MITSUBISHI

Mitsubishi Programmable Controller

MELSEC Q series MELSEC L series

MELSEC-Q/L Structured Programming Manual

Special Instructions

QSERIES
LSERIES

● SAFETY PRECAUTIONS ●

(Always read these instructions before using this product.)

Before using the MELSEC-Q series and MELSEC-L series programmable controllers, thoroughly read the manuals attached to the products and the relevant manuals introduced in the attached manuals. Also pay careful attention to safety and handle the products properly.

Please keep this manual in a place where it is accessible when required and always forward it to the end user.

●CONDITIONS OF USE FOR THE PRODUCT●

(1) Mitsubishi 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 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'S USER, 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.

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REVISIONS

The manual number is written at the bottom left of the back cover.

Print date	Manual number	Revision
Jul., 2008	SH(NA)-080785ENG-A	First edition
Jan., 2009	SH(NA)-080785ENG-B	Model Addition Q00UJ, Q00U, Q01U, Q10UDH, Q10UDEH, Q20UDH, Q20UDEH Addition MANUALS, Section 2.2.5, Section 5.5 Correction GENERIC TERMS AND ABBREVIATIONS IN THIS MANUAL, Section 1.1, Section 1.2, Section 2.2.5 to 2.2.7 changed to Section 2.2.6 to Section 2.2.8, Section 5.5 to Section 5.7 changed to Section 5.6 to Section 5.8
Jul., 2009	SH(NA)-080785ENG-C	Model Addition Q00J, Q00, Q01 Correction PURPOSE OF THIS MANUAL is changed to Section 1.1, GENERIC TERMS AND ABBREVIATIONS IN THIS MANUAL is changed to Section 1.2, Section 1.1 is changed to Section 1.3, Section 1.2 is changed to Section 1.4, Chapter 4, Program examples are added in Chapter 5
Jan., 2010	SH(NA)-080785ENG-D	Model Addition L02, L26-BT Addition CONDITIONS OF USE FOR THE PRODUCT, Section 2.3, Section 2.4, Section 2.5, Section 2.6, Chapter 8, Chapter 9 Correction MANUALS, Section 1.1, Section 1.2, Section 1.3, Section 1.4, Section 2.2, Chapter 4, Section 5.1.2, Section 5.1.3, Section 5.6.1, Section 5.6.2, Section 5.6.3, Section 5.6.4. Section 5.7.1, Section 5.7.2, Section 5.7.3, Section 5.7.4, Section 5.4.10 to Section 5.4.25 are changed to Section 5.4.9 to Section 5.4.24, Section 5.8 is changed to Section 5.5, Section 5.6 to Section 5.7 are changed to Chapter 6, Section 5.5 is changed to Chapter 7 Deletion Section5.4.9

Print date	Manual number	Revision
Apr., 2010	SH(NA)-080785ENG-E	Model Addition Q50UDEH, Q100UDEH Addition Section 2.2.2, Section 5.2.15, Section 5.4.15, Section 5.4.16, Section 5.4.17 Correction MANUALS, Section 1.2, Section 1.4, Section 2.2.4, Chapter 4, Section 5.3.7, Section 5.4, Section 5.4.1, Section 5.4.3, Section 5.4.5, Section 5.4.6, Section 5.4.7, Section 5.4.8, Section 5.4.13, Section 5.4.14, Section 7.1, Section 5.4.15 to Section 5.4.24 are changed to Section 5.4.18 to Section 5.4.27.
Sep., 2010	SH(NA)-080785ENG-F	Addition Section 2.7, Section 5.4.16, Section 5.4.17, Chapter 10 Correction MANUALS, Section 1.1, Section 1.3, Section 1.4, Section 2.1, Chapter 4, Section 5.1.2, Section 5.1.3, Section 5.4.1, Section 5.4.2, Section 5.4.4, Section 5.4.5. Section 5.4.8, Section 5.4.10, Section 5.4.12, Section 5.4.13, Section 5.4.14, Section 5.4.15, Section 5.4.18, Section 5.4.19, Section 5.4.20, Section 5.4.21, Section 5.4.22, Section 5.4.23, Section 5.4.29, Section 5.4.32, Section 5.4.33, Section 2.2.2 to Section 2.2.4 are changed to Section 2.2.3 to Section 2.2.4, Section 2.2.5 is changed to Section 2.2.2, Section 5.2 to Section 5.4 are changed to Section 5.3 to Section 5.4, Section 5.5 is changed to Section 5.2 Deletion Section 5.4.17, Section 5.4.18
Jan., 2011	SH(NA)-080785ENG-G	Correction Section 1.1, Section 5.4.16, Section 5.4.17
Mar., 2011	SH(NA)-080785ENG-H	Correction MANUALS, Section 1.1, Section 1.4, Section 2.1, Section 2.2.3, Section 5.1.1, Section 5.1.2, Section 5.1.3, Section 5.3.5, Section 5.3.7, Section 5.3.14, Section 5.3.15, Section 5.4.1, Section 5.4.2, Section 5.4.5, Section 5.4.6, Section 5.4.8, Section 5.4.9, Section 5.4.10, Section 5.4.11, Section 5.4.12, Section 5.4.13, Section 5.4.14, Section 5.1.15, Section 5.4.18, Section 5.4.19, Section 5.4.20, Section 5.4.21, Section 5.4.28, Section 5.4.31, Section 5.4.32, Section 5.4.33, Section 7.1, Section 7.2, Section 7.5, Section 7.8, Section ,7.9

Print date	Manual number	Revision
Jul., 2011	SH(NA)-080785ENG-I	Model Addition L02-P, L26-PBT Correction Section 1.2, Section 1.4, Chapter 4, Section 5.3.2, Section 5.3.4, Section 5.3.15, Section 5.4.16, Section 5.4.17, Section 5.4.18, Section 5.4.21, Section 5.4.22, Section 5.4.23, Section 5.4.24, Section 5.4.25, Section 5.4.26, Section 5.4.27, Section 5.4.29, Section 5.4.32, Section 5.4.34, Section 7.1, Section 7.2, Section 8.1.5, Section 10.1.1, Section 10.1.2

Japanese manual version SH-080738-L

INTRODUCTION

Thank you for purchasing the Mitsubishi MELSEC-Q series/MELSEC-L series programmable controller.
Before using the product, thoroughly read this manual to develop full familiarity with the programming specifications to ensure correct use.
Please forward this manual to the end user.

CONTENTS

MANUALS

Related manuals

The manuals related to this product are shown below.

Refer to the following tables when ordering required manuals.

(1) Structured programming

Manual name	Manual number (Model code)
MELSEC-Q/L/F Structured Programming Manual (Fundamentals) Explains the programming method, types of programming languages, and other information required to create structured programs. (Sold separately)	SH-080782ENG (13JW06)
MELSEC-Q/L Structured Programming Manual (Common Instructions) Explains the specifications and functions of common instructions such as sequence instructions, basic instructions, and application instructions that can be used in structured programs. (Sold separately)	SH-080783ENG (13JW07)
MELSEC-Q/L Structured Programming Manual (Application Functions) Explains the specifications and functions of application functions that can be used in structured programs. (Sold separately)	SH-080784ENG (13JW08)

(2) Operation of GX Works2

Manual name	Manual number (Model code)
GX Works2 Version 1 Operating Manual (Common) Explains the system configuration of GX Works2 and the functions common to Simple project and Structured project such as parameter setting, operation method for the online function. (Sold separately)	SH-080779ENG (13JU63)
GX Works2 Version 1 Operating Manual (Structured Project) Explains operation methods such as creating and monitoring programs in Structured project of GX Works2. (Sold separately)	SH-080781ENG (13JU65)
GX Works2 Beginner's Manual (Structured Project) Explains fundamental operation methods such as creating, editing, and monitoring programs in Structured project for users inexperienced with GX Works2. (Sold separately)	SH-080788ENG (13JZ23)

POINT

The Operating Manuals are included on the CD-ROM of the software package in a PDF file format. Manuals in printed form are sold separately. Order a manual by quoting the manual number (model code) listed in the table above.

(3) Detailed specifications of instructions

• Analog instruction

Manual name	Manual number (Model code)
Analog-Digital Converter Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q64AD, Q68ADV, and Q68ADI. (Sold separately)	SH-080055 (13JR03)
Channel Isolated High Resolution Analog-Digital Converter Module Channel Isolated High Resolution Analog-Digital Converter Module (With Signal Conditioning Function) User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q64AD-GH and Q62AD-DGH. (Sold separately)	SH-080277 (13JR51)
Channel Isolated Analog-Digital Converter Module/Channel Isolated Analog-Digital Converter Module (With Signal Conditioning Function) User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q68AD-G and Q66AD-DG. (Sold separately)	SH-080647ENG (13JR96)
Digital-Analog Converter Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q62DAN, Q64DAN, Q68DAVN, and Q68DAIN. (Sold separately)	SH-080054 (13JR02)
Channel Isolated Digital-Analog Converter Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q62DA-FG. (Sold separately)	SH-080281E (13JR52)
Channel Isolated Digital-Analog Converter Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q66DA-G. (Sold separately)	SH-080648ENG (13JR97)
RTD Input Module Channel Isolated RTD Input Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q64RD and Q64RD-G. (Sold separately)	SH-080142 (13JR31)
Thermocouple Input Module Channel Isolated Thermocouple/Micro Voltage Input Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q64TD and Q64TDV-GH. (Sold separately)	SH-080141 (13JR30)
Channel Isolated Thermocouple Input Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q68TD-G-H01/Q68TD-G-H02. (Sold separately)	SH-080795ENG (13JZ26)
Channel Isolated RTD Input Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q68RD3-G. (Sold separately)	SH-080722ENG (13JZ06)
Q61LD Load Cell Input Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the Q61LD. (Sold separately)	SH-080821ENG (13JZ31)
MELSEC-L Analog-Digital Converter Module User’s Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the analog-digital converter module. (Sold separately)	SH-080899ENG (13JZ42)
MELSEC-L Digital-Analog Converter Module User’s Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the digital-analog converter module. (Sold separately)	SH-080900ENG (13JZ43)

- Positioning instruction

Manual name	Manual number (Model code)
Type QD75P/QD75D Positioning Module User's Manual (Details) Explains the system configuration, performance specifications, functions, handling, procedures before operation, and troubleshooting of the QD75P1/QD75P2/QD75P4 and QD75D1/QD75D2/QD75D4. (Sold separately)	SH-080058 (13JR09)
Type QD75M Positioning Module User's Manual (Details) Explains the system configuration, performance specifications, functions, handling, procedures before operation, and troubleshooting of the QD75M1/QD75M2/QD75M4. (Sold separately)	IB-0300062 (1XB752)
Type QD75MH Positioning Module User's Manual (Details) Explains the system configuration, performance specifications, functions, handling, procedures before operation, and troubleshooting of the QD75MH1/QD75MH2/QD75MH4. (Sold separately)	IB-0300117 (1XB917)

- Serial communication

Manual name	Manual number (Model code)
Q Corresponding Serial Communication Module User's Manual (Basic) Explains the overview for use of the module, applicable system configuration, specifications, procedures before operation, fundamental data communication with external devices, maintenance, inspection, and troubleshooting. (Sold separately)	SH-080006 (13JL86)
MELSEC-L Serial Communication Module User's Manual (Basic) Explains the overview for use of the module, applicable system configuration, specifications, procedures before operation, fundamental data communication with external devices, maintenance, inspection, and troubleshooting. (Sold separately)	SH-080894ENG (13JZ40)
MELSEC-Q/L Serial Communication Module User's Manual (Application) Explains the specifications and usage of special functions of the module, settings for special functions, and data communication with external devices. (Sold separately)	SH-080007 (13JL87)

• Network dedicated instruction

Manual name	Manual number (Model code)
Control & Communication Link System Master/Local Module User's Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the QJ61BT11N. (Sold separately)	SH-080394E (13JR64)
MELSEC-L CC-Link System Master/Local Module User’s Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the built-in CC-Link and CC-Link system master/local modules. (Sold separately)	SH-080895ENG (13JZ41)
CC-Link IE Controller Network Reference Manual Explains the system configuration, performance specifications, functions, handling, wiring, and troubleshooting of the CC-Link IE Controller Network. (Sold separately)	SH-080668ENG (13JV16)
MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual Explains the specifications, procedures before operation, system configuration, installation, settings, functions, programming, and troubleshooting of the CC-Link IE Field Network and the CC-Link IE Field Network master/local module. (Sold separately)	SH-080917ENG (13JZ47)
MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual Explains the specifications, procedures before operation, system configuration, installation, settings, functions, programming, and troubleshooting of the CC-Link IE Field Network and the CC-Link IE Field Network master/local module. (Sold separately)	SH-080972ENG (13JZ54)
Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network) Explains the specifications, settings and procedures before operation, parameter setting, programming, and troubleshooting of the MELSECNET/H PLC-to-PLC network system. (Sold separately)	SH-080049 (13JF92)
Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O network) Explains the system configuration, performance specifications, and programming of the MELSECNET/H network system (remote I/O network). (Sold separately)	SH-080124 (13JF96)
Q Corresponding Ethernet Interface Module User's Manual (Basic) Explains the specifications of the Ethernet module, data communication procedure with external devices, line connection (open/close), fixed buffer communication, random access buffer communication, and troubleshooting. (Sold separately)	SH-080009 (13JL88)
Q Corresponding Ethernet Interface Module User's Manual (Application) Explains the e-mail function of the Ethernet module, programmable controller CPU status monitoring, communication function using the MELSECNET/H or MELSECNET/10 as a relay station, communication with data link instructions, and the use of file transfer (FTP server) function. (Sold separately)	SH-080010 (13JL89)

• PID control instruction

Manual name	Manual number (Model code)
MELSEC-Q/L/QnA Programming Manual (PID Control Instructions) Explains the dedicated instructions for PID control. (Sold separately)	SH-080040 (13JF59)

- Socket communication function instruction

Manual name	Manual number (Model code)
QnUCPU User's Manual (Communication via Built-in Ethernet Port) Explains the specifications and functions of the built-in Ethernet port communication. (Sold separately)	SH-080811 (13JZ29)
MELSEC-L CPU Module User’s Manual (Built-In Ethernet Function) Explains the specifications and functions of the built-in Ethernet port communication. (Sold separately)	SH-080891ENG (13JZ37)

- Built-in I/O function instruction

Manual name	Manual number (Model code)
MELSEC-L CPU Module User’s Manual (Built-In I/O Function) Explains the general input/output function, interrupt input function, pulse catch function, positioning function, and high-speed counter function of CPU module. (Sold separately)	SH-080892ENG (13JZ38)

- Data logging function instruction

Manual name	Manual number (Model code)
MELSEC-L CPU Module User’s Manual (Data Logging Function) Explains the specifications of the LCPU module data logging function, and the method for using the LCPU logging configuration tool. (Sold separately)	SH-080893ENG (13JZ39)

- SFC control Instruction

Manual name	Manual number (Model code)
MELSEC-Q/L/QnA Programming Manual (SFC) Explains the programming methods required to create SFC program, specifications and functions. (Sold separately)	SH-080041ENG (13JF60)

1 OVERVIEW

1.1 Purpose of This Manual

This manual explains the instructions for the network module, intelligent function module, PID control, socket communication function, built-in I/O function, and data logging function among common instructions and special instructions necessary for creating programs using the structured programming technique.

Manuals for reference are listed in the following table according to their purpose.

For information such as the contents and number of each manual, refer to the list of 'Related manuals'.

(1) Operation of GX Works2

Purpose		GX Works2 Installation Instructions	GX Works2 Beginner's Manual		GX Works2 Version 1 Operating Manual			
			Simple Project	Structured Project	Common	Simple Project	Structured Project	Intelligent Function Module
Installation	Learning the operating environment and installation method	Details						
	Learning a USB driver installation method				Details			
Operation of GX Works2	Learning all functions of GX Works2				Outline			
	Learning the project types and available languages in GX Works2				Outline			
	Learning the basic operations and operating procedures when creating a simple project for the first time		Details					
	Learning the basic operations and operating procedures when creating a structured project for the first time			Details				
	Learning the operations of available functions regardless of project type.				Details			
	Learning the functions and operation methods for programming				Outline	Details	Details	
	Learning data setting methods for intelligent function module							Details

(2) Operations in each programming language

For details of instructions used in each programming language, refer to the section 3 on the next page

Purpose		GX Works2 Beginner's Manual		GX Works2 Version 1 Operating Manual	
		Simple Project	Structured Project	Simple Project	Structured Project
Simple Project	Ladder	Outline		Details	
	SFC	*1 Outline		Details	
	ST		Outline		Details
Structured Project	Ladder	Outline		Details	
	SFC	*1 Outline		Details	
	Structured ladder/ FBD		Outline		Details
	ST		Outline		Details

*1: MELSAP3 and FX series SFC only

(3) Details of instructions in each programming language

Purpose		MELSEC-Q/L/F Structured Programming Manual	MELSEC-Q/L Structured Programming Manual			MELSEC-Q/L Programming Manual	MELSEC-Q/L/QnA Programming Manual		Manual for module to be used
		Fundamentals	Common Instructions	Special Instructions	Application Functions	Common Instructions	PID Control Instructions	SFC	–
All languages	Learning details of programmable controller CPU error codes, special relays, and special registers					Details			
Using ladder language	Learning the types and details of common instructions					Details			
	Learning the types and details of instructions for intelligent function modules								Details
	Learning the types and details of instructions for network modules								Details
	Learning the types and details of instructions for the PID control function						Details		
Using SFC language	Learning details of specifications, functions, and instructions of SFC (MELSAP3)							Details	
Using structured ladder/FBD/ST language	Learning the fundamentals for creating a structured program	Details							
	Learning the types and details of common instructions		Details						
	Learning the types and details of instructions for intelligent function modules			Outline					Details
	Learning the types and details of instructions for network modules			Outline					Details
	Learning the types and details of instructions for the PID control function			Outline			Details		
	Learning the types and details of application functions				Details				

1.2 Generic Terms and Abbreviations in This Manual

This manual uses the generic terms and abbreviations listed in the following table to discuss the software packages and programmable controller CPUs. Corresponding module models are also listed if needed.

Generic term and abbreviation	Description
GX Works2	Generic product name for SWnDNC-GXW2-E (n: version)
Basic model QCPU	Generic term for Q00J, Q00, and Q01
High Performance model QCPU	Generic term for Q02, Q02H, Q06H, Q12H, and Q25H
Universal model QCPU	Generic term for Q00UJ, Q00U, Q01U, Q02U, Q03UD, Q03UDE, Q04UDH, Q04UDEH, Q06UDH, Q06UDEH, Q10UDH, Q10UDEH, Q13UDH, Q13UDEH, Q20UDH, Q20UDEH, Q26UDH, Q26UDEH, O50UDEH, and Q100UDEH
Built-in Ethernet port QCPU	Generic term for Q03UDE, Q04UDEH, Q06UDEH, Q10UDEH, Q13UDEH, Q20UDEH, Q26UDEH, O50UDEH, and Q100UDEH
QCPU (Q mode)	Generic term for Basic model QCPU, High Performance model QCPU, and Universal model QCPU
LCPU	Generic term for L02, L02-P, L26-BT and L26-PBT
CPU module	Generic term for QCPU (Q mode) and LCPU
CC-Link IE Controller Network	Abbreviation for CC-Link IE Controller Network system
CC-Link IE Field Network	Abbreviation for CC-Link IE Field Network system
CC-Link IE	Generic term for CC-Link IE Controller Network system and CC-Link IE Field Network system
MELSECNET/H	Abbreviation for MELSECNET/H network system
Ethernet	Abbreviation for Ethernet network system
CC-Link	Abbreviation for Control & Communication Link
Personal computer	Generic term for personal computer on which Windows® operates
Common instruction	Generic term for the sequence instructions, basic instructions, application instructions, data link instructions, multiple CPU dedicated instructions, and multiple CPU high-speed transmission dedicated instructions
Special instruction	Generic term for module dedicated instructions, PID control instructions, socket communication function instructions, built-in I/O function instructions, and data logging function instructions

1.3 Explanation Content in This Manual

This manual explains the programming methods and data used for control of the following modules and PID control using structured programming technique.

Function/module for explaining an instruction	Processing performed by the instruction	Reference
Analog module	• Switches the mode. (Offset/gain setting mode or normal mode) • Reads the user range setting offset/gain value. • Restores the user range setting offset/gain value.	Section 5.1
Positioning module	• Restores the absolute position of the specified axis. • Starts positioning of the specified axis. • Executes teaching of the specified axis. • Writes parameters/positioning data and block start data to a flash ROM. • Initializes setting data.	Section 5.2
Serial communication module	• Sends and receives data to and from an external device. • Registers and reads user frames.	Section 5.3
CC-Link system master/local module	• Reads and writes data from and to an intelligent device station on the CC-Link system. • Reads and writes data from and to the auto-refresh buffer memory at the master station. • Sets the network parameters.	Section 5.4
CC-Link IE network module	• Sends and receives data to and from an external device. • Reads and writes data from and to another station on the CC-Link IE or MELSECNET/H network system. • Reads and clears error information. • Sends and receives e-mails.	
MELSECNET/H network module		
Ethernet interface module		
PID control instruction	• Sets PID control data and performs PID operation for inexact differential and exact differential. • Stops and starts operation of the specified loop. • Changes the parameter of the specified loop.	Chapter 6
Socket communication function (Built-in Ethernet port QCPU, LCPU)	• Opens/closes a connection. • Reads receive data. • Changes the receive mode.	Chapter 7

Function/module for explaining an instruction		Processing performed by the instruction	Reference
Built-in I/O function	Positioning function	• Starts positioning of the specified axis. • Starts OPR of the specified axis. • Starts JOG operation of the specified axis. • Restores the absolute position of the specified axis. • Stops the operating axis. • Changes the speed and the target position of the specified axis.	Chapter 8
	Counter function	• Updates the current value of the specified CH. • Sets a ring counter lower limit value and a ring counter upper limit value. • Sets a preset value/latch counter value/sampling counter value. • Sets the coincidence output No. n point. • Measures the frequency/rotation speed. • Stores the measured pulse value. • Outputs the PWM wave form.	
Data logging function		• Generates a trigger on the data logging of the specified data logging configuration number. • Resets the LOGTRG instruction of the specified data logging configuration number.	Chapter 9
SFC control		• Reads comment of an active step in the specified SFC block. • Reads comment of transition condition associated with an active step in the specified SFC block.	Chapter 10

☒POINT

• Precautions on using instructions
For details of the specifications, functions, and operating timing of each instruction, refer to the related manuals of each module.
☞ 'MANUALS'

1.4 Modules and Versions Applicable to Instructions

This section explains the modules and versions applicable to the instructions explained in this manual.

For details of applicable versions, refer to each instruction in Chapter 5.

Function/module for explaining an instruction		Applicable version/serial number
Analog module	Q64AD Q68ADV Q68ADI Q64AD-GH Q62AD-DGH Q68AD-G Q66AD-DG Q62DAN Q64DAN Q68DAVN Q68DAIN Q62DA Q64DA Q68DAV Q68DAI Q62DA-FG Q66DA-G Q64RD Q64RD-G Q64TD Q64TDV-GH Q68TD-G-H01 Q68TD-G-H02 Q68RD3-G Q61LD L60AD4 L60DA4	Applicable to all versions
Positioning module	QD75P1 QD75P2 QD75P4 QD75D1 QD75D2 QD75D4 QD75M1 QD75M2 QD75M4 QD75MH1 QD75MH2 QD75MH4	Applicable to all versions
Serial communication module	QJ71C24N QJ71C24N-R2 QJ71C24N-R4 QJ71C24 QJ71C24-R2 LJ71C24 LJ71C24-R2	The modules that can use the UINI instruction are limited. For details ☞ Section 5.3.14
CC-Link system master/local module	QJ61BT11N LJ61BT11	Applicable to all versions
	QJ61BT11	The modules that can use the RLPASET instruction are limited. The instruction is applicable to the module of which the function version is B and the first five digits of the serial number are '03042' or higher. For details ☞ Section 5.4.7
CC-Link IE Controller Network module	QJ71GP21-SX QJ71GP21S-SX	Applicable to all versions

Function/module for explaining an instruction		Applicable version/serial number
CC-Link IE Field Network module	QJ71GF11-T2 LJ71GF11-T2	Applicable to all versions
MELSECNET/H network module	QJ71LP21 QJ71LP21-25 QJ71LP21S-25 QJ71LP21G QJ71BR11 QJ72LP25-25 QJ72LP25G QJ72BR15	Applicable to all versions
Ethernet interface module	QJ71E71-100 QJ71E71-B5 QJ71E71-B2	Applicable to all versions
CPU module supporting the PID control instruction	Q00J Q00UJ Q00 Q00U Q01 Q01U Q02 Q02H Q02U Q03UD Q03UDE Q04UDH Q04UDEH Q06H Q06UDH Q06UDEH Q10UDH Q10UDEH Q12H Q13UDH Q13UDEH Q20UDH Q20UDEH Q25H Q26UDH Q26UDEH Q50UDEH Q100UDEH L02 L02-P L26-BT L26-PBT	The modules that can use the instruction are limited. For details ☞ Section 6.1, Section 6.2
Built-in Ethernet port QCPU/LCPU (Built-in Ethernet function)	Q03UDE Q04UDEH Q06UDEH Q10UDEH Q13UDEH Q20UDEH Q26UDEH Q50UDEH Q100UDEH L02 L02-P L26-BT L26-PBT	The modules that can use the socket communication function instruction are limited when using the Built-in Ethernet port QCPU. The instruction is applicable to the module of which the function version is B and the first five digits of the serial number are '11012' or higher. Applicable to all versions for LCPU.

Function/module for explaining an instruction		Applicable version/serial number
LCPU (Built-in I/O function)	L02 L02-P L26-BT L26-PBT	Applicable to all versions
LCPU (Data logging function)	L02 L02-P L26-BT L26-PBT	Applicable to all versions
CPU module supporting the SFC instruction	Q00J Q00UJ Q00 Q00U Q01 Q01U Q02 Q02H Q02U Q03UD Q03UDE Q04UDH Q04UDEH Q06H Q06UDH Q06UDEH Q10UDH Q10UDEH Q12H Q13UDH Q13UDEH Q20UDH Q20UDEH Q25H Q26UDH Q26UDEH Q50UDEH Q100UDEH	The modules that can use the instruction are limited. For details ☞ Section 10.1

☒POINT

- How to check the applicable version or serial number
  Intelligent function modules : User's Manual or Reference Manual for the module listed in 'Manuals'
  CPU modules supporting PID control: User's Manual (Function Explanation, Program Fundamentals) of the CPU module to be used
  Built-in Ethernet port QCPU : QnUCPU User's Manual (Communication via Built-in Ethernet Port)
- Manual for reference
  ☞ 'MANUALS'

2 INSTRUCTION TABLES

2.1 How to Read Instruction Tables

Instruction tables in Section 2.2 have the following form:

Classification	Instruction name	Argument	Processing details	Executing condition	Applicable module	Page
On-demand function transmission	G_ONDEMAND	Un*, s1, s2, d	Sends data using the on-demand function of MC protocol.		Serial	5-64
	GP_ONDEMAND	Un*, s1, s2, d				
Nonprocedural protocol communication	G_OUTPUT	Un*, s1, s2, d	Sends the specified number of data.		Serial	5-68
	GP_OUTPUT	Un*, s1, s2, d				
	G_INPUT	Un*, s, d1, d2	Reads the received data.			5-71
①	②	③	④	⑤	⑥	⑦

Description

① Classifies instructions by application.

② Indicates the instructions used in a program.

③ Indicates the arguments of the instruction.

s, s1: Source............. Stores data before operation.

d, d1: Destination ...... Indicates the destination of data after operation.

n, n1: .... Specifies the number of devices and the number of transfers.

Jn*: .... Specifies the network number.

Un*: .... Specifies the start I/O number of a module.

④ Indicates the processing details of each instruction.

⑤ Details of executing condition of each instruction are as follows:

Symbol	Executing condition
	Indicates an 'executed while ON' type instruction that is executed only while the precondition is ON. When the precondition is OFF, the instruction is not executed and does not perform processing.
	Indicates an 'executed once at ON' type instruction that is executed only at the rising pulse (OFF → ON) of the precondition of the instruction. The instruction is not executed afterwards even when the condition is ON and thus does not perform processing.

⑥ Indicates the execution target module of each instruction.

For details of the icons, refer to Chapter 4.

⑦ Indicates the pages on which the instructions are explained.

2.2 Module Dedicated Instruction

2.2.1 Analog instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Mode switching	G_OFFGAN	Un*, s	Moves to the offset/gain setting mode. Moves to the normal mode.		5-2
	GP_OFFGAN	Un*, s			
Setting value reading	G_OGLOAD	Un*, s, d	Reads the user range settings offset/gain value to the programmable controller CPU.		5-4
	GP_OGLOAD	Un*, s, d			
Setting value restoration	G_OGSTOR	Un*, s, d	Restores the user range settings offset/gain value stored in the programmable controller CPU.		5-27
	GP_OGSTOR	Un*, s, d			

2.2.2 Positioning instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Absolute position restoration	Z_ABRST1	Un*, s, d	Restores the absolute position of the specified axis.		5-51
	Z_ABRST2	Un*, s, d			
	Z_ABRST3	Un*, s, d			
	Z_ABRST4	Un*, s, d			
Positioning start	ZP_PSTRT1	Un*, s, d	Starts positioning of the specified axis.		5-55
	ZP_PSTRT2	Un*, s, d			
	ZP_PSTRT3	Un*, s, d			
	ZP_PSTRT4	Un*, s, d			
Teaching	ZP_TEACH1	Un*, s, d	Performs teaching for the specified axis.		5-57
	ZP_TEACH2	Un*, s, d			
	ZP_TEACH3	Un*, s, d			
	ZP_TEACH4	Un*, s, d			
Writing to flash ROM	ZP_PFWRT	Un*, s, d	Writes the QD75 parameters, positioning data, and block start data to the flash ROM.		5-60
Setting data initialization	ZP_PINIT	Un*, s, d	Initializes the QD75 setting data.		5-62

2.2.3 Serial communication

Classification	Instruction name	Argument	Processing details	Executing condition	Applicable module	Page
On-demand function transmission	G_ONDEMAND	Un*, s1, s2, d	Sends data using the on-demand function of MC protocol.		Serial	5-64
	GP_ONDEMAND	Un*, s1, s2, d				
Nonprocedural protocol communication	G_OUTPUT	Un*, s1, s2, d	Sends the specified number of data.		Serial	5-68
	GP_OUTPUT	Un*, s1, s2, d				
	G_INPUT	Un*, s, d1, d2	Reads the received data.			5-71
Bidirectional protocol communication	G_BIDOUT	Un*, s1, s2, d	Sends the specified number of data.		Serial	5-74
	GP_BIDOUT	Un*, s1, s2, d				
	G_BIDIN	Un*, s, d1, d2	Reads the received data.			5-77
	GP_BIDIN	Un*, s, d1, d2				
Communication status check	G_SPBUSY	Un*, d	Reads the data transmission/ reception status using the instruction.		Serial	5-79
	GP_SPBUSY	Un*, d				
Receive data clear	ZP_CSET	Un*, s1, s2, d1, d2	Clears receive data without stopping transmission using the nonprocedural protocol.		Serial	5-80
Data transmission/ reception	Z_BUFRCVS	Un*, s, d	Receives data with an interrupt program using the nonprocedural protocol or bidirectional protocol.		Serial	5-83
	G_PRR	Un*, s, d	Sends data by user frame according to the specification in user frame specification area for transmission using the nonprocedural protocol.			5-85
	GP_PRR	Un*, s, d				
Initial setting	ZP_CSET	Un*, s1, s2, d1, d2	Sets the unit (word/byte) of the number of the data to be sent or received.		Serial	5-89
Programmable controller CPU monitor	ZP_CSET	Un*, s1, s2, d1, d2	Registers and cancels the programmable controller CPU monitoring for using the programmable controller CPU monitoring function.		Serial	5-93
Flash ROM user frame registration/ reading	G_PUTE	Un*, s1, s2, d	Registers a user frames to the flash ROM.		Serial	5-101
	GP_PUTE	Un*, s1, s2, d				
	G_GETE	Un*, s1, s2, d	Reads a user frames from the flash ROM.			5-104
	GP_GETE	Un*, s1, s2, d				
Mode switching	ZP_UINI	Un*, s, d	Switches the mode, transmission specification, and host station number.		Serial	5-107
Pre-defined protocol communication	G_CPRTCL	Un*, n1, n2, s, d	Executes the protocols and functional protocols written to the flash ROM.		Serial	5-112
	GP_CPRTCL	Un*, n1, n2, s, d				

2.2.4 Network dedicated instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Applicable module	Page
Reading from the buffer memory of an intelligent device station	J_RIRD	Jn*, s, d1, d2	Reads data for the specified number of points from the buffer memory or device of the specified station.		CC IE C	5-115
	JP_RIRD	Jn*, s, d1, d2			CC IE C CC IE F	
	G_RIRD	Un*, s, d1, d2			CC-Link CC IE C	
	GP_RIRD	Un*, s, d1, d2			CC-Link CC IE C CC IE F	
Writing to the buffer memory of an intelligent device station	J_RIWT	Jn*, s, d1, d2	Writes data for the specified number of points to the buffer memory or device of the specified station.		CC IE C	5-120
	JP_RIWT	Jn*, s, d1, d2			CC IE C CC IE F	
	G_RIWT	Un*, s1, s2, d			CC-Link CC IE C	
	GP_RIWT	Un*, s1, s2, d			CC-Link CC IE C CC IE F	
Reading from the buffer memory of an intelligent device station (with handshake)	G_RIRCV	Un*, s1, s2, d1, d2	Automatically performs handshaking with the specified station and reads data from the buffer memory of the specified station. This instruction is applicable with a module having a handshake signal, such as the AJ65BT-R2(N).		CC-Link	5-125
	GP_RIRCV	Un*, s1, s2, d1, d2				
Writing to the buffer memory of an intelligent device station (with handshake)	G_RISEND	Un*, s1, s2, d1, d2	Automatically performs handshaking with the specified station and writes data to the buffer memory of the specified station. This instruction is applicable with a module having a handshake signal, such as the AJ65BT-R2(N).		CC-Link	5-129
	GP_RISEND	Un*, s1, s2, d1, d2				
Reading from the auto-refresh buffer memory of the master station	G_RIFR	Un*, n1, n2, n3, d	Reads data from the auto-refresh buffer memory of the specified station. This instruction is applicable with a module having an auto-refresh buffer, such as the AJ65BT-R2(N).		CC-Link	5-133
	GP_RIFR	Un*, n1, n2, n3, d				
Writing to the auto-refresh buffer memory of the master station	G_RITO	Un*, n1, n2, n3, d	Writes data to the auto-refresh buffer memory of the specified station. This instruction is applicable with a module having an auto-refresh buffer, such as the AJ65BT-R2.		CC-Link	5-135
	GP_RITO	Un*, n1, n2, n3, d				

Classification	Instruction name	Argument	Processing details	Executing condition	Applicable module	Page
Network parameter setting	G_RLPASET	Un*, s1, s2, s3, s4, s5, d	Sets network parameter to the master station and starts up the data link.		CC-Link	5-137
	GP_RLPASET	Un*, s1, s2, s3, s4, s5, d				
Device data read/ write	J_READ	Jn*, s1, s2, d1, d2	Reads data from a word device of another station.		CC IE C CC IE F NET/H Ether	5-144
	JP_READ	Jn*, s1, s2, d1, d2				
	G_READ	Un*, s1, s2, d1, d2				
	GP_READ	Un*, s1, s2, d1, d2				
	J_SREAD	Jn*, s1, s2, d1, d2, d3	Reads data from a device of another station (with completion device).			5-150
	JP_SREAD	Jn*, s1, s2, d1, d2, d3				
	G_SREAD	Un*, s1, s2, d1, d2, d3				
	GP_SREAD	Un*, s1, s2, d1, d2, d3				
	J_WRITE	Jn*, s1, s2, s3, d1	Writes data to a device of another station.			5-154
	JP_WRITE	Jn*, s1, s2, s3, d1				
	G_WRITE	Un*, s1, s2, s3, d1				
	GP_WRITE	Un*, s1, s2, s3, d1				
	J_SWRITE	Jn*, s1, s2, d1, d2, d3	Writes data to a device of another station (with completion device).			5-161
	JP_SWRITE	Jn*, s1, s2, d1, d2, d3				
	G_SWRITE	Un*, s1, s2, d1, d2, d3				
	GP_SWRITE	Un*, s1, s2, d1, d2, d3				
Message (user-specified data) communication	J_SEND	Jn*, s1, s2, d	Sends data to another station.		CC IE C CC IE F NET/H Ether	5-165
	JP_SEND	Jn*, s1, s2, d				
	G_SEND	Un*, s1, s2, d				
	GP_SEND	Un*, s1, s2, d				
	J_RECV	Jn*, s, d1, d2	Reads received data from another station (for main program).			5-173
	JP_RECV	Jn*, s, d1, d2				
	G_RECV	Un*, s, d1, d2				
	GP_RECV	Un*, s, d1, d2				
	Z_RECVS	Un*, s1, s2, d	Reads received data from another station (for interrupt program).			5-178

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INSTRUCTION TABLES

Classification	Instruction name	Argument	Processing details	Executing condition	Applicable module	Page
Transient request to another station	J_REQ	Jn*, s1, s2, d1, d2	Executes remote RUN/STOP for another station. Reads/writes clock data from another station.		CC IE C	5-181
	JP_REQ	Jn*, s1, s2, d1, d2			CC IE C CC IE F NET/H Ether	
	G_REQ	Un*, s1, s2, d1, d2			CC IE C	
	GP_REQ	Un*, s1, s2, d1, d2			CC IE C CC IE F NET/H Ether	
Read from other station devices	J_ZNRD	Un*, n1, s, n2, d1, d2	Reads data from a device of a programmable controller on another station. (In units of words)		CC IE C NET/H Ether	5-190
	JP_ZNRD	Un*, n1, s, n2, d1, d2				
Write to other station devices	J_ZNWR	Un*, n1, s, n2, d1, d2	Writes data to a device of a programmable controller on another station. (In units of words)			5-193
	JP_ZNWR	Un*, n1, s, n2, d1, d2				
Remote RUN	Z_RRUN_J	Jn*, s1, s2, s3, s4, d	Executes remote RUN for a CPU module on another station.		CC IE C NET/H	5-197
	ZP_RRUN_J	Jn*, s1, s2, s3, s4, d				
	Z_RRUN_U	Un*, s1, s2, s3, s4, d				
	ZP_RRUN_U	Un*, s1, s2, s3, s4, d				
Remote STOP	Z_RSTOP_J	Jn*, s1, s2, s3, s4, d	Executes remote STOP for a CPU module on another station.		CC IE C NET/H	5-200
	ZP_RSTOP_J	Jn*, s1, s2, s3, s4, d				
	Z_RSTOP_U	Un*, s1, s2, s3, s4, d				
	ZP_RSTOP_U	Un*, s1, s2, s3, s4, d				
Reading clock data from another station	Z_RTMRD_J	Jn*, s1, s2, s3, d1, d2	Reads clock data from a CPU module on another station.		CC IE C NET/H	5-203
	ZP_RTMRD_J	Jn*, s1, s2, s3, d1, d2				
	Z_RTMRD_U	Un*, s1, s2, s3, d1, d2				
	ZP_RTMRD_U	Un*, s1, s2, s3, d1, d2				
Writing clock data to another station	Z_RTMWR_J	Jn*, s1, s2, s3, s4, d	Writes clock data to a CPU module on another station.		CC IE C NET/H	5-205
	ZP_RTMWR_J	Jn*, s1, s2, s3, s4, d				
	Z_RTMWR_U	Un*, s1, s2, s3, s4, d				
	ZP_RTMWR_U	Un*, s1, s2, s3, s4, d				

Classification	Instruction name	Argument	Processing details	Executing condition	Applicable module	Page
Reading from buffer memory of intelligent function module on remote I/O station	Z_REMFR	Jn*, n1, n2, n3, n4, n5, d1, d2	Reads data from the buffer memory of an intelligent function module on the remote I/O station.		NET/H	5-208
	ZP_REMFR	Jn*, n1, n2, n3, n4, n5, d1, d2			CC IE F NET/H	
Writing to buffer memory of intelligent function module on remote I/O station	Z_REMTO	Jn*, n1, n2, n3, n4, n5, d1, d2	Writes data to the buffer memory of an intelligent function module on the remote I/O station.		NET/H	5-210
	ZP_REMTO	Jn*, n1, n2, n3, n4, n5, d1, d2			CC IE F NET/H	
Setting parameter	G_CCPASET	Jn*, s1, s2, s3, s4, d	Set parameters for master/local modules (master station).		CC IE F	5-212
	GP_CCPASET	Jn*, s1, s2, s3, s4, d				
Connection opening or closing	ZP_OPEN	Un*, s1, s2, d	Opens a connection.		Ether	5-218
	ZP_CLOSE	Un*, s1, s2, d	Closes a connection.			5-222
Fixed buffer communication	ZP_BUFRCV	Un*, s1, s2, d1, d2	Reads received data. (for main program)		Ether	5-225
	Z_BUFRCVS	Un*, s, d	Reads received data. (for interrupt program)			5-229
	ZP_BUFSND	Un*, s1, s2, s3, d	Sends data.			5-231
Reading or clearing error information	ZP_ERRCLR	Un*, s, d	Clears error information.		Ether	5-235
	ZP_ERRRD	Un*, s, d	Reads error information.			5-238
Re-initialization/ station number setting/changing switch setting	Z_UINI	Un*, s, d	• Executes re-initialization. • Sets the host station number. • Changes the switch setting.		CC IE C	5-241
	ZP_UINI	Un*, s, d			CC IE C Ether	
E-mail communication	ZP_MRECV	Un*, s, d1, d2	Reads received e-mail.		Ether	5-245
	ZP_MSEND	Un*, s1, s2, d	Sends an e-mail.			5-250

2.3 PID Control Instruction

2.3.1 PID control instruction (inexact differential)

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Data setting	S_PIDINIT	s	Sets data to be used for PID operation.		6-2
	SP_PIDINIT	s			
PID operation	S_PIDCONT	s	Performs PID operation based on the set value (SV) and process value (PV).		6-7
	SP_PIDCONT	s			
PID operation stop	S_PIDSTOP	n	Stops the PID operation for the specified loop number.		6-11
	SP_PIDSTOP	n			
PID operation start	S_PIDRUN	n	Starts the PID operation for the specified loop number.		
	SP_PIDRUN	n			
Operation parameter change	S_PIDPRMW	n, s	Changes operation parameter of the specified loop number.		6-12
	SP_PIDPRMW	n, s			

2.3.2 PID control instruction (exact differential)

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Data setting	PIDINIT	s	Sets data to be used for PID operation.		6-16
	PIDINITP	s			
PID operation	PIDCONT	s	Performs PID operation based on the set value (SV) and process value (PV).		6-21
	PIDCONTP	s			
PID operation stop	PIDSTOP	n	Stops the PID operation for the specified loop number.		6-26
	PIDSTOPP	n			
PID operation start	PIDRUN	n	Starts the PID operation for the specified loop number.		
	PIDRUNP	n			
Operation parameter change	PIDPRMW	n, s	Changes operation parameter of the specified loop number.		6-27
	PIDPRMWP	n, s			

2.4 Socket Communication Function Instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Opening/closing connection	SP_SOCOPEN	Un*, s1, s2, d	Establishes a connection.		7-2
	SP_SOCCLOSE	Un*, s1, s2, d	Shuts a connection off.		7-5
Reading receive data	SP_SOCRCV	Un*, s1, s2, d1, d2	Reads receive data. (Reading at the end process)		7-8
	S_SOCRCVS	Un*, s, d	Reads receive data. (Reading at the instruction execution)		7-11
Sending data	SP_SOCSND	Un*, s1, s2, s3, d	Sends data.		7-13
Reading connection information	SP_SOCCINF	Un*, s1, s2, d	Reads connection information.		7-16
Changing destination	SP_SOCCSET	Un*, s1, s2	Changes a destination of a UDP/IP connection.		7-19
Changing receive mode	SP_SOCRMODE	Un*, s1, s2	Changes the receive mode of a connection.		7-22
Reading data from receive data area	S_SOCRDATA	Un*, s1, s2, n, d	Reads data from the receive data area.		7-24
	SP_SOCRDATA				

2.5 Built-in I/O Function Instruction

2.5.1 Positioning function dedicated instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Positioning start	IPPSTRT1	n	Specifies a data number to be executed from "Positioning Data" No. 1 to No. 10 which are previously set in GX Works2, and starts the positioning.		8-2
	IPPSTRT1P	n			
	IPPSTRT2	n			
	IPPSTRT2P	n			
	IPDSTRT1	s	Regardless of "Positioning Data" No. 1 to No. 10 which are previously set in GX Works2, starts the positioning using the data stored in the devices starting from the one specified for control data.		8-3
	IPDSTRT1P	s			
	IPDSTRT2	s			
	IPDSTRT2P	s			
	IPSIMUL	n1, n2	Starts the positioning of the axis 1 "Positioning Data" number and the axis 2 "Positioning Data" number simultaneously.		8-6
	IPSIMULP	n1, n2			
OPR start	IPOPR1	s	Specifies a method and starts the OPR of the specified axis.		8-7
	IPOPR1P	s			
	IPOPR2	s			
	IPOPR2P	s			
JOG start	IPJOG1	s1, s2	Starts the JOG operation of the specified axis.		8-9
	IPJOG2	s1, s2			
Absolute position restoration	IPABRST1	s, d	Executes the absolute position restoration of the specified axis.		8-11
	IPABRST2	s, d			
Stop	IPSTOP1	-	Stops the axis in operation.		8-13
	IPSTOP2	-			
Speed change	IPSPCHG1	s	Changes the speed of the specified axis.		8-14
	IPSPCHG1P	s			
	IPSPCHG2	s			
	IPSPCHG2P	s			
Target position change	IPTPCHG1	s	Changes the target position of the specified axis.		8-16
	IPTPCHG1P	s			
	IPTPCHG2	s			
	IPTPCHG2P	s			

2.5.2 Counter function dedicated instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Current value read	ICCNTRD1	-	Stores the most recent value for the current value of the specified CH.		8-18
	ICCNTRD1P	-			
	ICCNTRD2	-			
	ICCNTRD2P	-			
Ring counter upper/lower limit value write	ICRNGWR1	s1, s2	Sets a ring counter lower limit value and upper limit value of the specified CH.		8-19
	ICRNGWR1P	s1, s2			
	ICRNGWR2	s1, s2			
	ICRNGWR2P	s1, s2			
Preset value write	ICPREWR1	s	Sets a preset value of the specified CH.		8-21
	ICPREWR1P	s			
	ICPREWR2	s			
	ICOREWR2P	s			
Latch counter value read	ICLTHRD1	n, d	Stores a latch counter value of the specified CH.		8-22
	ICLTHRD1P	n, d			
	ICLTHRD2	n, d			
	ICLTHRD2P	n, d			
Sampling counter value read	ICSMPRD1	d	Stores a sampling counter value of the specified CH.		8-23
	ICSMPRD1P	d			
	ICSMPRD2	d			
	ICSMPRD2P	d			
Coincidence output point write	ICCOVWR1	n, s	Sets a coincidence output No. n point of the specified CH.		8-24
	ICCOVWR1P	n, s			
	ICCOVWR2	n, s			
	ICCOVWR2P	n, s			
Frequency measurement	ICFCNT1	d	Measures the frequency of the specified CH.		8-25
	ICFCNT2	d			
Rotation speed measurement	ICRCNT1	d	Measures the rotation speed of the specified CH.		8-26
	ICRCNT2	d			

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Pulse measurement read	ICPLSRD1	d	Stores the measured pulse value of the specified CH.		8-27
	ICPLSRD1P	d			
	ICPLSRD2	d			
	ICPLSRD2P	d			
PWM output	ICPWM1	s1, s2	Outputs the PWM waveform of the specified CH.		8-28
	ICPWM2	s1, s2			

2.6 Data Logging Function Instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
Trigger logging set/reset	LOGTRG	n	Generates the trigger conditions in a trigger logging. Stores the data sampling results to the data logging file for the number of times specified in the trigger logging configuration of the programming tool.		9-2
	LOGTRGR	n	Resets the trigger conditions		

2.7 SFC Control Instruction

Classification	Instruction name	Argument	Processing details	Executing condition	Page
SFC step comment read	S_SFCSCOMR	n1, n2, n3, d1, d2	Reads comment of an active step in the specified SFC block by the specified number.		10-2
	SP_SFCSCOMR	n1, n2, n3, d1, d2			
SFC transition condition comment read	S_SFCTCOMR	n1, n2, n3, d1, d2	Reads comment of transition condition associated with an active step in the specified SFC block by the specified number.		10-4
	SP_SFCTCOMR	n1, n2, n3, d1, d2			

MEMO

3 CONFIGURATION OF INSTRUCTIONS

3.1 Configuration of Instructions

Instructions available in the CPU module can be divided into an instruction name and an argument.

