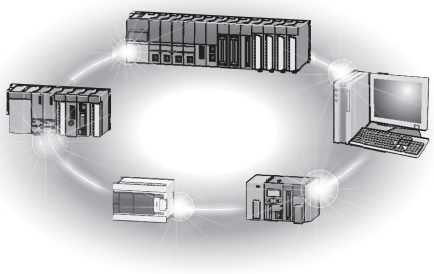
MITSUBISHI ELECTRIC

Programmable Controller

CC-Link—AnyWireASLINK Bridge Module User's Manual

-NZ2AW1C2AL



Powered by Anywire

This product was jointly developed and manufactured by Mitsubishi and Anywire Corporation.
*Note that the warranty on this product differs from that on other programmable controller products.
(Refer to "WARRANTY" in this manual.)

COPYRIGHT

PRECAUTIONS REGARDING WARRANTY

The NZ2AW1C2AL was jointly developed and manufactured by Mitsubishi Electric Corporation and Anywire Corporation. Note that there are some precautions regarding warranty of this product.

- Warranty

Item	NZ2AW1C2AL	Other programmable controller products (e.g. MELSEC-Q series)
Repair term after discontinuation of production	1 year	7 years

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

- An AnyWireASLINK system has no control function for ensuring safety.
- When a communication failure occurs in the network, data in the master module are held.
  Check the communication status information and configure an interlock circuit in the sequence program to ensure that the entire system will operate safely.

[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.
- Configure safety circuits, such as an emergency stop circuit and interlock circuit, external to the AnyWireASLINK system.

[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]

⚠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.
- Securely fix the module with a DIN rail.
- Shut off the external power supply (all phases) used in the system before mounting or removing the module.
  Failure to do so may result in damage to 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.

[Wiring Precautions]

⚠WARNING

- Shut off the external power supply (all phases) used in the system before installation and wiring.
  Failure to do so may result in electric shock or damage to the product.

[Wiring Precautions]

⚠CAUTION

- Individually ground the FG and LG terminals 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 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.
- Incorrect wiring may damage modules and external devices. Adjust a cable length and a module position to prevent disconnection of a connector type terminal block or a cable.
- Do not solder stranded wires of a cable when connecting them to the terminal block. Doing so may cause poor contact.
- The power supply voltage of remote slave modules may be insufficient due to a voltage drop in the power supply line. Connect an external power supply so that the voltage of remote slave modules is ensured.
- Do not apply the 24VDC power before wiring the entire AnyWireASLINK system. If the power is applied before wiring, normal data transmission is not guaranteed.
- Connect a 24VDC external power supply to the device(s) in an AnyWireASLINK system.
- Do not install the control lines or communication cables together with the main circuit lines or power cables.
  Failure to do so may result in malfunction due to noise.
- Place the cables in a duct or clamp them. If not, dangling cables may swing or inadvertently be pulled, resulting in malfunction or damage to modules or cables.
  In addition, the weight of the cables may put stress on modules in an environment of strong vibrations and shocks.
- When disconnecting the cable from the module, do not pull the cable by the cable part. 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.

[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. Failure to do so may result in electric shock.

[Startup and Maintenance Precautions]

⚠CAUTION

- Do not disassemble or modify the modules.
  Doing so may cause failure, malfunction, injury, or a fire.
- Shut off the external power supply (all phases) used in the system before mounting or removing the module.
  Failure to do so may cause the module to fail or malfunction.
- Tighten the terminal block screws within the specified torque range.
  Undertightening can cause drop of the component or wire, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- After the first use of the product, do not connect/disconnect the terminal block more than 50 times (IEC 61131-2/JIS B 3502 compliant).
  Exceeding the limit may cause malfunction.
- Before handling the module, 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.
- Use a clean and dry cloth to wipe off dirt on the module.

[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.

COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES

Method of ensuring compliance

To ensure that Mitsubishi Electric programmable controllers maintain the EMC and Low Voltage Directives or other regulations when incorporated into other machinery or equipment, certain measures may be necessary. Please refer to one of the following manuals.

- User's manual for the CPU module or head module used
- Safety Guidelines (This manual is included with the CPU module, base unit, or head module.)

Certification marks on the side of the programmable controller indicate compliance with the relevant regulations.

Additional measures

To ensure that this product maintains the EMC and Low Voltage Directives or other regulations, please refer to the following.

☞ Page 123 EMC and Low Voltage Directives

INTRODUCTION

Thank you for purchasing the CC-Link-AnyWireASLINK bridge module (hereafter abbreviated as bridge module).
This manual describes the procedures, system configuration, parameter settings, functions, and troubleshooting of a bridge module.
Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the bridge 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.

Point

Unless otherwise specified, this manual describes the program example in which the station number of the bridge module is set to 1.
For details on station numbers, refer to the following.
User's manual for the master module used

RELEVANT MANUALS

CC-Link

Manual name (manual number)	Description
MELSEC iQ-R CC-Link System Master/Local Module User's Manual (Startup) (SH-081269ENG)	Specifications, procedures before operation, system configuration, wiring, and communication examples of the CC-Link system master/ local module
MELSEC iQ-R CC-Link System Master/Local Module User's Manual (Application) (SH-081270ENG)	Functions, parameter settings, programming, troubleshooting, I/O signals, and buffer memory of the CC-Link system master/local module
MELSEC-Q CC-Link System Master/Local Module User's Manual (SH-080394E)	System configuration, performance specifications, functions, handling, wiring, and troubleshooting of the QJ61BT11N
MELSEC-L CC-Link System Master/Local Module User's Manual (SH-080895ENG)	Settings, specifications, handling, data communication methods, and troubleshooting of the built-in CC-Link function of the CPU module or the CC-Link system master/local module
CC-Link System Master/Local Module Type AJ61QBT11/A1SJ61QBT11 User's Manual (IB-66722)	System configuration, performance specifications, functions, handling, wiring, and troubleshooting of the AJ61QBT11/A1SJ61QBT11
CC-Link System Master/Local Module Type AJ61BT11/A1SJ61BT11 User's Manual (IB-66721)	System configuration, performance specifications, functions, handling, wiring, and troubleshooting of the AJ61BT11, A1SJ61BT11

AnyWireASLINK

Manual name (manual number)	Description
MELSEC-Q/L AnyWireASLINK Master Module User's Manual (SH-081094ENG)	Specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the AnyWireASLINK master module

Others

Manual name (manual number)	Description
iQ Sensor Solution Reference Manual (SH-081133ENG)	Operating methods of iQ Sensor Solution, such as programming and monitoring

CONTENTS

TERMS

Unless otherwise specified, this manual used the following terms.

Term	Description
Address	Device information set to a slave module to identify each node on the AnyWireASLINK network
Address writer	A hand-held device to read/write parameters (including addresses) from/to a slave module
AnyWireASLINK	A wire-saving network which provides an appropriate connection between sensors placed at the terminal end of a control system and a programmable controller. Detecting a sensor disconnection or setting the I/O operation from the upper system can be realized without using the I/O area.
CC-Link	A field network system where data processing for control and information can be simultaneously performed at high speed.
ID	Information assigned to a module based on its address to identify whether it is an input module or output module
Power cable (24V, 0V)	A cable that connects a 24VDC external power supply to a bridge module
Terminating unit	A waveform shaper
Transmission cable (DP, DN)	A signal cable that connects between a slave module and a bridge module
Transmission cycle time	A data sampling interval

GENERIC TERMS AND ABBREVIATIONS

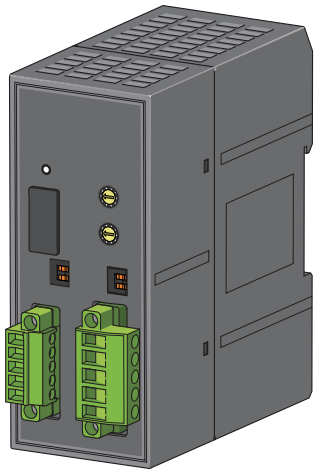
Unless otherwise specified, this manual uses the following generic terms and abbreviations.

Generic term/abbreviation	Description
AnyWireASLINK bridge module	A generic term for the NZ2AW1C2AL and NZ2AW1GFAL
AnyWireASLINK master module	A generic term for the RJ51AW12AL, QJ51AW12AL, and LJ51AW12AL
ASLINKAMP	A generic term for sensor amplifiers that have an AnyWireASLINK interface
ASLINKER	A generic term for I/O devices that have an AnyWireASLINK interface
Bridge module	An abbreviation for the NZ2AW1C2AL CC-Link-AnyWireASLINK bridge module
CC-Link dedicated cable	A generic term for a Ver.1.10-compatible CC-Link dedicated cable, CC-Link dedicated cable (Ver.1.00-compatible), and CC-Link dedicated high-performance cable (Ver.1.00-compatible)
Master module	An abbreviation for the CC-Link master module
RWr	An abbreviation for a remote register (read area for CC-Link). Word data input from a slave station to the master station
RWw	An abbreviation for a remote register (write area for CC-Link). Word data output from the master station to a slave station
RX	An abbreviation for a remote input (for CC-Link). Bit data input from a slave station to the master station
RY	An abbreviation for a remote output (for CC-Link). Bit data output from the master station to a slave station
Slave module	A generic term for modules that communicate data with a bridge module

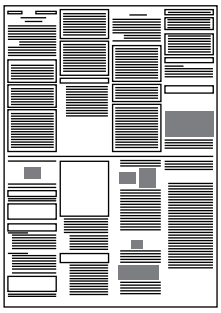
PACKING LIST

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

NZ2AW1C2AL



NZ2AW1C2AL



Before Using the Product

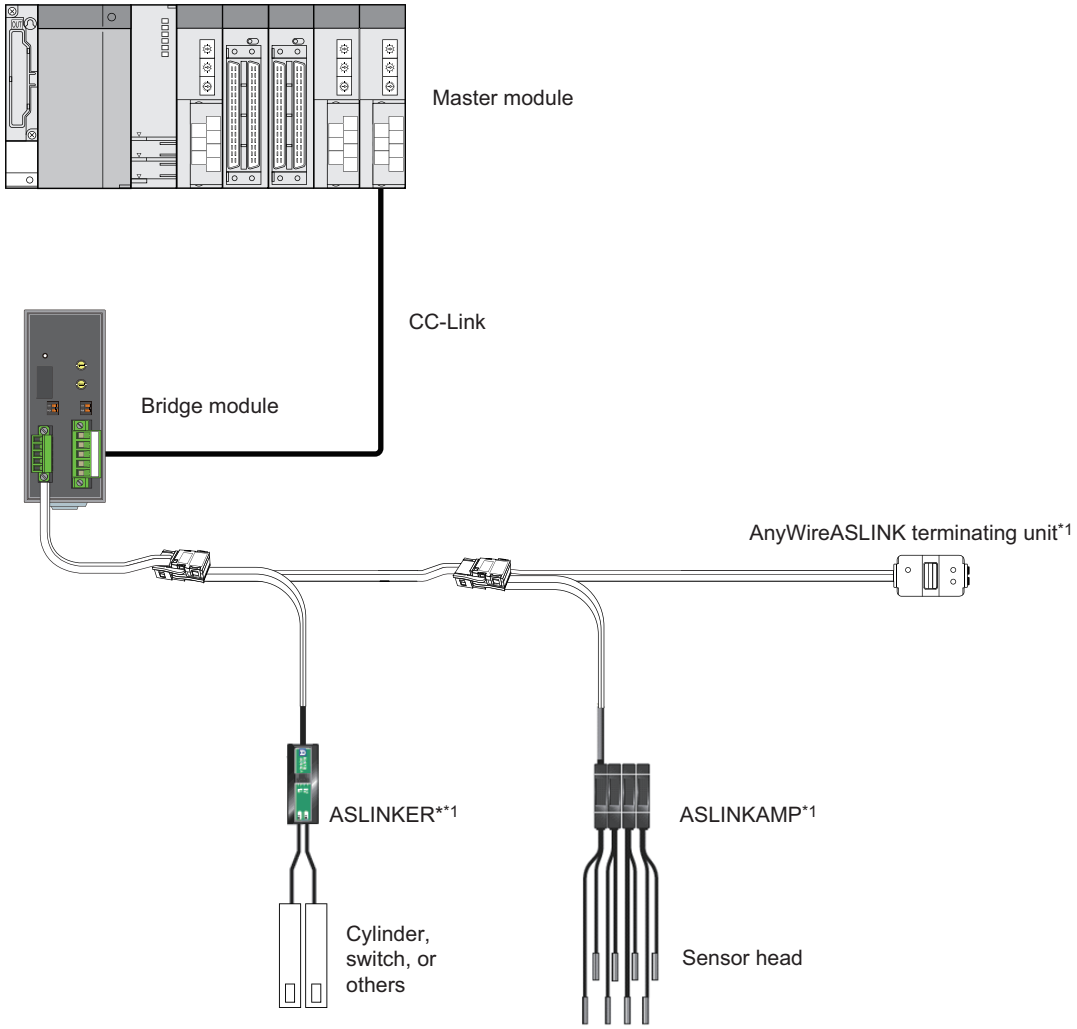
1 OVERVIEW

The bridge module, a product of the joint development project with Anywire Corporation, allows the AnyWireASLINK® system to be connected with CC-Link.

The AnyWireASLINK system provides a high-speed and highly-reliable sensor system.

For the CC-Link, refer to the following.

User's manual for the master module used



*1 Manufactured by Anywire Corporation

1.1 Features

Seamless connection between two systems

CC-Link and AnyWireASLINK can be seamlessly connected.

CC-Link transmission speed auto-tracking

The transmission speed of the bridge module need not be set by the user since it is automatically determined according to the transmission speed set in a master station.

Man-hour reduction by built-in terminating resistor

Since the bridge module has a built-in terminating resistor (110Ω) of CC-Link, a terminating resistor is not necessary even when the module is used at the end of the CC-Link network. One operation with a switch can enable/disable the built-in terminating resistor (110Ω).

iQ Sensor Solution functions

iQ Sensor Solution provides automatic detection of the bridge module connected via CC-Link. It also allows the parameter setting and monitoring of the slave modules connected to AnyWireASLINK.

1.2 System Configuration of AnyWireASLINK

For the number of connectable slave modules, refer to the following.

☞ Page 18 Performance Specifications

2 SPECIFICATIONS

2.1 General Specifications

The following table lists the general specifications.

Item	Specifications					
Operating ambient temperature	0 to 55℃					
Storage ambient temperature	-25 to 75℃					
Operating ambient humidity	10 to 95%RH, non-condensing					
Storage ambient humidity						
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2	—	Frequency	Constant acceleration	Half amplitude	The 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 gas					
Operating altitude*1	0 to 2000m					
Installation location	Inside a control panel*4					
Overvoltage category*2	Ⅱ or less					
Pollution degree*3	2 or less					
Equipment class	Class Ⅰ					

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

*2 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 up to the rated voltage of 300V is 2500V.

*3 This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used.
In pollution degree 2, only non-conductive pollution occurs. A temporary conductivity caused by an accidental condensation may also occur occasionally.

*4 The equipment can also be used outside the control panel, provided that environmental conditions such as operating ambient temperature and operating ambient humidity are met.

2.2 Performance Specifications

The following table lists the performance specifications.

Classification	Item	Specifications	
CC-Link side	Station type	Remote device station	
	CC-Link version	Ver.1.10	Ver.2.00
	Extended cyclic setting	—	2 times setting
	Communication speed	10M/5M/2.5M/625K/156Kbps (automatic setting)	
	Number of occupied stations[*1]	Remote device stations 1 to 4 are occupied according to the setting of the specification selection switch. 1 station (RX/RY number of occupied points: 32 points) (RWr/RWw 4/4) 2 stations (RX/RY number of occupied points: 64 points) (RWr/RWw 8/8) 3 stations (RX/RY number of occupied points: 96 points) (RWr/RWw 12/12) 4 stations (RX/RY number of occupied points: 128 points) (RWr/RWw 16/16)	4 stations occupied (RX/RY number of occupied points: 224 points) (RWr/RWw 32/32)
	Number of connectable modules	64 max.	16 max.
	Connection cable[*2]	CC-Link dedicated cable (Ver.1.00-compatible)/High-performance CC-Link dedicated cable (Ver.1.00-compatible)/Ver.1.10-compatible CC-Link dedicated cable	
	Built-in terminating resistor	Provided (110Ω)	
AnyWireASLINK side	Transmission clock	27.0kHz	
	Maximum transmission distance (total length)	200m[*3]	
	Transmission system	DC power supply transmission total frame cyclic system	
	Connection type	Bus topology (multidrop system, T-branch system, tree branch system, star topology)	
	Transmission protocol	Dedicated protocol (AnyWireASLINK)	
	Error control	Checksum, double-check system	
	Number of connected I/O points	512 points max. (input: 256 points, output: 256 points)	
	Number of connectable slave modules	128 max. (varies depending on the current consumption of each slave module)	
	RAS function	Disconnected transmission cable location detection function, transmission cable short detection function, transmission cable voltage drop detection function	
	Transmission cable (DP, DN)	• UL-listed general-purpose 2-wire cable (VCTF, VCT 1.25mm^2, 0.75mm^2, temperature rating: 70℃ or higher) • UL-listed general-purpose wire (1.25mm^2, 0.75mm^2, temperature rating: 70℃ or higher) • Dedicated flat cable (1.25mm^2, 0.75mm^2, temperature rating: 90℃)	
	Power cable (24V, 0V)	• UL-listed general-purpose 2-wire cable (VCTF, VCT 0.75mm^2 to 2.0mm^2, temperature rating: 70℃ or higher) • UL-listed general-purpose wire (0.75mm^2 to 2.0mm^2, temperature rating: 70℃ or higher) • Dedicated flat cable (1.25mm^2, 0.75mm^2, temperature rating: 90℃)	
	Transmission cable supply current[*4]	When using a 1.25mm^2 cable: 2A max. When using a 0.75mm^2 cable: 1.2A max.	
	Maximum number of writes to EEPROM	100000 times max.	
Common	Power supply	Voltage: 21.6 to 27.6VDC (24VDC -10 to +15%), ripple 0.5Vp-p or lower Recommended voltage: 26.4VDC (24VDC +10%) Module current consumption: 0.2A	
	External dimensions	102mm(H)×43mm(W)×96mm(D)	
	Weight	0.2kg	

*1 When the CC-Link operation mode is set to Ver.1.10 by the operation mode setting switch, the number of occupied stations is changed by the number of transmission points setting switch.

*2 Ver.1.10-compatible CC-Link dedicated cable, CC-Link dedicated cable (Ver.1.00-compatible), and CC-Link dedicated high-performance cable (Ver.1.00-compatible) cannot be used at the same time. If those cables are used at the same time, normal transmission is not guaranteed.
In addition, use the terminating resistor according to the type of cable used.

*3 For wiring of 50m or more with 4 wires (DP, DN, 24V, 0V), insert the noise filter for power supply cables between the power supply and cables. For details, refer to the manual for the ASLINKFILTER (ANF-01) manufactured by Anywire Corporation.
www.anywire.jp

*4 For the relationship between the total length, the wire diameter of transmission cables (DP, DN), and the transmission cable supply current, refer to the following. On some slave modules with cables, the wire diameter of module-integrated transmission cables (DP, DN) may be 0.75㎟ or less. However, they can be used without any problem, provided that the diameter of the transmission cables (DP, DN) meets the requirement below.

Wire diameter of transmission cables (DP, DN)	Transmission cable supply current		
	Total length of 50m or less	Total length of 50m to 100m	Total length of 100m to 200m
1.25mm^2	2A max.	1A max.	0.5A max.
0.75mm^2	1.2A max.	0.6A max.	0.3A max.

2.3 Applicable Systems

Applicable master modules

Master modules that can be used are listed on the website of CC-Link Partner Association (CLPA).
For the website of CC-Link Partner Association (CLPA), refer to the following.
www.cc-link.org

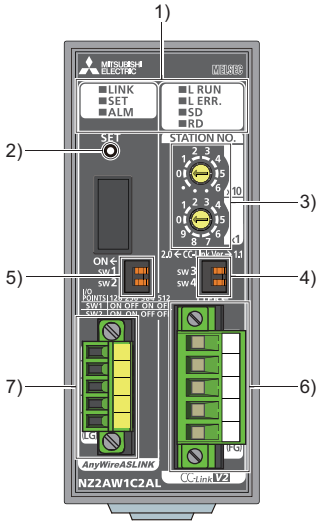
Parameter setting items according to CC-Link version

For a mode setting of the master module connected with the bridge module or a station information (station type), set them in the following combinations.
(○: Available, ×: Not available)

Master module	Parameter setting item		Bridge module	CC-Link operation mode	
	Mode setting*1	Station information (station type)		Ver.1.10	Ver.2.00
A1SJ61BT11, A1SJ61QBT11	Remote Net Ver.1 Mode	Remote device station	○	○	×
	Remote I/O Net Mode	—	×	—	—
QJ61BT11N, LJ61BT11, L26CPU-BT, L26CPU-PBT, Q80BD-J61BT11N, Q81BD-J61BT11	Remote Net Ver.1 Mode	Remote device station	○	○	×
	Remote Net Ver.2 Mode	Ver.1 remote device station	○	○	×
		Ver.2 remote device station	○	×	○
	Remote Net Additional Mode	Ver.1 remote device station	○*2	○	×
		Ver.2 remote device station	○	×	○
	Remote I/O Net Mode	—	×	—	—
RJ61BT11	Remote Net Ver.1 Mode	Remote device station	○	○	×
	Remote Net Ver.2 Mode	Ver.1 remote device station	○	○	×
		Ver.2 remote device station	○	×	○
	Remote Device Net Ver.1 Mode	Remote device station	○	○	×
	Remote Device Net Ver.2 Mode	Ver.1 remote device station	○	×	○
		Ver.2 remote device station			
	Remote I/O Net Mode	—	×	—	—

*1 For the mode setting, refer to the user's manual for the master module used.
*2 If a station number is used as a Ver.2 remote device station in the existing system, set a lower station number to the Ver.1 remote device station added.

2.4 Part Names



No.	Name	Description	
1)	LED indicator (CC-Link side)	The status of the bridge module is indicated by the LEDs.	
		LED name	Description
		L RUN LED (green)	Indicates the CC-Link communication status. On: Operating normally Off: Disconnecting (timeout error)
		L ERR. LED (red)*1	Indicates the CC-Link error status. On: When station number setting is out of the range Flashing regularly (0.4-second-intervals): When the station number setting was changed from power-on.*2 Flashing irregularly: When the bridge module or CC-Link dedicated cable has been affected by noise. When on/off of the operation mode setting switch (SW4) and the combinations of mounting terminating resistor are incorrect. Off: Operating normally
		SD LED (green)	Indicates the sending status of CC-Link data. On: Sending data Flashing: Terminating resistor is not connected in the master module and final station module. Off: Disconnection or incorrect wiring of CC-Link dedicated cable
		RD LED (green)	Indicates the CC-Link data receiving status. On: Receiving data Flashing: Terminating resistor is not connected in the master module and final station module. Off: Disconnection or incorrect wiring of CC-Link dedicated cable
	LED indicator (AnyWireASLINK side)	LINK LED (green)	Indicates the link status of the bridge module. On: During initializing the module or occurring a hardware error. Communication is impossible. Off: 24VDC power supply is disconnected. Communication is impossible. Flashing: Operating normally. Communication is possible.
		SET LED (green)	Indicates the address detection status of the bridge module. On: Automatic address detection in progress Flashing: Address write in progress Off: Before or after automatic address detection
		ALM LED (red)	Indicates the error status of the bridge module. On: DP/DN disconnection, no response from the slave module Slow flashing (one-second intervals): DP/DN short-circuit Fast flashing (0.2-second intervals): 24VDC is not being supplied or the voltage is low. Off: Operating normally
2)	SET switch	Switch for automatic detection of the slave module ID (address) connected AnyWireASLINK. (☞ Page 53 Performing the automatic address detection)	
3)	CC-Link station number setting switch	Set the head station number of the bridge module. (☞ Page 38 Station number setting switch)	
4)	Operation mode setting switch*3	Set the operation mode of the bridge module. (☞ Page 38 Operation mode setting switch)	
5)	Number of transmission points setting switch*3	Set the number of transmission points of the AnyWireASLINK. (☞ Page 39 AnyWireASLINK Side)	

No.	Name	Description
6)	CC-Link side terminal block	A terminal block of the CC-Link dedicated cable (☞ Page 26 CC-Link Side Terminal Block)
7)	AnyWireASLINK side terminal block	A transmission cable terminal block of the AnyWireASLINK (☞ Page 28 AnyWireASLINK Side Terminal Block)

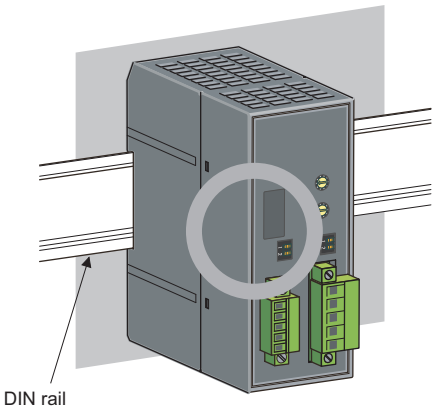
*1 The LED may turn on for a moment when the module is powered on, however it does not affect the operation of the bridge module.
*2 When station number setting switch is changed while communication is disconnected, the LED will start flashing irregularly.
*3 The color of the operation mode setting switch and the number of transmission points setting switch varies depending on the serial number.

3 MOUNTING MODULE

Mount the bridge module on a DIN rail before use.

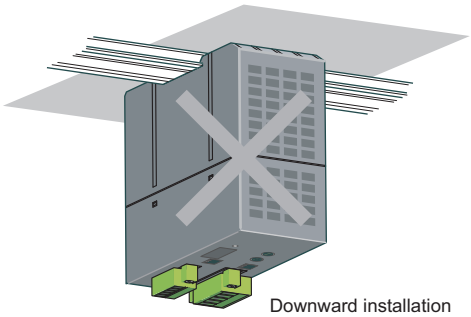
Direction of mounting a module

Since the bridge module radiates heat, place it in airy place in the direction shown below.

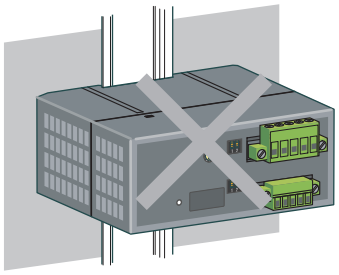


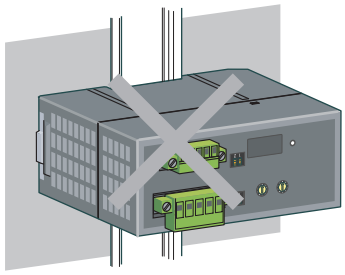
Vertical installation (basic)

Do not place the module in the directions shown below.

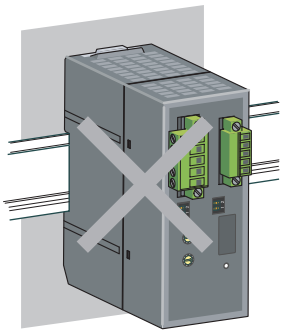


Downward installation

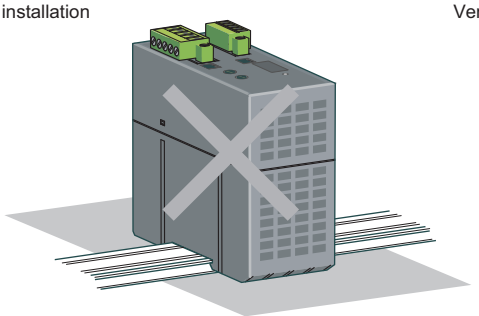




Horizontal installation



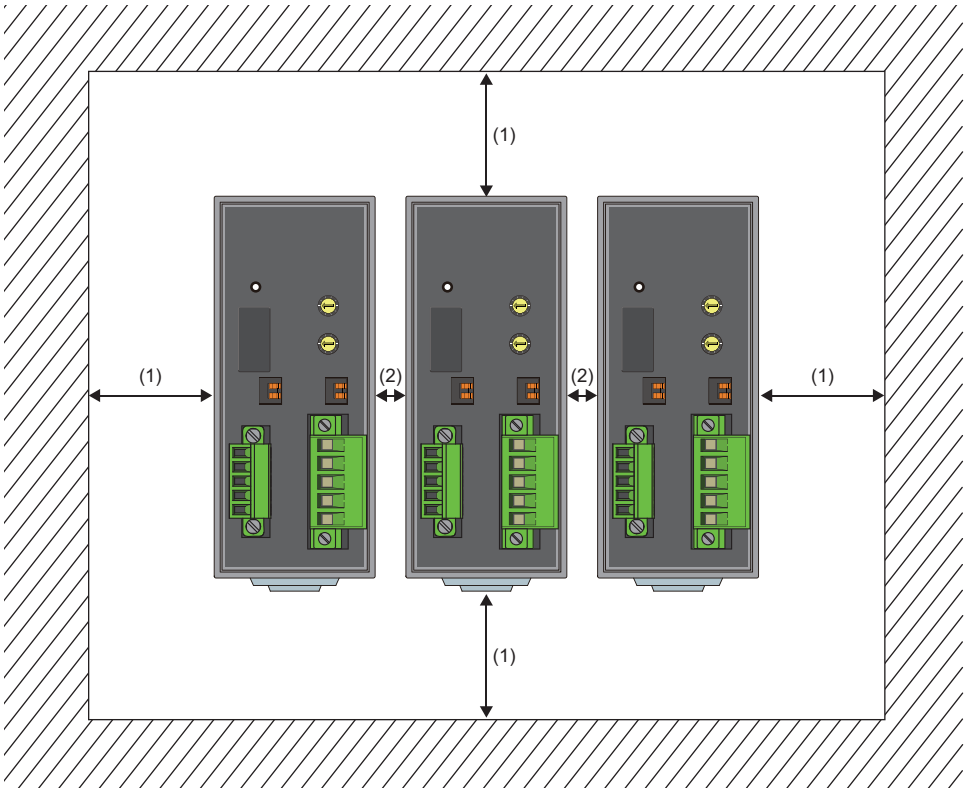
Vertical installation (upside down)



Upward installation

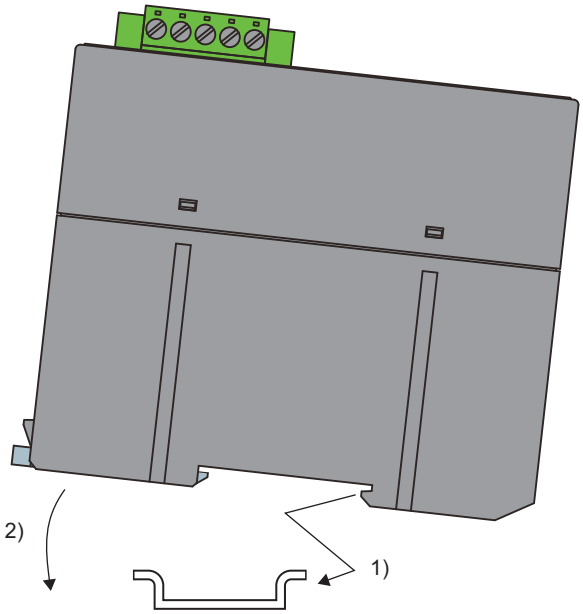
Installation position

When installing a bridge module in the control panel, provide a distance of 60mm or longer away from the surrounding structures, modules, and parts to ensure good ventilation and to allow an easy module replacement.
When two or more bridge modules are installed, they can be installed with providing a distance of 5mm or longer between the modules.



