1 is normal. 1: The extension module 1 has an error.	0: The main module is normal. 1: The main module has an error.

*2 The start address of the remote buffer memory areas specified with the REMFR/REMTO instruction is stored in Error code details 1 of Error history data ☐ (address: 0A00H to 0AEFH).

*3 The remote buffer memory address of the parameter that has detected an error is stored in Error code details 1 of Error history data ☐ (address: 0A00H to 0AEFH).
The set value upon an error is stored in Error code details 2. The setting values of the lower 16 bits and higher 16 bits are respectively stored in Error code details 2 and Error code details 3 of Input OFF delay setting and Fast logic setting that have a setting value of 32 bits.

*4 Mode switch setting change (error code: 0204H) is not cleared even if five seconds have passed after the error occurred.
During the error, the I/O module keeps operating in the mode before the Mode switch (address: 0003H) change.
To clear the error in the previous mode, set the previous value to Mode switch (address: 0003H) and turn on and off Operation condition setting request flag (RWw0.b9).

Point

When multiple errors occur, only the latest error code is stored in Error code (RWr1).

The errors that have occurred in the past can be checked in the error history of the engineering tool.

For error history, refer to the following.

☞ Page 315 Checking by executing a command of the slave station

☞ Page 370 Error history data

Error code list (D000H to DFFFH (D529H and D52BH excluded))

When an error occurs, the ERR. LED does not turn on. The D LINK LED flashes or turns off.

Troubleshoot the problem with the CC-Link IE Field Network diagnostics.

Error code (hexadecimal)	Classification	Error name	Description and cause	Action
D0E0H	Communication error	Station type mismatch	The network parameter is incorrect or outside the range.	In the network configuration settings of the master station (submaster station), change the station type to that of the module.
D0E1H	Communication error	Own station reserved	The network parameter is incorrect or outside the range.	• In the network configuration settings of the master station (submaster station), cancel the reserved station setting. • Change the station number of the module to a station number that is not reserved.
D0E2H	Communication error	Station No. already in use (own station)	The station number switch setting is incorrect.	• Set a unique station number. • After taking the above action, turn off and on or reset all the stations where this error has been detected.
D0E3H	Communication error	Own station No. out of range	The network parameter is incorrect or outside the range.	Add the station information of the module in the network configuration settings of the master station (submaster station).
D217H	Communication error	Transient data command error	The transient data request command is incorrect.	Correct the request command at the request source, and retry the operation.
D2A0H	Communication error	Receive buffer full	The target station is overloaded and cannot receive transient data.	• Check the network status using CC-Link IE Field Network diagnostics of the engineering tool to take the appropriate action. • When the target station is overloaded and cannot receive transient data, send the data to the target station after a while.
D2A3H	Communication error	Transient data length error	The received transient data is incorrect.	Correct the number of data (frame length) at the request source, and retry the operation.
D72AH	Communication error	Station number switch out of range	A station number out of range has been set.	Set the station number within the allowable range.
DF01H	Communication error	Transient data divided error	The divided transient data have been received.	Send the transient data that is not divided.

Point

When multiple errors occur, only the latest error code is stored in Error code (RWr1).

The errors that have occurred in the past can be checked in the error history of the engineering tool.

For error history, refer to the following.

☞ Page 315 Checking by executing a command of the slave station

☞ Page 370 Error history data

12.3 Checking the LEDs

This section describes how to troubleshoot the system by the LEDs.

When the PW LED does not turn on

Check item	Action
Is any LED other than the PW LED turned on?	When any LED other than the PW LED turns on, the possible cause is a hardware failure. Please consult your local Mitsubishi representative.
Is the module power supply (24VDC) wired?	Wire the module power supply (24VDC).
Is the module power supply (24VDC) turned on?	Turn on the module power supply (24VDC).
Is the voltage of the module power supply (24VDC) within the specified range?	Set the voltage value within the range of performance specifications.

When the I/O PW LED does not turn on

Check item	Action
Is the external power supply (24VDC) wired?	Wire the external power supply (24VDC).
Is the external power supply (24VDC) turned on?	Turn on the external power supply (24VDC).
Is the voltage of the external power supply (24VDC) within the specified range?	Set the voltage value within the range of performance specifications.

When the RUN LED does not turn on

Check item	Action
Does the number of connected extension modules exceed the number of extension modules connectable to a main module?	Connect extension modules within the range of the number of extension modules connectable to a main module. For the number of extension modules connectable to the main module used, refer to the following. ☞ Page 201 Number of extension modules connectable to a main module
Does the voltage of the module power supplied externally reach to the voltage of the specifications?	Check that module power supply voltage is within the range of performance specifications. (☞ Page 40 Main I/O Module Specifications) After the check, power off and on the module. If the RUN LED does not turn on even after the module power supply is turned off and on, the possible cause is a module failure. Please consult your local Mitsubishi representative.
Does any hardware error occur?	

When the MODE LED flashes

Check item	Action
Is the I/O module in execution of the unit test?	When the I/O module is in execution of the unit test, the MODE LED turns off after the unit test is completed. Take corrective action according to the result of the unit test. (☞ Page 327 Unit Test)

When the D LINK LED turns off

Check item	Action
Does the own station in network operate normally?	Connect the engineering tool to the master station, and then check that a data link is established in the own station by using CC IE Field diagnostics. (📖 User's manual for the master/local module used)
Are 1000BASE-T-compliant Ethernet cables used?	Replace the cable with a 1000BASE-T-compliant Ethernet cable. (📖 User's manual for the master/local module used)
Is the station-to-station distance 100m or less?	Change the station-to-station distance to 100m or less.
Does the cabling condition (bending radius) meet the specifications?	Refer to the manual for the Ethernet cable used, and correct the bending radius.
Is any Ethernet cable disconnected?	Replace the Ethernet cable.
Do other stations connected to the I/O module normally operate?	Check that the power supplies of the other stations are turned on.
Does the switching hub normally operate?	• Check that a 1000BASE-T-compliant switching hub is used. (📖 User's manual for the master/local module used) • Check that the power supply of the switching hub is turned on.
Is the station number of the I/O module duplicated with any of other stations?	Two or more stations are duplicated. Change the setting so that all the station numbers are different.

When the D LINK LED flashes

Check item	Action
Does the station number setting of the I/O module match the station number of the I/O module set in the network configuration settings of the master station or in the CC IE Field Configuration?	Match the station number of the I/O module with the station number set in the network configuration settings of the master station or in the CC IE Field Configuration.
Is the station type remote device station or intelligent device station?	In the network configuration settings of the master station, change the station type to that of the module.
Is the I/O module a reserved station?	Change the setting of reserved/error invalid station to other than the reserved station in the network configuration settings of the master station.
Is the station number setting switch set to other than 1 to 120?	Change the setting within the range from 1 to 120.
Is stop of the data link checked through CC-Link IE Field Network diagnostics?	Check the link status through CC-Link IE Field Network diagnostics and start the link when the data link is stopped.
Has the connection been changed to the other master station with a different network number?	• Correct the connection to the previous master station. • To communicate with the master station with a different network number, power off and on the I/O module.

When the L ER LED turns on

Check item	Action
Are Ethernet cables normal?	• Check that 1000BASE-T-compliant Ethernet cables are used. (📖 User's manual for the master/local module used) • Check that the station-to-station distance is 100m or less. • Check that the Ethernet cables are not disconnected.
Does the switching hub in the system normally operate?	• Check that a 1000BASE-T-compliant switching hub is used. (📖 User's manual for the master/local module used) • Check that the power supply of the switching hub is turned on.
Do other stations connected to the I/O module normally operate?	Check that the power supplies of the other stations are turned on.
Is the mode of the module on the master station set to other than Online?	Change the mode of the module to Online.
Is there any noise affecting the system?	Check the status of wiring. Ground the control panel with the module installed in it.*1
Is the loopback function enabled for the master station?	When the loopback function is enabled, check that the ring topology is correctly configured for the PORT where the L ER LED is on. (📖 User's manual for the master/local module used)

*1 When a remote I/O module is installed in a control panel, the control panel is electrically connected to the FG terminal of the module via the DIN rail.
Therefore, if the control panel is not grounded, noise may go into the FG terminal from the control panel via the DIN rail.

When the LINK LED turns off

Check item	Action
Are Ethernet cables normal?	• Check that 1000BASE-T-compliant Ethernet cables are used. (📖 User's manual for the master/local module used) • Check that the station-to-station distance is 100m or less. • Check that the Ethernet cables are not disconnected.
Do the switching hub and other stations in the system normally operate?	• Check that a 1000BASE-T-compliant switching hub is used. (📖 User's manual for the master/local module used) • Check that the power supplies of the switching hub and other stations are turned on.
Are the modules where the state (enable/disable) of the fast link-up function is the same connected to each other?	For the ports connected to each other, set the same state (enable/disable) for the fast link-up function. And then power off and on the modules. In addition, disable the fast link-up function for the port that is to be connected to the port where the fast link-up function is not supported.
For the modules to be connected to each other with the fast link-up function being enabled, are PORT1 and PORT2 connected with a cable?	Connect PORT1 and PORT2 with a cable when connecting modules where the fast link-up function is enabled.

Point

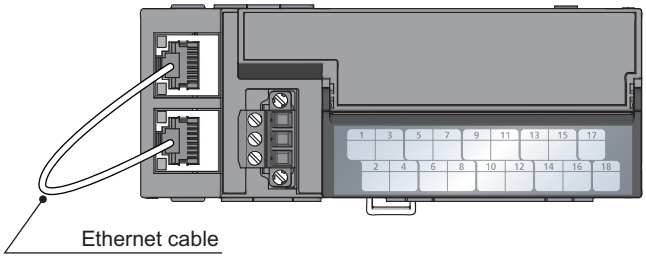
If link-up processing is repeated due to a condition of a device on the line, it may take a longer time for the LINK LED to turn on.
This phenomenon may be eliminated by changing the module PORT into which the Ethernet cable is connected (example: PORT1 → PORT2).

When the ERR. LED turns on

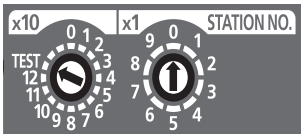
Check item	Action
Has any error occurred?	Identify the error factor of the I/O module with the engineering tool to take the corrective action. (☞ Page 315 Checking for the Error Codes and the Warning Codes)

12.4 Unit Test

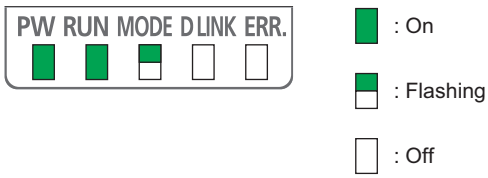
Run a unit test to check if there is any abnormality in the main I/O module.



1. Power off the module.
2. Connect the PORT1 and PORT2 connectors of the main I/O module with an Ethernet cable.



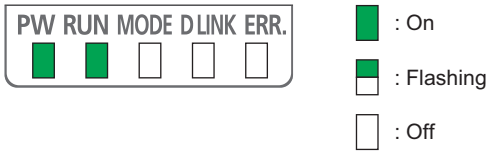
3. Set the station number setting switch as follows.
- x10: TEST
- x1: 0



4. Power on the module.
5. Unit test begins.

The MODE LED flashes while the unit test is being executed.

When completed



6. The MODE LED turns off when the unit test is completed.
- If the test is completed normally, the ERR. LED does not turn on, but remains off.
- If the test fails, the ERR. LED turns on. If the test fails, replace the Ethernet cable and run the test again. If the test fails again, it may be due to a hardware failure in the I/O module. Please consult your local Mitsubishi representative.

When failed

Point

When unit test fails, the error details can be checked in the error history.
To check the error history, set the station number of the main I/O module and connect the module to the master station with an Ethernet cable.
For error history, refer to the following.
☞ Page 315 Checking by executing a command of the slave station
☞ Page 370 Error history data

12.5 Troubleshooting for Each Phenomenon

This section describes troubleshooting for each phenomenon.
Perform troubleshooting for each phenomenon when the I/O module does not operate properly with no error. If an error occurs in the I/O module, identify the cause of the error using the engineering tool.
Check the following items in the order from the top.

When the ON/OFF status of an external input cannot be read

Check item	Action
Is the corresponding LED (X0 LED to XF LED) of the input module on when an external input device is on?	If the LED does not turn on, there is a problem on the input wiring. Check the wiring confirming that the input wiring is not disconnected or short-circuited, or the voltage of the input signal is correct. For the rated input voltage, check the "Rated input voltage" column of each input module specifications. ☞ Page 40 Main input module ☞ Page 125 Extension input module Refer to the following as well. ☞ Page 331 Troubleshooting for input circuit
Is the setting of the refresh device correct?	Check the refresh parameter and correct the setting of the refresh device so that it matches with the setting in the program. For the setting of the refresh parameters, refer to the following. 📖 User's manual for the master/local module used
Is Remote READY (RWr0.b11) on?	When Remote READY (RWr0.b11) is off, perform either of the following. • When Initial processing request flag (RWr0.b8) is on, turn on Initial processing completion flag (RWw0.b8) to complete the initial processing. (☞ Page 345 Initial processing request flag (RWr0.b8), ☞ Page 355 Initial processing completion flag (RWw0.b8)) • When Error clear request flag (RWw0.b10) is on, turn it off. (☞ Page 355 Error clear request flag (RWw0.b10))
Is the input OFF delay function used correctly?	When the input OFF delay function is enabled, Remote input signal (RX) turns off after the delay time passes following OFF of an external device. Disable the input OFF delay function or change the setting of the delay time. For details on the setting related to the input OFF delay function, refer to the following. ☞ Page 251 Input OFF Delay Function ☞ Page 364 Input OFF delay setting
Has the network synchronous communication setting (synchronous/asynchronous) been changed on the network configuration settings?	When the network synchronous communication setting has been changed, turn off and on the power supply, or perform remote reset.
Is the inter-module synchronous interrupt program created when MELSEC iQ-R series modules use the CC-Link IE Field Network synchronous communication function together with the inter-module synchronization function?	Create the inter-module synchronous interrupt program when MELSEC iQ-R series modules use the CC-Link IE Field Network synchronous communication function together with the inter-module synchronization function. For the inter-module synchronous interrupt program, refer to the following. 📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

When the ON/OFF status of an external output cannot be changed

Check item	Action
Is the I/O PW LED turned on?	Take corrective action according to the following. ☞ Page 324 When the I/O PW LED does not turn on
Is the corresponding LED (Y0 LED to YF LED) of the output module on when External output signal Y☐ (RY0 to RYF, RY10 to RY1F) is turned on?	If the LED turns on, there is a problem on the output wiring. Check the wiring confirming that the output wiring is not disconnected or short-circuited. Refer to the following as well. ☞ Page 336 Troubleshooting for output circuit
Is the setting of the refresh device correct?	Check the refresh parameter and correct the setting of the refresh device so that it matches with the setting in the program. For the setting of the refresh parameters, refer to the following. 📖 User's manual for the master/local module used
Is Remote READY (RWr0.b11) on?	When Remote READY (RWr0.b11) is off, perform either of the following. • When Initial processing request flag (RWr0.b8) is on, turn on Initial processing completion flag (RWw0.b8) to complete the initial processing. (☞ Page 345 Initial processing request flag (RWr0.b8), ☞ Page 355 Initial processing completion flag (RWw0.b8)) • When Error clear request flag (RWw0.b10) is on, turn it off. (☞ Page 355 Error clear request flag (RWw0.b10))
Is the fast logic function used correctly?	When the fast logic function is enabled, output Y is turned on or off not by the remote output signals (RY) received from the master module but by the internal operation result of the module. Disable the fast logic function or change the condition of output. For details on the fast logic function, refer to the following. ☞ Page 260 Fast Logic Function ☞ Page 365 Fast logic setting
Has the network synchronous communication setting (synchronous/asynchronous) been changed on the network configuration settings?	When the network synchronous communication setting has been changed, turn off and on the power supply, or perform remote reset.
Is the synchronous output timing setting function used correctly?	When the synchronous output timing setting function is enabled, output Y is turned on or off not by the remote output signal (RY) but by setting Synchronous output timing setting Y☐ OFF to ON and Synchronous output timing setting Y☐ ON to OFF (RWw14 to RWw33). Disable the synchronous output timing setting function or check Synchronous output timing setting Y☐ OFF to ON and Synchronous output timing setting Y☐ ON to OFF (RWw14 to RWw33).
Is ON/OFF switching period of output set to be shorter than maximum output response time when the module uses the synchronous output timing setting function?	When the module uses the synchronous output timing setting function, if the ON/OFF switching period of output is set to be shorter than maximum output response time, a connected device may not turn on or off. Correct values of Synchronous output timing setting Y☐ OFF to ON and Synchronous output timing setting Y☐ ON to OFF (RWw14 to RWw33) so that the ON/OFF switching period becomes longer than maximum output response time.
Is the inter-module synchronous interrupt program created when MELSEC iQ-R series modules use the CC-Link IE Field Network synchronous communication function together with the inter-module synchronization function?	Create the inter-module synchronous interrupt program when MELSEC iQ-R series modules use the CC-Link IE Field Network synchronous communication function together with the inter-module synchronization function. For the inter-module synchronous interrupt program, refer to the following. 📖 MELSEC iQ-R Inter-Module Synchronization Function Reference Manual

Point

If an external input cannot be read or an external output cannot be controlled even after the above actions are taken, the I/O module may be failed. Please consult your local Mitsubishi representative.

When parameter read or write or CC-Link IE Field Network diagnostics fails

Check item	Action
Is the D LINK LED of the main module turned on?	Check the D LINK LED of the main module. When the D LINK LED is not on, refer to the following to perform troubleshooting. ☞ Page 325 When the D LINK LED turns off ☞ Page 325 When the D LINK LED flashes Refer to the following to check other LEDs. ☞ Page 324 Checking the LEDs
Is the version of the module on the master station correct?	Check the serial number (first five digits) of the module on the master station, and if the version is prior to the correct one, replace the module with a module of the applicable version. For the applicable version, refer to the following. ☞ Page 187 Applicable master station
Is the version of the engineering tool supported?	Check the version of the engineering tool, and if it is prior to the supported versions, update it. For the applicable version, refer to the following. ☞ Page 187 Software package
Do the setting of the network parameter and that of the CPU module match?	Perform PLC verification on the network parameter to check those settings. When they are not matched, match the setting of the network parameter to that of the CPU module and write the module parameter of the slave station.
Is the voltage of the module power supply (24VDC) within the specified range?	Set the voltage value within the range of performance specifications.

12.6 Examples of Troubles with the I/O Module

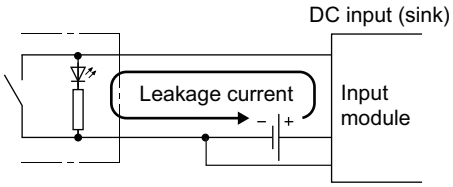
Troubleshooting for input circuit

This section describes the troubleshooting for input circuit.

An input signal does not turn off No.1

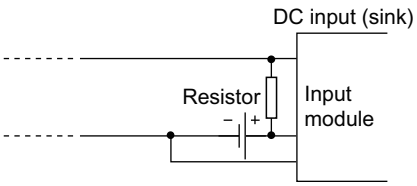
■Cause

Drive by a switch with LED indicator



■Action

Connect an appropriate resistor as shown below so that a current through the input module may become lower than the OFF current.

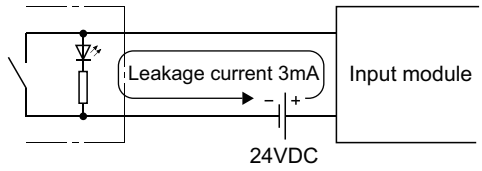


For the calculation example of a resistor to be connected, refer to the following.

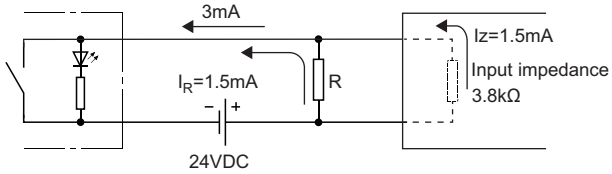
☞ Page 331 Calculation example

■Calculation example

When 24VDC is supplied to the input module on the condition a switch with LED indicator with maximum leakage current of 3mA is connected



1. The OFF current through the input module is not 1.5mA or less. Therefore, connect a resistor as shown below.



2. To satisfy the condition, the current through the connected resistor should be 1.5mA or more. From the formula below, the connected resistor is lower than 3.8kΩ.