The application of an instruction name and an argument are as follows:

- Instruction name..... Indicates the function of the instruction.
- Argument .... Indicates the I/O data used in the instruction.

Arguments are classified into I/O number, source data, destination data, number of devices, executing condition, and execution result.

(1) I/O number

(a) I/O number is data that set a module in which the instruction is to be executed.
Set the I/O number by start I/O number or a network number of the module depending on the instruction.

(b) Setting the start I/O number (Un) of the module
Set the higher two digits when expressing the start I/O number in three digits for the module in which the instruction is to be executed.
Set the start I/O number in a numeric value or character string according to the data type available with the instruction.

- Setting the start I/O number in word (unsigned)/16-bit string or word (signed) data type
Set the start I/O number of the module for 'n' of 'Un'.
Example: For the module whose start I/O number is 020H: 02
- Setting the start I/O number in string data type
Set the start I/O number in the format of "Un" (n: start I/O number of the module).
Example: For the module whose start I/O number is 020H: "02"

(c) Network number (Jn) setting
Set the network number of the network module/Ethernet module in which the instruction is to be executed.
Set a network number indicated below, in word (unsigned)/16-bit string or word (signed) data type, for 'n' of 'Jn'.

1 to 239 : Network number
254 : Network specified in "Valid module during other station access" on the GX Works2 network parameter screen

Example: When the network number is 1: 1

(2) Source ⓢ

(a) A source is data used in an operation.

(b) The following source types are available depending on the device specified in an instruction:

- Constant . . . . Specifies a numeric value used in an operation. Constants are set during programming so that they cannot be changed while the program is being executed. Perform index setting when using them as variable data.
- Bit device and word device . . . . Specifies the device in which the data used in the operation are stored. Data must be stored to the specified device before executing the operation. By changing the data to be stored to the specified device while a program is being executed, the data used in the instruction can be changed.

(c) The instructions explained in this manual use special data. Refer to the explanation for each instruction and use data correctly.

(3) Destination ⓓ

(a) Data after the operation are stored to a destination.

(b) Set a device in which data are to be stored to a destination.

(c) The instructions explained in this manual use special data. Refer to the explanation for each instruction and use data correctly.

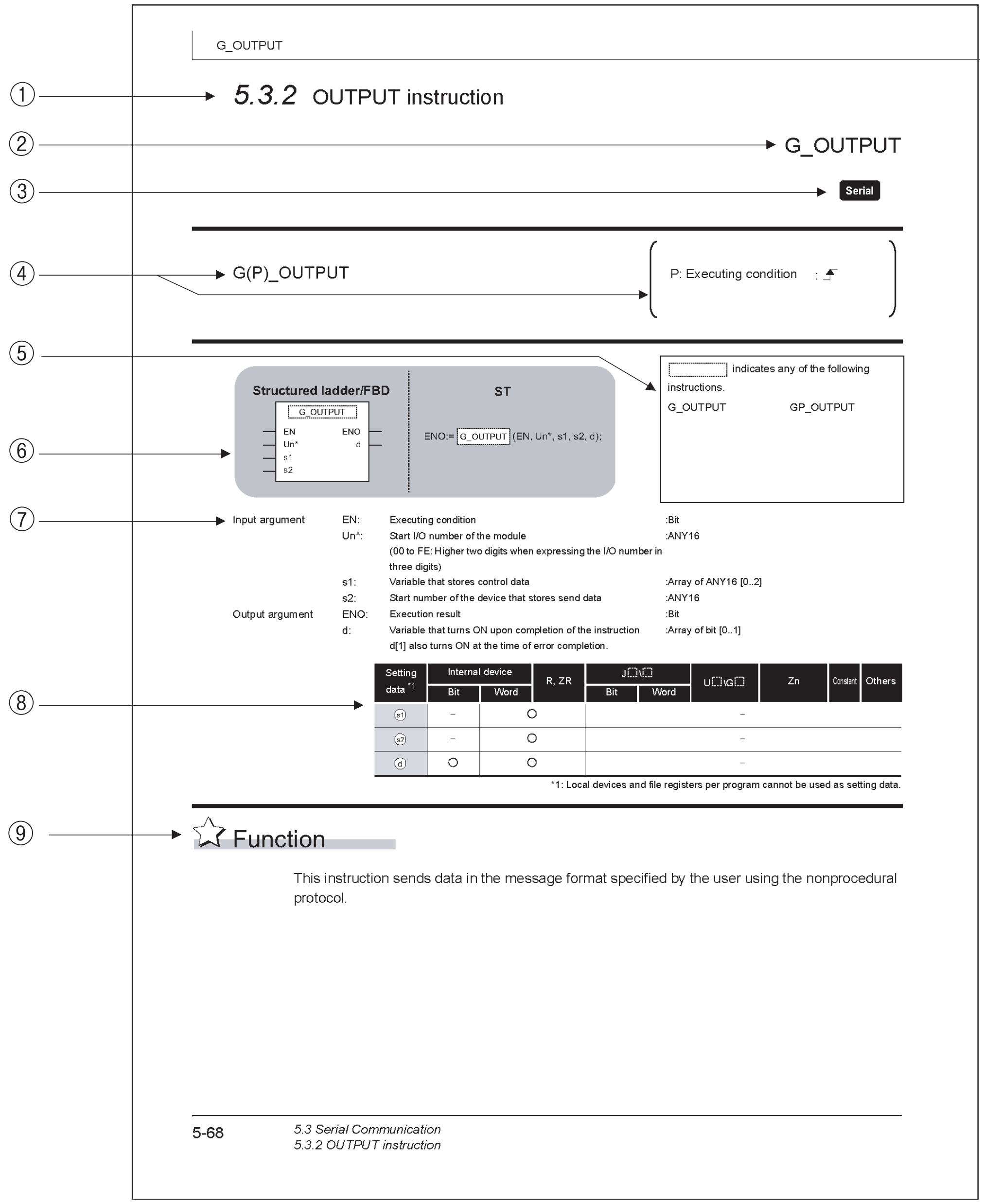
POINT

For details of the configuration of instructions for labels and structures, refer to MELSEC-Q/L/F Structured Programming Manual (Fundamentals).

MEMO

4 HOW TO READ INSTRUCTIONS

Chapter 5 provides detailed explanation on each instruction in the layout as shown below.



① Indicates a section number and an outline of an instruction.

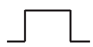
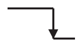
② Indicates an instruction to be explained.

③ Indicates the instruction execution target module.

If one instruction is to be executed in two or more modules, applicable modules are indicated using icons.

Module	Icon
Serial communication	Serial
CC-Link IE Controller Network	CC IE C
CC-Link IE Field Network	CC IE F
MELSECNET/H	NET/H
Ethernet	Ether
Universal model QCPU (Built-in Ethernet port QCPU)	QnUDE(H)
LCPU	L CPU
Universal model QCPU	Universal
High Performance model QCPU	High performance

④ Indicates the instruction name and executing condition of the instruction.

Executing condition	Non-conditional execution	Executed while ON	Executed once at ON	Executed while OFF	Executed once at OFF
Symbols on the corresponding page	No symbol				

⑤ Indicates the instruction names that can be described.

⑥ Indicates the description format of the instruction in the structured ladder/FBD/ST language.

⑦ Indicates the names of input and output arguments, and the data type of each argument. For details of each data type, refer to MELSEC-Q/L/F structured programming manual (Fundamentals).

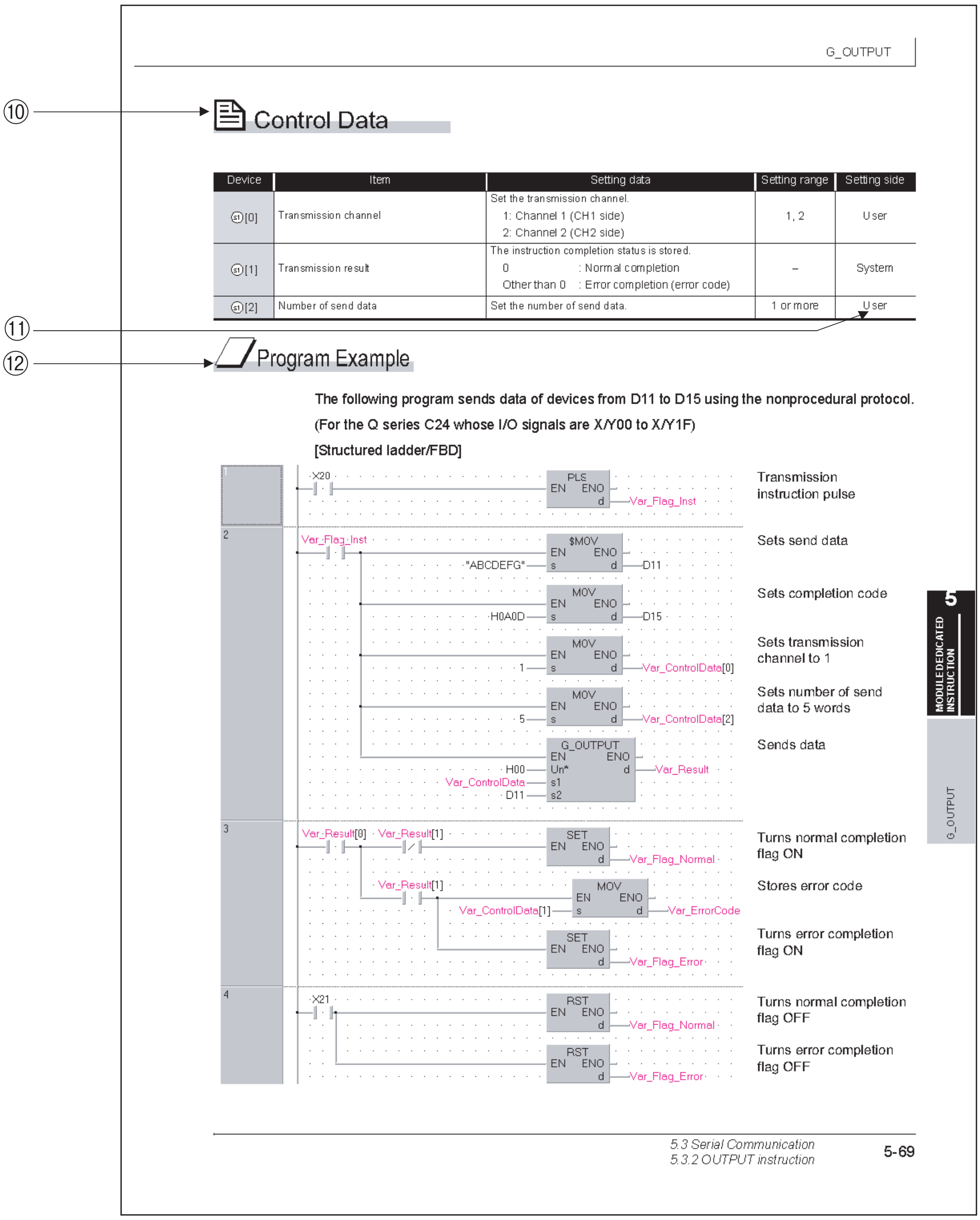
⑧ Devices that can be used in the instruction are marked with ○.

The following table shows applicable classification for usable devices.

Device classification	Internal device (system, user)		File register R, ZR	Link direct device*4 J□\□		Intelligent function module U□\G□	Index register Zn	Constant*5	Others*5
	Bit	Word		Bit	Word				
Usable device*1	X, Y, M, L, SM, F, B, SB, FX, FY*2	T, ST, C,*3 D, W, SD, SW, FD, @□	R, ZR	J□\X J□\Y J□\B J□\SB	J□\W J□\SW	U□\G□	Z	K, H, E, $,	P, I, J, U, DX, DY, N, BL, TR, BL\S, V

*1 : For description of each device, refer to the User's Manual (Function Explanation, Program Fundamentals) of the CPU module to be used.
*2 : FX and FY can be used in bit data only, and FD can be used in word data only in the PID control instruction.
*3 : T, ST, and C can be used in word data only (cannot be used in bit data).
*4 : These devices can be used in CC-Link IE, MELSECNET/H, and MELSECNET/10.
*5 : The Constant and Others columns describe settable devices.

⑨ Indicates the processing performed by the instruction.



Device	Item	Setting data	Setting range	Setting side
[0]	Transmission channel	Set the transmission channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
[1]	Transmission result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
[2]	Number of send data	Set the number of send data.	1 or more	User

⑩ Indicates data such as control data, send data or receive data, that are used for an input argument or output argument in an instruction.

Example: Control data to be used in the CC-Link instruction 'GP_RIRD'

⑪ The setting side indicates the following:

User : Data set by user before dedicated instruction execution

System : Data stored by the programmable controller CPU after dedicated instruction execution

The setting does not need to be set by the user.

If the setting is set by the user, data cannot be read normally.

⑫ Indicates the program examples of structured ladder/FBD/ST.

The program examples are when the conditions are satisfied. The program example shown above shows that the conditions are satisfied in ladder block number 3.

The processing when the conditions are not satisfied, create appropriate programs as necessary.

5 MODULE DEDICATED INSTRUCTION

5.1 Analog Instruction

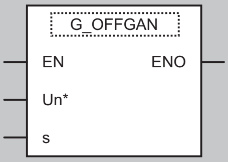
5.1.1 OFFGAN instruction

G_OFFGAN

G(P)_OFFGAN

P: Executing condition :

Structured ladder/FBD



ST

ENO:= G_OFFGAN (EN, Un*, s);

[ ] indicates any of the following instructions.

G_OFFGAN GP_OFFGAN

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Mode switching 0: To normal mode 1: To offset/gain setting mode	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant	Others
s	–	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

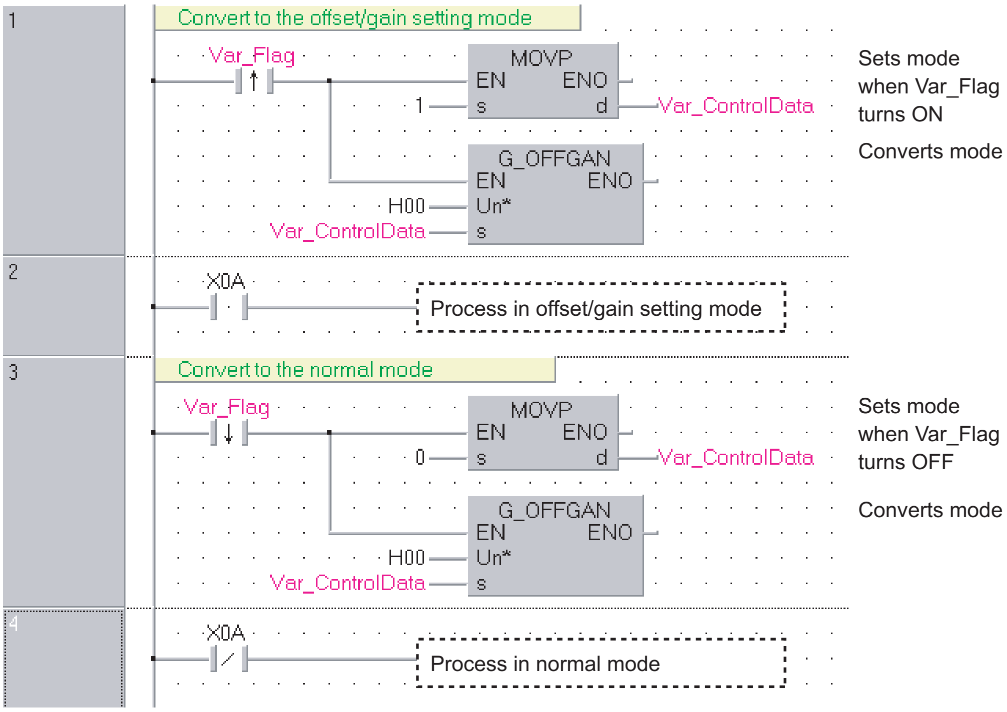
Function

This instruction converts the mode of analog modules. (normal mode to offset/gain setting mode, offset/gain setting mode to normal mode)

Program Example

The following program converts the mode of the A/D converter module mounted on the I/O numbers from X/Y00 to X/Y0F to the offset/gain setting mode when Var_Flag turns ON, and gets it back to the normal mode when Var_Flag turns OFF.

[Structured ladder/FBD]



[ST]

```
(* Convert to the offset/gain setting mode *)
IF(Var_Flag=TRUE)THEN                                  (* Var_Flag ON *)
      MOVP(TRUE,1,Var_ControlData);                    (* Sets mode *)
      G_OFFGAN(TRUE,H00,Var_ControlData);              (* Converts mode *)
END_IF;
IF(X0A=TRUE)THEN
      (* Process in offset/gain setting mode *)
END_IF;

(* Convert to the normal mode *)
IF(Var_Flag=FALSE)THEN                                 (* Var_Flag OFF *)
      MOVP(TRUE,0,Var_ControlData);                    (* Sets mode *)
      G_OFFGAN(TRUE,H00,Var_ControlData);              (* Converts mode *)
END_IF;
IF(X0A=FALSE)THEN
      (* Process in normal mode *)
END_IF;
```

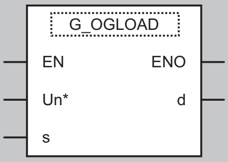
5.1.2 OGLOAD instruction

G_OGLOAD

G(P)_OGLOAD

P: Executing condition :

Structured ladder/FBD



ST

ENO:= G_OGLOAD (EN, Un*, s, d);

indicates any of the following instructions.

G_OGLOAD GP_OGLOAD

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..35]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○			–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads the user range settings offset/gain values of analog modules to the CPU.

Control Data

(1) Q64AD/Q64DAN/Q64DA/L60AD4/L60DA4 *1

Device	Item	Setting data	Setting range	Setting side
S[0]	System area	–	–	–
S[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S[2]	Pass data classification setting	Specify the voltage/current of the offset/gain values to be read. 0: Voltage specified 1: Current specified b15 to b4 b3 b2 b1 b0 0 to 0 CH4 CH3 CH2 CH1	0000H to 000FH	User
S[3]	System area	–	–	–
S[4]	CH1 Industrial shipment settings offset value	–	–	System
S[5]	CH1 Industrial shipment settings gain value	–	–	System
S[6]	CH2 Industrial shipment settings offset value	–	–	System
S[7]	CH2 Industrial shipment settings gain value	–	–	System
S[8]	CH3 Industrial shipment settings offset value	–	–	System
S[9]	CH3 Industrial shipment settings gain value	–	–	System
S[10]	CH4 Industrial shipment settings offset value	–	–	System
S[11]	CH4 Industrial shipment settings gain value	–	–	System
S[12]	CH1 User range settings offset value	–	–	System
S[13]	CH1 User range settings gain value	–	–	System
S[14]	CH2 User range settings offset value	–	–	System
S[15]	CH2 User range settings gain value	–	–	System
S[16]	CH3 User range settings offset value	–	–	System
S[17]	CH3 User range settings gain value	–	–	System
S[18]	CH4 User range settings offset value	–	–	System
S[19]	CH4 User range settings gain value	–	–	System

*1 : Set the data only to the Pass data classification setting S[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(2) Q68ADV/Q68ADI/Q68DAVN/Q68DAV/Q68DAIN/Q68DAI *1

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S [2]	System area	–	–	–
S [3]				
S [4]	CH1 Industrial shipment settings offset value	–	–	System
S [5]	CH1 Industrial shipment settings gain value	–	–	System
S [6]	CH2 Industrial shipment settings offset value	–	–	System
S [7]	CH2 Industrial shipment settings gain value	–	–	System
S [8]	CH3 Industrial shipment settings offset value	–	–	System
S [9]	CH3 Industrial shipment settings gain value	–	–	System
S [10]	CH4 Industrial shipment settings offset value	–	–	System
S [11]	CH4 Industrial shipment settings gain value	–	–	System
S [12]	CH5 Industrial shipment settings offset value	–	–	System
S [13]	CH5 Industrial shipment settings gain value	–	–	System
S [14]	CH6 Industrial shipment settings offset value	–	–	System
S [15]	CH6 Industrial shipment settings gain value	–	–	System
S [16]	CH7 Industrial shipment settings offset value	–	–	System
S [17]	CH7 Industrial shipment settings gain value	–	–	System
S [18]	CH8 Industrial shipment settings offset value	–	–	System
S [19]	CH8 Industrial shipment settings gain value	–	–	System
S [20]	CH1 User range settings offset value	–	–	System
S [21]	CH1 User range settings gain value	–	–	System
S [22]	CH2 User range settings offset value	–	–	System
S [23]	CH2 User range settings gain value	–	–	System
S [24]	CH3 User range settings offset value	–	–	System
S [25]	CH3 User range settings gain value	–	–	System
S [26]	CH4 User range settings offset value	–	–	System
S [27]	CH4 User range settings gain value	–	–	System
S [28]	CH5 User range settings offset value	–	–	System
S [29]	CH5 User range settings gain value	–	–	System
S [30]	CH6 User range settings offset value	–	–	System
S [31]	CH6 User range settings gain value	–	–	System
S [32]	CH7 User range settings offset value	–	–	System
S [33]	CH7 User range settings gain value	–	–	System
S [34]	CH8 User range settings offset value	–	–	System
S [35]	CH8 User range settings gain value	–	–	System

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(3) Q64AD-GH*1

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	Specify the voltage/current of the offset/gain values to be read. 0: Voltage specified 1: Current specified b15 b4 b3 b2 b1 b0 0 to 0 CH4 CH3 CH2 CH1	0000H to 000FH	User
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings offset value (H)			
Ⓢ[6]	CH1 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[7]	CH1 Industrial shipment settings gain value (H)			
Ⓢ[8]	CH2 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[9]	CH2 Industrial shipment settings offset value (H)			
Ⓢ[10]	CH2 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[11]	CH2 Industrial shipment settings gain value (H)			
Ⓢ[12]	CH3 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[13]	CH3 Industrial shipment settings offset value (H)			
Ⓢ[14]	CH3 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[15]	CH3 Industrial shipment settings gain value (H)			
Ⓢ[16]	CH4 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[17]	CH4 Industrial shipment settings offset value (H)			
Ⓢ[18]	CH4 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[19]	CH4 Industrial shipment settings gain value (H)			
Ⓢ[20]	CH1 User range settings offset value (L)	–	–	System
Ⓢ[21]	CH1 User range settings offset value (H)			
Ⓢ[22]	CH1 User range settings gain value (L)	–	–	System
Ⓢ[23]	CH1 User range settings gain value (H)			
Ⓢ[24]	CH2 User range settings offset value (L)	–	–	System
Ⓢ[25]	CH2 User range settings offset value (H)			
Ⓢ[26]	CH2 User range settings gain value (L)	–	–	System
Ⓢ[27]	CH2 User range settings gain value (H)			
Ⓢ[28]	CH3 User range settings offset value (L)	–	–	System
Ⓢ[29]	CH3 User range settings offset value (H)			
Ⓢ[30]	CH3 User range settings gain value (L)	–	–	System
Ⓢ[31]	CH3 User range settings gain value (H)			
Ⓢ[32]	CH4 User range settings offset value (L)	–	–	System
Ⓢ[33]	CH4 User range settings offset value (H)			
Ⓢ[34]	CH4 User range settings gain value (L)	–	–	System
Ⓢ[35]	CH4 User range settings gain value (H)			

*1 : Set the data only to the Pass data classification setting Ⓢ[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(4) Q62AD-DGH[*1]

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2] Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings offset value (H)			
Ⓢ[6]	CH1 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[7]	CH1 Industrial shipment settings gain value (H)			
Ⓢ[8]	CH2 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[9]	CH2 Industrial shipment settings offset value (H)			
Ⓢ[10]	CH2 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[11]	CH2 Industrial shipment settings gain value (H)			
Ⓢ[12] to Ⓢ[19]	System area	–	–	–
Ⓢ[20]	CH1 User range settings offset value (L)	–	–	System
Ⓢ[21]	CH1 User range settings offset value (H)			
Ⓢ[22]	CH1 User range settings gain value (L)	–	–	System
Ⓢ[23]	CH1 User range settings gain value (H)			
Ⓢ[24]	CH2 User range settings offset value (L)	–	–	System
Ⓢ[25]	CH2 User range settings offset value (H)			
Ⓢ[26]	CH2 User range settings gain value (L)	–	–	System
Ⓢ[27]	CH2 User range settings gain value (H)			
Ⓢ[28] to Ⓢ[35]	System area	–	–	–

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(5) Q68AD-G*1

Device	Item	Setting data	Setting range	Setting side
S[0]	System area	–	–	–
S[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S[2]	Pass data classification setting	Specify the voltage/current of the offset/gain values to be read. 0: Voltage specified 1: Current specified b15 to b8: 0 to 0; b7: CH8, b6: CH7, b5: CH6, b4: CH5, b3: CH4, b2: CH3, b1: CH2, b0: CH1	0000H to 00FFH	User
S[3]	System area	–	–	–
S[4]	CH1 Industrial shipment settings offset value	–	–	System
S[5]	CH1 Industrial shipment settings gain value	–	–	System
S[6]	CH2 Industrial shipment settings offset value	–	–	System
S[7]	CH2 Industrial shipment settings gain value	–	–	System
S[8]	CH3 Industrial shipment settings offset value	–	–	System
S[9]	CH3 Industrial shipment settings gain value	–	–	System
S[10]	CH4 Industrial shipment settings offset value	–	–	System
S[11]	CH4 Industrial shipment settings gain value	–	–	System
S[12]	CH5 Industrial shipment settings offset value	–	–	System
S[13]	CH5 Industrial shipment settings gain value	–	–	System
S[14]	CH6 Industrial shipment settings offset value	–	–	System
S[15]	CH6 Industrial shipment settings gain value	–	–	System
S[16]	CH7 Industrial shipment settings offset value	–	–	System
S[17]	CH7 Industrial shipment settings gain value	–	–	System
S[18]	CH8 Industrial shipment settings offset value	–	–	System
S[19]	CH8 Industrial shipment settings gain value	–	–	System
S[20]	CH1 User range settings offset value	–	–	System
S[21]	CH1 User range settings gain value	–	–	System
S[22]	CH2 User range settings offset value	–	–	System
S[23]	CH2 User range settings gain value	–	–	System
S[24]	CH3 User range settings offset value	–	–	System
S[25]	CH3 User range settings gain value	–	–	System
S[26]	CH4 User range settings offset value	–	–	System
S[27]	CH4 User range settings gain value	–	–	System
S[28]	CH5 User range settings offset value	–	–	System
S[29]	CH5 User range settings gain value	–	–	System
S[30]	CH6 User range settings offset value	–	–	System
S[31]	CH6 User range settings gain value	–	–	System
S[32]	CH7 User range settings offset value	–	–	System
S[33]	CH7 User range settings gain value	–	–	System
S[34]	CH8 User range settings offset value	–	–	System
S[35]	CH8 User range settings gain value	–	–	System

*1 : Set the data only to the Pass data classification setting S[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(6) Q66AD-DG*1

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
Ⓢ[2] Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH3 Industrial shipment settings offset value	–	–	System
Ⓢ[9]	CH3 Industrial shipment settings gain value	–	–	System
Ⓢ[10]	CH4 Industrial shipment settings offset value	–	–	System
Ⓢ[11]	CH4 Industrial shipment settings gain value	–	–	System
Ⓢ[12]	CH5 Industrial shipment settings offset value	–	–	System
Ⓢ[13]	CH5 Industrial shipment settings gain value	–	–	System
Ⓢ[14]	CH6 Industrial shipment settings offset value	–	–	System
Ⓢ[15]	CH6 Industrial shipment settings gain value	–	–	System
Ⓢ[16] to Ⓢ[19]	System area	–	–	–
Ⓢ[20]	CH1 User range settings offset value	–	–	System
Ⓢ[21]	CH1 User range settings gain value	–	–	System
Ⓢ[22]	CH2 User range settings offset value	–	–	System
Ⓢ[23]	CH2 User range settings gain value	–	–	System
Ⓢ[24]	CH3 User range settings offset value	–	–	System
Ⓢ[25]	CH3 User range settings gain value	–	–	System
Ⓢ[26]	CH4 User range settings offset value	–	–	System
Ⓢ[27]	CH4 User range settings gain value	–	–	System
Ⓢ[28]	CH5 User range settings offset value	–	–	System
Ⓢ[29]	CH5 User range settings gain value	–	–	System
Ⓢ[30]	CH6 User range settings offset value	–	–	System
Ⓢ[31]	CH6 User range settings gain value	–	–	System
Ⓢ[32] to Ⓢ[35]	System area	–	–	–

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(7) Q62DAN/Q62DA *1

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	Specify the voltage/current of the offset/gain values to be read. 0: Voltage specified 1: Current specified b15 … b2 b1 b0 0 to 0 CH2 CH1	0000H to 0003H	User
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH1 User range settings offset value	–	–	System
Ⓢ[9]	CH1 User range settings gain value	–	–	System
Ⓢ[10]	CH2 User range settings offset value	–	–	System
Ⓢ[11]	CH2 User range settings gain value	–	–	System

*1 : Set the data only to the Pass data classification setting Ⓢ[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(8) Q62DA-FG[*1]

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	Specify the user range setting to read the offset/gain values. 0H: User range setting 1 specified 1H: User range setting 2 specified 2H: User range setting 3 specified b15 to b12: 0H / b11 to b8: 0H / b7 to b4: CH2 / b3 to b0: CH1	–	User
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value (used for D/A)	–	–	System
Ⓢ[5]	CH1 Industrial shipment setting gain value (used for D/A)	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value (used for D/A)	–	–	System
Ⓢ[7]	CH2 Industrial shipment setting gain value (used for D/A)	–	–	System
Ⓢ[8]	CH1 Industrial shipment settings offset value (used for monitor output)	–	–	System
Ⓢ[9]	CH1 Industrial shipment settings gain value (used for monitor output)	–	–	System
Ⓢ[10]	CH2 Industrial shipment settings offset value (used for monitor output)	–	–	System
Ⓢ[11]	CH2 Industrial shipment settings gain value (used for monitor output)	–	–	System
Ⓢ[12]	CH1 User range settings offset value (used for D/A)	–	–	System
Ⓢ[13]	CH1 User range settings gain value (used for D/A)	–	–	System
Ⓢ[14]	CH2 User range settings offset value (used for D/A)	–	–	System
Ⓢ[15]	CH2 User range settings gain value (used for D/A)	–	–	System
Ⓢ[16]	CH1 User range settings offset value (used for monitor output)	–	–	System
Ⓢ[17]	CH1 User range settings gain value (used for monitor output)	–	–	System
Ⓢ[18]	CH2 User range settings offset value (used for monitor output)	–	–	System
Ⓢ[19]	CH2 User range settings gain value (used for monitor output)	–	–	System

*1 : Set the data only to the Pass data classification setting Ⓢ[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(9) Q66DA-G[*1]

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	Specify the user range setting to read the offset/gain values. 0H: User range setting 1 specified 1H: User range setting 2 specified 2H: User range setting 3 specified b15 to b12: 0 : Fixed; b11 b10: CH6; b9 b8: CH5; b7 b6: CH4; b5 b4: CH3; b3 b2: CH2; b1 b0: CH1	0000H to 0AAAH	User
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH3 Industrial shipment settings offset value	–	–	System
Ⓢ[9]	CH3 Industrial shipment settings gain value	–	–	System
Ⓢ[10]	CH4 Industrial shipment settings offset value	–	–	System
Ⓢ[11]	CH4 Industrial shipment settings gain value	–	–	System
Ⓢ[12]	CH5 Industrial shipment settings offset value	–	–	System
Ⓢ[13]	CH5 Industrial shipment settings gain value	–	–	System
Ⓢ[14]	CH6 Industrial shipment settings offset value	–	–	System
Ⓢ[15]	CH6 Industrial shipment settings gain value	–	–	System
Ⓢ[16]	CH1 User range settings offset value	–	–	System
Ⓢ[17]	CH1 User range settings gain value	–	–	System
Ⓢ[18]	CH2 User range settings offset value	–	–	System
Ⓢ[19]	CH2 User range settings gain value	–	–	System
Ⓢ[20]	CH3 User range settings offset value	–	–	System
Ⓢ[21]	CH3 User range settings gain value	–	–	System
Ⓢ[22]	CH4 User range settings offset value	–	–	System
Ⓢ[23]	CH4 User range settings gain value	–	–	System
Ⓢ[24]	CH5 User range settings offset value	–	–	System
Ⓢ[25]	CH5 User range settings gain value	–	–	System
Ⓢ[26]	CH6 User range settings offset value	–	–	System
Ⓢ[27]	CH6 User range settings gain value	–	–	System
Ⓢ[28] to Ⓢ[35]	System area	–	–	System

*1 : Set the data only to the Pass data classification setting Ⓢ[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(10) Q64RD/Q64RD-G [*1]

Control data of Q64RD/Q64RD-G (1/5)