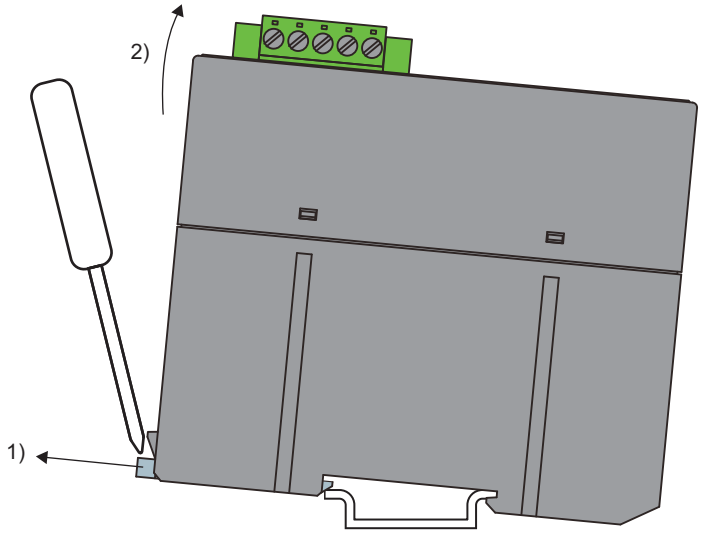
(1) 60mm or more
(2) 5mm or more

Mounting a module on a DIN rail



1. Hook the upper fixing tab on the bottom of the module to the DIN rail.
2. Push and engage the bridge module on the DIN rail.

Removing a module from a DIN rail



1. Insert a flathead screwdriver into the hook and pull the hook to remove from the DIN rail.
2. Lift the module on the hook side and remove it using the fixing tab as the supporting point.

4 CONNECTIONS

4.1 CC-Link Side Terminal Block

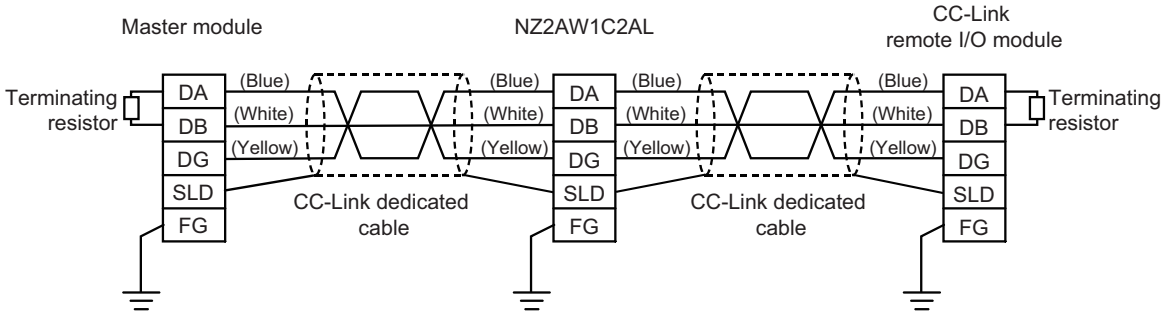
The bridge module is handled as a remote device station of CC-Link. The CC-Link side terminal block is the connection terminal which is easy to mount or remove.
Manufacturer: PHOENIX CONTACT GmbH & Co. KG (Contact: www.phoenixcotact.com)
Model: MSTB 2,5/5-STF-5,08AU
Tightening torque: 0.2 to 0.3N·m
To tighten the terminal block, a flathead screwdriver having a tipped size of 0.6×3.5mm is required.
Before removing the CC-Link side terminal block, check that the fixing screws on both sides are completely loosened (removed from the socket).
Pulling with excessive force while the fixing screws on both ends are still tightened may damage the devices.
Before tightening the terminal block, check that there are no short-circuits due to the disconnected or frayed wires and tighten the screws at both ends securely. (Tightening torque: 0.2 to 0.3N·m)

Point

The fixing screws are not tightened when shipped. Securely tighten the screws on both ends when tightening the terminal block.

Connecting a CC-Link dedicated cable

The connection example of the CC-Link dedicated cable is shown below.



Cable processing

For safety reasons, connect cables using bar solderless terminals.

For wiring, use the connection cables as listed in the performance specifications and tighten them with the applicable tightening torque. (☞ Page 18 Performance Specifications)

Use UL-listed solderless terminals and, for processing, use a tool recommended by their manufacturer.

For processing and cable wiring of CC-Link dedicated cable, refer to the CC-Link Cable Wiring Manual published by CC-Link Partner Association.

Type	Model	Application*2	Contact
Bar solderless terminal*1	AI 0,75-8 GY	When processing a 0.75mm^2 cable	PHOENIX CONTACT GmbH & Co. KG (www.phoenixcontact.com)
	AI 1,5-8 BK	When processing a 1.25mm^2 cable	
	AI-TWIN 2×0,75-8 GY	When processing two 0.75mm^2 cables	
	AI-TWIN 2×1,5-8 BK	When processing two 1.25mm^2 cables	

*1 When connecting two cables to one terminal, connect the two cables together to the TWIN bar solderless terminal.

*2 When TWIN bar solderless terminals are used, the maximum wire diameter is 1.25mm^2.

CC-Link terminating resistor

It is not necessary to mount the external terminal register due to built-in terminating resistor (110Ω) in the bridge module.

When using the bridge module in network, turn on the operation mode setting switch SW4.

The operation mode setting switch SW4 is set to off when the product is shipped.

Point

Built-in terminating resistor in the bridge module cannot be used in the following cases.

- When there is a possibility that the bridge module is exchanged into the CC-Link data link
- When the CC-Link system is configured with the CC-Link dedicated cable (130Ω)

Wiring precautions

One of the requirements to achieve full function of the bridge module and make a reliable system is external wiring which is not affected by noise.

Precautions of external wiring are as follows.

- Do not lay close or bundle the CC-Link wiring together with the load cable other than the main circuit line, high voltage, or programmable controller. If not, the wiring is more likely to be affected by noise, surges, and induction.
- Ground the shield wire of the CC-Link dedicated cable. However, external grounding may do well depending on the external noise conditions.
- Use a crimping tool to connect a cable to a bar solderless terminal.
- Before inserting a bar solderless terminal, check the shapes of the wire insertion opening and bar solderless terminal. Then, insert the terminal in the correct orientation. Inserting a bar solderless terminal wider than the wire insertion opening may damage the terminal block. (☞ Page 27 Cable processing)

4.2 AnyWireASLINK Side Terminal Block

Transmission cable terminal block

Model	Applicable tightening torque
MC 1,5/5-STF-3,81*1	0.2 to 0.3N·m

*1 Use the one manufactured by PHOENIX CONTACT GmbH & Co. KG. (For contact, visit www.phoenixcontact.com.)

To connect the terminal block, a flathead screwdriver having a tipped size of 0.4×2.5mm is required.

Before removing the transmission cable terminal block, check that the terminal block mounting screws on both ends are completely loosened (removed from the socket).

Pulling the terminal block with excessive force while the terminal block mounting screws on both ends are still tightened may damage the devices.

Before connecting the terminal block, check that there are no short-circuits due to the disconnected or frayed wires and tighten the terminal block mounting screws at both ends securely. (Tightening torque: 0.2 to 0.3N·m)

Descriptions of terminals

Terminal	Description
24V	Power supply terminal for driving the transmission circuit for the AnyWireASLINK system. Connect to a 24VDC external power supply.
0V	
DP	AnyWireASLINK transmission signal terminals DP: Transmission cable (+), DN: Transmission cable (-) Connect to the DP and DN terminals on the slave module or terminating unit.
DN	
LG	Connected to the neutral point of the noise filter inserted between the 24V and 0V terminals. Ground the LG terminal with the functional ground terminal (FG terminal) on the programmable controller at a single point.

Applicable cables

Classification	Name	Wire diameter	Type	Material	Temperature rating
Transmission cable (DP, DN)	UL-listed general-purpose 2-wire cable (VCTF, VCT)	1.25mm^2	Stranded wire	Copper wire	70℃ or higher
		0.75mm^2			
	UL-listed general-purpose wire	1.25mm^2			
		0.75mm^2			
	Dedicated flat cable	1.25mm^2			90℃
		0.75mm^2			
Power supply cable (24V, 0V)	UL-listed general-purpose 2-wire cable (VCTF, VCT)	0.75mm^2 to 2.0mm^2	Stranded wire		70℃ or higher
	UL-listed general-purpose wire	0.75mm^2 to 2.0mm^2	Stranded wire/ single wire		
	Dedicated flat cable	1.25mm^2	Stranded wire		90℃
		0.75mm^2			

Cable processing

For safety reasons, connect cables using bar solderless terminals.

Use UL-listed solderless terminals and, for processing, use a tool recommended by their manufacturer.

Type	Model	Application*2	Contact
Bar solderless terminal*1	AI 0,75-8 GY	When processing a 0.75mm^2 cable	PHOENIX CONTACT GmbH & Co. KG (www.phoenixcontact.com)
	AI 1,5-8 BK	When processing a 1.25mm^2 cable	
	AI-TWIN 2×0,75-8 GY	When processing two 0.75mm^2 cables	
	AI-TWIN 2×1,5-8 BK	When processing two 1.25mm^2 cables	

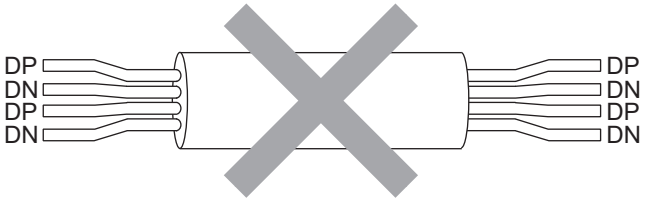
*1 When connecting two cables to one terminal, connect the two cables together to the TWIN bar solderless terminal.

*2 When TWIN bar solderless terminals are used, the maximum wire diameter is 1.25mm^2.

Wiring precautions

Precautions of wiring in the AnyWireASLINK system are as follows.

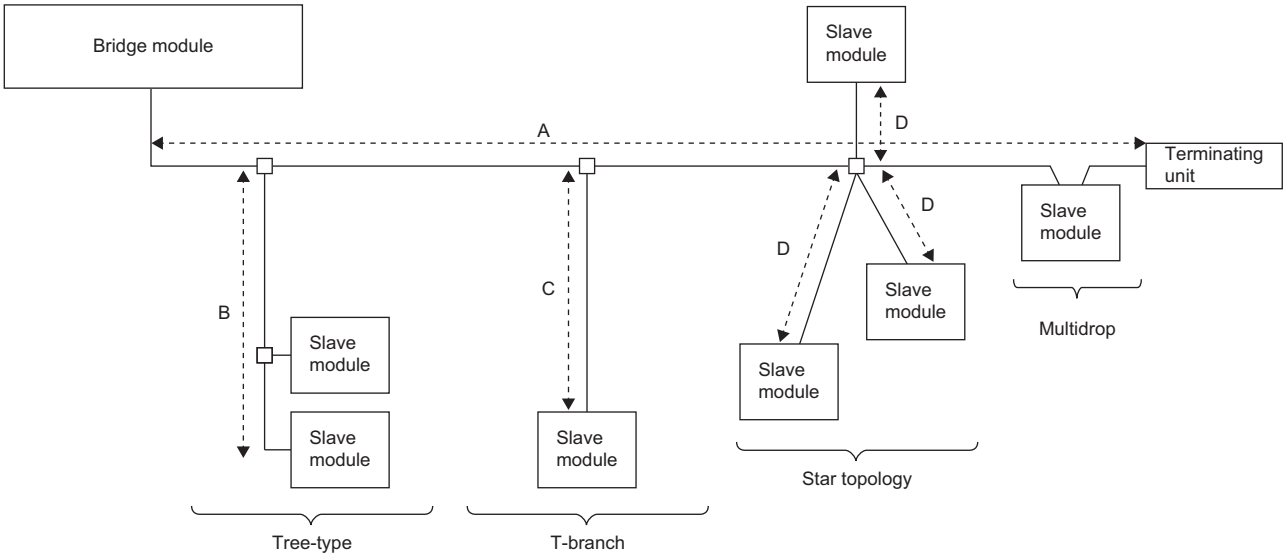
- In the AnyWireASLINK system, signals and power are supplied to a slave module with two types of transmission cables; DP and DN. For transmission cables that can be used, refer to the following. (☞ Page 18 Performance Specifications)
- Wires such as general-purpose wires, cabtyre cables, and flat cables can be used.
- Do not run multiple transmission cables (DP, DN) using a multicore cable. Running multiple transmission cables (DP, DN) together may cause noise, resulting in a malfunction.



- The voltage should not fall below the lower limit of the allowable voltage range due to the voltage drop caused by the cable. If the voltage falls below the lower limit, malfunctions may occur.
- Do not connect soldered cables directly to the terminals. Doing so may loosen the screws, resulting in a poor contact.
- The transmission cable terminal block needs to be removed from the bridge module when wiring to the block.
- Use a crimping tool to connect a cable to a bar solderless terminal.
- Before inserting a bar solderless terminal, check the shapes of the wire insertion opening and bar solderless terminal. Then, insert the terminal in the correct orientation. Inserting a bar solderless terminal wider than the wire insertion opening may damage the terminal block. (☞ Page 29 Cable processing)

4.3 Connecting Slave Modules

Connection type



- The maximum transmission distance in the AnyWireASLINK stand-alone system is 200m, which is the total cable length including the main line and branch line. (It varies depending on the wire diameter of the transmission cables (DP, DN) or the transmission cable supply current.)
- Tree branch, T-branch, multidrop connections and star topology are usable in the AnyWireASLINK system.
- Maximum 128 slave modules can be connected.

Point

The total length of the transmission distance for the AnyWireASLINK system can be calculated from A + B + C + D.
Note that the total length should not exceed the maximum transmission distance or the total length set for the system to branch lines.

4.4 Supplying Power to a Bridge Module

Method of supplying the power to the bridge module

Connect a 24VDC external power supply to the bridge module.

The power consumed in the internal control circuits of all the slave modules of AnyWireASLINK and the external load power connected to non-isolated slave modules are supplied collectively from the 24VDC external power supply connected to the bridge module.

For transmission cable supply current, refer to the following.

☞ Page 18 Performance Specifications

Scope of the power supply with transmission cables (DP and DN)

The current consumption of the system must satisfy all the conditions specified by the following calculation formulas 1) to 3) for each bridge module.

Condition	Calculation formula	Description
1)	I(A) = (Ihin × m) + (Iho × n) + (Izdin × p) + (Izdo × q) ≤ The maximum value of transmission cable supply current	Ihin: Current consumption of the non-isolated input slave module/I/O combined slave module Iho: Current consumption of the non-isolated output slave module Izdin: Current consumption of the isolated input slave module/I/O combined slave module Izdo: Current consumption of the isolated output slave module m: Number of connected non-isolated input slave modules/I/O combined slave modules n: Number of connected non-isolated output slave modules p: Number of connected isolated input slave modules/I/O combined slave modules q: Number of connected isolated output slave modules For details, refer to the following. ☞ Page 32 Description of the condition 1)
2)	Vm(V) - ΔV(V) ≥ 20V	Vm: Supply voltage for the bridge module ΔV: Cable-to-cable voltage drop For details, refer to the following. ☞ Page 34 Description of the conditions 2) and 3)
3)	Vm(V) - ΔV(V) ≥ The lowest allowable voltage of the connected load	

■Description of the condition 1)

• Constants related to the non-isolated slave module (Ihin, Iho)

In the non-isolated slave module, the current required for the internal control circuit and the connected load is supplied with transmission cables (DP, DN).

Ihin(A)

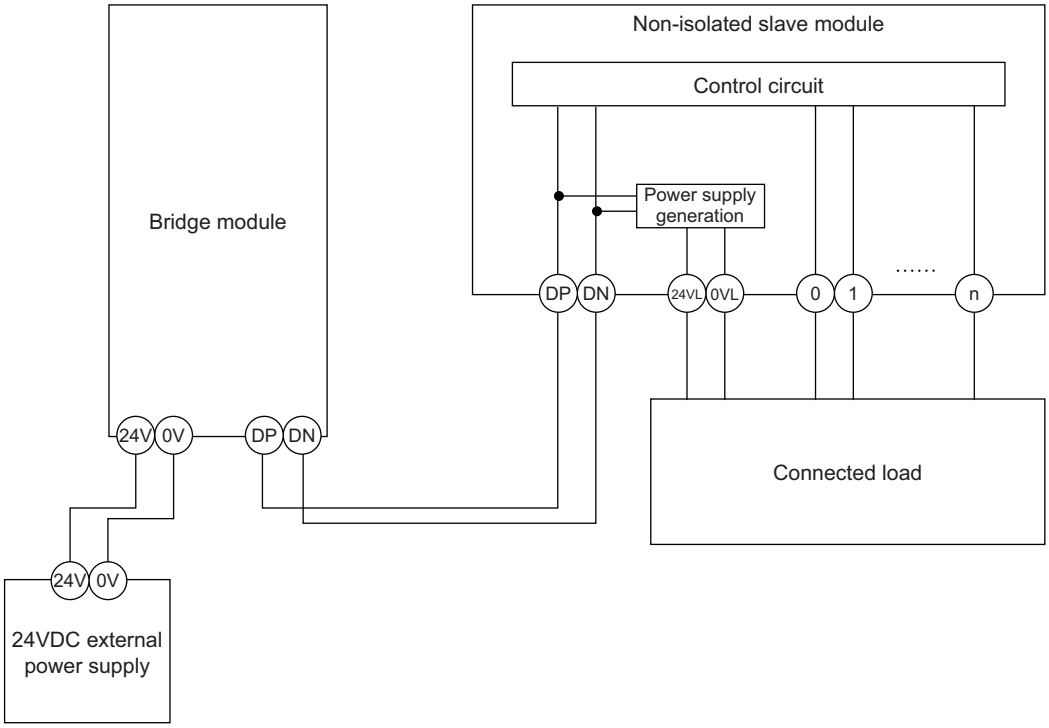
= Current consumption of the non-isolated input slave module/I/O combined slave module

= Current consumption of the non-isolated input slave module/I/O combined slave module + Current consumption of connected load (three-wire sensor) × Number of points

Iho(A)

= Current consumption of the non-isolated output slave module

= Current consumption of the non-isolated output slave module + Current consumption of connected load × Number of points



Point

• The 24VL and 0VL terminals of a slave module are used to supply the power to the connected load.

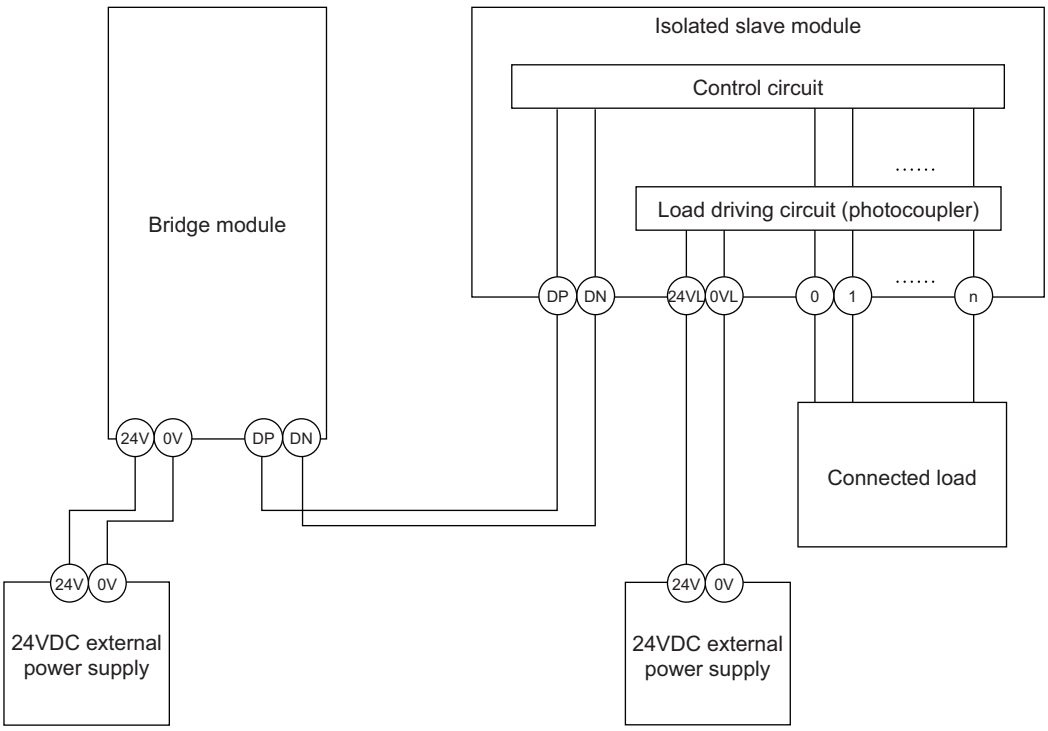
• For the current consumption of a non-isolated slave module, refer to the manual for the slave module used.

• Constants related to the isolated slave module (Izdin, Izdo)

In the isolated slave module, only the current required for the internal control circuit is supplied with the transmission cables (DP, DN), whereas that for the connected load is supplied from the 24VDC external power supply.

Izdin(A) = Internal current consumption of the isolated input slave module/I/O combined slave module

Izdo(A) = Internal current consumption of the isolated output slave module



Point

- In isolated type slave modules, the current consumption of the connected load is not subject to the current restriction condition for the AnyWireASLINK system.
- For the current consumption of isolated slave modules, refer to the manual for the slave module used.

• Transmission cable supply current (I (A))

The transmission cable supply current in the AnyWireASLINK system is determined by the following formula.

$I(A)=(Ihin \times m) + (Iho \times n) + (Izdin \times p) + (Izdo \times q)$

Number of connectable modules: m, n, p, q

• Maximum transmission cable supply current

For the maximum transmission cable supply current, refer to the following.

☞ Page 18 Performance Specifications

■Description of the conditions 2) and 3)

• Vm: Supply voltage for the bridge module

Voltage: 21.6 to 27.6VDC (24VDC - 10 to + 15%), ripple voltage 0.5Vp-p or lower

Recommended voltage: 26.4VDC (24VDC + 10%)

• ΔV(V): Cable-to-cable voltage drop

ΔV(V) = Transmission cable supply current I(A) × Cable resistance R(Ω)

Cable resistance R(Ω) = Cable length (m) × Conductor resistance (Ω/m) × 2

· Wire diameter 1.25mm^2 → Conductor resistance 0.015Ω/m

· Wire diameter 0.75mm^2 → Conductor resistance 0.025Ω/m

■Calculation example

The example shows how to check whether the total length of 100m is sufficient to configure a system in the following conditions.

[Condition]

• Non-isolated slave module (Input ASLINKER)

Number of I/O points: 2 points

Module current consumption: 15mA

Number of modules: 24

• Connected load (three-wire sensor)

Three-wire sensor current consumption: 13mA

Number of sensors: 2

Power supply voltage: 24VDC ± 10%

• Wire diameter of transmission cables (DP, DN)

Wire diameter: 1.25mm^2

• Power supply for the bridge module

Power supply voltage: 24VDC

[Calculation result]

Condition 1)

(Ihin(A) × m) = I(A) ≤ The maximum transmission cable supply current

(0.015 + (0.013 × 2)) × 24 = 0.984A ≤ 1A → Satisfied

Condition 2)

Vm(V) - ΔV(V) ≥ 20V

24 - (0.984 × 100 × 0.015 × 2) = 24 - 2.95 = 21.05V ≥ 20V → Satisfied

Condition 3)

Vm(V) - ΔV(V) ≥ The lowest allowable voltage of the connected load

The lowest limit of the allowable voltage range for connected load = 24 - 24 × 0.1 = 21.6V

21.05V < 21.6V → Not satisfied

The calculation results 1) to 3) above show that no system can be configured.

However, a system can be configured by changing the power supply for the bridge module to 24.55VDC or higher.

Precautions

When laying the power cables and the transmission cables side by side for a distance of 50m or longer, connect a power filter (ASLINKFILTER (ANF-01) manufactured by Anywire Corporation or EAC-06-472 manufactured by COSEL Co., Ltd.) in series with 24V and 0V where the parallel cable laying starts.

A voltage drop occurs due to the cable resistances of the transmission cables (DP, DN) and the power cables (24V, 0V). When the wiring length of the transmission cables (DP, DN) and the power cables (24V, 0V) is long, be sure that the voltage supplied to each slave module is equal to or more than the minimum operating voltage. If the supplied voltage becomes lower than the minimum operating voltage, the slave module may not operate normally.

4.5 Checking System Before Power-on

This section describes the items to be checked before power-on.

1. Check that the bridge module is mounted or connected correctly. (☞ Page 23 MOUNTING MODULE)
2. Check that the total length of the CC-Link is within the specified range. (📖 User's manual for the master module used)
3. Check that the total length of the AnyWireASLINK system is within the specified range. (☞ Page 18 Performance Specifications)
4. Check that the power supplied to the bridge module is within the specified range. (☞ Page 31 Supplying Power to a Bridge Module)
5. Check that the bridge module, slave module, terminating unit, and 24VDC external power supply are properly connected and wired.

4.6 Powering on the System

After checking the items described above, power on and start the system.

How to power on the AnyWireASLINK system is as follows.

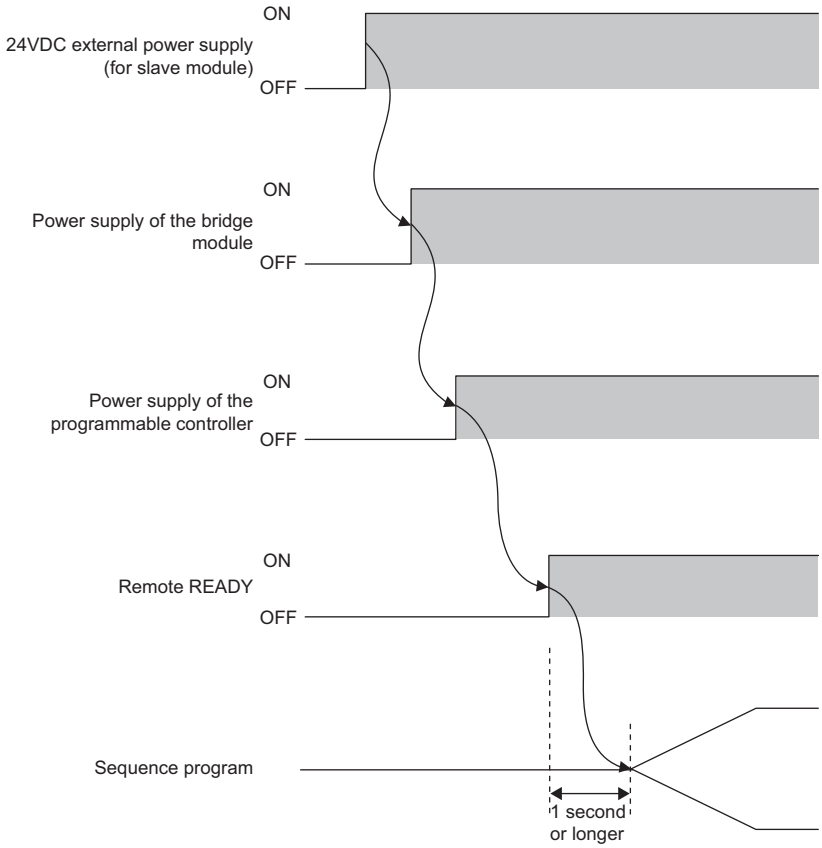
The order is inverted when the system is powered off.

1. 24VDC external power supply for the AnyWireASLINK system

(This step is required only when the supply power of slave module is different from power supply of the bridge module. When the supply power is same as the bridge module, this step is not required.)

2. Power supply of the bridge module

3. Power supply of the programmable controller



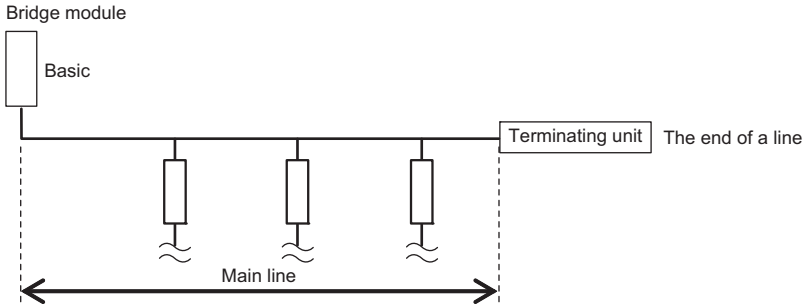
Point

- Supply the power according to the steps; 1) 24VDC external power supply of AnyWireASLINK system, 2) the bridge module, 3) the programmable controller, or turn on them at the same time.
- If the bridge module is powered on before the 24VDC external power supply in the AnyWireASLINK system, a transmission cable voltage drop detection error may occur.
- After Remote READY (RX(n+1)B, RX(n+3)B, RX(n+5)B, RX(n+7)B, RX(n+D)B) turns on, wait at least one second to start the sequence program.

4.7 Terminating Unit

To ensure more stable transmission quality, connect a terminating unit to the end of a transmission cable (DP, DN).

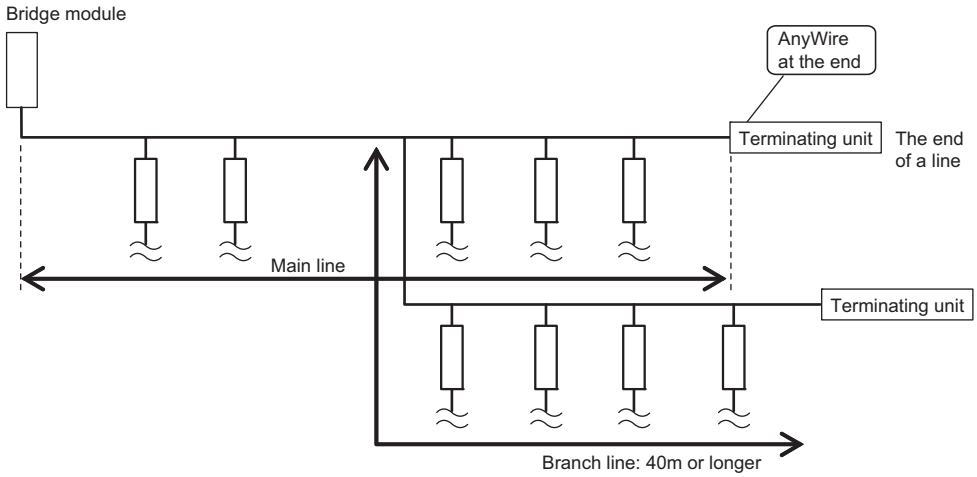
Terminating unit connection



Important: Connect at least one terminating unit for one AnyWireASLINK line.
Connect it at the farthest end from the bridge module.

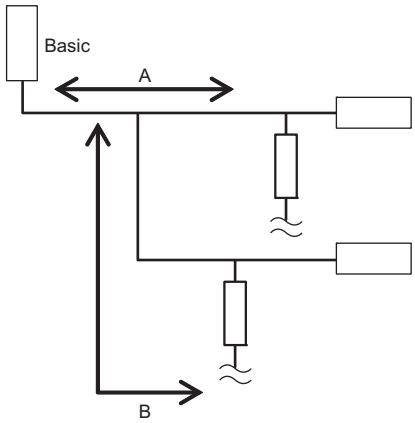
Branch of transmission cables (DP, DN)

[Example]



Important: Connect one terminating unit at the end of a branch line that exceeds 40m.

Total length



The total length of the transmission distance for the AnyWireASLINK system can be calculated from A + B.
Note that the total length should not exceed the maximum transmission distance set for the system to branch lines.

5 SWITCH SETTING

5.1 CC-Link Side

Station number setting switch

■Setting method

Set the station number of CC-Link using the rotary switch in the front of the bridge module. Set the station number with power-off because setting value becomes effective when powered on.

- Set the tens place of the station number to "×10".
- Set the ones place of the station number to "×1".