I_R: I_Z = Z (Input impedance): R

$$R \leq \frac{I_Z}{I_R} \times Z \text{ (Input impedance)} = \frac{1.5}{1.5} \times 3.8 = 3.8[k\Omega]$$

3. When the resistor (R) is 2.7kΩ, for example, the power capacity (W) of the resistor (R) becomes 0.307W.

$$W = (\text{Input voltage})^2 \div R = 28.8^2 \div 2700 = 0.307\ [W]$$

4. Because the resistor requires the power capacity of 3 to 5 times as large as the actual current consumption, the resistor connected to the terminal should be 2.7kΩ and 1 to 2W.

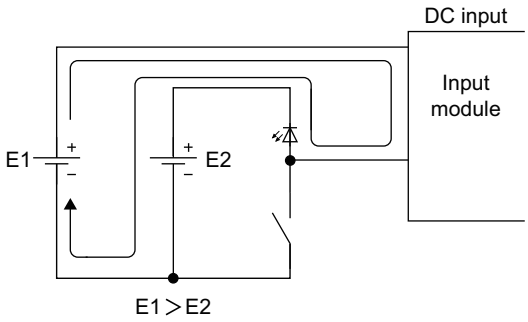
5. OFF voltage when the resistor (R) is connected becomes 4.74V. This satisfies that the OFF voltage of the input module is 5V or lower.

$$\frac{1}{\frac{1}{2.7[k\Omega]} + \frac{1}{3.8[k\Omega]}} \times 3[mA] = 4.74[V]$$

An input signal does not turn off No.2

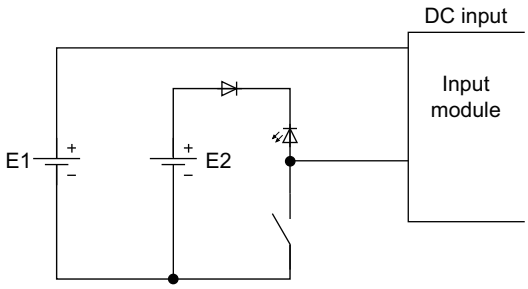
■Cause

By using two power supplies, a sneak path is configured.



■Action

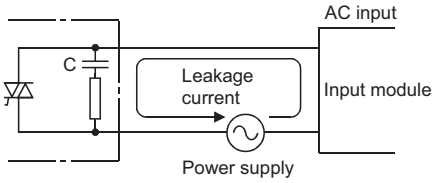
- Use one power supply.
- To prevent the sneak path, connect a diode as shown below.



An input signal does not turn off No.3

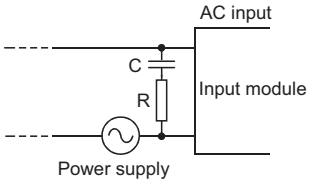
■Cause

There is a leakage current from the input switch (driven by a contactless switch and others).



■Action

Connect an appropriate resistor so that the voltage between terminals of the input module would fall below the OFF voltage.

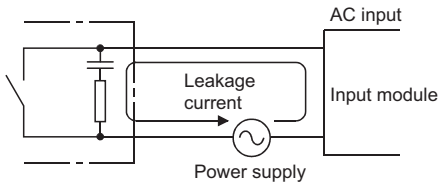


The recommended CR constant is as follows: 0.1 to 0.47μF + 47 to 120Ω (1/2W).

An input signal does not turn off No.4

■Cause

There is a leakage current from the input switch (driven by a limit switch with neon lamp).



■Action

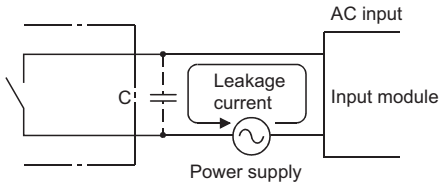
Take either of the following actions:

- Connect an appropriate resistor so that the voltage between terminals of the input module would fall below the OFF voltage. (☞ Page 333 Action)
- Make the circuit independent and provide another display circuit.

An input signal does not turn off No.5

■Cause

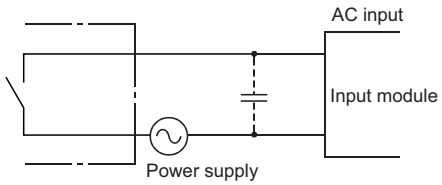
There is a leakage current due to the line capacity of the wiring cables. (The line capacity, C, of a twisted pair cable is as follows: C = approx. 100pF/m.)



■Action

Connect an appropriate resistor so that the voltage between terminals of the input module would fall below the OFF voltage. (☞ Page 333 Action)

A leakage current is not generated, however, where the power supply lies in the input device side like the figure below:



A signal incorrectly inputs data

■Cause

Noise is taken as input data.

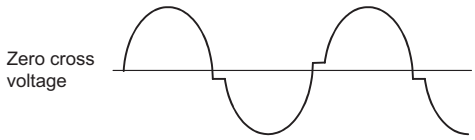
■Action

- To prevent excessive noise, avoid installing power cables together with I/O cables.
- Connect surge absorbers to noise-generating devices such as relays and conductors using the same power supply or take other noise reduction measures.

An input signal does not turn on (AC input module).

■Cause

Around the zero cross voltage of the input signal (AC), there are step-like deformations as shown below:



■Action

Improve the input signal waveform by using an on-line type UPS and others.

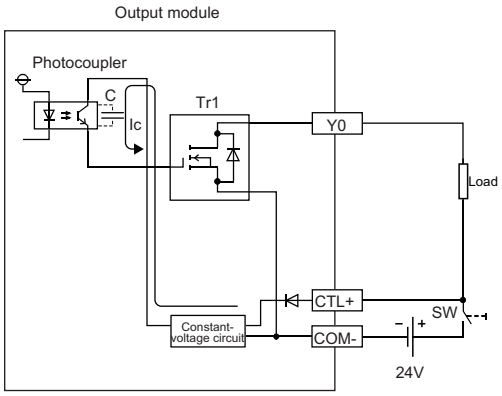
Troubleshooting for output circuit

This section describes the troubleshooting for output circuit.

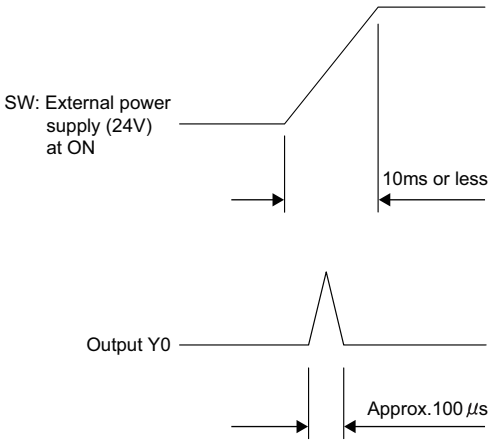
A load momentarily turns on when the external power supply is powered on

■Cause

An incorrect output occurs due to the stray capacitance (C) between collector and emitter of a photocoupler.
(When a high sensitivity load (such as solid state relay) is used, this incorrect output may occur.)

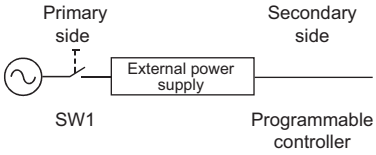


When the external power supply is powered on rapidly, the current (Ic) flows due to the stray capacitance(C).
The current (Ic) flows to the gate of the transistor (Tr1) of the next stage and the output Y0 turns on for approximately 100μs.



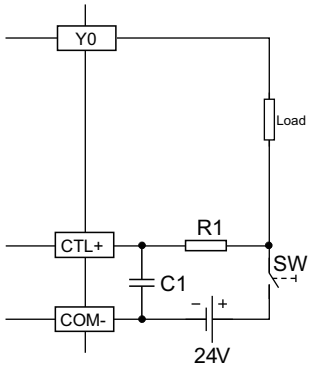
■Action

Before turning on or off the external power supply, check that the rise time of the external power supply is 10ms or more.
Then, install a switch (SW1) to the primary side of the external power supply.

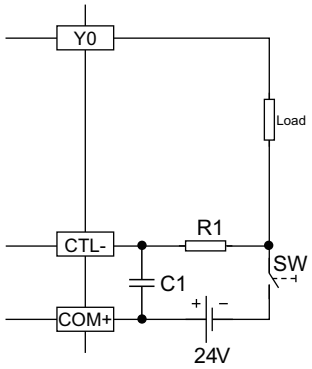


When installing the switch to the secondary side, connect a capacitor and resistor, and increase the rise time (10ms or more).

- Sink output



- Source output



R1: Several tens of ohms

Power capacity ≥ (External power supply current[*1])^2 × Resistance value × (3 to 5)[*2]

C1:Several hundreds of microfarads 50V

(Example)

R1 = 40Ω, C1 = 300μF

Time constant is calculated as shown below.

C1 × R1 = 300 × 10^{-6} × 40

= 12 × 10^{-3}s

= 12ms

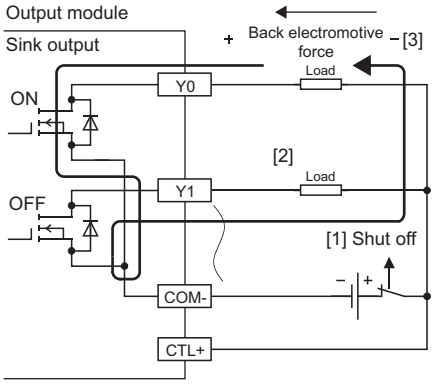
*1 For the current consumption of the external power supply for output part, refer to the manuals.

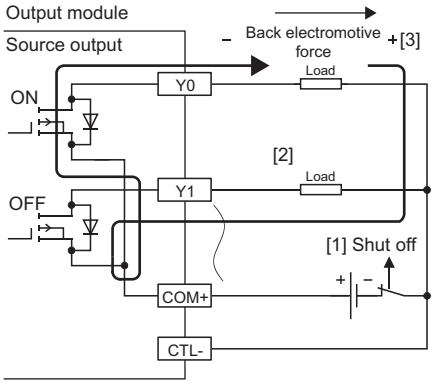
*2 Select the power capacity of resistor to be 3 to 5 times as large as the actual power consumption.

A load momentarily turns on from off when the system is powered off

■Cause

When an inductive load is connected, [2] Load may turn on from off due to a diversion of back electromotive force at [1] Shutoff.





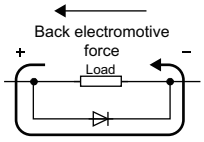
■Action

Take one of two actions shown below.

1.To suppress the back electromotive force, connect a diode parallel to the load where back electromotive force is generated.

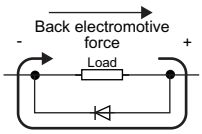
• Sink output

[3]

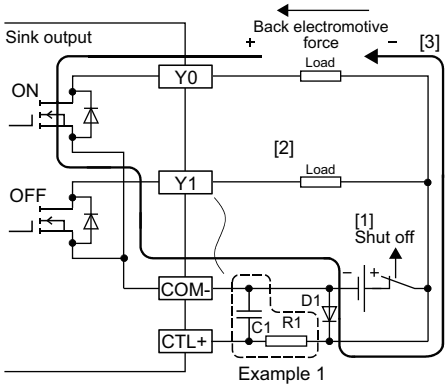


• Source output

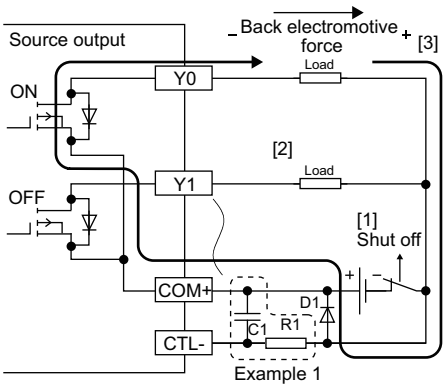
[3]



2.Configure another current path by connecting a diode across positive and negative of the external power supply. When taking the action described in Example 1 at a time, connect a diode parallel to C1 and R1.



Example 1



Example 1

D1:

Reverse voltage VR (VRM)*1

Forward current IF (IFM)*2

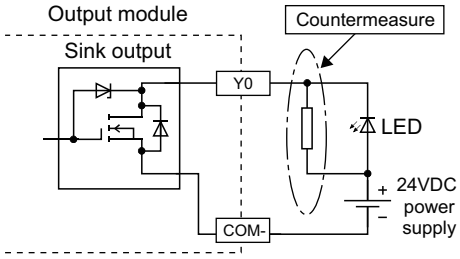
*1 Approximately 10 times as large as the rated voltage in the specifications
Example: 24VDC → Approximately 200V

*2 Twice as much as the maximum load current (common) in the specifications or more
Example: 2A/1 common → 4A or more

When the output module is off, the LED connected as a load dimly turns on

■Cause

The load operates by the leakage current when the output module is off.



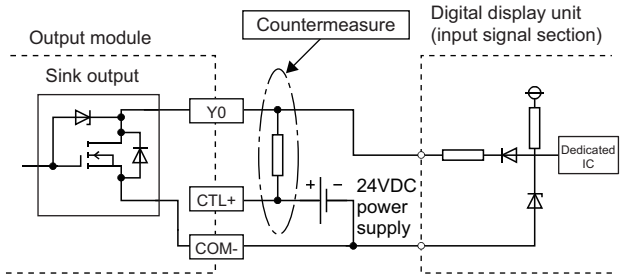
■Action

Connect a resistor of 5 to 50kΩ in parallel with the LED load.

When a digital display unit is connected as a load, the display may not be normal

■Cause

The load operates by the leakage current when the output module is off.



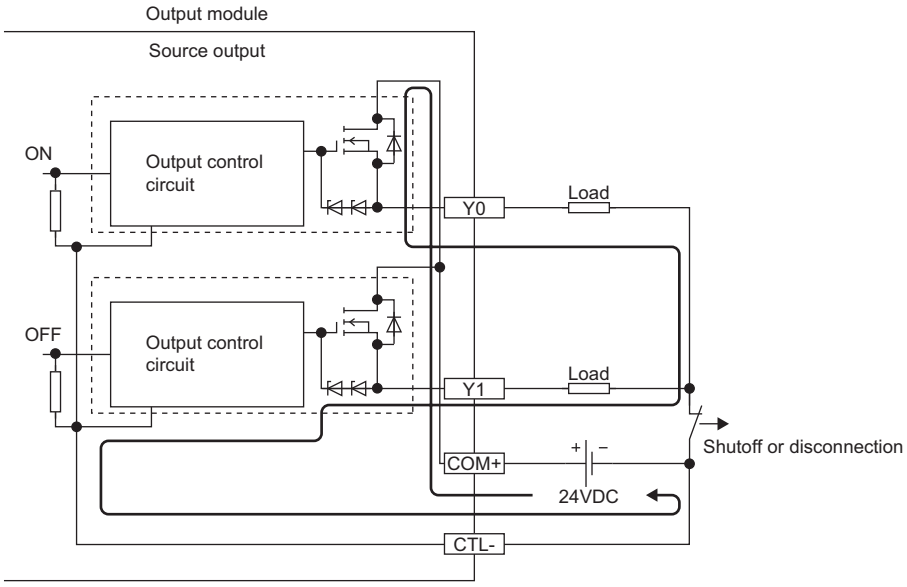
■Action

Install a pull-up resistor of 5 to 50kΩ and 0.5 (W) between the outputs of 24VDC power supply and the output module.

When output is turned on, load connected to other outputs is turned on simultaneously

■Cause

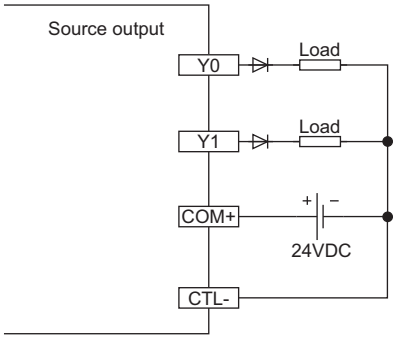
When a non-wiring state occurs due to, for example, a shutoff or disconnection between 0V of the external power supply and the common of a load, a current flows across the load that is off through an unexpected circuit of the output element that is off.



■Action

Connect external power supply and the load correctly.

To prevent the state described above, install diodes in each output terminal as shown below.



A load inputs data incorrectly due to a chattering.

■Cause

A device with a high input response speed is connected to the contact output module.

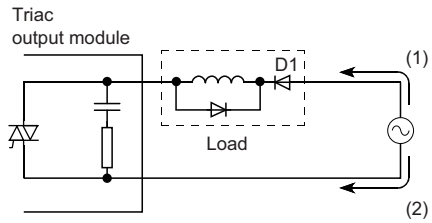
■Action

Use a transistor output module.

Excessive voltage is applied to the load when the output is off (triac output).

■Cause

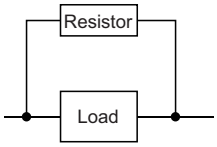
The load is half-wave rectified internally. (In some cases this is true of solenoids.)



When the polarity of the power supply is as shown in (1), C is charged. When the polarity is as shown in (2), the voltage charged in C plus the power supply voltage are applied across D1. Maximum voltage is approx. 2.2E. (If a load is used in this way, it does not pose a problem to the output element. But it may cause the diode, which is built into the load, to deteriorate, resulting in a fire)

■Action

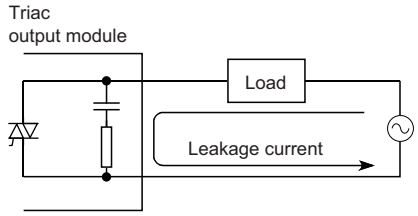
Connect a resistor (several tens to hundreds of kΩ) across the load.



The load does not turn off (triac output) No.1

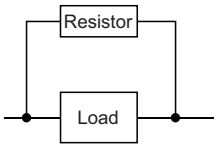
■Cause

A leakage current occurred due to a built-in surge suppressor.



■Action

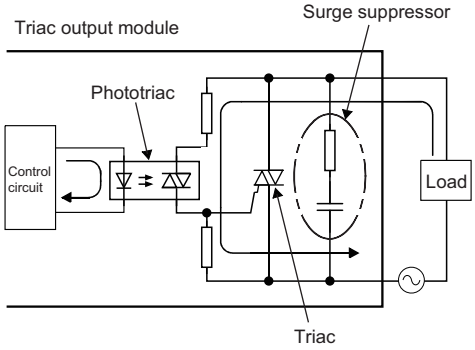
Connect a resistor across the load. (Note that a leakage current may occur due to the line capacity when the wiring distance from the output module to the load is long.)



The load does not turn off (triac output) No.2

■Cause

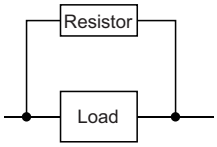
When the load current is low (lower than 25mA), the triac does not operate and the load current flows to a phototriac as indicated by the arrows in the figure below. If an inductive load is connected as a load in this situation, the load may not turn off because the surge at the time of off is applied to the phototriac.



■Action

Connect a resistor across the load so that the load current of approx. 100mA flows and the triac operation becomes stable.

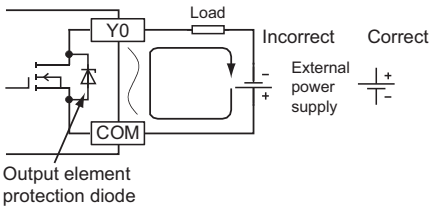
Resistance value ≤ Voltage across the load ÷ 100mA



A load operates only by turning on the external power supply (transistor output).

■Cause

- The external power supply is connected with its polarity reversed.



- The reversed polarity may allow current to flow via the output element protection diode into the load.

■Action

Connect the external power supply with the correct polarity.

APPENDICES

Appendix 1 Details of Remote I/O Signals

The following describes the details of the remote I/O signals assigned to the master/local module.
The assignment of each device number is for the case when the remote I/O signals of the I/O module are assigned as follows.

Item		Main module	Extension module 1	Extension module 2	Extension module 3
Remote input signal	16-point module	RX0 to RXF	RX10 to RX1F	RX20 to RX2F	RX30 to RX3F
	32-point module	RX0 to RX1F	RX20 to RX2F	—	—
Remote output signal	16-point module	RY0 to RYF	RY10 to RY1F	RY20 to RY2F	RY30 to RY3F
	32-point module	RY0 to RY1F	RY20 to RY2F	—	—

Remote input signal

External input signal

This signal shows the on/off state of External input (X0 to XF, X10 to X1F, X20 to X2F, X30 to X3F) of the input module. However, when the input OFF delay function is enabled, the on/off state of the actual External input (X0 to XF, X10 to X1F, X20 to X2F, X30 to X3F) and that of External input signal X☐ (RX0 to RXF, RX10 to RX1F, RX20 to RX2F, RX30 to RX3F) may not match. For details on the input OFF delay function, refer to the following.