Device		Item	Setting data	Setting range	Setting side
Ⓢ[0]		System area	–	–	–
Ⓢ[1]		Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]		System area	–	–	–
Ⓢ[3]					
Q64RD	Ⓢ[4]	3-wire CH1 Factory default offset value	–	–	System
	Ⓢ[5]	3-wire CH1 Factory default offset value	–	–	System
	Ⓢ[6]	3-wire CH1 Factory default gain value	–	–	System
	Ⓢ[7]	3-wire CH1 Factory default gain value	–	–	System
	Ⓢ[8]	3-wire CH1 User range settings offset value	–	–	System
	Ⓢ[9]	3-wire CH1 User range settings offset value	–	–	System
	Ⓢ[10]	3-wire CH1 User range settings gain value	–	–	System
	Ⓢ[11]	3-wire CH1 User range settings gain value	–	–	System
Q64RD -G	Ⓢ[4]	3-wire CH1 Factory default offset value (L)	–	–	System
	Ⓢ[5]	3-wire CH1 Factory default offset value (H)			
	Ⓢ[6]	3-wire CH1 Factory default gain value (L)	–	–	System
	Ⓢ[7]	3-wire CH1 Factory default gain value (H)			
	Ⓢ[8]	3-wire CH1 User range settings offset value (L)	–	–	System
	Ⓢ[9]	3-wire CH1 User range settings offset value (H)			
	Ⓢ[10]	3-wire CH1 User range settings gain value (L)	–	–	System
	Ⓢ[11]	3-wire CH1 User range settings gain value (H)			
Ⓢ[12]		3-wire CH1 User range settings resistance offset value (L)	–	–	System
Ⓢ[13]		3-wire CH1 User range settings resistance offset value (H)			
Ⓢ[14]		3-wire CH1 User range settings resistance gain value (L)	–	–	System
Ⓢ[15]		3-wire CH1 User range settings resistance gain value (H)			
Q64RD	Ⓢ[16]	4-wire CH1 Factory default offset value	–	–	System
	Ⓢ[17]	4-wire CH1 Factory default offset value	–	–	System
	Ⓢ[18]	4-wire CH1 Factory default gain value	–	–	System
	Ⓢ[19]	4-wire CH1 Factory default gain value	–	–	System
	Ⓢ[20]	4-wire CH1 User range settings offset value	–	–	System
	Ⓢ[21]	4-wire CH1 User range settings offset value	–	–	System
	Ⓢ[22]	4-wire CH1 User range settings gain value	–	–	System
	Ⓢ[23]	4-wire CH1 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (2/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD -G	S [16]	4-wire CH1 Factory default offset value (L)	–	–	System
	S [17]	4-wire CH1 Factory default offset value (H)			
	S [18]	4-wire CH1 Factory default gain value (L)	–	–	System
	S [19]	4-wire CH1 Factory default gain value (H)			
	S [20]	4-wire CH1 User range settings offset value (L)	–	–	System
	S [21]	4-wire CH1 User range settings offset value (H)			
	S [22]	4-wire CH1 User range settings gain value (L)	–	–	System
	S [23]	4-wire CH1 User range settings gain value (H)			
S [24]		4-wire CH1 User range settings resistance offset value (L)	–	–	System
S [25]		4-wire CH1 User range settings resistance offset value (H)			
S [26]		4-wire CH1 User range settings resistance gain value (L)	–	–	System
S [27]		4-wire CH1 User range settings resistance gain value (H)			
Q64RD	S [28]	3-wire CH2 Factory default offset value	–	–	System
	S [29]	3-wire CH2 Factory default offset value	–	–	System
	S [30]	3-wire CH2 Factory default gain value	–	–	System
	S [31]	3-wire CH2 Factory default gain value	–	–	System
	S [32]	3-wire CH2 User range settings offset value	–	–	System
	S [33]	3-wire CH2 User range settings offset value	–	–	System
	S [34]	3-wire CH2 User range settings gain value	–	–	System
	S [35]	3-wire CH2 User range settings gain value	–	–	System
Q64RD -G	S [28]	3-wire CH2 Factory default offset value (L)	–	–	System
	S [29]	3-wire CH2 Factory default offset value (H)			
	S [30]	3-wire CH2 Factory default gain value (L)	–	–	System
	S [31]	3-wire CH2 Factory default gain value (H)			
	S [32]	3-wire CH2 User range settings offset value (L)	–	–	System
	S [33]	3-wire CH2 User range settings offset value (H)			
	S [34]	3-wire CH2 User range settings gain value (L)	–	–	System
	S [35]	3-wire CH2 User range settings gain value (H)			
S [36]		3-wire CH2 User range settings resistance offset value (L)	–	–	System
S [37]		3-wire CH2 User range settings resistance offset value (H)			
S [38]		3-wire CH2 User range settings resistance gain value (L)	–	–	System
S [39]		3-wire CH2 User range settings resistance gain value (H)			
Q64RD	S [40]	4-wire CH2 Factory default offset value	–	–	System
	S [41]	4-wire CH2 Factory default offset value	–	–	System
	S [42]	4-wire CH2 Factory default gain value	–	–	System
	S [43]	4-wire CH2 Factory default gain value	–	–	System
	S [44]	4-wire CH2 User range settings offset value	–	–	System
	S [45]	4-wire CH2 User range settings offset value	–	–	System
	S [46]	4-wire CH2 User range settings gain value	–	–	System
	S [47]	4-wire CH2 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (3/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD-G	Ⓢ[40]	4-wire CH2 Factory default offset value (L)	–	–	System
	Ⓢ[41]	4-wire CH2 Factory default offset value (H)			
	Ⓢ[42]	4-wire CH2 Factory default gain value (L)	–	–	System
	Ⓢ[43]	4-wire CH2 Factory default gain value (H)			
	Ⓢ[44]	4-wire CH2 User range settings offset value (L)	–	–	System
	Ⓢ[45]	4-wire CH2 User range settings offset value (H)			
	Ⓢ[46]	4-wire CH2 User range settings gain value (L)	–	–	System
	Ⓢ[47]	4-wire CH2 User range settings gain value (H)			
Ⓢ[48]		4-wire CH2 User range settings resistance offset value (L)	–	–	System
Ⓢ[49]		4-wire CH2 User range settings resistance offset value (H)			
Ⓢ[50]		4-wire CH2 User range settings resistance gain value (L)	–	–	System
Ⓢ[51]		4-wire CH2 User range settings resistance gain value (H)			
Q64RD	Ⓢ[52]	3-wire CH3 Factory default offset value	–	–	System
	Ⓢ[53]	3-wire CH3 Factory default offset value	–	–	System
	Ⓢ[54]	3-wire CH3 Factory default gain value	–	–	System
	Ⓢ[55]	3-wire CH3 Factory default gain value	–	–	System
	Ⓢ[56]	3-wire CH3 User range settings offset value	–	–	System
	Ⓢ[57]	3-wire CH3 User range settings offset value	–	–	System
	Ⓢ[58]	3-wire CH3 User range settings gain value	–	–	System
	Ⓢ[59]	3-wire CH3 User range settings gain value	–	–	System
Q64RD-G	Ⓢ[52]	3-wire CH3 Factory default offset value (L)	–	–	System
	Ⓢ[53]	3-wire CH3 Factory default offset value (H)			
	Ⓢ[54]	3-wire CH3 Factory default gain value (L)	–	–	System
	Ⓢ[55]	3-wire CH3 Factory default gain value (H)			
	Ⓢ[56]	3-wire CH3 User range settings offset value (L)	–	–	System
	Ⓢ[57]	3-wire CH3 User range settings offset value (H)			
	Ⓢ[58]	3-wire CH3 User range settings gain value (L)	–	–	System
	Ⓢ[59]	3-wire CH3 User range settings gain value (H)			
Ⓢ[60]		3-wire CH3 User range settings resistance offset value (L)	–	–	System
Ⓢ[61]		3-wire CH3 User range settings resistance offset value (H)			
Ⓢ[62]		3-wire CH3 User range settings resistance gain value (L)	–	–	System
Ⓢ[63]		3-wire CH3 User range settings resistance gain value (H)			
Q64RD	Ⓢ[64]	4-wire CH3 Factory default offset value	–	–	System
	Ⓢ[65]	4-wire CH3 Factory default offset value	–	–	System
	Ⓢ[66]	4-wire CH3 Factory default gain value	–	–	System
	Ⓢ[67]	4-wire CH3 Factory default gain value	–	–	System
	Ⓢ[68]	4-wire CH3 User range settings offset value	–	–	System
	Ⓢ[69]	4-wire CH3 User range settings offset value	–	–	System
	Ⓢ[70]	4-wire CH3 User range settings gain value	–	–	System
	Ⓢ[71]	4-wire CH3 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (4/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD -G	Ⓢ[64]	4-wire CH3 Factory default offset value (L)	–	–	System
	Ⓢ[65]	4-wire CH3 Factory default offset value (H)			
	Ⓢ[66]	4-wire CH3 Factory default gain value (L)	–	–	System
	Ⓢ[67]	4-wire CH3 Factory default gain value (H)			
	Ⓢ[68]	4-wire CH3 User range settings offset value (L)	–	–	System
	Ⓢ[69]	4-wire CH3 User range settings offset value (H)			
	Ⓢ[70]	4-wire CH3 User range settings gain value (L)	–	–	System
	Ⓢ[71]	4-wire CH3 User range settings gain value (H)			
Ⓢ[72]		4-wire CH3 User range settings resistance offset value (L)	–	–	System
Ⓢ[73]		4-wire CH3 User range settings resistance offset value (H)			
Ⓢ[74]		4-wire CH3 User range settings resistance gain value (L)	–	–	System
Ⓢ[75]		4-wire CH3 User range settings resistance gain value (H)			
Q64RD	Ⓢ[76]	3-wire CH4 Factory default offset value	–	–	System
	Ⓢ[77]	3-wire CH4 Factory default offset value	–	–	System
	Ⓢ[78]	3-wire CH4 Factory default gain value	–	–	System
	Ⓢ[79]	3-wire CH4 Factory default gain value	–	–	System
	Ⓢ[80]	3-wire CH4 User range settings offset value	–	–	System
	Ⓢ[81]	3-wire CH4 User range settings offset value	–	–	System
	Ⓢ[82]	3-wire CH4 User range settings gain value	–	–	System
	Ⓢ[83]	3-wire CH4 User range settings gain value	–	–	System
Q64RD -G	Ⓢ[76]	3-wire CH4 Factory default offset value (L)	–	–	System
	Ⓢ[77]	3-wire CH4 Factory default offset value (H)			
	Ⓢ[78]	3-wire CH4 Factory default gain value (L)	–	–	System
	Ⓢ[79]	3-wire CH4 Factory default gain value (H)			
	Ⓢ[80]	3-wire CH4 User range settings offset value (L)	–	–	System
	Ⓢ[81]	3-wire CH4 User range settings offset value (H)			
	Ⓢ[82]	3-wire CH4 User range settings gain value (L)	–	–	System
	Ⓢ[83]	3-wire CH4 User range settings gain value (H)			
Ⓢ[84]		3-wire CH4 User range settings resistance offset value (L)	–	–	System
Ⓢ[85]		3-wire CH4 User range settings resistance offset value (H)			
Ⓢ[86]		3-wire CH4 User range settings resistance gain value (L)	–	–	System
Ⓢ[87]		3-wire CH4 User range settings resistance gain value (H)			
Q64RD	Ⓢ[88]	4-wire CH4 Factory default offset value	–	–	System
	Ⓢ[89]	4-wire CH4 Factory default offset value	–	–	System
	Ⓢ[90]	4-wire CH4 Factory default gain value	–	–	System
	Ⓢ[91]	4-wire CH4 Factory default gain value	–	–	System
	Ⓢ[92]	4-wire CH4 User range settings offset value	–	–	System
	Ⓢ[93]	4-wire CH4 User range settings offset value	–	–	System
	Ⓢ[94]	4-wire CH4 User range settings gain value	–	–	System
	Ⓢ[95]	4-wire CH4 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (5/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD -G	Ⓢ[88]	4-wire CH4 Factory default offset value (L)	–	–	System
	Ⓢ[89]	4-wire CH4 Factory default offset value (H)			
	Ⓢ[90]	4-wire CH4 Factory default gain value (L)	–	–	System
	Ⓢ[91]	4-wire CH4 Factory default gain value (H)			
	Ⓢ[92]	4-wire CH4 User range settings offset value (L)	–	–	System
	Ⓢ[93]	4-wire CH4 User range settings offset value (H)			
	Ⓢ[94]	4-wire CH4 User range settings gain value (L)	–	–	System
	Ⓢ[95]	4-wire CH4 User range settings gain value (H)			
Ⓢ[96]		4-wire CH4 User range settings resistance offset value (L)	–	–	System
Ⓢ[97]		4-wire CH4 User range settings resistance offset value (H)			
Ⓢ[98]		4-wire CH4 User range settings resistance gain value (L)	–	–	System
Ⓢ[99]		4-wire CH4 User range settings resistance gain value (H)			

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(11) Q64TD/Q64TDV-GH *1

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S [2]	System area	–	–	–
S [3]				
S [4]	CH1 Factory default offset value	–	–	System
S [5]	CH1 Factory default gain value	–	–	System
S [6]	CH1 User range settings offset value	–	–	System
S [7]	CH1 User range settings gain value	–	–	System
S [8]	CH1 User range settings thermal EMF offset value (L)	–	–	System
S [9]	CH1 User range settings thermal EMF offset value (H)			
S [10]	CH1 User range settings thermal EMF gain value (L)	–	–	System
S [11]	CH1 User range settings thermal EMF gain value (H)			
S [12]	CH2 Factory default offset value	–	–	System
S [13]	CH2 Factory default gain value	–	–	System
S [14]	CH2 User range settings offset value	–	–	System
S [15]	CH2 User range settings gain value	–	–	System
S [16]	CH2 User range settings thermal EMF offset value (L)	–	–	System
S [17]	CH2 User range settings thermal EMF offset value (H)			
S [18]	CH2 User range settings thermal EMF gain value (L)	–	–	System
S [19]	CH2 User range settings thermal EMF gain value (H)			
S [20]	CH3 Factory default offset value	–	–	System
S [21]	CH3 Factory default gain value	–	–	System
S [22]	CH3 User range settings offset value	–	–	System
S [23]	CH3 User range settings gain value	–	–	System
S [24]	CH3 User range settings thermal EMF offset value (L)	–	–	System
S [25]	CH3 User range settings thermal EMF offset value (H)			
S [26]	CH3 User range settings thermal EMF gain value (L)	–	–	System
S [27]	CH3 User range settings thermal EMF gain value (H)			
S [28]	CH4 Factory default offset value	–	–	System
S [29]	CH4 Factory default gain value	–	–	System
S [30]	CH4 User range settings offset value	–	–	System
S [31]	CH4 User range settings gain value	–	–	System
S [32]	CH4 User range settings thermal EMF offset value (L)	–	–	System
S [33]	CH4 User range settings thermal EMF offset value (H)			
S [34]	CH4 User range settings thermal EMF gain value (L)	–	–	System
S [35]	CH4 User range settings thermal EMF gain value (H)			

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(12) Q68TD-G-H02(H01)*1

Control data of Q68TD-G-H02(H01) (1/2)

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
Ⓢ[2]	System area	–	–	–
Ⓢ[3]				
Ⓢ[4]	CH1 Factory default offset value	–	–	System
Ⓢ[5]	CH1 Factory default gain value	–	–	System
Ⓢ[6]	CH1 User range settings offset value	–	–	System
Ⓢ[7]	CH1 User range settings gain value	–	–	System
Ⓢ[8]	CH1 User range settings thermal EMF offset value (L)	–	–	System
Ⓢ[9]	CH1 User range settings thermal EMF offset value (H)			
Ⓢ[10]	CH1 User range settings thermal EMF gain value (L)	–	–	System
Ⓢ[11]	CH1 User range settings thermal EMF gain value (H)			
Ⓢ[12]	CH2 Factory default offset value	–	–	System
Ⓢ[13]	CH2 Factory default gain value	–	–	System
Ⓢ[14]	CH2 User range settings offset value	–	–	System
Ⓢ[15]	CH2 User range settings gain value	–	–	System
Ⓢ[16]	CH2 User range settings thermal EMF offset value (L)	–	–	System
Ⓢ[17]	CH2 User range settings thermal EMF offset value (H)			
Ⓢ[18]	CH2 User range settings thermal EMF gain value (L)	–	–	System
Ⓢ[19]	CH2 User range settings thermal EMF gain value (H)			
Ⓢ[20]	CH3 Factory default offset value	–	–	System
Ⓢ[21]	CH3 Factory default gain value	–	–	System
Ⓢ[22]	CH3 User range settings offset value	–	–	System
Ⓢ[23]	CH3 User range settings gain value	–	–	System
Ⓢ[24]	CH3 User range settings thermal EMF offset value (L)	–	–	System
Ⓢ[25]	CH3 User range settings thermal EMF offset value (H)			
Ⓢ[26]	CH3 User range settings thermal EMF gain value (L)	–	–	System
Ⓢ[27]	CH3 User range settings thermal EMF gain value (H)			
Ⓢ[28]	CH4 Factory default offset value	–	–	System
Ⓢ[29]	CH4 Factory default gain value	–	–	System
Ⓢ[30]	CH4 User range settings offset value	–	–	System
Ⓢ[31]	CH4 User range settings gain value	–	–	System
Ⓢ[32]	CH4 User range settings thermal EMF offset value (L)	–	–	System
Ⓢ[33]	CH4 User range settings thermal EMF offset value (H)			
Ⓢ[34]	CH4 User range settings thermal EMF gain value (L)	–	–	System
Ⓢ[35]	CH4 User range settings thermal EMF gain value (H)			
Ⓢ[36]	CH5 Factory default offset value	–	–	System
Ⓢ[37]	CH5 Factory default gain value	–	–	System
Ⓢ[38]	CH5 User range settings offset value	–	–	System
Ⓢ[39]	CH5 User range settings gain value	–	–	System
Ⓢ[40]	CH5 User range settings thermal EMF offset value (L)	–	–	System
Ⓢ[41]	CH5 User range settings thermal EMF offset value (H)			

Control data of Q68TD-G-H02(H01) (2/2)

Device	Item	Setting data	Setting range	Setting side
S [42]	CH5 User range settings thermal EMF gain value (L)	–	–	System
S [43]	CH5 User range settings thermal EMF gain value (H)			
S [44]	CH6 Factory default offset value	–	–	System
S [45]	CH6 Factory default gain value	–	–	System
S [46]	CH6 User range settings offset value	–	–	System
S [47]	CH6 User range settings gain value	–	–	System
S [48]	CH6 User range settings thermal EMF offset value (L)	–	–	System
S [49]	CH6 User range settings thermal EMF offset value (H)			
S [50]	CH6 User range settings thermal EMF gain value (L)	–	–	System
S [51]	CH6 User range settings thermal EMF gain value (H)			
S [52]	CH7 Factory default offset value	–	–	System
S [53]	CH7 Factory default gain value	–	–	System
S [54]	CH7 User range settings offset value	–	–	System
S [55]	CH7 User range settings gain value	–	–	System
S [56]	CH7 User range settings thermal EMF offset value (L)	–	–	System
S [57]	CH7 User range settings thermal EMF offset value (H)			
S [58]	CH7 User range settings thermal EMF gain value (L)	–	–	System
S [59]	CH7 User range settings thermal EMF gain value (H)			
S [60]	CH8 Factory default offset value	–	–	System
S [61]	CH8 Factory default gain value	–	–	System
S [62]	CH8 User range settings offset value	–	–	System
S [63]	CH8 User range settings gain value	–	–	System
S [64]	CH8 User range settings thermal EMF offset value (L)	–	–	System
S [65]	CH8 User range settings thermal EMF offset value (H)			
S [66]	CH8 User range settings thermal EMF gain value (L)	–	–	System
S [67]	CH8 User range settings thermal EMF gain value (H)			

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(13) Q68RD3-G[*1]

Control data of Q68RD3-G (1/2)

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S [2] S [3]	System area	–	–	–
S [4]	CH1 Factory default offset value	–	–	System
S [5]	CH1 Factory default gain value	–	–	System
S [6]	CH1 User range settings offset value	–	–	System
S [7]	CH1 User range settings gain value	–	–	System
S [8]	CH1 User range settings resistance offset value (L)	–	–	System
S [9]	CH1 User range settings resistance offset value (H)			
S [10]	CH1 User range settings resistance gain value (L)	–	–	System
S [11]	CH1 User range settings resistance gain value (H)			
S [12]	CH2 Factory default offset value	–	–	System
S [13]	CH2 Factory default gain value	–	–	System
S [14]	CH2 User range settings offset value	–	–	System
S [15]	CH2 User range settings gain value	–	–	System
S [16]	CH2 User range settings resistance offset value (L)	–	–	System
S [17]	CH2 User range settings resistance offset value (H)			
S [18]	CH2 User range settings resistance gain value (L)	–	–	System
S [19]	CH2 User range settings resistance gain value (H)			
S [20]	CH3 Factory default offset value	–	–	System
S [21]	CH3 Factory default gain value	–	–	System
S [22]	CH3 User range settings offset value	–	–	System
S [23]	CH3 User range settings gain value	–	–	System
S [24]	CH3 User range settings resistance offset value (L)	–	–	System
S [25]	CH3 User range settings resistance offset value (H)			
S [26]	CH3 User range settings resistance gain value (L)	–	–	System
S [27]	CH3 User range settings resistance gain value (H)			
S [28]	CH4 Factory default offset value	–	–	System
S [29]	CH4 Factory default gain value	–	–	System
S [30]	CH4 User range settings offset value	–	–	System
S [31]	CH4 User range settings gain value	–	–	System
S [32]	CH4 User range settings resistance offset value (L)	–	–	System
S [33]	CH4 User range settings resistance offset value (H)			
S [34]	CH4 User range settings resistance gain value (L)	–	–	System
S [35]	CH4 User range settings resistance gain value (H)			
S [36]	CH5 Factory default offset value	–	–	System
S [37]	CH5 Factory default gain value	–	–	System
S [38]	CH5 User range settings offset value	–	–	System
S [39]	CH5 User range settings gain value	–	–	System
S [40]	CH5 User range settings resistance offset value (L)	–	–	System
S [41]	CH5 User range settings resistance offset value (H)			

Control data of Q68RD3-G (2/2)

Device	Item	Setting data	Setting range	Setting side
Ⓢ[42]	CH5 User range settings resistance gain value (L)	–	–	System
Ⓢ[43]	CH5 User range settings resistance gain value (H)			
Ⓢ[44]	CH6 Factory default offset value	–	–	System
Ⓢ[45]	CH6 Factory default gain value	–	–	System
Ⓢ[46]	CH6 User range settings offset value	–	–	System
Ⓢ[47]	CH6 User range settings gain value	–	–	System
Ⓢ[48]	CH6 User range settings resistance offset value (L)	–	–	System
Ⓢ[49]	CH6 User range settings resistance offset value (H)			
Ⓢ[50]	CH6 User range settings resistance gain value (L)	–	–	System
Ⓢ[51]	CH6 User range settings resistance gain value (H)			
Ⓢ[52]	CH7 Factory default offset value	–	–	System
Ⓢ[53]	CH7 Factory default gain value	–	–	System
Ⓢ[54]	CH7 User range settings offset value	–	–	System
Ⓢ[55]	CH7 User range settings gain value	–	–	System
Ⓢ[56]	CH7 User range settings resistance offset value (L)	–	–	System
Ⓢ[57]	CH7 User range settings resistance offset value (H)			
Ⓢ[58]	CH7 User range settings resistance gain value (L)	–	–	System
Ⓢ[59]	CH7 User range settings resistance gain value (H)			
Ⓢ[60]	CH8 Factory default offset value	–	–	System
Ⓢ[61]	CH8 Factory default gain value	–	–	System
Ⓢ[62]	CH8 User range settings offset value	–	–	System
Ⓢ[63]	CH8 User range settings gain value	–	–	System
Ⓢ[64]	CH8 User range settings resistance offset value (L)	–	–	System
Ⓢ[65]	CH8 User range settings resistance offset value (H)			
Ⓢ[66]	CH8 User range settings resistance gain value (L)	–	–	System
Ⓢ[67]	CH8 User range settings resistance gain value (H)			

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(14) Q61LD[*1]

Control data of Q61LD (1/2)

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	System
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
Ⓢ[2] Ⓢ[3]	System area	–	–	System
Ⓢ[4]	Load cell rated capacity (L)	–	–	System
Ⓢ[5]	Load cell rated capacity (H)	–	–	System
Ⓢ[6]	Load cell rated output	–	–	System
Ⓢ[7]	Number of load cells in connection	–	–	System
Ⓢ[8]	Zero offset	–	–	System
Ⓢ[9]	System area	–	–	System
Ⓢ[10]	Maximum weighing capacity setting (L)	–	–	System
Ⓢ[11]	Maximum weighing capacity setting (H)	–	–	System
Ⓢ[12]	Minimum division	–	–	System
Ⓢ[13]	Decimal point position	–	–	System
Ⓢ[14]	Unit	–	–	System
Ⓢ[15]	System area	–	–	System
Ⓢ[16]	Standard weight setting (L)	–	–	System
Ⓢ[17]	Standard weight setting (H)	–	–	System
Ⓢ[18]	Installation site gravitational acceleration (L)	–	–	System
Ⓢ[19]	Installation site gravitational acceleration (H)	–	–	System
Ⓢ[20]	Calibration site gravitational acceleration (L)	–	–	System
Ⓢ[21]	Calibration site gravitational acceleration (H)	–	–	System
Ⓢ[22]	Digital output zero correction value (L)	–	–	System
Ⓢ[23]	Digital output zero correction value (H)	–	–	System
Ⓢ[24]	Digital output span correction value (L)	–	–	System
Ⓢ[25]	Digital output span correction value (H)	–	–	System
Ⓢ[26] to Ⓢ[33]	System area	–	–	System
Ⓢ[34]	Instrumentation amplifier gain setting	–	–	System
Ⓢ[35]	A/D converter gain setting	–	–	System
Ⓢ[36]	Zero offset output value (L)	–	–	System
Ⓢ[37]	Zero offset output value (H)	–	–	System
Ⓢ[38]	Two-point zero calibration value (L)	–	–	System
Ⓢ[39]	Two-point zero calibration value (H)	–	–	System
Ⓢ[40]	Two-point span calibration value (L)	–	–	System
Ⓢ[41]	Two-point span calibration value (H)	–	–	System
Ⓢ[42] to Ⓢ[53]	System area	–	–	System
Ⓢ[54]	1.0mV/V zero calibration value (L)	–	–	System
Ⓢ[55]	1.0mV/V zero calibration value (H)	–	–	System

Control data of Q61LD (2/2)

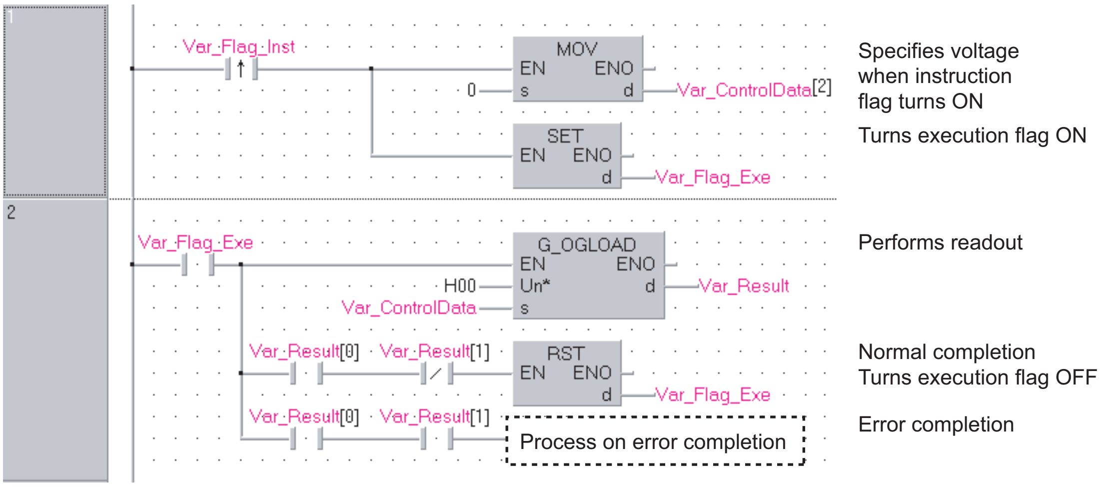
Device	Item	Setting data	Setting range	Setting side
Ⓢ[56]	1.0mV/V span calibration value (L)	–	–	System
Ⓢ[57]	1.0mV/V span calibration value (H)	–	–	System
Ⓢ[58]	2.0mV/V zero calibration value (L)	–	–	System
Ⓢ[59]	2.0mV/V zero calibration value (H)	–	–	System
Ⓢ[60]	2.0mV/V span calibration value (L)	–	–	System
Ⓢ[61]	2.0mV/V span calibration value (H)	–	–	System
Ⓢ[62]	3.0mV/V zero calibration value (L)	–	–	System
Ⓢ[63]	3.0mV/V zero calibration value (H)	–	–	System
Ⓢ[64]	3.0mV/V span calibration value (L)	–	–	System
Ⓢ[65]	3.0mV/V span calibration value (H)	–	–	System
Ⓢ[66] to Ⓢ[85]	System area	–	–	System

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

Program Example

The following program reads out the offset/gain value of the A/D converter module mounted on the I/O numbers from X/Y00 to X/Y0F when the flag turns ON.

[Structured ladder/FBD]



[ST]

```
IF(Var_Flag_Inst=TRUE)THEN                      (* Instruction flag ON *)
    MOV(TRUE,0,Var_ControlData[2]);   (* Specifies voltage *)
    SET(TRUE, Var_Flag_Exe);                    (* Turns execution flag ON *)
END_IF;

IF(Var_Flag_Exe=TRUE)THEN                       (* Execution flag ON *)
    G_OGLOAD(TRUE, H00, Var_ControlData, Var_Result);  (* Performs readout *)
    IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
        IF(Var_Result[1]=FALSE)THEN             (* Normal completion *)
            RST(TRUE, Var_Flag_Exe);            (* Turns execution flag OFF *)
        ELSE                                    (* Error completion *)
    (* Process on error completion *)
        END_IF;
    END_IF;
END_IF;
```

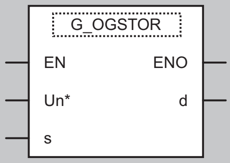
5.1.3 OGSTOR instruction

G_OGSTOR

G(P)_OGSTOR

P: Executing condition :

Structured ladder/FBD



ST

ENO:= G_OGSTOR (EN, Un*, s, d);

indicates any of the following instructions.

G_OGSTOR GP_OGSTOR

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..35]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○			–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction restores the user range settings offset/gain values stored in the programmable controller CPU to the analog modules.

Control Data

(1) Q64AD/Q64DAN/Q64DA

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	The value set for pass data classification setting Ⓢ[2] by the OGLOAD instruction is stored. 0: Voltage specified 1: Current specified b15 to b4: 0 to 0; b3: CH4; b2: CH3; b1: CH2; b0: CH1	0000H to 000FH	System
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH3 Industrial shipment settings offset value	–	–	System
Ⓢ[9]	CH3 Industrial shipment settings gain value	–	–	System
Ⓢ[10]	CH4 Industrial shipment settings offset value	–	–	System
Ⓢ[11]	CH4 Industrial shipment settings gain value	–	–	System
Ⓢ[12]	CH1 User range settings offset value	–	–	System
Ⓢ[13]	CH1 User range settings gain value	–	–	System
Ⓢ[14]	CH2 User range settings offset value	–	–	System
Ⓢ[15]	CH2 User range settings gain value	–	–	System
Ⓢ[16]	CH3 User range settings offset value	–	–	System
Ⓢ[17]	CH3 User range settings gain value	–	–	System
Ⓢ[18]	CH4 User range settings offset value	–	–	System
Ⓢ[19]	CH4 User range settings gain value	–	–	System

(2) Q68ADV/Q68ADI/Q68DAVN/Q68DAV/Q68DAIN/Q68DAI

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	System area	–	–	–
Ⓢ[3]				
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH3 Industrial shipment settings offset value	–	–	System
Ⓢ[9]	CH3 Industrial shipment settings gain value	–	–	System
Ⓢ[10]	CH4 Industrial shipment settings offset value	–	–	System
Ⓢ[11]	CH4 Industrial shipment settings gain value	–	–	System
Ⓢ[12]	CH5 Industrial shipment settings offset value	–	–	System
Ⓢ[13]	CH5 Industrial shipment settings gain value	–	–	System
Ⓢ[14]	CH6 Industrial shipment settings offset value	–	–	System
Ⓢ[15]	CH6 Industrial shipment settings gain value	–	–	System
Ⓢ[16]	CH7 Industrial shipment settings offset value	–	–	System
Ⓢ[17]	CH7 Industrial shipment settings gain value	–	–	System
Ⓢ[18]	CH8 Industrial shipment settings offset value	–	–	System
Ⓢ[19]	CH8 Industrial shipment settings gain value	–	–	System
Ⓢ[20]	CH1 User range settings offset value	–	–	System
Ⓢ[21]	CH1 User range settings gain value	–	–	System
Ⓢ[22]	CH2 User range settings offset value	–	–	System
Ⓢ[23]	CH2 User range settings gain value	–	–	System
Ⓢ[24]	CH3 User range settings offset value	–	–	System
Ⓢ[25]	CH3 User range settings gain value	–	–	System
Ⓢ[26]	CH4 User range settings offset value	–	–	System
Ⓢ[27]	CH4 User range settings gain value	–	–	System
Ⓢ[28]	CH5 User range settings offset value	–	–	System
Ⓢ[29]	CH5 User range settings gain value	–	–	System
Ⓢ[30]	CH6 User range settings offset value	–	–	System
Ⓢ[31]	CH6 User range settings gain value	–	–	System
Ⓢ[32]	CH7 User range settings offset value	–	–	System
Ⓢ[33]	CH7 User range settings gain value	–	–	System
Ⓢ[34]	CH8 User range settings offset value	–	–	System
Ⓢ[35]	CH8 User range settings gain value	–	–	System

(3) Q64AD-GH

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	The value set for pass data classification setting Ⓢ[2] by the OGLOAD instruction is stored. 0: Voltage specified 1: Current specified b15: 0, to, b4: 0, b3: CH4, b2: CH3, b1: CH2, b0: CH1	0000H to 000FH	System
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings offset value (H)			
Ⓢ[6]	CH1 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[7]	CH1 Industrial shipment settings gain value (H)			
Ⓢ[8]	CH2 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[9]	CH2 Industrial shipment settings offset value (H)			
Ⓢ[10]	CH2 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[11]	CH2 Industrial shipment settings gain value (H)			
Ⓢ[12]	CH3 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[13]	CH3 Industrial shipment settings offset value (H)			
Ⓢ[14]	CH3 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[15]	CH3 Industrial shipment settings gain value (H)			
Ⓢ[16]	CH4 Industrial shipment settings offset value (L)	–	–	System
Ⓢ[17]	CH4 Industrial shipment settings offset value (H)			
Ⓢ[18]	CH4 Industrial shipment settings gain value (L)	–	–	System
Ⓢ[19]	CH4 Industrial shipment settings gain value (H)			
Ⓢ[20]	CH1 User range settings offset value (L)	–	–	System
Ⓢ[21]	CH1 User range settings offset value (H)			
Ⓢ[22]	CH1 User range settings gain value (L)	–	–	System
Ⓢ[23]	CH1 User range settings gain value (H)			
Ⓢ[24]	CH2 User range settings offset value (L)	–	–	System
Ⓢ[25]	CH2 User range settings offset value (H)			
Ⓢ[26]	CH2 User range settings gain value (L)	–	–	System
Ⓢ[27]	CH2 User range settings gain value (H)			
Ⓢ[28]	CH3 User range settings offset value (L)	–	–	System
Ⓢ[29]	CH3 User range settings offset value (H)			
Ⓢ[30]	CH3 User range settings gain value (L)	–	–	System
Ⓢ[31]	CH3 User range settings gain value (H)			
Ⓢ[32]	CH4 User range settings offset value (L)	–	–	System
Ⓢ[33]	CH4 User range settings offset value (H)			
Ⓢ[34]	CH4 User range settings gain value (L)	–	–	System
Ⓢ[35]	CH4 User range settings gain value (H)			

(4) Q62AD-DGH

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S [2] S [3]	System area	–	–	–
S [4]	CH1 Industrial shipment settings offset value (L)	–	–	System
S [5]	CH1 Industrial shipment settings offset value (H)			
S [6]	CH1 Industrial shipment settings gain value (L)	–	–	System
S [7]	CH1 Industrial shipment settings gain value (H)			
S [8]	CH2 Industrial shipment settings offset value (L)	–	–	System
S [9]	CH2 Industrial shipment settings offset value (H)			
S [10]	CH2 Industrial shipment settings gain value (L)	–	–	System
S [11]	CH2 Industrial shipment settings gain value (H)			
S [12] to S [19]	System area	–	–	–
S [20]	CH1 User range settings offset value (L)	–	–	System
S [21]	CH1 User range settings offset value (H)			
S [22]	CH1 User range settings gain value (L)	–	–	System
S [23]	CH1 User range settings gain value (H)			
S [24]	CH2 User range settings offset value (L)	–	–	System
S [25]	CH2 User range settings offset value (H)			
S [26]	CH2 User range settings gain value (L)	–	–	System
S [27]	CH2 User range settings gain value (H)			
S [28] to S [35]	System area	–	–	System

(5) Q68AD-G

Device	Item	Setting data	Setting range	Setting side
S[0]	System area	–	–	–
S[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S[2]	Pass data classification setting	Specify the voltage/current of the offset/gain values to be read. 0: Voltage specified 1: Current specified b15 to b8: 0 to 0; b7: CH8; b6: CH7; b5: CH6; b4: CH5; b3: CH4; b2: CH3; b1: CH2; b0: CH1	0000H to 0000FH	User
S[3]	System area	–	–	–
S[4]	CH1 Industrial shipment settings offset value	–	–	System
S[5]	CH1 Industrial shipment settings gain value	–	–	System
S[6]	CH2 Industrial shipment settings offset value	–	–	System
S[7]	CH2 Industrial shipment settings gain value	–	–	System
S[8]	CH3 Industrial shipment settings offset value	–	–	System
S[9]	CH3 Industrial shipment settings gain value	–	–	System
S[10]	CH4 Industrial shipment settings offset value	–	–	System
S[11]	CH4 Industrial shipment settings gain value	–	–	System
S[12]	CH5 Industrial shipment settings offset value	–	–	System
S[13]	CH5 Industrial shipment settings gain value	–	–	System
S[14]	CH6 Industrial shipment settings offset value	–	–	System
S[15]	CH6 Industrial shipment settings gain value	–	–	System
S[16]	CH7 Industrial shipment settings offset value	–	–	System
S[17]	CH7 Industrial shipment settings gain value	–	–	System
S[18]	CH8 Industrial shipment settings offset value	–	–	System
S[19]	CH8 Industrial shipment settings gain value	–	–	System
S[20]	CH1 User range settings offset value	–	–	System
S[21]	CH1 User range settings gain value	–	–	System
S[22]	CH2 User range settings offset value	–	–	System
S[23]	CH2 User range settings gain value	–	–	System
S[24]	CH3 User range settings offset value	–	–	System
S[25]	CH3 User range settings gain value	–	–	System
S[26]	CH4 User range settings offset value	–	–	System
S[27]	CH4 User range settings gain value	–	–	System
S[28]	CH5 User range settings offset value	–	–	System
S[29]	CH5 User range settings gain value	–	–	System
S[30]	CH6 User range settings offset value	–	–	System
S[31]	CH6 User range settings gain value	–	–	System
S[32]	CH7 User range settings offset value	–	–	System
S[33]	CH7 User range settings gain value	–	–	System
S[34]	CH8 User range settings offset value	–	–	System
S[35]	CH8 User range settings gain value	–	–	System

(6) Q66AD-DG*1

Device	Item	Setting data	Setting range	Setting side
S[0]	System area	–	–	–
S[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S[2] S[3]	System area	–	–	–
S[4]	CH1 Industrial shipment settings offset value	–	–	System
S[5]	CH1 Industrial shipment settings gain value	–	–	System
S[6]	CH2 Industrial shipment settings offset value	–	–	System
S[7]	CH2 Industrial shipment settings gain value	–	–	System
S[8]	CH3 Industrial shipment settings offset value	–	–	System
S[9]	CH3 Industrial shipment settings gain value	–	–	System
S[10]	CH4 Industrial shipment settings offset value	–	–	System
S[11]	CH4 Industrial shipment settings gain value	–	–	System
S[12]	CH5 Industrial shipment settings offset value	–	–	System
S[13]	CH5 Industrial shipment settings gain value	–	–	System
S[14]	CH6 Industrial shipment settings offset value	–	–	System
S[15]	CH6 Industrial shipment settings gain value	–	–	System
S[16] to S[19]	System area	–	–	System
S[20]	CH1 User range settings offset value	–	–	System
S[21]	CH1 User range settings gain value	–	–	System
S[22]	CH2 User range settings offset value	–	–	System
S[23]	CH2 User range settings gain value	–	–	System
S[24]	CH3 User range settings offset value	–	–	System
S[25]	CH3 User range settings gain value	–	–	System
S[26]	CH4 User range settings offset value	–	–	System
S[27]	CH4 User range settings gain value	–	–	System
S[28]	CH5 User range settings offset value	–	–	System
S[29]	CH5 User range settings gain value	–	–	System
S[30]	CH6 User range settings offset value	–	–	System
S[31]	CH6 User range settings gain value	–	–	System
S[32] to S[35]	System area	–	–	System

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(7) Q62DAN/Q62DA

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	The value set for pass data classification setting Ⓢ[2] by the OGLOAD instruction is stored. 0: Voltage specified 1: Current specified b15 b2 b1 b0 0 to 0 CH2 CH1	0000H to 0003H	System
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH1 User range settings offset value	–	–	System
Ⓢ[9]	CH1 User range settings gain value	–	–	System
Ⓢ[10]	CH2 User range settings offset value	–	–	System
Ⓢ[11]	CH2 User range settings gain value	–	–	System

(8) Q62DA-FG

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Pass data classification setting	The value set for pass data classification setting Ⓢ[2] by the OGLOAD instruction is stored. 0H: User range setting 1 specified 1H: User range setting 2 specified 2H: User range setting 3 specified b15 to b12 · b11 to b8 · b7 to b4 · b3 to b0 0H · 0H · CH2 · CH1	–	System
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value (used for D/A)	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value (used for D/A)	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value (used for D/A)	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value (used for D/A)	–	–	System
Ⓢ[8]	CH1 Industrial shipment settings offset value (used for monitor output)	–	–	System
Ⓢ[9]	CH1 Industrial shipment settings gain value (used for monitor output)	–	–	System
Ⓢ[10]	CH2 Industrial shipment settings offset value (used for monitor output)	–	–	System
Ⓢ[11]	CH2 Industrial shipment settings gain value (used for monitor output)	–	–	System
Ⓢ[12]	CH1 User range settings offset value (used for D/A)	–	–	System
Ⓢ[13]	CH1 User range settings gain value (used for D/A)	–	–	System
Ⓢ[14]	CH2 User range settings offset value (used for D/A)	–	–	System
Ⓢ[15]	CH2 User range settings gain value (used for D/A)	–	–	System
Ⓢ[16]	CH1 User range settings offset value (used for monitor output)	–	–	System
Ⓢ[17]	CH1 User range settings gain value (used for monitor output)	–	–	System
Ⓢ[18]	CH2 User range settings offset value (used for monitor output)	–	–	System
Ⓢ[19]	CH2 User range settings gain value (used for monitor output)	–	–	System

(9) Q66DA-G*1

Device	Item	Setting data	Setting range	Setting side
S[0]	System area	–	–	–
S[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S[2]	Pass data classification setting	The value set for pass data classification setting S[2] by the OGLOAD instruction is stored. 0H: User range setting 1 specified 1H: User range setting 2 specified 2H: User range setting 3 specified b15 to b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0 0 : Fixed CH6 CH5 CH4 CH3 CH2 CH1	–	User
S[3]	System area	–	–	–
S[4]	CH1 Industrial shipment settings offset value	–	–	System
S[5]	CH1 Industrial shipment settings gain value	–	–	System
S[6]	CH2 Industrial shipment settings offset value	–	–	System
S[7]	CH2 Industrial shipment settings gain value	–	–	System
S[8]	CH3 Industrial shipment settings offset value	–	–	System
S[9]	CH3 Industrial shipment settings gain value	–	–	System
S[10]	CH4 Industrial shipment settings offset value	–	–	System
S[11]	CH4 Industrial shipment settings gain value	–	–	System
S[12]	CH5 Industrial shipment settings offset value	–	–	System
S[13]	CH5 Industrial shipment settings gain value	–	–	System
S[14]	CH6 Industrial shipment settings offset value	–	–	System
S[15]	CH6 Industrial shipment settings gain value	–	–	System
S[16]	CH1 User range settings offset value	–	–	System
S[17]	CH1 User range settings gain value	–	–	System
S[18]	CH2 User range settings offset value	–	–	System
S[19]	CH2 User range settings gain value	–	–	System
S[20]	CH3 User range settings offset value	–	–	System
S[21]	CH3 User range settings gain value	–	–	System
S[22]	CH4 User range settings offset value	–	–	System
S[23]	CH4 User range settings gain value	–	–	System
S[24]	CH5 User range settings offset value	–	–	System
S[25]	CH5 User range settings gain value	–	–	System
S[26]	CH6 User range settings offset value	–	–	System
S[27]	CH6 User range settings gain value	–	–	System
S[28] to S[35]	System area	–	–	–

*1 : Set the data only to the Pass data classification setting S[2].
When the data is written to the area to be set by system, offset/gain setting value is not read properly.