The number of occupied stations is set by using the number of transmission points setting switch. (☞ Page 39 AnyWireASLINK Side)

■Setting range

All switch positions are set to zero (0) when the product is shipped.

Set the station number from 1 to 64. The L ERR. LED turns on when the switch is set to other than 1 to 64.

The station number cannot be set when it is duplicated.

Station number	Station number setting switch	
	×10	×1
1	0	1
2	0	2
3	0	3
⋮	⋮	⋮
61 (The largest station number when 4 stations are occupied.)	6	1
62 (The largest station number when 3 stations are occupied.)	6	2
63 (The largest station number when 2 stations are occupied.)	6	3
64 (The largest station number when 1 station is occupied.)	6	4

Operation mode setting switch

SW3 is used to set the CC-Link operation mode of the bridge module.

SW4 is used to set the enable/disable status of the built-in CC-Link terminating resistor of the bridge module. (☞ Page 27 CC-Link terminating resistor)

All switch positions are set to off when the product is shipped.

Power off and on the bridge module and reset the CC-Link side system after changing the setting value.

Switch No.	Description	On	Off
SW3	CC-Link operation mode	Ver.2.00	Ver.1.10
SW4	CC-Link terminating resistor	Effective	Not effective

5.2 AnyWireASLINK Side

Number of transmission points setting switch

Set required number of occupied stations and transmission points of CC-Link when CC-Link operation mode is performed.
All switch positions are set to off when the product is shipped.

CC-Link operation mode	SW1	SW2	Number of occupied stations of CC-Link	Number of transmission points of AnyWireASLINK	
				Input	Output
Ver.1.10	Off	Off	4	256	256
	On	Off	3	192	192
	Off	On	2	128	128
	On	On	1	64	64
Ver.2.00	Off	Off	4	256	256
	On	Off	N/A		
	Off	On			
	On	On			

Point

- When the CC-Link operation mode is Ver.1.10, the number of occupied stations of CC-Link is automatically determined by setting the number of transmission points of AnyWireASLINK. The transmission cycle time of CC-Link and AnyWireASLINK can be shortened by setting a small number of transmission points of AnyWireASLINK.
- When the CC-Link operation mode is Ver.2.00, the number of occupied stations of CC-Link is fixed at 4. Set SW1 and SW2 to off. When SW1 and SW2 are not set to off, the setting is ignored and the number of occupied stations is set to 4.

6 MEMORY MAP

The bridge module occupies 1 to 4 stations starting the station number specified in the CC-Link system.
For details on buffer memory areas of the master module, refer to the user's manual for the master module used.

6.1 Lists of Remote I/O Signals

When the CC-Link operation mode is Ver.1.10

The following table lists remote I/O signals when the CC-Link operation mode is Ver.1.10.

Point

When the CPU module is in the STOP state, the output signals are cleared.

Remote I/O signals when 1 station is occupied

Both remote input (RX) and remote output (RY) of the bridge module use 32 points.

Signal direction: Bridge module → master module		Signal direction: Master module → bridge module	
Remote input (RX)	**Name**	**Remote output (RY)**	**Name**
RXn0	Use prohibited	RYn0	Use prohibited
RXn1	DP/DN short error	RYn1	Automatic address detection command
RXn2	Use prohibited	RYn2 to RYnF	Use prohibited
RXn3	Transmission cable voltage drop error		
RXn4	DP/DN disconnection error		
RXn5	Use prohibited		
RXn6 to RXnF	Latest error ID simple information		
RX(n+1)0	Slave module alarm signal	RY(n+1)0 to RY(n+1)9	
RX(n+1)1 to RX(n+1)3	Use prohibited		
RX(n+1)4	Automatic address detection flag		
RX(n+1)5 to RX(n+1)9	Use prohibited		
RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
RX(n+1)B	Remote READY	RY(n+1)B to RY(n+1)F	Use prohibited
RX(n+1)C to RX(n+1)F	Use prohibited		

n: Address assigned to the master station in the station number setting

Remote I/O signals when 2 stations are occupied

Both remote input (RX) and remote output (RY) of the bridge module use 64 points.

Signal direction: Bridge module → master module		Signal direction: Master module → bridge module	
Remote input (RX)	**Name**	**Remote output (RY)**	**Name**
RXn0	Use prohibited	RYn0	Use prohibited
RXn1	DP/DN short error	RYn1	Automatic address detection command
RXn2	Use prohibited	RYn2 to RYnF	Use prohibited
RXn3	Transmission cable voltage drop error		
RXn4	DP/DN disconnection error		
RXn5	Use prohibited		
RXn6 to RXnF	Latest error ID simple information		
RX(n+1)0	Slave module alarm signal	RY(n+1)0 to RY(n+3)9	
RX(n+1)1 to RX(n+1)3	Use prohibited		
RX(n+1)4	Automatic address detection flag		
RX(n+1)5 to RX(n+3)9	Use prohibited		
RX(n+3)A	Error status flag	RY(n+3)A	Error reset request flag
RX(n+3)B	Remote READY	RY(n+3)B to RY(n+3)F	Use prohibited
RX(n+3)C to RX(n+3)F	Use prohibited		

n: Address assigned to the master station in the station number setting

Remote I/O signals when 3 stations are occupied

Both remote input (RX) and remote output (RY) of the bridge module use 96 points.

Signal direction: Bridge module → master module		Signal direction: Master module → bridge module	
Remote input (RX)	**Name**	**Remote output (RY)**	**Name**
RXn0	Use prohibited	RYn0	Use prohibited
RXn1	DP/DN short error	RYn1	Automatic address detection command
RXn2	Use prohibited	RYn2 to RYnF	Use prohibited
RXn3	Transmission cable voltage drop error		
RXn4	DP/DN disconnection error		
RXn5	Use prohibited		
RXn6 to RXnF	Latest error ID simple information		
RX(n+1)0	Slave module alarm signal	RY(n+1)0 to RY(n+5)9	
RX(n+1)1 to RX(n+1)3	Use prohibited		
RX(n+1)4	Automatic address detection flag		
RX(n+1)5 to RX(n+5)9	Use prohibited		
RX(n+5)A	Error status flag	RY(n+5)A	Error reset request flag
RX(n+5)B	Remote READY	RY(n+5)B to RY(n+5)F	Use prohibited
RX(n+5)C to RX(n+5)F	Use prohibited		

n: Address assigned to the master station in the station number setting

Remote I/O signals when 4 stations are occupied

Both remote input (RX) and remote output (RY) of the bridge module use 128 points.

Signal direction: Bridge module → master module		Signal direction: Master module → bridge module	
Remote input (RX)	**Name**	**Remote output (RY)**	**Name**
RXn0	Use prohibited	RYn0	Use prohibited
RXn1	DP/DN short error	RYn1	Automatic address detection command
RXn2	Use prohibited	RYn2 to RYnF	Use prohibited
RXn3	Transmission cable voltage drop error		
RXn4	DP/DN disconnection error		
RXn5	Use prohibited		
RXn6 to RXnF	Latest error ID simple information		
RX(n+1)0	Slave module alarm signal	RY(n+1)0 to RY(n+7)9	
RX(n+1)1 to RX(n+1)3	Use prohibited		
RX(n+1)4	Automatic address detection flag		
RX(n+1)5 to RX(n+7)9	Use prohibited		
RX(n+7)A	Error status flag	RY(n+7)A	Error reset request flag
RX(n+7)B	Remote READY	RY(n+7)B to RY(n+7)F	Use prohibited
RX(n+7)C to RX(n+7)F	Use prohibited		

n: Address assigned to the master station in the station number setting

When the CC-Link operation mode is Ver.2.00

The following table lists remote I/O signals when the CC-Link operation mode is Ver.2.00.

Point

When the CPU module is in the STOP state, signals are output depending on the output information of the CC-Link remote register.

Remote I/O signals when 4 stations are occupied

Both remote input (RX) and remote output (RY) of the bridge module use 224 points.

Signal direction: Bridge module → master module		Signal direction: Master module → bridge module	
Remote input (RX)	**Name**	**Remote output (RY)**	**Name**
RXn0	Use prohibited	RYn0	Use prohibited
RXn1	DP/DN short error	RYn1	Automatic address detection command
RXn2	Use prohibited	RYn2 to RYnF	Use prohibited
RXn3	Transmission cable voltage drop error		
RXn4	DP/DN disconnection error		
RXn5	Use prohibited		
RXn6 to RXnF	Latest error ID simple information		
RX(n+1)0	Slave module alarm signal	RY(n+1)0	Parameter access request command for the slave module
RX(n+1)1	Parameter access completion flag	RY(n+1)1 to RY(n+D)9	Use prohibited
RX(n+1)2	Parameter access error		
RX(n+1)3	Use prohibited		
RX(n+1)4	Automatic address detection flag		
RX(n+1)5 to RX(n+1)9	Use prohibited		
RX(n+1)A*1	Parameter access flag (with handshake)		
RX(n+1)B*1	Parameter accessing flag (with handshake)		
RX(n+1)C to RX(n+D)9	Use prohibited		
RX(n+D)A	Error status flag	RY(n+D)A	Error reset request flag
RX(n+D)B	Remote READY	RY(n+D)B to RY(n+D)F	Use prohibited
RX(n+D)C to RX(n+D)F	Use prohibited		

n: Address assigned to the master station in the station number setting

*1 The bridge module with a serial number (first five digits) of "21032" or later can be used.

6.2 Lists of Remote Register Areas

Input or output of AnyWireASLINK uses remote register areas of CC-Link.

When the CC-Link operation mode is Ver.1.10

The following table lists remote register areas when the CC-Link operation mode is Ver.1.10.

Remote registers when 1 station is occupied

Both input and output of AnyWireASLINK use 4 words.

Set the addresses of slave modules within the range of 0 to 63.

CC-Link side remote register input		AnyWireASLINK side input signal	CC-Link side remote register output		AnyWireASLINK side output signal
Decimal	Hexadecimal		Decimal	Hexadecimal	
RWrn+0	RWrn+0H	0 to 15	RWwn+0	RWwn+0H	0 to 15
RWrn+1	RWrn+1H	16 to 31	RWwn+1	RWwn+1H	16 to 31
RWrn+2	RWrn+2H	32 to 47	RWwn+2	RWwn+2H	32 to 47
RWrn+3	RWrn+3H	48 to 63	RWwn+3	RWwn+3H	48 to 63

n: Address assigned to the master station in the station number setting

Remote registers when 2 stations are occupied

Both input and output of AnyWireASLINK use 8 words.

Set the addresses of slave modules within the range of 0 to 127.

CC-Link side remote register input		AnyWireASLINK side input signal	CC-Link side remote register output		AnyWireASLINK side output signal
Decimal	Hexadecimal		Decimal	Hexadecimal	
RWrn+0	RWrn+0H	0 to 15	RWwn+0	RWwn+0H	0 to 15
RWrn+1	RWrn+1H	16 to 31	RWwn+1	RWwn+1H	16 to 31
⋮	⋮	⋮	⋮	⋮	⋮
RWrn+6	RWrn+6H	96 to 111	RWwn+6	RWwn+6H	96 to 111
RWrn+7	RWrn+7H	112 to 127	RWwn+7	RWwn+7H	112 to 127

n: Address assigned to the master station in the station number setting

Remote registers when 3 stations are occupied

Both input and output of AnyWireASLINK use 12 words.

Set the addresses of slave modules within the range of 0 to 191.

CC-Link side remote register input		AnyWireASLINK side input signal	CC-Link side remote register output		AnyWireASLINK side output signal
Decimal	Hexadecimal		Decimal	Hexadecimal	
RWrn+0	RWrn+0H	0 to 15	RWwn+0	RWwn+0H	0 to 15
RWrn+1	RWrn+1H	16 to 31	RWwn+1	RWwn+1H	16 to 31
⋮	⋮	⋮	⋮	⋮	⋮
RWrn+10	RWrn+AH	161 to 176	RWwn+10	RWwn+AH	161 to 176
RWrn+11	RWrn+BH	177 to 191	RWwn+11	RWwn+BH	177 to 191

n: Address assigned to the master station in the station number setting

Remote registers when 4 stations are occupied

Both input and output of AnyWireASLINK use 16 words.

Set the addresses of slave modules within the range of 0 to 255.

CC-Link side remote register input		AnyWireASLINK side input signal	CC-Link side remote register output		AnyWireASLINK side output signal
Decimal	Hexadecimal		Decimal	Hexadecimal	
RWrn+0	RWrn+0H	0 to 15	RWwn+0	RWwn+0H	0 to 15
RWrn+1	RWrn+1H	16 to 31	RWwn+1	RWwn+1H	16 to 31
⋮	⋮	⋮	⋮	⋮	⋮
RWrn+14	RWrn+EH	224 to 239	RWwn+14	RWwn+EH	224 to 239
RWrn+15	RWrn+FH	240 to 255	RWwn+15	RWwn+FH	240 to 255

n: Address assigned to the master station in the station number setting

When the CC-Link operation mode is Ver.2.00

The following table lists remote register areas when the CC-Link operation mode is Ver.2.00.

Remote registers when 4 stations are occupied

Both input and output of AnyWireASLINK use 32 words.

Set the addresses of slave modules within the range of 0 to 255.

CC-Link side remote register input		AnyWireASLINK side input signal	CC-Link side remote register output		AnyWireASLINK side output signal
Decimal	Hexadecimal		Decimal	Hexadecimal	
RWrn+0	RWrn+0H	0 to 15	RWwn+0	RWwn+0H	0 to 15
RWrn+1	RWrn+1H	16 to 31	RWwn+1	RWwn+1H	16 to 31
⋮	⋮	⋮	⋮	⋮	⋮
RWrn+14	RWrn+EH	224 to 239	RWwn+14	RWwn+EH	224 to 239
RWrn+15	RWrn+FH	240 to 255	RWwn+15	RWwn+FH	240 to 255
RWrn+16	RWr(n+1)0H	Latest error code storage area	RWwn+16	RWw(n+1)0H	Parameter access setting
RWrn+17	RWr(n+1)1H	Latest error ID storage area	RWwn+17	RWw(n+1)1H	Parameter access target module ID specification
RWrn+18	RWr(n+1)2H	Number of the IDs of the connected modules	RWwn+18 to RWwn+23	RWw(n+1)2H to RWw(n+1)7H	Use prohibited
RWrn+19	RWr(n+1)3H	Number of the error IDs			
RWrn+20	RWr(n+1)4H	Number of the alarm IDs			
RWrn+21 to RWrn+23	RWr(n+1)5H to RWr(n+1)7H	Use prohibited			
RWrn+24	RWr(n+1)8H		RWwn+24	RWw(n+1)8H	Monitor command specification area
RWrn+25 to RWrn+31	RWr(n+1)9H to RWr(n+1)FH		RWwn+25 to RWwn+31	RWw(n+1)9H to RWw(n+1)FH	Use prohibited

n: Address assigned to the master station in the station number setting

6.3 Details of Remote Register Areas

Input signal (RWrn+0 to RWrn+15)

The on/off status (on: 1, off: 0) of the input signal of the slave module is automatically stored.

Ex.

For a 2-point input slave module (address: 10)

The two bits (A and B) of RWrn+0 are occupied for the input signal because the setting address is 10.

Area with the setting address of 10

Remote register input signal	Input data bit No.															
	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
RWrn+0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RWrn+1	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
RWrn+2	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
RWrn+3	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
RWrn+4	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
RWrn+5	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
RWrn+6	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
RWrn+7	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112
RWrn+8	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128
RWrn+9	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145	144
RWrn+10	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160
RWrn+11	191	190	189	188	187	186	185	184	183	182	181	180	179	178	177	176
RWrn+12	207	206	205	204	203	202	201	200	199	198	197	196	195	194	193	192
RWrn+13	223	222	221	220	219	218	217	216	215	214	213	212	211	210	209	208
RWrn+14	239	238	237	236	235	234	233	232	231	230	229	228	227	226	225	224
RWrn+15	255	254	253	252	251	250	249	248	247	246	245	244	243	242	241	240

Input area (256 points)

Latest error code storage area (RWrn+16)

Hardware errors detected in the bridge module and the latest error code of the AnyWireASLINK system are stored. For error codes stored, refer to the following.

☞ Page 107 Before Troubleshooting

Latest error ID storage area (RWrn+17)

The error ID of the module targeted for the latest error code is stored. The following table lists error codes stored.

Error code	Error description	Remote input signal turned on when the error occurs
00CAH	DP/DN disconnection error	Error status flag (RX(n+D)A) DP/DN disconnection error (RXn4)
012CH 012DH	Slave module hardware error	Slave module alarm signal (RX(n+1)0)
012FH	Parameter value error	
0130H	Parameter access error	Parameter access error (RX(n+1)2)
0131H	Slave module status error	Slave module alarm signal (RX(n+1)0)
0190H	Same ID used error	
0191H	No ID setting error	

For the following error codes, the value 0FFFH is stored in Latest error ID storage area (RWrn+17).

Error code	Error description	Remote input signal turned on when the error occurs
0064H 0065H 0066H 0067H	Hardware failure	Error status flag (RX(n+D)A)
00C8H	Transmission cable voltage drop error	Error status flag (RX(n+D)A) Transmission cable voltage drop error (RXn3)
00C9H	DP/DN short error	Error status flag (RX(n+D)A) DP/DN short error (RXn1)
012EH	Parameter access target module ID error	Slave module alarm signal (RX(n+1)0)

Number of the IDs of the connected modules (RWrn+18)

When the automatic address detection function is performed, the number of IDs of the slave modules detected is stored. (Maximum 128)

The number of IDs stored is maintained even after power-off.

Number of the error IDs (RWrn+19)

Among the IDs of the slave modules connected, the number of IDs with a response error is stored at power-on or after the automatic address detection function is executed. (Maximum 128)

The stored value is maintained until the bridge module is powered off and on or Error reset request flag (RY(n+D)A) is turned on after the error is eliminated.

Number of the alarm IDs (RWrn+20)

Among the IDs of the slave modules connected, the number of IDs on which an alarm is raised is stored at power-on or after the automatic address detection function is executed. (Maximum 128)

The stored value is maintained until the bridge module is powered off and on or Error reset request flag (RY(n+D)A) is turned on after the error is eliminated.

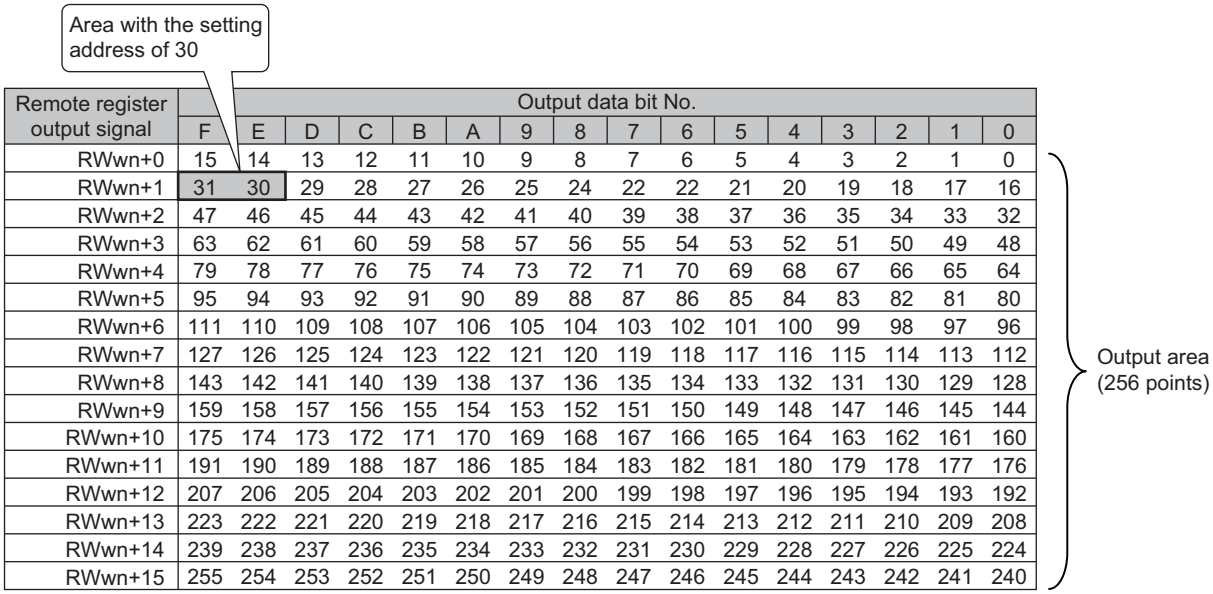
Output signal (RWwn+0 to RWwn+15)

When the on/off status data (on: 1, off: 0) of the output signal of the slave module is written from the CPU module, the slave module automatically outputs the signal.

Ex.

For a 2-point output slave module (address: 30)

The two bits (E and F) of RWwn+1 are occupied for the output signal because the setting address is 30.



Remote register output signal	Output data bit No.															
	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
RWwn+0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RWwn+1	31	30	29	28	27	26	25	24	22	22	21	20	19	18	17	16
RWwn+2	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
RWwn+3	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
RWwn+4	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
RWwn+5	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
RWwn+6	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
RWwn+7	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112
RWwn+8	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128
RWwn+9	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145	144
RWwn+10	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160
RWwn+11	191	190	189	188	187	186	185	184	183	182	181	180	179	178	177	176
RWwn+12	207	206	205	204	203	202	201	200	199	198	197	196	195	194	193	192
RWwn+13	223	222	221	220	219	218	217	216	215	214	213	212	211	210	209	208
RWwn+14	239	238	237	236	235	234	233	232	231	230	229	228	227	226	225	224
RWwn+15	255	254	253	252	251	250	249	248	247	246	245	244	243	242	241	240

Parameter access setting (RWwn+16)

Specify the method of parameter access. When any value other than the following is stored, the parameter access method is set to reading.

- 0000H: read (slave module → bridge module → master module → CPU module)
- 0001H: write (CPU module → master module → bridge module → slave module)

Parameter access target module ID specification (RWwn+17)

Specify the ID targeted for parameter access. Write any of the following as the target ID.

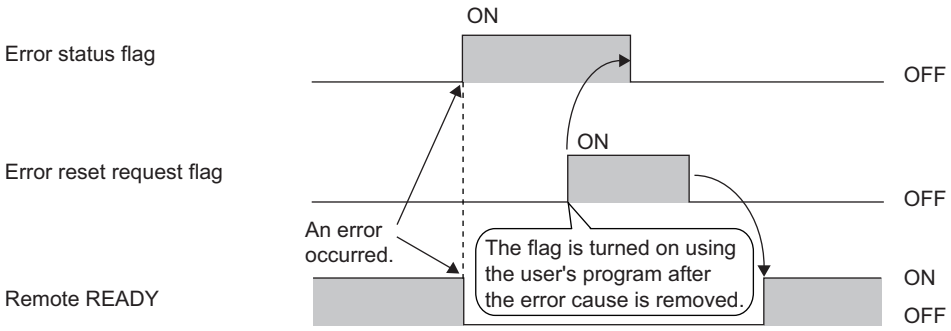
- 0000H to 00FFH: ID of the output slave module
- 0200H to 02FFH: ID of the input slave module or I/O combined slave module

6.4 Error Reset

Remote READY turns on after power-on.

Error status flag turns on when an error occurs. Error status flag is reset (on to off) by turning on error reset request flag, provided that the error cause has been removed.

Remote READY is reset (on to off) when an error occurs. Remote READY remains reset (off) unless error reset request flag is turned off.



The remote device values for Remote READY, Error status flag, and Error reset request flag at each occupied stations setting are shown below according to the CC-Link operation mode.

CC-Link operation mode	Name	Number of occupied stations			
		1 station occupied	2 stations occupied	3 stations occupied	4 stations occupied
Ver.1.10	Remote READY	RX(n+1)B	RX(n+3)B	RX(n+5)B	RX(n+7)B
	Error status flag	RX(n+1)A	RX(n+3)A	RX(n+5)A	RX(n+7)A
	Error reset request flag	RY(n+1)A	RY(n+3)A	RY(n+5)A	RY(n+7)A
Ver.2.00	Remote READY	—			RX(n+D)B
	Error status flag				RX(n+D)A
	Error reset request flag				RY(n+D)A

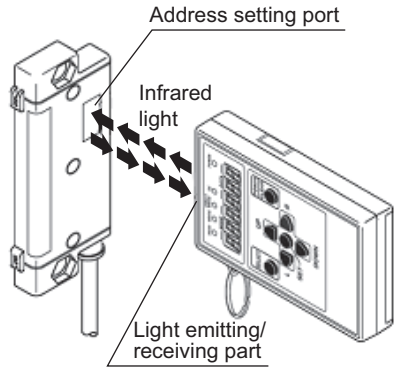
7 SETTINGS BEFORE OPERATION

7.1 Settings of Slave Module

Slave module address setting

Setting the start number of the addresses assigned for data communications is required for slave modules.
An address can be written to a slave module or the address assigned to a slave module can be read through infrared communications using an address writer (manufactured by Anywire Corporation).
For details, refer to the manual of the address writer used.

■ Image of address reading/writing



In the slave module, an address between 0 and 254 can be written. (This number is not an ID value.) Do not set 255 to the address. Doing so will cause a No ID setting error.

Model	Address (decimal)	ID (hexadecimal)	ID (decimal)
Output slave module	0 to 254	0000 to 00FEH	0 to 254
Input slave module or I/O combined slave module	0 to 254	0200 to 02FEH	512 to 766

■Address setting

Set the address of each slave module to assign the slave module to the remote register.
The address indicates the start bit of the memory area occupied by the slave module, which is set using a decimal number.
The remote register corresponding to the number of slave module points is occupied from the specified address.
The number of occupied points differs depending on the slave module. In addition, the same remote register cannot be occupied by different slave modules.
For details on the address, refer to the following.
📖 Manual of the slave module used (manufactured by Anywire Corporation)

■Address setting example

Assignment by 2-point slave module only

Bits are occupied as follows when 0 is assigned to the address of a 2-point input slave module and 0 and 2 are assigned to the respective addresses of two 2-point output slave modules.

• Remote register of the input slave module

Remote register	Input data bit															
	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
RWrn+0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Areas occupied by address 0 of the 2-point slave module: bit 0 and bit 1 of RWrn+0

• Remote register of the output slave module

Remote register	Output data bit															
	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
RWwn+0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Areas occupied by address 0 of the 2-point slave module: bit 0 and bit 1 of RWwn+0
Areas occupied by address 2 of the 2-point slave module: bit 2 and bit 3 of RWwn+0

Mixed assignment by 2-point slave module and 1-point slave module

When 0, 2, and 3 are set for the input slave module address, and 0, 2, and 3 for the output slave module address, bits are occupied as follows.

• Remote register of the input slave module

Remote register	Input data bit															
	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
RWrn+0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Areas occupied by address 0 of the 2-point slave module: bit 0 and bit 1 of RWrn+0
Areas occupied by address 2 of the 1-point slave module: bit 2 of RWrn+0
Areas occupied by address 3 of the 2-point slave module: bit 3 and bit 4 of RWrn+0

• Remote register of the output slave module

Remote register	Output data bit															
	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
RWwn+0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Areas occupied by address 0 of the 2-point slave module: bit 0 and bit 1 of RWwn+0
Areas occupied by address 2 of the 1-point slave module: bit 2 of RWwn+0
Areas occupied by address 3 of the 2-point slave module: bit 3 and bit 4 of RWwn+0

Point

- A slave module address is not deleted even when the power supply of a programmable controller or a 24VDC external power supply is turned off. The address is retained until a new address is set.
- For the address setting, ensure that the address occupied by the slave module does not exceed the number of transmission points set in the bridge module. For details on the number of transmission points specified for the bridge module, refer to the explanation of the switch setting. (☞ Page 39 Number of transmission points setting switch)

Slave module parameter setting

Set the parameter of the slave module by using the address writer.

For details, refer to the manual for the slave module used.

Restriction

The parameter setting of slave modules cannot be performed in the following cases.

- In the event of an error in the AnyWireASLINK system, such as a short-circuit and 24VDC external power supply voltage drop
- Within less than five seconds after the AnyWireASLINK system is powered on or system reset
- When the automatic address detection function is being executed or parameter access by Parameter access request command for the slave module (RY(n+1)0) is being executed

7.2 Automatic Address Detection

Automatic address detection is a function to store the IDs (addresses) of the connected slave modules in the EEPROM of the bridge module.
The parameters of the connected devices are automatically updated after the IDs are stored in the EEPROM of the bridge module and unset IDs (addresses) and the same IDs (addresses) are detected.
The ID (address) information stored in the EEPROM is held even when the module is powered off. However, information about unset IDs, the same IDs, and the parameter information of each slave module are not held.
Whenever starting the system or changing the system configuration, set the correct addresses to all the slave modules and perform the automatic address detection.

Performing the automatic address detection

To perform the automatic address detection, use the SET switch or Automatic address detection command (RYn1).

Using the SET switch

1. Check that all of the slave modules are operating normally.
2. Keep pressing the SET switch on the bridge module until the SET LED (green) turns on.

(At this time, Automatic address detection flag (RX(n+1)4) also turns on.)

3. When the SET LED flashes for a while and turns off, the ID (address) has been stored.
4. When Automatic address detection flag (RX(n+1)4) turns off, automatic address detection is completed.

Using Automatic address detection command (RYn1)

1. Check that all of the slave modules are operating normally.
2. Turn on and off Automatic address detection command (RYn1).

(At this time, Automatic address detection flag (RX(n+1)4) also turns on.)

3. When the SET LED flashes for a while and turns off, the ID (address) has been stored.
4. When Automatic address detection flag (RX(n+1)4) turns off, automatic address detection is completed.

Precautions

■The automatic address detection cannot be performed in the following cases.

- When an error occurs in the AnyWireASLINK system (Example: Short-circuit, 24VDC external power supply voltage drop)
- Within approximately five seconds after the AnyWireASLINK system is powered on or system reset recovery
- When any of the following errors has occurred*1

Error code	Error description
0064H	Bridge module hardware error
0065H	Bridge module hardware error
0066H	Bridge module hardware error
0067H	Bridge module hardware error
00C8H	Transmission cable voltage drop error
00C9H	DP/DN short error

*1 Only for the Ver.2.00 CC-Link operation mode

■Perform the automatic address detection in the following cases.

- When starting the system operation (when all of the slave modules are connected and operating normally)
- When adding a slave module after starting the system operation
- When removing a slave module after starting the system operation
- When changing the address of a slave module after starting the system operation

■After performing the automatic address detection, check the following.

- Check the on/off status of Latest error ID simple information (RXn6 to RXnF) and Slave module alarm signal (RX(n+1)0). Implement necessary actions when an error occurs. (☞ Page 107 Before Troubleshooting)
- Check the information (Number of the IDs of the connected modules (RWrn+18)) in the memory that stores the AnyWireASLINK system information to ensure that there is no difference between the system configuration and the IDs registered in the bridge module.*1

*1 Only for the Ver.2.00 CC-Link operation mode

■Perform the following for a slave module that has the same ID (address) as other slave modules or where an ID (address) is not set.

- Use an address writer to set the ID (address) in the slave module. Then perform the automatic address detection again.

■When performing the automatic address detection, set the CPU module to the STOP state.

- Data transfer of I/O signals stops when the automatic address detection is performed. When performing the automatic address detection, set the CPU module to the STOP state to ensure the safety of device operation.

■Do not perform the automatic address detection in any of the following cases. If executed, the automatic address detection is not processed.

- When Parameter access completion flag (RX(n+1)1) is off
- When Automatic address detection flag (RX(n+1)4) is on

Interlock program

The interlock program described here prevents Automatic address detection command (RYn1) from being turned on while parameter access is being executed[*1] or the automatic address detection is in progress[*1], allowing proper automatic address detection.

The following shows an interlock program for when the CC-Link operation mode of the bridge module has been set to Ver.1.10 and one station has been occupied.