☞ Page 251 Input OFF Delay Function

Remote output signal

External output signal

Turn on or off External output (Y0 to YF, Y10 to Y1F, Y20 to Y2F, Y30 to Y3F) of the output module with this signal. However, when the fast logic function is enabled, the on/off state of External output signal Y☐ (RY0 to RYF, RY10 to RY1F, RY20 to RY2F, RY30 to RY3F) and that of the actual External output (Y0 to YF, Y10 to Y1F, Y20 to Y2F, Y30 to Y3F) may not match. For details on the fast logic function, refer to the following.

☞ Page 260 Fast Logic Function

In addition, when the synchronous output timing setting function is enabled, External output signal Y☐ (RY0 to RYF, RY10 to RY1F, RY20 to RY2F, RY30 to RY3F) becomes disabled. For details on the synchronous output timing setting function, refer to the following.

☞ Page 279 Synchronous Output Timing Setting Function

Appendix 2 Details of Remote Registers

This section describes details of remote registers for a master/local module.
The described assignment of device numbers assumes that the remote registers of the main I/O module are assigned to RWr0 to RWr33 and RWw0 to RWw33.

Module status area

■Initial processing request flag (RWr0.b8)

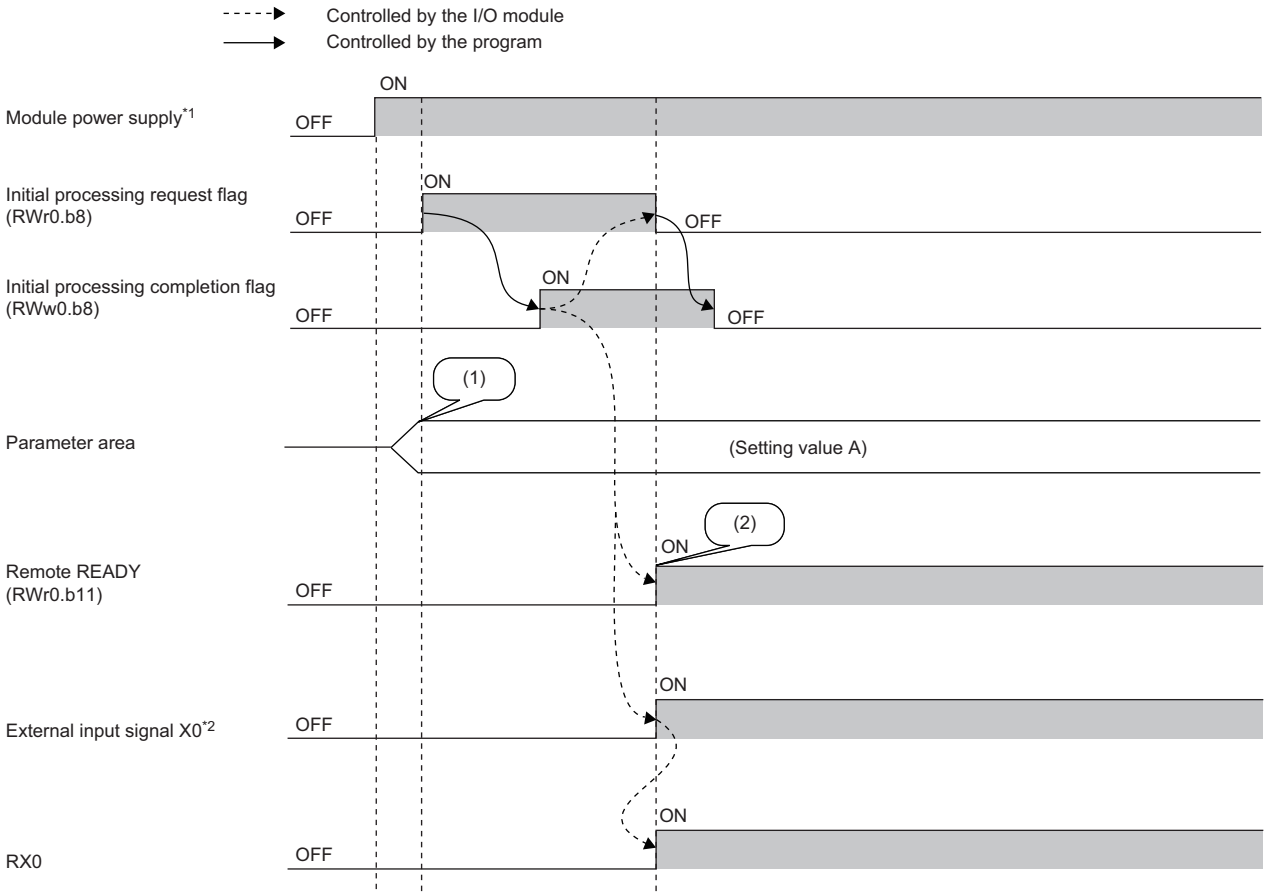
The operations of Initial processing request flag (RWr0.b8) and Initial processing completion flag (RWw0.b8) vary depending on the setting value of Initial operation setting (address: 0004H).

• When With initial processing (0) is set

After the module is powered on, Initial processing request flag (RWr0.b8) turns on. Create a program where initial processing is executed by using Initial processing request flag (RWr0.b8) and Initial processing completion flag (RWw0.b8). When Initial processing completion flag (RWw0.b8) is turned on, Remote READY (RWr0.b11) turns on. Also when Initial processing completion flag (RWw0.b8) is turned on, Initial processing request flag (RWr0.b8) turns off.

Point

When setting parameters using Initial processing request flag (RWr0.b8) as an interlock as shown in the program example, set Initial operation setting (address: 0004H) to With initial processing (0). After that, perform initial processing and check that Remote READY (RWr0.b11) is on.
For program examples of initial processing, refer to the following.
☞ Page 299 Initial processing

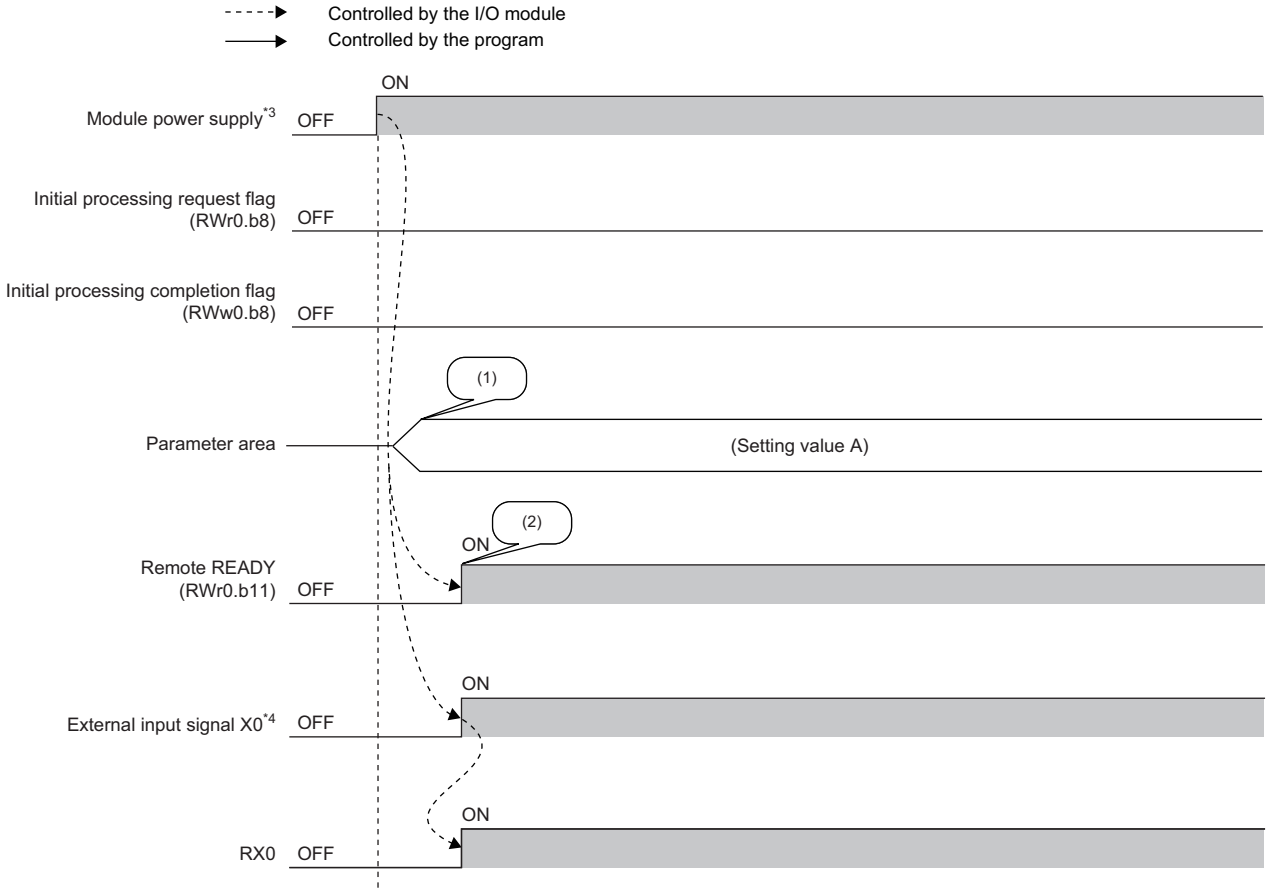


(1) Read the settings from the internal non-volatile memory.
(2) Start the operation with the setting value A.

*1 When data link is established at the same time as the module is powered on
*2 When an external input device connected to X0 is on

• When Without initial processing (1) is set

Initial processing request flag (RWr0.b8) does not turn on. The I/O module becomes operable (the update of external I/O becomes enabled) without Initial processing completion flag (RWw0.b8) being turned on. When the module is powered on, Remote READY (RWr0.b11) turns on and the initial processing is completed.



(1) Read the settings from the internal non-volatile memory.

(2) Start the operation with the setting value A.

*3 When data link is established at the same time as the module is powered on

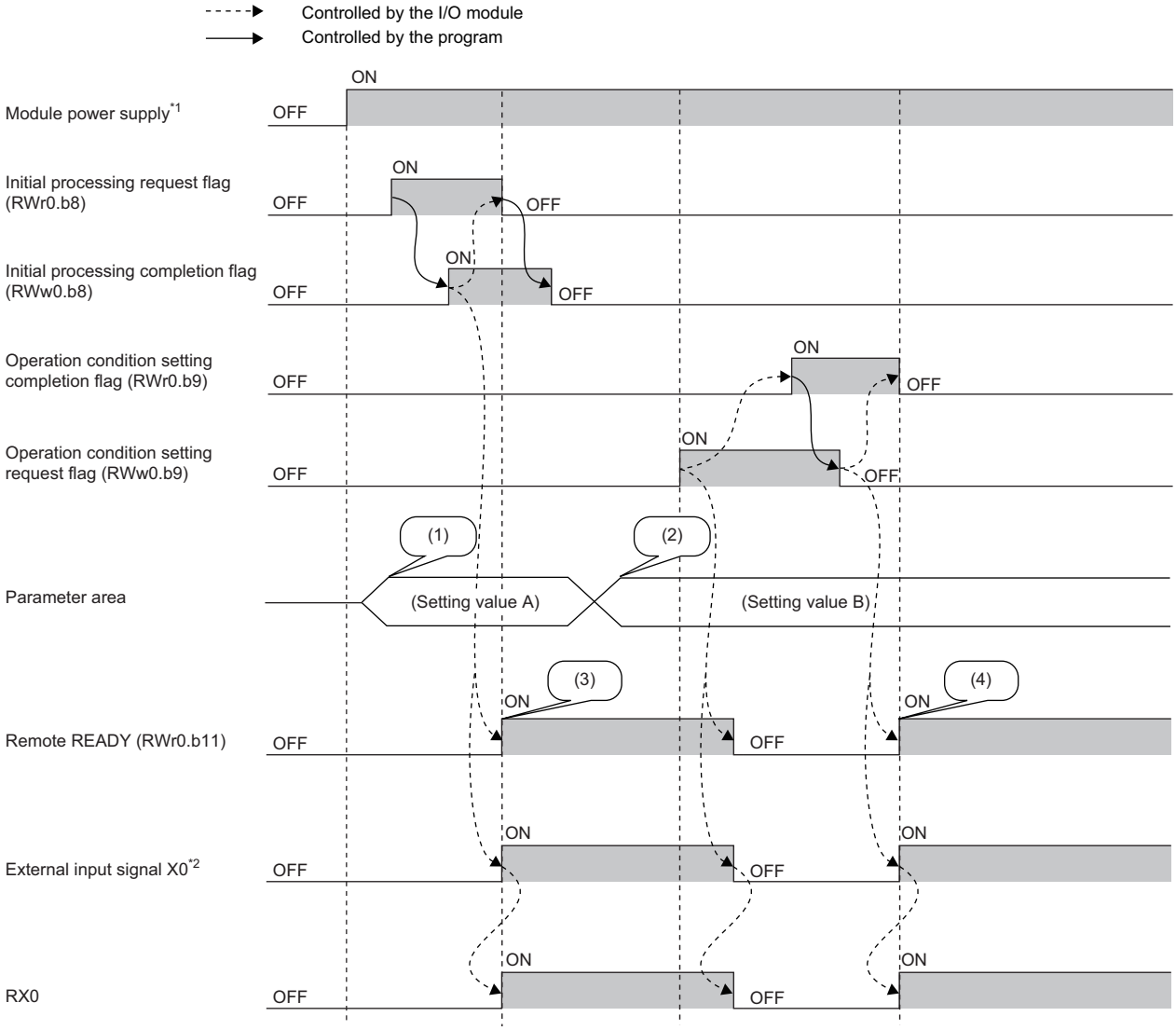
*4 When an external input device connected to X0 is on

■Operation condition setting completion flag (RWr0.b9)

• When the automatic I/O parameter setting is disabled

After writing parameter data to the remote buffer memory with the REMTO instruction, turn on Operation condition setting request flag (RWw0.b9). After the operating condition is changed, Operation condition setting completion flag (RWr0.b9) turns on. When the following settings are changed, the flag is used as a trigger condition to turn Operation condition setting request flag (RWw0.b9) on and off.

- Input response time setting (address: 0000H)
- Output HOLD/CLEAR setting (address: 0001H)
- Cyclic data update watch time setting (address: 0002H)
- Mode switch (address: 0003H)
- Initial operation setting (address: 0004H)
- Number of ON times integration function enable (address: 0102H, 0103H, 0202H, 0302H, 0402H)
- Synchronous output timing setting function enable (address: 0104H)
- Synchronous input timing acquisition function enable (address: 0105H)
- Input OFF delay setting X☐ (address: 0110H to 014FH, 0210H to 022FH, 0310H to 032FH, 0410H to 042FH)
- Fast logic setting Y☐ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH)
- Extension module identification code (address: 0200H, 0300H, 0400H)



(1) Read the settings from the internal non-volatile memory.
(2) Setting value change by users
(3) Start the operation with the setting value A.
(4) Start the operation with the parameter setting value B at this timing.

*1 When data link is established at the same time as the module is powered on
*2 When an external input device connected to X0 is on

Point

When the automatic I/O parameter setting is enabled

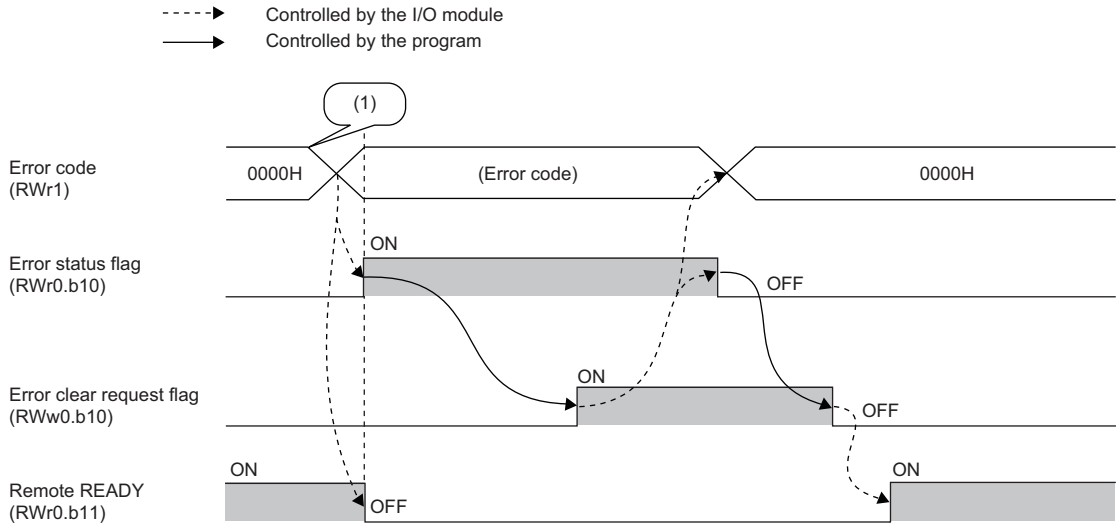
- When Operation condition setting request flag is turned on, Operating condition setting change disable error (0208H) is stored in Warning code (RWr2) and no operating condition is set.

■Error status flag (RWr0.b10)

Error status flag (RWr0.b10) turns on when a moderate error or major error occurs.

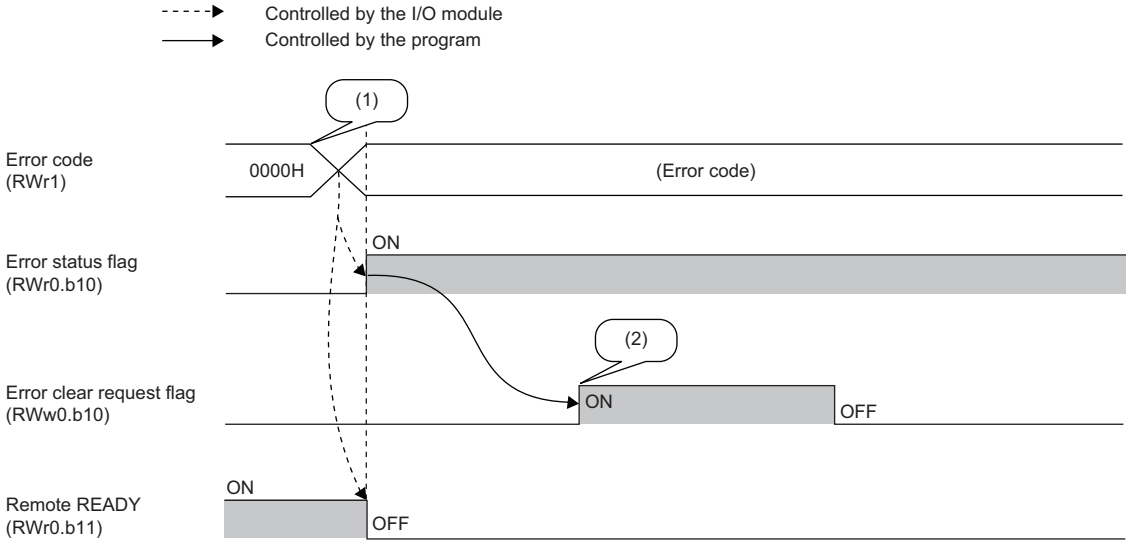
To clear Error code (RWr1), turn on and off Error clear request flag (RWw0.b10)).

- When a moderate error occurs



(1) Occurrence of an error

- When a major error occurs



(1) Occurrence of an error

(2) When a major error has occurred, the error is not cleared even if an error clear request is issued.

■Error history

The error history is not cleared even if Error clear request flag (RWw0.b10) is turned on and off. To clear the history, set "1" for Error history clear command (address: 1000H).

For the error history clear, refer to the following.

☞ Page 373 Error history clear command

■Remote READY (RWr0.b11)

This flag is a signal to check the operating status of the module as shown below. The flag is used as an interlock condition when the master station reads/writes data from/to the remote I/O signals, remote register, or remote buffer memory areas of the I/O module.

Status of Remote READY (RWr0.b11)	Operating status of the module
Off	Module not operable (external I/O cannot be updated)
On	Module operable (external I/O can be updated)

The operation of Remote READY (RWr0.b11) varies depending on a parameter, Initial operation setting (address: 0004H).

A value set to Initial operation setting (address: 0004H)	Operation of Remote READY (RWr0.b11)
0: With initial processing	It turns on when the initial processing is completed after powering on of the module.*1
1: Without initial processing	It turns on after powering on of the module.