(10) Q64RD/Q64RD-G *1

Control data of Q64RD/Q64RD-G (1/5)

Device		Item	Setting data	Setting range	Setting side
S[0]		System area	–	–	–
S[1]		Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S[2]		System area	–	–	–
S[3]					
Q64RD	S[4]	3-wire CH1 Factory default offset value	–	–	System
	S[5]	3-wire CH1 Factory default offset value	–	–	System
	S[6]	3-wire CH1 Factory default gain value	–	–	System
	S[7]	3-wire CH1 Factory default gain value	–	–	System
	S[8]	3-wire CH1 User range settings offset value	–	–	System
	S[9]	3-wire CH1 User range settings offset value	–	–	System
	S[10]	3-wire CH1 User range settings gain value	–	–	System
	S[11]	3-wire CH1 User range settings gain value	–	–	System
Q64RD -G	S[4]	3-wire CH1 Factory default offset value (L)	–	–	System
	S[5]	3-wire CH1 Factory default offset value (H)			
	S[6]	3-wire CH1 Factory default gain value (L)	–	–	System
	S[7]	3-wire CH1 Factory default gain value (H)			
	S[8]	3-wire CH1 User range settings offset value (L)	–	–	System
	S[9]	3-wire CH1 User range settings offset value (H)			
	S[10]	3-wire CH1 User range settings gain value (L)	–	–	System
	S[11]	3-wire CH1 User range settings gain value (H)			
S[12]		3-wire CH1 User range settings resistance offset value (L)	–	–	System
S[13]		3-wire CH1 User range settings resistance offset value (H)			
S[14]		3-wire CH1 User range settings resistance gain value (L)	–	–	System
S[15]		3-wire CH1 User range settings resistance gain value (H)			
Q64RD	S[16]	4-wire CH1 Factory default offset value	–	–	System
	S[17]	4-wire CH1 Factory default offset value	–	–	System
	S[18]	4-wire CH1 Factory default gain value	–	–	System
	S[19]	4-wire CH1 Factory default gain value	–	–	System
	S[20]	4-wire CH1 User range settings offset value	–	–	System
	S[21]	4-wire CH1 User range settings offset value	–	–	System
	S[22]	4-wire CH1 User range settings gain value	–	–	System
	S[23]	4-wire CH1 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (2/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD-G	S [16]	4-wire CH1 Factory default offset value (L)	–	–	System
	S [17]	4-wire CH1 Factory default offset value (H)			
	S [18]	4-wire CH1 Factory default gain value (L)	–	–	System
	S [19]	4-wire CH1 Factory default gain value (H)			
	S [20]	4-wire CH1 User range settings offset value (L)	–	–	System
	S [21]	4-wire CH1 User range settings offset value (H)			
	S [22]	4-wire CH1 User range settings gain value (L)	–	–	System
	S [23]	4-wire CH1 User range settings gain value (H)			
S [24]		4-wire CH1 User range settings resistance offset value (L)	–	–	System
S [25]		4-wire CH1 User range settings resistance offset value (H)			
S [26]		4-wire CH1 User range settings resistance gain value (L)	–	–	System
S [27]		4-wire CH1 User range settings resistance gain value (H)			
Q64RD	S [28]	3-wire CH2 Factory default offset value	–	–	System
	S [29]	3-wire CH2 Factory default offset value	–	–	System
	S [30]	3-wire CH2 Factory default gain value	–	–	System
	S [31]	3-wire CH2 Factory default gain value	–	–	System
	S [32]	3-wire CH2 User range settings offset value	–	–	System
	S [33]	3-wire CH2 User range settings offset value	–	–	System
	S [34]	3-wire CH2 User range settings gain value	–	–	System
	S [35]	3-wire CH2 User range settings gain value	–	–	System
Q64RD-G	S [28]	3-wire CH2 Factory default offset value (L)	–	–	System
	S [29]	3-wire CH2 Factory default offset value (H)			
	S [30]	3-wire CH2 Factory default gain value (L)	–	–	System
	S [31]	3-wire CH2 Factory default gain value (H)			
	S [32]	3-wire CH2 User range settings offset value (L)	–	–	System
	S [33]	3-wire CH2 User range settings offset value (H)			
	S [34]	3-wire CH2 User range settings gain value (L)	–	–	System
	S [35]	3-wire CH2 User range settings gain value (H)			
S [36]		3-wire CH2 User range settings resistance offset value (L)	–	–	System
S [37]		3-wire CH2 User range settings resistance offset value (H)			
S [38]		3-wire CH2 User range settings resistance gain value (L)	–	–	System
S [39]		3-wire CH2 User range settings resistance gain value (H)			
Q64RD	S [40]	4-wire CH2 Factory default offset value	–	–	System
	S [41]	4-wire CH2 Factory default offset value	–	–	System
	S [42]	4-wire CH2 Factory default gain value	–	–	System
	S [43]	4-wire CH2 Factory default gain value	–	–	System
	S [44]	4-wire CH2 User range settings offset value	–	–	System
	S [45]	4-wire CH2 User range settings offset value	–	–	System
	S [46]	4-wire CH2 User range settings gain value	–	–	System
	S [47]	4-wire CH2 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (3/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD -G	Ⓢ[40]	4-wire CH2 Factory default offset value (L)	–	–	System
	Ⓢ[41]	4-wire CH2 Factory default offset value (H)			
	Ⓢ[42]	4-wire CH2 Factory default gain value (L)	–	–	System
	Ⓢ[43]	4-wire CH2 Factory default gain value (H)			
	Ⓢ[44]	4-wire CH2 User range settings offset value (L)	–	–	System
	Ⓢ[45]	4-wire CH2 User range settings offset value (H)			
	Ⓢ[46]	4-wire CH2 User range settings gain value (L)	–	–	System
	Ⓢ[47]	4-wire CH2 User range settings gain value (H)			
Ⓢ[48]		4-wire CH2 User range settings resistance offset value (L)	–	–	System
Ⓢ[49]		4-wire CH2 User range settings resistance offset value (H)			
Ⓢ[50]		4-wire CH2 User range settings resistance gain value (L)	–	–	System
Ⓢ[51]		4-wire CH2 User range settings resistance gain value (H)			
Q64RD	Ⓢ[52]	3-wire CH3 Factory default offset value	–	–	System
	Ⓢ[53]	3-wire CH3 Factory default offset value	–	–	System
	Ⓢ[54]	3-wire CH3 Factory default gain value	–	–	System
	Ⓢ[55]	3-wire CH3 Factory default gain value	–	–	System
	Ⓢ[56]	3-wire CH3 User range settings offset value	–	–	System
	Ⓢ[57]	3-wire CH3 User range settings offset value	–	–	System
	Ⓢ[58]	3-wire CH3 User range settings gain value	–	–	System
	Ⓢ[59]	3-wire CH3 User range settings gain value	–	–	System
Q64RD -G	Ⓢ[52]	3-wire CH3 Factory default offset value (L)	–	–	System
	Ⓢ[53]	3-wire CH3 Factory default offset value (H)			
	Ⓢ[54]	3-wire CH3 Factory default gain value (L)	–	–	System
	Ⓢ[55]	3-wire CH3 Factory default gain value (H)			
	Ⓢ[56]	3-wire CH3 User range settings offset value (L)	–	–	System
	Ⓢ[57]	3-wire CH3 User range settings offset value (H)			
	Ⓢ[58]	3-wire CH3 User range settings gain value (L)	–	–	System
	Ⓢ[59]	3-wire CH3 User range settings gain value (H)			
Ⓢ[60]		3-wire CH3 User range settings resistance offset value (L)	–	–	System
Ⓢ[61]		3-wire CH3 User range settings resistance offset value (H)			
Ⓢ[62]		3-wire CH3 User range settings resistance gain value (L)	–	–	System
Ⓢ[63]		3-wire CH3 User range settings resistance gain value (H)			
Q64RD	Ⓢ[64]	4-wire CH3 Factory default offset value	–	–	System
	Ⓢ[65]	4-wire CH3 Factory default offset value	–	–	System
	Ⓢ[66]	4-wire CH3 Factory default gain value	–	–	System
	Ⓢ[67]	4-wire CH3 Factory default gain value	–	–	System
	Ⓢ[68]	4-wire CH3 User range settings offset value	–	–	System
	Ⓢ[69]	4-wire CH3 User range settings offset value	–	–	System
	Ⓢ[70]	4-wire CH3 User range settings gain value	–	–	System
	Ⓢ[71]	4-wire CH3 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (4/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD -G	Ⓢ[64]	4-wire CH3 Factory default offset value (L)	–	–	System
	Ⓢ[65]	4-wire CH3 Factory default offset value (H)			
	Ⓢ[66]	4-wire CH3 Factory default gain value (L)	–	–	System
	Ⓢ[67]	4-wire CH3 Factory default gain value (H)			
	Ⓢ[68]	4-wire CH3 User range settings offset value (L)	–	–	System
	Ⓢ[69]	4-wire CH3 User range settings offset value (H)			
	Ⓢ[70]	4-wire CH3 User range settings gain value (L)	–	–	System
	Ⓢ[71]	4-wire CH3 User range settings gain value (H)			
Ⓢ[72]		4-wire CH3 User range settings resistance offset value (L)	–	–	System
Ⓢ[73]		4-wire CH3 User range settings resistance offset value (H)			
Ⓢ[74]		4-wire CH3 User range settings resistance gain value (L)	–	–	System
Ⓢ[75]		4-wire CH3 User range settings resistance gain value (H)			
Q64RD	Ⓢ[76]	3-wire CH4 Factory default offset value	–	–	System
	Ⓢ[77]	3-wire CH4 Factory default offset value	–	–	System
	Ⓢ[78]	3-wire CH4 Factory default gain value	–	–	System
	Ⓢ[79]	3-wire CH4 Factory default gain value	–	–	System
	Ⓢ[80]	3-wire CH4 User range settings offset value	–	–	System
	Ⓢ[81]	3-wire CH4 User range settings offset value	–	–	System
	Ⓢ[82]	3-wire CH4 User range settings gain value	–	–	System
	Ⓢ[83]	3-wire CH4 User range settings gain value	–	–	System
Q64RD -G	Ⓢ[76]	3-wire CH4 Factory default offset value (L)	–	–	System
	Ⓢ[77]	3-wire CH4 Factory default offset value (H)			
	Ⓢ[78]	3-wire CH4 Factory default gain value (L)	–	–	System
	Ⓢ[79]	3-wire CH4 Factory default gain value (H)			
	Ⓢ[80]	3-wire CH4 User range settings offset value (L)	–	–	System
	Ⓢ[81]	3-wire CH4 User range settings offset value (H)			
	Ⓢ[82]	3-wire CH4 User range settings gain value (L)	–	–	System
	Ⓢ[83]	3-wire CH4 User range settings gain value (H)			
Ⓢ[84]		3-wire CH4 User range settings resistance offset value (L)	–	–	System
Ⓢ[85]		3-wire CH4 User range settings resistance offset value (H)			
Ⓢ[86]		3-wire CH4 User range settings resistance gain value (L)	–	–	System
Ⓢ[87]		3-wire CH4 User range settings resistance gain value (H)			
Q64RD	Ⓢ[88]	4-wire CH4 Factory default offset value	–	–	System
	Ⓢ[89]	4-wire CH4 Factory default offset value	–	–	System
	Ⓢ[90]	4-wire CH4 Factory default gain value	–	–	System
	Ⓢ[91]	4-wire CH4 Factory default gain value	–	–	System
	Ⓢ[92]	4-wire CH4 User range settings offset value	–	–	System
	Ⓢ[93]	4-wire CH4 User range settings offset value	–	–	System
	Ⓢ[94]	4-wire CH4 User range settings gain value	–	–	System
	Ⓢ[95]	4-wire CH4 User range settings gain value	–	–	System

Control data of Q64RD/Q64RD-G (5/5)

Device		Item	Setting data	Setting range	Setting side
Q64RD-G	Ⓢ[88]	4-wire CH4 Factory default offset value (L)	–	–	System
	Ⓢ[89]	4-wire CH4 Factory default offset value (H)			
	Ⓢ[90]	4-wire CH4 Factory default gain value (L)	–	–	System
	Ⓢ[91]	4-wire CH4 Factory default gain value (H)			
	Ⓢ[92]	4-wire CH4 User range settings offset value (L)	–	–	System
	Ⓢ[93]	4-wire CH4 User range settings offset value (H)			
	Ⓢ[94]	4-wire CH4 User range settings gain value (L)	–	–	System
	Ⓢ[95]	4-wire CH4 User range settings gain value (H)			
Ⓢ[96]		4-wire CH4 User range settings resistance offset value (L)	–	–	System
Ⓢ[97]		4-wire CH4 User range settings resistance offset value (H)			
Ⓢ[98]		4-wire CH4 User range settings resistance gain value (L)	–	–	System
Ⓢ[99]		4-wire CH4 User range settings resistance gain value (H)			

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

(11) Q64TD/Q64TDV-GH

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S [2]	System area	–	–	–
S [3]				
S [4]	CH1 Factory default offset value	–	–	System
S [5]	CH1 Factory default gain value	–	–	System
S [6]	CH1 User range settings offset value	–	–	System
S [7]	CH1 User range settings gain value	–	–	System
S [8]	CH1 User range settings thermal EMF offset value (L)	–	–	System
S [9]	CH1 User range settings thermal EMF offset value (H)			
S [10]	CH1 User range settings thermal EMF gain value (L)	–	–	System
S [11]	CH1 User range settings thermal EMF gain value (H)			
S [12]	CH2 Factory default offset value	–	–	System
S [13]	CH2 Factory default gain value	–	–	System
S [14]	CH2 User range settings offset value	–	–	System
S [15]	CH2 User range settings gain value	–	–	System
S [16]	CH2 User range settings thermal EMF offset value (L)	–	–	System
S [17]	CH2 User range settings thermal EMF offset value (H)			
S [18]	CH2 User range settings thermal EMF gain value (L)	–	–	System
S [19]	CH2 User range settings thermal EMF gain value (H)			
S [20]	CH3 Factory default offset value	–	–	System
S [21]	CH3 Factory default gain value	–	–	System
S [22]	CH3 User range settings offset value	–	–	System
S [23]	CH3 User range settings gain value	–	–	System
S [24]	CH3 User range settings thermal EMF offset value (L)	–	–	System
S [25]	CH3 User range settings thermal EMF offset value (H)			
S [26]	CH3 User range settings thermal EMF gain value (L)	–	–	System
S [27]	CH3 User range settings thermal EMF gain value (H)			
S [28]	CH4 Factory default offset value	–	–	System
S [29]	CH4 Factory default gain value	–	–	System
S [30]	CH4 User range settings offset value	–	–	System
S [31]	CH4 User range settings gain value	–	–	System
S [32]	CH4 User range settings thermal EMF offset value (L)	–	–	System
S [33]	CH4 User range settings thermal EMF offset value (H)			
S [34]	CH4 User range settings thermal EMF gain value (L)	–	–	System
S [35]	CH4 User range settings thermal EMF gain value (H)			

(12) Q68TD-G-H02(H01)

Control data of Q68TD-G-H02(H01) (1/2)

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S [2]	System area	–	–	–
S [3]				
S [4]	CH1 Factory default offset value	–	–	System
S [5]	CH1 Factory default gain value	–	–	System
S [6]	CH1 User range settings offset value	–	–	System
S [7]	CH1 User range settings gain value	–	–	System
S [8]	CH1 User range settings thermal EMF offset value (L)	–	–	System
S [9]	CH1 User range settings thermal EMF offset value (H)			
S [10]	CH1 User range settings thermal EMF gain value (L)	–	–	System
S [11]	CH1 User range settings thermal EMF gain value (H)			
S [12]	CH2 Factory default offset value	–	–	System
S [13]	CH2 Factory default gain value	–	–	System
S [14]	CH2 User range settings offset value	–	–	System
S [15]	CH2 User range settings gain value	–	–	System
S [16]	CH2 User range settings thermal EMF offset value (L)	–	–	System
S [17]	CH2 User range settings thermal EMF offset value (H)			
S [18]	CH2 User range settings thermal EMF gain value (L)	–	–	System
S [19]	CH2 User range settings thermal EMF gain value (H)			
S [20]	CH3 Factory default offset value	–	–	System
S [21]	CH3 Factory default gain value	–	–	System
S [22]	CH3 User range settings offset value	–	–	System
S [23]	CH3 User range settings gain value	–	–	System
S [24]	CH3 User range settings thermal EMF offset value (L)	–	–	System
S [25]	CH3 User range settings thermal EMF offset value (H)			
S [26]	CH3 User range settings thermal EMF gain value (L)	–	–	System
S [27]	CH3 User range settings thermal EMF gain value (H)			
S [28]	CH4 Factory default offset value	–	–	System
S [29]	CH4 Factory default gain value	–	–	System
S [30]	CH4 User range settings offset value	–	–	System
S [31]	CH4 User range settings gain value	–	–	System
S [32]	CH4 User range settings thermal EMF offset value (L)	–	–	System
S [33]	CH4 User range settings thermal EMF offset value (H)			
S [34]	CH4 User range settings thermal EMF gain value (L)	–	–	System
S [35]	CH4 User range settings thermal EMF gain value (H)			
S [36]	CH5 Factory default offset value	–	–	System
S [37]	CH5 Factory default gain value	–	–	System
S [38]	CH5 User range settings offset value	–	–	System
S [39]	CH5 User range settings gain value	–	–	System

Control data of Q68TD-G-H02(H01) (2/2)

Device	Item	Setting data	Setting range	Setting side
S [40]	CH5 User range settings thermal EMF offset value (L)	–	–	System
S [41]	CH5 User range settings thermal EMF offset value (H)			
S [42]	CH5 User range settings thermal EMF gain value (L)	–	–	System
S [43]	CH5 User range settings thermal EMF gain value (H)			
S [44]	CH6 Factory default offset value	–	–	System
S [45]	CH6 Factory default gain value	–	–	System
S [46]	CH6 User range settings offset value	–	–	System
S [47]	CH6 User range settings gain value	–	–	System
S [48]	CH6 User range settings thermal EMF offset value (L)	–	–	System
S [49]	CH6 User range settings thermal EMF offset value (H)			
S [50]	CH6 User range settings thermal EMF gain value (L)	–	–	System
S [51]	CH6 User range settings thermal EMF gain value (H)			
S [52]	CH7 Factory default offset value	–	–	System
S [53]	CH7 Factory default gain value	–	–	System
S [54]	CH7 User range settings offset value	–	–	System
S [55]	CH7 User range settings gain value	–	–	System
S [56]	CH7 User range settings thermal EMF offset value (L)	–	–	System
S [57]	CH7 User range settings thermal EMF offset value (H)			
S [58]	CH7 User range settings thermal EMF gain value (L)	–	–	System
S [59]	CH7 User range settings thermal EMF gain value (H)			
S [60]	CH8 Factory default offset value	–	–	System
S [61]	CH8 Factory default gain value	–	–	System
S [62]	CH8 User range settings offset value	–	–	System
S [63]	CH8 User range settings gain value	–	–	System
S [64]	CH8 User range settings thermal EMF offset value (L)	–	–	System
S [65]	CH8 User range settings thermal EMF offset value (H)			
S [66]	CH8 User range settings thermal EMF gain value (L)	–	–	System
S [67]	CH8 User range settings thermal EMF gain value (H)			

(13) Q68RD3-G

Control data of Q68RD3-G (1/2)

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
Ⓢ[2]	System area	–	–	–
Ⓢ[3]				
Ⓢ[4]	CH1 Factory default offset value	–	–	System
Ⓢ[5]	CH1 Factory default gain value	–	–	System
Ⓢ[6]	CH1 User range settings offset value	–	–	System
Ⓢ[7]	CH1 User range settings gain value	–	–	System
Ⓢ[8]	CH1 User range settings resistance offset value (L)	–	–	System
Ⓢ[9]	CH1 User range settings resistance offset value (H)			
Ⓢ[10]	CH1 User range settings resistance gain value (L)	–	–	System
Ⓢ[11]	CH1 User range settings resistance gain value (H)			
Ⓢ[12]	CH2 Factory default offset value	–	–	System
Ⓢ[13]	CH2 Factory default gain value	–	–	System
Ⓢ[14]	CH2 User range settings offset value	–	–	System
Ⓢ[15]	CH2 User range settings gain value	–	–	System
Ⓢ[16]	CH2 User range settings resistance offset value (L)	–	–	System
Ⓢ[17]	CH2 User range settings resistance offset value (H)			
Ⓢ[18]	CH2 User range settings resistance gain value (L)	–	–	System
Ⓢ[19]	CH2 User range settings resistance gain value (H)			
Ⓢ[20]	CH3 Factory default offset value	–	–	System
Ⓢ[21]	CH3 Factory default gain value	–	–	System
Ⓢ[22]	CH3 User range settings offset value	–	–	System
Ⓢ[23]	CH3 User range settings gain value	–	–	System
Ⓢ[24]	CH3 User range settings resistance offset value (L)	–	–	System
Ⓢ[25]	CH3 User range settings resistance offset value (H)			
Ⓢ[26]	CH3 User range settings resistance gain value (L)	–	–	System
Ⓢ[27]	CH3 User range settings resistance gain value (H)			
Ⓢ[28]	CH4 Factory default offset value	–	–	System
Ⓢ[29]	CH4 Factory default gain value	–	–	System
Ⓢ[30]	CH4 User range settings offset value	–	–	System
Ⓢ[31]	CH4 User range settings gain value	–	–	System
Ⓢ[32]	CH4 User range settings resistance offset value (L)	–	–	System
Ⓢ[33]	CH4 User range settings resistance offset value (H)			
Ⓢ[34]	CH4 User range settings resistance gain value (L)	–	–	System
Ⓢ[35]	CH4 User range settings resistance gain value (H)			
Ⓢ[36]	CH5 Factory default offset value	–	–	System
Ⓢ[37]	CH5 Factory default gain value	–	–	System
Ⓢ[38]	CH5 User range settings offset value	–	–	System

Control data of Q68RD3-G (2/2)

Device	Item	Setting data	Setting range	Setting side
Ⓢ[39]	CH5 User range settings gain value	–	–	System
Ⓢ[40]	CH5 User range settings resistance offset value (L)	–	–	System
Ⓢ[41]	CH5 User range settings resistance offset value (H)			
Ⓢ[42]	CH5 User range settings resistance gain value (L)	–	–	System
Ⓢ[43]	CH5 User range settings resistance gain value (H)			
Ⓢ[44]	CH6 Factory default offset value	–	–	System
Ⓢ[45]	CH6 Factory default gain value	–	–	System
Ⓢ[46]	CH6 User range settings offset value	–	–	System
Ⓢ[47]	CH6 User range settings gain value	–	–	System
Ⓢ[48]	CH6 User range settings resistance offset value (L)	–	–	System
Ⓢ[49]	CH6 User range settings resistance offset value (H)			
Ⓢ[50]	CH6 User range settings resistance gain value (L)	–	–	System
Ⓢ[51]	CH6 User range settings resistance gain value (H)			
Ⓢ[52]	CH7 Factory default offset value	–	–	System
Ⓢ[53]	CH7 Factory default gain value	–	–	System
Ⓢ[54]	CH7 User range settings offset value	–	–	System
Ⓢ[55]	CH7 User range settings gain value	–	–	System
Ⓢ[56]	CH7 User range settings resistance offset value (L)	–	–	System
Ⓢ[57]	CH7 User range settings resistance offset value (H)			
Ⓢ[58]	CH7 User range settings resistance gain value (L)	–	–	System
Ⓢ[59]	CH7 User range settings resistance gain value (H)			
Ⓢ[60]	CH8 Factory default offset value	–	–	System
Ⓢ[61]	CH8 Factory default gain value	–	–	System
Ⓢ[62]	CH8 User range settings offset value	–	–	System
Ⓢ[63]	CH8 User range settings gain value	–	–	System
Ⓢ[64]	CH8 User range settings resistance offset value (L)	–	–	System
Ⓢ[65]	CH8 User range settings resistance offset value (H)			
Ⓢ[66]	CH8 User range settings resistance gain value (L)	–	–	System
Ⓢ[67]	CH8 User range settings resistance gain value (H)			

(14) Q61LD*1

Control data of Q61LD (1/2)

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	System
S [1]	Completion status	The instruction completion status is stored. 0 :Normal completion Other than 0 :Error completion (error code)	–	System
S [2] S [3]	System area	–	–	System
S [4]	Load cell rated capacity (L)	–	–	System
S [5]	Load cell rated capacity (H)	–	–	System
S [6]	Load cell rated output	–	–	System
S [7]	Number of load cells in connection	–	–	System
S [8]	Zero offset	–	–	System
S [9]	System area	–	–	System
S [10]	Maximum weighing capacity setting (L)	–	–	System
S [11]	Maximum weighing capacity setting (H)	–	–	System
S [12]	Minimum division	–	–	System
S [13]	Decimal point position	–	–	System
S [14]	Unit	–	–	System
S [15]	System area	–	–	System
S [16]	Standard weight setting (L)	–	–	System
S [17]	Standard weight setting (H)	–	–	System
S [18]	Installation site gravitational acceleration (L)	–	–	System
S [19]	Installation site gravitational acceleration (H)	–	–	System
S [20]	Calibration site gravitational acceleration (L)	–	–	System
S [21]	Calibration site gravitational acceleration (H)	–	–	System
S [22]	Digital output zero correction value (L)	–	–	System
S [23]	Digital output zero correction value (H)	–	–	System
S [24]	Digital output span correction value (L)	–	–	System
S [25]	Digital output span correction value (H)	–	–	System
S [26] to S [33]	System area	–	–	System
S [34]	Instrumentation amplifier gain setting	–	–	System
S [35]	A/D converter gain setting	–	–	System
S [36]	Zero offset output value (L)	–	–	System
S [37]	Zero offset output value (H)	–	–	System
S [38]	Two-point zero calibration value (L)	–	–	System
S [39]	Two-point zero calibration value (H)	–	–	System
S [40]	Two-point span calibration value (L)	–	–	System
S [41]	Two-point span calibration value (H)	–	–	System
S [42] to S [53]	System area	–	–	System
S [54]	1.0mV/V zero calibration value (L)	–	–	System
S [55]	1.0mV/V zero calibration value (H)	–	–	System

5 MODULE DEDICATED INSTRUCTION

G_OGSTOR

Control data of Q61LD (2/2)

Device	Item	Setting data	Setting range	Setting side
S [56]	1.0mV/V span calibration value (L)	–	–	System
S [57]	1.0mV/V span calibration value (H)	–	–	System
S [58]	2.0mV/V zero calibration value (L)	–	–	System
S [59]	2.0mV/V zero calibration value (H)	–	–	System
S [60]	2.0mV/V span calibration value (L)	–	–	System
S [61]	2.0mV/V span calibration value (H)	–	–	System
S [62]	3.0mV/V zero calibration value (L)	–	–	System
S [63]	3.0mV/V zero calibration value (H)	–	–	System
S [64]	3.0mV/V span calibration value (L)	–	–	System
S [65]	3.0mV/V span calibration value (H)	–	–	System
S [66] to S [85]	System area	–	–	System

*1 : Setting is unnecessary. If setting is configured, offset/gain setting value is not read properly.

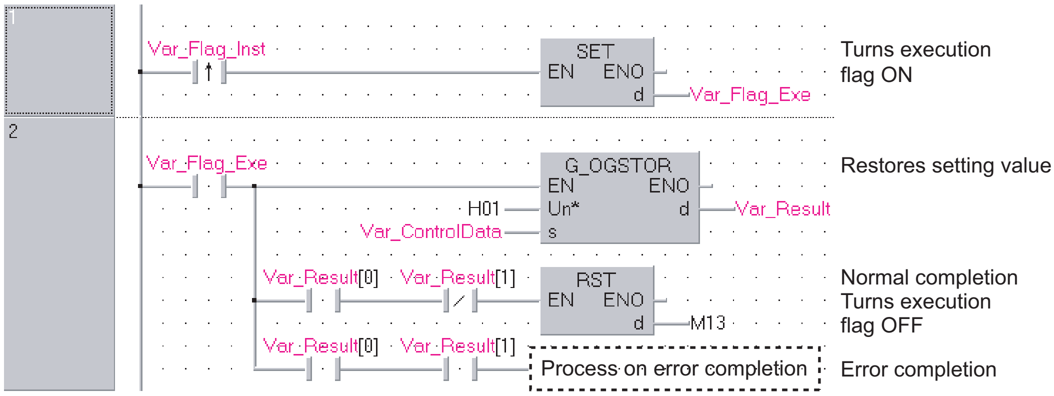
(15) L60AD4/L60DA4

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Stored data type setting	The value set for pass data classification setting Ⓢ[2] by the OGLOAD instruction is stored. 0: Voltage specified 1: Current specified b15 … b4 b3 b2 b1 b0 0 to 0 CH4 CH3 CH2 CH1	0000H to 000FH	System
Ⓢ[3]	System area	–	–	–
Ⓢ[4]	CH1 Industrial shipment settings offset value	–	–	System
Ⓢ[5]	CH1 Industrial shipment settings gain value	–	–	System
Ⓢ[6]	CH2 Industrial shipment settings offset value	–	–	System
Ⓢ[7]	CH2 Industrial shipment settings gain value	–	–	System
Ⓢ[8]	CH3 Industrial shipment settings offset value	–	–	System
Ⓢ[9]	CH3 Industrial shipment settings gain value	–	–	System
Ⓢ[10]	CH4 Industrial shipment settings offset value	–	–	System
Ⓢ[11]	CH4 Industrial shipment settings gain value	–	–	System
Ⓢ[12]	CH1 User range settings offset value	–	–	System
Ⓢ[13]	CH1 User range settings gain value	–	–	System
Ⓢ[14]	CH2 User range settings offset value	–	–	System
Ⓢ[15]	CH2 User range settings gain value	–	–	System
Ⓢ[16]	CH3 User range settings offset value	–	–	System
Ⓢ[17]	CH3 User range settings gain value	–	–	System
Ⓢ[18]	CH4 User range settings offset value	–	–	System
Ⓢ[19]	CH4 User range settings gain value	–	–	System

Program Example

The following program restores the offset/gain setting value to the A/D converter module mounted on the I/O numbers from X/Y10 to X/Y1F when the flag turns ON.

[Structured ladder/FBD]



[ST]

```
IF(Var_Flag_Inst=TRUE)THEN                (* Instruction flag ON *)
    SET(TRUE, Var_Flag_Exe);              (* Turns execution flag ON *)
END_IF;

IF(Var_Flag_Exe=TRUE)THEN                 (* Execution flag ON *)
    G_OGSTOR(TRUE, H01, Var_ControlData, Var_Result);(* Restores setting value *)

    IF(Var_Result[0]=TRUE)THEN                 (* Execution finished *)
        IF(Var_Result[1]=FALSE)THEN            (* Normal completion *)
            RST(TRUE, Var_Flag_Exe);           (* Turns execution flag OFF *)
        ELSE                                   (* Error completion *)

            (* Process on error completion *)

        END_IF;
    END_IF;
END_IF;
```

5.2 Positioning Instruction

5.2.1 ABRST instruction

Z_ABRST1

Z_ABRST1
Z_ABRST2
Z_ABRST3
Z_ABRST4

Executing condition: ⎍

Structured ladder/FBD	ST
Z_ABRST1: EN → ENO; Un* → d; s	ENO:= Z_ABRST1 (EN, Un*, s,d);

indicates any of the following instructions.
Z_ABRST1
Z_ABRST2
Z_ABRST3
Z_ABRST4

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..7]
Output argument	ENO:	Execution result (TRUE: Normal, FALSE: Error)	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○	–	–					

Function

This instruction restores the absolute position of the specified axis. (Refer to the following)

- Z_ABRST1: Axis 1
- Z_ABRST2: Axis 2
- Z_ABRST3: Axis 3
- Z_ABRST4: Axis 4

Control Data

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. • 0 : Normal completion • Other than 0 : Error completion (error code)	–	System
S [2]	Receive signal from servo amplifier	Write the following signal status read from the servo amplifier to the input module. • b0: ABS data bit0 • b1: ABS data bit1 • b2: Send data READY flag	b0: 0/1 b1: 0/1 b2: 0/1	User
S [3]	Send signal to servo amplifier	The ON/OFF status of the following data, that are calculated by the dedicated instructions on the basis of "receive signal from servo amplifier" and output to the amplifier, are stored. • b0: Servo ON • b1: ABS transfer mode • b2: ABS request flag	–	System
S [4]	Status	Communication status with the servo amplifier • 0 : Communication completed (Set by the user at the start of communication) • Other than 0: During communication (Stored by the system.)	0	User/ System
S [5] to S [7]	System area	–	–	–

Program Example

The following program restores the absolute position of the axis 1.

The devices from X47 to X49 and from Y50 to Y52 are used for the communication with the servo amplifier.

X47: ABS data bit0

X48: ABS data bit1

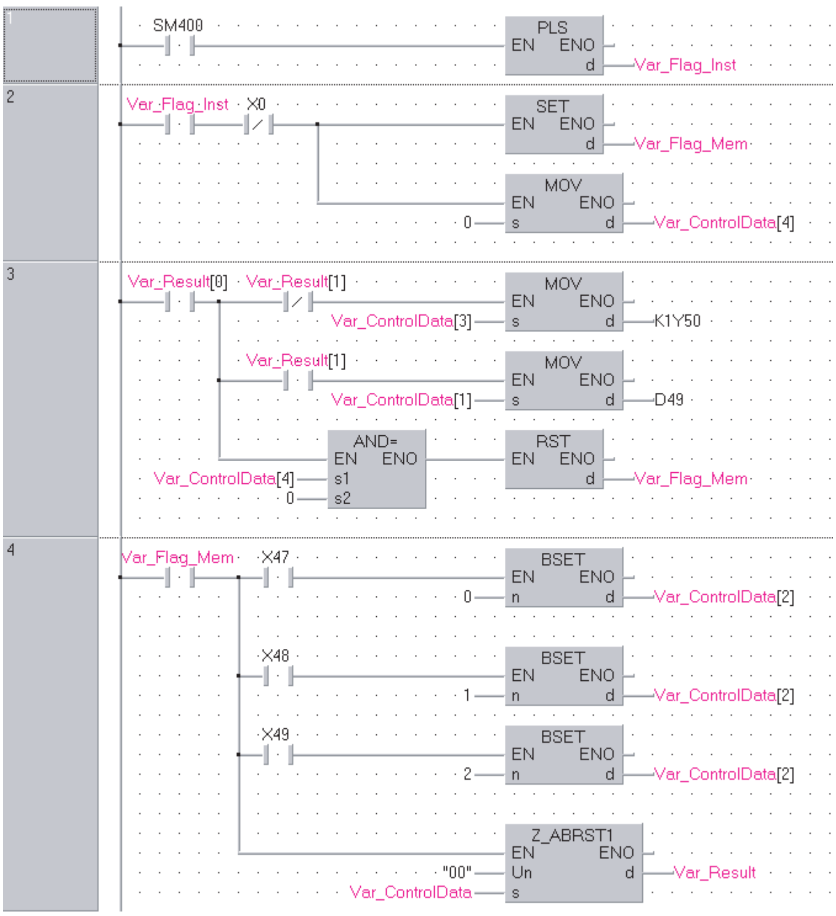
X49: Send data READY flag

Y50: Servo ON

Y51: ABS transfer mode

Y52: ABS request flag

[Structured ladder/FBD]



Absolute position restoration pulse

Turns absolute position restoration memory ON

Clears completion status

Turns the servo ON with the data to be sent to the servo amplifier

Sets completion status to error code

Turns absolute position restoration memory OFF

Sets ABS data
Sets ABS data in data b0 received from the servo

Sets ABS data in data b1

Sets send data ready flag in data b2

Restores absolute position

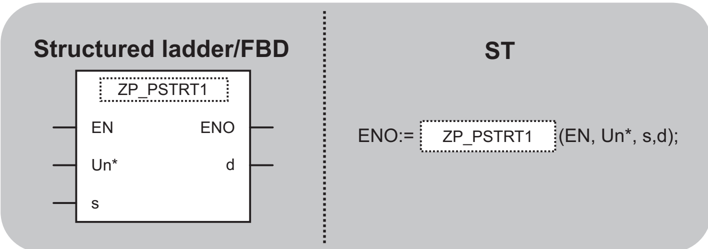
```
[ST]
PLS(SM400, Var_Flag_Inst);            (* Absolute position restoration pulse *)

IF((Var_Flag_Inst=TRUE) & (X0=FALSE))THEN
    SET(TRUE, Var_Flag_Mem);    (* Turns absolute position restoration memory ON *)
    MOV(TRUE, 0, Var_ControlData[4]);            (* Clears completion status *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                        (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                   (* Normal completion *)
        MOV(TRUE, Var_ControlData[3], K1Y50);
            (* Turns the servo ON with the data to be sent to the servo amplifier *)
    ELSE                                          (* Error completion *)
        MOV(TRUE, Var_ControlData[4], Var_ErrorCode);
                                                  (* Sets completion status to error code *)
    END_IF;

    IF(Var_ControlData[4]=0)THEN
        RST(TRUE, Var_Flag_Mem);
                                    (* Turns absolute position restoration memory OFF *)
    END_IF;
END_IF;

IF(Var_Flag_Mem=TRUE)THEN               (* absolute position restoration memory ON *)
    (* Sets ABS data *)
    BSET(X47, 0, Var_ControlData[2]);
                        (* Sets ABS data in data b0 received from the servo *)
    BSET(X48, 1, Var_ControlData[2]);
                        (* Sets ABS data in data b1 received from the servo *)
    BSET(X49, 2, Var_ControlData[2]);
                        (* Sets send data ready flag in data b2 received from the servo *)

    Z_ABRST1(TRUE, "00", Var_ControlData, Var_Result);
                                                        (* Restores absolute position *)
END_IF;
```

5.2.2 PSTRT instruction

ZP_PSTRT1

ZP_PSTRT1
ZP_PSTRT2
ZP_PSTRT3
ZP_PSTRT4

Executing condition : ↑



[ ] indicates any of the following instructions.
ZP_PSTRT1
ZP_PSTRT2
ZP_PSTRT3
ZP_PSTRT4

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..2]
Output argument	ENO:	Execution result (TRUE: Normal, FALSE: Error)	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
ⓢ	–	○		–					
ⓓ	○	○	–	–					

☆ Function

This instruction starts positioning of the specified axis. (Refer to the following.)

- ZP_PSTRT1: Axis 1
- ZP_PSTRT2: Axis 2
- ZP_PSTRT3: Axis 3
- ZP_PSTRT4: Axis 4

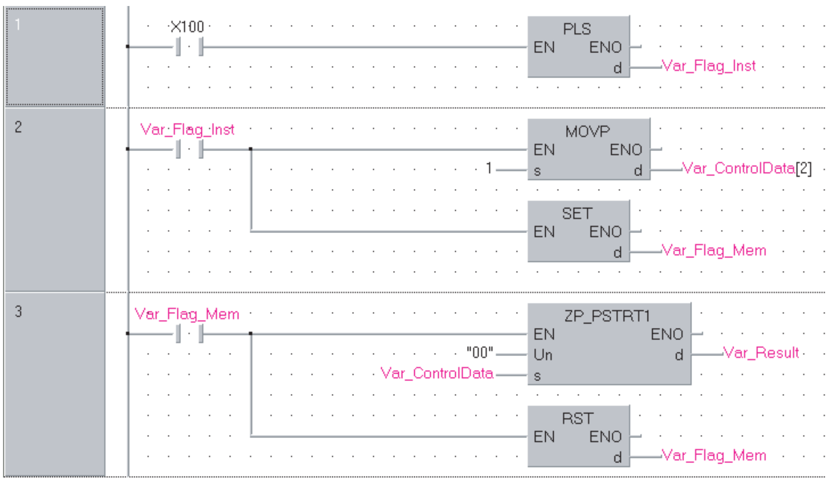
Control Data

Device	Item	Setting data	Setting range	Setting side
ⓢ[0]	System area	–	–	–
ⓢ[1]	Completion status	The instruction completion status is stored. • 0 : Normal completion • Other than 0 : Error completion (error code)	–	System
ⓢ[2]	Start No.	Specify the following data number to be started by the PSTRT □ instruction. 1 to 600 : Positioning data number 7000 to 7004: Block start 9001 : Machine OPR 9002 : Fast OPR 9003 : Current value change 9004 : Multiple axes concurrent start	1 to 600, 7000 to 7004, 9001 to 9004	User

Program Example

The following program executes the positioning start of the positioning data number 1 when X100 turns ON.

[Structured ladder/FBD]



Positioning start pulse

Sets start signal number 1

Turns positioning start instruction memory ON

Performs positioning start

Turns positioning start instruction memory OFF

[ST]

```
PLS(X100, Var_Flag_Inst);            (* Positioning start pulse *)
IF(Var_Flag_Inst=TRUE)THEN
    MOVP(TRUE, 1, Var_ControlData[2]);(* Sets start signal number 1 *)
    SET(TRUE, Var_Flag_Mem);         (* Turns positioning start instruction memory ON *)
END_IF;
IF(Var_Flag_Mem=TRUE)THEN            (* Positioning start instruction memory ON *)
    ZP_PSTRT1(TRUE, "00", Var_ControlData, Var_Result);
                                     (* Performs positioning start *)
    RST(TRUE, Var_Flag_Mem);         (* Turns positioning start instruction memory OFF *)
END_IF;
```

5.2.3 TEACH instruction

ZP_TEACH1

ZP_TEACH1
ZP_TEACH2
ZP_TEACH3
ZP_TEACH4

Executing condition : ↑

Structured ladder/FBD	ST
ZP_TEACH1 (EN, Un*, s → ENO, d)	ENO:= ZP_TEACH1 (EN, Un*, s,d);

[ ] indicates any of the following instructions.
ZP_TEACH1
ZP_TEACH2
ZP_TEACH3
ZP_TEACH4

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..3]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○	–	–					

☆ Function

This instruction performs teaching for the specified axis. (Refer to the following)

- ZP_TEACH1: Axis 1
- ZP_TEACH2: Axis 2
- ZP_TEACH3: Axis 3
- ZP_TEACH4: Axis 4

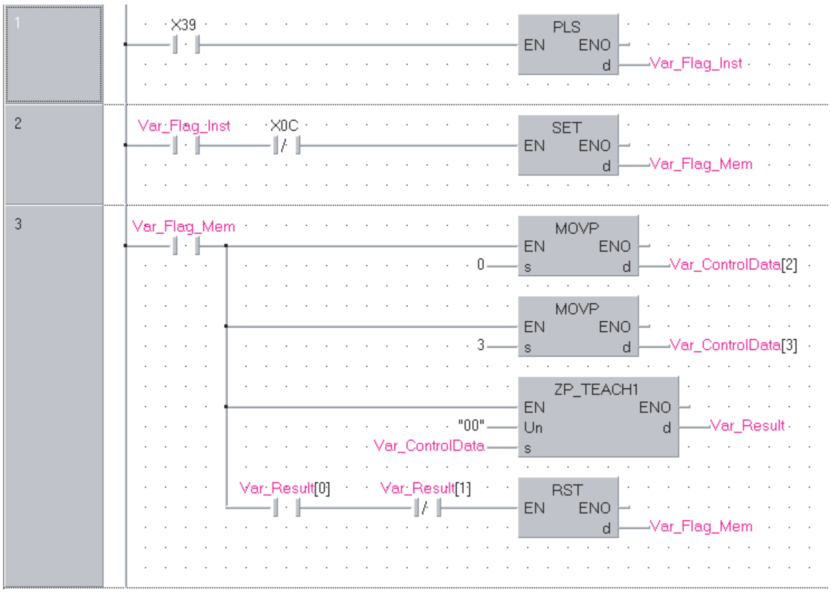
Control Data

Device	Item	Setting data	Setting range	Setting side
S [0]	System area	–	–	–
S [1]	Completion status	The instruction completion status is stored. • 0 : Normal completion • Other than 0 : Error completion (error code)	–	System
S [2]	Teaching data selection	Set the address (positioning address/circular address) to which the current feed value is written. 0: Write the current feed value to the positioning address 1: Write the current feed value to the circular address	0,1	User
S [3]	Positioning data No.	Set the positioning data number for which teaching is performed.	1 to 600	User

Program Example

The following program performs teaching for the positioning data number 3 of the axis 1 when X39 turns ON.

[Structured ladder/FBD]



[ST]

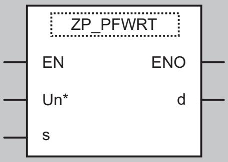
```
PLS(X39, Var_Flag_Inst);                (* Teaching instruction pulse *)

IF((Var_Flag_Inst=TRUE)&(X0C=FALSE))THEN
    SET(TRUE, Var_Flag_Mem);    (* Turns teaching instruction memory ON *)
END_IF;

IF(Var_Flag_Mem=TRUE)THEN       (* Teaching instruction memory ON *)
    MOVP(TRUE, H0, Var_ControlData[2]);        (* Sets teaching data *)
    MOVP(TRUE, K3, Var_ControlData[3]);        (* Sets positioning data number *)

    ZP_TEACH1(TRUE, "00", Var_ControlData, Var_Result);
                                               (* Performs teaching *)

    IF((Var_Result[0]=TRUE)&(Var_Result[1]=FALSE))THEN
        RST(TRUE, Var_Flag_Mem);    (* Turns teaching instruction memory OFF *)
    END_IF;
END_IF;
```

5.2.4 PFWRT instruction

ZP_PFWRT

ZP_PFWRT

Executing condition :

Structured ladder/FBD	ST
	ENO:= ZP_PFWRT (EN, Un*, s,d);

[.....] indicates the following instruction.

ZP_PFWRT

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J\		U\G	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○	–	–					

Function

This instruction writes the QD75 parameters, positioning data, and block start data to the flash ROM.

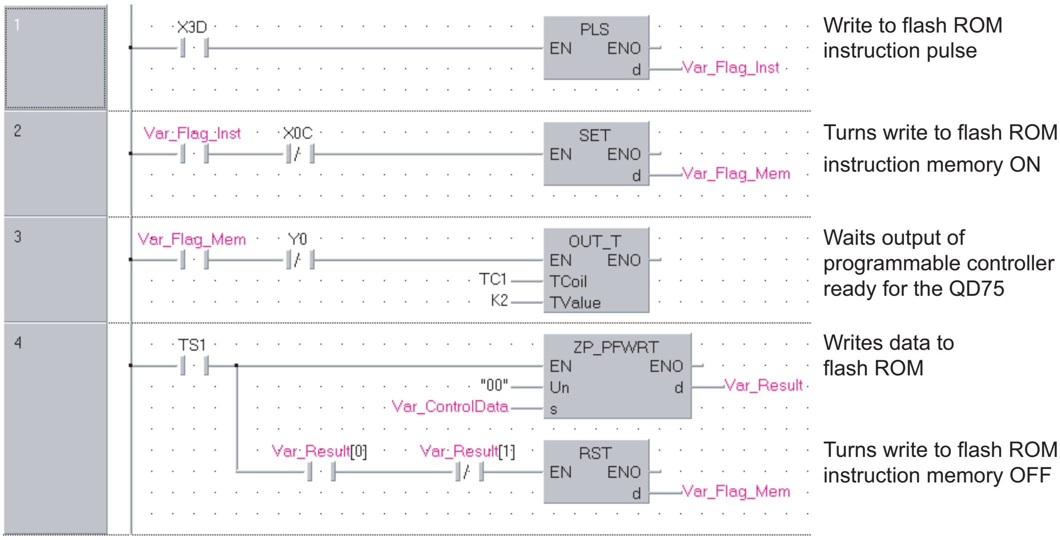
Control Data

Device	Item	Setting data	Setting range	Setting side
s [0]	System area	–	–	–
s [1]	Completion status	The instruction completion status is stored. • 0 : Normal completion • Other than 0 : Error completion (error code)	–	System

Program Example

The following program writes the parameters, positioning data, and block start data stored in buffer memory to the flash ROM when X3D turns ON.