*1 This is the state where Parameter access completion flag (RX(n+1)1) is off or Automatic address detection flag (RX(n+1)4) is on.

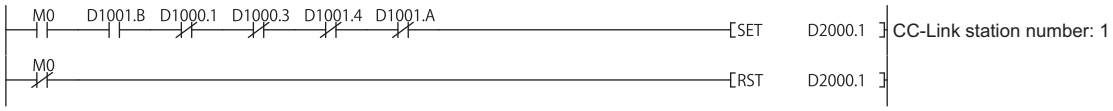
■Devices used by users

The remote input (RX) is assigned to D1000, and the remote output (RY) is assigned to D2000.

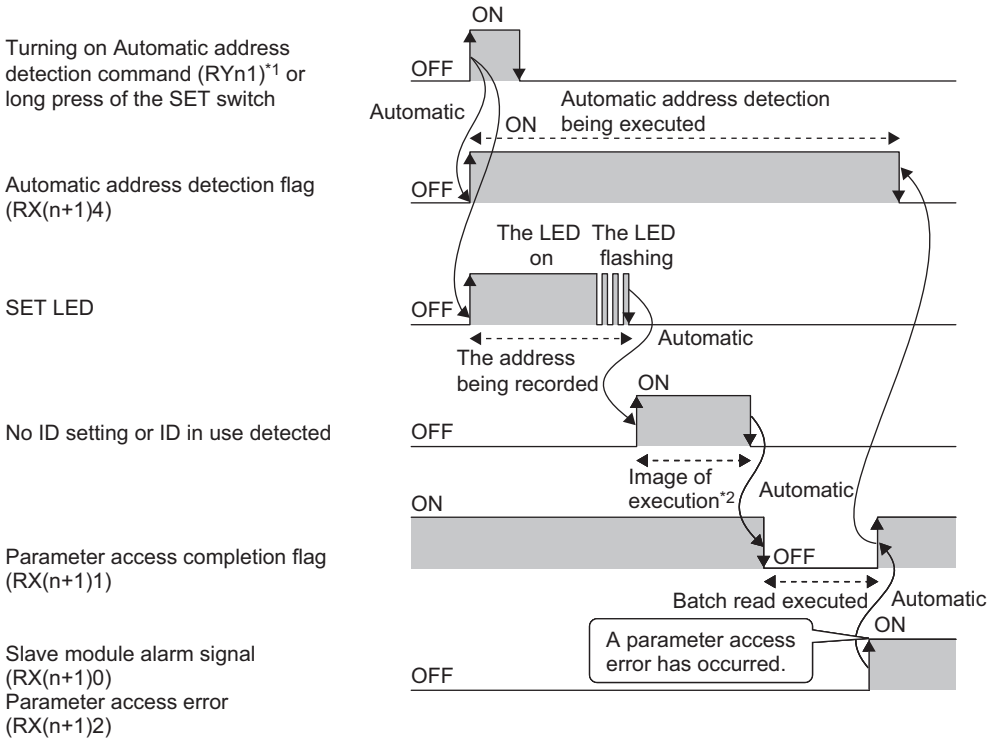
Device[*1]	Description
M0	Program starting contact
D1000.1	DP/DN short error
D1000.3	Transmission cable voltage drop error
D1001.4	Automatic address detection flag
D1001.A	Error status flag
D1001.B	Remote READY
D2000.1	Automatic address detection command

*1 When the CC-Link operation mode is Ver.2.00, add the normally open contact of Parameter access completion flag (RX(n+1)1) at the end of interlock conditions.

■Program example



Automatic address detection execution timing



*1 When turning on Automatic address detection command (RYn1), Automatic address detection command (RYn1) must be turned off after checking that Automatic address detection flag (RX(n+1)4) turns on and the SET LED is on.

*2 The automatic address detection function is executed for approximately 0.5 seconds after the SET LED turns off.

Point

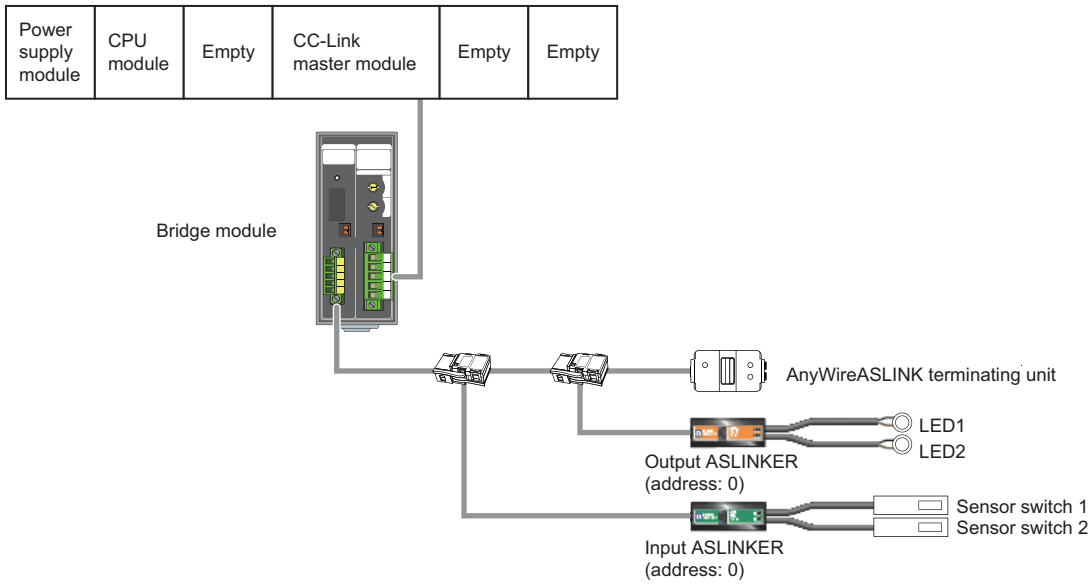
Slave module alarm signal (RX(n+1)0) and Parameter access error (RX(n+1)2) are maintained until Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A) is turned on. Errors are stored in the appropriate memory areas.

7.3 Sample Program

This applies only when the CC-Link operation mode is Ver.1.10. When the CC-Link operation mode is Ver.2.00, remote I/O signals differ.

System configuration

The example of system configuration is shown below.

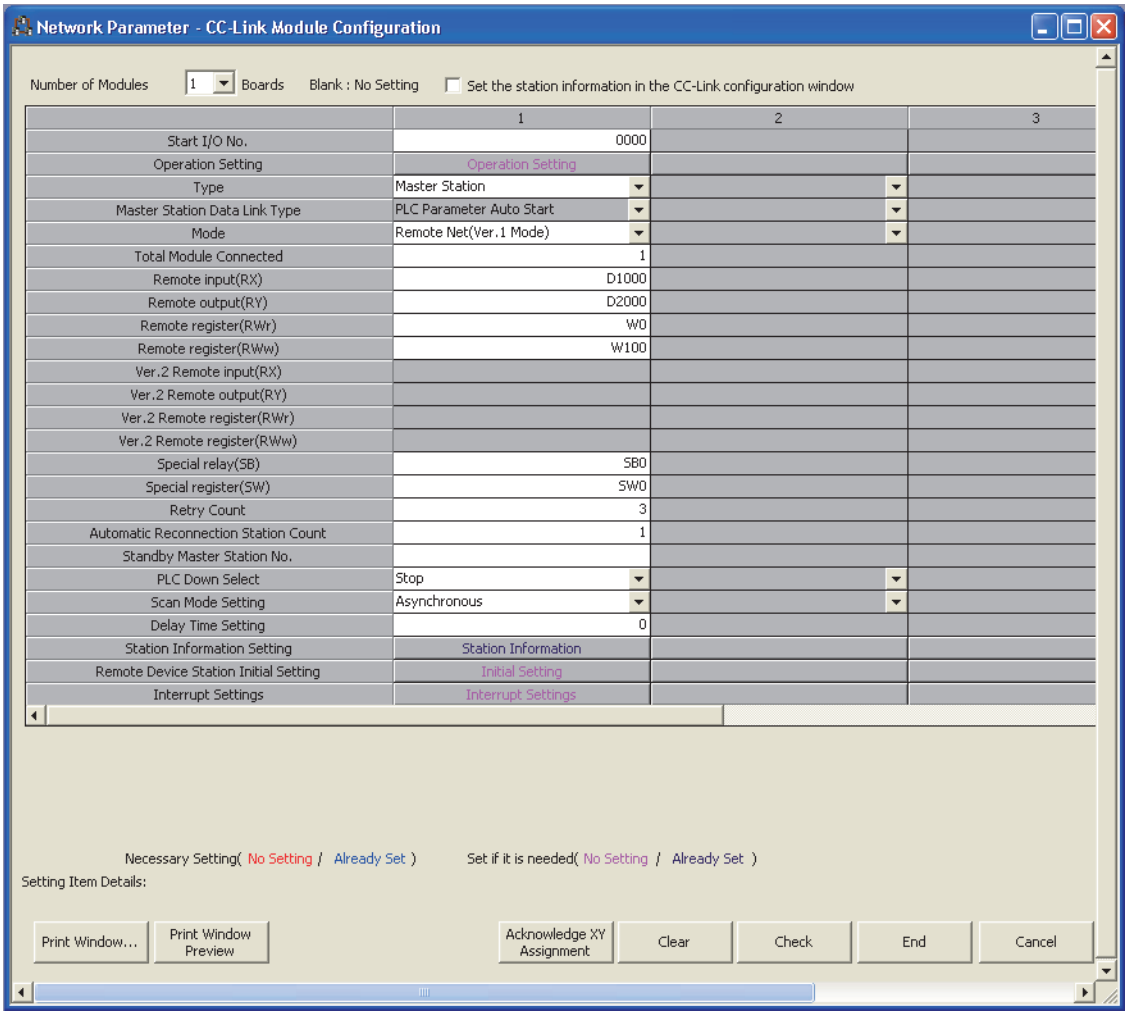


Operation setting

Input/output of AnyWireASLINK system can be set to any device in the network parameter setting of the CC-Link master module.

[Example of setting]

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [CC-Link]



Click "Station Information" and open the following window.

Station No.	Station Type	Expanded Cyclic Setting	Number of Occupied Stations	Remote Station Points	Reserve/Invalid Station Select	Intelligent Buffer Select(Word)		
						Send	Receive	Automatic
1/ 1	Remote Device Station	Single	Occupied Stations 4	128Points	No Setting			

The following table lists the correspondence between the signal and device in this example.

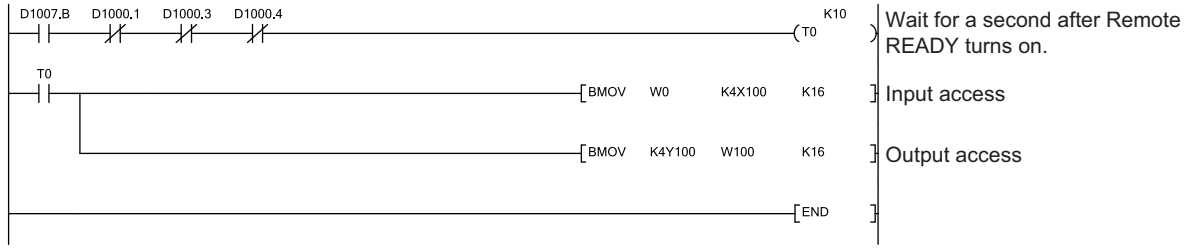
Signal	Name	Device corresponding to station 1
RX	Use prohibited	D1000.0
	DP/DN short error	D1000.1
	Use prohibited	D1000.2
	Transmission cable voltage drop error	D1000.3
	DP/DN disconnection error	D1000.4
	Use prohibited	D1000.5
	Latest error ID simple information	D1000.6 to D1000.F
	Slave module alarm signal	D1001.0
	Use prohibited	D1001.1 to D1001.3
	Automatic address detection flag	D1001.4
	Use prohibited	D1001.5 to D1001.9
	Error status flag	D1007.A
	Remote READY	D1007.B
	Use prohibited	D1007.C to D1007.F
RY	Use prohibited	D2000.0
	Automatic address detection command	D2000.1
	Use prohibited	D2000.2 to D2007.9
	Error reset request flag	D2007.A
	Use prohibited	D2007.B to D2007.F
RWr	AnyWireASLINK input address 0	W0.0
	AnyWireASLINK input address 1	W0.1
	⋮	⋮
	AnyWireASLINK input address 14	W0.E
	AnyWireASLINK input address 15	W0.F
RWw	AnyWireASLINK output address 0	W100.0
	AnyWireASLINK output address 1	W100.1
	⋮	⋮
	AnyWireASLINK output address 14	W100.E
	AnyWireASLINK output address 15	W100.F

Devices used by users

Device	Description
D1007.B	Remote READY
D1000.1	DP/DN short error
D1000.3	Transmission cable voltage drop error
D1000.4	DP/DN disconnection error
X100 to X110	Input data
Y100 to Y110	Output data
T0	Timer contact after Remote READY
W0	AnyWireASLINK input address
W100	AnyWireASLINK output address

Program example

The following program stores input data of 16 points in X100 to X110 from the input slave module whose address is 0 and outputs the data of 16 points stored in Y100 to Y110 from the output slave module whose address is 0.



8 FUNCTIONS

8.1 Function List

The following table lists the functions of the bridge module.

Classification	Function	Description	Reference
CC-Link functions	Transmission speed auto-tracking function	CC-Link transmission speed is automatically set to meet the setting of CC-Link master module when bridge module is powered on.	—
AnyWireASLINK functions	Bit transmission function	Exchanges I/O data of up to 512 points (input 256 points, output 256 points) between the bridge module and a slave module.	☞ Page 62 Bit transmission function
	Parameter reading/ writing function	Reads and writes the parameters of a slave module connected to the bridge module without causing a delay in the AnyWireASLINK bit transmission.	☞ Page 62 Parameter reading/ writing function
	Automatic address detection function	Enables the bridge module to detect and store the ID (address) of the connected slave module when the SET switch on the front of the bridge module is pressed or Automatic address detection command (RYn1) is turned on.	☞ Page 53 Automatic Address Detection
	Transmission cable short detection function	Detects a short-circuit in DP-DN cables Protects the system by detecting an overcurrent out of the specifications and stopping the transmission.	☞ Page 83 Transmission cable short detection function
	Disconnected transmission cable location detection function	Detects the location of DP, DN cable disconnection. Notifies the ID of the slave module that has been disconnected from the bridge module to locate the disconnection in the transmission cables (DP, DN).	☞ Page 84 Disconnected transmission cable location detection function
	Transmission cable voltage drop detection function	Monitors a voltage drop in the 24VDC external power supply. This enables the bridge module to detect a failure in the 24VDC external power supply or a wiring error.	☞ Page 85 Transmission cable voltage drop detection function
	Parameter access error detection function	Detects errors that occur during reading or writing of the parameters of a slave module.	☞ Page 86 Parameter access error detection function
	Same ID number used detection function	Detects ID duplication in the slave modules. When ID duplication is detected, the LEDs of the corresponding slave modules are forced to turn on.	☞ Page 89 Same ID number used detection function
	Module with no ID number setting detection function	Detects slave modules whose ID is not set (ID is set to factory default).	☞ Page 90 Module with no ID number setting detection function
	Reading the ID list of the AnyWireASLINK slave module	Reads the slave module IDs (connection ID information, error ID information, and alarm ID information) in a list using the G(P).RDMSG instruction.	☞ Page 91 Reading the ID list of the AnyWireASLINK slave module
	AnyWireASLINK test mode	Operates the AnyWireASLINK system connected to the bridge module separately from CC-Link to check the system start-up or operation solely.	☞ Page 102 AnyWireASLINK test mode
	iQ Sensor Solution function	Establish data communication with AnyWireASLINK-compatible slave modules via CC-Link and AnyWireASLINK.	☞ Page 103 iQ Sensor Solution function

8.2 Function Details

Bit transmission function

This function exchanges I/O data for up to 512 points (input 256 points, output 256 points) between the bridge module and a slave module.

Parameter reading/writing function

In the AnyWireASLINK system, in addition to I/O information, the parameter information (device parameter*1 and AnyWireASLINK parameter) of the slave modules is sent and received between the bridge module and slave modules.
Use this function to check or change parameter information of a slave module.
Parameter information to read and write is stored in the user-specified device of the CPU module.
There are following two methods of reading and writing parameter information.

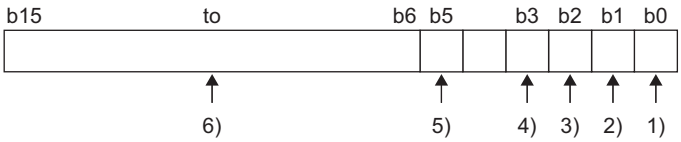
Parameter reading/writing method	Description	CC-Link operation mode
Automatic update	Reads the AnyWireASLINK parameter (status details and sensing level) of all slave modules regularly.	Ver.2.00
Slave module parameter access	Reads or writes all the parameter information of a slave module by specifying "read or write" and the "target slave module".	Ver.2.00

The following table lists readable/writable parameter information and access range of the processings.
○: Possible, ×: Impossible

Parameter information		Read/Write	Parameter reading/writing method		
			Automatic update	Slave module parameter access	
				Read	Write
Device parameter*1		Read/Write	×	○	○
AnyWireASLINK parameter	Module ID	Read	×	○	×
	Status details	Read	○	○	×
	Sensing level	Read	○	○	×

*1 Device parameter names vary depending on the slave module. (☞ Page 77 List of device parameters)

The details of AnyWireASLINK parameters are as follows.

Name	Read/Write	Details
Module ID	Read	Indicates the ID of the slave module. • 0000H to 00FFH: ID of the output slave module • 0200H to 02FFH: ID of the input slave module or I/O combined slave module
Status details	Read	Indicates the status of the slave module. The status of the slave module varies from 1) to 6) as shown below, depending on the on/off status of each bit.  1) Power status of the module On: Drop in the voltage of the slave module Off: No error 2) Sensing level status On: Drop in the sensing level Off: No error 3) I/O disconnection (ASLINKER) On: I/O disconnection Off: No error 4) I/O short-circuit (ASLINKER) On: I/O short-circuit Off: No error 5) I/O voltage drop (insulated slave module) On: I/O power voltage drop Off: No error 6) System reserved
Sensing level	Read	Indicates the value of the connected sensor. The value differs depending on the connected slave module. (Example: An analog value of 0 to 100% is indicated for an ON/OFF sensor.)

Automatic update

No special operation is required because data are automatically updated.

Slave module parameter access

The procedures for executing slave module parameter access are as follows.

The G(P).RDMSG instruction is used for the program of slave module parameter access. (☞ Page 120 G(P).RDMSG instruction)

■Reading device parameters

1. Specify the access method.

Store 0000H: read in Parameter access setting (RWwn+16).

2. Specify the access target ID.

Store the access target ID in Parameter access target module ID specification (RWwn+17).

ID	Description
0000H to 00FFH	ID of the output slave module
0200H to 02FFH	ID of the input slave module or I/O combined slave module

3. Turn on Parameter access request command for the slave module (RY(n+1)0).

At this time, Parameter access completion flag (RX(n+1)1) turns off.

In addition, Parameter accessing flag (with handshake) (RX(n+1)B) turns on.

4. When the parameter access is completed, Parameter access completion flag (RX(n+1)1) automatically turns on.

5. Turn off Parameter access request command for the slave module (RY(n+1)0).

6. Parameter accessing flag (with handshake) (RX(n+1)B) turns off when RX(n+1)1 turns on and RY(n+1)0 is turned off.

7. Read the device parameters from the bridge module to devices in the CPU module by using the G(P).RDMSG instruction. The following table lists values specified in the setting data of the G(P).RDMSG instruction.

Setting data	Setting description	Setting range
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH
(S1)+1	CC-Link station start number	1 to 60
(S1)+2	Number of send byte (fixed value)	10
(S1)+3	Maximum number of receive byte (fixed value)	48
(S2)+0	Dedicated instruction execution parameter_1 (fixed value)	2H
(S2)+1	Dedicated instruction execution parameter_2 (fixed value)	1504H
(S2)+2	Target slave module ID	0000H to 00FFH: ID of the output slave module 0200H to 02FFH: ID of the input slave module or I/O combined slave module
(S2)+3	Dedicated instruction execution parameter_3 (fixed value)	0
(S2)+4	Read data size (fixed value)	38

Read results of device parameters are stored in the following setting data.

Setting data	Description	Result
(S1)+0	Completion status	0: No error (Normal completion) Other than 0: Error code
(S1)+4	Number of receive byte	A received data size is stored in units of bytes.
(D1)+0	Dedicated instruction execution parameter_1	2H
(D1)+1	Dedicated instruction execution parameter_2	1504H
(D1)+2	Station sub-ID	ID of the slave module of AnyWireASLINK is stored.
(D1)+3	Dedicated instruction execution parameter_3	0
(D1)+4	Data size	The read data size is stored.
(D1)+5	Device parameter 1	Refer to the list of device parameters (☞ Page 77 List of device parameters)
(D1)+6	Device parameter 2	
⋮	⋮	
(D1)+22	Device parameter 18	
(D1)+23	Device parameter 19	

■Writing device parameters

1. Read parameters. (☞ Page 64 Reading device parameters)

Point

All parameters are required to set properly including the unchanged parameters since writing parameters are updated all parameters in the target slave module. If the parameters are written without reading the parameter, malfunctions may occur.

2. Write the device parameters from devices in the CPU module to the bridge module by using the G(P).RDMSG instruction. The following table lists values specified in the setting data of the G(P).RDMSG instruction.

Setting data	Setting description	Setting range
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH
(S1)+1	CC-Link station start number	1 to 60
(S1)+2	Number of send byte (fixed value)	48
(S1)+3	Maximum number of receive byte (fixed value)	4
(S2)+0	Dedicated instruction execution parameter_1 (fixed value)	2H
(S2)+1	Dedicated instruction execution parameter_2 (fixed value)	1505H
(S2)+2	Target slave module ID	0000H to 00FFH: ID of the output slave module 0200H to 02FFH: ID of the input slave module or I/O combined slave module
(S2)+3	Dedicated instruction execution parameter_3 (fixed value)	0
(S2)+4	Write data size (fixed value)	38
(S2)+5	Device parameter 1	Refer to the list of device parameters (☞ Page 77 List of device parameters)
(S2)+6	Device parameter 2	
⋮	⋮	
(S2)+22	Device parameter 18	
(S2)+23	Device parameter 19	

Write results of device parameters are stored in the following setting data.

Setting data	Description	Result
(S1)+0	Completion status	0: No error (Normal completion) Other than 0: Error code
(S1)+4	Number of receive byte	A received data size is stored in units of bytes.

3. After executing the G(P).RDMSG instruction, Parameter access completion flag (RX(n+1)1) turns off.
4. When the parameter access is completed, Parameter access completion flag (RX(n+1)1) automatically turns on.
5. Read the parameters to check that the setting has taken effect in the slave module.

■Reading AnyWireASLINK parameters (module ID, status details, and sensing level)

1. Check that Parameter access completion flag (RX(n+1)1) is on and Automatic address detection flag (RX(n+1)4) is off.

2. Set the access target slave module.

Specify the number of slave modules, whose parameters are targeted for reading, in the monitor command specification area (RWwn+24).

Range of slave modules	Setting value
1st to 32nd module	40H
33rd to 64th module	41H
65th to 96th module	42H
97th to 128th module	43H

3. Read AnyWireASLINK parameters from the bridge module to devices in the CPU module by using the G(P).RDMSG instruction. The following table lists values specified in the setting data of the G(P).RDMSG instruction.

Setting data	Setting description	Setting range
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH
(S1)+1	CC-Link station start number	1 to 60
(S1)+2	Number of send byte (fixed value)	10
(S1)+3	Maximum number of receive byte (fixed value)	192
(S2)+0	Dedicated instruction execution parameter (fixed value)	0H*1

*1 The data after (S2)+0 is treated as dummy data and ignored. The data is not required to set to (S2)+1 to (S2)+4.

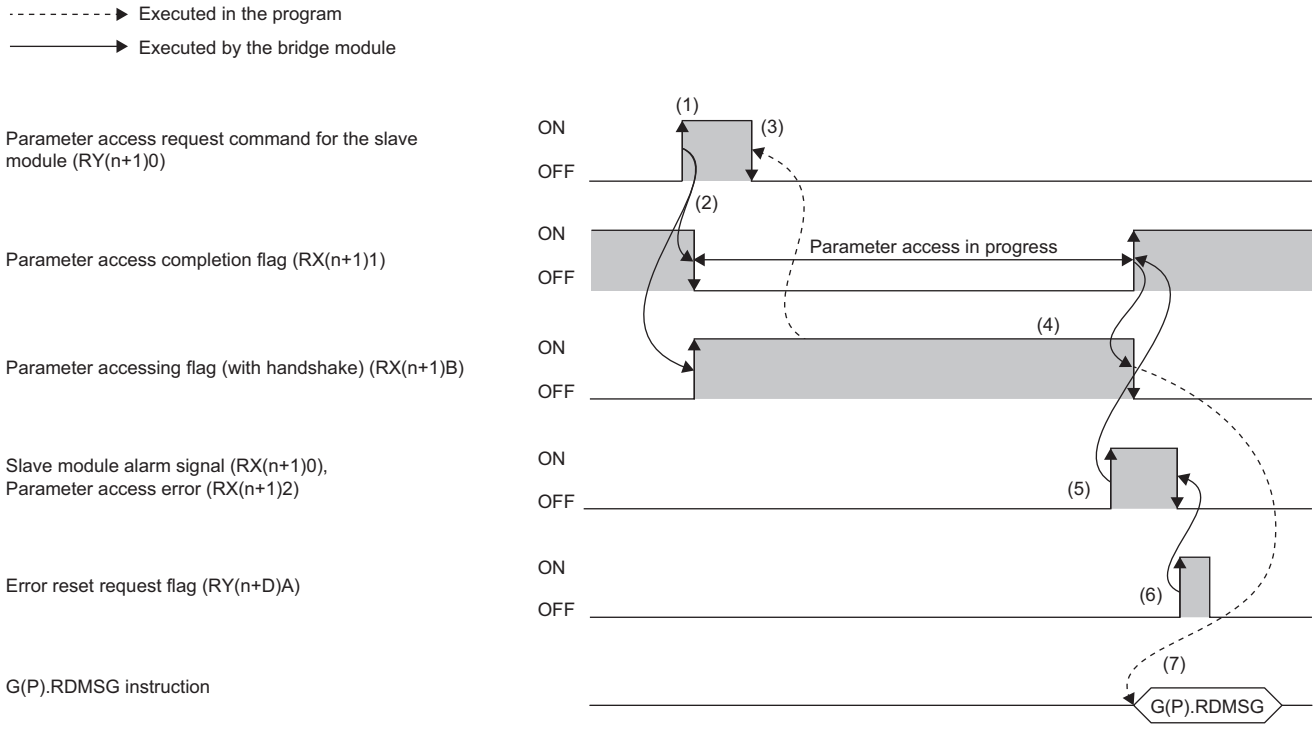
The results of AnyWireASLINK parameters read are stored in the following setting data.

Setting data	Description	Result
(S1)+0	Completion status	0: No error (Normal completion) Other than 0: Error code
(S1)+4	Number of receive byte	A received data size is stored in units of bytes.
(D1)+0	Module ID of 1st access target slave module	Refer to the details on the AnyWireASLINK parameters (☞ Page 62 Parameter reading/writing function)
(D1)+1	Status details of 1st access target slave module	
(D1)+2	Sensing level of 1st access target slave module	
(D1)+3	Module ID of 2nd access target slave module	
(D1)+4	Status details of 2nd access target slave module	
(D1)+5	Sensing level of 2nd access target slave module	
⋮	⋮	
(D1)+90	Module ID of 31st access target slave module	
(D1)+91	Status details of 31st access target slave module	
(D1)+92	Sensing level of 31st access target slave module	
(D1)+93	Module ID of 32nd access target slave module	
(D1)+94	Status details of 32nd access target slave module	
(D1)+95	Sensing level of 32nd access target slave module	

Parameter access timing

The parameter access timing is as follows.

■Reading device parameters



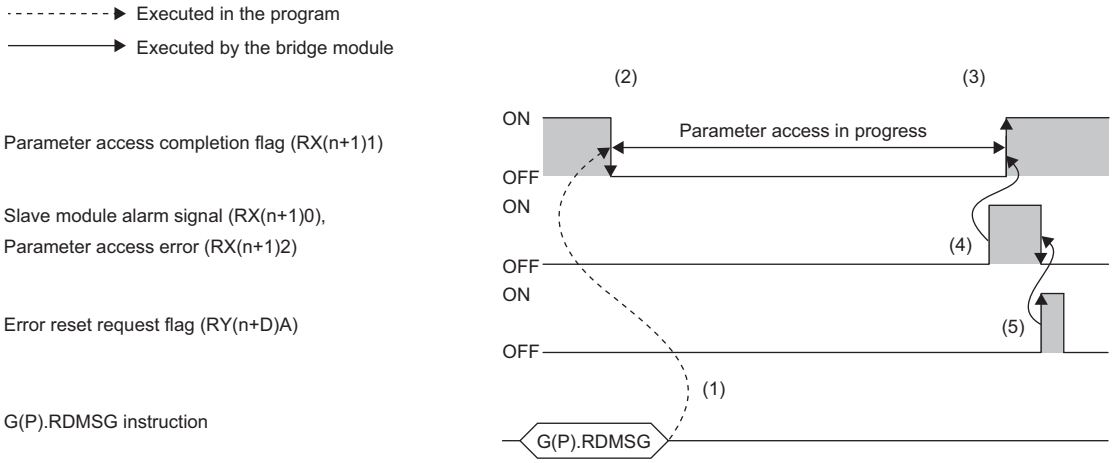
No.	Description
(1)	Parameter access starts when the following signal is turned on by programs.*1 • Parameter access request command for the slave module (RY(n+1)0)
(2)	The operation in (1) turns off Parameter access completion flag (RX(n+1)1). Parameter accessing flag (with handshake) (RX(n+1)B) turns on.
(3)	After checking Parameter accessing flag (with handshake) (RX(n+1)B) is on, turns off the signal that is turned on in (1) by using the program.
(4)	When the signal operated in (1) is off and Parameter access completion flag (RX(n+1)1) is on, Parameter accessing flag (with handshake) (RX(n+1)B) automatically turns off.*2
(5)	If there is an error in the parameter access, one of the following signals turns on and Parameter access completion flag (RX(n+1)1) turns on automatically.*3 • Slave module alarm signal (RX(n+1)0) • Parameter access error (RX(n+1)2)
(6)	When Error reset request flag (RY(n+D)A) is turned on by the program, Parameter access error (RX(n+1)2) turns off.
(7)	After Parameter access completion flag (RX(n+1)1) turns on in (4), the G(P).RDMSG instruction is executed by the program.

*1 Before executing parameter access from the bridge module to the slave module, store the access method, access target ID, and parameter data in the appropriate memory areas.

*2 Use Parameter accessing flag (with handshake) (RX(n+1)B) when Parameter access is completed by the program.

*3 Slave module alarm signal (RX(n+1)0) and Parameter access error (RX(n+1)2) are maintained until Error reset request flag (RY(n+D)A) is turned on. Errors are stored in the appropriate memory areas.

■Writing device parameters



No.	Description
(1)	The G(P).RDMSG instruction is executed by programs.
(2)	The operation in (1) turns off Parameter access completion flag (RX(n+1)1).
(3)	When the parameter access (read/write) is complete, Parameter access completion flag (RX(n+1)1) turns on automatically.
(4)	If there is an error in the parameter access, one of the following signals turns on and Parameter access completion flag (RX(n+1)1) turns on automatically.*1 • Slave module alarm signal (RX(n+1)0) • Parameter access error (RX(n+1)2)
(5)	When Error reset request flag (RY(n+D)A) is turned on by the program, Parameter access error (RX(n+1)2) turns off.