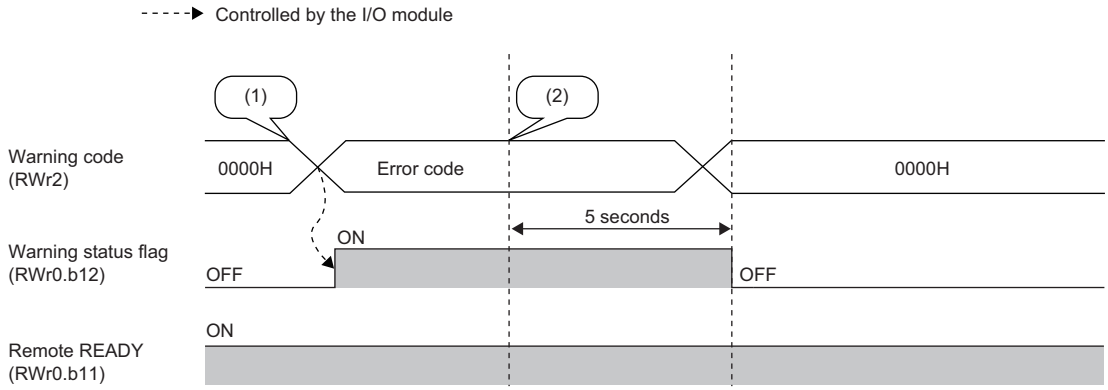
*1 To complete the initial processing, turn on Initial processing completion flag (RWw0.b8).

Note that Remote READY (RWr0.b11) turns off when any of the following turns on: Operation condition setting request flag (RWw0.b9), Error status flag (RWr0.b10), Error clear request flag (RWw0.b10).

■Warning status flag (RWr0.b12)

Warning status flag (RWr0.b12) turns on when a minor error occurs.

Five seconds after the cause of the minor error is eliminated, the value in Warning code (RWr2) is cleared automatically (0000H is stored) and Warning status flag (RWr0.b12) turns off.



(1) Occurrence of a minor error
(2) The minor error is cleared.

Error code

An error code is stored into RWr1 when a moderate error or major error occurs.

Turning on Error clear request flag (RWw0.b10) after eliminating the cause of the error clears the error code.

Errors that occurred in the past can be checked with Error history data ☐ (address: 0A00H to 0AEFH). For error history, refer to the following.

☞ Page 370 Error history data

Warning code

The error code is stored into RWr2 when a minor error occurs.

Five seconds after the cause of the minor error is eliminated, the error code is automatically cleared.

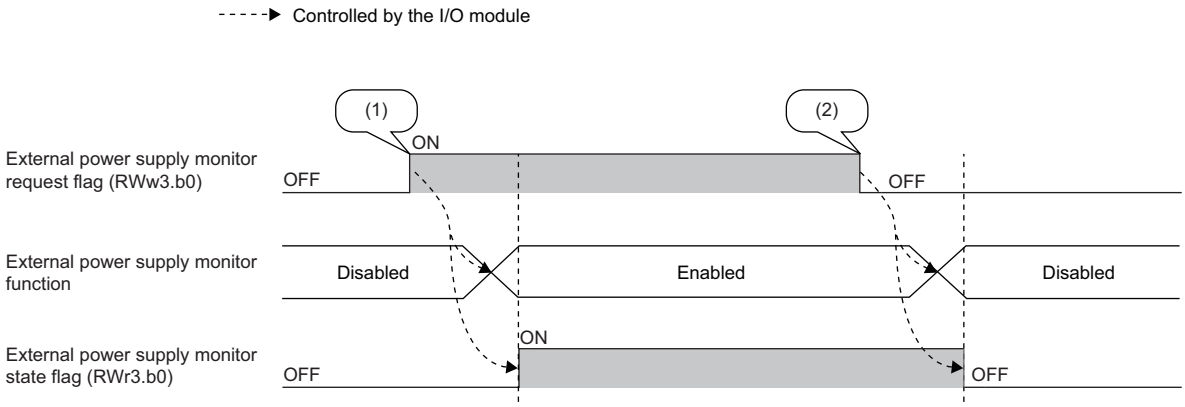
Errors that occurred in the past can be checked with Error history data ☐ (address: 0A00H to 0AEFH). For error history, refer to the following.

☞ Page 370 Error history data

Function selection status flag

■External power supply monitor state flag (RWr3.b0)

When the external power supply monitoring function is valid by External power supply monitor request flag (RWw3.b0), this flag is on.



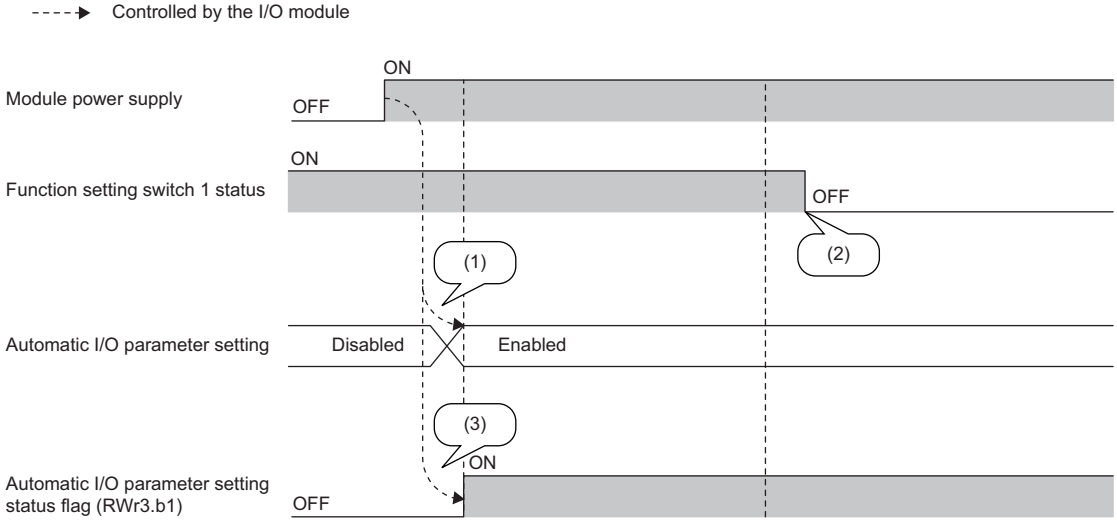
(1) Change by users
(2) Change by users

For the external power supply monitoring function, refer to the following.

☞ Page 259 External Power Supply Monitoring Function

■Automatic I/O parameter setting status flag (RWr3.b1)

When the automatic I/O parameter setting is enabled, this flag is on.



(1) The automatic I/O parameter setting is enabled or disabled depending on the status of the function setting switch 1 at power-on.
(2) The status of the automatic I/O parameter setting (enabled/disabled) does not change even if the status of the function setting switch 1 changes during operation.
(3) Automatic I/O parameter setting status flag does not show the status of the function setting switch 1 but shows the status of the automatic I/O parameter setting (enabled/disabled).

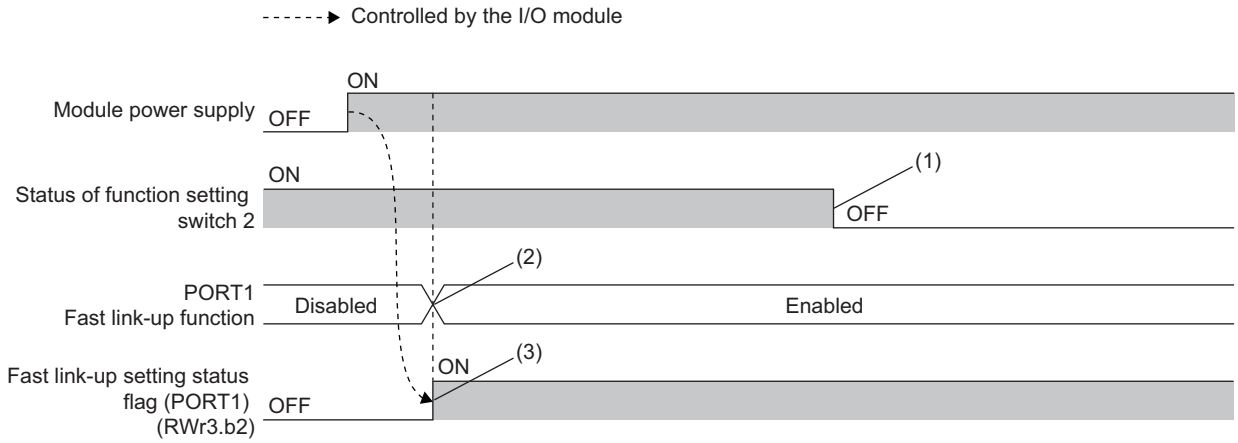
For Automatic I/O parameter setting status flag (RWr3.b1), refer to the following.

☞ Page 242 Automatic I/O Parameter Setting

■Fast link-up setting status flag (PORT1) (RWr3.b2), Fast link-up setting status flag (PORT2) (RWr3.b3)

Each of these flags indicates the setting status of the fast link-up function. The setting status of the fast link-up function depends on the switch status at power-on. For details on the function setting switches, refer to the following.

☞ Page 198 Function setting switch setting



(1) The status of the fast link-up function (enabled/disabled) does not change even if the status of the function setting switch 2 changes during operation.
(2) The fast link-up function is enabled or disabled depending on the status of the function setting switch 2 at power-on.
(3) Fast link-up setting status flag (PORT1) does not indicate the status of the function setting switch 2 but indicates the status of the fast link-up function of PORT1 (enabled/disabled).

Output Y current value

- Actual on/off state of output Y can be checked by using Output Y current value Y☐ (RWr4, RWr5, RWr6, RWr7).
- When the fast logic function is used on the I/O module, output Y is controlled depending on the operation result of the inside of the module, not by the remote output signal (RY) received from the master station.
- Output Y current value Y☐ (RWr4, RWr5, RWr6, RWr7) can always be used. (The status is stored even when the fast logic function is not used.) However, when the synchronous output timing setting function is enabled, a bit of Output Y current value Y☐ (RWr4, RWr5, RWr6, RWr7) corresponding to the synchronous output timing setting function is fixed to off.
- The amount of time delay from when Output Y current value Y☐ (RWr4, RWr5, RWr6, RWr7) changes until the external output accordingly changes is no more than maximum output response time.

■Output Y current value Y0 to YF (RWr4)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YF	YE	YD	YC	YB	YA	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

Off: Output Y is off.
On: Output Y is on.

■Output Y current value Y10 to Y1F (RWr5)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

Off: Output Y is off.
On: Output Y is on.

■Output Y current value Y20 to Y2F (RWr6)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y2F	Y2E	Y2D	Y2C	Y2B	Y2A	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y22	Y21	Y20

Off: Output Y is off.
On: Output Y is on.

■Output Y current value Y30 to Y3F (RWr7)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y3F	Y3E	Y3D	Y3C	Y3B	Y3A	Y39	Y38	Y37	Y36	Y35	Y34	Y33	Y32	Y31	Y30

Off: Output Y is off.
On: Output Y is on.

Output Y ON information

Whether output Y has been turned on or not can be checked with Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB). However, when the synchronous output timing setting function is enabled, a bit of Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB) corresponding to the synchronous output timing setting function is fixed to off.

The amount of time delay from when Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB) changes until the external output accordingly changes is no more than maximum output response time.

■Output Y ON information Y0 to YF (RWr8)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YF	YE	YD	YC	YB	YA	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

Off: Output Y has never been turned on.
On: Output Y has been turned on.

■Output Y ON information Y10 to Y1F (RWr9)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

Off: Output Y has never been turned on.
On: Output Y has been turned on.

■Output Y ON information Y20 to Y2F (RWrA)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y2F	Y2E	Y2D	Y2C	Y2B	Y2A	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y22	Y21	Y20

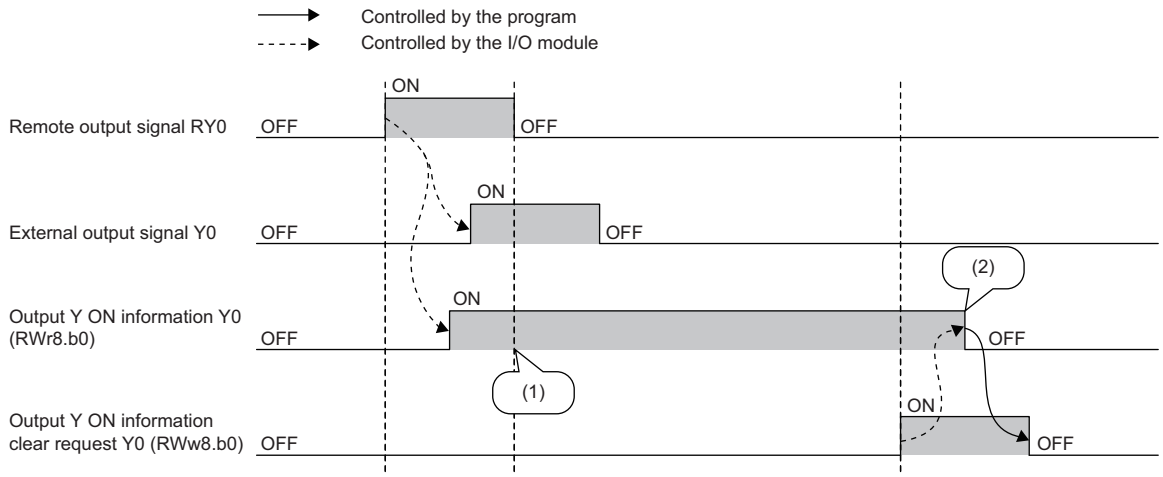
Off: Output Y has never been turned on.
On: Output Y has been turned on.

■Output Y ON information Y30 to Y3F (RWrB)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y3F	Y3E	Y3D	Y3C	Y3B	Y3A	Y39	Y38	Y37	Y36	Y35	Y34	Y33	Y32	Y31	Y30

Off: Output Y has never been turned on.
On: Output Y has been turned on.

Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB) can be cleared using Output Y ON information clear request (RWw8, RWw9, RWwA, RWwB).



(1) Remains on even after Y0 turns off.
(2) Turns off when the clear request turns on.

Point

Output Y ON information Y☐ (RWr8, RWr9, RWrA, RWrB) can be used only for the main module that supports the output ON/OFF information hold function.

For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

Output Y OFF information

Whether output Y has been turned off or not can be checked with Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF).

However, when the synchronous output timing setting function is enabled, a bit of Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF) corresponding to the synchronous output timing setting function is fixed to off.

The amount of time delay from when Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF) changes until the external output accordingly changes is no more than maximum output response time.

■Output Y OFF information Y0 to YF (RWrC)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YF	YE	YD	YC	YB	YA	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

Off: Output Y has never been turned off.
On: Output Y has been turned off.

■Output Y OFF information Y10 to Y1F (RWrD)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

Off: Output Y has never been turned off.
On: Output Y has been turned off.

■Output Y OFF information Y20 to Y2F (RWrE)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y2F	Y2E	Y2D	Y2C	Y2B	Y2A	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y22	Y21	Y20

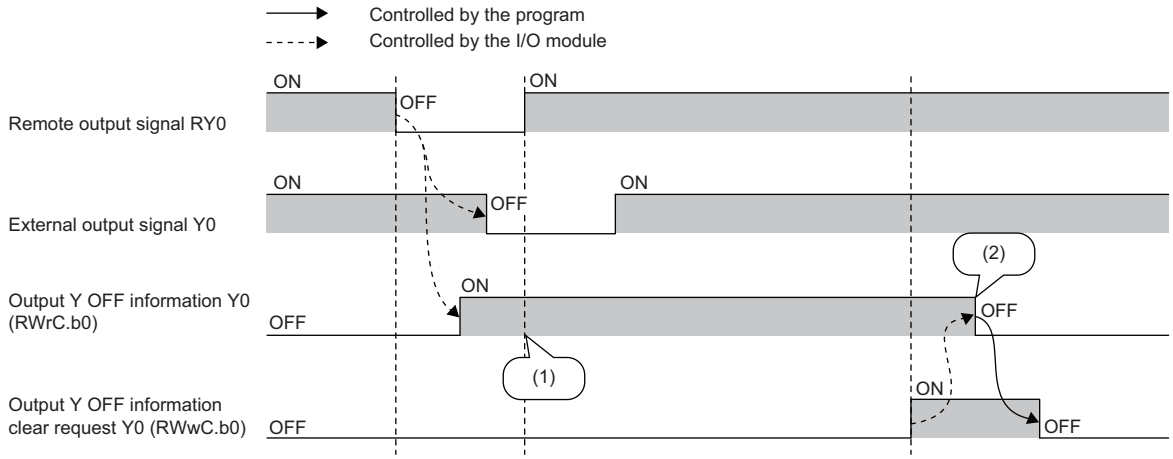
Off: Output Y has never been turned off.
On: Output Y has been turned off.

■Output Y OFF information Y30 to Y3F (RWrF)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y3F	Y3E	Y3D	Y3C	Y3B	Y3A	Y39	Y38	Y37	Y36	Y35	Y34	Y33	Y32	Y31	Y30

Off: Output Y has never been turned off.
On: Output Y has been turned off.

Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF) can be cleared using Output Y OFF information clear request (RWwC, RWwD, RWwE, RWwF).



(1) Remains on even after Y0 turns on.
(2) Turns off when the clear request turns on.

Point

Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF) can be used only for the main module that supports the output ON/OFF information hold function.

For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

Synchronous input timing information

Synchronous input timing information X0 OFF to ON to Synchronous input timing information X1F ON to OFF (RWr14 to RWr53) are the areas used to check the input timing for the synchronization cycle when the synchronous input timing acquisition function is used.

The stored value is 0 to 65534 (0.0μs to 6553.4μs). The stored value 65535 indicates that the input has not changed (neither turning on from off nor turning off from on).

To use the synchronous input timing acquisition function, assign following areas in the RWw/RWr setting.

- NZ2GF2B1N-16D, NZ2GF2B1N1-16D, NZ2GF2S1-16D, NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCM1-16D, NZ2GFCM1-16DE: RWr14 to RWr33 (52 points)
- NZ2GFCF1-32D, NZ2GFCF1-32DT: RWr14 to RWr53 (84 points)

For details on the synchronous input timing acquisition function, refer to the following.

☞ Page 282 Synchronous Input Timing Acquisition Function

Module operation area

■Initial processing completion flag (RWw0.b8)

Turning on this flag completes the initial processing and turns on Remote READY (RWr0.b11).

For the timing of turning the flag on and off, refer to the following.

☞ Page 345 Initial processing request flag (RWr0.b8)

■Operation condition setting request flag (RWw0.b9)

After writing parameter data to the remote buffer memory, turn on Operation condition setting request flag (RWw0.b9). After the operating condition is changed, Operation condition setting completion flag (RWr0.b9) turns on.

For the timing of turning the flag on and off, refer to the following.

☞ Page 347 Operation condition setting completion flag (RWr0.b9)

Point

- Turning on Operation condition setting request flag (RWw0.b9) stores zero in Warning code (RWr2) and turns off Warning status flag (RWr0.b12).
- When a major error or a moderate error occurs and the error cause is eliminated, turning on Operation condition setting request flag (RWw0.b9) stores zero in Error code (RWr1) and turns off Error status flag (RWr0.b10).

■Error clear request flag (RWw0.b10)

Use this flag to clear Error status flag (RWr0.b10) and Error code (RWr1).

- When a moderate error occurs

When Error clear request flag (RWw0.b10) is turned on after the cause of the error is eliminated, the error status is cleared and Error status flag (RWr0.b10) turns off.

If Error clear request flag (RWw0.b10) is turned off before Error status flag (RWr0.b10) turns off, Error status flag (RWr0.b10) does not turn off.

For the timing of turning the flag on and off, refer to the following.

Error status flag (RWr0.b10) (☞ Page 348 Error status flag (RWr0.b10))

- When a major error occurs

Error status flag (RWr0.b10) does not turn off even if Error clear request flag (RWw0.b10) is turned on and off.

For the timing of turning the flag on and off, refer to the following.

Error status flag (RWr0.b10) (☞ Page 348 Error status flag (RWr0.b10))

Function selection setting flag

■External power supply monitor request flag (RWw3.b0)

To validate the external power supply monitoring function, turn on this flag. For the timing of turning the flag on and off, refer to the following.

☞ Page 350 External power supply monitor state flag (RWr3.b0)

Output Y ON information clear request

This remote register is used to clear Output Y ON information Y☐ (RWr8, RWr9, RWwA, RWwB).