[Structured ladder/FBD]



[ST]

```
PLS(X3D, Var_Flag_Inst);            (* Write to flash ROM instruction pulse *)
IF((Var_Flag_Inst=TRUE)&(X0C=FALSE))THEN
    SET(TRUE, Var_Flag_Mem);    (* Turns write to flash ROM instruction memory ON *)
END_IF;

IF((Var_Flag_Mem=TRUE)&(Y0=FALSE))THEN
    OUT_T(TRUE, TC1, 2);
                        (* Waits output of programmable controller ready for the QD75 *)
END_IF;

IF(TS1=TRUE)THEN    (* Write to flash ROM instruction memory ON *)
    ZP_PFWRT(TRUE, "00", Var_ControlData, Var_Result);
                                (* Writes data to flash ROM *)
    IF((Var_Result[0]=TRUE)&(Var_Result[1]=FALSE))THEN
        RST(TRUE, Var_Flag_Mem);
                                (* Turns write to flash ROM instruction memory OFF *)
    END_IF;
END_IF;
```

5 MODULE DEDICATED INSTRUCTION

ZP_PFWRT

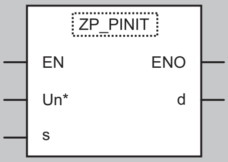
5.2.5 PINIT instruction

ZP_PINIT

ZP_PINIT

Executing condition : ↑

Structured ladder/FBD



ST

ENO:= ZP_PINIT (EN, Un*, s,d);

indicates the following instruction.

ZP_PINIT

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○	–	–					

Function

This instruction initializes the QD75 setting data.

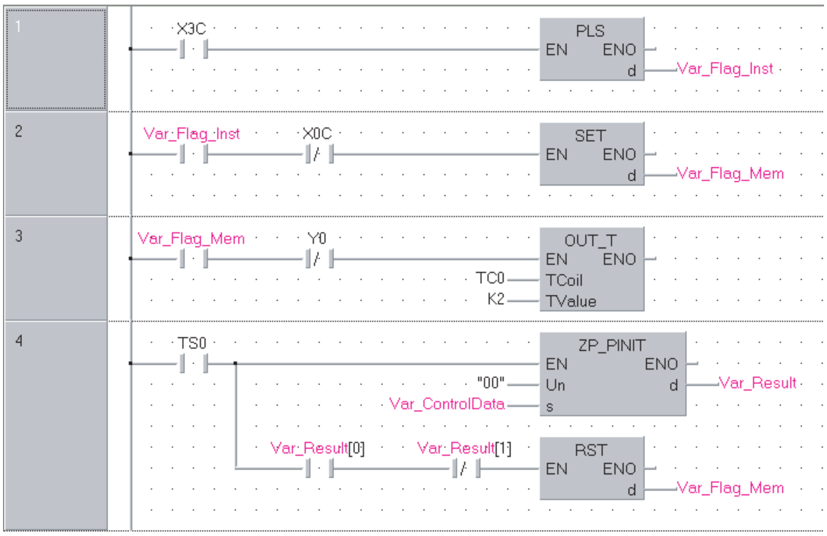
Control Data

Device	Item	Setting data	Setting range	Setting side
s[0]	System area	–	–	–
s[1]	Completion status	The instruction completion status is stored. • 0 : Normal completion • Other than 0 : Error completion (error code)	–	System

Program Example

The following program initializes the parameters of buffer memory and those of flash ROM when X3C turns ON.

[Structured ladder/FBD]



Parameter initialization instruction pulse

Turns parameter initialization instruction memory ON

Waits output of programmable controller ready for the QD75

Performs initialization of parameters

Turns parameter initialization instruction memory OFF

[ST]

```
PLS(X3C, Var_Flag_Inst); (* Parameter initialization instruction pulse *)

IF((Var_Flag_Inst=TRUE)&(X0C=FALSE))THEN
    SET(TRUE, Var_Flag_Mem);
                        (* Turns parameter initialization instruction memory ON *)
END_IF;

IF((Var_Flag_Mem=TRUE)&(Y0=FALSE))THEN
    OUT_T(TRUE, TC0, 2);
                        (* Waits output of programmable controller ready for the QD75 *)
END_IF;

IF(TS0=TRUE)THEN     (* Parameter initialization instruction memory ON *)
    ZP_PINIT(TRUE, "00", Var_ControlData, Var_Result);
                        (* Performs initialization of parameters *)
    IF((Var_Result[0]=TRUE)&(Var_Result[1]=FALSE))THEN
        RST(TRUE, Var_Flag_Mem);
                        (* Turns parameter initialization instruction memory OFF *)
    END_IF;
END_IF;
```

5.3 Serial Communication

5.3.1 ONDEMAND instruction

G_ONDEMAND

Serial

G(P)_ONDEMAND

P: Executing condition : ↑

Structured ladder/FBD	ST
G_ONDEMAND EN ENO Un* d s1 s2	ENO:= G_ONDEMAND (EN, Un*, s1, s2, d);

▭ indicates any of the following instructions.

G_ONDEMAND GP_ONDEMAND

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..2]
	s2:	Start number of the device that stores send data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J▭\▭		U▭\G▭	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction sends data using the on-demand function of MC protocol.

Control Data

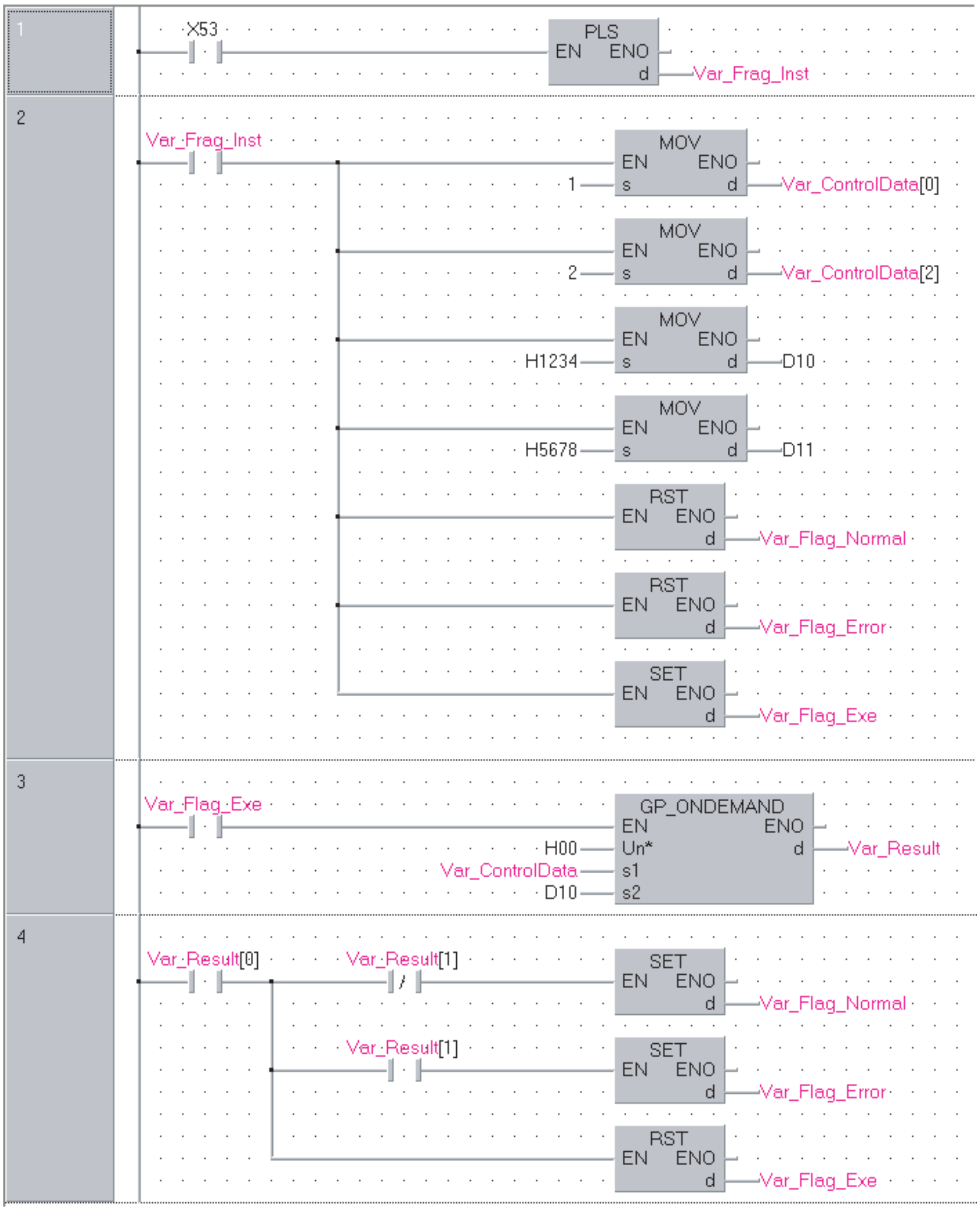
Device	Item	Setting data	Setting range	Setting side
s1 [0]	Transmission channel	Set the transmission channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
s1 [1]	Transmission result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [2]	Number of send data	Set the number of send data.	1 or more	User

Program Example

The following program sends data of devices from D10 to D11 using the on-demand function.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



On-demand transmission instruction pulse

Sets transmission channel to 1

Sets number of send data to 2 words

Sets send data to D10 to D11

Turns normal completion flag OFF

Turns error completion flag OFF

Turns execution flag ON

Performs on-demand function transmission

Turns normal completion flag ON

Turns error completion flag ON

Turns execution flag OFF

[ST]

```
PLS(X53, Var_Flag_Inst);                    (* On-demand transmission instruction pulse *)
IF(Var_Flag_Inst=TRUE)THEN                  (* Instruction flag ON *)
    MOV(TRUE, 1, Var_ControlData[0]);       (* Sets transmission channel to 1 *)
    MOV(TRUE, 2, Var_ControlData[2]);       (* Sets number of send data to 2 words *)
    MOV(TRUE, H1234, D10);                  (* Sets send data to D10 to D11 *)
    MOV(TRUE, H5678, D11);
    RST(TRUE, Var_Flag_Normal);             (* Turns normal completion flag OFF *)
    RST(TRUE, Var_Flag_Error);              (* Turns error completion flag OFF *)
    SET(TRUE, Var_Flag_Exe);                (* Turns execution flag ON *)
END_IF;
IF(Var_Flag_Exe=TRUE)THEN                   (* Execution flag ON *)
    GP_ONDEMAND(TRUE, H0, Var_ControlData, D10, Var_Result);
                                            (* Performs on-demand function transmission *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN             (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);         (* Turns normal completion flag ON *)
    ELSE                                    (* Error completion *)
        SET(TRUE, Var_Flag_Error);          (* Turns error completion flag ON *)
    END_IF;
    RST(TRUE, Var_Flag_Exe);                (* Turns execution flag OFF *)
END_IF;
```

POINT

1. The communication status can be checked by the SPBUSY instruction.
   Section 5.3.6
2. Specify the capacity of the send data (stored in devices from D10 to D11 in the program example above) and the number of send data within the user-defined buffer memory range assigned for the on-demand function.

5.3.2 OUTPUT instruction

G_OUTPUT

Serial

G(P)_OUTPUT

P: Executing condition :

Structured ladder/FBD

G_OUTPUT	
EN	ENO
Un*	d
s1	
s2	

ST

ENO:= G_OUTPUT (EN, Un*, s1, s2, d);

indicates any of the following instructions.

G_OUTPUT GP_OUTPUT

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..2]
	s2:	Start number of the device that stores send data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends data in the message format specified by the user using the nonprocedural protocol.

Control Data

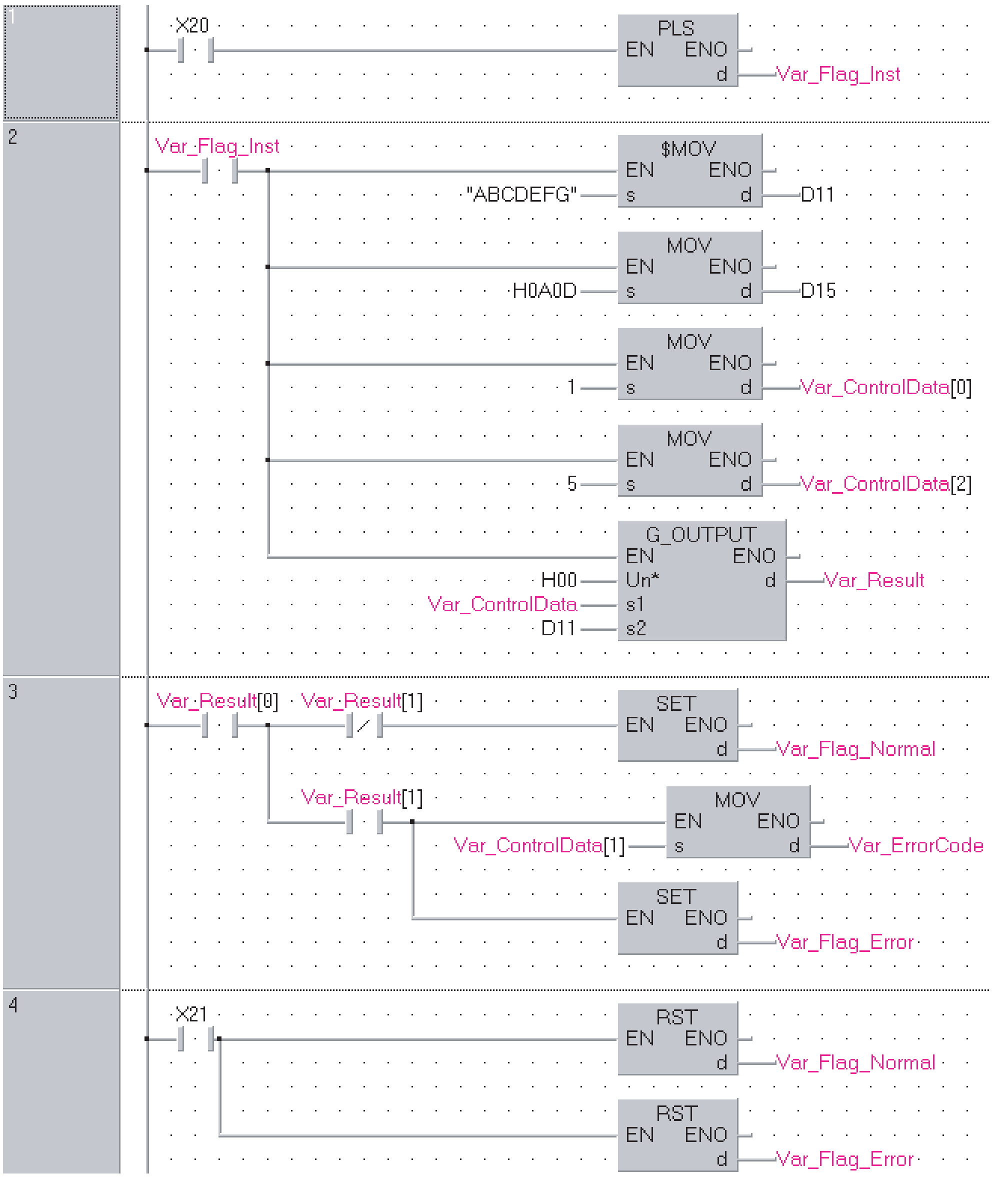
Device	Item	Setting data	Setting range	Setting side
s1 [0]	Transmission channel	Set the transmission channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
s1 [1]	Transmission result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [2]	Number of send data	Set the number of send data.	1 or more	User

Program Example

The following program sends data of devices from D11 to D15 using the nonprocedural protocol.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Transmission instruction pulse

Sets send data

Sets completion code

Sets transmission channel to 1

Sets number of send data to 5 words

Sends data

Turns normal completion flag ON

Stores error code

Turns error completion flag ON

Turns normal completion flag OFF

Turns error completion flag OFF

```
[ST]
PLS(X20, Var_Flag_Inst);                         (* Transmission instruction pulse*)

IF (Var_Flag_Inst=TRUE) THEN
    MOV(TRUE, H4241, D11);                       (* Sets send data *)
    MOV(TRUE, H4443, D12);
    MOV(TRUE, H4645, D13);
    MOV(TRUE, H0047, D14);
    MOV(TRUE, H0AD, D15);
    MOV(TRUE, 1, Var_ControlData[0]);            (* Sets transmission channel to 1 *)
    MOV(TRUE, 5, Var_ControlData[2]);            (* Sets number of send data to 5 words *)
    G_OUTPUT(TRUE, H0, Var_ControlData, D11, Var_Result);
                                                 (* Sends data *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                       (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                  (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);              (* Turns normal completion flag ON *)
    ELSE                                         (* Error completion *)
        MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
        SET(TRUE, Var_Flag_Error);               (* Turns error completion flag ON *)
    END_IF;
END_IF;

IF (X21=TRUE) THEN
    RST( TRUE, Var_Flag_Normal );                (* Turns normal completion flag OFF *)
    RST( TRUE, Var_Flag_Error );                 (* Turns error completion flag OFF *)
END_IF;
```

5.3.3 INPUT instruction

G_INPUT

Serial

G_INPUT

Structured ladder/FBD	ST
G_INPUT EN — ENO Un* — d1 s — d2	ENO:= G_INPUT (EN, Un*, s, d1, d2);

[ ] indicates any of the following instructions.
G_INPUT

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..3]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores receive data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J[ ]\[ ]		U[ ]\G[ ]	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d1	–	○		–					
d2	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction receives data in the message format specified by the user using the nonprocedural protocol.

Control Data

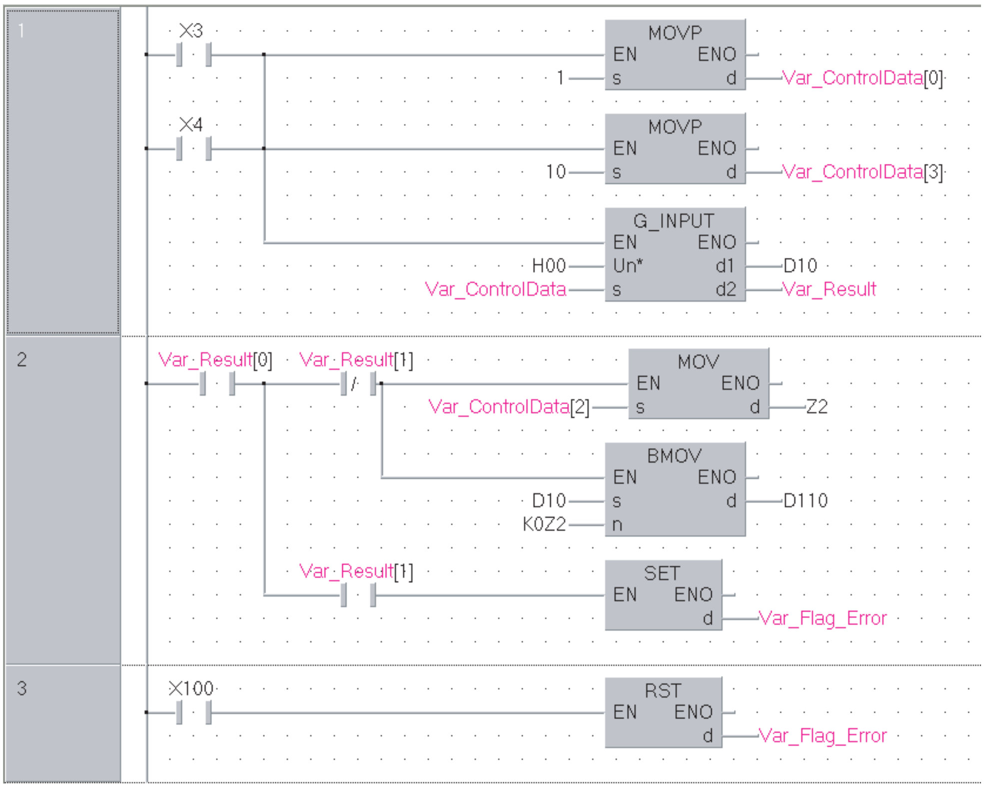
Device	Item	Setting data	Setting range	Setting side
s[0]	Reception channel	Set the reception channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
s[1]	Reception result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s[2]	Number of receive data	The number of receive data are stored.	0 or more	System
s[3]	Allowable number of words for receive data	Set the allowable number of words for receive data to be stored in d1 .	1 or more	User

Program Example

The following program stores data which are received using the nonprocedural protocol in the devices starting from D10.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Sets receive channel to 1

Sets allowable number of words for receive data to 10 words

Receives data

Stores receive data

Turns error completion flag ON

Turns error completion flag OFF

[ST]

```
IF((X3=TRUE) OR (X4=TRUE))THEN
	MOVP(TRUE, 1, Var_ControlData[0]);		(* Sets receive channel to 1 *)
	MOVP(TRUE, 10, Var_ControlData[3]);
				(* Sets allowable number of words for receive data to 10 words *)
	G_INPUT(TRUE, H0, Var_ControlData, D10, Var_Result);
							(* Receives data *)
END_IF;

IF(Var_Result[0]=TRUE)THEN				(* Execution finished *)
	IF(Var_Result[1]=FALSE)THEN			(* Normal completion *)
		MOV(TRUE, Var_ControlData[2], Z2);
		BMOV(TRUE, D10, K0Z2, D110);		(* Stores receive data *)
	ELSE					(* Error completion *)
		SET(TRUE, Var_Flag_Error);		(* Turns error completion flag ON *)
	END_IF;
END_IF;

IF(X100=TRUE)THEN
	RST(TRUE, Var_Flag_Error);		(* Turns error completion flag OFF *)
END_IF;
```

5.3.4 BIDOUT instruction

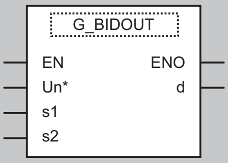
G_BIDOUT

Serial

G(P)_BIDOUT

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= G_BIDOUT (EN ,Un* ,s1 ,s2 ,d);

[ ] indicates any of the following instructions.

G_BIDOUT GP_BIDOUT

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..2]
	s2:	Start number of the device that stores send data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s1</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>s2</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>d</td><td>○</td><td colspan="2">○</td><td colspan="6">–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends data using the bidirectional protocol.

Control Data

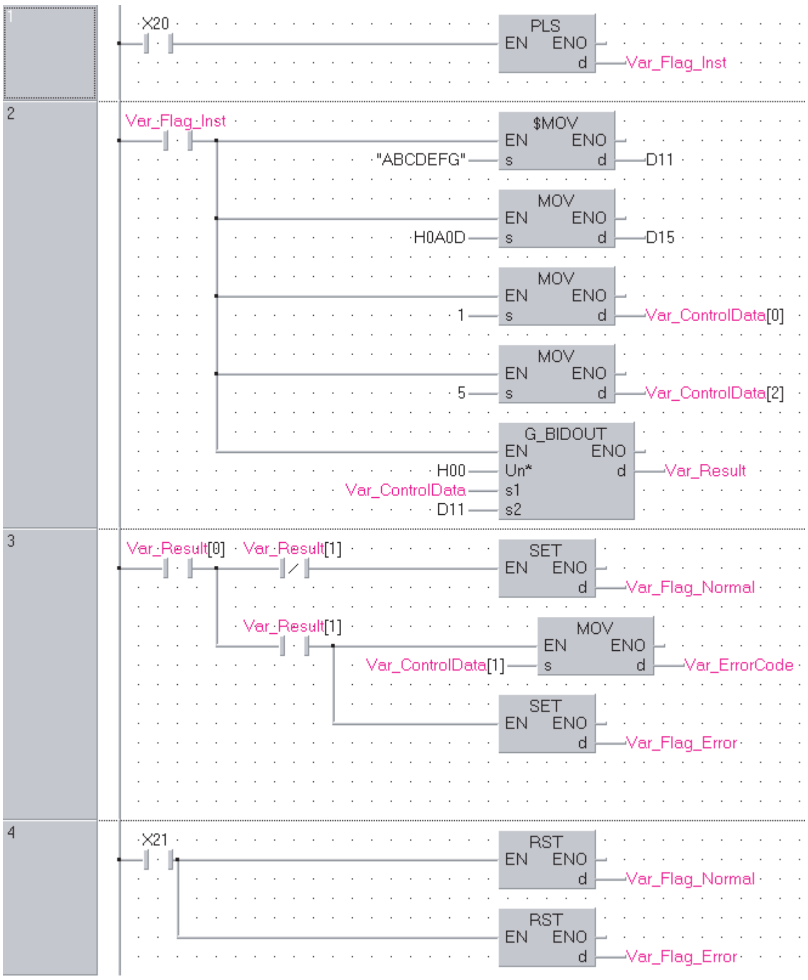
Device	Item	Setting data	Setting range	Setting side
s1 [0]	Transmission channel	Set the transmission channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
s1 [1]	Transmission result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [2]	Number of send data	Set the number of send data.	1 or more	User

Program Example

The following program sends desired data stored in devices from D11 to D15 using the bidirectional protocol.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Transmission instruction pulse

Sets send data

Sets transmission channel to 1

Sets number of send data to 5 words

Sends data

Turns normal completion flag ON

Stores error code

Turns error completion flag ON

Turns normal completion flag OFF

Turns error completion flag OFF

```
[ST]
PLS(X20, Var_Flag_Inst);                              (* Transmission instruction pulse *)

IF(Var_Flag_Inst=TRUE)THEN
    MOV(TRUE, H4241, D11);                            (* Sets send data *)
    MOV(TRUE, H4443, D12);
    MOV(TRUE, H4645, D13);
    MOV(TRUE, H0047, D14);
    MOV(TRUE, H0AD, D15);
    MOV(TRUE, 1, Var_ControlData[0]);                 (* Sets transmission channel to 1 *)
    MOV(TRUE, 5, Var_ControlData[2]);
                        (* Sets allowable number of words for send data to 5 words *)
    G_BIDOUT(TRUE, H0, Var_ControlData, D11, Var_Result);
                                                      (* Sends data *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                            (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                       (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);                   (* Turns normal completion flag ON *)
    ELSE                                              (* Error completion *)
        MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
        SET(TRUE, Var_Flag_Error);                    (* Turns error completion flag ON *)
    END_IF;
END_IF;

IF(X21=TRUE)THEN
        RST(TRUE, Var_Flag_Normal);                   (* Turns normal completion flag OFF *)
        RST(TRUE, Var_Flag_Error);                    (* Turns error completion flag OFF *)
END_IF;
```

5.3.5 BIDIN instruction

G_BIDIN

Serial

G(P)_BIDIN

P: Executing condition : ↑

Structured ladder/FBD	ST
G_BIDIN: EN → ENO, Un* → d1, s → d2	ENO:= G_BIDIN (EN, Un*, s, d1, d2);

indicates any of the following instructions.

G_BIDIN GP_BIDIN

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..3]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores receive data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○				–			
d1	–	○				–			
d2	○	○				–			

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction receives data using the bidirectional protocol.

Control Data

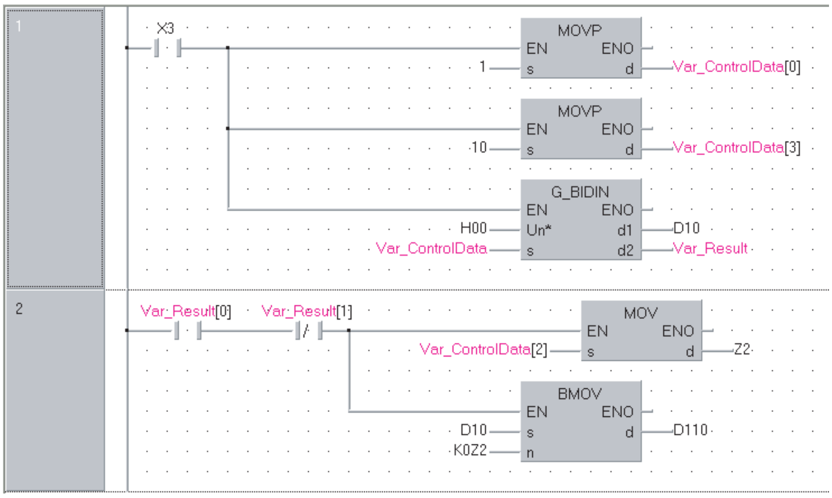
Device	Item	Setting data	Setting range	Setting side
ⓢ[0]	Reception channel	Set the reception channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
ⓢ[1]	Reception result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
ⓢ[2]	Number of receive data	The number of received data are stored.	1 or more	System
ⓢ[3]	Allowable number of words for receive data	Set the allowable number of words for receive data to be stored in ⓓ1 .	1 or more	User

Program Example

The following program receives data using the bidirectional protocol and stores the data in the devices starting from D10.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Sets receive channel to 1

Sets allowable number of words for receive data to 10 words

Receives data

Stores receive data

[ST]

```
IF(X3=TRUE)THEN
        MOVP(TRUE, 1, Var_ControlData[0]);                    (* Sets receive channel to 1 *)
        MOVP(TRUE, 10, Var_ControlData[3]);
                              (* Sets allowable number of words for receive data to 10 *)
        G_BIDIN(TRUE, H00, Var_ControlData, D10, Var_Result);
                                                              (* Receives data *)
END_IF;

IF((Var_Result[0]=TRUE) & (Var_Result[1]=FALSE))THEN
                  BMOV(TRUE, D10, Var_ControlData[2], D110);(* Stores receive data *)
END_IF;
```

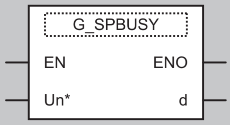
5.3.6 SPBUSY instruction

G_SPBUSY

Serial

G(P)_SPBUSY

P: Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= G_SPBUSY (EN, Un*, d);

G_SPBUSY (the dotted box) indicates any of the following instructions.

G_SPBUSY GP_SPBUSY

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that stores read communication status	:ANY32

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
d	○	○		–					

Function

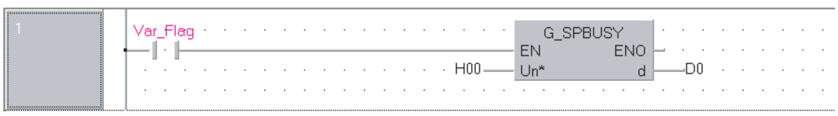
This instruction reads the data transmission/reception status.

Program Example

The following program reads out the communication status of the target module.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Reads communication status

[ST]

```
G_SPBUSY(Var_Flag, H00, D0);        (* Reads communication status *)
```

5.3.7 CSET instruction (receive data clear)

ZP_CSET

Serial

ZP_CSET

Executing condition : ↑

Structured ladder/FBD	ST
ZP_CSET EN — ENO Un* — d1 s1 — d2 s2	ENO:= ZP_CSET (EN, Un*, s1, s2, d1, d2);

[ ] indicates the following instruction.

ZP_CSET

Input argument

- EN: Executing condition :Bit
- Un*: Start I/O number of the module :String
  (00 to FE: Higher two digits when expressing the I/O number in three digits)
- s1: Channel number that requests receive data clear :ANY16
  1: Channel 1 (CH1 side)
  2: Channel 2 (CH2 side)
- s2: Variable that stores control data :Array of ANY16 [0..111]

Output argument

- ENO: Execution result :Bit
- d1: Dummy :ANY16
- d2: Variable that turns ON upon completion of the instruction :Array of bit [0..1]
  d2[1] also turns ON at the time of error completion.

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○		–				○	–
s2	–	○		–				–	–
d1	–	○		–				–	–
d2	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

Clears receive data without stopping transmission using the nonprocedural protocol.

Control Data

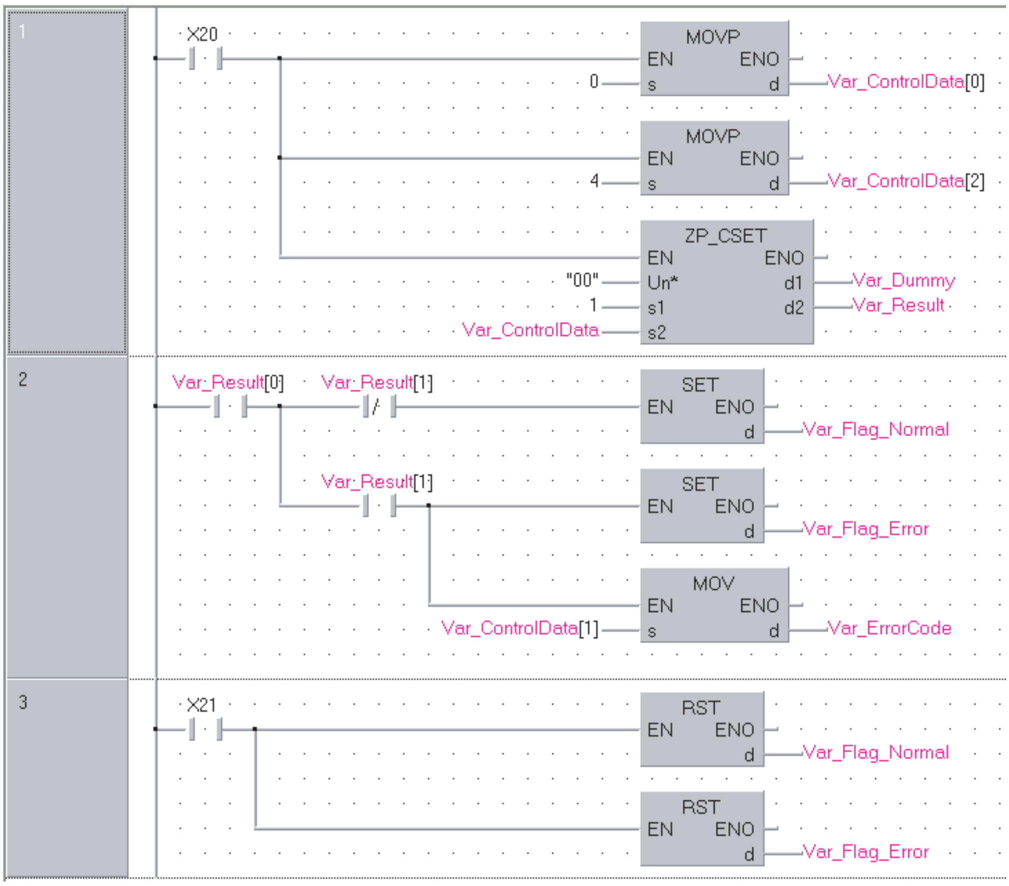
Device	Item	Setting data	Setting range	Setting side
s2 [0]	Execution type	Specify '0'.	0	User
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2]	Request type	Specify the request. 4: Receive data clear request	4	User
s2 [3] to s2 [111]	For system	–	–	System

Program Example

The following program clears the receive data in the Q series C24 side.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Clears execution type to 0

Sets request type

Clears data

Turns normal completion flag ON

Turns error completion flag ON

Stores error code

Turns normal completion flag OFF

Turns error completion flag OFF

[ST]

```
IF(X20=TRUE)THEN
    MOVP(TRUE, 0, Var_ControlData[0]);          (* Clears execution type to 0 *)
    MOVP(TRUE, 4, Var_ControlData[2]);          (* Sets request type *)
    ZP_CSET(TRUE, "00", 1, Var_ControlData, Var_Dummy, Var_Result);
                                                (* Clears data *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                      (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                 (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);             (* Turns normal completion flag ON *)
    ELSE                                        (* Error completion *)
        MOV(TRUE, Var_ControlData[1], Var_ErrorCode);
                                                (* Stores error code *)
        SET(TRUE, Var_Flag_Error);              (* Turns error completion flag ON *)
    END_IF;
END_IF;

IF(X21=TRUE)THEN
    RST(TRUE, Var_Flag_Normal);                 (* Turns normal completion flag OFF *)
    RST(TRUE, Var_Flag_Error);                  (* Turns error completion flag OFF *)
END_IF;
```

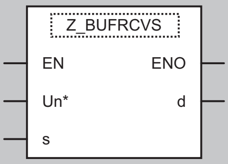
5.3.8 BUFRCVS instruction

Z_BUFRCVS

Serial

Z_BUFRCVS

Structured ladder/FBD



ST

ENO:= Z_BUFRCVS (EN, Un*, s, d);

indicates the following instruction.

Z_BUFRCVS

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Reception channel number 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores read data * Receive data are read from the receive area of buffer memory.	:ANY16

Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant K, H	Others
s	–	○		–				○	–
d	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction receives data with an interrupt program during communication using the nonprocedural protocol or bidirectional protocol.

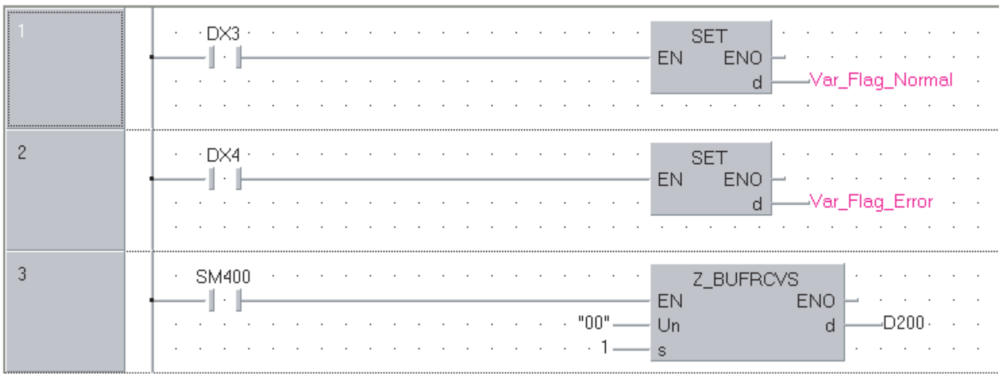
Receive Data

Device	Item	Setting data	Setting range	Setting side
ⓓ+0	Receive data length	The number of data read from the number of receive data storage area is stored.	0 or more	System
ⓓ+1 to ⓓ+n	Receive data	Data read from the receive data storage area are stored in ascending address order.	–	System

Program Example

The following program receives data with an interrupt program.

[Structured ladder/FBD]



Turns normal completion flag ON

Turns error completion flag ON

Executes interrupt receive program

[ST]

```
(* Set the normal/error confirmation flag for the main program *)
(* The main program resets flags *)
SET(DX3, Var_Flag_Normal);          (* Turns normal completion flag ON *)
SET(DX4, Var_Flag_Error);           (* Turns error completion flag ON *)

(* Receives data from CH1 and stores the data in devices starting from D200 *)
Z_BUFRCVS(SM400, "00", 1, D200);       (* Executes interrupt receive program *)
```

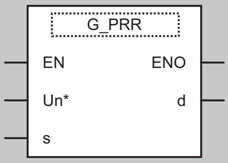
5.3.9 PRR instruction

G_PRR

Serial

G(P)_PRR

P: Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= G_PRR (EN, Un*, s, d);

[ ] indicates any of the following instructions.

G_PRR GP_PRR

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..4]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J[ ]\[ ]		U[ ]\G[ ]	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends data by user frame according to the specification in user frame specification area for transmission during communication using the nonprocedural protocol.

Control Data

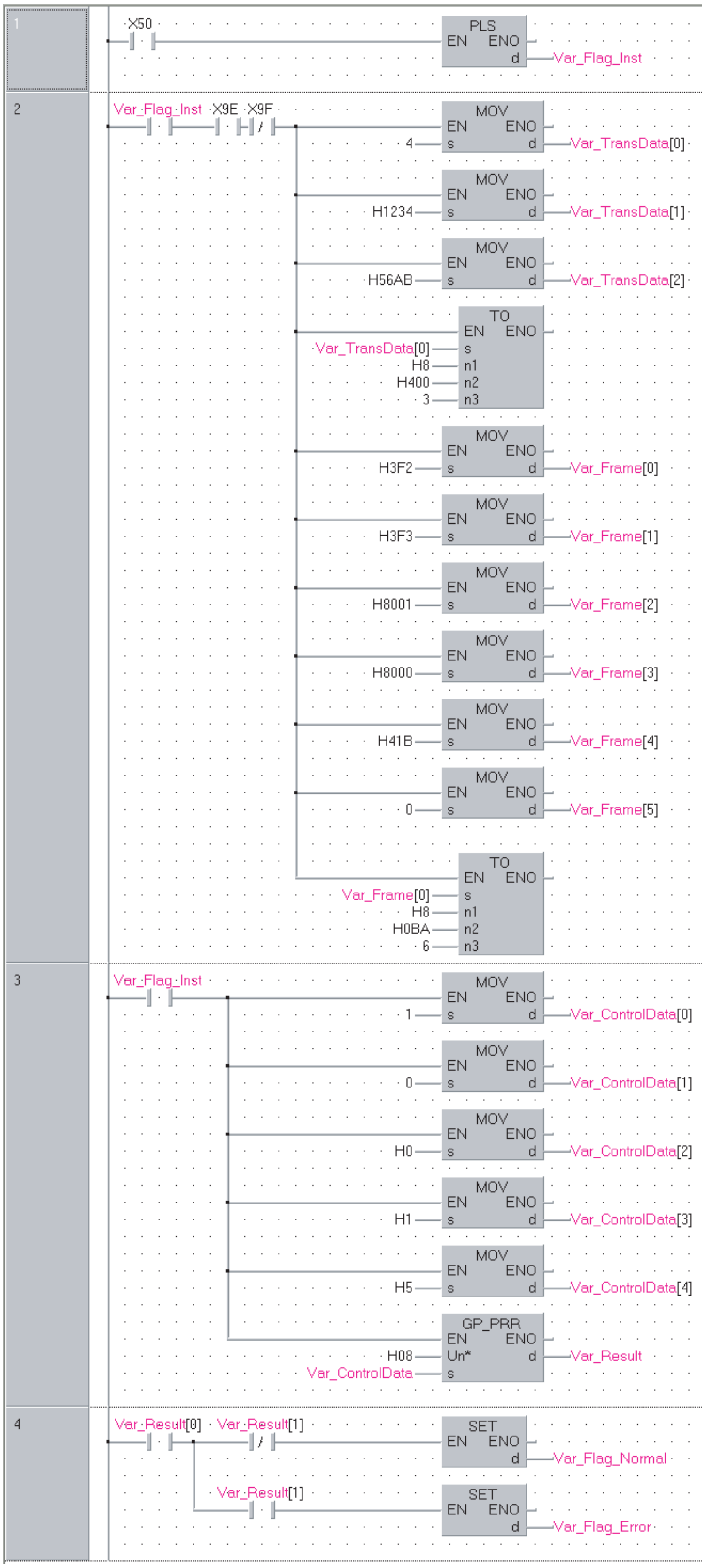
Device	Item	Setting data	Setting range	Setting side
S [0]	Transmission channel	Set the transmission channel. 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	1, 2	User
S [1]	Transmission result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
S [2]	CR/LF addition specification	Specify whether to add CR/LF codes to the send data. 0: CR/LF not added 1: CR/LF added	0, 1	User
S [3]	Transmission pointer	Specify the position in the user frame specification area for transmission from where the frame number data are to be sent.	1 to 100	User
S [4]	Number of send data	Set the number of user frames to be sent.	1 to 100	User

Program Example

The following program sends desired data and the user frames from number 1 to number 5 which are registered in the transmission frame setting.

(For the Q series C24 whose I/O signals are X/Y80 to X/Y9F)

[Structured ladder/FBD]



- Transmission instruction pulse
- Sets number of send data
- Sets desired send data
- Sets send data to buffer memory
- User frame 0
- User frame 1
- User frame 2
- User frame 3
- User frame 4
- User frame 5
- Sets user frames to buffer memory
- Sets transmission channel to 1
- Clears transmission result
- Sets CR/LF to 'CR/LF not added'
- Sets transmission pointer
- Sets number of send data
- Performs user frame transmission
- Turns normal completion flag ON
- Turns error completion flag ON

[ST]

```
PLS(X50, Var_Flag_Inst);                         (* Transmission instruction pulse *)

IF((Var_Flag_Inst=TRUE) & (X9E=TRUE) & (X9F=FALSE))THEN
    MOV(TRUE, 4, Var_TransData[0]);              (* Sets number of send data *)
    MOV(TRUE, H1234, Var_TransData[1]);          (* Sets desired send data *)
    MOV(TRUE, H56AB, Var_TransData[2]);
    TO(TRUE, Var_TransData[0], H8, H400, 3);     (* Sets send data to buffer memory *)

    MOV(TRUE, H3F2, Var_Frame[0]);               (* Sets user frame 0 *)
    MOV(TRUE, H3F3, Var_Frame[1]);               (* Sets user frame 1 *)
    MOV(TRUE, H8001,Var_Frame[2]);               (* Sets user frame 2 *)
    MOV(TRUE, H8000,Var_Frame[3]);               (* Sets user frame 3 *)
    MOV(TRUE, H41B, Var_Frame[4]);               (* Sets user frame 4 *)
    MOV(TRUE, 0, Var_Frame[5]);                  (* Sets user frame 5 *)
    TO(TRUE, Var_Frame[0], H8, H0BA, 6);         (* Sets user frames to buffer memory *)
END_IF;

IF(Var_Flag_Inst=TRUE)THEN
    MOV(TRUE, 1, Var_ControlData[0]);            (* Sets transmission channel to 1 *)
    MOV(TRUE, 0, Var_ControlData[1]);            (* Clears transmission result *)
    MOV(TRUE, H0, Var_ControlData[2]);           (* Sets CR/LF to ‘CR/LF not added’ *)
    MOV(TRUE, H1, Var_ControlData[3]);           (* Sets transmission pointer *)
    MOV(TRUE, H5, Var_ControlData[4]);           (* Sets number of send data *)
    GP_PRR(TRUE, H08, Var_ControlData, Var_Result);
                                                 (* Performs user frame transmission *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                       (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                  (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);              (* Turns normal completion flag ON *)
    ELSE                                         (* Error completion *)
        SET(TRUE, Var_Flag_Error);               (* Turns error completion flag ON *)
    END_IF;
END_IF;
```

5.3.10 CSET instruction (initial setting)

ZP_CSET

Serial

ZP_CSET

Executing condition : ↑

Structured ladder/FBD

```
     ZP_CSET
 EN          ENO
 Un*          d1
 s1           d2
 s2
```

ST

ENO:= ZP_CSET (EN, Un*, s1, s2, d1, d2);

[   ] indicates the following instruction.