*1 Slave module alarm signal (RX(n+1)0) and Parameter access error (RX(n+1)2) are maintained until Error reset request flag (RY(n+D)A) is turned on. Errors are stored in the appropriate memory areas.

■Reading AnyWireASLINK parameters (module ID, status details, and sensing level)

The G(P).RDMSG instruction is executed when Parameter access completion flag (RX(n+1)1) is on and Automatic address detection flag (RX(n+1)4) is off.

Precautions

■Parameter setting

Parameters cannot be set in the following cases.

- When an error occurs in the AnyWireASLINK system (Example: Short circuit, 24VDC external power supply voltage drop)
- Within approximately five seconds after the AnyWireASLINK system is powered on or the system is reset
- When the automatic address detection is in progress (While Automatic address detection flag (RX(n+1)4) is on)
- When the parameter access is in progress (While Parameter access request command for the slave module (RY(n+1)0) is on)
- When any of the following errors has occurred

Error code	Error description
0064H	Bridge module hardware error
0065H	Bridge module hardware error
0066H	Bridge module hardware error
0067H	Bridge module hardware error
00C8H	Transmission cable voltage drop error
00C9H	DP/DN short error

■Reading and writing parameters

- All parameters are required to set properly including the unchanged parameters since writing parameters are updated all parameters in the target slave module. Read parameters before writing them. Read the latest parameter details and set the values of parameters updated. If the parameters are written without reading the parameter, malfunctions may occur.
- While reading or writing of parameters is in progress, Parameter access completion flag (RX(n+1)1) turns off. Refer to the section describing the parameter access timing, and adjust the access timing. (☞ Page 68 Parameter access timing)
- While reading or writing of parameters is in progress, do not perform re-access to the parameters or automatic address detection. Doing so can cause a malfunction of the module.

■Parameter access

- This operation cannot be performed to a slave module whose ID has not been registered in the bridge module.
- Eliminate a same ID used error or a no ID setting error of the slave module. Then perform the operation.

■Parameter accessing flag (with handshake)

- To start the parameter access processing using Parameter access request command for the slave module (RY(n+1)0), Parameter access request command for the slave module (RY(n+1)0) must be on until Parameter accessing flag (with handshake) (RX(n+1)B) turns on. When Parameter access request command for the slave module (RY(n+1)0) is turned off before Parameter accessing flag (with handshake) (RX(n+1)B) turns on, the parameter access processing does not start.
- When Parameter access request command for the slave module (RY(n+1)0) is turned on, Parameter accessing flag (with handshake) (RX(n+1)B) does not turn off.
- When Parameter accessing flag (with handshake) (RX(n+1)B) is on and Parameter access completion flag (RX(n+1)1) is off, the parameter access processing does not start even Parameter access request command for the slave module (RY(n+1)0) is turned on. Turn on the signal after the parameter access processing becomes enabled.

■Others

- Note that the bridge module may communicate with a slave module and output parameters even if no parameters are set.

Sample program

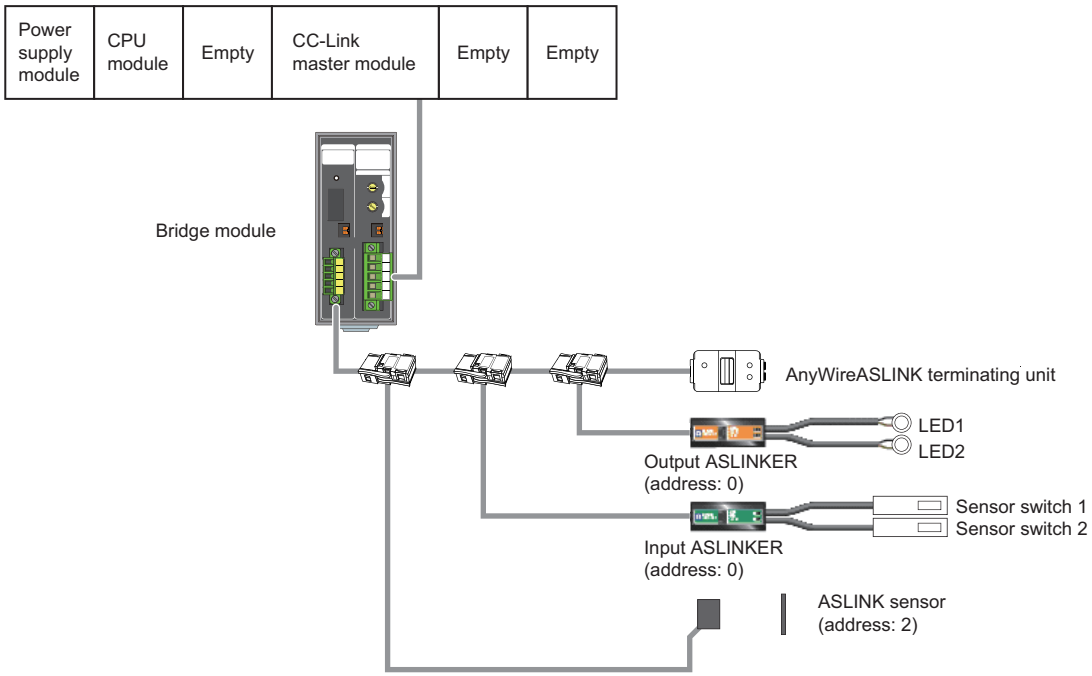
■CC-Link network parameter assignment

The CC-Link network parameter assignment in the sample program is as follows.

Signal	Device setting in the sample program
RX	D1000
RY	D2000
RWr	W0
RWw	W100
SB	SB0
SW	SW0

■System configuration

The example of system configuration is shown below.



■Devices used by users

Device	Description
D1001.1	Parameter access completion flag
D1001.4	Automatic address detection flag
D2001.0	Parameter access request command for the slave module
W110	Parameter access setting
W111	Parameter access target module ID specification
T20	Timer contact
M40	Dedicated instruction starting contact
M50	Program starting contact
M51	Communication starting contact

■Slave module parameter access (module ID, status details, sensing level)

This program reads the parameters (module ID, status details, sensing level) of all slave modules connected to the bridge module. The device setting of the dedicated command and G(P).RDMSG instruction in the sample program is as follows.

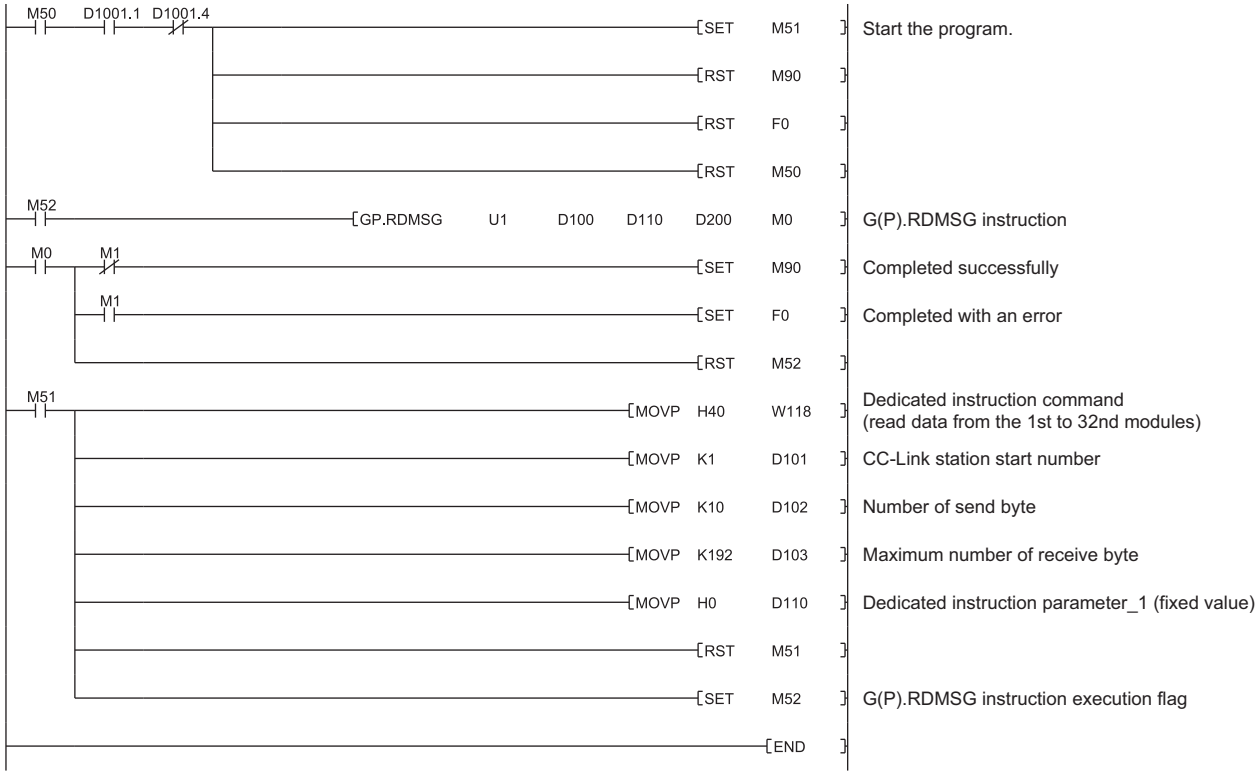
Device setting in the sample program	Setting description	Setting value in the sample program
W118*1	Dedicated command	40H
D101	CC-Link station start number	1
D102	Number of send byte	10
D103	Maximum number of receive byte	192
D110	Dedicated instruction execution parameter (fixed value)	0H

*1 Device of the address RWwn+24 (remote register output) assigned to the master station in the station number setting. (☞ Page 46 Remote registers when 4 stations are occupied)

The dedicated command specifies the number of slave modules whose parameters are targeted for reading as shown below.

Range of slave modules	Setting value
1st to 32nd module	40H
33rd to 64th module	41H
65th to 96th module	42H
97th to 128th module	43H

The following shows a program example.

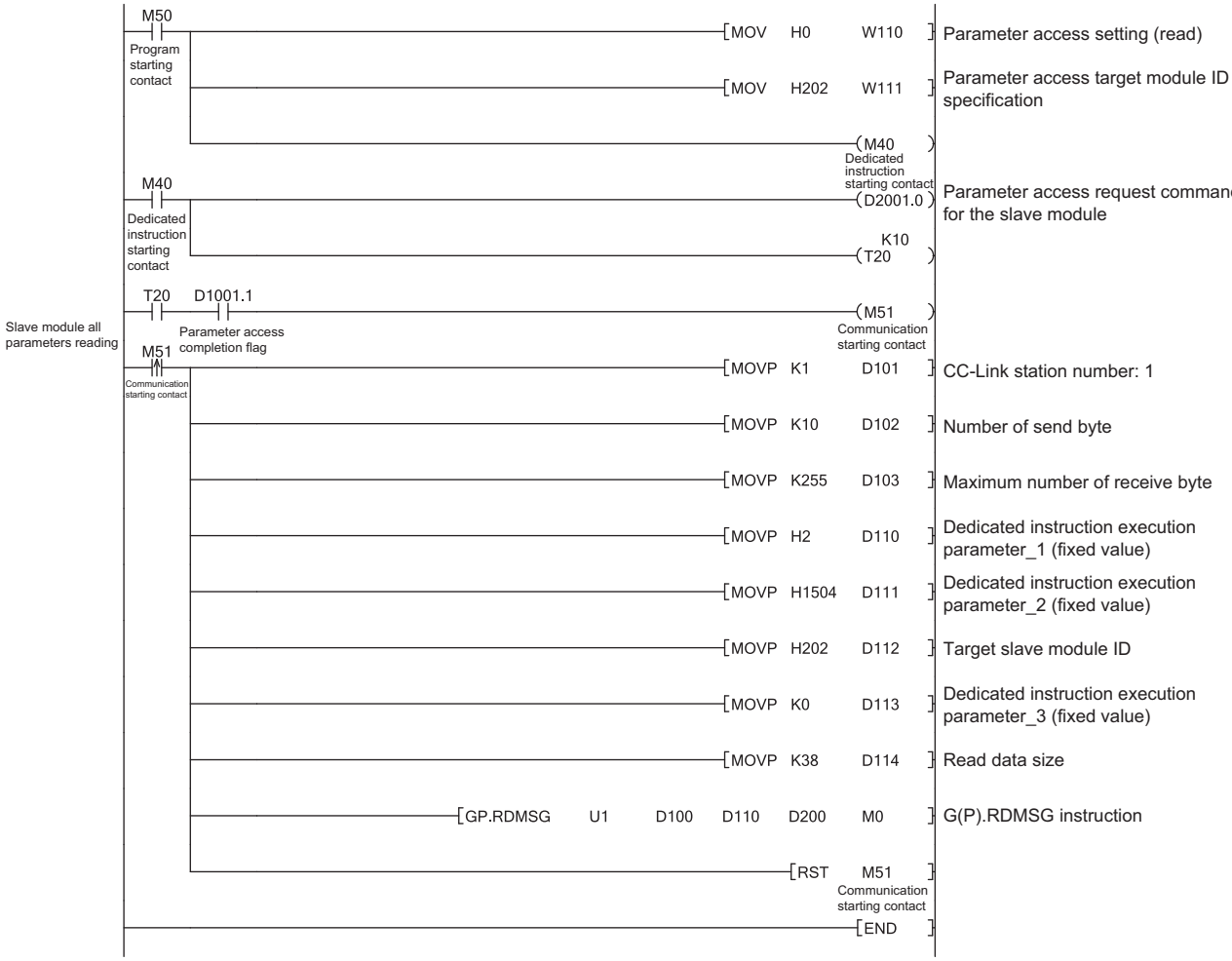


■Slave module parameter access (To read parameters)

This program reads all parameters of the target slave module by specifying the ID. The device settings of the G(P).RDMSG instruction in the sample program are as follows.

Device setting in the sample program	Setting description	Setting value in the sample program
D101	CC-Link station start number	1
D102	Number of send byte	10
D103	Maximum number of receive byte	255
D110	Dedicated instruction execution parameter_1 (fixed value)	2H
D111	Dedicated instruction execution parameter_2 (fixed value)	1504H
D112	Target slave module ID	202H
D113	Dedicated instruction execution parameter_3 (fixed value)	0
D114	Read data size	38

The following shows a program example.

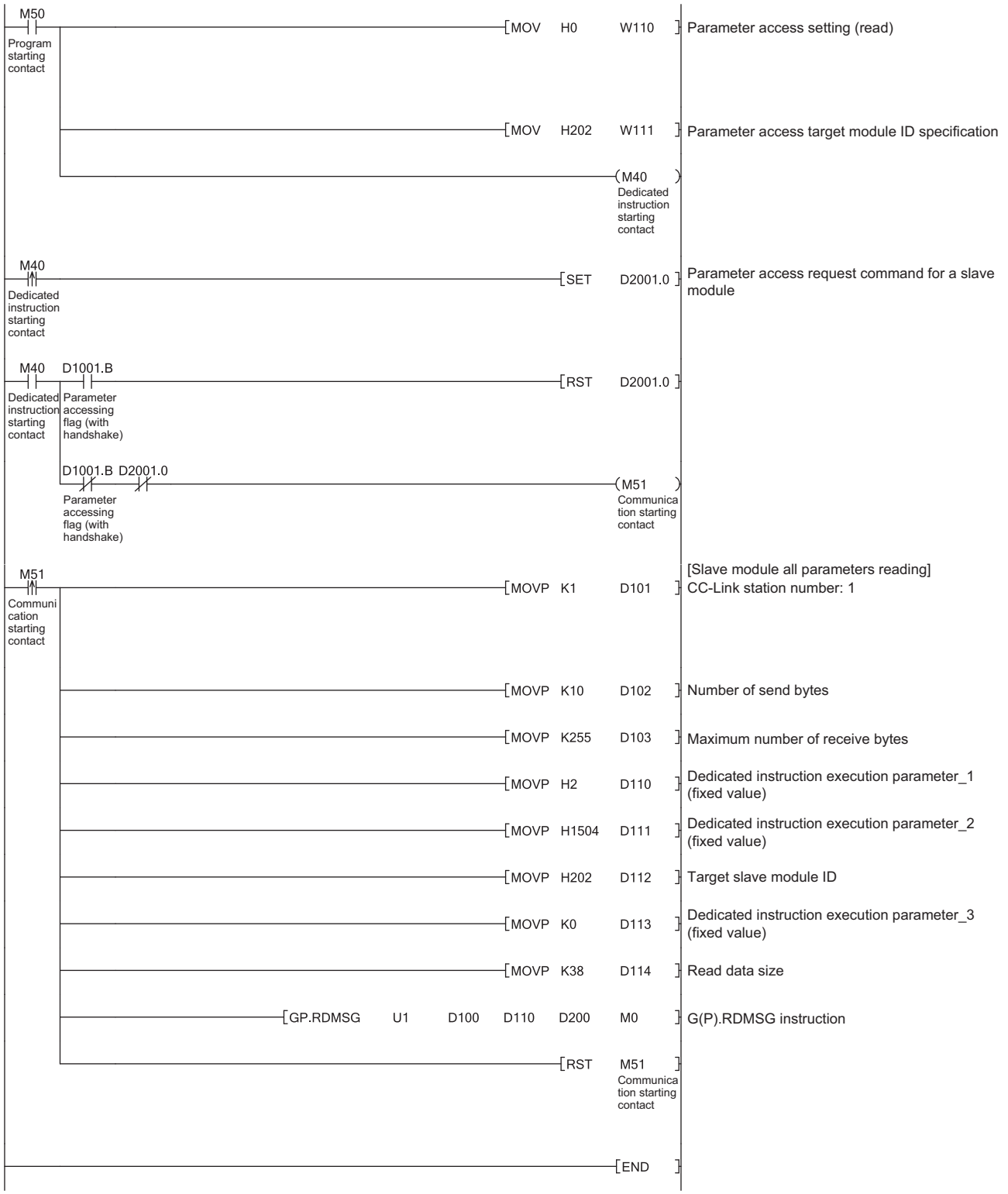


The following shows the reading parameters of the target slave module using Parameter accessing flag (with handshake) (RX(n+1)B). The device settings of the G(P).RDMSG instruction in the sample program are as follows.

Device setting in the sample program	Setting description	Setting value in the sample program
D101	CC-Link station start number	1
D102	Number of send byte	10
D103	Maximum number of receive byte	255
D110	Dedicated instruction execution parameter_1 (fixed value)	2H

Device setting in the sample program	Setting description	Setting value in the sample program
D111	Dedicated instruction execution parameter_2 (fixed value)	1504H
D112	Target slave module ID	202H
D113	Dedicated instruction execution parameter_3 (fixed value)	0
D114	Read data size	38

The following shows a program example.

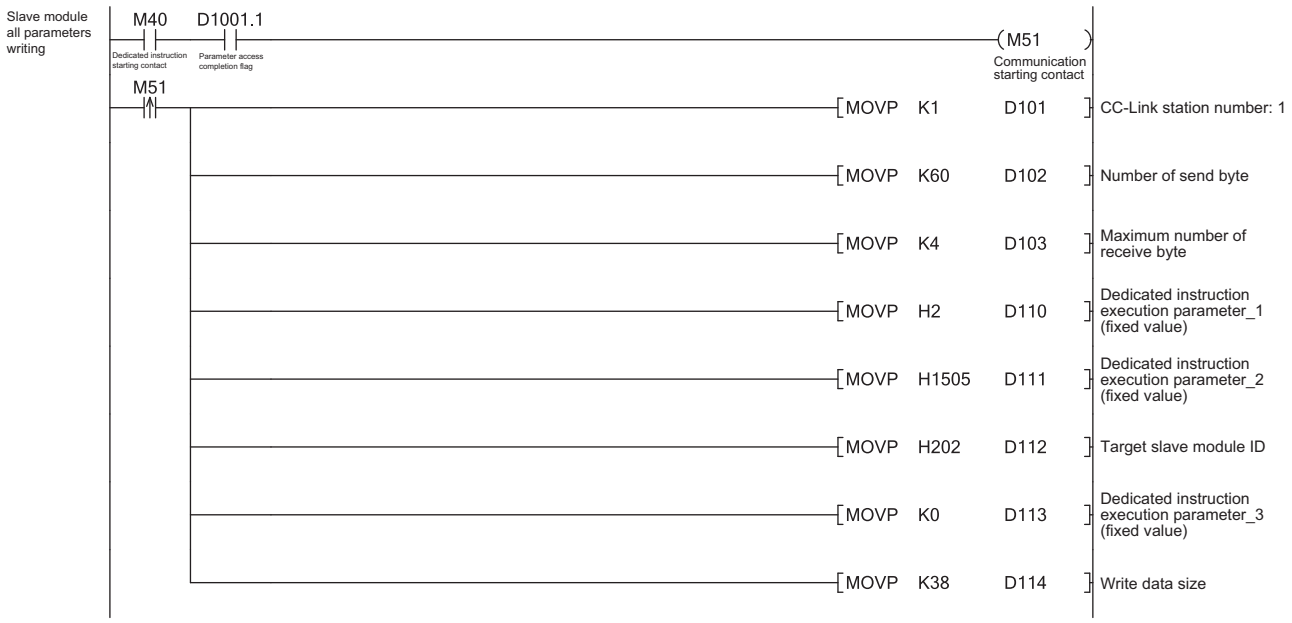


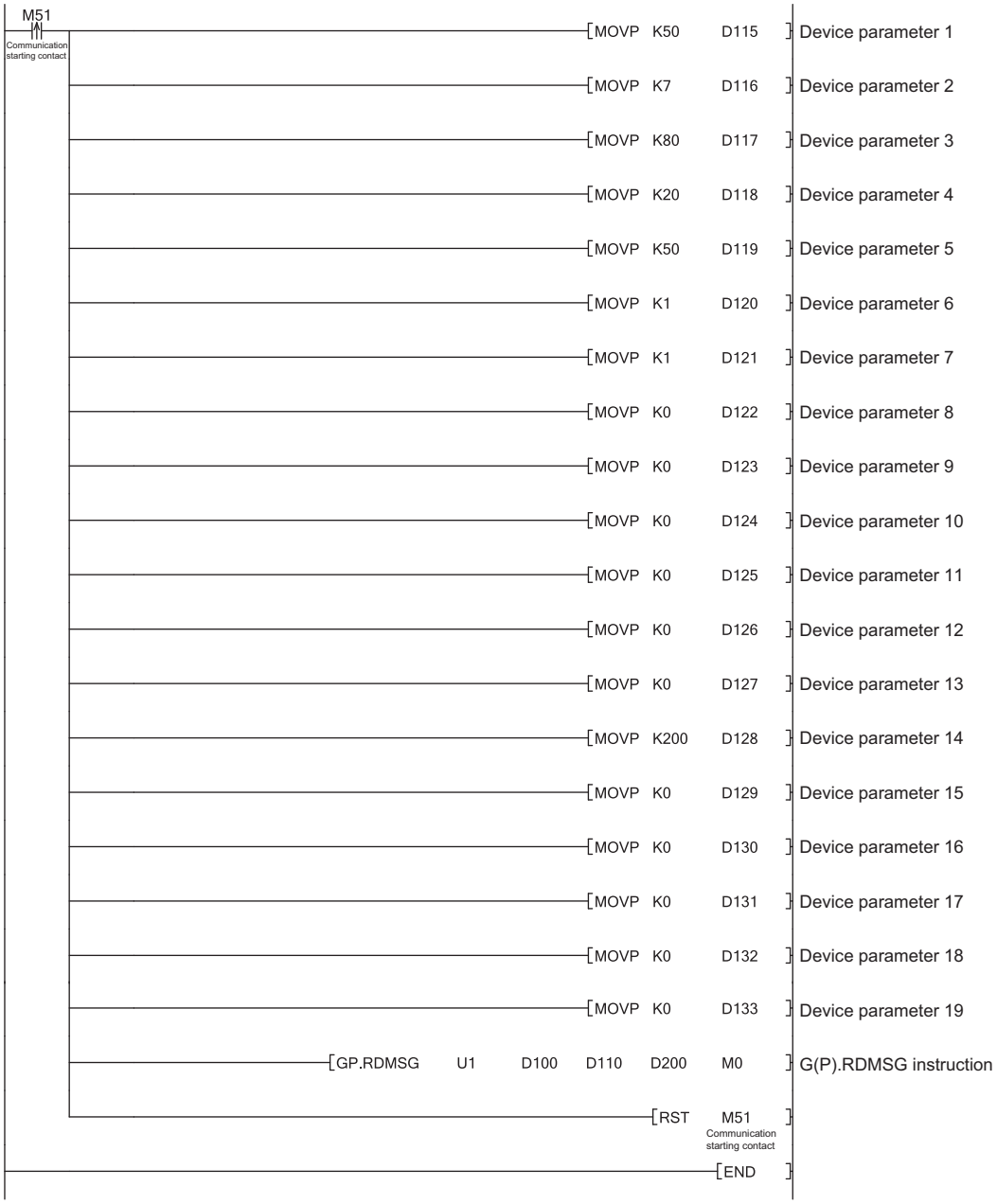
■Slave module parameter access (To write parameters)

This program writes all parameters to the target slave module by specifying the ID. The device settings of the G(P).RDMSG instruction in the sample program are as follows.

Device setting in the sample program	Setting description	Setting value in the sample program
D101	CC-Link station start number	1
D102	Number of send byte	60
D103	Maximum number of receive byte	4
D110	Dedicated instruction execution parameter_1 (fixed value)	2H
D111	Dedicated instruction execution parameter_2 (fixed value)	1505H
D112	Target slave module ID	202H
D113	Dedicated instruction execution parameter_3 (fixed value)	0
D114	Write data size	38
D115	Device parameter 1	50
D116	Device parameter 2	7
D117	Device parameter 3	80
D118	Device parameter 4	20
D119	Device parameter 5	50
D120	Device parameter 6	1
D121	Device parameter 7	1
D122	Device parameter 8	0
D123	Device parameter 9	0
D124	Device parameter 10	0
D125	Device parameter 11	0
D126	Device parameter 12	0
D127	Device parameter 13	0
D128	Device parameter 14	200
D129	Device parameter 15	0
D130	Device parameter 16	0
D131	Device parameter 17	0
D132	Device parameter 18	0
D133	Device parameter 19	0

The following shows a program example.




M51
Communication starting contact
MOVP K50 D115
Device parameter 1
MOVP K7 D116
Device parameter 2
MOVP K80 D117
Device parameter 3
MOVP K20 D118
Device parameter 4
MOVP K50 D119
Device parameter 5
MOVP K1 D120
Device parameter 6
MOVP K1 D121
Device parameter 7
MOVP K0 D122
Device parameter 8
MOVP K0 D123
Device parameter 9
MOVP K0 D124
Device parameter 10
MOVP K0 D125
Device parameter 11
MOVP K0 D126
Device parameter 12
MOVP K0 D127
Device parameter 13
MOVP K200 D128
Device parameter 14
MOVP K0 D129
Device parameter 15
MOVP K0 D130
Device parameter 16
MOVP K0 D131
Device parameter 17
MOVP K0 D132
Device parameter 18
MOVP K0 D133
Device parameter 19
GP.RDMSG U1 D100 D110 D200 M0
G(P).RDMSG instruction
RST M51
Communication starting contact
END

List of device parameters

The following table lists device parameters of slave modules.

■ASLINKER

Product name	Model	Device parameter	Description of device parameters	Read/Write
Cable/waterproof	Input/output type (No function for the combined type)	Device parameter 1	Disconnection/short-circuit detection setting Enable/disable the disconnection/short-circuit detection function. Default value: 0 Setting value: 0 (disconnection/short-circuit detection disabled), 1 (disconnection/short-circuit detection enabled)	Read/Write
		Device parameter 2	—	—
		Device parameter 3		
		Device parameter 4		
		Device parameter 5		
		Device parameter 6		
		Device parameter 7		
		Device parameter 8		
		Device parameter 9		
		Device parameter 10		
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		

■ASLINKAMP

Product name	Model	Device parameter	Description of device parameters	Read/Write
Photoelectric fiber type (transmission type)	B289SB-01AP-CAM20 B289SB-01AP-CAS B289SB-01AF-CAM20 B289SB-01AF-CAS	Device parameter 1	Threshold value Specify a threshold value which determines on/off of the sensor. Default value: 50 Setting range: 0 to 100	Read/Write
		Device parameter 2	Hysteresis value Specify a hysteresis value for the threshold value. Default value: 5 Setting range: 0 to 100	
		Device parameter 3	Alarm determination upper limit value Specify an alarm determination upper limit value. Default value: 80 Setting range: 0 to 100	
		Device parameter 4	Alarm determination lower limit value Specify an alarm determination lower limit value. Default value: 20 Setting range: 0 to 100	
		Device parameter 5	Alarm determination monitoring time Specify the monitoring time for the alarm determination value. Default value: 50 (Unit: 100ms) Setting range: 3 to 255	
		Device parameter 6	Light ON / Dark ON setting Specify the light ON or dark ON setting for the sensor on/off. Default value: 0 Setting value: 0 (Dark ON), 1 (Light ON)	
		Device parameter 7	Operation mode setting Specify the use of the alarm diagnostics function. Default value: 0 Setting value: 0 (Diagnostics function not used), 1 (Diagnostics function used)	
		Device parameter 8	Sensor type setting Specify a value according to the sensor of the manufacturer used. Default value: 0 For setting values, refer to the manual for the slave module used.	
		Device parameter 9	—	—
		Device parameter 10		
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		

Product name	Model	Device parameter	Description of device parameters	Read/Write
Proximal type	B289SB-01AK-CAM20 B289SB-01AK-CAS	Device parameter 1	Threshold value Specify a threshold value which determines on/off of the sensor. Default value: 50 Setting range: 0 to 100	Read/Write
		Device parameter 2	Hysteresis value Specify a hysteresis value for the threshold value. Default value: 5 Setting range: 0 to 100	
		Device parameter 3	Alarm determination upper limit value Specify an alarm determination upper limit value. Default value: 80 Setting range: 0 to 100	
		Device parameter 4	Alarm determination lower limit value Specify an alarm determination lower limit value. Default value: 20 Setting range: 0 to 100	
		Device parameter 5	Alarm determination monitoring time Specify the monitoring time for the alarm determination value. Default value: 50 (Unit: 100ms) Setting range: 3 to 255	
		Device parameter 6	Normally open setting/ normally close setting Default value: 0 Setting value: 0 (Normally-open contact), 1 (Normally-close contact)	
		Device parameter 7	Operation mode setting Specify the use of the alarm diagnostics function. Default value: 0 Setting value: 0 (Diagnostics function not used), 1 (Diagnostics function used)	
		Device parameter 8	Sensor type setting Specify a value according to the sensor of the manufacturer used. Default value: 0 For setting values, refer to the manual for the slave module used.	
		Device parameter 9	Specify whether to perform interference prevention for the sensor. (The detection distance is reduced by half.) Default value: 0 Setting value: 0 (Normal mode (no interference prevention)), 1 (Interference prevention mode)	
		Device parameter 10	—	—
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		

■ASLINK sensors

Product name	Model	Device parameter	Description of device parameters	Read/Write
Photoelectric sensor	B283SB-01-1KC (Transmission type: light receiving) B283SB-01-1KR (Limited reflection type) B283SB-01-1KS (Diffused reflection type)	Device parameter 1	Threshold value Specify a threshold value which determines on/off of the sensor. Default value: 50 Setting range: 0 to 100	Read/Write
		Device parameter 2	Hysteresis value Specify a hysteresis value for the threshold value. Default value: 5 Setting range: 0 to 100	
		Device parameter 3	Alarm determination upper limit value Specify an alarm determination upper limit value. Default value: 80 Setting range: 0 to 100	
		Device parameter 4	Alarm determination lower limit value Specify an alarm determination lower limit value. Default value: 20 Setting range: 0 to 100	
		Device parameter 5	Alarm determination monitoring time Specify the monitoring time for the alarm determination value. Default value: 50 (Unit: 100ms) Setting range: 3 to 255	
		Device parameter 6	Normally open setting/ normally close setting Default value: 0 Setting value: 0 (Normally-open contact), 1 (Normally-close contact)	
		Device parameter 7	Operation mode setting Specify the use of the alarm diagnostics function. Default value: 0 Setting value: 0 (Diagnostics function not used), 1 (Diagnostics function used)	
		Device parameter 8	Light receiving mode switching Specify the light receiving mode. Default value: 0 Normal mode: 0 Fine mode: 1	
		Device parameter 9	—	—
		Device parameter 10		
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		
Photoelectric sensor	B283SB-01-1KP (Transmission type: light emitting)	Device parameter 1	—	—
		Device parameter 2		
		Device parameter 3		
		Device parameter 4		
		Device parameter 5		
		Device parameter 6		
		Device parameter 7		
		Device parameter 8		
		Device parameter 9	Light emitting mode switching Specify the light emitting operation mode. Default: 0 Normal mode: 0 Power mode: 1	Read/Write
		Device parameter 10	—	—
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		

Product name	Model	Device parameter	Description of device parameters	Read/Write
Proximal sensor	B297SB-01-1K40	Device parameter 1	—	—
		Device parameter 2		
		Device parameter 3	Alarm determination upper limit value Specify an alarm determination upper limit value. Default value: 80 Setting range: 0 to 100	Read/Write
		Device parameter 4	Alarm determination lower limit value Specify an alarm determination lower limit value. Default value: 20 Setting range: 0 to 100	
		Device parameter 5	Alarm determination monitoring time Specify the monitoring time for the alarm determination value. Default value: 50 (Unit: 100ms) Setting range: 3 to 255	
		Device parameter 6	Normally open setting/ normally close setting Default value: 0 Setting value: 0 (Normally-open contact), 1 (Normally-close contact)	
		Device parameter 7	Operation mode setting Specify the use of the alarm diagnostics function. Default value: 0 Setting value: 0 (Diagnostics function not used), 1 (Diagnostics function used)	
		Device parameter 8	—	—
		Device parameter 9		
		Device parameter 10		
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		

Product name	Model	Device parameter	Description of device parameters	Read/Write
Photo interrupter	B295SB-01-1K26 B295SB-01-1K25	Device parameter 1	Threshold value Specify a threshold value which determines on/off of the sensor. Default value: 50 Setting range: 0 to 100	Read/Write
		Device parameter 2	Hysteresis value Specify a hysteresis value for the threshold value. Default value: 5 Setting range: 0 to 100	
		Device parameter 3	Alarm determination upper limit value Specify an alarm determination upper limit value. Default value: 80 Setting range: 0 to 100	
		Device parameter 4	Alarm determination lower limit value Specify an alarm determination lower limit value. Default value: 20 Setting range: 0 to 100	
		Device parameter 5	Alarm determination monitoring time Specify the monitoring time for the alarm determination value. Default value: 50 (Unit: 100ms) Setting range: 3 to 255	
		Device parameter 6	Normally open setting/ normally close setting Default value: 0 Setting value: 0 (Normally-open contact), 1 (Normally-close contact)	
		Device parameter 7	Operation mode setting Specify the use of the alarm diagnostics function. Default value: 0 Setting value: 0 (Diagnostics function not used), 1 (Diagnostics function used)	
		Device parameter 8	Light receiving mode switching Specify the light receiving mode. Default value: 0 Normal mode: 0 Fine mode: 1	
		Device parameter 9	—	—
		Device parameter 10		
		Device parameter 11		
		Device parameter 12		
		Device parameter 13		

Transmission cable short detection function

This function protects the system by detecting an overcurrent out of the specifications of the AnyWireASLINK and stopping the transmission.