Clear processing continues while the bit of Output Y ON information clear request (RWw8, RWw9, RWwA, RWwB) is on.

■Output Y ON information clear request Y0 to YF (RWw8)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YF	YE	YD	YC	YB	YA	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

Off: Output Y ON information is not cleared.
On: Output Y ON information is cleared.

■Output Y ON information clear request Y10 to Y1F (RWw9)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

Off: Output Y ON information is not cleared.
On: Output Y ON information is cleared.

■Output Y ON information clear request Y20 to Y2F (RWwA)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y2F	Y2E	Y2D	Y2C	Y2B	Y2A	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y22	Y21	Y20

Off: Output Y ON information is not cleared.
On: Output Y ON information is cleared.

■Output Y ON information clear request Y30 to Y3F (RWwB)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y3F	Y3E	Y3D	Y3C	Y3B	Y3A	Y39	Y38	Y37	Y36	Y35	Y34	Y33	Y32	Y31	Y30

Off: Output Y ON information is not cleared.
On: Output Y ON information is cleared.

For the timing of turning on and off the remote register, refer to the following.

☞ Page 353 Output Y ON information

Point

Output Y ON information clear request (RWw8, RWw9, RWwA, RWwB) can be used only for the main module that supports the output ON/OFF information hold function.

For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

Output Y OFF information clear request

This remote register is used to clear Output Y OFF information Y☐ (RWrC, RWrD, RWrE, RWrF).

Clear processing continues while the bit of Output Y OFF information clear request (RWwC, RWwD, RWwE, RWwF) is on.

■Output Y OFF information clear request Y0 to YF (RWwC)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YF	YE	YD	YC	YB	YA	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

Off: Output Y OFF information is not cleared.
On: Output Y OFF information is cleared.

■Output Y OFF information clear request Y10 to Y1F (RWwD)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

Off: Output Y OFF information is not cleared.
On: Output Y OFF information is cleared.

■Output Y OFF information clear request Y20 to Y2F (RWwE)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y2F	Y2E	Y2D	Y2C	Y2B	Y2A	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y22	Y21	Y20

Off: Output Y OFF information is not cleared.
On: Output Y OFF information is cleared.

■Output Y OFF information clear request Y30 to Y3F (RWwF)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y3F	Y3E	Y3D	Y3C	Y3B	Y3A	Y39	Y38	Y37	Y36	Y35	Y34	Y33	Y32	Y31	Y30

Off: Output Y OFF information is not cleared.
On: Output Y OFF information is cleared.

For the timing of turning on and off the remote register, refer to the following.

☞ Page 354 Output Y OFF information

Point

Output Y OFF information clear request (RWwC, RWwD, RWwE, RWwF) can be used only for the main module that supports the output ON/OFF information hold function.

For the output ON/OFF information hold function, refer to the following.

☞ Page 258 Output ON/OFF Information Hold Function

Synchronous output timing setting

Synchronous output timing setting Y0 OFF to ON to Synchronous output timing setting Y1F ON to OFF (RWw14 to RWw53) are the areas used to set the output timing for the synchronization cycle when the synchronous output timing setting function is used.

The timing when output is turns on from off and turns off from on in one synchronization cycle is set in increments of 0.1μs. The setting range is 0 to 65534 (0.0μs to 6553.4μs). If 65535 is set, the output does not change (neither turning on from off nor turning off from on).

If the set value is longer than the synchronization cycle, the output does not change (neither turning on from off nor turning off from on).

To use the synchronous output timing setting function, assign following areas in the RWw/RWr setting.

- NZ2GF2B1N-16T, NZ2GF2B1N-16TE, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE, NZ2GF2S1-16T, NZ2GF2S1-16TE, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16T, NZ2GFCM1-16TE: RWw14 to RWw33 (52 points)
- NZ2GFCF1-32T, NZ2GFCF1-32DT: RWw14 to RWw53 (84 points)

For details on the synchronous output timing setting function, refer to the following.

☞ Page 279 Synchronous Output Timing Setting Function

Appendix 3 Details of Remote Buffer Memory Addresses

This section describes the details of remote buffer memory addresses of the I/O module.

Input response time setting

Set the input response time of the input module.

Input response time	Setting value
0ms*1	0H
0.2ms*1	1H
1.0ms	2H
1.5ms	3H
5ms	4H
10ms	5H
20ms	6H
70ms	7H

*1 For the extension input module connected to the main A/D converter module or the main D/A converter module, "0H: 0ms" and "1H: 0.2ms" cannot be set. If "0H: 0ms" or "1H 0.2ms" is set, an error occurs, the ERR. LED turns on, and the operation stops. For details on each module, refer to the following: User's manual for the main module used.

■Remote buffer memory address

Name	Address
Input response time setting	0000H

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is 10ms (5H).

Output HOLD/CLEAR setting

Set whether to hold or clear the last status of each output for when the I/O module is disconnected from data link or the CPU module is in STOP status.

Output HOLD/CLEAR setting	Setting value
CLEAR	0H
HOLD	1H

■Remote buffer memory address

Name	Address
Output HOLD/CLEAR setting	0001H

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is CLEAR (0H).

Cyclic data update watch time setting

Set the time to monitor the update intervals of cyclic transmission data (watch time).
When the cyclic transmission remains stopped longer than the cyclic data update watch time, the I/O module is regarded as disconnected from data link and the output status is held or cleared by Output HOLD/CLEAR setting (address: 0001H). For Output HOLD/CLEAR setting (address: 0001H), refer to the following.
☞ Page 358 Output HOLD/CLEAR setting

■Remote buffer memory address

Name	Address
Cyclic data update watch time setting	0002H

■Setting range

Setting range is Not monitor (0) or 0.1 to 2s (1 to 20). Set the values in increments of 100ms (1).

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is Not monitor (0).

Point

If a value out of the setting range above is set, the error code (0504H) is stored in Error code (RWr1), Error status flag (RWr0.b10) turns on, and the ERR. LED turns on. Then the main I/O module and extension I/O module stop the I/O operation.

Mode switch

Set the mode.

Mode	Setting value
Normal mode	0H
Automatical judgment mode	9H

For details on the mode, refer to the following.
☞ Page 246 Drive Mode Switch

■Remote buffer memory address

Name	Address
Mode switch	0003H

■Enabling the setting

1. Turn on and off Operation condition setting request flag (RWw0.b9).
2. Check that "0204H" is stored in Latest warning code (RWr1).
3. Turn on the power supply.

■Default value

The default value is Automatical judgment mode (9H).

Point

- If a value out of the setting range above is set, the error code (0505H) is stored in Error code (RWr1), Error status flag (RWr0.b10) turns on, and the ERR. LED turns on. Then the main I/O module and extension I/O module stop the I/O operation.
- Using Mode switch (address: 0003H) of the main I/O module that does not support the CC-Link IE Field Network synchronous communication function is not allowed. Do not write the data.

Initial operation setting

Set whether the initial processing using the program is necessary or not when the data link is established.

Initial operation setting	Description	Setting value
With initial processing	Set it when the initial processing using the program is necessary. • When the data link is established, Initial processing request flag (RWr0.b8) turns on. • When Initial processing completion flag (RWw0.b8) is turned on, Initial processing request flag (RWr0.b8) turns off and Remote READY (RWr0.b11) turns on. • The external I/O function of the main I/O module cannot be used until initial processing is completed.	0
Without initial processing	Set it when the initial processing using the program is not necessary. • When the data link is established, Remote READY (RWr0.b11) turns on. • At the data link establishment, the external I/O function of the main I/O module becomes enabled.	1

■Remote buffer memory address

Name	Address
Initial operation setting	0004H

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is With initial processing (0).

Point

When setting parameters using Initial processing request flag (RWr0.b8) as an interlock as shown in the program example, set Initial operation setting (address: 0004H) to With initial processing (0). After that, perform initial processing and check that Remote READY (RWr0.b11) is on.

For program examples of initial processing, refer to the following.

☞ Page 299 Initial processing

Number of ON times integration function enable

Set whether to enable or disable the number of ON times integration function.

• Address: 0102H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YF	YE	YD	YC	YB	YA	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

0: Disable
1: Enable

• Address: 0103H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

0: Disable
1: Enable

• Address: 0202H, 0302H, 0402H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YnF	YnE	YnD	YnC	YnB	YnA	Yn9	Yn8	Yn7	Yn6	Yn5	Yn4	Yn3	Yn2	Yn1	Yn0

0: Disable
1: Enable

■Remote buffer memory address

Name	Address			
	Main module	Extension module 1	Extension module 2	Extension module 3
Number of ON times integration function enable	0102H*1, 0103H*2	0202H	0302H	0402H

*1 This address cannot be used for a main I/O combined module with 32 points.

*2 This address can be used for a main output module with 32 points and a main I/O combined module with 32 points. The address cannot be used for the other modules.

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is Disable (0).

A

Synchronous output timing setting function enable

Set whether to enable or disable the synchronous output timing setting function.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Disable 1: Enable

For details on the synchronous output timing setting function, refer to the following.

☞ Page 279 Synchronous Output Timing Setting Function

■Remote buffer memory address

Name	Address
Synchronous output timing setting function enable	0104H

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is Disable (0).

Point

- Synchronous output timing setting function enable (address: 0104H) can be set for the NZ2GF2B1N-16T, NZ2GF2B1N-16TE, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE, NZ2GF2S1-16T, NZ2GF2S1-16TE, NZ2GFCF1-32T, NZ2GFCF1-32DT, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16T, and NZ2GFCM1-16TE.
- This setting becomes enabled when the module operates in synchronous communication mode.
- After changing the setting to enable or disable the synchronous output timing setting function, check that Mode switch setting change (0204H) or Setting change of synchronous output timing setting function enable (0206H) is stored in Warning code (RWr2), and then turn off and on the module power supply or perform remote reset.

Synchronous input timing acquisition function enable

Set whether to enable or disable the synchronous input timing acquisition function.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Disable 1: Enable

For details on the synchronous input timing acquisition function, refer to the following.

☞ Page 282 Synchronous Input Timing Acquisition Function

■Remote buffer memory address

Name	Address
Synchronous input timing acquisition function enable	0105H

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is Disable (0).

Point

- Synchronous input timing acquisition function enable (address: 0105H) can be set for the NZ2GF2B1N-16D, NZ2GF2B1N1-16D, NZ2GF2B1-32D, NZ2GF2B1-32DT, NZ2GF2B1-32DTE, NZ2GF2S1-16D, NZ2GFCF1-32D, NZ2GFCF1-32DT, NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCM1-16D, and NZ2GFCM1-16DE.
- This setting becomes enabled when the module operates in synchronous communication mode.
- After changing the setting to enable or disable the synchronous input timing acquisition function, check that Mode switch setting change (0204H) or Setting change of synchronous input timing acquisition function enable (0207H) is stored in Warning code (RWr2), and then turn off and on the module power supply or perform remote reset.

Input OFF delay setting

Set whether to enable or disable the input OFF delay function and set the delay time.

• Input OFF delay setting X0 (address: 0110H)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Delay time (lower 16 bits)															

• Input OFF delay setting X0 (address: 0111H)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Delay time (upper 16 bits)															

■Remote buffer memory address

Name	Address			
	Main module	Extension module 1	Extension module 2	Extension module 3
Input OFF delay setting X□	0110H to 014FH	0210H to 022FH	0310H to 032FH	0410H to 042FH

■Setting range

Setting range is No delay (0) or 400μs to 60s (1 to 150000). Set the values in increments of 400μs.

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is No delay (0).

Point

If a value out of the setting range above is set, the error code (0503H) is stored in Error code (RWr1), Error status flag (RWr0.b10) turns on, and the ERR. LED turns on. Then the main I/O module and extension I/O module stop the I/O operation.

Fast logic setting

Set whether to enable or disable the fast logic function where the fixed output conditions are assigned in each remote buffer memory address.

When using a main module and extension modules, the fast logic function can be used only in the combination of a main module and the extension module 1.

• Fast logic setting Y0 (address: 0110H)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															

• Fast logic setting Y0 (address: 0111H)

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0: Disable 1: Enable	0 (fixed)														

■Remote buffer memory address

Name	Address	
	Main module	Extension module 1
Fast logic setting Y☐	0110H to 011FH, 0130H to 013FH	0210H to 021FH

■When the main module is an output module

When the main module is an output module, an extension module must be an input module.

The following lists the combinations of output conditions and input signals for each output signal when the main output module (16-point module) is used.

• Y0 to Y7: Output signals of the main output module (16-point module)

• X10 to X1F: Input signals of the extension input module

Item	Logic (output condition)	Output signal Y☐	Input signal A	Input signal B
Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y☐ is output.)	Y0	X10	X11
Fast logic setting Y1		Y1	X12	X13
Fast logic setting Y2		Y2	X14	X15
Fast logic setting Y3		Y3	X16	X17
Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y☐ is output.)	Y4	X18	X19
Fast logic setting Y5		Y5	X1A	X1B
Fast logic setting Y6		Y6	X1C	X1D
Fast logic setting Y7		Y7	X1E	X1F

The following lists the combinations of output conditions and input signals for each output signal of when the NZ2GFCE3(N)-32T or NZ2GFCF1-32T is used.

• Y0 to Y7: Output signals of the NZ2GFCE3(N)-32T or NZ2GFCF1-32T

• X20 to X2F: Input signals of the extension input module

Item	Logic (output condition)	Output signal Y☐	Input signal A	Input signal B
Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y☐ is output.)	Y0	X20	X21
Fast logic setting Y1		Y1	X22	X23
Fast logic setting Y2		Y2	X24	X25
Fast logic setting Y3		Y3	X26	X27
Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y☐ is output.)	Y4	X28	X29
Fast logic setting Y5		Y5	X2A	X2B
Fast logic setting Y6		Y6	X2C	X2D
Fast logic setting Y7		Y7	X2E	X2F

■When the main module is an input module

When the main module is an input module, an extension module must be an output module.

The following lists the combinations of output conditions and input signals for each output signal.

The following lists the combinations of output conditions and input signals for each output signal when the main input module (16-point module) is used.

- X0 to XF: Input signals of the main input module (16-point module)
- Y10 to Y17: Output signals of the extension output module

Item	Logic (output condition)	Output signal Y□	Input signal A	Input signal B
Extension 1_Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y□ is output.)	Y10	X0	X1
Extension 1_Fast logic setting Y1		Y11	X2	X3
Extension 1_Fast logic setting Y2		Y12	X4	X5
Extension 1_Fast logic setting Y3		Y13	X6	X7
Extension 1_Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y□ is output.)	Y14	X8	X9
Extension 1_Fast logic setting Y5		Y15	XA	XB
Extension 1_Fast logic setting Y6		Y16	XC	XD
Extension 1_Fast logic setting Y7		Y17	XE	XF

The following lists the combinations of output conditions and input signals for each output signal of when the NZ2GFCE3(N)-32D or NZ2GFCF1-32D is used.

- X0 to XF: Input signals of the NZ2GFCE3(N)-32D or NZ2GFCF1-32D
- Y20 to Y27: Output signals of the extension output module

Item	Logic (output condition)	Output signal Y□	Input signal A	Input signal B
Extension 1_Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y□ is output.)	Y20	X0	X1
Extension 1_Fast logic setting Y1		Y21	X2	X3
Extension 1_Fast logic setting Y2		Y22	X4	X5
Extension 1_Fast logic setting Y3		Y23	X6	X7
Extension 1_Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y□ is output.)	Y24	X8	X9
Extension 1_Fast logic setting Y5		Y25	XA	XB
Extension 1_Fast logic setting Y6		Y26	XC	XD
Extension 1_Fast logic setting Y7		Y27	XE	XF

■When the main module is an I/O combined module

The following lists the combinations of output conditions and input signals for each output signal.

- X0 to XF: Input signals of the I/O combined module
- Y10 to Y17: Output signals of the I/O combined module

Item	Logic (output condition)	Output signal Y□	Input signal A	Input signal B
Fast logic setting Y0	AND (When both input signal A and B are turned on, output signal Y□ is output.)	Y10	X0	X1
Fast logic setting Y1		Y11	X2	X3
Fast logic setting Y2		Y12	X4	X5
Fast logic setting Y3		Y13	X6	X7
Fast logic setting Y4	OR (When either of input signal A or B is turned on, output signal Y□ is output.)	Y14	X8	X9
Fast logic setting Y5		Y15	XA	XB
Fast logic setting Y6		Y16	XC	XD
Fast logic setting Y7		Y17	XE	XF

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is Disable (0).

Point

- If Fast logic setting Y☐ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH) is set for a module configuration in which the fast logic function cannot be used, the error code (0502H) is stored in Error code (RWr1), Error status flag (RWr0.b10) turns on, and the ERR. LED turns on. Then the main module and extension module stop the I/O operation.
- Because Fast logic setting Y☐ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH) is not written to the nonvolatile memory, the parameters must be written again after the module is powered off and on.

Extension module identification code

Set the identification code to specify the extension module type.

This remote buffer memory is provided only for extension modules.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Module type								Points							

Module type	Setting value
Extension module not connected	00H
Extension input module	01H
Extension output module	02H

Points	Setting value
Extension module not connected	00H
16 points	01H

■Remote buffer memory address

Name	Address		
	Extension module 1	Extension module 2	Extension module 3
Extension module identification code	0200H	0300H	0400H

■Enabling the setting

Turn on and off Operation condition setting request flag (RWw0.b9) to enable the setting.

■Default value

The default value is Extension module not connected (0000H).

Point

If the set module type differs from the extension module actually connected, an error code (0501H) is stored in Error code (RWr1), Error status flag (RWr0.b10) turns on, and the ERR. LED turns on. Then the main I/O module and extension I/O module stop the I/O operation.

A

Fast logic enable status

The fast logic enable or disable status for each signal is stored.

• Address: 0602H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)								Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
								0: Disable 1: Enable							

• Address: 0603H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)								Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10
								0: Disable 1: Enable							

• Address: 0702H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)								Yn7	Yn6	Yn5	Yn4	Yn3	Yn2	Yn1	Yn0
								0: Disable 1: Enable							

■Remote buffer memory address

Name	Address	
	Main module	Extension module 1
Fast logic enable status	0602H, 0603H	0702H

Number of ON times integration value

The integration value of the number of ON times integration function is stored as signed 32-bit binary.

■Remote buffer memory address

Name	Output	Address			
		Main output module	Extension output module 1	Extension output module 2	Extension output module 3
Number of ON times integration value Y□	Main output module Y0	0610H	—	—	—
		0611H			
	⋮	⋮			
	Main output module Y1F	064EH			
		064FH			
	Extension output module Yn0	—	0710H	0810H	0910H
			0711H	0811H	0911H
	⋮		⋮	⋮	⋮
	Extension output module YnF		072EH	082EH	092EH
			072FH	082FH	092FH

Extension module identification code monitor

The identification code to specify the extension module type is stored.

This remote buffer memory is provided only for extension modules.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Module type								Points							

Stored value	Module type
00H	Extension module not connected
01H	Extension input module
02H	Extension output module

Stored value	Points
00H	Extension module not connected
01H	16 points

■Remote buffer memory address

Name	Address		
	Extension module 1	Extension module 2	Extension module 3
Extension module identification code monitor	0700H	0800H	0900H

Error history data

Up to 15 errors generated in the module are recorded.

The following table and figure show the storage data for Error history data 1 (address: 0A00H to 0A0FH).

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0A00H	Error code															
0A01H	Order of generation															
0A02H	First two digits of the year								Last two digits of the year							
0A03H	Month								Date							
0A04H	Hour								Minute							
0A05H	Second								00H (Fixed)							
0A06H	Error code details 1															
0A07H	Error code details 2															
0A08H	Error code details 3															
0A09H ⋮ 0A0FH	Error code details 4 ⋮ Error code details 10															

Item	Description	Storage example[*1]
Error code	The error code for the error that occurred is stored.	—
Order of generation	The order of error occurrence is stored. (A value between 0H and FFFFH is stored.)	0001H
First two digits of the year/Last two digits of the year[*2]	The items on the left are stored in BCD code.	2012H
Month/Date[*2]		0829H
Hour/Minute[*2]		1035H
Second[*2]		4000H
Error code details 1	The detailed information of some errors is stored. The data to be stored depend on the error. (☞ Page 371 Error code details)	—
Error code details 2		—
Error code details 3		—
Error code details 4 ⋮ Error code details 10	0 (fixed)	0

*1 Those are values when the second error occurs at 10:35:40, August 29th, 2012.

*2 The clock information of the error that occurred is based on the clock information acquired from the CPU module of the master station. When an error has occurred before the clock information is acquired from the CPU module, the error time is not recorded.