ZP_CSET

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Reception channel number 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..111]
Output argument	ENO:	Execution result	:Bit
	d1:	Dummy	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant K, H</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s1</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>s2</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
<tr><td>d1</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
<tr><td>d2</td><td>○</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction changes the setting values for sending/receiving data using communication protocols.

5

MODULE DEDICATED INSTRUCTION

ZP_CSET

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	Execution type	Specify '0'.	0	User
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2]	Request type	Specify the request. 1: Change of unit (word/byte) and buffer memory assignment	1	User
s2 [3]	Word/byte unit specification	Specify the unit of the number of send/receive data. 0: Current setting value 1: In units of words 2: In units of bits	0,1,2	User
s2 [4]	Buffer memory start address for on-demand function	Specify the start address of the buffer memory used by the on-demand function 0_H: Current setting value is used. 400_H to $1AFF_H$, 2600_H to $3FFF_H$: Start address	0_H, 400_H to $1AFF_H$, 2600_H to $3FFF_H$	User
s2 [5]	Buffer memory size for on-demand function	Specify the size (the number of words) of the buffer memory to be used by the on-demand function. 0_H: Current setting value is used. 1_H to $1A00_H$: Size	0_H, 1_H to $1A00_H$	User
s2 [6]	Send area start address	Specify the start address of the send area used for the nonprocedural/bidirectional protocol. 0_H: Current setting value is used. 400_H to $1AFF_H$, 2600_H to $3FFF_H$: Start address	0_H, 400_H to $1AFF_H$, 2600_H to $3FFF_H$	User
s2 [7]	Send area size	Specify the size (the number of words) of the send area used by the nonprocedural/bidirectional protocol. 0_H: Current setting value is used. 1_H to $1A00_H$: Size * The start area of the send area (1 word) is used for the number of send data specification area.	0_H, 1_H to $1A00_H$	User
s2 [8]	Receive area start address	Specify the start address of the receive area used for the nonprocedural/bidirectional protocol. 0_H: Current setting value is used. 400_H to $1AFF_H$, 2600_H to $3FFF_H$: Start address	0_H, 400_H to $1AFF_H$, 2600_H to $3FFF_H$	User
s2 [9]	Receive area size	Specify the size (the number of words) of the receive area used for the nonprocedural/bidirectional protocol. 0_H: Current setting value is used. 1_H to $1A00_H$: Size * The start area of the receive area (1 word) is used for the number of receive data storage area.	0_H, 1_H to $1A00_H$	User
s2 [10] to s2 [111]	For system	–	–	System

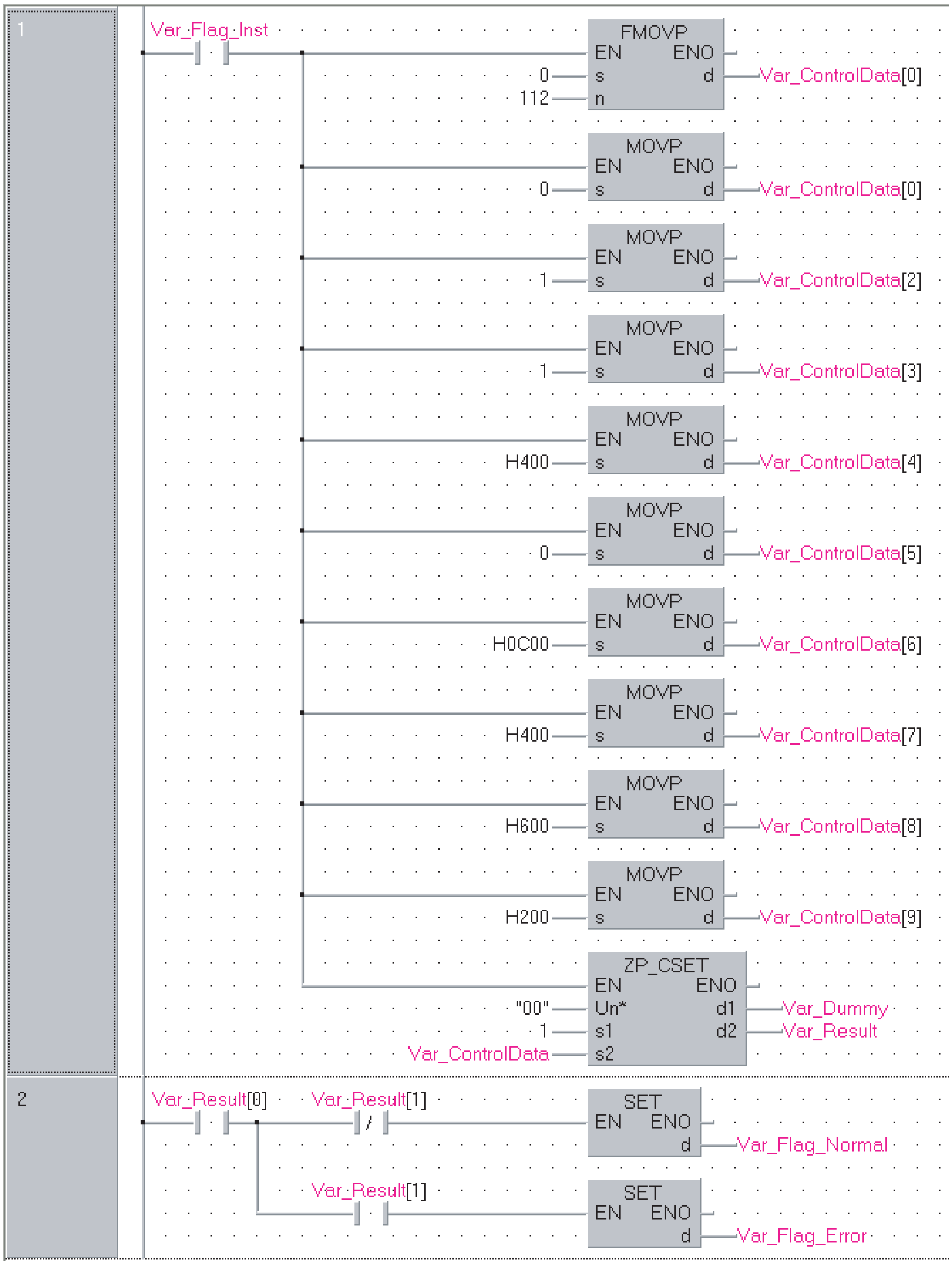
Program Example

The following program changes the send buffer area of the CH1 side interface.

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

- Sets send buffer to C00H to FFFH.
- Sets receive buffer to 600H to 7FFH.

[Structured ladder/FBD]



Clears D0 to D111 to 0

Sets execution type

Sets request type

Sets word/byte unit to word

Sets on-demand start address

Sets on-demand buffer size

Sets send buffer start address

Sets send buffer size

Sets receive buffer start address

Sets receive buffer size

Performs initialization

Turns normal completion flag ON

Turns error completion flag ON

[ST]

```
IF(Var_Flag_Inst=TRUE)THEN
      FMOVP(TRUE,0,112, Var_ControlData[0]);   (* Resets D0 to D111 to 0 *)
      MOVP(TRUE,    0, Var_ControlData[0]);      (* Sets execution type *)
      MOVP(TRUE,    1, Var_ControlData[2]);      (* Sets request type *)
      MOVP(TRUE,    1, Var_ControlData[3]);      (* Sets word/byte unit to word *)
      MOVP(TRUE, H400, Var_ControlData[4]);    (* Sets on-demand start address *)
      MOVP(TRUE,    0, Var_ControlData[5]);      (* Sets on-demand buffer size *)
      MOVP(TRUE,H0C00, Var_ControlData[6]);   (* Sets send buffer start address *)
      MOVP(TRUE, H400, Var_ControlData[7]);    (* Sets send buffer size *)
      MOVP(TRUE, H600, Var_ControlData[8]);    (* Sets receive buffer start address *)
      MOVP(TRUE, H200, Var_ControlData[9]);    (* Sets receive buffer size *)
      ZP_CSET(TRUE, "00", 1, Var_ControlData, Var_Dummy, Var_Result);
                                                 (* Performs initialization *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                       (* Execution finished *)
      IF(Var_Result[1]=FALSE)THEN                (* Normal completion *)
            SET(TRUE, Var_Flag_Normal);          (* Turns normal completion flag ON *)
      ELSE                                       (* Error completion *)
            SET(TRUE, Var_Flag_Error);           (* Turns error completion flag ON *)
      END_IF;
END_IF;
```

5.3.11 CSET instruction (programmable controller CPU monitor)

ZP_CSET

Serial

ZP_CSET

Executing condition : ↑

Structured ladder/FBD	ST
ZP_CSET: inputs EN, Un*, s1, s2; outputs ENO, d1, d2	ENO:= ZP_CSET (EN, Un*, s1, s2, d1, d2);

[ ] indicates the following instruction.

ZP_CSET

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Reception channel number 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..111]
Output argument	ENO:	Execution result	:Bit
	d1:	Dummy	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○			–			○	–
s2	–	○			–			–	–
d1	–	○			–			–	–
d2	○	○			–			–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction registers and cancels the programmable controller CPU monitoring.

Control Data

(1) Registering the programmable controller CPU monitoring

Device	Item		Setting data	Setting range	Setting side
s2 [0]	Execution type		Specify '0'.	0	User
s2 [1]	Completion status		The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2]	Request type		Specify the request. 2: Registration of programmable controller CPU monitoring	2	User
s2 [3]	Cycle time unit		Specify the unit of cycle time. 0: 100ms 1: Second 2: Minute	0 to 2	User
s2 [4]	Cycle time		Specify the cycle time. 1H to FFFFH: Cycle time	1H to FFFFH	User
s2 [5]	Programmable controller CPU monitoring function		Specify the monitoring function. 1: Constant cycle transmission 2: Condition agreement transmission	1,2	User
s2 [6]	Programmable controller CPU monitoring transmission method		Specify the transmission method. 0: Data transmission (device data, CPU error information) 1: Notification	0,1	User
s2 [7]	Constant cycle transmission	User frame output start pointer	Specify the start pointer of the table to which the user frame number for constant cycle transmission is set. 0 : No specification (at condition agreement transmission and notification) 1 to 100 : Start pointer	0, 1 to 100	User
s2 [8]	Constant cycle transmission	Number of user frame transmissions	Specify the number of user frame transmissions (outputs) for constant cycle transmission. 0 : No specification (at condition agreement transmission and notification) 1 to 100 : Number of transmissions	0, 1 to 100	User
s2 [9]	Constant cycle transmission	Modem connection data No.	Specify the data number for modem function connection when making notification in constant cycle transmission. 0 : No specification (at data transmission and condition agreement transmission) BB8H to BD5H : Connection data number (flash ROM) 8001H to 801FH: Connection data number (buffer memory)	0, BB8H to BD5H, 8001H to 801FH	User
s2 [10]	Number of registered word blocks		Specify the number of blocks of the word device to be monitored.	0 to 10	User
s2 [11]	Number of registered bit blocks		Specify the number of blocks of the bit device to be monitored.	0 to 10	User
s2 [12]	Programmable controller CPU error monitoring (programmable controller CPU status monitoring)		Specify whether to also execute programmable controller CPU error monitoring. 0: Not monitored 1: Monitored	0,1	User

Device	Item	Setting data	Setting range	Setting side
(s2)[13]	Programmable controller CPU monitoring setting 1st * 1st block — Device code	Specify the code of the device to be monitored. 0 : No device monitored Other than 0 : Device code	90H to CCH (Device code)	User
(s2)[14] (s2)[15]	Programmable controller CPU monitoring setting 1st * 1st block — Monitoring start device	Specify the start number of the monitoring device in this block.	0 or more	User
(s2)[16]	Programmable controller CPU monitoring setting 1st * 1st block — Number of registered points	Specify the number of registered points (read points) of this block. 0 : No device monitored 1 or more : Number of registered points * For a bit device, specify the number of points in units of words.	0, 1 or more	User
(s2)[17]	Programmable controller CPU monitoring setting 1st * 1st block — Condition agreement transmission — Monitoring condition	Specify the monitoring condition of this block. 0 : No specification (at constant cycle transmission) 1 or more : Monitoring condition	0 to 65535	User
(s2)[18]	Programmable controller CPU monitoring setting 1st * 1st block — Condition agreement transmission — Monitoring condition value	Specify the monitoring condition value for this block. 0 or more: Monitoring condition * Specify '0' at constant cycle transmission.	0 to 000AH, 0101H to 010AH	User
(s2)[19]	Programmable controller CPU monitoring setting 1st * 1st block — Condition agreement transmission — User frame output start pointer	Specify the start pointer of the table to which the user frame number for condition agreement transmission for this block is set. 0 : No specification (at constant cycle transmission and notification) 1 to 100 : Start pointer	0, 1 to 100	User
(s2)[20]	Programmable controller CPU monitoring setting 1st * 1st block — Condition agreement transmission — Number of user frame transmissions	Specify the number of user frame transmissions (outputs) for condition agreement transmission for this block. 0 : No specification (at constant cycle transmission and notification) 1 to 100 : Number of transmissions	0, 1 to 100	User
(s2)[21]	Programmable controller CPU monitoring setting 1st * 1st block — Condition agreement transmission — Modem connection data No.	Specify the data number for modem function connection when making notification in condition agreement transmission for this block. 0 : No specification (at data transmission and constant cycle transmission) BB8H to BD5H : Connection data number (flash ROM) 8001H to 801FH: Connection data number (buffer memory)	0, BB8H to BD5H, 8001H to 801FH	User
(s2)[22] to (s2)[102]	Programmable controller CPU monitoring setting 2nd to 10th * 2nd to 10th block	The same item arrangement as the first programmable controller CPU monitoring setting item.	–	User

Device	Item			Setting data	Setting range	Setting side
s2[103]	CPU status monitoring setting * Error monitoring 11th * 11th block	Condition agreement transmission	Fixed value	Specify a fixed value to monitor the CPU status.	1	User
s2[104]					0	
s2[105]					0	
s2[106]					1	
s2[107]					5	
s2[108]					1	
s2[109]			User frame output start pointer	Specify the start pointer of the to which the user frame number for condition agreement transmission for this block is set. 0 : No specification (at constant cycle transmission and notification) 1 to 100 : Start pointer	0, 1 to 100	User
s2[110]			Number of user frame transmissions	Specify the number of user frame transmissions (outputs) for condition agreement transmission for this block. 0 : No specification (at constant cycle transmission and notification) 1 to 100 : Number of transmissions	0, 1 to 100	User
s2[111]			Modem connection data No.	Specify the data number for modem function connection when making notification in condition agreement transmission for this block. 0 : No specification (at data transmission and constant cycle transmission) BB8H to BD5H : Connection data number (flash ROM) 8001H to 801FH: Connection data number (buffer memory)	0, BB8H to BD5H, 8001H to 801FH	User

(2) Canceling the programmable controller CPU monitoring

Device	Item	Setting data	Setting range	Setting side
s2[0]	Execution type	Specify '0H'.	0	User
s2[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2[2]	Request type	Specify the request. 3: Cancel of the programmable controller CPU monitoring	3	User
s2[3] to s2[111]	For system	–	–	System

Program Example

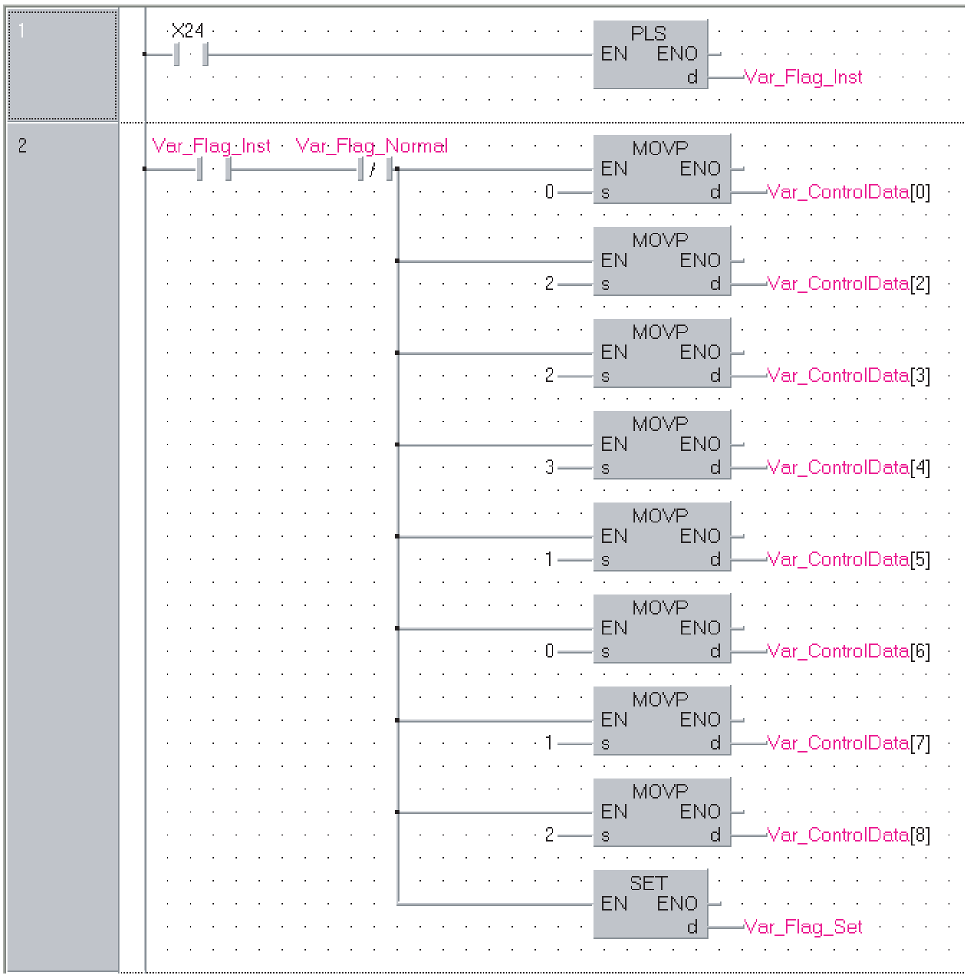
(1) Program to register the programmable controller CPU monitoring

The following program registers the programmable controller CPU monitoring and sends the monitoring result from the CH1 side interface.

The following setting is to send content of devices from M0 to M15 and devices from D100 to D109 to the external device through the constant cycle transmission. (Cycle time: 3 minutes)

(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Instruction pulse

Sets execution type

Sets request type

Sets cycle time unit to minute

Sets cycle time to 3 minutes

Sets programmable controller CPU monitoring function to constant cycle transmission

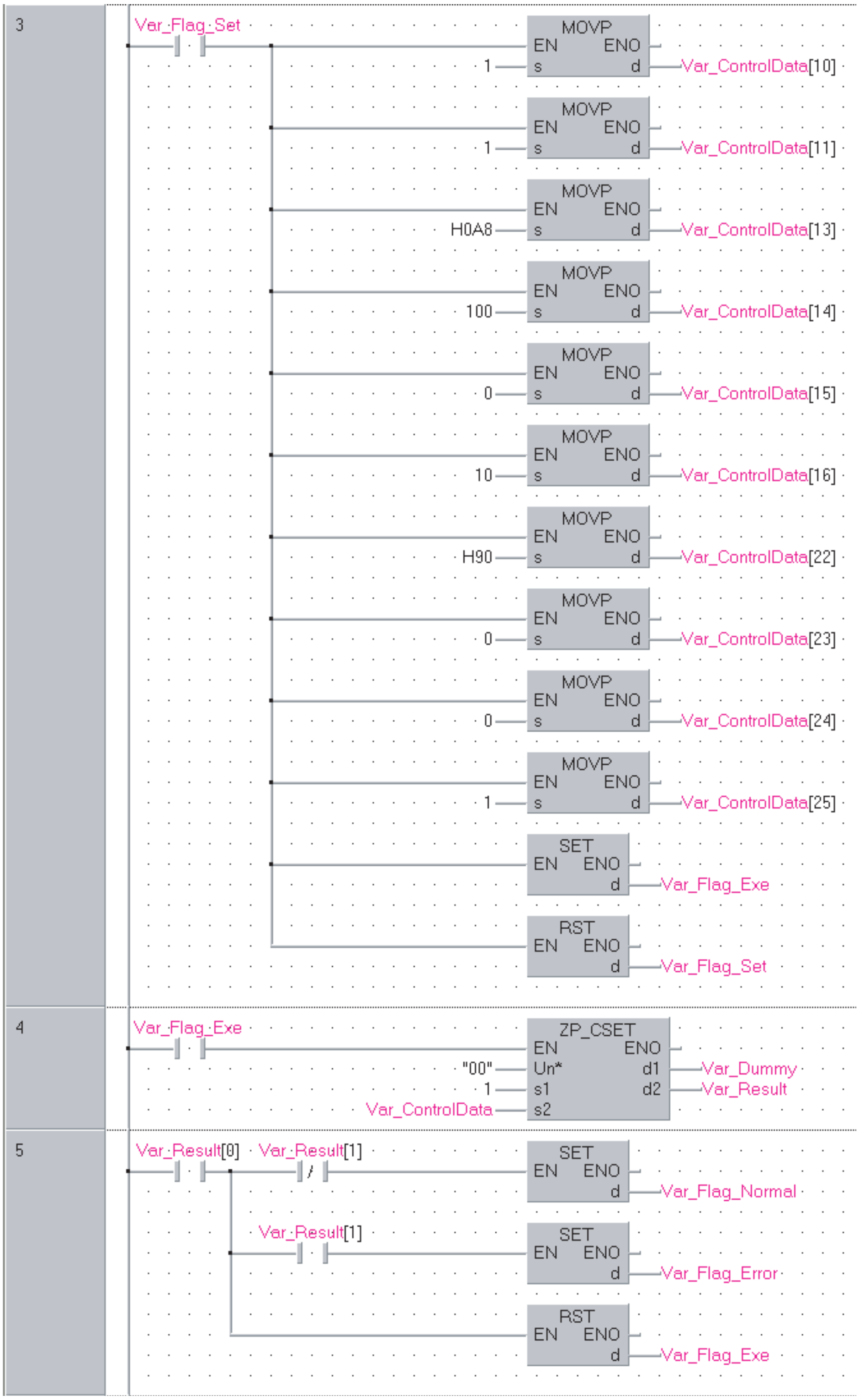
Sets transmission method to data transmission

Sets output start pointer

Sets number of user frame transmissions

Turns data set flag ON

continued on the next page



Sets number of registered word blocks

Sets number of registered bit blocks

Sets device code

Sets start number of monitoring device

Sets number of registered points

Sets device code

Sets start number of monitoring device

Sets number of registered points (For bit device, specify it in units of words)

Turns execution flag ON

Turns data set flag OFF

Registers programmable controller CPU monitoring

Turns normal completion flag ON

Turns error completion flag ON

Turns execution flag OFF

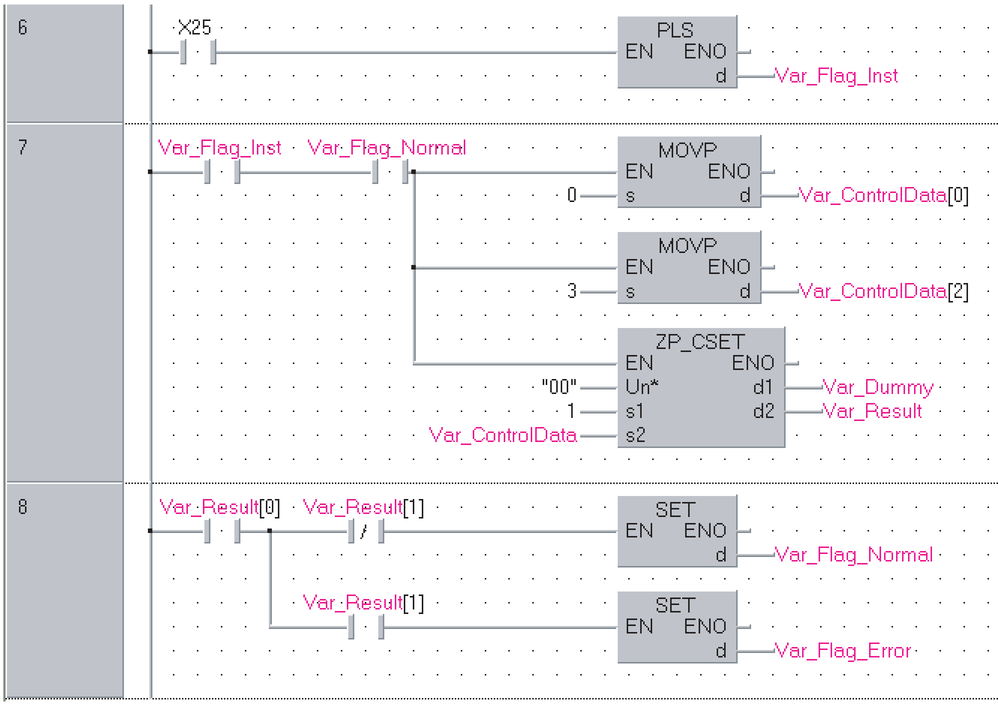
[ST]

```
PLS(X24, Var_Flag_Inst);                    (* Instruction pulse *)

IF((Var_Flag_Inst=TRUE) & (Var_Flag_Normal=FALSE))THEN
    MOV(TRUE, 0, Var_ControlData[0]);   (* Sets execution type *)
    MOV(TRUE, 2, Var_ControlData[2]);   (* Sets request type *)
    MOV(TRUE, 2, Var_ControlData[3]);   (* Sets cycle time unit to minute *)
    MOV(TRUE, 3, Var_ControlData[4]);   (* Sets cycle time to 3 minutes *)
    MOV(TRUE, 1, Var_ControlData[5]);
                            (* Sets programmable controller CPU monitoring function
                             to constant cycle transmission. *)
    MOV(TRUE, 0, Var_ControlData[6]);
                            (* Sets transmission method to data transmission *)
    MOV(TRUE, 1, Var_ControlData[7]);   (* Sets output start pointer *)
    MOV(TRUE, 2, Var_ControlData[8]);   (* Sets number of user frame transmissions *)
    SET(TRUE, Var_Flag_Set);            (* Turns data set flag ON *)
END_IF;

IF(Var_Flag_Set=TRUE)THEN
    MOV(TRUE, 1, Var_ControlData[10]);(* Sets number of registered word blocks *)
    MOV(TRUE, 1, Var_ControlData[11]);(* Sets number of registered bit blocks *)
                    (* Sets the 1st block of the CPU monitoring to D100 to D109 *)
    MOV(TRUE, H0A8, Var_ControlData[13]);     (* Sets device code *)
    MOV(TRUE, 100, Var_ControlData[14]);(* Sets start number of monitoring device *)
    MOV(TRUE, 0, Var_ControlData[15]);
    MOV(TRUE, 10, Var_ControlData[16]);       (* Sets number of registered points *)
                    (* Sets the 2nd block of the CPU monitoring to M0 to M15 *)
    MOV(TRUE, H90, Var_ControlData[22]);      (* Sets device code *)
    MOV(TRUE, 0, Var_ControlData[23]);(* Sets start number of monitoring device *)
    MOV(TRUE, 0, Var_ControlData[24]);
    MOV(TRUE, 1, Var_ControlData[25]);
    (* Sets number of registered points. (For bit device, specify it in units of words.) *)
    SET(TRUE, Var_Flag_Exe);                  (* Turns execution flag ON *)
    RST(TRUE, Var_Flag_Set);                  (* Turns data set flag OFF *)
END_IF;

IF(Var_Flag_Exe=TRUE)THEN
    ZP_CSET(TRUE, "00", 1, Var_ControlData, Var_Dummy, Var_Result);
                            (* Registers the programmable controller CPU monitoring *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                    (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN               (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);           (* Turns normal completion flag ON *)
    ELSE                                      (* Error completion *)
        SET(TRUE, Var_Flag_Error);            (* Turns error completion flag ON *)
    END_IF;

    RST(TRUE, Var_Flag_Exe);                  (* Turns execution flag OFF *)
END_IF;
```

(2) Program to cancel the programmable controller CPU monitoring

The following program cancels the programmable controller CPU monitoring of the CH1 side interface.
(For the Q series C24 whose I/O signals are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Instruction pulse

Sets execution type

Sets request type

Cancels programmable controller CPU monitoring

Turns normal completion flag ON

Turns error completion flag ON

[ST]

```
PLS(X25, Var_Flag_Inst);                          (* Instruction pulse *)

IF((Var_Flag_Inst=TRUE) & (Var_Flag_Normal=TRUE))THEN
     MOV(TRUE, 0, Var_ControlData[0]);            (* Sets execution type *)
     MOV(TRUE, 3, Var_ControlData[2]);            (* Sets request type *)
     ZP_CSET(TRUE, "00", 1, Var_ControlData, Var_Dummy, Var_Result);
                              (* Cancels programmable controller CPU monitoring *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                        (* Execution finished *)
     IF(Var_Result[1]=FALSE)THEN                  (* Normal completion *)
          SET(TRUE, Var_Flag_Normal);             (* Turns normal completion flag ON *)
     ELSE                                         (* Error completion *)
          SET(TRUE, Var_Flag_Error);              (* Turns error completion flag ON *)
     END_IF;
END_IF;
```

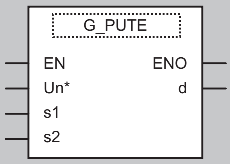
5.3.12 PUTE instruction

G_PUTE

Serial

G(P)_PUTE

P: Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= G_PUTE (EN, Un*, s1, s2, d);

[ ] indicates any of the following instructions.

G_PUTE GP_PUTE

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..3]
	s2:	Start number of the device that stores read registration data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J[ ]\[ ]		U[ ]\G[ ]	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction registers a user frame.

Control Data

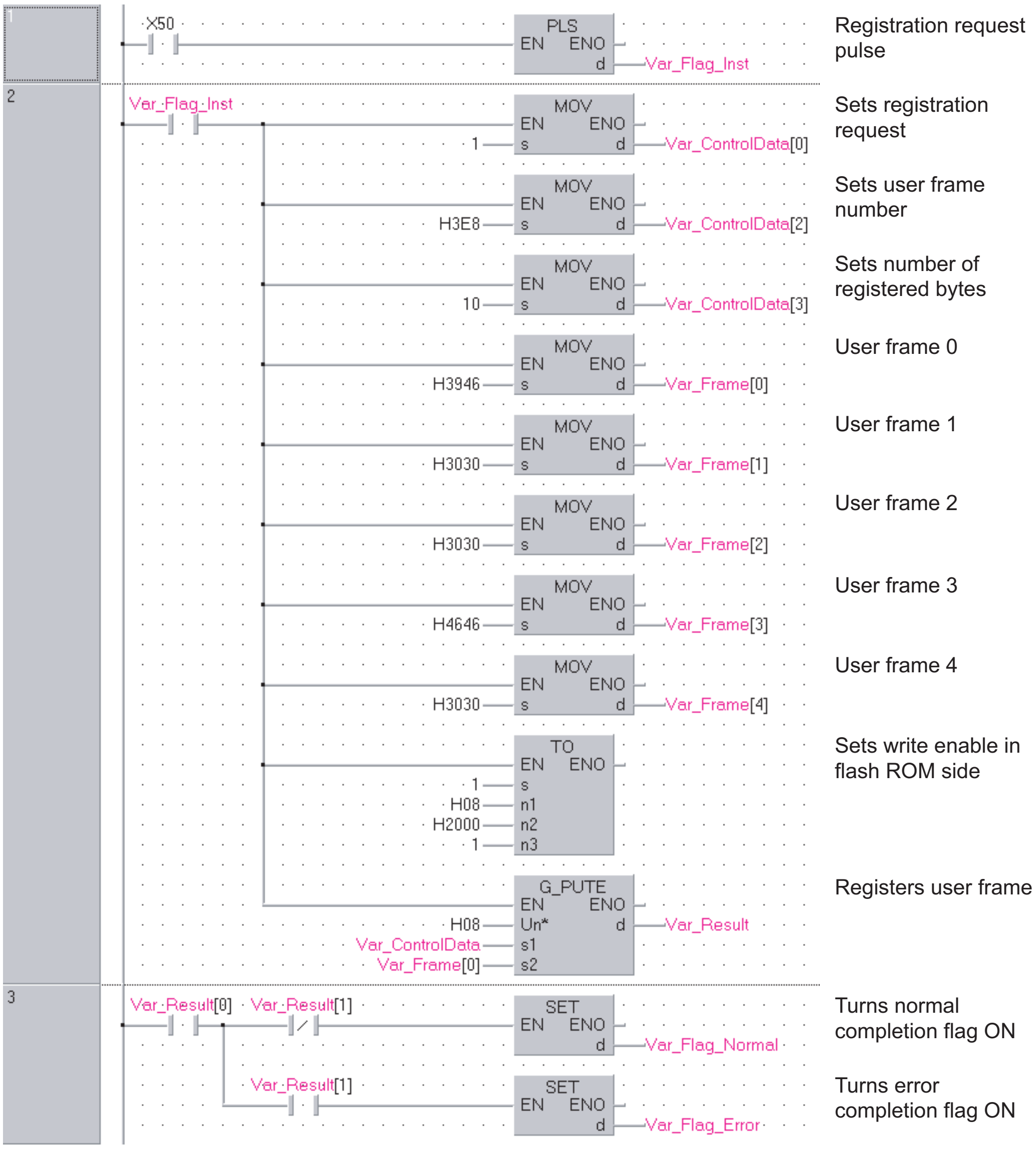
Device	Item	Setting data	Setting range	Setting side
s1 [0]	Registration/deletion specification	Specify whether to register/delete the user frame of the number specified by s1 [2]. 1: Registered 3: Deleted	1, 3	User
s1 [1]	Registration/deletion result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [2]	Frame No.	Specify the user frame number.	1000 to 1199	User
s1 [3]	Number of registered bytes	1 to 80: Number of bytes of the user frame to be registered. * Specify any number in the range from 1 to 80 as a dummy when '3: Deleted' is selected.	1 to 80	User

Program Example

The following program registers a user frame as the registration number 3E8H.

(For the Q series C24 whose I/O signals are X/Y80 to X/Y9F)

[Structured ladder/FBD]



[ST]

```
PLS(X50, Var_Flag_Inst);                    (* Registration request pulse *)

IF(Var_Flag_Inst=TRUE)THEN
    MOV(TRUE, 1, Var_ControlData[0]);       (* Sets registration request *)
    MOV(TRUE, H3E8, Var_ControlData[2]);    (* Sets user frame number *)
    MOV(TRUE, 10, Var_ControlData[3]);      (* Sets number of registered bytes *)
    MOV(TRUE, H3946, Var_Frame[0]);         (* User frame 0 *)
    MOV(TRUE, H3030, Var_Frame[1]);         (* User frame 1 *)
    MOV(TRUE, H3030, Var_Frame[2]);         (* User frame 2 *)
    MOV(TRUE, H4646, Var_Frame[3]);         (* User frame 3 *)
    MOV(TRUE, H3030, Var_Frame[4]);         (* User frame 4 *)
    TO(TRUE, 1, H08, H2000, 1);             (* Sets write enable in flash ROM side *)
    G_PUTE(TRUE, H08, Var_ControlData,Var_Frame[0], Var_Result);
                                            (* Registers user frame *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN             (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);         (* Turns normal completion flag ON *)
    ELSE                                    (* Error completion *)
        SET(TRUE, Var_Flag_Error);          (* Turns error completion flag ON *)
    END_IF;
END_IF;
```

5 MODULE DEDICATED INSTRUCTION

G_PUTE

5.3.13 GETE instruction

G_GETE

Serial

G(P)_GETE

P: Executing condition :

Structured ladder/FBD	ST
G_GETE EN ENO Un* d s1 s2	ENO:= G_GETE (EN, Un*, s1, s2, d);

indicates any of the following instructions.

G_GETE GP_GETE

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..3]
	s2:	Start number the device that stores the read registration data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○				–			
s2	–	○				–			
d	○	○				–			

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads a user frame.

Control Data

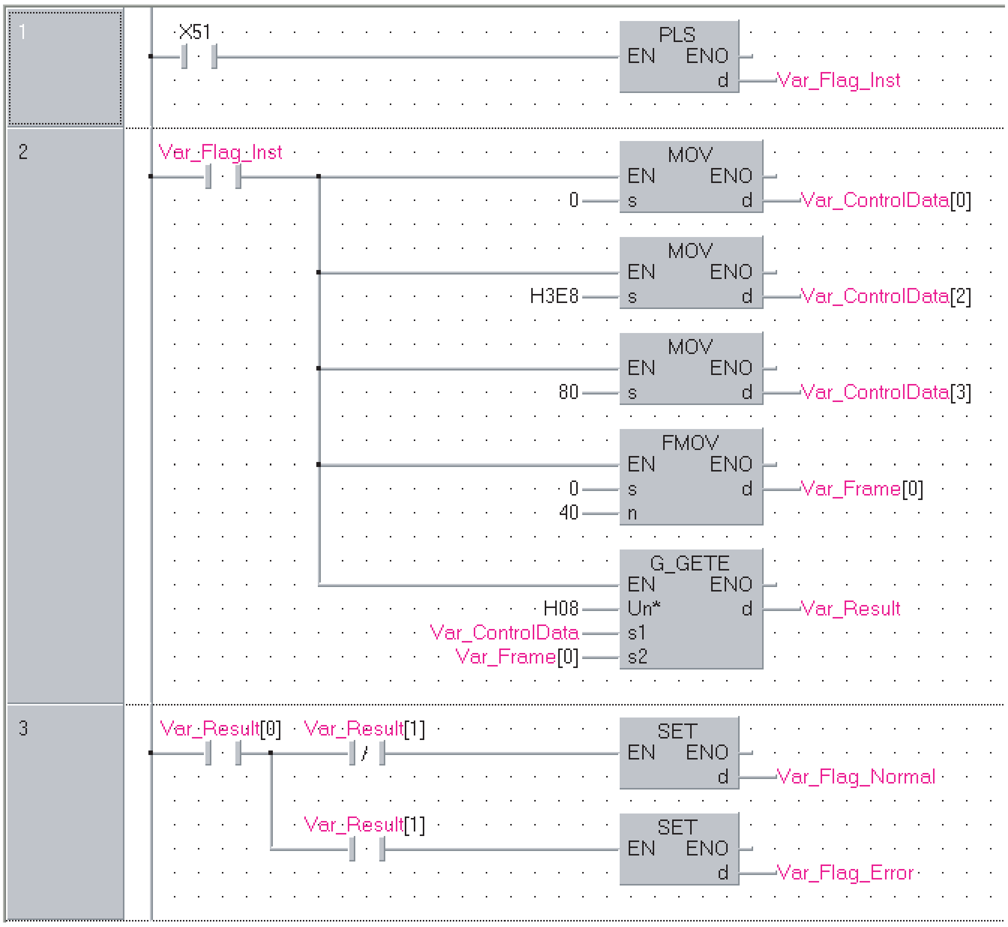
Device	Item	Setting data	Setting range	Setting side
s1 [0]	Dummy	–	0	–
s1 [1]	Read result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [2]	Frame No. specification	Specify the user frame number.	1000 to 1199	User
s1 [3]	Allowable number of bytes for read data	Specify the maximum number of bytes for storing the registered data of the read user frame to s2 .	1 to 80	User
	Number of registered bytes	The number of bytes of the registered data for the read user frame is stored.	1 to 80	System

Program Example

The following program reads out the registration data of the user frame number 3E8H.

(For the Q series C24 whose I/O signals are X/Y80 to X/Y9F)

[Structured ladder/FBD]



Read request pulse

Sets user frame number

Sets allowable number of bytes for read data

Clears user frame to 0

Reads user frame

Turns normal completion flag ON

Turns error completion flag ON

[ST]

```
PLS(X51, Var_Flag_Inst);                            (* Read request pulse *)

IF(Var_Flag_Inst=TRUE)THEN
    MOV(TRUE, 0, Var_ControlData[0]);
    MOV(TRUE, H3E8, Var_ControlData[2]);            (* Sets user frame number *)
    MOV(TRUE, 80, Var_ControlData[3]);
                                    (* Sets allowable number of bytes for read data *)
    FMOV(TRUE, 0, 40, Var_Frame[0]);                (* Clears user frame to 0 *)
    G_GETE(TRUE, H08, Var_ControlData, Var_Frame[0], Var_Result);
                                                    (* Reads user frame *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                          (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                     (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);                 (* Turns normal completion flag ON *)
    ELSE                                            (* Error completion *)
        SET(TRUE, Var_Flag_Error);                  (* Turns error completion flag ON *)
    END_IF;
END_IF;
```

5.3.14 UINI instruction

ZP_UINI

Serial

ZP_UINI

Executing condition : ↑

Structured ladder/FBD	ST
ZP_UINI: EN, Un*, s → ENO, d	ENO:= ZP_UINI (EN, Un*, s, d);

indicates the following instruction.

ZP_UINI

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..9]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data*1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction switches the mode, transmission specification, and host station number of the Q series C24.

Control Data

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	For system	Always specify '0'.	0	User
Ⓢ[1]	Execution result	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Execution type	Specify the execution type. 0: Switches the execution type according to the setting in the area starting from Ⓢ[3]. 1: Returns the execution type according to the switch setting on GX Works2.	0, 1	User
Ⓢ[3]	CH1 Transmission specification setting	Set the transmission specifications for CH1. (Refer to (1).)	0 to 0FFEH	User
Ⓢ[4]	CH1 Communication protocol setting	Set the communication protocol for CH1. (Refer to (2).)	0 to 8	User
Ⓢ[5]	CH2 Transmission specification setting	Set the transmission specifications for CH2. (Refer to (1).)	0 to 0FFFH	User
Ⓢ[6]	CH2 Communication protocol setting	Set the communication protocol for CH2. (Refer to (2).)	0 to 7	User
Ⓢ[7]	Station No. setting	Set the host station number.	0 to 31	User
Ⓢ[8] to Ⓢ[12]	For system	Always specify '0'.	0	User

(1) Ⓢ[3] (CH1 Transmission specification setting) and Ⓢ[5] (CH2 Transmission specification setting)*1

b15 to b8	b7	b6	b5	b4	b3	b2	b1	b0	
00H to 0FH								0	CH1 side (Ⓢ+3)
00H to 0FH									CH2 side (Ⓢ+5)

Bit	Description	OFF (0)	ON (1)	Remarks
b0	Operation setting	Independence	Link	Always set the CH1 side (Ⓢ+3) to OFF (0).
b1	Data bit	7	8	Parity bit is not included.
b2	Parity bit	Without	With	Vertical parity
b3	Even/Odd parity	Odd	Even	Valid only when parity bit is set to 'With'.
b4	Stop bit	1	2	-
b5	Sumcheck code	Without	With	-
b6	Write during RUN	Inhibited	Allowed	-
b7	Setting change	Inhibited	Allowed	-
b8 to b15	Communication speed	Refer to (a) below.		-

(a) Communication speed

Communication speed	Bit position b15 to b8	Communication speed	Bit position b15 to b8	Remarks
50bps	0FH	14400bps	06H	• 230400bps is selectable only at CH1 side (Ⓢ[3]). (Select 300bps at CH2 side (Ⓢ[5]).) • The sum of communication speeds selected at CH1 side and CH2 side must be within 230400bps.
300bps	00H	19200bps	07H	
600bps	01H	28800bps	08H	
1200bps	02H	38400bps	09H	
2400bps	03H	57600bps	0AH	
4800bps	04H	115200bps	0BH	
9600bps	05H	230400bps	0CH	

*1 : Specify '0000H' at the CH side for which "MELSOFT connection" is specified in the communication protocol setting.