Transmission cable short status

When the following occurs, the AnyWireASLINK system is in the transmission cable short status.

- The LINK LED turns off and the ALM LED flashes repeatedly at one-second intervals.*1
- DP/DN short error (RXn1) turns on.
- 00C9H is stored in Latest error code storage area (RWrn+16).*1*2
- 0FFFH is stored in Latest error ID storage area (RWrn+17).*1*2
- The AnyWireASLINK bit transmission stops.

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

How to recover from the transmission cable short status

How to recover from the transmission cable short status is as follows.

1. Eliminate the short-circuit in the AnyWireASLINK system.

When the short-circuit is eliminated, AnyWireASLINK bit transmission is resumed automatically.

If the status does not change, the short-circuit has not been eliminated. Therefore, check the system again.

The following status is maintained:

- ON state of DP/DN short error (RXn1)
- Flashing of the ALM LED
- Data in Latest error code storage area (RWrn+16) and Latest error ID storage area (RWrn+17)*1

*1 If multiple errors occur simultaneously, the latest error is displayed.

2. Power off and on the bridge module or turn on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A).

The following status is resulted:

- DP/DN short error (RXn1) turns off.
- The ALM LED turns off.
- The data in Latest error code storage area (RWrn+16) and Latest error ID storage area (RWrn+17) is cleared.

Disconnected transmission cable location detection function

This function notifies the ID of the slave module that has been disconnected from the bridge module because of disconnection in the transmission cable (DP, DN) between the bridge module and the slave module, to locate the disconnection in the transmission cables (DP. DN).

Point

- To enable the disconnected transmission cable location detection function, perform the automatic address detection when configuring, modifying, or expanding the system. (☞ Page 53 Performing the automatic address detection)
- After the system configuration, the disconnection detection may work when the slave module is disconnected from the system. Perform the automatic address detection after modifying the system.
- Even if disconnection in the transmission cables (DP, DN) is detected, the AnyWireASLINK bit transmission is not stopped.

Transmission cable disconnection status

When the system is in the following status, the transmission cables (DP, DN) or a slave module have been disconnected.

- The ALM LED turns on.*1
- DP/DN disconnection error (RXn4) turns on.
- The number of error IDs is stored in Number of the error IDs (RWrn+19).*2
- The ID of the disconnected slave module is notified from the bridge module to the device of the CPU module.*2
- 00CAH is stored in Latest error code storage area (RWrn+16).*1*2
- The ID of the disconnected slave module is stored in Latest error ID storage area (RWrn+17).*1*2
- The ID of the disconnected slave module is stored in Latest error ID simple information (RXn6 to RXnF).*1

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

How to recover from the transmission cable disconnection status

How to recover from the transmission cable disconnection status is as follows.

1. Eliminate the disconnection in the AnyWireASLINK system.

When the disconnection is eliminated, AnyWireASLINK bit transmission is resumed automatically.

If the status does not change, the disconnection has not been eliminated. Therefore, check the system again.

The following status is maintained:

- ON state of DP/DN disconnection error (RXn4)
- Flashing of the ALM LED
- Data in Latest error code storage area (RWrn+16), Latest error ID storage area (RWrn+17), and Latest error ID simple information (RXn6 to RXnF)*1

*1 If multiple errors occur simultaneously, the latest error is displayed.

2. Power off and on the bridge module or turn on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A).

The following status is resulted:

- DP/DN disconnection error (RXn4) turns off.
- The ALM LED turns off.
- The data in Latest error code storage area (RWrn+16), Latest error ID storage area (RWrn+17), and Latest error ID simple information (RXn6 to RXnF) is cleared.

Transmission cable voltage drop detection function

This function detects a voltage drop in the 24VDC external power supply, enabling the bridge module to detect a failure in the 24VDC external power supply or a wiring error.

Transmission cable voltage drop status

When the system is in the following status, a voltage drop in the 24VDC external power supply has been detected.

- The ALM LED flashes at 0.2-second intervals.*1
- Transmission cable voltage drop error (RXn3) turns on.
- 00C8H is stored in Latest error code storage area (RWrn+16).*1*2
- 0FFFH is stored in Latest error ID storage area (RWrn+17).*1*2
- The AnyWireASLINK bit transmission stops.

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

How to recover from the transmission cable voltage drop status

How to recover from the transmission cable voltage drop is as follows.

1. Check the voltage of the 24VDC external power supply and replace the power supply or check the wiring, as necessary.

When the transmission cable voltage drop status is cleared, AnyWireASLINK bit transmission is resumed automatically.

If the status does not change, the transmission cable voltage drop has not been eliminated. Therefore, check the system again.

The following status is maintained:

- ON state of transmission cable voltage drop error (RXn3)
- Flashing of the ALM LED
- Data in Latest error code storage area (RWrn+16) and Latest error ID storage area (RWrn+17)*1

*1 If multiple errors occur simultaneously, the latest error is displayed.

2. Power off and on the bridge module or turn on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A).

The following status is resulted:

- Transmission cable voltage drop error (RXn3) turns off.
- The ALM LED turns off.
- The data in Latest error code storage area (RWrn+16) and Latest error ID storage area (RWrn+17) is cleared.

Point

For the specifications of the 24VDC external power supply to the bridge module, refer to the following.

☞ Page 18 Performance Specifications

Parameter access error detection function

Detects errors that occur during reading or writing of the parameters of a slave module. The following parameter access errors are detected.

- Slave module hardware error (Error code: 012CH, 012DH)
- Parameter access target module ID error (Error code: 012EH)
- Parameter value error (Error code: 012FH)
- Parameter access error (Error code: 0130H)
- Slave module status error (Error code: 0131H)
- Same ID used error (Error code: 0190H)
- No ID setting error (Error code: 0191H)

How to check the parameter access error status

The following table lists parameter access error statuses.

Error	Status when the error occurs		
	Remote I/O signals	Latest error code storage area (RWrn+16)	Latest error ID storage area (RWrn+17) and Latest error ID simple information (RXn6 to RXnF)
Slave module hardware error	Slave module alarm signal (RX(n+1)0) turns on.	The error code is stored.*1	The error ID is stored.*1
Parameter access target module ID error			
Parameter value error			
Parameter access error	Parameter access error (RX(n+1)2) turns on.		
Slave module status error	Slave module alarm signal (RX(n+1)0) turns on.		
Same ID used error			
No ID setting error			

*1 If multiple errors occur simultaneously, the latest error is displayed.

How to recover from the parameter access error status

How to recover from the parameter access error status is as follows.

■How to recover from a slave module hardware error

1. Eliminate the error cause by taking measures such as noise prevention.

Even when Slave module hardware error is cleared, the following status is maintained.

- ON state of Slave module alarm signal (RX(n+1)0)
- The error code stored in Latest error code storage area (RWrn+16)*1*2
- The error ID stored in Latest error ID storage area (RWrn+17)*1*2
- The unset ID (02FFH or 00FFH) stored in Latest error ID simple information (RXn6 to RXnF)*1
- The alarm information is notified from the bridge module to the device of the CPU module.*2

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

2. Power off and on the AnyWireASLINK system or turn on and off Error reset request flag (RY(n+D)A).

The following status is resulted:

- Slave module alarm signal (RX(n+1)0) turns off.
- The value in Latest error code storage area (RWrn+16) is cleared.
- The value in Latest error ID storage area (RWrn+17) is cleared.
- The value in Latest error ID simple information (RXn6 to RXnF) is cleared.
- The alarm information that was notified to the device of the CPU module is cleared.

■How to recover from Parameter access target module ID error

1. Eliminate the error cause such as a parameter access program.

Even when Parameter access target module ID error is cleared, the following status is maintained.

- ON state of Slave module alarm signal (RX(n+1)0)
- The value 012EH stored in Latest error code storage area (RWrn+16)[*1*2]
- The value 0FFFH stored in Latest error ID storage area (RWrn+17)[*1*2]
- The error ID stored in Latest error ID simple information (RXn6 to RXnF)[*1]

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

2. Power off and on the AnyWireASLINK system or turn on and off Error reset request flag (RY(n+D)A).

The following status is resulted:

- Slave module alarm signal (RX(n+1)0) turns off.
- The value in Latest error code storage area (RWrn+16) is cleared.
- The value in Latest error ID storage area (RWrn+17) is cleared.
- The value in Latest error ID simple information (RXn6 to RXnF) is cleared.

■How to recover from Parameter value error

How to recover from Parameter value error is as follows.

1. Eliminate the error cause such as a parameter access program.

Even when Parameter value error is cleared, the following status is maintained.

- ON state of Slave module alarm signal (RX(n+1)0)
- The value 012FH stored in Latest error code storage area (RWrn+16)[*1*2]
- The error ID stored in Latest error ID storage area (RWrn+17)[*1*2]
- The error ID stored in Latest error ID simple information (RXn6 to RXnF)[*1]
- The alarm information is notified from the bridge module to the device of the CPU module.[*2]

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

2. Power off and on the AnyWireASLINK system or turn on and off Error reset request flag (RY(n+D)A).

The following status is resulted:

- Slave module alarm signal (RX(n+1)0) turns off.
- The value in Latest error code storage area (RWrn+16) is cleared.
- The value in Latest error ID storage area (RWrn+17) is cleared.
- The value in Latest error ID simple information (RXn6 to RXnF) is cleared.
- The alarm information that was notified to the device of the CPU module is cleared.

■How to recover from Parameter access error

1. Clear the parameter access error.

If any of the following errors has occurred, eliminate the error cause.

- Slave module hardware error (Error code: 012CH, 012DH)
- Slave module status error (Error code: 0131H)
- Same ID used error (Error code: 0190H)

When a parameter access error other than the above occurs, the possible cause is noise. Eliminate the error cause by taking measures such as noise prevention.

Even when Parameter access error is cleared, the following status is maintained.

- ON state of Parameter access error (RX(n+1)2)
- The value 0130H stored in Latest error code storage area (RWrn+16)[*1*2]
- The error ID stored in Latest error ID storage area (RWrn+17)[*1*2]
- The error ID stored in Latest error ID simple information (RXn6 to RXnF)[*1]
- The error ID information is notified from the bridge module to the device of the CPU module.[*2]

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

2. Power off and on the AnyWireASLINK system or turn on and off Error reset request flag (RY(n+D)A).

The following status is resulted:

- Parameter access error (RX(n+1)2) turns off.
- The value in Latest error code storage area (RWrn+16) is cleared.
- The value in Latest error ID storage area (RWrn+17) is cleared.
- The value in Latest error ID simple information (RXn6 to RXnF) is cleared.
- The error ID information that was notified to the device of the CPU module is cleared.

■How to recover from a slave module status error

1. Clear the slave module status error.

Check the status details of the target slave module, and if an error has occurred, eliminate the error cause.

The status details of the slave module can be checked with the parameter reading/writing function. (☞ Page 62 Parameter reading/writing function)

Even when the slave module status error is cleared, the following status is maintained.

- ON state of Slave module alarm signal (RX(n+1)0)
- The value 0131H stored in Latest error code storage area (RWrn+16)[*1*2]
- The error ID stored in Latest error ID storage area (RWrn+17)[*1*2]
- The error ID stored in Latest error ID simple information (RXn6 to RXnF)[*1]

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

2. Power off and on the AnyWireASLINK system or turn on and off Error reset request flag (RY(n+D)A).

The following status is resulted:

- Slave module alarm signal (RX(n+1)0) turns off.
- The value in Latest error code storage area (RWrn+16) is cleared.
- The value in Latest error ID storage area (RWrn+17) is cleared.
- The value in Latest error ID simple information (RXn6 to RXnF) is cleared.
- The alarm information that was notified to the device of the CPU module is cleared.

■How to recover from Same ID used error

For details, refer to the following.

☞ Page 89 Same ID number used detection function

■How to recover from No ID setting error

For details, refer to the following.

☞ Page 90 Module with no ID number setting detection function

Same ID number used detection function

ID duplication in all the connected slave modules is detected by performing the automatic address detection.

Point

- If the AnyWireASLINK system is powered off after ID duplication is detected, the ID duplication status cannot be checked until the automatic address detection is performed again.
- Only one ID is stored in the alarm information that is notified to the device of the CPU module due to ID duplication. For example, if "000AH" is set to multiple IDs, the value stored in the ID information is "1" and "000AH" is stored in the alarm ID.

Same ID number used status

When the system is in the following status, the same ID is used for multiple modules.

Even in the same ID number used status, the AnyWireASLINK bit transmission is not stopped.

- Slave module alarm signal (RX(n+1)0) turns on.
- 0190H is stored in Latest error code storage area (RWrn+16).*1*2
- The duplicated ID is stored in Latest error ID storage area (RWrn+17).*1*2
- The duplicated ID is stored in Latest error ID simple information (RXn6 to RXnF).*1
- The duplicated ID is stored in the alarm information notified from the bridge module.*1*2
- The duplicated ID is notified from the bridge module to the device of the CPU module.*2

*1 If multiple errors occur simultaneously, the latest error is displayed.

*2 This applies only when the CC-Link operation mode is Ver.2.00.

How to recover from Same ID number used status

How to recover from Same ID number used status is as follows.

1. Locate the error ID by checking the alarm ID information that was notified to the device of the CPU module.
2. Check the ID (address) setting of the slave module and set a unique address in the slave module.
3. Execute the automatic address detection function of the bridge module.

Point

While an ID (address) is used for multiple slave modules, executing either of the following can eliminate the same ID used error. However, the address is still used for the multiple slave modules.

- Powering off and on the AnyWireASLINK system
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

Module with no ID number setting detection function

This function detects slave modules with no ID (factory default ID) by performing the automatic address detection.

Module	Factory default ID
Input slave module, I/O combined slave module	02FFH
Output slave module	00FFH

Point

- If the AnyWireASLINK system is powered off after the no ID number setting status is detected, the no ID number setting status cannot be checked until the automatic address detection is performed again.
- Only one ID is stored in the alarm information that is notified to the device of the CPU module because an ID is not set. For example, if "00FFH" is set to multiple IDs, the value stored in the ID information is "1" and "00FFH" is stored in the alarm ID.

ID number unset status

When the system is in the following status, a module with no ID setting has been detected.
Even in the no ID number setting status, the AnyWireASLINK bit transmission is not stopped.

- Slave module alarm signal (RX(n+1)0) turns on.
- 0191H is stored in Latest error code storage area (RWrn+16).*1*2
- The unset ID is stored in Latest error ID storage area (RWrn+17).*1*2
- The unset ID is stored in Latest error ID simple information (RXn6 to RXnF).*1
- The unset ID is stored in the alarm information notified from the bridge module.*1*2
- The unset ID is notified from the bridge module to the device of the CPU module.*2

*1 If multiple errors occur simultaneously, the latest error is displayed.
*2 This applies only when the CC-Link operation mode is Ver.2.00.

How to recover from ID number unset status

1. Set an address of the slave module.
2. Check that "255" is not set to the address of the slave module.
3. After setting the address of the slave module, execute the automatic address detection function.

Point

While the ID (address) of a slave module is not set, executing either of the following can eliminate the no ID setting error. However the address of the slave module is still not set.

- Powering off and on the AnyWireASLINK system
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

Reading the ID list of the AnyWireASLINK slave module

Reads the slave module IDs (connection ID information, error ID information, and alarm ID information) in a list using the G(P).RDMSG instruction.

The slave module ID that is read is stored to the specified device of the CPU module.

Item	Overview	CC-Link operation mode
Connected module ID information	Reads the ID list of the slave module that is identified using automatic address detection.	Ver.2.00
Error ID information	Reads the ID list of the slave module in which one of the following error occurs. • DP/DN disconnection error (error code: 00CAH) • Parameter access error (Error code: 0130H)	Ver.2.00
Alarm ID information	Reads the ID list of the slave module in which the following alarm occurs. • Slave module status error (Error code: 0131H) • Same ID used error (Error code: 0190H) • No ID setting error (Error code: 0191H)	Ver.2.00

Precautions

- Up to 64 words are used for (D1) when the slave module ID is read using the G(P).RDMSG instruction. Set (D1) to not overlap with another area. If the (D1) overlaps with another area, the area is overwritten with the value of the ID read.
- Multiple G(P).RDMSG instructions cannot be executed at the same time for the same bridge module. After checking that (D2) is on, execute the next G(P).RDMSG instruction.

Point

- The bridge module with a serial number (first five digits) of "21122" or later can be used.
- For troubleshooting, refer to the following.

☞ Page 112 When the slave module ID cannot be read using the G(P).RDMSG instruction

- For sample program, refer to the following.

☞ Page 95 Sample program

Read procedure

■When the connection ID information is read

1. Check that the number of IDs of connected modules (RWrn+18) is 1 or larger.
2. Specify one of the following values according to the slave module that is read in the monitor command specification area (RWwn+24).

Range of the slave module that is read	Setting value to the monitor command specification area (RWwn+24)
1st to 64th module	10H
65th to 128th module	11H

3. Read the connection ID information from the bridge module to devices in the CPU module using the G(P).RDMSG instruction. Set one of the following values to the setting data of the G(P).RDMSG instruction.

Setting data	Setting description	Setting range
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH
(S1)+1	CC-Link station start number	1 to 60
(S1)+2	Number of send byte (fixed value)	1
(S1)+3	Maximum number of receive byte (fixed value)	128
(S2)+0	Dedicated instruction execution parameter (fixed value)	0H

The results of reading the connection ID information are stored in the following setting data in ascending order.

Setting data	Description	Range of reading the dedicated command setting	
		10H	11H
(D1)+0	Connection ID information	1st module	65th module
(D1)+1		2nd module	66th module
(D1)+2		3rd module	67th module
(D1)+3		4th module	68th module
(D1)+4		5th module	69th module
(D1)+5		6th module	70th module
⋮	⋮	⋮	⋮
(D1)+58	Connection ID information	59th module	123rd module
(D1)+59		60th module	124th module
(D1)+60		61st module	125th module
(D1)+61		62nd module	126th module
(D1)+62		63rd module	127th module
(D1)+63		64th module	128th module
(D2)	Read completion flag	—	—

■When error ID information is read

1. Check that the number of error IDs (RWrn+19) is 1 or larger.
2. Specify one of the following values according to the slave module that is read in the monitor command specification area (RWwn+24).

Range of the slave module that is read	Setting value to the monitor command specification area (RWwn+24)
1st to 64th module	20H
65th to 128th module	21H

3. Read the error ID information from the bridge module to devices in the CPU module using the G(P).RDMSG instruction. Set one of the following values to the setting data of the G(P).RDMSG instruction.

Setting data	Setting description	Setting range
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH
(S1)+1	CC-Link station start number	1 to 60
(S1)+2	Number of send byte (fixed value)	1
(S1)+3	Maximum number of receive byte (fixed value)	128
(S2)+0	Dedicated instruction execution parameter (fixed value)	0H

The results of reading the error ID information are stored in the following setting data in ascending order.

Setting data	Description	Range of reading the dedicated command setting	
		20H	21H
(D1)+0	Error ID information	1st module	65th module
(D1)+1		2nd module	66th module
(D1)+2		3rd module	67th module
(D1)+3		4th module	68th module
(D1)+4		5th module	69th module
(D1)+5		6th module	70th module
⋮	⋮	⋮	⋮
(D1)+58	Error ID information	59th module	123rd module
(D1)+59		60th module	124th module
(D1)+60		61st module	125th module
(D1)+61		62nd module	126th module
(D1)+62		63rd module	127th module
(D1)+63		64th module	128th module
(D2)	Read completion flag	—	—

■When alarm ID information is read

1. Check that the number of alarm IDs (RWrn+20) is 1 or larger.
2. Specify one of the following values according to the slave module that is read in the monitor command specification area (RWwn+24).

Range of the slave module that is read	Setting value to the monitor command specification area (RWwn+24)
1st to 64th module	30H
65th to 128th module	31H

3. Read the alarm ID information from the bridge module to devices in the CPU module using the G(P).RDMSG instruction. Set one of the following values to the setting data of the G(P).RDMSG instruction.

Setting data	Setting description	Setting range
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH
(S1)+1	CC-Link station start number	1 to 60
(S1)+2	Number of send byte (fixed value)	1
(S1)+3	Maximum number of receive byte (fixed value)	128
(S2)+0	Dedicated instruction execution parameter (fixed value)	0H

The results of reading the alarm ID information are stored in the following setting data in ascending order.

Setting data	Description	Range of reading the dedicated command setting	
		30H	31H
(D1)+0	Alarm ID information	1st module	65th module
(D1)+1		2nd module	66th module
(D1)+2		3rd module	67th module
(D1)+3		4th module	68th module
(D1)+4		5th module	69th module
(D1)+5		6th module	70th module
⋮	⋮	⋮	⋮
(D1)+58	Alarm ID information	59th module	123rd module
(D1)+59		60th module	124th module
(D1)+60		61st module	125th module
(D1)+61		62nd module	126th module
(D1)+62		63rd module	127th module
(D1)+63		64th module	128th module
(D2)	Read completion flag	—	—

Sample program

■CC-Link network parameter assignment

The CC-Link network parameter assignment in the sample program is as follows.

Signal	Device setting in the sample program
RX	D1000
RY	D2000
RWr	W0
RWw	W100
SB	SB0
SW	SW0

■Reading the connection ID information list

Reads the ID list of the slave module that is identified using automatic address detection. The device setting of the dedicated command and G(P).RDMSG instruction in the sample program is as follows.

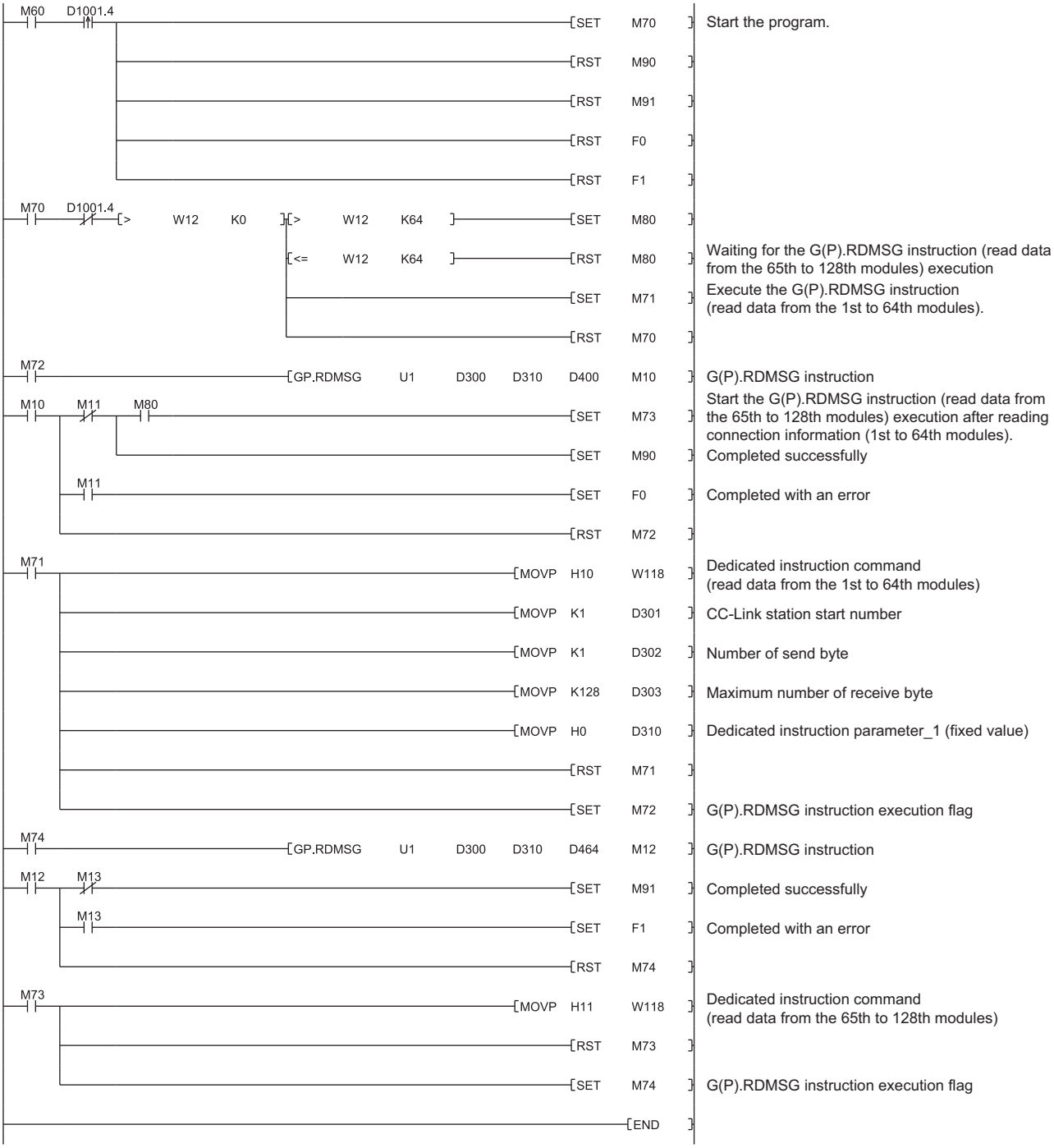
Device setting in the sample program	Setting description	Setting value in the sample program
W118*1	Dedicated command	10H
D301	CC-Link station start number	1
D302	Number of send byte	1
D303	Maximum number of receive byte	128
D310	Dedicated instruction execution parameter (fixed value)	0H

*1 Device of the address RWwn+24 (remote register output) assigned to the master station in the station number setting. (☞ Page 46 Remote registers when 4 stations are occupied)

The dedicated command specifies the number of slave modules whose parameters are targeted for reading as shown below.

Range of slave modules	Setting value
1st to 64th module	10H
65th to 128th module	11H

The following shows a program example.



■Reading the error ID information list

Reads the ID list of the slave module in which one of the following error occurs.

- DP/DN disconnection error (error code: 00CAH)
- Parameter access error (Error code: 0130H)

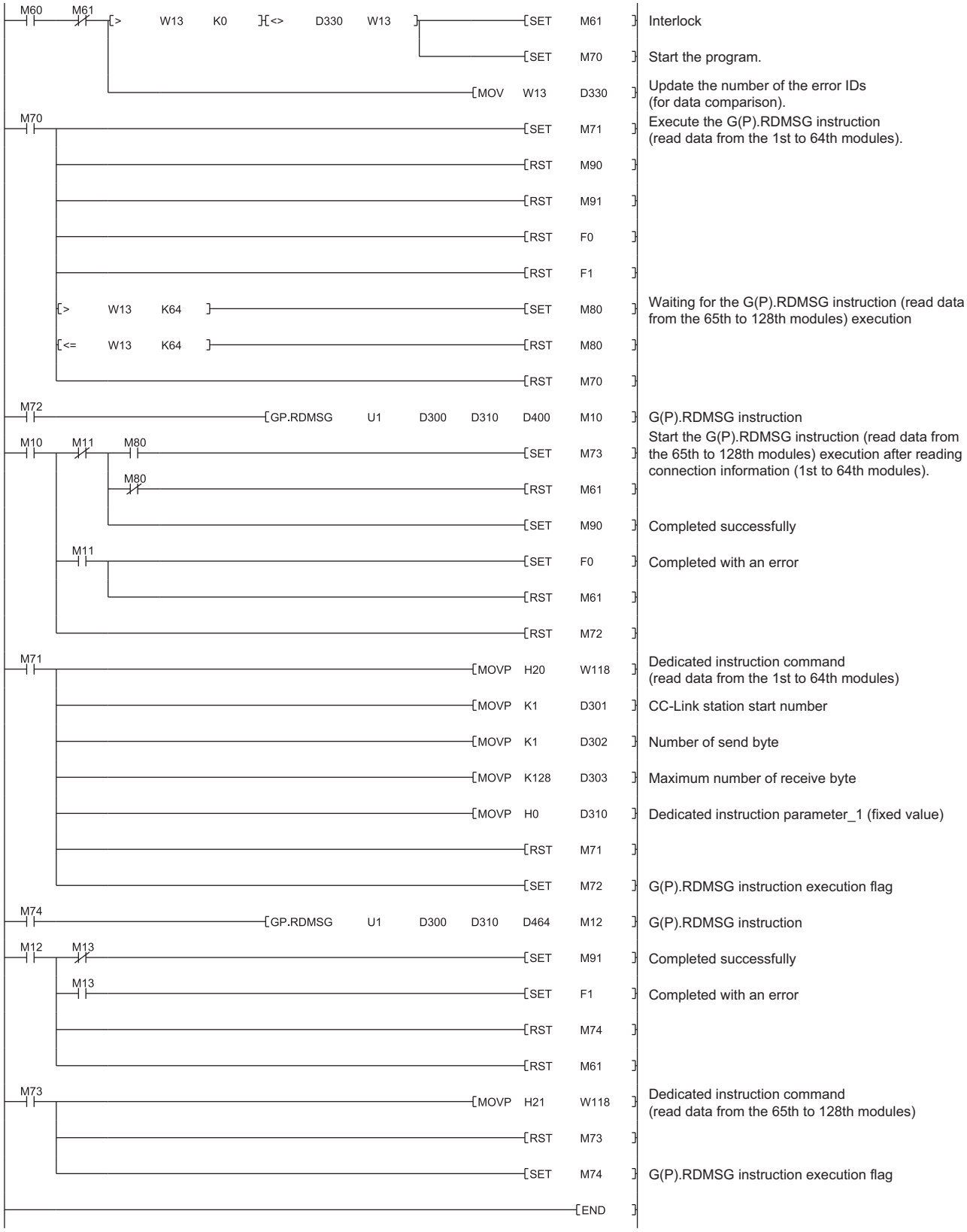
Device setting in the sample program	Setting description	Setting value in the sample program
W118*1	Dedicated command	20H
D301	CC-Link station start number	1
D302	Number of send byte	1
D303	Maximum number of receive byte	128
D310	Dedicated instruction execution parameter (fixed value)	0H

*1 Device of the address RWwn+24 (remote register output) assigned to the master station in the station number setting. (☞ Page 46 Remote registers when 4 stations are occupied)

The dedicated command specifies the number of slave modules whose parameters are targeted for reading as shown below.