Error history data 2 to Error history data 15 (address: 0A10H to 0AEFH) are stored in the same format as that of Error history data 1 (address: 0A00H to 0A0FH).

For the error code, refer to the following.

☞ Page 318 Error Code List

■Remote buffer memory address

Name	Address
Error history data □	0A00H to 0AEFH

■Storage order of the error history

The latest error is stored in Error history data 1 (address: 0A00H to 0A0FH).

Errors that occurred in the past are stored in Error history data 2 to Error history data 15 (address: 0A10H to 0AEFH) in reverse chronological order.

■Error code details

For the following errors, each of additional error information is stored in Error code details ☐ (address: 0A06H to 0A0FH)[*1].

*1 The following table describes Error code details ☐ for Error history data 1 (address: 0A00H to 0A0FH).

Error		Information to be stored			
Error code (hexadecimal)	**Error name**	**Error code details 1 (address: 0A06H)**	**Error code details 2 (address: 0A07H)**	**Error code details 3 (address: 0A08H)**	**Error code details 4 to Error code details 10 (address: 0A09H to 0A0FH)**
0006H	I/O circuit error	Error detection module[*2]	0 (fixed)	0 (fixed)	0 (fixed)
000AH	Module configuration changed	Error detection module[*2]	0 (fixed)	0 (fixed)	
0103H	External power supply OFF error	Error detection module[*2]	0 (fixed)	0 (fixed)	
0105H	Improper module connected	Error detection module[*2]	0 (fixed)	0 (fixed)	
0202H	Remote buffer memory access error	Start address of the remote buffer memory specified with REMFR/ REMTO	0 (fixed)	0 (fixed)	
0206H	Setting change of synchronous output timing setting function enable	Remote buffer memory address of the parameter in which an error is detected (address: 0104H)	The value written to the corresponding address is stored.	0 (fixed)	
0207H	Setting change of synchronous input timing acquisition function enable	Remote buffer memory address of the parameter in which an error is detected (address: 0105H)	The value written to the corresponding address is stored.	0 (fixed)	
0501H	Parameter data error (module identification code)	Remote buffer memory address of the parameter in which an error is detected (Extension module identification code (address: 0200H, 0300H, 0400H))	The value written to the corresponding address is stored. • 0000H: Extension module not connected • 0101H: Extension input module (16 points) • 0201H: Extension output module (16 points) Check that the module type and points match with the actual module configuration.	0 (fixed)	
0502H	Parameter data error (fast logic)	Remote buffer memory address of the parameter in which an error is detected (Fast logic setting Y☐ (address: 0110H to 011FH, 0130H to 013FH, 0210H to 021FH))	The value written to the corresponding address is stored to bit 15 in Error code details 3 (address: 0A08H). Check if Enable (1) is stored with the fast logic function disabled or check that the module combination is either of the following: The main output module and the extension input module, or the main input module and the extension output module.		
0503H	Parameter data error (input OFF delay)	Remote buffer memory address of the parameter in which an error is detected (Input OFF delay setting X☐ (address: 0110H to 014FH, 0210H to 022FH, 0310H to 032FH, 0410H to 042FH))	The value written to the corresponding address is stored. Check that the value is within the range of the input OFF delay setting (0 to 150000).		

A

Error		Information to be stored			
Error code (hexadecimal)	**Error name**	**Error code details 1 (address: 0A06H)**	**Error code details 2 (address: 0A07H)**	**Error code details 3 (address: 0A08H)**	**Error code details 4 to Error code details 10 (address: 0A09H to 0A0FH)**
0504H	Parameter data error (cyclic data update watch time setting)	Remote buffer memory address of the parameter in which an error is detected (Cyclic data update watch time setting (address: 0002H))	The value written to the corresponding address is stored. Check that the value is within the range of the cyclic data update watch time setting (0 to 20).	0 (fixed)	0 (fixed)
0505H	Parameter data error (mode switch)	Remote buffer memory address of the parameter in which an error is detected (Mode switch (address: 0003H))	The value written to the corresponding address is stored. Check that the value is within the range of the mode switch (0 or 9).	0 (fixed)	
0506H	Parameter data error (initial operation setting)	Remote buffer memory address of the parameter in which an error is detected (Initial operation setting (address: 0004H))	The value written to the corresponding address is stored.	0 (fixed)	

*2 The information of an error detection module is stored in the following data format. (The following is an example of Error history data 1 (address: 0A00H to 0A0FH).)

• Error code details 1 (address: 0A06H)

b15 to b4	b3	b2	b1	b0
0 (fixed)	0: The extension module 3 is normal. 1: The extension module 3 has an error.	0: The extension module 2 is normal. 1: The extension module 2 has an error.	0: The extension module 1 is normal. 1: The extension module 1 has an error.	0: The main module is normal. 1: The main module has an error.

Error history clear command

The error history stored in the module is cleared.

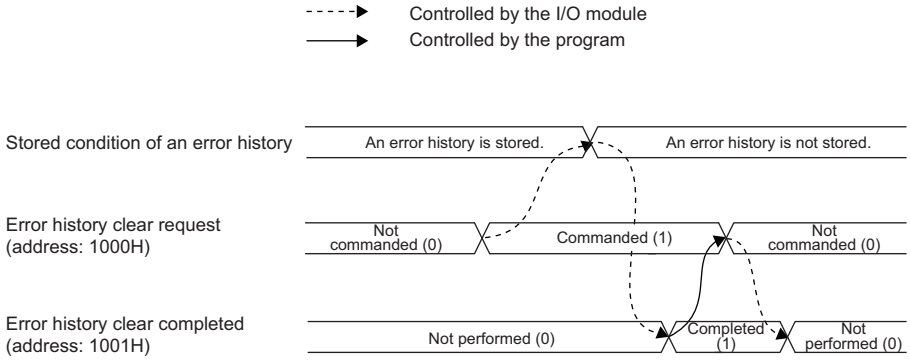
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Not commanded 1: Commanded

■Remote buffer memory address

Name	Address
Error history clear command	1000H

■Operation of error history clear

When Error history clear command (address: 1000H) is set to Commanded (1), an error history is cleared.



■Default value

The default value is Not commanded (0).

Error history clear completed

This remote buffer memory area shows whether the error history stored in the module is cleared or not.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Not performed 1: Completed

■Remote buffer memory address

Name	Address
Error history clear completed	1001H

■Operation of error history clear

When the error history clear is completed, Error history clear completed (address: 1001H) is turned to Completed (1).

For the timing of turning the bit to Not performed (0) → Completed (1) → Not performed (0), refer to the following.

☞ Page 373 Error history clear command

■Default value

The default value is Not performed (0).

Parameter area initialization command

Set the parameters stored in a remote buffer memory and nonvolatile memory to the default value.

The module can be restored using this command when Nonvolatile memory data error (parameter) occurs.

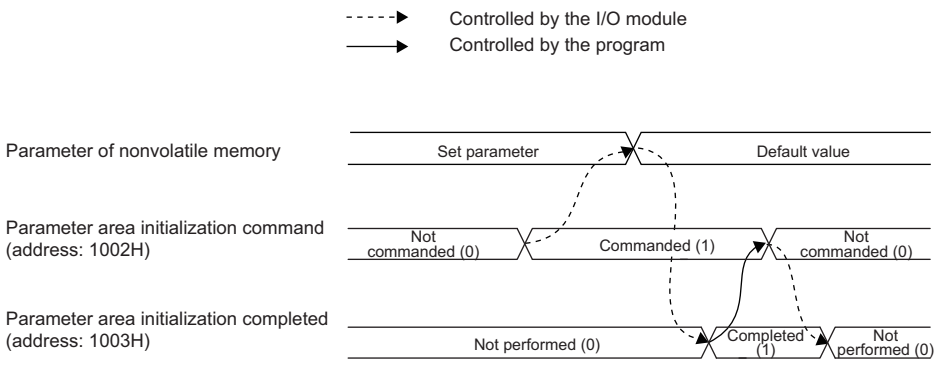
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Not commanded 1: Commanded

■Remote buffer memory address

Name	Address
Parameter area initialization command	1002H

■Operation of the parameter area initialization

When Parameter area initialization command (address: 1002H) is set to Commanded (1), the parameters stored in a nonvolatile memory is set to the default value.



■Default value

The default value is Not commanded (0).

Point

After the parameters in a nonvolatile memory are set to the default value, the I/O module operates with the parameters of the default value.

Parameter area initialization completed

This remote buffer memory area shows whether initialization of the parameters stored in a nonvolatile memory is completed or not.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Not performed 1: Completed

■Remote buffer memory address

Name	Address
Parameter area initialization completed	1003H

■Operation of the parameter area initialization

When the initialization of the parameters stored in a nonvolatile memory is completed, Parameter area initialization completed (address: 1003H) is turned Completed (1).

For the timing of turning the bit to Not performed (0) → Completed (1) → Not performed (0), refer to the following.

☞ Page 374 Parameter area initialization command

■Default value

The default value is Not performed (0).

Module operation information initialization command

The module operation information stored in a nonvolatile memory is initialized.

The module operation information can be initialized only when Nonvolatile memory data error (module operation information) has occurred.

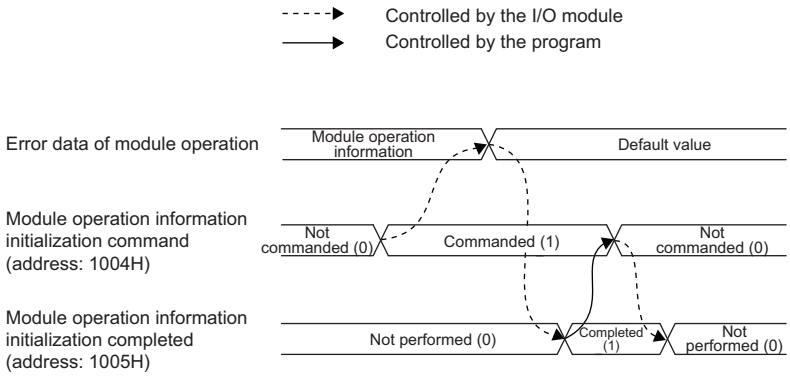
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Not commanded 1: Commanded

■Remote buffer memory address

Name	Address
Module operation information initialization command	1004H

■Operation of the module operation information initialization

When Module operation information initialization command (address: 1004H) is set to Commanded (1), the module information is initialized.



■Default value

The default value is Not commanded (0).

Module operation information initialization completed

This remote buffer memory area shows whether initialization of the module operation information stored in a nonvolatile memory is completed or not.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0 (fixed)															0: Not performed 1: Completed

■Remote buffer memory address

Name	Address
Module operation information initialization completed	1005H

■Operation of the module operation information initialization

When initialization of the module operation information is completed, Module operation information initialization completed (address: 1005H) is turned to Completed (1).

For the timing of turning the bit to Not performed (0) → Completed (1) → Not performed (0), refer to the following.

☞ Page 375 Module operation information initialization command

■Default value

The default value is Not performed (0).

Number of ON times integration value clear command

This remote buffer memory area is used to clear Number of ON times integration value Y☐ (address: 0610H to 064FH, 0710H to 072FH, 0810H to 082FH, 0910H to 092FH).

• Address: 1100H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

0: Not commanded
1: Commanded

• Address: 1102H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

0: Not commanded
1: Commanded

• Address: 1200H, 1300H, 1400H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YnF	YnE	YnD	YnC	YnB	YnA	Yn9	Yn8	Yn7	Yn6	Yn5	Yn4	Yn3	Yn2	Yn1	Yn0

0: Not commanded
1: Commanded

■Remote buffer memory address

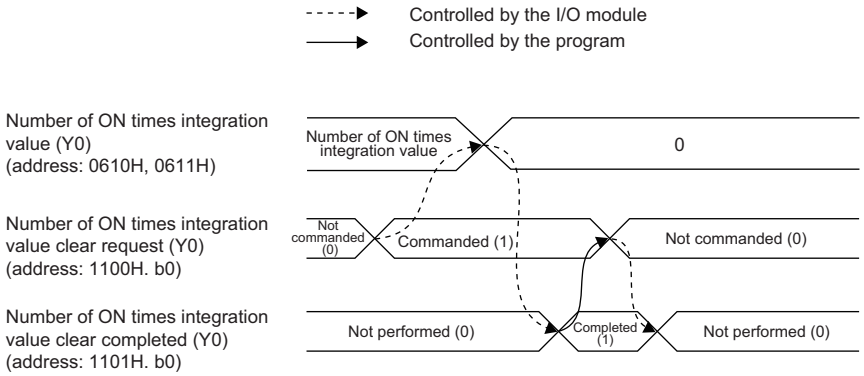
Name	Address			
	Main output module	Extension output module 1	Extension output module 2	Extension output module 3
Number of ON times integration value clear command Y☐	1100H*1, 1102H*2	1200H	1300H	1400H

*1 This address cannot be used for a main I/O combined module with 32 points.

*2 This address can be used for a main output module with 32 points and a main I/O combined module with 32 points. The address cannot be used for the other modules.

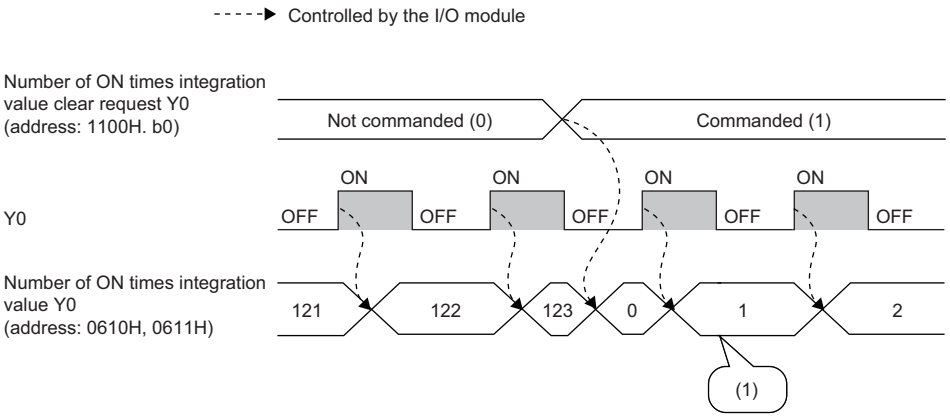
■Operation of the number of ON times integration value clear

When the specified bit of Number of ON times integration value clear command Y☐ (address: 1100H, 1102H, 1200H, 1300H, 1400H) is set to Commanded (1), the number of ON times integration value of the specified bit is cleared.



■Clearing by turning on Number of ON times integration value clear command

The number of ON times integration value is cleared only once when the specified bit of Number of ON times integration value clear command Y☐ (address: 1100H, 1102H, 1200H, 1300H, 1400H) is set to Commanded (1). The number of ON times integration function is executed while the specified bit remains set to Commanded (1).



(1) The integration function is executed even when Number of ON times integration value clear command Y0 (address: 1100H.b0) is Commanded (1).

■Default value

The default value is Not commanded (0).

Number of ON times integration value clear completed

This remote buffer memory area shows whether the clear operation for Number of ON times integration value Y☐ (address: 0610H to 064FH, 0710H to 072FH, 0810H to 082FH, 0910H to 092FH) is completed or not.

• Address: 1101H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

0: Not performed
1: Completed

• Address: 1103H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Y1F	Y1E	Y1D	Y1C	Y1B	Y1A	Y19	Y18	Y17	Y16	Y15	Y14	Y13	Y12	Y11	Y10

0: Not performed
1: Completed

• Address: 1201H, 1301H, 1401H

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
YnF	YnE	YnD	YnC	YnB	YnA	Yn9	Yn8	Yn7	Yn6	Yn5	Yn4	Yn3	Yn2	Yn1	Yn0

0: Not performed
1: Completed

■Remote buffer memory address

Name	Address			
	Main output module	Extension output module 1	Extension output module 2	Extension output module 3
Number of ON times integration value clear completed Y☐	1101H, 1103H	1201H	1301H	1401H

■Operation of the module operation information initialization

Once the clear operation for the number of ON times integration value is completed, the specified bit of Number of ON times integration value clear completed Y☐ (address: 1101H, 1103H, 1201H, 1301H, 1401H) is turned to Completed (1).

For the timing of turning the bit to Not performed (0) → Completed (1) → Not performed (0), refer to the following.

☞ Page 376 Number of ON times integration value clear command

■Default value

The default value is Not performed (0).

Appendix 4 EMC and Low Voltage Directives

Compliance to the EMC Directive, which is one of the EU Directives, has been a legal obligation for the products sold in European countries since 1996 as well as the Low Voltage Directive since 1997.
Manufacturers who recognize their products are compliant to the EMC and Low Voltage Directives are required to attach a "CE mark" on their products.

Sales representative in EU member states

Authorized representative in EU member states is shown below.
Name: MITSUBISHI ELECTRIC EUROPE B.V.
Address: Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany

Measures to comply with the EMC Directive

The EMC Directive specifies that "products placed on the market must be so constructed that they do not cause excessive electromagnetic interference (emissions) and are not unduly affected by electromagnetic interference (immunity)".
This section summarizes the precautions on compliance with the EMC Directive of the machinery constructed with the module.
These precautions are based on the requirements and the standards of the regulation, however, it does not guarantee that the entire machinery constructed according to the descriptions will comply with abovementioned directives.
The method and judgment for complying with the EMC Directive must be determined by the person who constructs the entire machinery.

EMC Directive related standards

■Emission requirements

Specifications	Test item	Test details	Standard value
EN61131-2: 2007	CISPR16-2-3 Radiated emission*2	Radio waves from the product are measured.	• 30M-230MHz QP: 40dBμV/m (10m in measurement range)*1 • 230M-1000MHz QP: 47dBμV/m (10m in measurement range)
	CISPR16-2-1, CISPR16-1-2 Conducted emission*2	Noise from the product to the power line is measured.	• 150k-500kHz QP: 79dB, Mean: 66dB*1 • 500k-30MHz QP: 73dB, Mean: 60dB

*1 QP: Quasi-peak value, Mean: Average value

*2 The module is an open type device (a device designed to be housed in other equipment) and must be installed inside a conductive control panel. The tests were conducted with the module installed in a control panel.

■Immunity requirements

Specifications	Test item	Test details	Standard value
EN61131-2: 2007	EN61000-4-2 Electrostatic discharge immunity*1	Immunity test in which electrostatic is applied to the cabinet of the equipment.	• 8kV Air discharge • 4kV Contact discharge
	EN61000-4-3 Radiated, radio-frequency, electromagnetic field immunity*1	Immunity test in which electric fields are irradiated to the product.	80% AM modulation@1kHz • 80M-1000MHz: 10V/m • 1.4G-2.0GHz: 3V/m • 2.0G-2.7GHz: 1V/m
	EN61000-4-4 Electrical fast transient/ burst immunity*1	Immunity test in which burst noise is applied to the power line and signal line.	• AC/DC main power, I/O power, AC I/O (unshielded): 2kV • DC I/O, analog, communication: 1kV
	EN61000-4-5 Surge immunity*1	Immunity test in which lightning surge is applied to the power line and signal line.	• AC power line, AC I/O power, AC I/O (unshielded): 2kV CM, 1kV DM • DC power line, DC I/O power: 0.5kV CM, DM • DC I/O, AC I/O (shielded), analog*2, communication: 1kV CM
	EN61000-4-6 Immunity to conducted disturbances, induced by radio-frequency fields*1	Immunity test in which high frequency noise is applied to the power line and signal line	0.15M-80MHz, 80% AM modulation @1kHz, 10Vrms
	EN61000-4-8 Power-frequency magnetic field immunity*1	Immunity test in which the product is installed in inductive magnetic field	50Hz/60Hz, 30A/m
	EN61000-4-11 Voltage dips and interruption immunity*1	Immunity test in which power supply voltage is momentarily interrupted	• Apply at 0%, 0.5 cycles and zero-cross point • 0%, 250/300 cycles (50/60Hz) • 40%, 10/12 cycles (50/60Hz) • 70%, 25/30 cycles (50/60Hz)

*1 The module is an open type device (a device designed to be housed in other equipment) and must be installed inside a conductive control panel. The tests were conducted with the module installed in a control panel.

*2 The accuracy of an analog-digital converter module may temporarily vary within ±10%.

Installation in a control panel

The module is open type devices and must be installed inside a control panel.
This ensures safety as well as effective shielding of programmable controller-generated electromagnetic noise.