(2) Ⓢ[4] (CH1 Communication protocol setting) and Ⓢ[6] (CH2 Communication protocol setting)

Setting No.	Description		Remarks
0H	MELSOFT connection		Specify '0000H' for the transmission specification setting.
1H	MC protocol	Format 1	–
2H		Format 2	–
3H		Format 3	–
4H		Format 4	–
5H		Format 5	–
6H	Nonprocedural protocol		–
7H	Bidirectional protocol		–
8H	For link setting		Setting is possible only for CH1 side (Ⓢ[4])
9H	Pre-defined protocol		Pre-defined protocol communication

Precautions

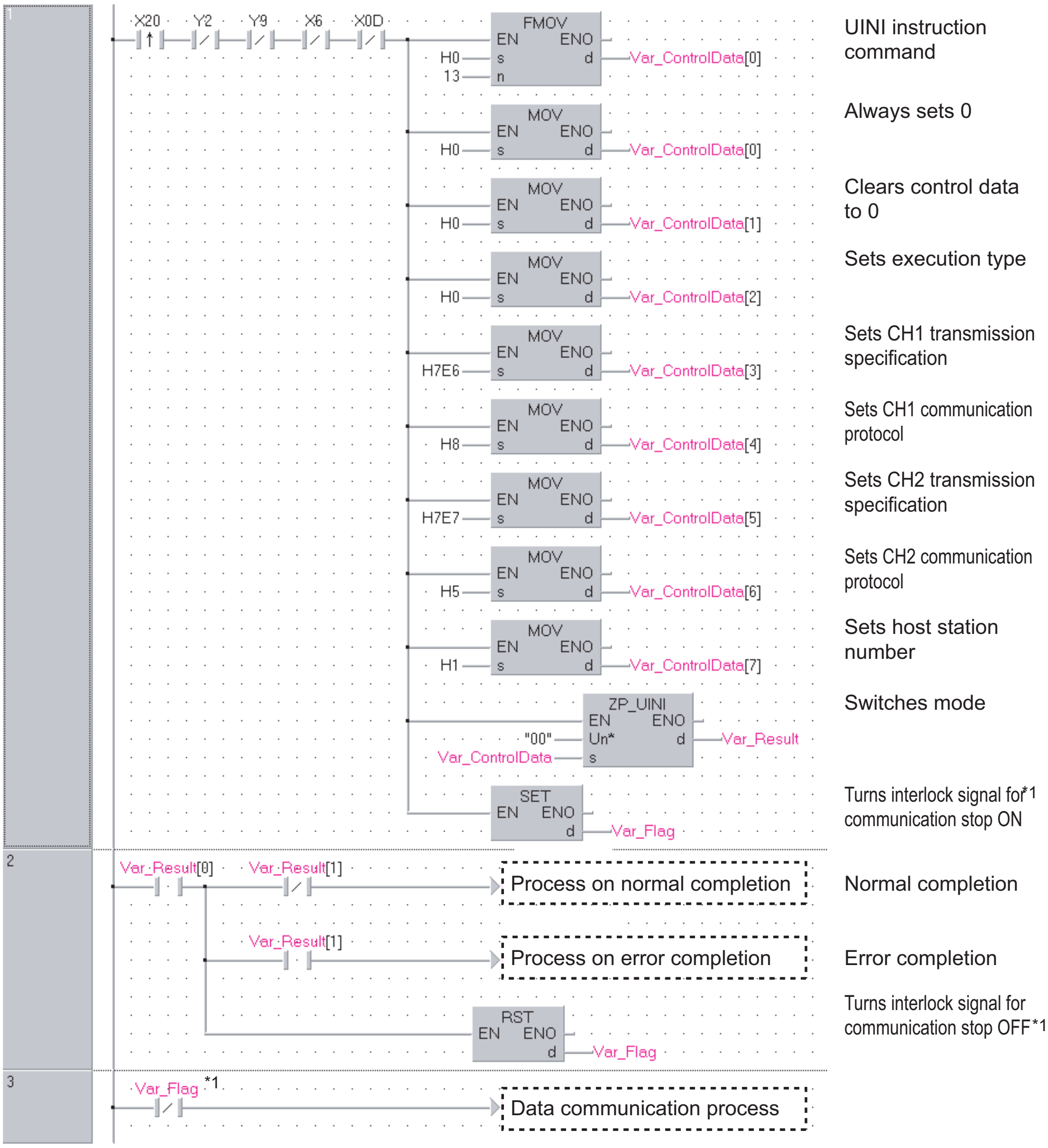
The UINI instruction is applicable to the QJ71C24N (-R2/R4) of which the function version is B and the first five digits of the serial number are '06062' or higher.

Program Example

The following program changes settings of the Q series C24 mounted on the I/O numbers X/Y00 to X/Y1F as follows when X20 turns ON.

Device	Bit		Description			Setting value
	Position	Specified value				
Ⓢ[3]	b0	OFF	CH1 Transmission specification setting	Operation setting	Independence	07E6H
	b1	ON		Data bit	8	
	b2	ON		Parity bit	With	
	b3	OFF		Even/Odd parity	Odd	
	b4	OFF		Stop bit	1	
	b5	ON		Sumcheck code	With	
	b6	ON		Write during RUN	Allowed	
	b7	ON		Setting change	Allowed	
	b8 to b15	-		Communication speed	19200bps	
Ⓢ[4]	-		CH1 Communication protocol setting		Link setting	0008H
Ⓢ[5]	b0	ON	CH2 Transmission specification setting	Operation setting	Link	07E7H
	b1	ON		Data bit	8	
	b2	ON		Parity bit	With	
	b3	OFF		Even/Odd parity	Odd	
	b4	OFF		Stop bit	1	
	b5	ON		Sumcheck code	With	
	b6	ON		Write during RUN	Allowed	
	b7	ON		Setting change	Allowed	
	b8 to b15	-		Communication speed	19200bps	
Ⓢ[6]	-		CH2 Communication protocol setting		MC protocol Format 5	0005H
Ⓢ[7]	-		Station No. setting		1	0001H

[Structured ladder/FBD]



*1 : Create a program so that the data communication process does not run while the interlock signal for communication stop is ON.

```
[ST]
IF(LDP(TRUE,X20)                                    (* UINI instruction command *)
&(Y2=FALSE)                                  (* CH1 mode switching request *)
&(Y9=FALSE)                                  (* CH2 mode switching request *)
&(X6=FALSE)                                  (* CH1 mode switching *)
&(X0D=FALSE))THEN                            (* CH2 mode switching *)
    (* Runs if there is no mode switching *)
    FMOV(TRUE, H0, 13, Var_ControlData[0]);  (* Clears control data to 0 *)
    MOV(TRUE, H0, Var_ControlData[0]);       (* Always sets 0 *)
    MOV(TRUE, H0, Var_ControlData[1]);       (* Clears execution result to 0 *)
    MOV(TRUE, H0, Var_ControlData[2]);       (* Sets execution type *)
    MOV(TRUE,H7E6,Var_ControlData[3]);  (* Sets CH1 transmission specification *)
    MOV(TRUE,H8,Var_ControlData[4]);   (* Sets CH1 communication protocol *)
    MOV(TRUE, H7E7, Var_ControlData[5]); (* Sets CH2 transmission specification *)
    MOV(TRUE, H5, Var_ControlData[6]);(* Sets CH2 communication protocol *)
    MOV(TRUE, H1, Var_ControlData[7]);       (* Sets host station number *)
    ZP_UINI(TRUE, "00", Var_ControlData, Var_Result); (* Switches mode *)
    SET(TRUE, Var_Flag );   (* Turns interlock signal for communication stop ON *)*1
END_IF;

IF(Var_Result[0]=TRUE)THEN                          (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                     (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                            (* Error completion *)
        (* Process on error completion *)
    END_IF;
    RST(TRUE, Var_Flag);   (* Turns interlock signal for communication stop OFF *)*1
END_IF;

(* Do not perform the data communication process during interlock signal for communication
stop ON *)
IF(Var_Flag=FALSE)*1 THEN
    (* Data communication process *)
END_IF;
```

*1 : Create a program so that the data communication process does not run while the interlock signal for communication stop is ON.

5

MODULE DEDICATED INSTRUCTION

ZP_UINI

5.3.15 CPRTCL instruction

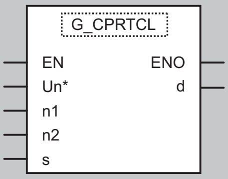
G_CPRTCL

Serial

G(P)_CPRTCL

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= G_CPRTCL (EN, Un*, n1, n2, s, d);

□ indicates any of the following instructions.

G_CPRTCL GP_CPRTCL

Input argument	EN:	Executing condition	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	n1:	Channel to communicate with other devices 1: Channel 1 (CH1 side) 2: Channel 2 (CH2 side)	:ANY16
	n2:	Number of consecutive protocol executions (1 to 8)	:ANY16
	s:	Start number of the device in which control data are stored	:Array of ANY16 [0..17]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n1	–	○		–				○	–
n2	–	○		–				○	–
s	–	○		–				–	–
d	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction executes the protocols and functional protocols written to the flash ROM by pre-defined protocol support function.

Control Data

Device	Item	Setting data	Setting range	Setting side
S [0]	Completion status	The instruction completion status is stored. When executing multiple protocols, the execution result of the protocol executed at last is stored.*1 0 : Normal completion Other than 0 : Error completion (error code)*2	–	System
S [1]	Number of executions	The number of executions is stored. Protocols with errors are included in the count. When settings of the setting data and control data contain an error, "0" is stored.	1 to 8	System
S [2] to S [9]	Execution protocol number designation	Set the first protocol number or functional protocol number to be executed. : Set the 8th protocol number or functional protocol number to be executed.	1 to128, 201 to 207	User
S [10] to S [17]	Verification match receive packet number	When the communication type of the first protocol executed is "Receive only" or "Send & receive", the matched receive packet number is stored. "0" is stored with the following condition. • When the communication type is "Send only" • If the error occurs to the first protocol executed • When the functional protocol is executed : When the communication type of the 8th protocol executed is "Receive only" or "Send & receive", the matched receive packet number is stored. "0" is stored with the following condition. • When the communication type is "Send only" • If the error occurs to the 8th protocol executed • When the number of the executed protocols is less than 8 • When the functional protocol is executed	0, 1 to 16	System

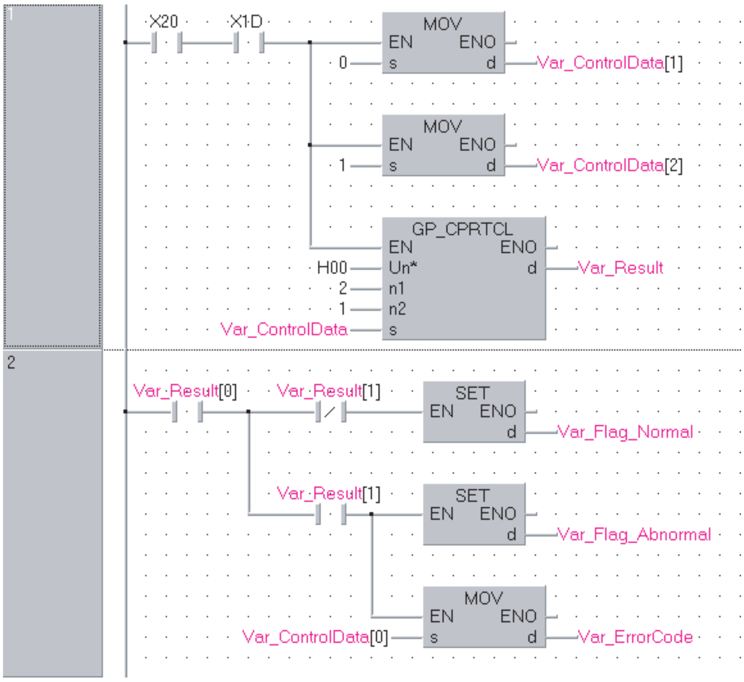
*1 : When executing multiple protocols, if an error occurs to the nth protocol, the protocols after the nth protocol are not executed.

*2 : For details of the error code at the error completion, refer to Q Corresponding Serial Communication Module User’s Manual (Basic) or MELSEC-L Serial Communication Module User's Manual (Basic).

Program Example

This instruction executes the protocol specified in Var_ControlData[2] when X20 turns ON.

[Structured ladder/FBD]



Store the set value to the send data storage area

Designate protocol number 1

Execute the protocol Communicate in CH2

Normal completion flag ON

Abnormal completion flag ON

Store the error code

[ST]

```
IF((X20=TRUE) & (X1D=TRUE))THEN
        MOV(TRUE, 0, Var_ControlData[1];
                                                    (* Store the set value to the send data storage area *)
        MOV(TRUE, 1, Var_ControlData[2];(* Designate protocol number 1 *)
        GP_CPRTCL(TRUE, H00, 2, 1, Var_ControlData, Var_Result);
                                                        (* Execute the protocol Communicate in CH2 *)
END_IF;
IF(Var_Result[0]=TRUE)THEN
        IF(Var_Result[1]=FALSE)THEN
                SET(TRUE, Var_Flag_Normal);(* Normal completion flag ON *)
        ELSE
                SET(TRUE, Var_Flag_Abnormal);(* Abnormal completion flag ON *)
                MOV(TRUE, Var_ControlData[0], Var_ErrorCode);
                                                                        (* Store the error code *)
        END_IF;
END_IF;
```

5.4 Network Dedicated Instruction

5.4.1 RIRD instruction

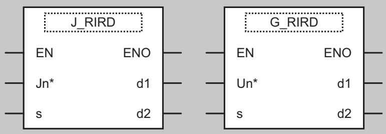
J_RIRD, G_RIRD

CC-Link CC IE C CC IE F

J(P)_RIRD
G(P)_RIRD

P: Executing condition :

Structured ladder/FBD



ST

ENO:= J_RIRD (EN, Jn*, s, d1, d2);
ENO:= G_RIRD (EN, Un*, s, d1, d2);

[ ] indicates any of the following instructions.

J_RIRD	JP_RIRD
G_RIRD	GP_RIRD

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..4]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores read data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d1	–	○		–					
d2	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction reads data for the specified number of points from the buffer memory of the CC-Link module or the device of the programmable controller CPU module on the specified station.

Control Data

Device	Item	Setting data	Setting range	Setting side
ⓢ[0]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code) For error codes when target station is anything other than master/local module, refer to the manual of the target station.	–	System
ⓢ[1]	Target station No.	Specify the station number of the target station.	0 to 64*1 0 to 120	User
ⓢ[2]	Access code, Attribute code	Specify the access code and attribute code of the device to be read. b15 b8 b7 b0 Access code Attribute code	Refer to (1) and (2).	
ⓢ[3]	Buffer memory address or device No.	Specify the start address of the buffer memory or the start number of the device.	Within the device range*2	
ⓢ[4]	Number of read points	Specify the number of data to be read (in units of words).	1 to 32*3 1 to 480*4	

*1 : For G(P)_RIRD, the setting range shall be 0 to 64.

*2 : For details, refer to the manual for the local station or the intelligent device station from which data are read.
When the random access buffer is specified, specify the start address of the random access buffer as 0.

*3 : The value indicates the maximum number of data to be read.
Specify the value within the buffer memory capacity of the local station or the intelligent device station, or the receive buffer area setting range set by a parameter.

*4 : When reading device data from the programmable controller CPU other than the QCPU (Q mode), QCPU (A mode) or QnACPU/AnUCPU, the setting range shall be 1 to 32 words.

(1) Buffer memory of the CC-Link module

Buffer memory		Access code	Attribute code
Buffer in an intelligent device station		00H	04H
Buffer in a master or local station	Random access buffer	20H	
	Remote input	21H	
	Remote output	22H	
	Remote register	24H	
	Link special relay	63H	
	Link special register	64H	

(2) Device memory of the programmable controller CPU module

Device*1	Name	Device type		Unit	Access code*2	Attribute code*2
		Bit	Word			
Input relay	X	○	–	Hexadecimal	01H	05H
Output relay	Y	○	–	Hexadecimal	02H	
Internal relay	M	○	–	Decimal	03H	
Latch relay	L	○	–	Decimal	83H	
Link relay	B	○	–	Hexadecimal	23H	
Timer (contact)	T	○	–	Decimal	09H	
Timer (coil)	T	○	–	Decimal	0AH	
Timer (current value)	T	–	○	Decimal	0CH	
Retentive timer (contact)	ST	○	–	Decimal	89H	
Retentive timer (coil)	ST	○	–	Decimal	8AH	
Retentive timer (current value)	ST	–	○	Decimal	8CH	
Counter (contact)	C	○	–	Decimal	11H	
Counter (coil)	C	○	–	Decimal	12H	
Counter (current value)	C	–	○	Decimal	14H	
Data register*3	D	–	○	Decimal	04H	
Link register*3	W	–	○	Hexadecimal	24H	
File register	R	–	○	Decimal	84H	
Link special relay	SB	○	–	Hexadecimal	63H	
Link special register	SW	–	○	Hexadecimal	64H	
Special relay	SM	○	–	Decimal	43H	
Special register	SD	–	○	Decimal	44H	

*1 : Devices other than those listed above cannot be accessed.
When accessing a bit device, specify it with 0 or a multiple of 16.

*2 : For access code/attribute code when target station is anything other than master/local module, refer to the manual of the target station.

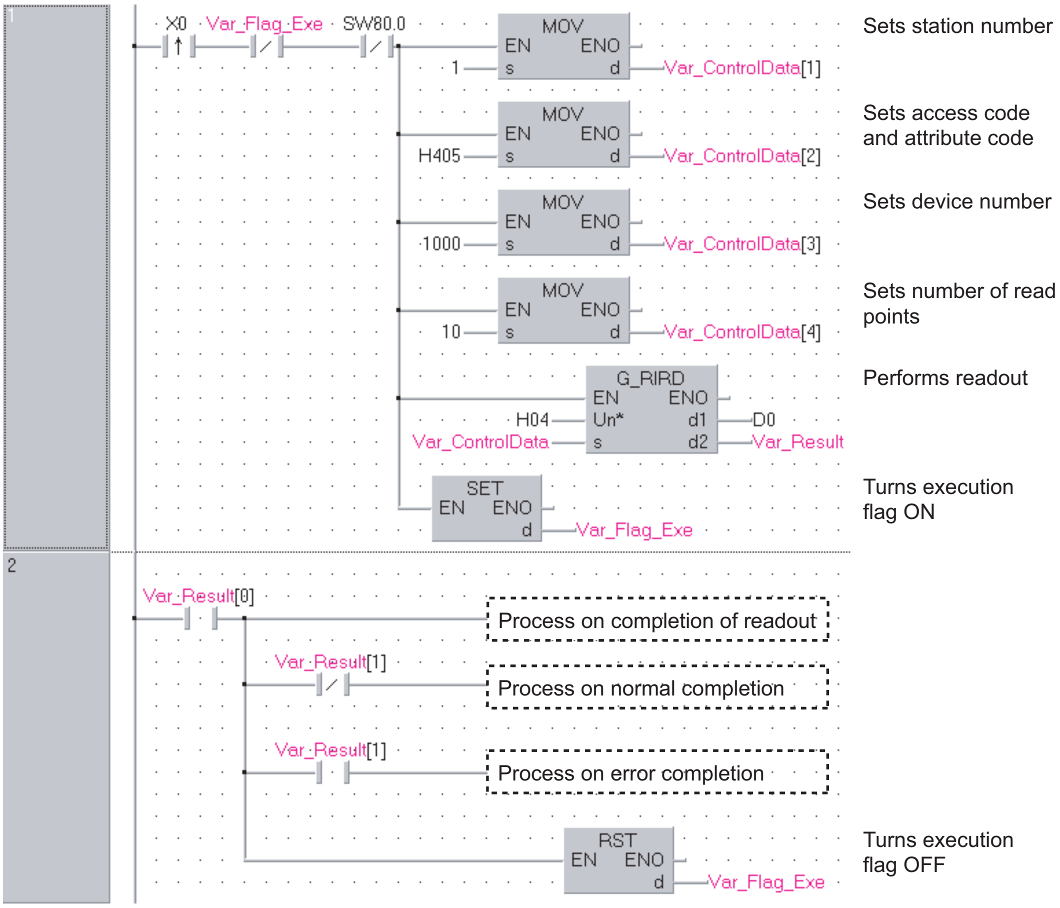
*3 : D65536 and the following devices of extended data registers as well as W10000 and the following devices of extended link registers cannot be specified.

Program Example

The following program reads out 10-word data, which start from D1000 of the number 1 local station connected to the master module mounted on the I/O numbers from X/Y40 to X/Y5F, and stores the data in the devices starting from D0 when X0 turns ON.

(When the refresh device of the link special register (SW) is set to SW0.)

[Structured ladder/FBD]



```
[ST]
IF(X0=TRUE)
 &(Var_Flag_Exe=FALSE)                        (* Execution flag *)
 &(SW80.0=FALSE))THEN                         (* Data link status of station number 1 *)
     MOV(TRUE,1, Var_ControlData[1]);         (* Sets station number *)
     MOV(TRUE,H0405, Var_ControlData[2]);     (* Sets access code and attribute code *)
     MOV(TRUE, 1000, Var_ControlData[3]);     (* Sets device number *)
     MOV(TRUE, 10, Var_ControlData[4]);       (* Sets number of read points *)
     G_RIRD(TRUE, H04, Var_ControlData, D0, Var_Result);(* Performs readout *)
     SET(TRUE, Var_Flag_Exe);                 (* Turns execution flag ON *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                    (* Execution finished *)
     (* Process on completion of readout *)
     IF(Var_Result[1]=FALSE)THEN              (* Normal completion *)
          (* Process on normal completion *)
     ELSE                                     (* Error completion *)
          (* Process on error completion *)
     END_IF;

     RST(TRUE, Var_Flag_Exe);                 (* Turns execution flag OFF *)
END_IF;
```

5 MODULE DEDICATED INSTRUCTION

J_RIRD, G_RIRD

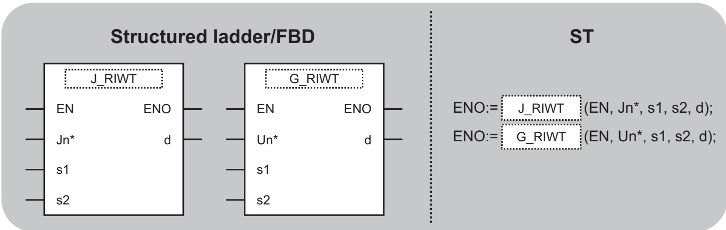
5.4.2 RIWT instruction

J_RIWT, G_RIWT

CC-Link CC IE C CC IE F

J(P)_RIWT
G(P)_RIWT

P: Executing condition :



[ ] indicates any of the following instructions.

J_RIWT	JP_RIWT
G_RIWT	GP_RIWT

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..4]
	s2:	Start number of the device that stores write data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction writes the data for the specified number of points to the buffer memory of the CC-Link module or the device of the programmable controller CPU module on the specified station.

Control Data

Device	Item	Setting data	Setting range	Setting side
(s1)[0]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code) For error codes when target station is anything other than master/local module, refer to the manual of the target station.	–	System
(s1)[1]	Target station No.	Specify the station number of the target station	0 to 64*1 0 to 120	User
(s1)[2]	Access code and attribute code	Specify the access code and attribute code of the device to be read. b15 b8 b7 b0 Access code (b15 to b8), Attribute code (b7 to b0)	Refer to (1) and (2).	
(s1)[3]	Buffer memory address or device No.	Specify the start address of the buffer memory or the start number of the device.	Within the device range*2	
(s1)[4]	Number of write points	Specify the number of data to be written (in units of words).	1 to 10*3 1 to 480*4	

*1 : For G(P)_RIWT, the setting range shall be 0 to 64.
*2 : For details, refer to the manual for the local station or the intelligent device station to which data are written.
When the random access buffer is specified, specify the start address of the random access buffer as 0.
*3 : When writing device data to the programmable controller CPU other than the QCPU (Q mode), QCPU (A mode) or QnACPU/AnUCPU, the setting range shall be 1 to 10 words.
*4 : The value indicates the maximum number of data to be written.
Specify the value within the buffer memory capacity of the local station or the intelligent device station, or the send buffer area setting range set by a parameter.

(1) Buffer memory of the CC-Link module

Buffer memory category		Access code	Attribute code
Buffer memory		00H	04H
Buffer in a master or local station	Random access buffer	20H	
	Remote input	21H	
	Remote output	22H	
	Remote register	24H	
	Link special relay	63H	
	Link special register	64H	

(2) Device memory of the programmable controller CPU module

Device[*1]	Name	Device type		Unit	Access code[*2]	Attribute code[*2]
		Bit	Word			
Input relay	X	○	–	Hexadecimal	01H	05H
Output relay	Y	○	–	Hexadecimal	02H	
Internal relay	M	○	–	Decimal	03H	
Latch relay	L	○	–	Decimal	83H	
Link relay	B	○	–	Hexadecimal	23H	
Timer (contact)	T	○	–	Decimal	09H	
Timer (coil)	T	○	–	Decimal	0AH	
Timer (current value)	T	–	○	Decimal	0CH	
Retentive timer (contact)	ST	○	–	Decimal	89H	
Retentive timer (coil)	ST	○	–	Decimal	8AH	
Retentive timer (current value)	ST	–	○	Decimal	8CH	
Counter (contact)	C	○	–	Decimal	11H	
Counter (coil)	C	○	–	Decimal	12H	
Counter (current value)	C	–	○	Decimal	14H	
Data register[*3]	D	–	○	Decimal	04H	
Link register[*3]	W	–	○	Hexadecimal	24H	
File register	R	–	○	Decimal	84H	
Link special relay	SB	○	–	Hexadecimal	63H	
Link special register	SW	–	○	Hexadecimal	64H	
Special relay	SM	○	–	Decimal	43H	
Special register	SD	–	○	Decimal	44H	

*1 : Devices other than those listed above cannot be accessed.
When accessing a bit device, specify it with 0 or a multiple of 16.

*2 : For access code/attribute code when target station is anything other than master/local module, refer to the manual of the target station.

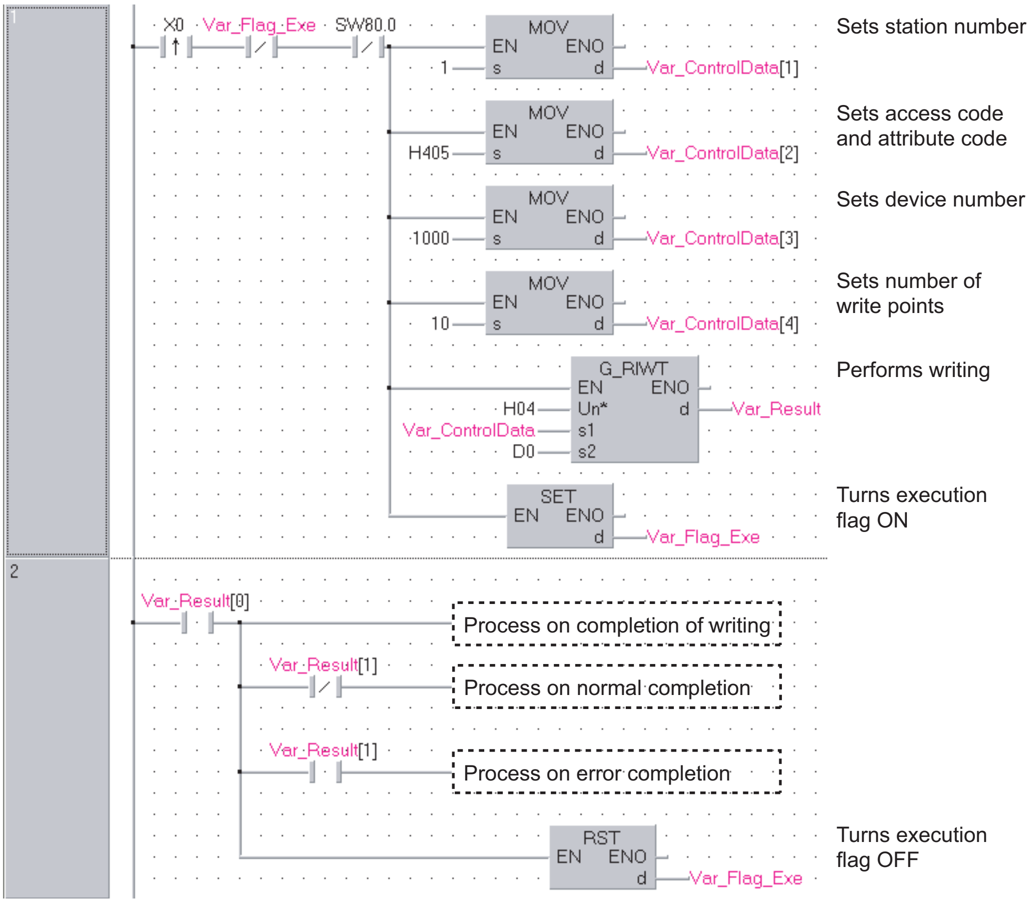
*3 : D65536 and the following devices of extended data registers as well as W10000 and the following devices of extended link registers cannot be specified.

Program Example

The following program stores 10-word data, which are stored in the devices starting from D0, to the devices starting from D1000 of the number 1 local station connected to the master module mounted on the I/O numbers from X/Y40 to X/Y5F when X0 turns ON.

(When the refresh device of the link special register (SW) is set to SW0.)

[Structured ladder/FBD]



```
[ST]
IF(X0=TRUE)
 &(Var_Flag_Exe=FALSE)                        (* Execution flag *)
 &(SW80.0=FALSE))THEN                         (* Data link status of station number 1 *)
     MOV(TRUE, 1, Var_ControlData[1]);        (* Sets station number *)
     MOV(TRUE, H0405, Var_ControlData[2]);    (* Sets access code and attribute code *)
     MOV(TRUE, 1000, Var_ControlData[3]);     (* Sets device number *)
     MOV(TRUE, 10, Var_ControlData[4]);       (* Sets number of read points *)
     G_RIWT(TRUE, H04, Var_ControlData, D0, Var_Result);(* Performs writing *)
     SET(TRUE, Var_Flag_Exe);                 (* Turns execution flag ON *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                    (* Execution finished *)
     (* Process on completion of writing *)
     IF(Var_Result[1]=FALSE)THEN              (* Normal completion *)
          (* Process on normal completion *)
     ELSE                                     (* Error completion *)
          (* Process on error completion *)
     END_IF;

RST(TRUE, Var_Flag_Exe); (* Turns execution flag OFF *)
END_IF;
```

5.4.3 RIRCV instruction

G_RIRCV

CC-Link

G(P)_RIRCV

P: Executing condition : ↑

Structured ladder/FBD

G_RIRCV

EN	ENO
Un*	d1
s1	d2
s2	

ST

ENO:= G_RIRCV (EN, Un*, s1, s2, d1, d2);

[ ] indicates any of the following instructions.

G_RIRCV GP_RIRCV

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..4]
	s2:	Variable that stores interlock signal	:Array of ANY16 [0..2]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores read data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J[ ]\[ ]</th><th rowspan="2">U[ ]\G[ ]</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s1</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>s2</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>d1</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>d2</td><td>○</td><td colspan="2">○</td><td colspan="6">–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction automatically performs handshaking with an intelligent device station and reads data from the buffer memory of the specified intelligent device station.

This instruction is applicable with a module having a handshake signal, such as the AJ65BT-R2(N).

Control Data

Device	Item	Setting data	Setting range	Setting side
s1 [0]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [1]	Station No.	Specify the station number of the intelligent device station.	0 to 64	User
s1 [2]	Access code, Attribute code	Set '0004H'.	0004H	User
s1 [3]	Buffer memory address	Specify the start address of the buffer memory.	*1	User
s1 [4]	Number of read points	Specify the number of data to be read (in units of words).	1 to 480*2	User

*1 : For details, refer to the manual for the intelligent device station from which data are read.

*2 : The value indicates the maximum number of data to be read.
Specify the value within the buffer memory capacity of the intelligent device station or the receive buffer area setting range set by a parameter.

(1) Interlock signal storage device

Device	Item	Setting data	Setting range	Setting side
s2 [0]	b15 to b8 b7 to b0 [0 | RY]	RY: Request device	0 to 127	User
		Set the high-order 8 bits to 0.	0	User
s2 [1]	b15 to b8 b7 to b0 [RWr *3 | RX]	RX: Completion device	0 to 127	User
		RWr: Error code storage device Set FFH when no error code storage device exists.	0 to 15, FFH	User
s2 [2]	b15 to b0 [Completion mode]	0: Completes with the content of one device (RXn). 1: Completes with the content of two devices (RXn, RXn + 1). (RXn + 1 turns ON upon abnormal completion of the instruction.)	0/1	User

*3 : The same error code as that for the completion status of control data are stored in the error code storage device.

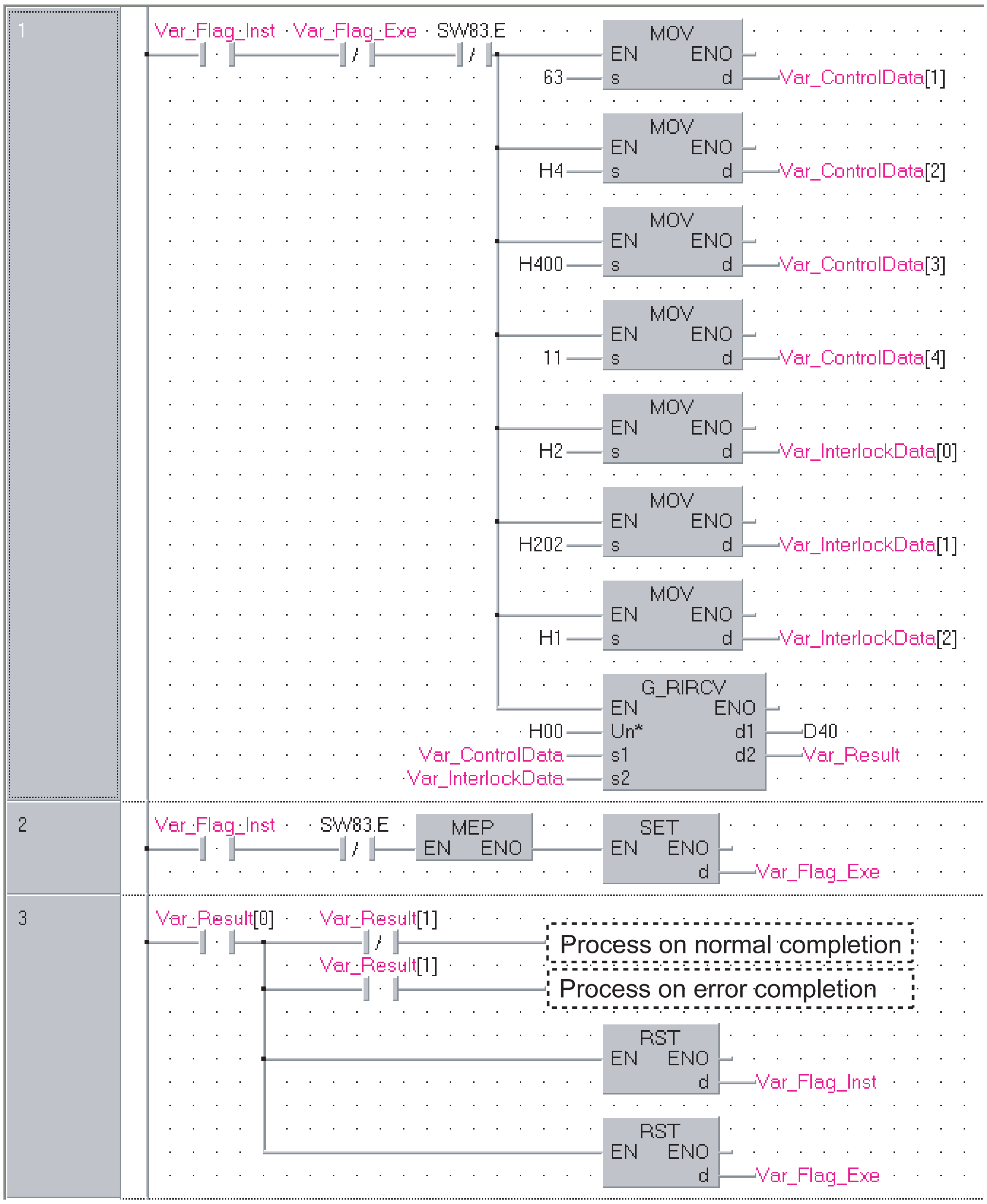
Program Example

The following program reads 11-word data, which are stored in buffer memory starting from the buffer memory address 400H of the number 63 intelligent device station (AJ65BT-R2(N)) connected to the master module mounted on the I/O numbers X/Y00 to X/Y1F, and stores the data in the devices starting from D40.

The interlock signal storage is set to request device: RY2, completion device: RX2, error code storage device: RWr2, and completion mode: 1.

(When the refresh device of the link special register (SW) is set to SW0.)

[Structured ladder/FBD]



Sets station number

Sets access code and attribute code

Sets buffer memory address

Sets number of read points

Sets request device

Sets completion device and error code storage area

Sets completion mode

Performs readout

Turns execution flag ON

Turns read request OFF

Turns execution flag OFF

[ST]

```
IF((Var_Flag_Inst=TRUE)                         (* Read request ON *)
 &(Var_Flag_Exe=FALSE)                          (* Execution flag *)
 &(SW83.E=FALSE))THEN                           (* Data link status of station number 63 *)
    (* Sets control data *)
    MOV(TRUE, 63, Var_ControlData[1]);          (* Sets station number *)
    MOV(TRUE,H4, Var_ControlData[2]);           (* Sets access code and attribute code *)
    MOV(TRUE, H400, Var_ControlData[3]);        (* Sets buffer memory address *)
    MOV(TRUE, 11, Var_ControlData[4]);          (* Sets number of read points *)

    (* Sets interlock signal storage device *)
    MOV(TRUE, H2, Var_InterlockData[0]);        (* Sets request device *)
    MOV(TRUE, H202, Var_InterlockData[1]);
                        (* Sets completion device and error code storage area *)
    MOV(TRUE, H1, Var_InterlockData[2]);        (* Sets completion mode *)

    G_RIRCV(TRUE, H00, Var_ControlData, Var_InterlockData,D40, Var_Result);
                                                (* Performs readout *)
END_IF;

IF(MEP((Var_Flag_Inst=TRUE) & (SW83.E=FALSE)))THEN
(* Read request is ON and data link status of station number 63 is OFF (rising pulse) *)
    SET(TRUE, Var_Flag_Exe);                    (* Turns execution flag ON *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                      (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                 (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                        (* Error completion *)
        (* Process on error completion *)
    END_IF;

    RST(TRUE, Var_Flag_Inst);                   (* Turns read request OFF *)
    RST(TRUE, Var_Flag_Exe);                    (* Turns execution flag OFF *)
END_IF;
```

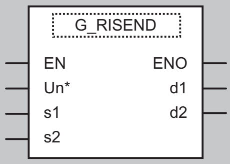
5.4.4 RISEND instruction

G_RISEND

CC-Link

G(P)_RISEND

P: Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= G_RISEND (EN, Un*, s1, s2, d1, d2);

[ ] indicates any of the following instructions.

G_RISEND GP_RISEND

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..4]
	s2:	Variable that stores interlock signal	:Array of ANY16 [0..2]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores write data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant	Others
s1	–	○		–					
s2	–	○		–					
d1	–	○		–					
d2	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction automatically performs handshaking with an intelligent device station and writes data to the buffer memory of the specified intelligent device station.

This instruction is applicable with a module having a handshake signal, such as the AJ65BT-R2(N).

Control Data

Device	Item	Setting data	Setting range	Setting side
s1 [0]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1 [1]	Station No.	Specify the station number of the intelligent device station.	0 to 64	User
s1 [2]	Access code, Attribute code	Set '0004H'.	0004H	User
s1 [3]	Buffer memory address	Specify the start address of the buffer memory.	*1	User
s1 [4]	Number of write points	Specify the number of data to be written (in units of words).	1 to 480*2	User

*1 : For details, refer to the manual for the intelligent device station to which data are written.

*2 : The value indicates the maximum number of data to be written.
Specify the value within the buffer memory capacity of the intelligent device station or the receive buffer area setting range set by a parameter.

(1) Interlock signal storage device

Device	Item	Setting data	Setting range	Setting side
s2 [0]	b15 to b8 b7 to b0 0 | RY	RY: Request device	0 to 127	User
		Set the high-order 8 bits to 0.	0	User
s2 [1]	b15 to b8 b7 to b0 RWr *3 | RX	RX: Completion device	0 to 127	User
		RWr: Error code storage device Set FFH when no error code storage device exists.	0 to 15, FFH	User
s2 [2]	b15 to b0 Completion mode	0: Completes with the content of one device (RXn). 1: Completes with the content of two devices (RXn, RXn + 1). (RXn + 1 turns ON upon abnormal completion of the instruction.)	0/1	User

*3 : The same error code as that for the completion status of control data are stored in the error code storage device.

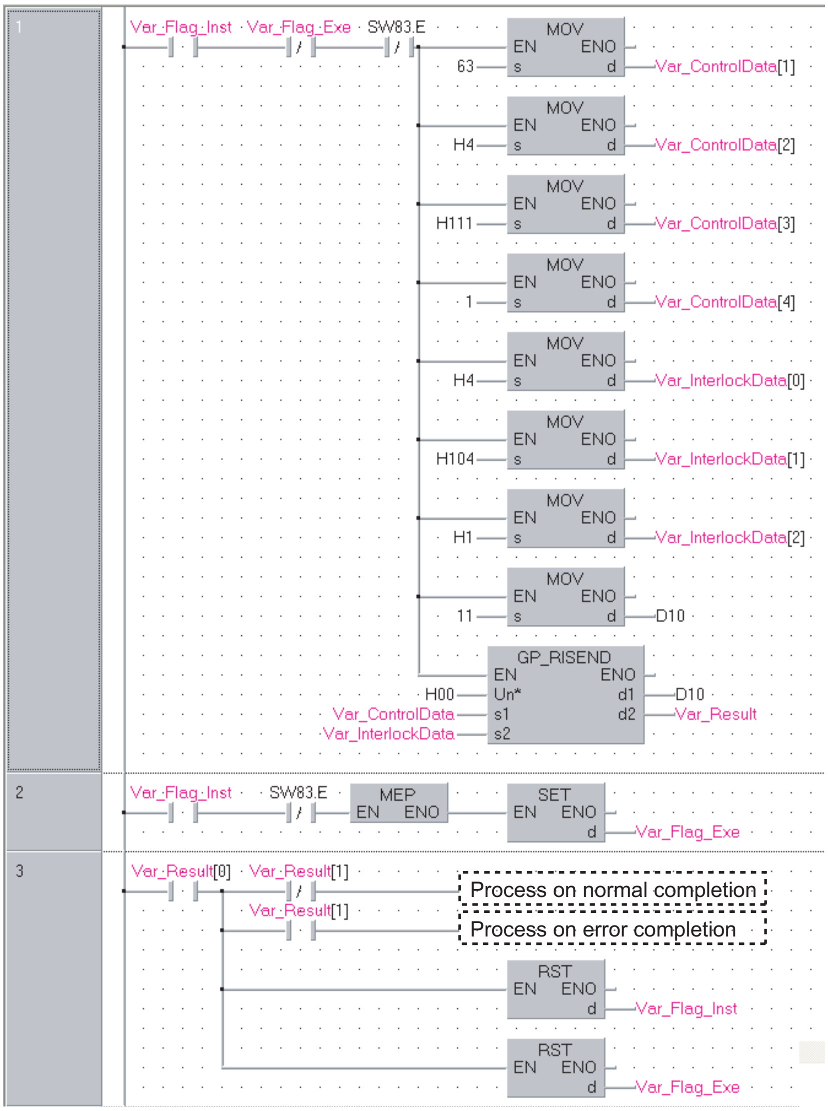
Program Example

The following program writes 1-word data of D10 to the buffer memory address 111H of the number 63 intelligent device station (AJ65BT-R2(N)) which is connected to the master module mounted on the I/O numbers from X/Y00 to X/Y1F.