Range of slave modules	Setting value
1st to 64th module	20H
65th to 128th module	21H

The following shows a program example.



■Reading the alarm ID information list

Reads the ID list of the slave module in which the following alarm occurs.

- Slave module status error (Error code: 0131H)
- Same ID used error (Error code: 0190H)
- No ID setting error (Error code: 0191H)

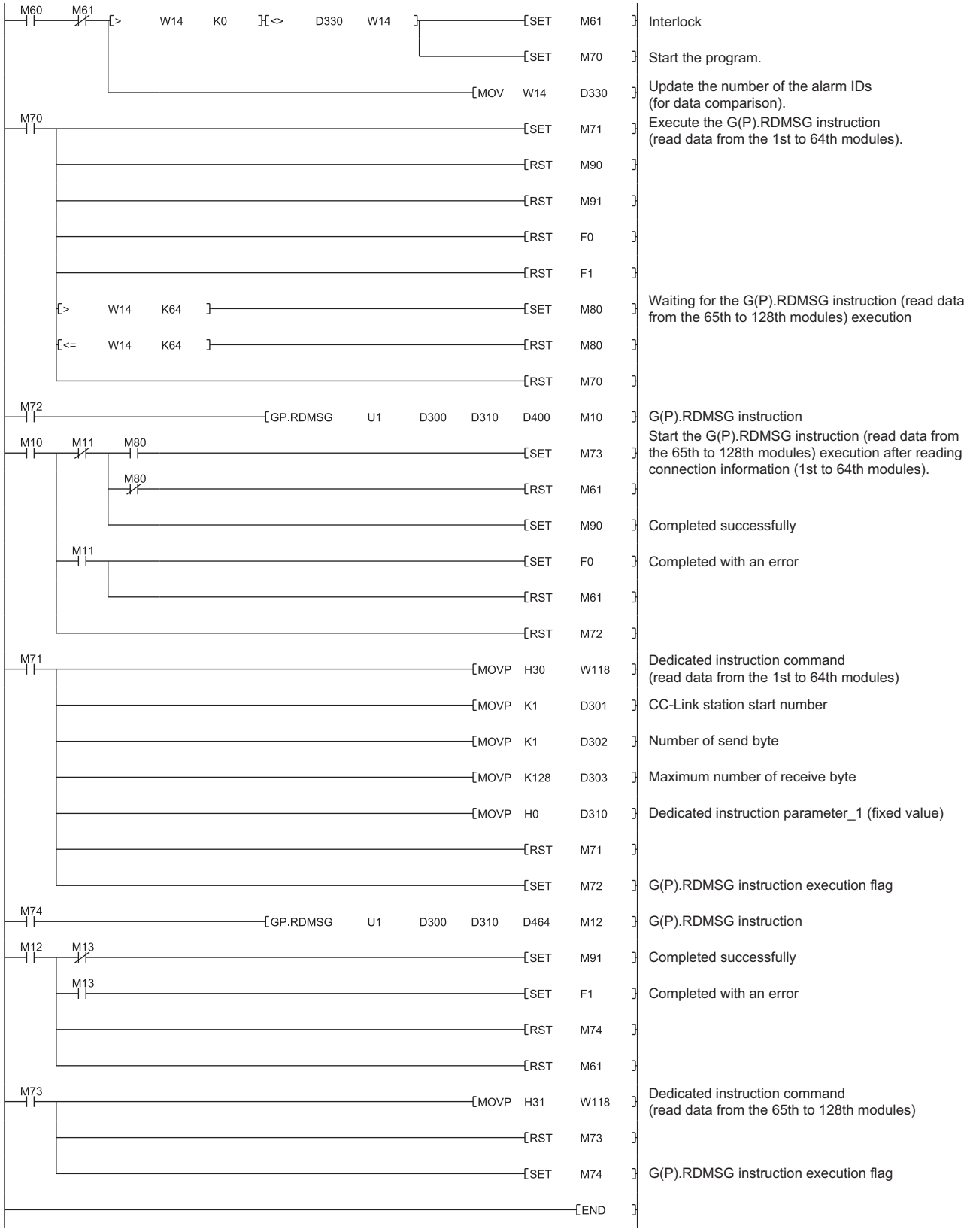
Device setting in the sample program	Setting description	Setting value in the sample program
W118*1	Dedicated command	30H
D301	CC-Link station start number	1
D302	Number of send byte	1
D303	Maximum number of receive byte	128
D310	Dedicated instruction execution parameter (fixed value)	0H

*1 Device of the address RWwn+24 (remote register output) assigned to the master station in the station number setting. (☞ Page 46 Remote registers when 4 stations are occupied)

The dedicated command specifies the number of slave modules whose parameters are targeted for reading as shown below.

Range of slave modules	Setting value
1st to 64th module	30H
65th to 128th module	31H

The following shows a program example.



AnyWireASLINK test mode

This function operates the AnyWireASLINK system connected to the bridge module separately from CC-Link to check the system start-up or operation solely.[*1][*2]

Following items can be checked when the system is not connected to CC-Link[*3].

- Wiring check on AnyWireASLINK side
- Address and parameter setting of the slave module[*4]
- Performing the automatic address detection (☞ Page 53 Performing the automatic address detection)

*1 Communication with CC-Link is not available during the AnyWireASLINK test mode.

*2 Do not start the AnyWireASLINK test mode when an LED of CC-Link side is on.

*3 AnyWireASLINK test mode cannot be started when system is connected to CC-Link because it automatically starts to communicate with CC-Link.

*4 The address writer is required for settings of the slave module. (☞ Page 51 Settings of Slave Module)

Starting AnyWireASLINK test mode

1. Power on the bridge module without connecting to CC-Link.

2. Press the SET switch (first time)

Check that only the LINK LED is on and press the SET switch until the SET LED turns on.

3. Press the SET switch (second time)

Check that the LINK LED and SET LED are on and press the SET switch again until the ALM LED turns on.

4. Press the SET switch (third time)

Check that the LINK LED, SET LED, and ALM LED are on and press the SET switch again until the LINK LED flashes.

5. AnyWireASLINK test mode is successfully started if the LINK LED is flashing and the SET LED and ALM LED are off.

However, if an error occurs on the bridge module, LED status indicates the error.

Exiting AnyWireASLINK test mode

Exit the AnyWireASLINK test mode by powering off and on the bridge module.

iQ Sensor Solution function

Establish data communication with AnyWireASLINK-compatible slave modules via CC-Link and AnyWireASLINK.

The following iQ Sensor Solution functions can be used.

- Automatic detection of connected devices
- Sensor/device monitor
- Sensor parameter read/write
- Data backup/restoration

For details on each function, refer to the following.

📖 iQ Sensor Solution Reference Manual

Point

The iQ Sensor Solution functions are effective only when the CC-Link operation mode is Ver.2.00.

9 TRANSMISSION TIME

9.1 CC-Link Transmission Time

For transmission time of the CC-Link side, refer to the user's manual for the master module used.

9.2 AnyWireASLINK Transmission Time

Transmission cycle time of the bridge module

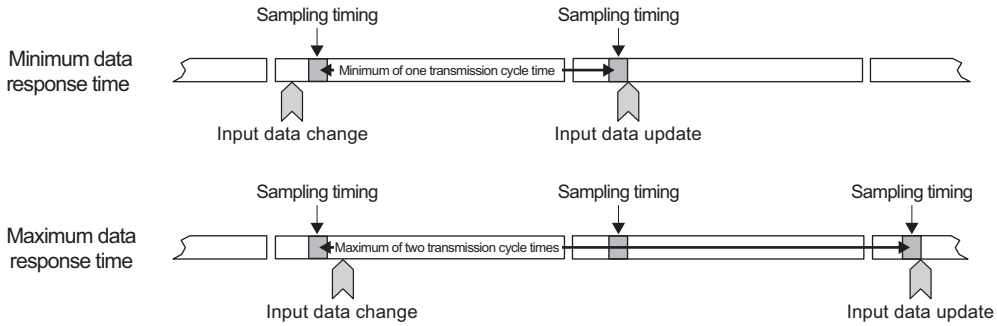
The transmission cycle time is the time required for the bridge module and all the slave modules to update I/O data.
Transmission cycle time of the bridge module is as follows.

Number of transmission points	One transmission cycle time
128 points (input: 64 points, output: 64 points)	3.6ms
256 points (input: 128 points, output: 128 points)	6.0ms
384 points (input: 192 points, output: 192 points)	8.3ms
512 points (input: 256 points, output: 256 points)	10.7ms

Effects of the double check system

■Input

Unless the same data is received twice successively on the bridge module side, the input area data is not updated. A minimum of one-transmission cycle time and a maximum of two-transmission cycle time are required for the data response. Therefore, when input signal is shorter than two-transmission cycle time, the input data may not be captured depending on the timing.
To ensure the response, provide an input signal that is longer than two-transmission cycle time.



■Output

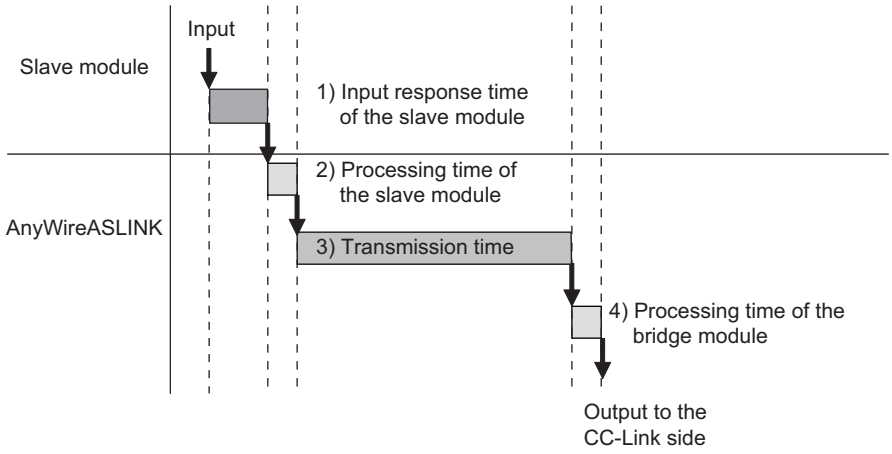
As the double check is performed on the slave module side, the time required is the same as that for input, namely a minimum of one-transmission cycle time and a maximum of two-transmission cycle time.

Transmission delay time

Transmission delay time is a value between one- and two-transmission cycle time.

Slave module (input) → AnyWireASLINK

The figure below shows the time between a signal input to the slave module and the bridge module device turning on/off.



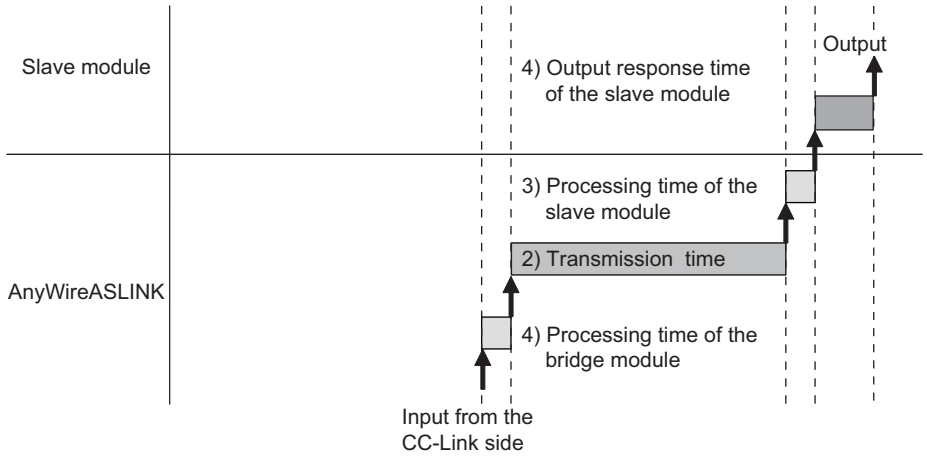
[Calculation formula]

1) Input response time of the slave module + 2) Processing time of the slave module + 3) Transmission time + 4) Processing time of the bridge module

No.	Description	Required time
1)	Input response time of the slave module	Refer to the manual for the slave module connected to the system or the device connected to the slave module.
2)	Processing time of the slave module	Approx. 0.2ms (The time differs depending on the slave module.)
3)	Transmission time	Transmission cycle time×2 The transmission cycle time differs depending on the number of transmission points. (☞ Page 104 Transmission cycle time of the bridge module)
4)	Processing time of the bridge module	0.6ms

AnyWireASLINK → slave module (output)

The figure below shows the time between the bridge module device turning on/off and a signal output of the slave module turning on/off.



[Calculation formula]

1) processing time of the bridge module + 2) transmission time + 3) processing time of the slave module + 4) output response time of the slave module

No.	Description	Required time
1)	Processing time of the bridge module	0.6ms
2)	Transmission time	Transmission cycle time×2 The transmission cycle time differs depending on the number of transmission points. (☞ Page 104 Transmission cycle time of the bridge module)
3)	Processing time of the slave module	Approx. 0.04ms (The time differs depending on the slave module.)
4)	Output response time on the slave module	Refer to the manual for the slave module connected to the system or the device connected to the slave module.

Parameter access response time

The parameters of AnyWireASLINK provide monitoring information of slave modules or the entire system and setting information of the slave modules.

Parameter data is synchronized between the bridge module and slave modules at a cycle different from that of I/O data.

Use the following calculation formulas to obtain the parameter access response time.

Item	Calculation formula
Update interval time of automatically updated parameters	Number of AnyWireASLINK connected IDs × Transmission cycle time × 3
Time required for reading parameters	Number of target IDs × Transmission cycle time × 27
Time required for writing parameters	Number of target IDs × Transmission cycle time × 39

10 TROUBLESHOOTING

10.1 Before Troubleshooting

Check that the POWER LED of the power supply module and the MODE LED of the CPU module are on.
If they are off, perform the troubleshooting of the CPU module.
📖 User's Manual (Hardware Design, Maintenance and Inspection) for the CPU module used

10.2 Visual Inspection

Check that the communication cables and wires are not disconnected and check the following items.

Checking the LED status of the bridge module

Errors regarding the operating status and communications of the bridge module can be checked with the following LEDs.
When the LEDs are in the following status, settings and wiring need to be corrected.

1. Check all LEDs of the bridge module.

If all LEDs of the bridge module are off even after powering off and on the module, perform the following troubleshooting.
☞ Page 109 When all LEDs of the bridge module are off even after powering off and on

2. Check the LINK LED of the bridge module.

If the LINK LED does not turn on or flash even after powering off and on the module, perform the following troubleshooting.
☞ Page 109 When the LINK LED does not turn on or flash even after powering off and on
If the LINK LED does not flash, perform the following troubleshooting.
☞ Page 109 When the LINK LED of the bridge module does not flash

3. Check the ALM LED of the bridge module.

If the ALM LED is flashing at 0.2 second intervals, perform the following troubleshooting.
☞ Page 109 When the ALM LED of the bridge module is flashing at 0.2 second intervals
If the ALM LED is flashing at 1 second intervals, perform the following troubleshooting.
☞ Page 109 When the ALM LED of the bridge module is flashing at 1 second intervals
If the ALM LED is on, perform the following troubleshooting.
☞ Page 110 When the ALM LED of the bridge module is turned on

4. Check the L RUN LED of the bridge module.

If the L RUN LED does not turn on, perform the following troubleshooting.
☞ Page 110 When the L RUN LED of the bridge module is not turned on

5. Check the L ERR. LED of the bridge module.

If the L ERR. LED is flashing regularly, perform the following troubleshooting.
☞ Page 110 When the L ERR. LED of the bridge module is flashing regularly
If the L ERR. LED is flashing irregularly, perform the following troubleshooting.
☞ Page 110 When the L ERR. LED of the bridge module is flashing irregularly
If the L ERR. LED is on, perform the following troubleshooting.
☞ Page 110 When the L ERR. LED of the bridge module is turned on

Checking the operating status of the slave module

Check that there is no error in the slave module. For the troubleshooting of the slave module, refer to the following.
☞ Page 112 Troubleshooting of Slave Module

- When the data (I/O data and parameter data) of the slave module cannot be checked
- When the data (I/O data and parameter data) of the slave module data is unstable

10.3 Checking with Error Status Flag

When the error status flag is on

The value for Error status flag (RX(n+1)A, RX(n+3)A, RX(n+5)A, RX(n+7)A, RX(n+D)A) is determined by the number of occupied stations of CC-Link that corresponds to the CC-Link operation mode.

☞ Page 50 Error Reset

Error cause can be investigated by checking the on/off status of remote input signal.

■When DP/DN short error is on

If DP/DN short error (RXn1) is on, perform the following troubleshooting.

☞ Page 109 When the ALM LED of the bridge module is flashing at 1 second intervals

■When Transmission cable voltage drop error is on

If Transmission cable voltage drop error (RXn3) is on, perform the following troubleshooting.

☞ Page 109 When the ALM LED of the bridge module is flashing at 0.2 second intervals

■When DP/DN disconnection error is on

If DP/DN disconnection error (RXn4) is on, perform the following troubleshooting.

☞ Page 110 When the ALM LED of the bridge module is turned on

10.4 Troubleshooting of Bridge Module

This section describes the troubleshooting of the bridge module.

When all LEDs of the bridge module are off even after powering off and on

Item	Action
Check the power supply for correct wiring.	If the power supply is wired correctly, hardware failure may have occurred. Please consult your local Mitsubishi representative.

When the LINK LED does not turn on or flash even after powering off and on

Item	Action
Check the power supply voltage.	Check that the power supply voltage of the 24VDC external power supply is within the rated value.
Check the wiring of terminal blocks.	• Check that the 24VDC external power supply is properly connected to the terminal block of the bridge module. • Check that there is no short-circuit or incorrect wiring and screws are tightened within the specified torque range.
Check the power cables (24V, 0V).	• Check that the power cables (24V, 0V) are not disconnected or short-circuited. • When crimping the link connector, check that the pin layout is correct.
Check the total internal current consumption of the entire system.	Review the system configuration so that the total internal current consumption does not exceed the rated output current of the power supply module.

When the LINK LED of the bridge module does not flash

Item	Action
Check that the LINK LED is turned on.	A malfunction has been detected in the bridge module hardware. Power off and on the bridge module. If the error occurs again, the module may be in failure. Please consult your local Mitsubishi representative.

When the ALM LED of the bridge module is flashing at 0.2 second intervals

Item	Action
Check the power supply voltage of the 24VDC external power supply.	Adjust the power supply voltage of the 24VDC external power supply which is connected to the bridge module to be within the rated value (21.6 to 27.6VDC). The recommended voltage is 26.4VDC.
Check the power cables (24V, 0V).	• Check that the power cables (24V, 0V) are not disconnected or short-circuited. • When crimping the link connector, check that the pin layout is correct.
Check the wiring of terminal blocks.	• Check that the 24VDC external power supply is properly connected to the terminal block of the CC-Link master module or the slave module. • Check that there is no short-circuit or incorrect wiring and screws are tightened within the specified torque range.

When the ALM LED of the bridge module is flashing at 1 second intervals

Item	Action
Check that the transmission cables (DP, DN) are not short-circuited.	• Check that the transmission cables (DP, DN) are not short-circuited. • When crimping the link connector, check that the pin layout is correct.
Check the wiring of terminal blocks.	Check that the transmission cables (DP, DN) are not in contact with each other and that there is no incorrect wiring in the terminal block wiring of the bridge module and the slave module.
Check that the current consumption of the AnyWireASLINK system is within the specified range.	Correct the cables (wire diameter, total length) and modules (type, the number of connected modules) so that the total current consumption of all the slave modules does not exceed the transmission cable supply current of the bridge module.

When the ALM LED of the bridge module is turned on

Item	Action
Check that the transmission cables (DP, DN) are not disconnected.	• Check that the transmission cables (DP, DN) (entire cables) are free from disconnection. • Check that the cables have been crimped with proper pin layout using link connectors appropriate to the wire diameter.
Check the wiring of terminal blocks.	• Check that the transmission cables (DP, DN) and power cables (24V, 0V) are properly connected to the terminal block of the bridge module. • Check that there is no incorrect wiring and screws are tightened within the specified torque range.
Perform the automatic address detection.	When creating a new system, adding or removing a slave module, or changing the address of the slave module, perform the automatic address detection. After performing the automatic address detection, check that the number of slave modules and the address are consistent with those of the actual system.
Check the existence of the slave module.	If the LINK LED of the slave module is not flashing, check whether there is a disconnection, short circuit, incorrect wiring, or poor contact in the transmission cables (DP, DN) around the module.

When the L RUN LED of the bridge module is not turned on

Item	Action
Check that the L RUN LED is off.	Communications are interrupted. For details, refer to the user's manual for the master module used.

When the L ERR. LED of the bridge module is flashing regularly

Item	Action
Check that the station number setting switch is changed during normal operation.	Correct the setting of station number setting switch after powering off the bridge module, and power on the module again.
Check that the station number setting switch is not in failure.	Hardware failure may have occurred when the L ERR. LED is flashing although station number setting switch has not been changed. Please consult your local Mitsubishi representative.

When the L ERR. LED of the bridge module is flashing irregularly

Item		Action
Check that the bridge module or CC-Link dedicated cable has been affected by noise.		Ground both ends of the shield wire of the CC-Link dedicated cable with a ground resistance of 100 ohms or less via the SLD and FG of the bridge modules. Ground the FG terminal of the bridge module properly. When conducting piping and wiring, ground the pipes properly.
Check that communication is not disconnected.		The station number setting switch may have been changed while communication is disconnected. In this case, refer to all the check items in "When the L ERR. LED of the bridge module is flashing regularly" and take appropriate actions. ☞ Page 110 When the L ERR. LED of the bridge module is flashing regularly
The bridge module is not connected at the end of CC-Link system.	Check that SW4 is on.	Set SW4 to off.
	Check that terminating resistor is installed.	Remove the terminating resistor.
The bridge module is connected at the end of CC-Link system.	Check that SW4 is on and terminating resistor is installed.	• Remove the terminating resistor. • Set SW4 to off.
	Check that SW4 is off and terminating resistor is installed.	Power off and on the bridge module after performing one of the following actions. • Set SW4 to on. • Install the terminating resistor.

When the L ERR. LED of the bridge module is turned on

Item	Action
Check that the station number setting of CC-Link is correct.	Set the correct station number.

When the SET LED of the bridge module is flashing and does not turn off

Item	Action
Check that Parameter access completion flag (RX(n+1)1) is not off or Automatic address detection flag (RX(n+1)4) is not on.	• Power off and on the bridge module. • Check that automatic address detection is not performed while parameter access is in progress.

10.5 Troubleshooting of Slave Module

This section describes the troubleshooting of the slave module.

When I/O data and parameter data cannot be checked

Item	Action
Check the CC-Link network parameter setting in GX Works2.	• Check that the data areas which RX/RY and RW are assigned are correct. • Check that the station information of CC-Link is correctly set in the bridge module setting. • Check that the CPU module is set to STOP status. (When the CC-Link operation mode is Ver.1.10 and the module is in the STOP state, the data cannot be output.)
Check the I/O LED status of the slave module.	Check the I/O LED status of the slave module and check that there is no disconnection, short-circuit, or poor contact in the wiring on the load side.
Check that two or more bridge modules are not connected within one AnyWireASLINK line.	Connect only one bridge module within one AnyWireASLINK line.

When the I/O data and parameter data of the slave module is unstable

Item	Action
Check the connection of the terminating unit.	Pay attention to the polarities of the terminating unit and connect it properly.
Check the total length of the transmission cables (DP, DN).	Adjust the total length of the AnyWireASLINK system to be within the specification range.
Check the specifications of the transmission cables (DP, DN).	• Use transmission cables (DP, DN) that satisfy the specifications such as the type, wire diameter, and tightening torque to the terminal block. • Do not run multiple transmission cables (DP, DN) using a multicore cable.
Check the power supply voltage of the 24VDC external power supply.	Adjust the power supply voltage of the 24VDC external power supply to be within the rated value (21.6 to 27.6VDC). The recommended voltage is 26.4VDC.
Check that the slave module does not have the same address as the addresses of other slave modules.	Set a unique address in the slave module.
Check that two or more bridge modules are not connected within one AnyWireASLINK line.	Connect only one bridge module within one AnyWireASLINK line.
Check that AnyWireASLINK bridge modules of different series are not connected within one AnyWireASLINK line.	Connect only one AnyWireASLINK bridge module within one AnyWireASLINK line.
Check that a bridge module and an AnyWireASLINK master module are not connected together within one AnyWireASLINK line.	Connect either a bridge module or an AnyWireASLINK master module within one AnyWireASLINK line.

When the slave module ID cannot be read using the G(P).RDMSG instruction

Item	Action
Check that the link refresh is set properly for the device used as the monitor command specification area.	Set the proper refresh destination and number for parameter assignment in the link refresh settings, and execute the G(P).RDMSG instruction again.
Check whether the following number of remote register IDs is 0 or not. • When the connection ID information is read: Number of the IDs of the connected modules (RWrn+18) • When the error ID information is read: Number of error IDs (RWrn+19) • When the alarm ID information is read: Number of alarm IDs (RWrn+20)	Check the connection status of the slave module, and execute the automatic address detection function. After the automatic address detection is completed, execute the G(P).RDMSG instruction again.

10.6 List of Error Codes

The latest error code is stored in Latest error code storage area (RWrn+16).

This section lists error descriptions, causes, and corrective actions.

Error code	Error description	Cause and action
0064H 0065H 0066H 0067H	Bridge module hardware error	A malfunction has been detected in the bridge module hardware. • Power off and on the bridge module. • If the error occurs again, the module may be in failure. Please consult your local Mitsubishi representative.
00C8H	Transmission cable voltage drop error	The voltage of the 24VDC external power supply may be lacking. • Adjust the power supply voltage of the 24VDC external power supply to be within the rated value (21.6 to 27.6VDC). The recommended voltage is 26.4VDC. • Check that the power cables (24V, 0V) are not disconnected or short-circuited. • When crimping the link connector, check that the pin layout is correct. • Check that the 24VDC external power supply is properly connected to the terminal block of the bridge module or the slave module. • Check that there is no short-circuit or incorrect wiring and screws are tightened sufficiently.
00C9H	DP/DN short error	A short-circuit may have occurred in the transmission cables (DP, DN) or the maximum supply current may be exceeded. • Check that the transmission cables (DP, DN) are not short-circuited. • When crimping the link connector, check that the pin layout is correct. • Check that the transmission cables (DP, DN) are not in contact with each other and that there is no incorrect wiring in the terminal block wiring of the bridge module and the slave module. • Correct the cables (wire diameter, total length) and modules (type, the number of connected modules) so that the total current consumption of all the slave modules does not exceed the transmission cable supply current of the bridge module.
00CAH	DP/DN disconnection error	Disconnection may have occurred in the transmission cables (DP, DN) or there may be no response from the slave module. The slave module may be malfunctioning or the system configuration may have been changed after the automatic address detection function is executed. Check Number of the error IDs (RWrn+19) and Latest error ID storage area (RWrn+17), locate the disconnection, and perform the following actions. • Check that the transmission cables (DP, DN) (entire cables) are free from disconnection. • Check that the cables have been crimped with proper pin layout using link connectors appropriate to the wire diameter. • Check that the transmission cables (DP, DN) are properly connected to the terminal block of the bridge module. • Check that there is no incorrect wiring and screws are tightened sufficiently. • When creating a new system, adding or removing a slave module, or changing the address of the slave module, perform the automatic address detection. After performing the automatic address detection, check that the number of slave modules and the address are consistent with those of the actual system. • If the LINK LED of the slave module is not flashing, check whether there is a disconnection, short circuit, incorrect wiring, or poor contact in the transmission cables (DP, DN) around the module.
012CH 012DH	Slave module hardware error	A malfunction has been detected in the slave module hardware. Perform either of the following operations: • Power off and on the bridge module. • Power off and on the slave module. Check that the modules are not affected by noise.
012EH	Parameter access target module ID error	Parameter access has been executed on the ID that has not been detected by the bridge module through the automatic address detection function. Check the alarm ID information in the specified device of the CPU module to locate the error ID and perform the following actions. • Check that the ID of the slave module that has been targeted for parameter access is consistent between the actual system and program. Make sure that the ID of the input slave module and I/O combined slave module is set to the address + 200H. • When creating a new system, adding or removing a slave module, or changing the address of the slave module, perform the automatic address detection. • After performing the automatic address detection, check that the number of slave modules and the address are consistent with those of the actual system.
012FH	Parameter value error	A write signal of a parameter that cannot be set has been detected in the slave module. Check the alarm ID information in the specified device of the CPU module to locate the error ID and perform the following action. • Check that the value that is set to the parameter of the slave module is within the settable range.

Error code	Error description	Cause and action
0130H	Parameter access error	The parameter access signal transferred from the bridge module is corrupt. Check that none of the following errors have occurred. (☞ Page 88 How to recover from Parameter access error) • Slave module hardware error • Slave module status error • Same ID used error When none of the above have occurred, check that the module is not affected by noise.
0131H	Slave module status error	The slave module has provided notification of the error status. • Check the status details of the target module and remove the error.
0190H	Same ID used error	IDs (addresses) are duplicated in the connected slave modules. Check the alarm ID information in the specified device of the CPU module to locate the error ID and perform the following action. • Check the ID (address) setting of the slave module and set a unique address in the slave module.
0191H	No ID setting error	There is a slave module whose ID is not set (set to factory default). • Set an address of the slave module. • Check that 255 is not set to the address of the slave module.

APPENDICES

Appendix 1 Details of Remote I/O Signals

This section describes the details of remote I/O signals of master module for the bridge module.