■Control panel

- Use a conductive control panel.
- When securing the top or bottom plate using bolts, cover the grounding part on the control panel so that the part will not be painted.
- To ensure electrical contact between the inner plate and control panel, take measures such as covering the bolts so that conductivity can be ensured in the largest possible area.
- Ground the control panel with a thick ground cable so that low impedance can be ensured even at high frequencies.
- Holes in the control panel must be 10cm diameter or less. If the holes are larger than 10cm, radio wave may be emitted. In addition, because radio waves leak through a clearance between the control panel and its door, reduce the clearance as much as possible. The leakage of radio waves can be suppressed by the direct application of an EMI gasket on the paint surface.

Our tests have been carried out on a control panel having the damping characteristics of 37dB (max.) and 30dB (mean) (measured by 3m method, 30 to 300MHz).

■Wiring of power cables and ground cables

- Near the power supply part, provide a ground point to the control panel. Ground the FG terminal with the thickest and shortest possible ground cable (30cm or shorter).

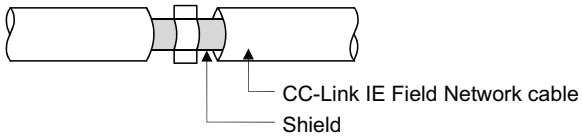
Cables

Use shielded cables for the cables which are connected to the module and run out from the control panel. If a shielded cable is not used or not grounded correctly, the noise immunity will not meet the specified value.

■Cables for the CC-Link IE Field Network

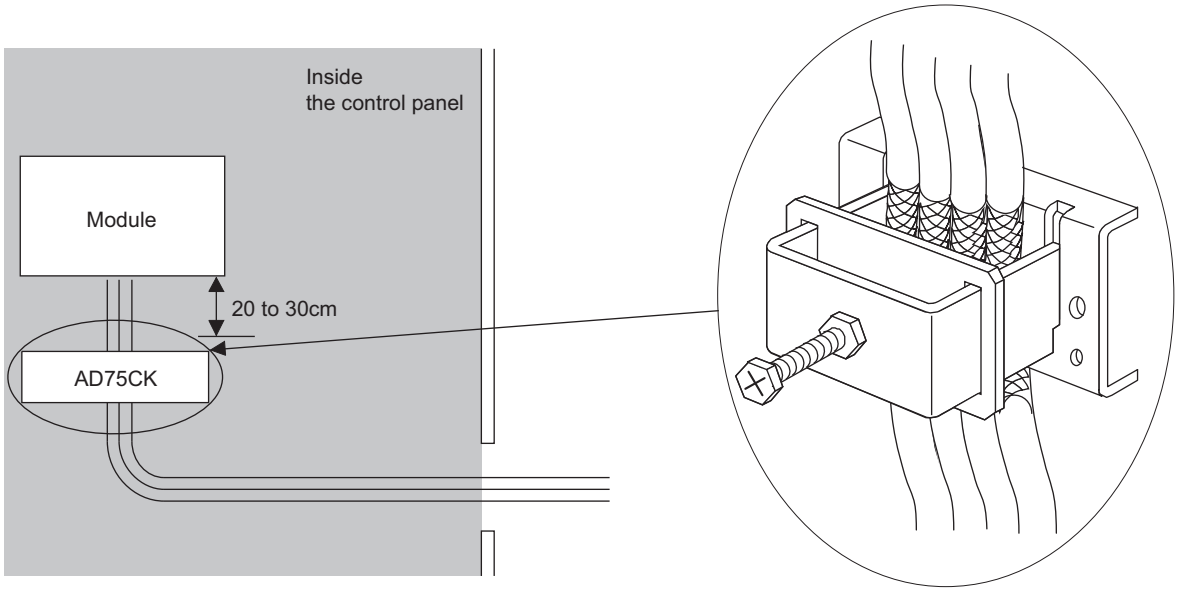
The precautions for using CC-Link IE Field Network cables are described below.

- Shielded cables should be used for the CC-Link IE Field Network. Strip a part of the jacket as shown below and ground the exposed shield in the largest possible area.



■Grounding the cable clamp

Use shielded cables for external wiring and ground the shields of the external wiring cables to the control panel with the AD75CK-type cable clamp (Mitsubishi). (Ground the shield section 20 to 30cm away from the module.)



For details on the AD75CK, refer to the following.

AD75CK-type Cable Clamping Instruction Manual

External power supply

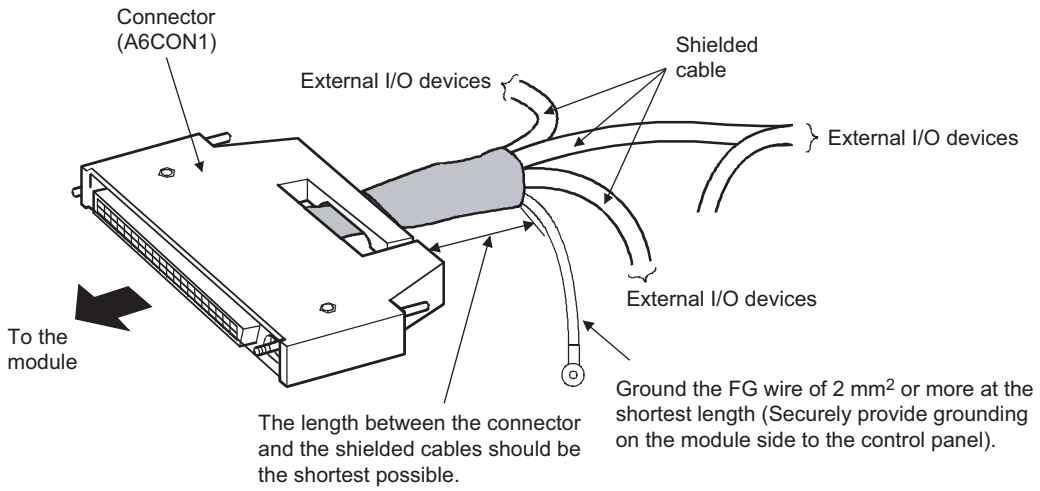
- Use a CE-marked product for an external power supply and always ground the FG terminal. (External power supply used for the tests conducted by Mitsubishi: TDK-Lambda DLP-120-24-1, IDEC PS5R-SF24, PS5R-F24)
- Use a power cable of 10m or shorter when connecting it to the module power supply terminal.
- Use a power cable of 30m or shorter when connecting it to the external power supply for output part.

40-pin connector

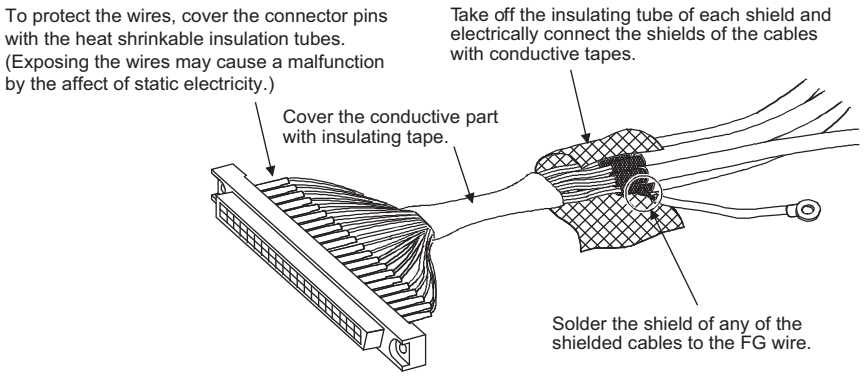
Always take the following measures to reduce noise for wiring of the 40-pin connector.

■Wiring example of when shielded cables are used

The following figure shows a wiring example for measures to reduce noise of when the A6CON1 is used.



■Processing example of shielded cables



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Others

■Ferrite core

A ferrite core has the effect of reducing radiated noise in the 30MHz to 100MHz band.

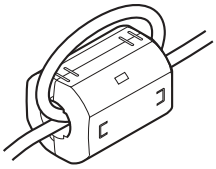
It is recommended to attach ferrite cores if shielded cables coming out of the control panel do not provide sufficient shielding effects.

Note that the ferrite cores must be attached at the position closest to the cable hole inside the control panel. If attached at an improper position, the ferrite core will not produce any effect.

For the FG terminal on a main module that is connected to the external power supply, the external power supply of an extension module, and CC-Link IE Field Network cables, attach a ferrite core 4cm away from the module.

(Ferrite core used for the tests conducted by Mitsubishi: TOKIN Corporation ESD-SR-250, TDK Corporation ZCAT3035-1330)

Ex.



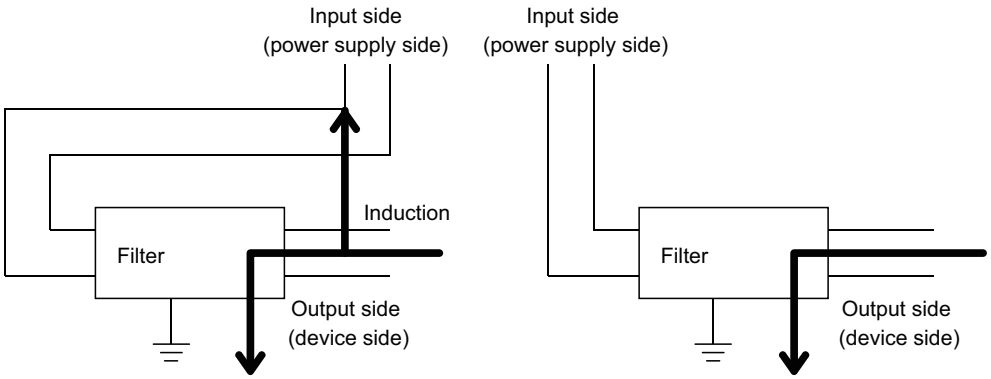
■Noise filter (power supply line filter)

A noise filter is a component which has an effect on conducted noise. Attaching the filter can suppress more noise. (The noise filter has the effect of reducing conducted noise of 10MHz or less.)

Connect a noise filter to the external power supply of a main module and the external power supply of an extension module. Use a noise filter with the damping characteristics equivalent to those of MA1206 (manufactured by TDK-Lambda Corporation). Note that a noise filter is not required if the module is used in Zone A defined in EN61131-2.

The precautions for attaching a noise filter are described below.

- Do not bundle the cables on the input side and output side of the noise filter. If bundled, the output side noise will be induced into the input side cables from which the noise was filtered.



Noise will be induced when the input and output wires are bundled.

Separately install the input and output wires.

- Ground the noise filter grounding terminal to the control panel with the shortest cable possible (approx. 10cm).

Requirements to compliance with the Low Voltage Directive

I/O modules with their rated I/O voltages being 100VAC and 200VAC systems have a dangerous voltage inside (a peak voltage of 42.4V or over). Therefore, for CE-marked I/O modules, reinforced insulation is applied between the primary and secondary circuits.

Note that the Low Voltage Directive does not apply to I/O modules with their rated voltage being 24VDC or below.

Appendix 5 Type Approval Certificates for Ship Classifications

CC-Link IE Field Network has acquired Type Approval Certificates from classification societies. Therefore, the network can be used for machinery or devices for marine and offshore applications.
For information on the models that have been approved by the classification societies, please consult your local Mitsubishi representative.

Classification societies that issue the Type Approval Certificates

CC-Link IE Field Network has acquired the Type Approval Certificates from the following classification societies.

- American Bureau of Shipping (Abbreviation: ABS)
- Bureau Veritas (Abbreviation: BV)
- DNV AS (Abbreviation: DNV)
- Lloyd's Register of Shipping (Abbreviation: LR)
- Nippon Kaiji Kyokai (Abbreviation: NK)
- Registro Italiano Navale (Abbreviation: RINA)

Precautions

The following describes the detail of precautions for using CC-Link IE Field Network as the approved system.

- The modules and devices used for CC-Link IE Field Network must be installed in a control panel.
- Use a shielded cable for a cable coming out of the control panel.
- Make sure to attach a noise filter to the power cable.
- Make sure to attach ferrite cores to all cables that are extended out of control panels, including power cables.

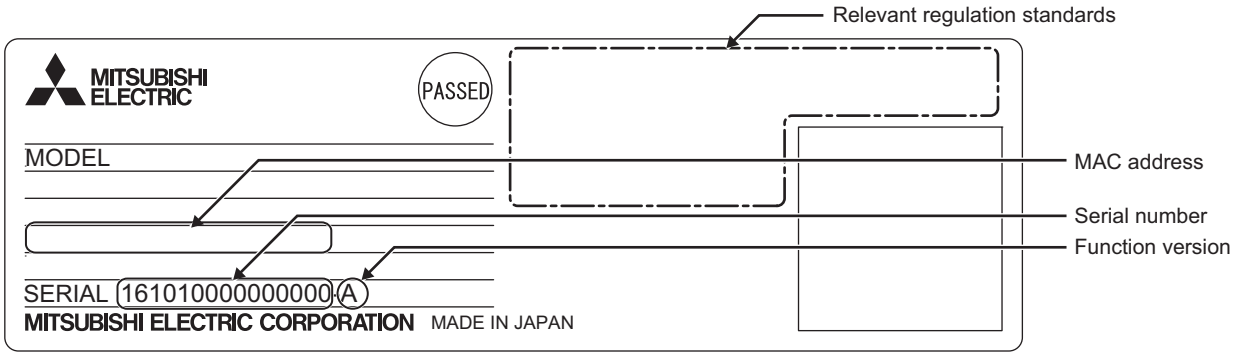
For details, refer to the following.
📖 Precautions to Acquire the Type Approval Certificate for Ship Classifications of ABS, BV, DNV, LR, NK, and RINA (For Network Related Products) (FA-A-0233)

Appendix 6 How to Check Serial Number and Function Version

The serial number and function version of the I/O module can be checked on the rating plate.

The serial number can be also checked from production information in CC-Link IE Field Network diagnostics.

Checking on the rating plate

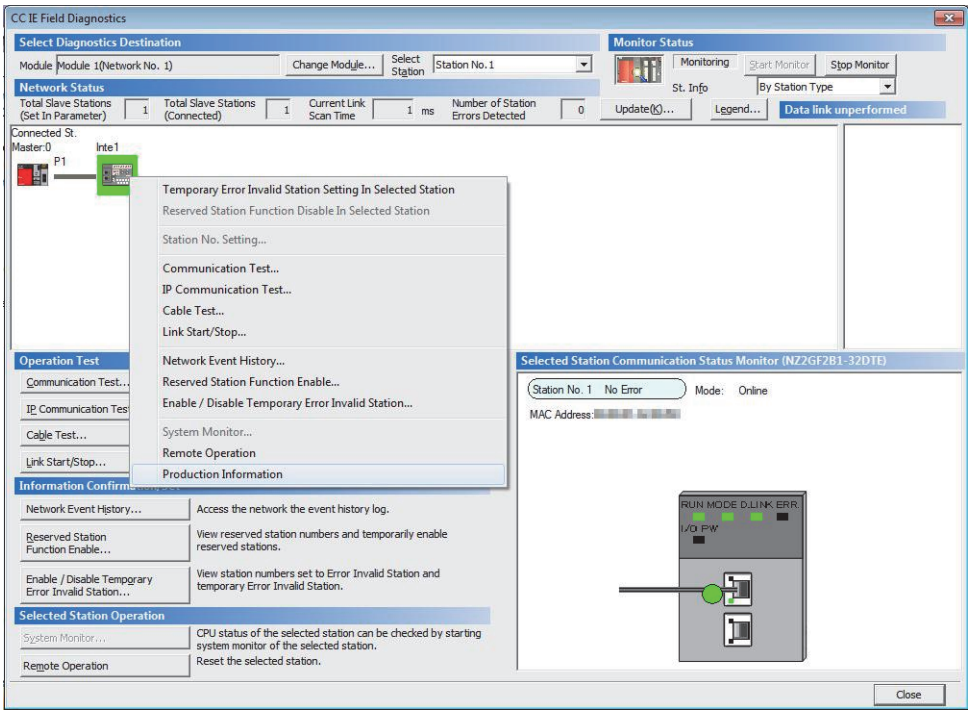


Checking by using CC-Link IE Field Network diagnostics

1. Connect GX Works2 to the CPU module.
2. Start CC-Link IE Field Network diagnostics from the menu of GX Works2.

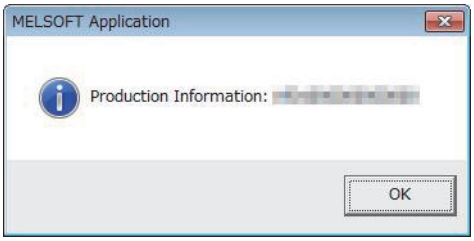
[Diagnostics] ⇨ [CC IE Field Diagnostics]

3. Right-click the slave station whose production information you want to display, and select "Production Information".



4. The production information appears.

The production information shows the serial number written on the rating plate.



■Production information display function

The following table lists the I/O modules and engineering tools that support the production information display using CC-Link IE Field Network diagnostics.

I/O module	Serial number (first five digits)	Version of GX Works2	Version of GX Works3
NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE	"23022" or later	Version 1.560J or later	Version 1.032J or later
NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCM1-16T, NZ2GFCM1-16TE	"23022" or later	Version 1.560J or later	Version 1.032J or later
NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE	First released product or later	Version 1.560J or later	Version 1.032J or later
NZ2GF2B2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S	First released product or later	Version 1.565P or later	Version 1.035M or later
NZ2GF2S2-16A, NZ2GF2S2-16R, NZ2GF2S2-16S	First released product or later	Version 1.565P or later	Version 1.035M or later
NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT	First released product or later	Version 1.560J or later	Version 1.032J or later

Appendix 7 Addition and Change of Functions

Additional function

The following table lists the functions added to the I/O module and an engineering tool and the serial number and software version of the products that support the additional functions.
This section describes only models designed by adding new functionality to previous models and new models provided with that functionality.

NZ2GF2B1-16D/16T/16TE

Additional function	Serial number (first five digits) of I/O module	Version of GX Works2	Version of GX Works3	Reference
Drive mode switch	15102 or later	Version 1.501X or later	Version 1.000A or later	Page 246 Drive Mode Switch
Output ON/OFF information hold function	15102 or later	Version 1.501X or later	Version 1.000A or later	Page 258 Output ON/OFF Information Hold Function
CC-Link IE Field Network synchronous communication function	15102 or later	Version 1.501X or later	Version 1.000A or later	Page 268 CC-Link IE Field Network Synchronous Communication Function
Initial operation setting function	16042 or later	Version 1.513K or later	Version 1.000A or later	Page 265 Initial Operation Setting Function

NZ2GF2B1N-16D/16T/16TE

Additional function	Serial number (first five digits) of I/O module	Version of GX Works2	Version of GX Works3	Reference
Drive mode switch	16111 or later	Version 1.501X or later	Version 1.000A or later	Page 246 Drive Mode Switch
Output ON/OFF information hold function	16111 or later	Version 1.501X or later	Version 1.000A or later	Page 258 Output ON/OFF Information Hold Function
CC-Link IE Field Network synchronous communication function	16111 or later	Version 1.501X or later	Version 1.000A or later	Page 268 CC-Link IE Field Network Synchronous Communication Function
CC-Link IE Field Network synchronous communication function (addition of the synchronization cycle of the master station (0.8 to 10ms))	16111 or later	Version 1.530C or later	Version 1.007H or later	Page 272 Setting method (master station)
Initial operation setting function	16111 or later	Version 1.513K or later	Version 1.000A or later	Page 265 Initial Operation Setting Function

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NZ2GFCE3-16D/16DE/16T/16TE, NZ2GFCM1-16D/16DE/16T/16TE

Additional function	Serial number (first five digits) of I/O module	Version of GX Works2	Version of GX Works3	Reference
Drive mode switch	16042 or later	Version 1.513K or later	Version 1.000A or later	Page 246 Drive Mode Switch
Output ON/OFF information hold function	16042 or later	Version 1.513K or later	Version 1.000A or later	Page 258 Output ON/OFF Information Hold Function
CC-Link IE Field Network synchronous communication function	16042 or later	Version 1.513K or later	Version 1.000A or later	Page 268 CC-Link IE Field Network Synchronous Communication Function
Initial operation setting function	16042 or later	Version 1.513K or later	Version 1.000A or later	Page 265 Initial Operation Setting Function

NZ2GFCE3-16T/16TE, NZ2GFCM1-16T/16TE

Additional function	Serial number (first five digits) of I/O module	Version of GX Works2	Version of GX Works3	Reference
CC-Link IE Field Network synchronous communication function (addition of the synchronization cycle of the master station (0.8 to 10ms, which is settable in increments of 0.05ms.))	23022 or later	Version 1.513K or later	Version 1.000A or later	Page 268 CC-Link IE Field Network Synchronous Communication Function
Synchronous output timing setting function	23022 or later	Version 1.513K or later	Version 1.000A or later	Page 279 Synchronous Output Timing Setting Function
Production information check using CC-Link IE Field Network diagnostics	23022 or later	Version 1.560J or later	Version 1.032J or later	Page 387 Checking by using CC-Link IE Field Network diagnostics

NZ2GFCE3-16D/16DE, NZ2GFCM1-16D/16DE

Additional function	Serial number (first five digits) of I/O module	Version of GX Works2	Version of GX Works3	Reference
CC-Link IE Field Network synchronous communication function (addition of the synchronization cycle of the master station (0.8 to 10ms, which is settable in increments of 0.05ms.))	23022 or later	Version 1.513K or later	Version 1.000A or later	Page 268 CC-Link IE Field Network Synchronous Communication Function
Synchronous input timing acquisition function	23022 or later	Version 1.513K or later	Version 1.000A or later	Page 282 Synchronous Input Timing Acquisition Function
Production information check using CC-Link IE Field Network diagnostics	23022 or later	Version 1.560J or later	Version 1.032J or later	Page 387 Checking by using CC-Link IE Field Network diagnostics

Change of function

The following table lists the changed functions of the I/O module and the operation differences between the modules with different serial numbers.