Remote I/O signals

DP/DN short error

DP/DN short error (RXn1) turns on when a short-circuit occurs in the transmission cables (DP, DN) or the maximum supply current is exceeded.

■Turning off DP/DN short error

To turn off DP/DN short error (RXn1), after eliminating the short-circuit in the transmission cables (DP, DN) or adjusting the current to be within the specification range, perform either of the following operations.
Until then, this signal remains on.

- Powering off and on the bridge module
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

Transmission cable voltage drop error

Transmission cable voltage drop error (RXn3) turns on when the 24VDC external power supply voltage drops.

■Turning off Transmission cable voltage drop error

To turn off Transmission cable voltage drop error (RXn3), after eliminating the drop of the 24VDC external power supply voltage, perform either of the following operations.
Until then, this signal remains on.

- Powering off and on the bridge module
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

DP/DN disconnection error

DP/DN disconnection error (RXn4) turns on when disconnection occurs in the transmission cables (DP, DN) or the slave module is disconnected.

■Turning off DP/DN disconnection error

To turn off DP/DN disconnection error (RXn4), after eliminating the disconnection in the transmission cables (DP, DN) or that of the slave module, perform either of the following operations.
Until then, this signal remains on.

- Powering off and on the bridge module
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

Latest error ID simple information

When DP/DN disconnection error (RXn4) or Slave module alarm signal (RX(n+1)0) turns on, following latest error ID is stored in Latest error ID simple information (RXn6 to RXnF).

- 0000H to 00FFH: ID of the output slave module
- 0200H to 02FFH: ID of the input slave module or I/O combined slave module

When DP/DN short error (RXn1), Transmission cable voltage drop error (RXn3), or bridge module hardware failure is occurred, latest error ID is not stored in Latest error ID simple information (RXn6 to RXnF).

Slave module alarm signal

Slave module alarm signal (RX(n+1)0) turns on when a status error occurs in the slave module or an error occurs in the address setting of the slave module. (The status error includes an I/O disconnection and short circuit.)

■Turning off Slave module alarm signal

To turn off Slave module alarm signal (RX(n+1)0), after eliminating the status error in the slave module or setting the address of the slave module again, perform either of the following operations.

Until then, this signal remains on.

- Powering off and on the bridge module
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

Parameter access completion flag

Parameter access completion flag (RX(n+1)1) turns on when parameter access is complete.

Parameter access error

Parameter access error (RX(n+1)2) turns on when an error occurs during parameter access.

■Turning off Parameter access error

To turn off Parameter access error (RX(n+1)2), after eliminating the error, perform either of the following operations.

Until then, this signal remains on.

- Powering off and on the bridge module
- Turning on and off Error reset request flag (RY(n+D)A)

Automatic address detection flag

Automatic address detection flag (RX(n+1)4) remains on from the start of the automatic address detection to the end of the operation.

Parameter access flag (with handshake)

Parameter access flag (with handshake) (RX(n+1)A) is continuously on, when the bridge module supports Parameter accessing flag (with handshake) (RX(n+1)B).

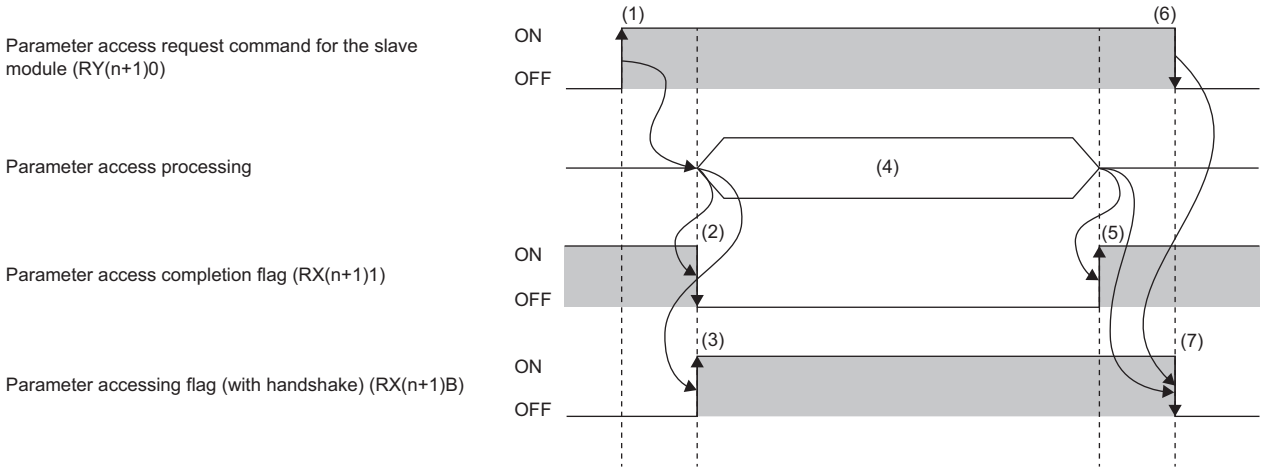
Parameter accessing flag (with handshake)

Parameter accessing flag (with handshake) (RX(n+1)B) turns on when the parameter access processing of Parameter access request command for the slave module (RY(n+1)0) starts.

■Turning off Parameter accessing flag (with handshake)

Parameter accessing flag (with handshake) (RX(n+1)B) turns off when both of the following conditions are met.

- The parameter access processing has been completed.
- Parameter access request command for the slave module (RY(n+1)0) has turned off.



(1) Turn on any of the signals at any timing to start the parameter access.
(2) The signal turns off simultaneously with starting the parameter access processing.
(3) The signal turns on simultaneously with starting the parameter access processing.
(4) The parameter access is in progress.
(5) The signal turns on simultaneously with completing the parameter access processing.
(6) Turn off the signal at any timing.
(7) The signal turns off when the remote output signal is turned off in (6) after the parameter access processing is completed.

A

Error status flag

The value for Error status flag (RX(n+1)A, RX(n+3)A, RX(n+5)A, RX(n+7)A, RX(n+D)A) is determined by the number of occupied stations of CC-Link that corresponds to the CC-Link operation mode. (☞ Page 50 Error Reset)

Error status flag (RX(n+1)A, RX(n+3)A, RX(n+5)A, RX(n+7)A, RX(n+D)A) turns on in the following situations.

- DP/DN short error
- Transmission cable voltage drop error
- DP/DN disconnection error
- Bridge module hardware error

■Turning off Error status flag

To turn off Error status flag (RX(n+1)A, RX(n+3)A, RX(n+5)A, RX(n+7)A, RX(n+D)A), after eliminating the error, perform either of the following operations.

Until then, Error status flag (RX(n+1)A, RX(n+3)A, RX(n+5)A, RX(n+7)A, RX(n+D)A) remains on.

- Powering off and on the bridge module
- Turning on and off Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A)

Remote READY

The value for Remote READY (RX(n+1)B, RX(n+3)B, RX(n+5)B, RX(n+7)B, RX(n+D)B) is determined by the number of occupied stations of CC-Link that corresponds to the CC-Link operation mode. (☞ Page 50 Error Reset)
Remote READY (RX(n+1)B, RX(n+3)B, RX(n+5)B, RX(n+7)B, RX(n+D)B) turns on when the bridge module is powered on and the test mode is finished.

■Turning off Remote READY

Remote READY (RX(n+1)B, RX(n+3)B, RX(n+5)B, RX(n+7)B, RX(n+D)B) turns off in the following situations.

- Bridge module hardware error
- AnyWireASLINK transmission error

Remote output signals

Automatic address detection command

Automatic address detection command (RYn1) is turned on and off to perform the automatic address detection function.

Parameter access request command for the slave module

Parameter access request command for the slave module (RY(n+1)0) is turned on to read or write parameters to the slave module from the bridge module.

When this signal is turned on, Parameter access completion flag (RX(n+1)1) turns off.

In addition, Parameter accessing flag (with handshake) (RX(n+1)B) turns on.

Error reset request flag

The value for Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A) is determined by the number of occupied stations of CC-Link that corresponds to the CC-Link operation mode. (☞ Page 50 Error Reset)

Error reset request flag (RY(n+1)A, RY(n+3)A, RY(n+5)A, RY(n+7)A, RY(n+D)A) is turned on and off to turn off the following remote input signals or clear each type of error information.

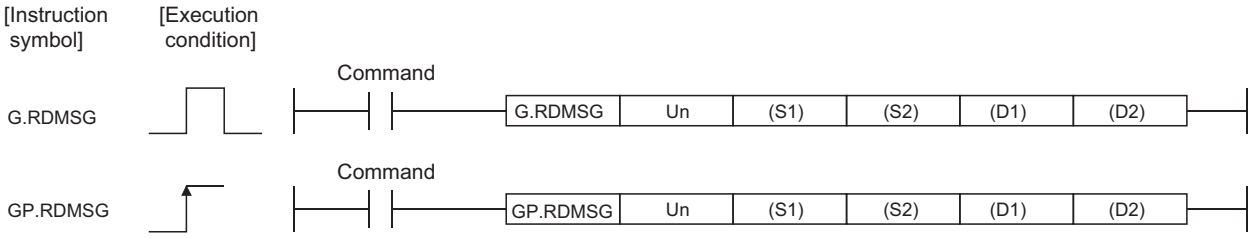
- DP/DN short error (RXn1)
- Transmission cable voltage drop error (RXn3)
- DP/DN disconnection error (RXn4)
- Latest error ID simple information (RXn6 to RXnF)
- Slave module alarm signal (RX(n+1)0)
- Parameter access error (RX(n+1)2)
- Latest error code storage area (RWrn+16)
- Latest error ID storage area (RWrn+17)
- Number of the error IDs (RWrn+19)
- Number of the alarm IDs (RWrn+20)

Point

Powering off and on the bridge module also turns off the remote input signals and clears each error status.

Appendix 2 G(P).RDMSG instruction

Use this instruction when executing slave module parameter access.



Applicable devices

Setting data	Internal device (system, user)		File register (R, ZR)	Link direct device J□\G□		Intelligent function module device U□\G□	Index register Z□	Constant		Others
	Bit (X, Y, M, L, F, V, B)*1	Word (T, ST, C, D, W)		Bit	Word			K, H	$	
(S1)	—	○		—						
(S2)	—	○		—						
(D1)	—	○		—						
(D2)	○	○		—						

*1 Bit specification of word device can be used for bit data.
A bit in a word device can be specified by "Word device.Bit number". (Specify a bit number in hexadecimal.)
For example, bit 10 of D0 is specified as D0.A.
Note that the bit specification cannot be performed for timer (T), retentive timer (ST), or counter (C).

Setting data

■Applicable devices

Device*1	Setting description	Setting range	Data type
Un	Start I/O number of the module (The first 2 digits in a 3-digit I/O number)	0 to FEH	16-bit binary
(S1)	Start number of the device where the control data is stored	Predefined devices	Device name
(S2)*2	Start number of send data storage device	Predefined devices	
(D1)*2	Start number of receive data storage device	Predefined devices	
(D2)	Own device which turns on for one scan by the completion of the instruction. (d2)+1 also turns on at the completion with an error.	Predefined devices	Bit

*1 The local device and the file register for each program are not available for setting data.
*2 For contents of send data and receive data, refer to slave module parameter access. (☞ Page 64 Slave module parameter access)

■Control data

Device	Item	Description	Setting range	Setting side
(S1)+0	Completion status	The status at the completion of the instruction is stored. • 0: Completed successfully • Numbers other than 0: Completed with an error (error code)	—	System
(S1)+1	CC-Link station start number	Specifies station number of the target station.	1 to 60	User
(S1)+2	Number of send byte	Specifies the sending message data size in units of bytes.	1 to 255	User
(S1)+3	Maximum number of receive byte	Specifies the maximum device size stored a received message data (in units of bytes).	0 to 255	User
(S1)+4	Number of receive byte	A received message data size is stored in units of bytes.	—	System

Precautions

The G(P).RDMSG instruction can be simultaneously executed to two or more remote device stations (up to four stations). Note that the multiple instructions including other dedicated instructions cannot be executed to a single remote device station. Create a program that starts the new instruction after the completion device (D2) turns on.

Operation Error

When an operation error occurs, an error code is stored in (S1)+0. The following table lists the error codes and the error details.

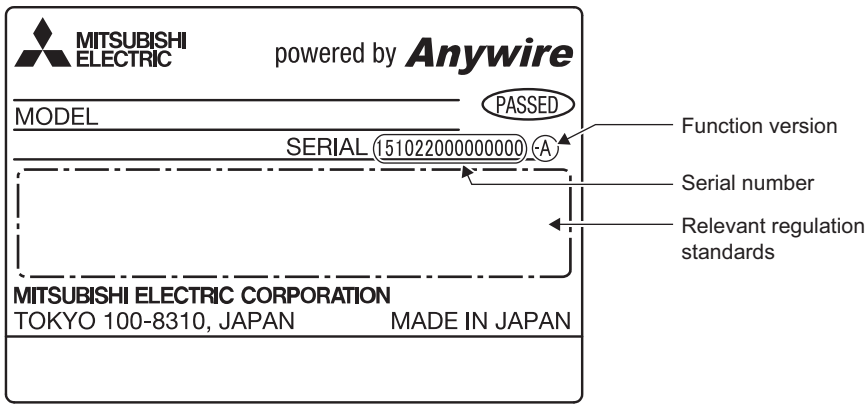
Error code	Error details
2112	A module specified by Un is not the intelligent function module.
	A module specified by Un is not the special function module.
4002	An execution of an instruction which is not supported is attempted.
4003	The number of devices in the instruction is incorrect.
4004	The instruction specifies a device that cannot be used.
4100	The instruction contains the data that cannot be used.
4101	When the number of data set to be used exceeds the allowable range. Or, when the storage data or constants of the device specified by using the instruction exceeds the allowable range.

A

Appendix 3 Checking Serial Number and Function Version

The serial number and function version of the bridge module can be checked on the rated plate.

The rated plate is located on the right side of the bridge module.



Appendix 4 EMC and Low Voltage Directives

In each country, laws and regulations concerning electromagnetic compatibility (EMC) and electrical safety are enacted.
For the products sold in the European countries, compliance with the EU's EMC Directive has been a legal obligation as EMC regulation since 1996, as well as the EU's Low Voltage Directive as electrical safety regulation since 1997.
Manufacturers who recognize their products are compliant with the EMC and Low Voltage Directives are required to attach a "CE marking" on their products in European countries.
In some other countries and regions, manufacturers are required to make their products compliant with applicable laws or regulations and attach a certification mark on the products as well (such as UK Conformity Assessed (UKCA) marking in the UK, and Korea Certification (KC) marking in South Korea).
Each country works to make their regulatory requirements consistent across countries based on international standards. When the requirements are consistent, measures to comply with the EMC and electrical safety regulations become common across countries.
The UK and South Korea have enacted EMC regulations whose requirements are consistent with those of the EMC Directive. The UK has also enacted electrical safety regulations whose requirements are consistent with those of the Low Voltage Directive. In this section, the requirements of the EMC and Low Voltage Directives are described as examples of those of the EMC and electrical safety regulations.

Measures to comply with the EMC Directive

The EMC Directive sets two requirements for compliance: emission (conducted and radiated electromagnetic energy emitted by a product) and immunity (the ability of a product to not be influenced by externally generated electromagnetic energy).
This section summarizes the precautions for machinery constructed with this product to comply with the EMC Directive.
These precautions are based on the requirements of the EMC Directive and the harmonized standards. However, they do not guarantee that the entire machinery constructed according to the descriptions complies with the EMC Directive.
The manufacturer of the machinery must determine the testing method for compliance and declare conformity to the EMC Directive.

EMC Directive related standards

■Emission requirements

Standard	Test item	Test description	Value specified in standard
EN 61131-2: 2007	CISPR16-2-3 Radiated emission*1	The electromagnetic wave emitted by the product to the external space is measured.	• 30 to 230MHz, QP: 40dBμV/m (measured at 10m distance)*2 • 230 to 1000MHz, QP: 47dBμV/m (measured at 10m distance)
	CISPR16-2-1, CISPR16-1-2 Conducted emission*1	The noise level which the product emits to the power line is measured.	• 0.15 to 0.5MHz, QP: 79dB, Mean: 66dB*2 • 0.5 to 30MHz, QP: 73dB, Mean: 60dB

*1 The module is an open-type device and must be placed in a conductive control panel or similar type of enclosure. The tests were conducted with the module installed in a control panel.
*2 QP: Quasi-Peak value, Mean: Average value

■Immunity requirements

Standard	Test item	Test description	Value specified in standard
EN 61131-2: 2007	EN 61000-4-2 Electrostatic discharge immunity*1	An electrostatic discharge is applied to the enclosure of the equipment.	• 8kV: Air discharge • 4kV: Contact discharge
	EN 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity*1	An electric field is radiated to the product.	80% AM modulation @1kHz • 80 to 1000MHz: 10V/m • 1.4 to 2.0GHz: 3V/m • 2.0 to 2.7GHz: 1V/m
	EN 61000-4-4 Fast transient burst immunity*1	Burst noise is applied to power lines and signal lines.	• AC/DC power, I/O power, and AC I/O (unshielded) lines: 2kV • DC I/O, analog, and communication lines: 1kV
	EN 61000-4-5 Surge immunity*1	Lightning surge is applied to power lines and signal lines.	• AC power, AC I/O power, and AC I/O (unshielded) lines: 2kV CM, 1kV DM • DC power and DC I/O power lines: 0.5kV CM, 0.5kV DM • DC I/O, AC I/O (shielded), analog, and communication lines: 1kV CM
	EN 61000-4-6 Conducted RF immunity*1	High-frequency noise is applied to power lines and signal lines.	0.15 to 80MHz, 80% AM modulation @1kHz, 10Vrms
	EN 61000-4-8 Power-frequency magnetic field immunity*1	The product is immersed in the magnetic field of an induction coil.	50/60Hz, 30A/m
	EN 61000-4-11 Voltage dips and interruptions immunity*1	Power voltage is momentarily interrupted.	• 0%, 0.5 periods, starting at zerocrossing • 0%, 250/300 periods (50/60Hz) • 40%, 10/12 periods (50/60Hz) • 70%, 25/30 periods (50/60Hz)

*1 The module is an open-type device and must be placed in a conductive control panel or similar type of enclosure. The tests were conducted with the module installed in a control panel.

Installation in a control panel

This open-type device is intended to be placed in an industrial control panel or similar type of enclosure.*1

This ensures safety as well as effective shielding of programmable controller-emitted electromagnetic noise.

*1 Modules on the remote station in each network must be also installed inside the control panel. However, the waterproof type remote station can be installed outside the control panel.

■Control panel

- Use a conductive control panel.
- Mask off the area used for grounding when securing the top or bottom plate to the control panel using bolts.
- To ensure electrical contact between the inner plate and the control panel, mask off the bolt installation areas of an inner plate 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.
- Keep the diameter of the holes on the control panel to 10cm or less. If the diameter is larger than 10cm, electromagnetic wave may be emitted. In addition, because electromagnetic wave leaks through a clearance between the control panel and its door, reduce the clearance as much as possible. Use of EMI gaskets (sealing the clearance) can suppress undesired radiated emissions. The tests by Mitsubishi were conducted using a control panel having the damping characteristics of 37dB (maximum) and 30dB (average) (measured at 3m distance, 30 to 300MHz).

■Installing ground wiring

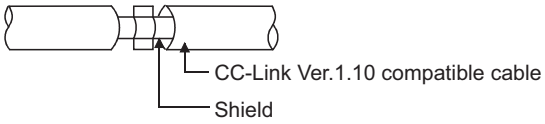
Run the cable of this product as instructed below

- Provide a ground point to the control panel near the product. Ground the LG terminal of the product to the ground point with the thickest and shortest ground cable possible (30cm or shorter).

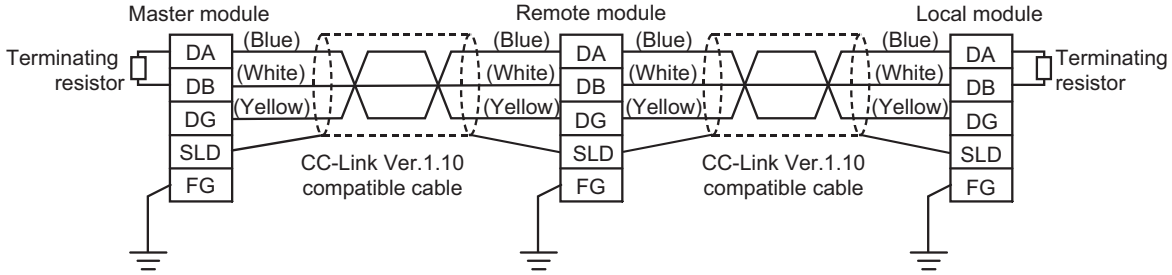
Cables

■CC-Link dedicated cable

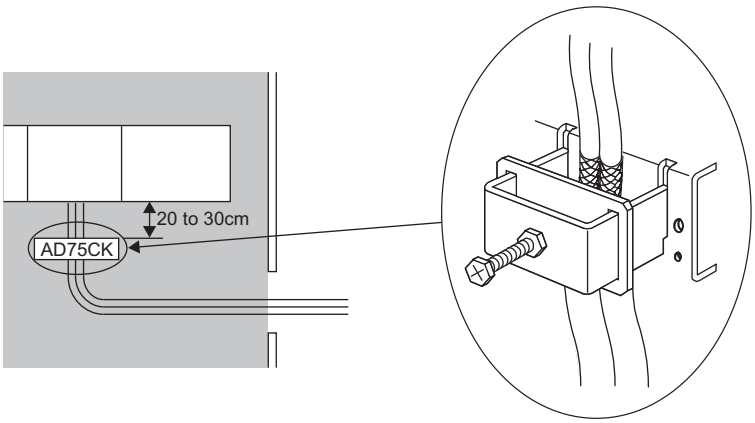
Ground the shield of a cable connected to the CC-Link module or any of the CC-Link stations which is the farthest from the input power inside the control panel within 30cm from the module or station. (Ground the shield to the control panel.)
Ver.1.10-compatible CC-Link dedicated cable is a shielded cable. Strip a part of the jacket of the cable as shown below and ground the exposed shield to the largest area.



Use the specified Ver.1.10-compatible CC-Link dedicated cable.
Use the FG terminals of the CC-Link module and CC-Link stations as shown below to connect to the FG line inside the control panel.

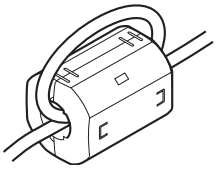


Use shielded cables for external wiring and ground the shields of the shielded cables to the control panel with an AD75CK cable clamp (manufactured by Mitsubishi Electric). Ground the shields within 20 to 30cm from the module.
For details on the AD75CK, refer to the following.



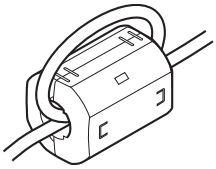
📖 AD75CK-type Cable Clamping Instruction Manual

For the CC-Link cable, install a ferrite core with attenuation characteristic equivalent to that of the ZCAT3035-1330 from TDK Corporation at a point as close to the CC-Link side terminal block of this product as possible. Twist the cable around the ferrite core by one as shown below.



■AnyWireASLINK cable

For the AnyWireASLINK cable, install a ferrite core with attenuation characteristic equivalent to that of the ZCAT3035-1330 from TDK Corporation at a point as close to the AnyWireASLINK side terminal block of this product as possible. Twist the cable around the ferrite core by one as shown below.



■Power cable for the 24VDC power supply terminal

Use a CE-marked DC power supply. The DC power supply must be placed together with the module in the same control panel, and the power cable connected to the power terminal of this product should be 30m or shorter.

External power supply

Use a CE-marked external power supply and ground the FG terminal. (External power supply used for the tests conducted by Mitsubishi: PS5R-SF24 manufactured by IDEC Corporation)

Others

■Noise filter (for remote module power supply)

Insert the ASLINKFILTER (ANF-01) (manufactured by Anywire Corporation) to the power supply cable of remote modules regardless of the power feeding method or the wiring length. For details, refer to the manual for the ASLINKFILTER (ANF-01).
www.anywire.jp

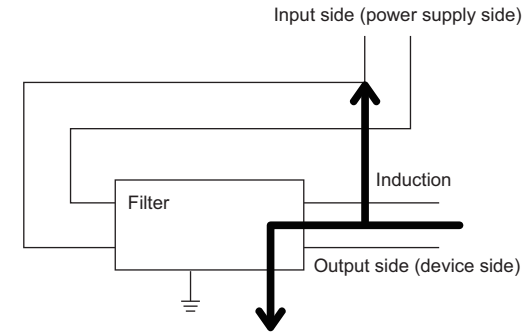
■Noise filter (for bridge module power supply)

Noise filters are effective for reducing conducted noise in the 10MHz or less frequency band. Installing a noise filter enhances the noise suppression performance.

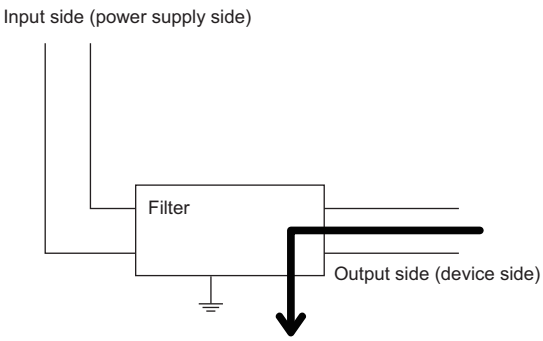
Connect a noise filter to the external power supply of the bridge module. Use a noise filter with the damping characteristic equivalent to RSEN-2006 (manufactured by TDK-Lambda Corporation). Note that a noise filter is not required if the module is used in Zone A defined in EN 61131-2.

The following are the installation precautions.

- Do not bundle the cables on the input side and output side of the noise filter. If the cables are bundled, the noise on the output side is induced into the input side cable where noise is removed by the filter.



• Example (incorrect installation)
Noise is induced when the input and output cables are bundled.



• Example (correct installation)
Place the input and output cables separately.

- Ground the ground terminal of the noise filter to the control panel with the shortest cable possible (approximately 10cm).
- Be sure to attach a noise filter within 3m from the module. (The distance between the module and the external power supply is 30m.)

Requirements for Low Voltage Directive compliance

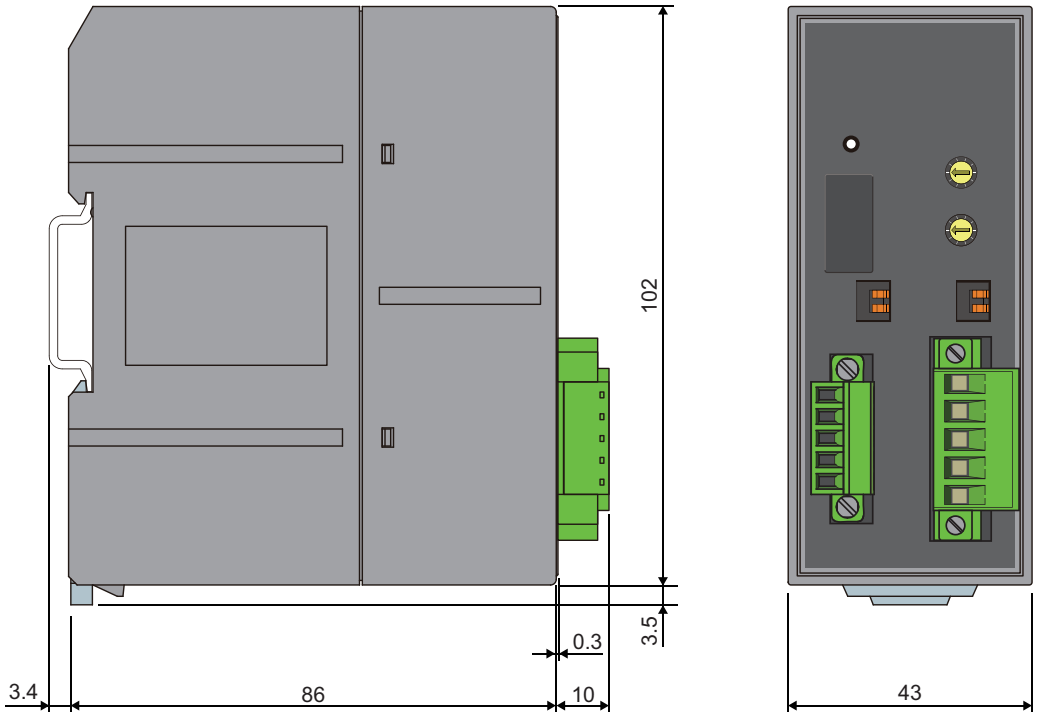
The Low Voltage Directive does not apply to this product as it operates on 24VDC power supply.
For making the programmable controller system used comply with the Low Voltage Directive, refer to the section about EMC and Low Voltage Directives in the user's manual for the CPU module used.

Appendix 5 Functions Added and Modified with Version Upgrade

The bridge module has some new functions added and specifications modified as a result of a version upgrade.
Available functions and specifications vary depending on the function version and the serial number.

Added function	Function version	Serial number
• CC-Link operation mode Ver.2.00 (☞ Page 38 Operation mode setting switch) • Parameter reading/writing function (☞ Page 62 Parameter reading/writing function) • Parameter access error detection function (☞ Page 86 Parameter access error detection function) • Same ID number used detection function (☞ Page 89 Same ID number used detection function) • Module with no ID number setting detection function (☞ Page 90 Module with no ID number setting detection function)	A	A serial number whose first six digits are "151222" or later
iQ Sensor Solution function (☞ Page 103 iQ Sensor Solution function)	A	Refer to the following. 📖 iQ Sensor Solution Reference Manual
Parameter access with handshake (☞ Page 43 When the CC-Link operation mode is Ver.2.00)	A	A serial number whose first five digits are "21032" or later
Reading the list of the AnyWireASLINK slave module IDs	A	A serial number whose first five digits are "21122" or later

Appendix 6 External Dimensions



(Unit: mm)

A

INDEX

MEMO

REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
January 2014	SH(NA)-081179ENG-A	First edition
May 2014	SH(NA)-081179ENG-B	Revision due to compliance with UL/cUL
December 2014	SH(NA)-081179ENG-C	Error correction
March 2015	SH(NA)-081179ENG-D	Revision due to the addition of the functions ■Added or modified parts RELEVANT MANUALS, TERMS, Section 2.3, 6.1, 6.3, 7.1, 8.2, Appendix 1, 4
February 2017	SH(NA)-081179ENG-E	Revision due to the modification of the automatic address detection function
April 2018	SH(NA)-081179ENG-F	■Added or modified parts Section 2.3, 8.2, 9.2
November 2019	SH(NA)-081179ENG-G	■Added or modified parts SAFETY PRECAUTIONS, TERMS, GENERIC TERMS AND ABBREVIATIONS, Section 6.1, 8.2, Appendix 1, 5
October 2020	SH(NA)-081179ENG-H	■Added or modified parts TERMS, GENERIC TERMS AND ABBREVIATIONS, Chapter 3, Section 6.1, 6.3, 7.3, 8.1, 8.2, 10.5, 10.6, Appendix 5
April 2021	SH(NA)-081179ENG-I	■Added or modified parts PRECAUTIONS REGARDING WARRANTY, SAFETY PRECAUTIONS
February 2023	SH(NA)-081179ENG-J	■Added or modified parts SAFETY PRECAUTIONS, COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES, Section 2.2, 2.4, 4.1, 4.2, 4.3, 4.4, Appendix 4, 5

Japanese manual number: SH-081178-L

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 one year 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

Anywire and AnyWireASLINK are either registered trademarks or trademarks of Anywire Corporation.
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.

Anywire Anywire Corporation www.anywire.jp

SH(NA)-081179ENG-J(2302)MEE
MODEL: NZ2AW1C2AL-U-E
MODEL CODE: 13JZ88

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS: 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA 461-8670, JAPAN