Changed function	Serial number (first five digits) is 15101 or earlier	Serial number (first five digits) is 15102 or later	Reference
REMFR/REMTO instruction	The REMFR/REMTO instruction is accepted even if the network parameter written to the CPU module is not correct.	The REMFR/REMTO instruction is not accepted if the network parameter written to the CPU module is not correct. Incorrect network parameter access error occurs (minor error, 0205H).	—
Following operations on the "CC IE Field Configuration" window • [CC IE Field Configuration] ⇨ [Online] ⇨ [Parameter Processing of Slave Station] • [CC IE Field Configuration] ⇨ [Online] ⇨ [Command Execution of Slave Station]	[Parameter Processing of Slave Station] or [Command Execution of Slave Station] is accepted even if the network parameter written to the CPU module is not correct.	[Parameter Processing of Slave Station] or [Command Execution of Slave Station] is not accepted if the network parameter written to the CPU module is not correct. Incorrect network parameter access error occurs (minor error, 0205H).	Page 226 Parameter Setting

Precautions for the I/O module replacement

This section describes precautions when replacing the I/O module before function addition with the I/O module after function addition.

Drive mode switch

The I/O module after function addition has the function of drive mode switch, and the default value of the mode switch is the automatical judgment mode. Therefore, if the Simple Motion module is used as the master station with the mode switch not having been changed to the normal mode, the I/O module automatically operates in the synchronous communication mode, performs I/O processing synchronized with the operation cycle of the Simple Motion module.

For details on each function, refer to the following.

- Drive Mode Switch (☞ Page 246 Drive Mode Switch)
- CC-Link IE Field Network Synchronous Communication Function (☞ Page 268 CC-Link IE Field Network Synchronous Communication Function)

In addition, if the parameters with the following settings are used, an error occurs.

- "RWw/RWr setting" is not set to be RWw13/RWr13. (RWw/RWr setting error (error code: 0106H))
- The input OFF delay function or the fast logic function is set to be enabled. (Synchronous communication mode setting error (error code: 0107H))

■Action

- To set the I/O module to operate in the same way as the module before function addition

Change "Mode switch" to "0: Normal mode" in the parameter settings.

RWw/RWr setting error (error code: 0106H) and Synchronous communication mode setting error (error code: 0107H) do not occur and the input OFF delay function or the fast logic function become available by setting "0: Normal mode".

- To operate the I/O module in the synchronous communication mode

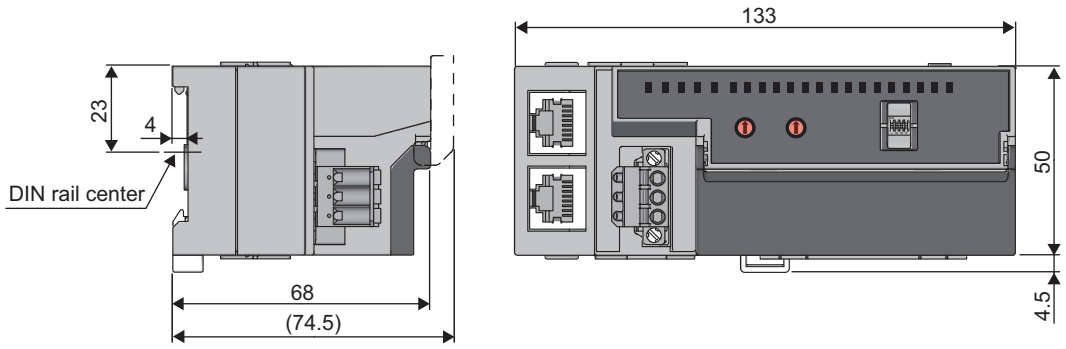
Disable the input OFF delay function or the fast logic function, and set values to "RWw/RWr setting" so that RWw13/RWr13 is refreshed.

Appendix 8 External Dimensions

Main module

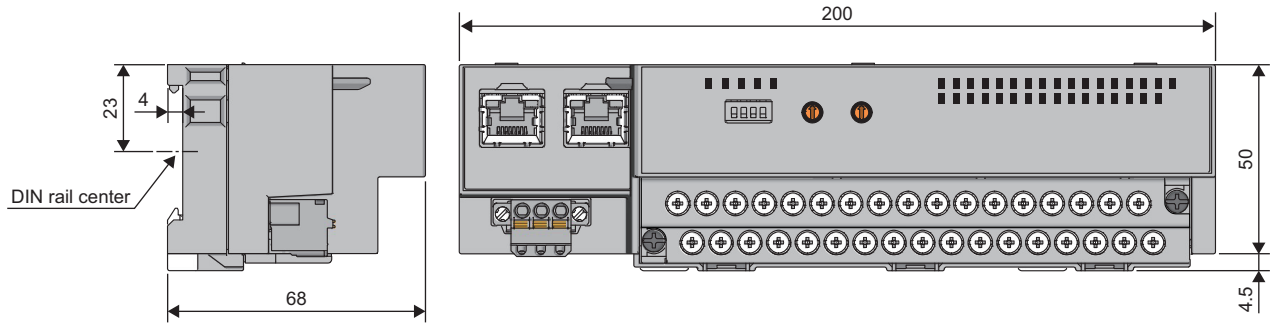
The following figures show the external dimensions of the main module.

■NZ2GF2B1(N, N1)-16☐ remote I/O module



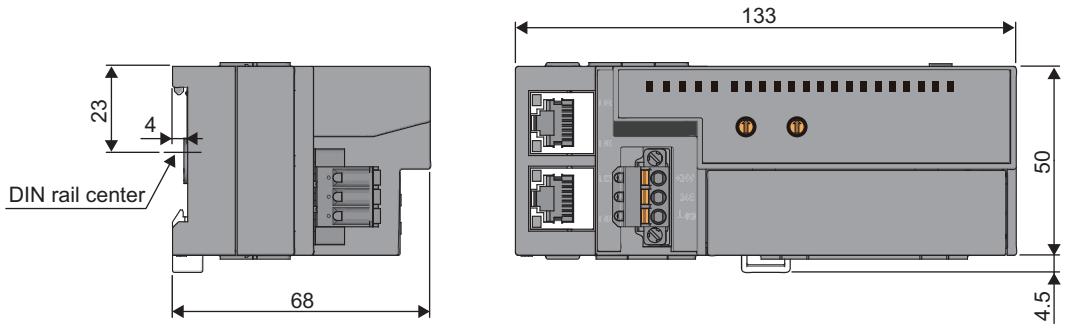
(Unit: mm)

■NZ2GF2B1-32☐ remote I/O module, NZ2GF2B2-16☐ remote I/O module



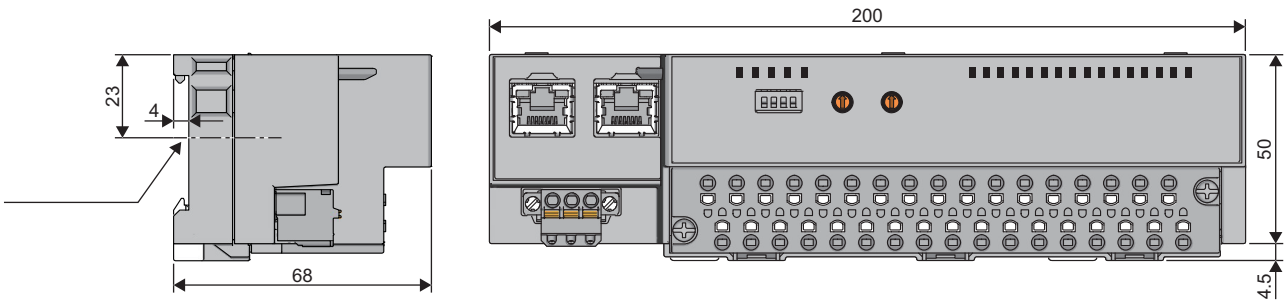
(Unit: mm)

■NZ2GF2S1-16☐ remote I/O module



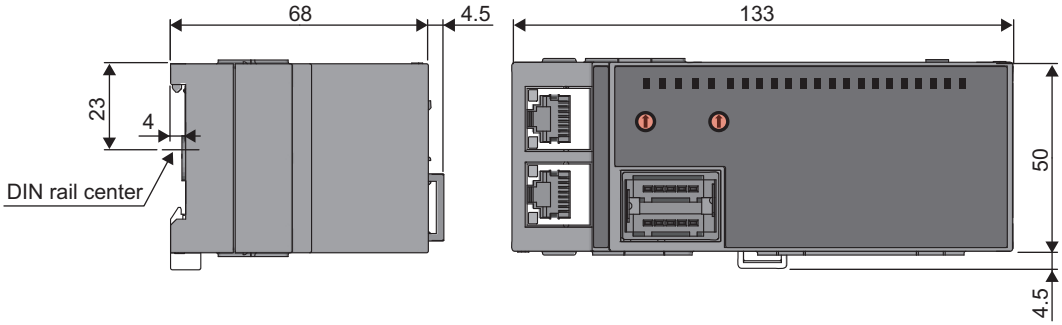
(Unit: mm)

■NZ2GF2S2-16☐ remote I/O module



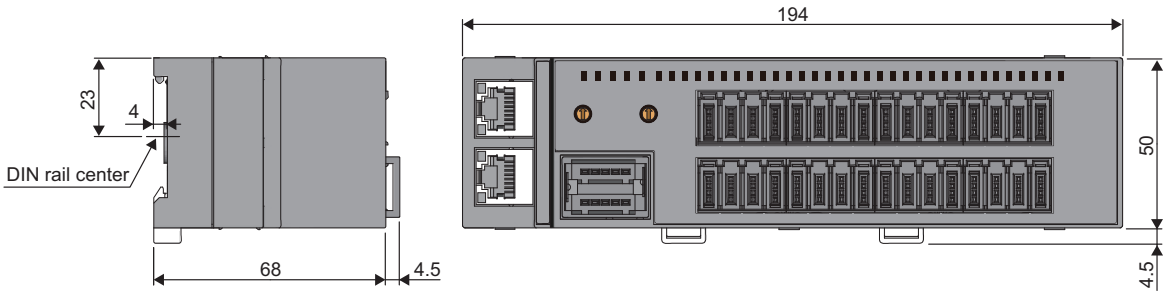
(Unit: mm)

■NZ2GFCE3-16☐ remote I/O module



(Unit: mm)

■NZ2GFCE3(N)-32☐ remote I/O module



(Unit: mm)

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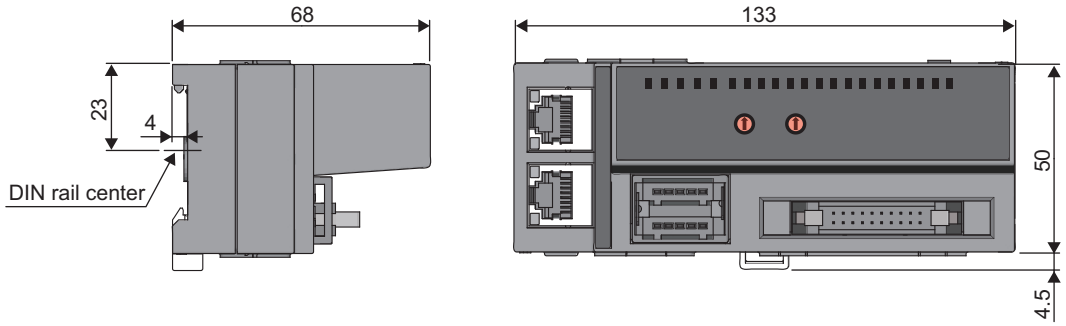
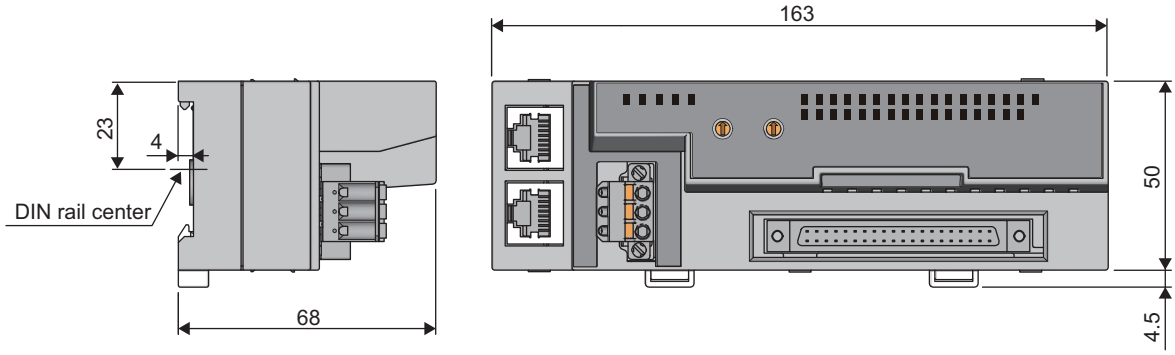
■NZ2GFCM1-16□ remote I/O module



(Unit: mm)

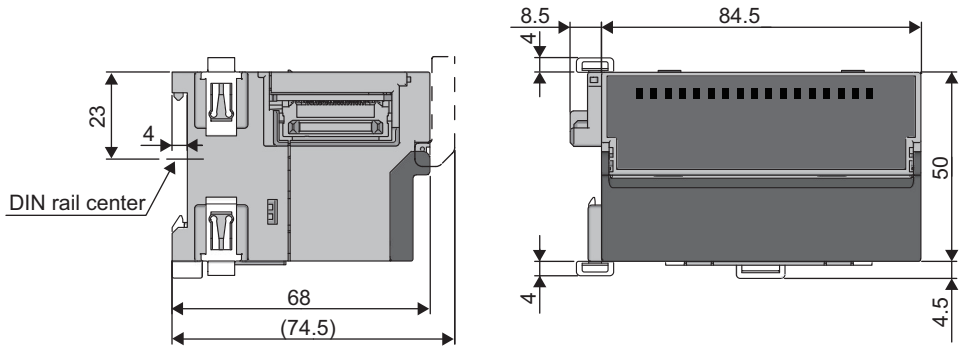
■NZ2GFCF1-32□ remote I/O module



(Unit: mm)

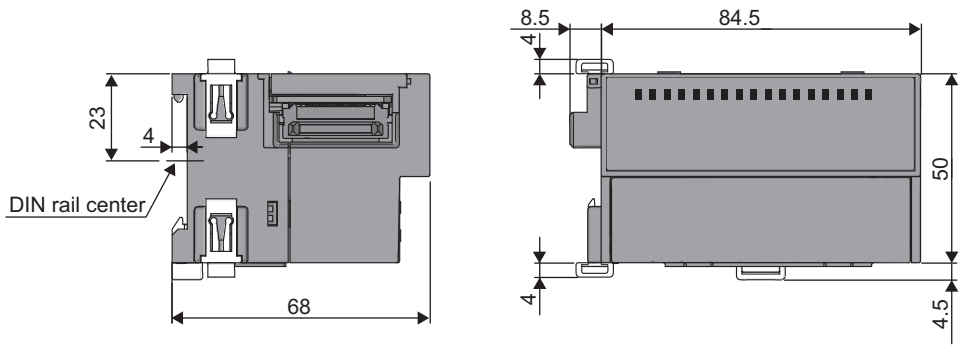
Extension module

■NZ2EX2B1(N)-16☐ extension module



(Unit: mm)

■NZ2EX2S1-16☐ extension module



(Unit: mm)

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REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
November, 2012	SH(NA)-081114ENG-A	First edition
December, 2012	SH(NA)-081114ENG-B	■Added models NZ2GF2B1-16TE, NZ2EX2B1-16TE
December, 2013	SH(NA)-081114ENG-C	■Added models NZ2GFCE3-16D, NZ2GFCE3-16DE, NZ2GFCM1-16D, NZ2GFCM1-16DE, NZ2GFCE3-16T, NZ2GFCE3-16TE, NZ2GFCM1-16T, NZ2GFCM1-16TE ■Added functions Output ON/OFF information hold function, CC-Link IE Field Network synchronous communication function
July, 2014	SH(NA)-081114ENG-D	■Added functions Initial operation setting function, output ON/OFF information hold function, CC-Link IE Field Network synchronous communication function
December, 2014	SH(NA)-081114ENG-E	■Added models NZ2GF2B1N-16D, NZ2GF2B1N-16T, NZ2GF2B1N-16TE ■Added functions Synchronous output timing setting function, synchronous input timing acquisition function
March, 2015	SH(NA)-081114ENG-F	■Added functions Engineering tool setting items (Synchronous Output Timing Setting Function Valid, Synchronous Input Timing Acquisition Function Valid)
July, 2015	SH(NA)-081114ENG-G	■Added models NZ2GF2S1-16D, NZ2GF2S1-16T, NZ2GF2S1-16TE, NZ2EX2S1-16D, NZ2EX2S1-16T, NZ2EX2S1-16TE, NZ2GFCE3-32D, NZ2GFCE3-32T, NZ2GFCE3-32DT
September, 2015	SH(NA)-081114ENG-H	■Added or modified parts Ethernet cable connection and troubleshooting of when the LINK LED turns off
December, 2015	SH(NA)-081114ENG-I	■Added models NZ2GFCF1-32D, NZ2GFCF1-32T, NZ2GFCF1-32DT
August, 2016	SH(NA)-081114ENG-J	■Added models NZ2GF2B1N1-16D, NZ2GF2B1N1-16T, NZ2GF2B1N1-16TE, NZ2EX2B1N-16D, NZ2EX2B1N-16T, NZ2EX2B1N-16TE
April, 2017	SH(NA)-081114ENG-K	■Added models NZ2GF2B1-32D, NZ2GF2B1-32T, NZ2GF2B1-32TE, NZ2GF2B1-32DT, NZ2GF2B1-32DTE, NZ2GF2B2-16A, NZ2GF2S2-16A, NZ2GF2B2-16R, NZ2GF2B2-16S, NZ2GF2S2-16R, NZ2GF2S2-16S
October, 2017	SH(NA)-081114ENG-L	■Added models NZ2GFCE3N-32D, NZ2GFCE3N-32T, NZ2GFCE3N-32DT
July, 2019	SH(NA)-081114ENG-M	■Added or modified parts LIST OF DISCONTINUED MODELS, Section 4.2, 4.3, 6.2, Appendix 5
January, 2020	SH(NA)-081114ENG-N	■Added or modified parts TERMS, GENERIC TERMS AND ABBREVIATIONS, Section 9.16, 12.5, Appendix 2
February, 2021	SH(NA)-081114ENG-O	■Added or modified parts SAFETY PRECAUTIONS, CONDITIONS OF USE FOR THE PRODUCT, TERMS, GENERIC TERMS AND ABBREVIATIONS, Section 4.2, 4.8, 9.12, 9.16, Appendix 6
August, 2021	SH(NA)-081114ENG-P	■Added or modified parts Section 4.2, 4.3, Appendix 5

Japanese manual number: SH-081113-Q

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.

However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.

1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

TRADEMARKS

The company names, system names and product names mentioned in this manual are either registered trademarks or trademarks of their respective companies.
In some cases, trademark symbols such as '™' or '®' are not specified in this manual.

SH(NA)-081114ENG-P(2108)MEE
MODEL: CCIEF-IO-U-E
MODEL CODE: 13JZ82

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14 , YADA-MINAMI 5-CHOME , HIGASHI-KU, NAGOYA , JAPAN