The interlock signal storage settings are set to request device: RY4, completion device: RX4, error code storage device: RWr1, and completion mode: 1.

(When the refresh device of the link special register (SW) is set to SW0.)

[Structured ladder/FBD]



Sets station number

Sets access code and attribute code

Sets buffer memory address

Sets number of write points

Sets request device

Sets completion device and error code storage area device

Sets completion mode

Sets data to be written to intelligent device station

Performs writing

Turns execution flag ON

Turns write request OFF

Turns execution flag OFF

```
[ST]
IF((Var_Flag_Inst=TRUE)                         (* Write request ON *)
 &(Var_Flag_Exe=FALSE)                          (* Execution flag *)
 &(SW83.E=FALSE))THEN                           (* Data link status of station number 63 *)
    (* Sets control data *)
    MOV(TRUE, 63, Var_ControlData[1]);          (* Sets station number *)
    MOV(TRUE, H4, Var_ControlData[2]);          (* Sets access code and attribute code *)
    MOV(TRUE, H111, Var_ControlData[3]);        (* Sets buffer memory address *)
    MOV(TRUE, 1, Var_ControlData[4]);           (* Sets number of write points *)

    (* Sets interlock signal storage device *)
    MOV(TRUE, H4, Var_InterlockData[0]);        (* Sets request device *)
    MOV(TRUE, H104, Var_InterlockData[1]);
                    (* Sets completion device and error code storage area device *)
    MOV(TRUE, H1, Var_InterlockData[2]);        (* Sets completion mode *)

    (* Sets data to be written to intelligent device station *)
    MOV(TRUE, 11, D10);

    GP_RISEND(TRUE, H00, Var_ControlData, Var_InterlockData,D10, Var_Result);
                                                (* Performs writing *)
END_IF;
IF(MEP((Var_Flag_Inst=TRUE) & (SW83.E=FALSE)))THEN
    (* Write request is ON and data link status of station number 63 is OFF (rising pulse) *)
    SET(TRUE, Var_Flag_Exe);                          (* Turns execution flag ON *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                      (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                 (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                        (* Error completion *)
        (* Process on error completion *)
    END_IF;

    RST(TRUE, Var_Flag_Inst);                   (* Turns write request OFF *)
    RST(TRUE, Var_Flag_Exe);                    (* Turns execution flag OFF *)
END_IF;
```

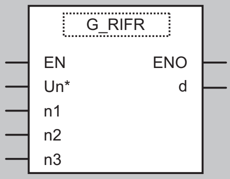
5.4.5 RIFR instruction

G_RIFR

CC-Link

G(P)_RIFR

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= G_RIFR (EN, Un*, n1, n2, n3, d);

[ ] indicates any of the following instructions.

G_RIFR GP_RIFR

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	n1:	Intelligent device station number (1 to 64) Random access buffer specification (FFH)	:ANY16
	n2:	Offset value of specified intelligent device auto-refresh buffer or random access buffer of the master station	:ANY16
	n3:	Number of read points (0 to 4096) No processing is performed with setting '0'.	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores read data	:ANY16

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n1	○	○		–				○	–
n2	○	○		–				○	–
n3	○	○		–				○	–
d	–	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

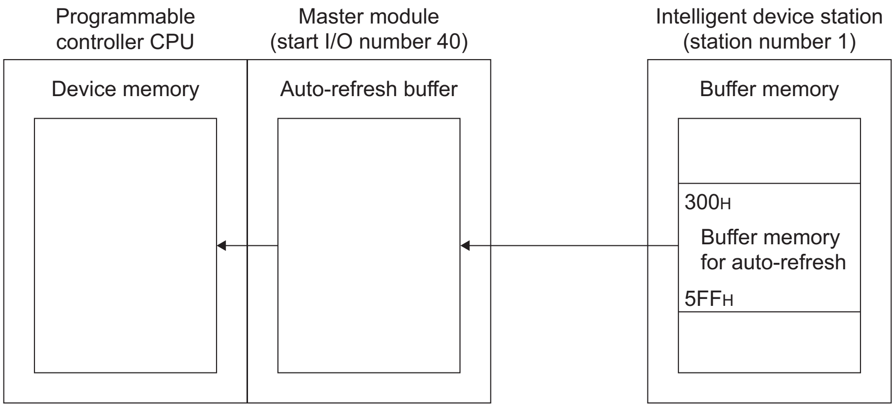
This instruction reads data from the auto-refresh buffer of the specified station.

The instruction is applicable with a module having an auto-refresh buffer, such as the AJ65BT-R2(N).

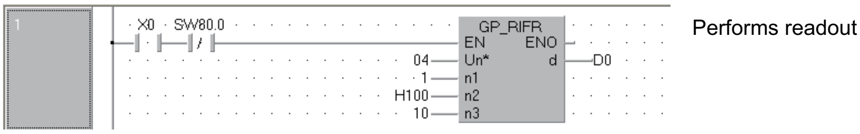
Program Example

The following program reads out 10-word data from buffer memory starting from the offset value 100 of the auto-refresh buffer of the master module (400H in the intelligent device station) and stores the data in the devices starting from D0 when X0 turns ON.

(When the refresh device of the link special register (SW) is set to SW0.)



[Structured ladder/FBD]



[ST]

```
IF((X0=TRUE) & (SW80.0=FALSE))THEN
      GP_RIFR(TRUE, H04, 1, H100, 10, D0);          (* Performs readout *)
END_IF;
```

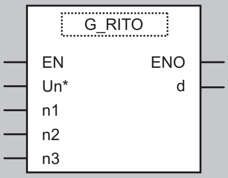
5.4.6 RITO instruction

G_RITO

CC-Link

G(P)_RITO

P: Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= G_RITO (EN, Un*, n1, n2, n3, d);

[ ] indicates any of the following instructions.

G_RITO GP_RITO

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	n1:	Intelligent device station number (1 to 64) Random access buffer specification (FFH)	:ANY16
	n2:	Offset value of specified intelligent device auto-refresh buffer or random access buffer of the master station	:ANY16
	n3:	Number of write points	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores write data	:ANY16

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n1	○	○		–				○	–
n2	○	○		–				○	–
n3	○	○		–				○	–
d	–	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

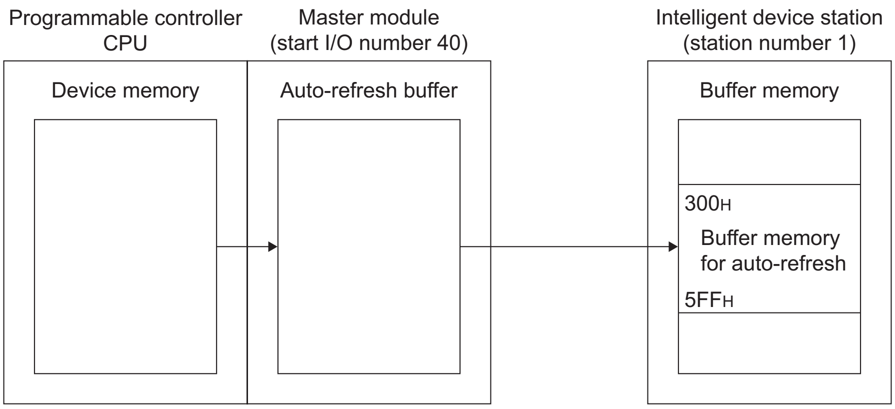
This instruction writes the data to the auto-refresh buffer of the specified station.

The instruction is applicable with a module having an auto-refresh buffer, such as the AJ65BT-R2(N).

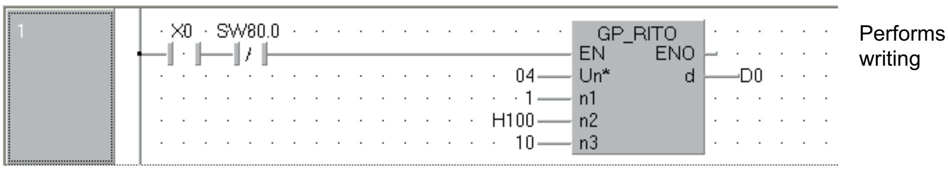
Program Example

The following program write 10-word data which are stored in the devices starting from D0 into buffer memory starting the offset value 100 of the auto-refresh buffer of the master module (400H in the intelligent device station) when X0 turns ON.

(When the refresh device of the link special register (SW) is set to SW0.)



[Structured ladder/FBD]



[ST]

```
IF((X0=TRUE) & (SW80.0=FALSE))THEN
    GP_RITO(TRUE, H04, 1, H100, 10, D0);        (* Performs writing *)
END_IF;
```

5.4.7 RLPASET instruction

G_RLPASET

CC-Link

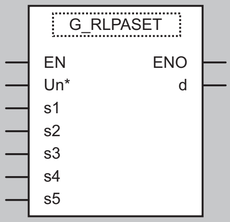
G(P)_RLPASET

P: Executing condition : ↑

indicates any of the following instructions.

G_RLPASET GP_RLPASET

Structured ladder/FBD



ST

ENO:= G_RLPASET (EN, Un*, s1, s2, s3, s4, s5, d);

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..7]
	s2:	Variable that stores slave station setting data	:Array of ANY16 [0..63]
	s3:	Variable that stores reserved station specification data	:Array of ANY16 [0..3]
	s4:	Variable that stores error invalid station specification data	:Array of ANY16 [0..3]
	s5:	Variable that stores send/receive and auto-refresh buffer assignment data	:Array of ANY16 [0..77]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

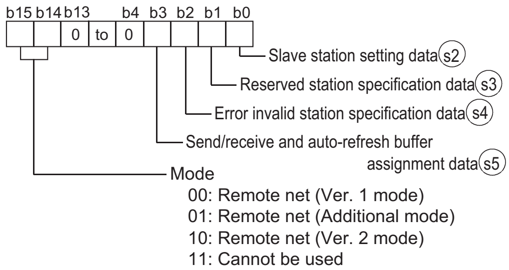
Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant	Others
s1	–	○		–					
s2	–	○		–					
s3	–	○		–					
s4	–	○		–					
s5	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

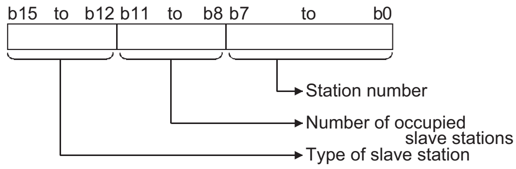
This instruction sets the network parameters to the master station and starts up the data link.

Control Data

Device	Item	Setting data	Setting range*2	Setting side
s1[0]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s1[1]	Setting flag	Specify the validity of each setting data from s2 to s5. 0: Invalid*1 1: Valid 	–	User
s1[2]	Number of connected modules	Set the number of connected slave stations.	1 to 64	User
s1[3]	Number of retries	Set the number of retries to be performed to a communication error station.	1 to 7	User
s1[4]	Number of automatic return modules	Set the number of slave stations that can be returned in one link scan.	1 to 10	User
s1[5]	Operation specification when CPU is down	Specify the data link status when a master station programmable controller CPU error occurs. 0: Stop 1: Continue	0, 1	User
s1[6]	Scan mode specification	Specify the link scan mode for sequence scan. 0: Asynchronous 1: Synchronous	0, 1	User
s1[7]	Delay time specification	Set '0' for the delay time.	0	User

*1 : For the setting data for which invalid is specified, default parameter is applied.
*2 : Setting a value outside the setting range results in error completion of the instruction.

(1) Slave station setting data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td rowspan="4">S2[0]
to
S2[63]</td><td rowspan="4">Setting for 1 to 64 modules*3</td><td>Set the slave station type, the number of occupied slave stations, and the station number as shown below.


Default parameter setting is '0101H to 0140H (station number: 1 to 64, number of occupied slave stations: 1, type of slave station: Ver.1 compatible remote I/O station)'</td><td>–</td><td rowspan="4">User</td></tr>
<tr><td>Setting of station number
1 to 64 (BIN setting)</td><td>1 to 40H</td></tr>
<tr><td>Setting of the number of occupied slave stations
<table><tr><th>Number of occupied slave stations</th><th>Setting</th></tr><tr><td>1 station</td><td>1H</td></tr><tr><td>2 stations</td><td>2H</td></tr><tr><td>3 stations</td><td>3H</td></tr><tr><td>4 stations</td><td>4H</td></tr></table></td><td>1 to 4H</td></tr>
<tr><td>Setting of slave station type*4
<table><tr><th>Type of slave station</th><th>Setting</th></tr><tr><td>Ver.1 compatible remote I/O station</td><td>0H</td></tr><tr><td>Ver.1 compatible remote device station</td><td>1H</td></tr><tr><td>Ver.1 compatible intelligent device station</td><td>2H</td></tr><tr><td>Ver.2 compatible single remote device station</td><td>5H</td></tr><tr><td>Ver.2 compatible single intelligent device station</td><td>6H</td></tr><tr><td>Ver.2 compatible double remote device station</td><td>8H</td></tr><tr><td>Ver.2 compatible double intelligent device station</td><td>9H</td></tr><tr><td>Ver.2 compatible quadruple remote device station</td><td>BH</td></tr><tr><td>Ver.2 compatible quadruple intelligent device station</td><td>CH</td></tr><tr><td>Ver.2 compatible octuple remote device station</td><td>EH</td></tr><tr><td>Ver.2 compatible octuple intelligent device station</td><td>FH</td></tr></table></td><td>0 to FH</td></tr>
</table>

*3 : Set the same number which was set for Number of connected modules in the control data.
*4 : Setting a value outside the setting range in the setting of slave station type results in error completion of the instruction.

(2) Reserved station specification data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s3 [0]
to
s3 [3]</td><td>Specification for 1 to 64 stations*5</td><td>Specify the reserved station. *6
0: Not specified
1: Specified
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>to</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>s3[0]</td><td>16</td><td>15</td><td>14</td><td>13</td><td>to</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td>s3[1]</td><td>32</td><td>31</td><td>30</td><td>29</td><td>to</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
<tr><td>s3[2]</td><td>48</td><td>47</td><td>46</td><td>45</td><td>to</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
<tr><td>s3[3]</td><td>64</td><td>63</td><td>62</td><td>61</td><td>to</td><td>52</td><td>51</td><td>50</td><td>49</td></tr>
</table>
1 to 64 in the table indicates a station number.
Default parameter setting is '0: Not specified' for all stations.</td><td>–</td><td>User</td></tr>
</table>

*5 : Set the parameter up to the largest station number set in the slave station setting data.

*6 : Set the parameter only to the start station number of the module for the remote station/local station/intelligent device station that occupies two or more stations.

(3) Error invalid station specification data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s4 [0]
to
s4 [3]</td><td>Specification for 1 to 64 stations*7</td><td>Specify the error invalid station. *8
0: Not specified
1: Specified
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>to</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>s4[0]</td><td>16</td><td>15</td><td>14</td><td>13</td><td>to</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td>s4[1]</td><td>32</td><td>31</td><td>30</td><td>29</td><td>to</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
<tr><td>s4[2]</td><td>48</td><td>47</td><td>46</td><td>45</td><td>to</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
<tr><td>s4[3]</td><td>64</td><td>63</td><td>62</td><td>61</td><td>to</td><td>52</td><td>51</td><td>50</td><td>49</td></tr>
</table>
1 to 64 in the table indicates a station number.
Default parameter setting is '0: Not specified' for all stations.</td><td>–</td><td>User</td></tr>
</table>

*7 : Set the parameter up to the largest station number set in the slave station setting data.

*8 : Set the parameter only to the start station number of the module for the remote station/local station/intelligent device station that occupies two or more stations.
Reserved station specification has a priority when an error invalid station and reserved station are specified for the same station.

(4) Send/receive and auto-refresh buffer assignment data

Device	Item	Setting data	Setting range	Setting side
s5 [0] to s5 [77]	Specification for 1 to 26 modules*9	Specify the buffer memory size assignment at transient transmission for local stations and intelligent device stations. s5[0] Send buffer size s5[1] Receive buffer size s5[2] Auto-refresh buffer size Setting for the 1st module ⋮ s5[75] Send buffer size s5[76] Receive buffer size s5[77] Auto-refresh buffer size Setting for the 26th module Default parameter setting is 'send buffer size: 40H, receive buffer size: 40H, auto-refresh buffer size: 80H'.	Send/receive buffer*10 : 0H (no setting) 40H to 1000H 0 (word) (no setting) 64 to 4096 (words) Auto-refresh buffer*11 : 0H (no setting) 80H to 1000H 0 (word) (no setting) 128 to 4096 (words)	User

*9 : Set the assignment data, in ascending order, for the stations set for a local station or intelligent device station in the slave station setting data.

*10 : Keep the total of the send/receive buffer size within 1000H (4096 (words)).
Specify the size added seven words to the size of send/receive data as the send/receive buffer size.
Setting a value outside the setting range results in error completion of the instruction.

*11 : Keep the total of the auto-refresh buffer size within 1000H (4096 (words)).
Specify the necessary auto-refresh buffer size for each intelligent device station.
Setting a value outside the setting range results in error completion of the instruction.

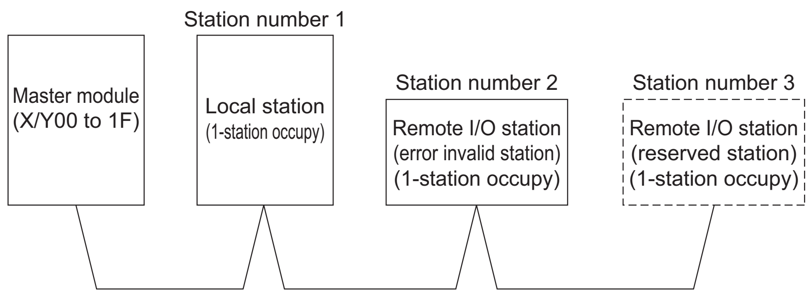
Precautions

The RLPASET instruction is applicable to the QJ61BT11 of which the function version is B and the first five digits of the serial number are '03042' or higher.

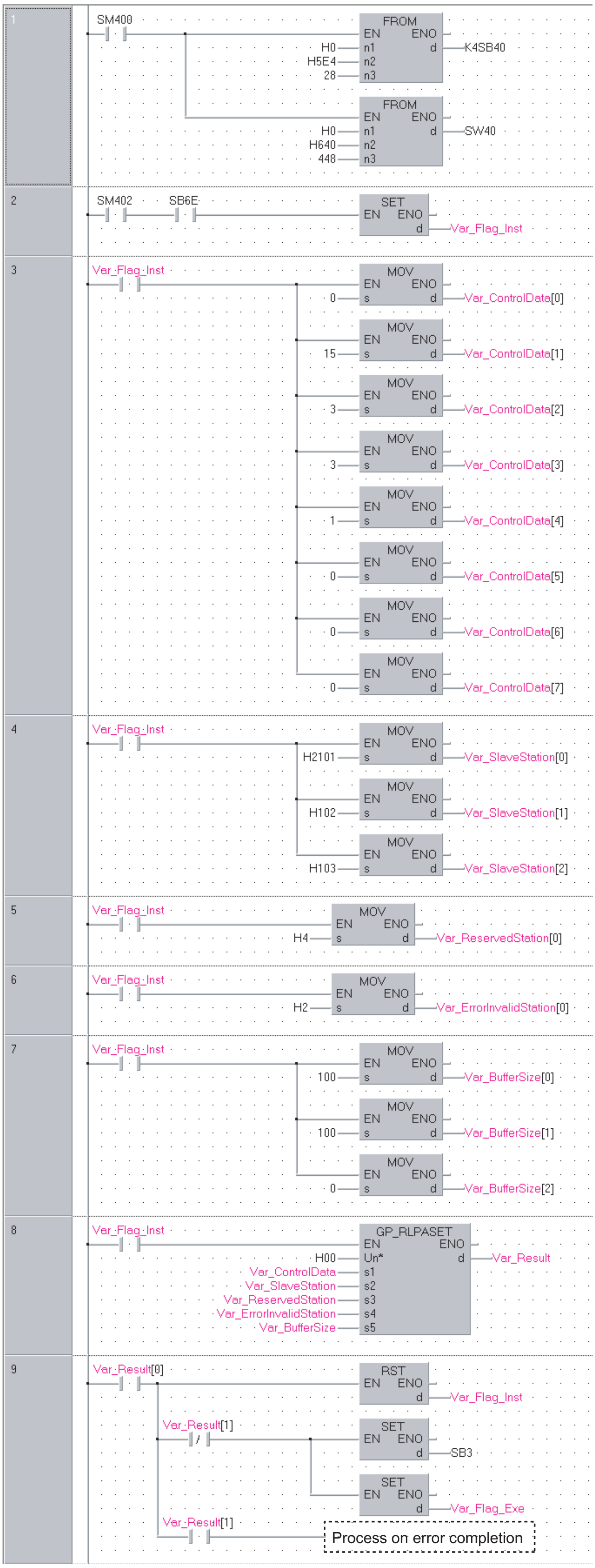
The QJ61BT11N and LJ61BT11 is compatible with the RLPASET instruction.

Program Example

The following program sets the network parameter to the master module mounted on the I/O number X/Y00 to X/Y1F, and starts up the data link.



[Structured ladder/FBD]



Reads SB0040 to SB01FF

Reads SW0040 to SW01FF

Parameter setting command

Clears completion status

Sets all of setting flags to Valid

Sets number of connected modules

Sets number of retries

Sets number of automatic return modules

Sets operation specification when CPU is down to stop

Sets scan mode specification to asynchronous

Set delay time specification

First module: local station, 1-station occupy, station number 1

Second module: Remote I/O station, 1-station occupy, station number 2

Third module: Remote I/O station, 1-station occupy, station number 3

Reserved station specification: station number 3

Error invalid station specification: station number 2

First module: local station, send buffer 100 words

Receive buffer 100 words

Auto-refresh buffer 0 word

Performs parameter setting and data link start

Turns parameter setting command OFF

Refresh command

Control program start command

```
[ST]
FROM(TRUE, H0, H5E4, 28, K4SB40);                (* Reads SB0040 to SB01FF *)
FROM(TRUE, H0, H640, 448, SW40);                 (* Reads SW0040 to SW01FF*)
IF((SM402=TRUE) & (SB6E=TRUE))THEN
    SET(TRUE, Var_Flag_Inst);                    (* Parameter setting command *)
END_IF;
IF(Var_Flag_Inst=TRUE)THEN                       (* Parameter setting command ON *)
    MOV(TRUE, 0, Var_ControlData[0]);            (* Clear completion status *)
    MOV(TRUE, 15, Var_ControlData[1]);           (* Sets all of setting flags to Valid *)
    MOV(TRUE, 3, Var_ControlData[2]);            (* Sets number of connected modules *)
    MOV(TRUE, 3, Var_ControlData[3]);            (* Sets number of retries *)
    MOV(TRUE, 1, Var_ControlData[4]);   (* Sets number of automatic return modules *)
    MOV(TRUE, 0, Var_ControlData[5]);
                    (* Sets operation specification when CPU is down to stop *)
    MOV(TRUE, 0, Var_ControlData[6]);
                    (* Sets scan mode specification to asynchronous *)
    MOV(TRUE, 0, Var_ControlData[7]);            (* Set delay time specification *)

    MOV(TRUE, H2101, Var_SlaveStation[0]);
                (* First module: local station, 1-station occupy, station number 1 *)
    MOV(TRUE, H0102, Var_SlaveStation[1]);
        (* Second module: Remote I/O station, 1-station occupy, station number 2*)
    MOV(TRUE, H0103, Var_SlaveStation[2]);
            (* Third module: Remote I/O station, 1-station occupy, station number 3 *)

    MOV(TRUE, H4, Var_ReservedStation[0]);
                        (* Reserved station specification: station number 3 *)

    MOV(TRUE, H2, Var_ErrorInvalidStation[0]);
                    (* Error invalid station specification: station number 2 *)

    MOV(TRUE, 100, Var_BufferSize[0]);
                    (* First module: local module, send buffer 100 words *)
    MOV(TRUE, 100, Var_BufferSize[1]);
                    (* Second module: local station, receive buffer 100 words *)
    MOV(TRUE, 0, Var_BufferSize[2]);
                    (* Third module: local station, auto-refresh buffer 0 words *)

    GP_RLPASET(TRUE, H00, Var_ControlData, Var_SlaveStation,
        Var_ReservedStation, Var_ErrorInvalidStation, Var_BufferSize,
        Var_Result);                                  (* Performs parameter setting *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                       (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                  (* Normal completion *)
        SET(TRUE, SB3);                          (* Refresh command *)
        SET(TRUE, Var_Flag_Exe);                 (* Control program start command *)
    ELSE                                         (* Error completion *)
        (* Process on error completion *)
    END_IF;

    RST(TRUE, Var_Flag_Inst);               (* Turns parameter setting command OFF *)
END_IF;
```

5 MODULE DEDICATED INSTRUCTION

G_RLPASET

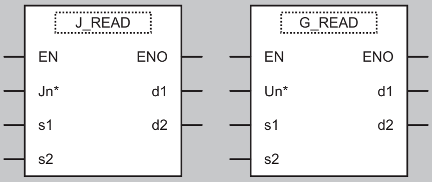
5.4.8 READ instruction

J_READ, G_READ

CC IE C | CC IE F | NET/H | Ether

J(P)_READ
G(P)_READ

P: Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= J_READ (EN, Jn*, s1, s2, d1, d2); ENO:= G_READ (EN, Un*, s1, s2, d1, d2);

▭ indicates any of the following instructions.

J_READ	JP_READ
G_READ	GP_READ

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Start number of the target station's device from which data are read	:ANY
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the host station's device that stores read data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J▭\▭		U▭\G▭	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	○	○		–					
d1	–	○		–					
d2	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads data from a word device of another station.

Control Data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>(s1) [0]</td><td>Error completion type</td><td>
<table>
<tr><td>b15</td><td>to</td><td>b7</td><td>to</td><td>b0</td></tr>
<tr><td>0</td><td></td><td>①</td><td>0</td><td>1</td></tr>
</table>
① Error completion type (bit 7)
Specify the clock data setup status at the time of error completion.
0: Clock data at the time of error completion is not set in the area starting from (s1) [11].
1: Clock data at the time of error completion is set in the area starting from (s1) [11].</td><td>0001H, 0081H</td><td>User</td></tr>
<tr><td>(s1) [1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [2]</td><td>Channel used by host station</td><td>Specify the channel used by the host station.
<table>
<tr><th>Description</th><th>Setting value</th></tr>
<tr><td>Ethernet
MELSECNET/H</td><td>1 to 8</td></tr>
<tr><td>CC-Link IE Controller Network</td><td>1 to 10</td></tr>
<tr><td>CC-Link IE Field Network</td><td>1 to 2</td></tr>
</table></td><td>1 to 10</td><td>User</td></tr>
<tr><td>(s1) [3]</td><td>Target station's CPU type</td><td>Specify the type of the target station CPU.
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td rowspan="2">Ethernet</td><td>0000H</td><td>Target station CPU/host system CPU (Specified data are the same as '03FFH'.)</td></tr>
<tr><td>03FFH*1</td><td>Target station CPU/host system CPU</td></tr>
<tr><td rowspan="6">MELSECNET/H
CC-Link IE</td><td>0000H</td><td>Target station CPU/host system CPU (Specified data are the same as '03FFH'.)</td></tr>
<tr><td>03E0H*2</td><td>Multi-CPU No. 1/target station CPU (single CPU system)</td></tr>
<tr><td>03E1H*2</td><td>Multi-CPU No. 2</td></tr>
<tr><td>03E2H*2</td><td>Multi-CPU No. 3</td></tr>
<tr><td>03E3H*2</td><td>Multi-CPU No. 4</td></tr>
<tr><td>03FFH*1</td><td>Target station CPU/host system CPU</td></tr>
</table></td><td>0000H, 03FFH

0000H, 03E0H to 03E3H, 03FFH</td><td>User</td></tr>
<tr><td>(s1) [4]</td><td>Target station network No.</td><td>Specify the network number of the target station.
1 to 239 : Network number
254 : Specify this when 254 has been set in Jn.</td><td>1 to 239, 254</td><td>User</td></tr>
<tr><td>(s1) [5]</td><td>Target station No.</td><td>Specify the station number of the target station.
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>-</td></tr>
<tr><td></td><td>Host station is Universal model QCPU</td><td>1 to120</td></tr>
<tr><td></td><td>Host station is anything other than Universal model QCPU</td><td>1 to 64</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr>
</table></td><td>1 to 125</td><td>User</td></tr>
<tr><td>(s1) [6]</td><td>–</td><td>Reserved</td><td>0</td><td>User</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td rowspan="2">(s1) [7]</td><td rowspan="2">Number of resends</td><td>① For instruction execution
Specify the number of instruction resends when the instruction is not completed within the monitoring time specified in (s1) [8].</td><td>0 to 15</td><td>User</td></tr>
<tr><td>② At instruction completion
The number of resends (result) is stored.</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [8]</td><td>Arrival monitoring time</td><td>Specify the monitoring time required for the instruction completion.
If the instruction is not completed within this time, it is resent by the number of times specified in (s1) [7].
<table>
<tr><th colspan="2">Description</th><th>Setting value</th></tr>
<tr><td>Ethernet</td><td>0 to TCP retransmission timer value: Monitoring is performed by the TCP retransmission timer value.
(TCP retransmission timer value + 1) to 16383: Monitoring time (unit: second)</td><td>0 to 16383</td></tr>
<tr><td>MELSECNET/H
CC-Link IE</td><td>0: 10 seconds
1 to 32767: 1 to 32767 seconds</td><td>0 to 32767</td></tr>
</table></td><td>0 to 32767</td><td>User</td></tr>
<tr><td>(s1) [9]</td><td>Read data length</td><td>Specify the number of read data.
<table>
<tr><th>Description</th><th>Setting value</th></tr>
<tr><td>Ethernet
MELSECNET/H
CC-Link IE Field Network</td><td>1 to 960
(word)</td></tr>
<tr><td>CC-Link IE Controller Network</td><td>1 to 8192
(word)</td></tr>
</table></td><td>1 to 8192</td><td>User</td></tr>
<tr><td>(s1) [10]</td><td>–</td><td>Reserved</td><td>–</td><td>User</td></tr>
<tr><td>(s1) [11]</td><td>Clock set flag*3</td><td>Valid/invalid status of the data in the area starting from (s1) [12] is stored.
0: Invalid
1: Valid</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [12]
to
(s1) [15]</td><td>Clock data at the time of error completion*3</td><td>Clock data at the time of error completion are stored in BCD format.
<table>
<tr><th></th><th>b15 to b8</th><th>b7 to b0</th></tr>
<tr><td>(s1) [12]</td><td>Month (01H to 12H)</td><td>Year (00H to 99H) Last two digits</td></tr>
<tr><td>(s1) [13]</td><td>Hour (00H to 23H)</td><td>Day (01H to 31H)</td></tr>
<tr><td>(s1) [14]</td><td>Second (00H to 59H)</td><td>Minute (00H to 59H)</td></tr>
<tr><td>(s1) [15]</td><td>Year (00H to 99H) First two digits</td><td>Day of week (00H to 06H)
00H (Sun.) to 06H (Sat.)</td></tr>
</table></td><td>–</td><td>System</td></tr>
<tr><td>(s1) [16]</td><td>Error-detected network No. *3</td><td>Network number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
1 to 239: Network number</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [17]</td><td>Error-detected station No. *3</td><td>Number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr>
</table></td><td>–</td><td>System</td></tr>
</table>

*1 : Specification is possible when the host station is a network module or Ethernet module of function version D or later.
(Specification is not possible for other modules. An access is always made to the target station CPU.)

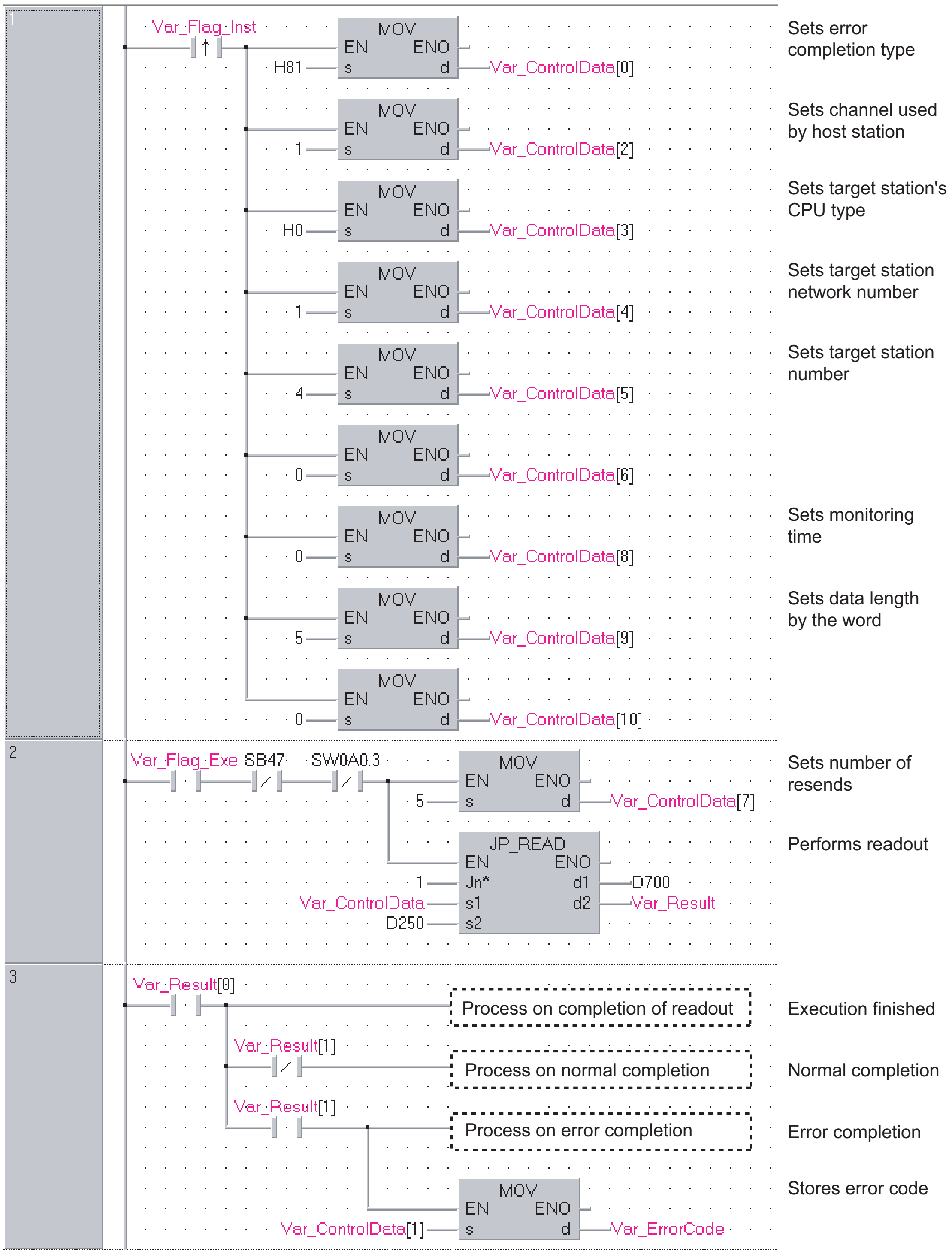
*2 : Specification is possible when the versions of the QCPU and the network module on the host station and the target station are as indicated below.
(Specification is not possible for other modules. An access is always made to the target station CPU.)
- Network module: The first five digits of the serial number are '06092' or higher.
- QCPU: The first five digits of the serial number are '06092' or higher.

*3 : Data are stored only when 1 is set in bit 7 of Error completion type (s1 [0]).

Program Example

The following program reads out data from the devices from D250 to D254 in the station number 4 (target station) and stores the data to the devices from D700 to D704 of the station number 1 (host station).

[Structured ladder/FBD]



```
[ST]
IF (LDP(TRUE,Var_Flag_Inst) THEN
    MOV(TRUE,H81,Var_ControlData[0]);         (* Sets error completion type *)
    MOV(TRUE,1,Var_ControlData[2]);           (* Sets channel used by host station *)
    MOV(TRUE,H0,Var_ControlData[3]);          (* Sets target station's CPU type *)
    MOV(TRUE,1,Var_ControlData[4]);           (* Sets target station network number *)
    MOV(TRUE,4,Var_ControlData[5]);           (* Sets target station number *)
    MOV(TRUE,0,Var_ControlData[6]);
    MOV(TRUE,0,Var_ControlData[8]);           (* Sets monitoring time *)
    MOV(TRUE,5,Var_ControlData[9]);           (* Sets data length by the word *)
    MOV(TRUE,0,Var_ControlData[10]);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.3=FALSE)) THEN
    MOV(TRUE, 5, Var_ControlData[7]);         (* Sets number of resends *)
    JP_READ(TRUE,1,Var_ControlData,D250,D700,Var_Result);(* Performs readout *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                    (* Execution finished *)
         (* Process on completion of readout *)
    IF(Var_Result[1]=FALSE)THEN               (* Normal completion *)
         (* Process on normal completion *)
    ELSE                                      (* Error completion *)
         (* Process on error completion *)
         MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
    END_IF;
END_IF;
```

5.4.9 SREAD instruction

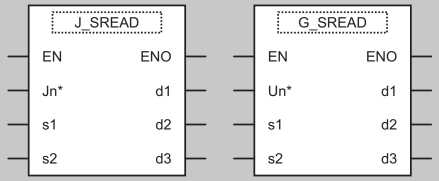
J_SREAD, G_SREAD

CC IE C CC IE F NET/H Ether

J(P)_SREAD
G(P)_SREAD

P: Executing condition :

Structured ladder/FBD



ST

ENO:= J_SREAD (EN, Jn*, s1, s2, d1, d2, d3);
ENO:= G_SREAD (EN, Un*, s1, s2, d1, d2, d3);

indicates any of the following instructions.

J_SREAD	JP_SREAD
G_SREAD	GP_SREAD

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Start number of the target station's device from which data are read	:ANY
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the host station's device that stores read data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]
	d3:	Variable that turns ON upon completion of the instruction (read notification device)	:Bit

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○				–			
s2	–	○				–			
d1	–	○				–			
d2	○	○				–			
d3	○	○				–			

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads data from a word device of another station.

Control Data

For the control data of the SREAD instruction that reads the word device memory of another station, refer to READ instruction.

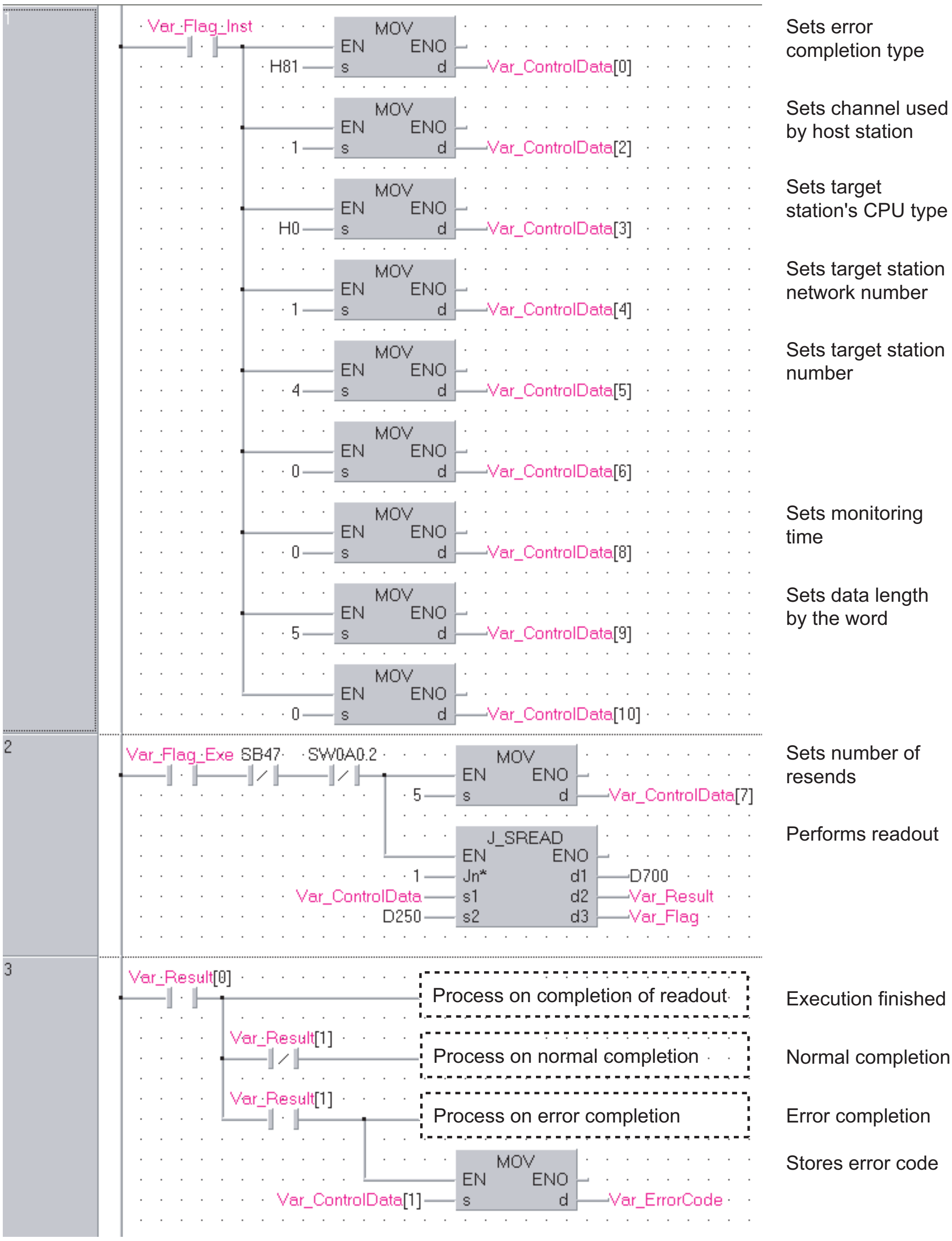
The control data of the SREAD instruction are the same as those of the READ instruction.

Accordingly, this section omits the explanation.

Program Example

The following program example of the SREAD instruction is different from that of the READ instruction by assigning the read notification device (d3) at the end of arguments.

[Structured ladder/FBD]



[ST]

```
IF (Var_Flag_Inst=TRUE) THEN
        MOV(TRUE,H81,Var_ControlData[0]);          (* Sets error completion type *)
        MOV(TRUE,1,Var_ControlData[2]);            (* Sets channel used by host station *)
        MOV(TRUE,H0,Var_ControlData[3]);           (* Sets target station's CPU type *)
        MOV(TRUE,1,Var_ControlData[4]);            (* Sets target station network number *)
        MOV(TRUE,4,Var_ControlData[5]);            (* Sets target station number*)
        MOV(TRUE,0,Var_ControlData[6]);
        MOV(TRUE,0,Var_ControlData[8]);            (* Sets monitoring time *)
        MOV(TRUE,5,Var_ControlData[9]);            (* Sets data length by the word *)
        MOV(TRUE,0,Var_ControlData[10]);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.3=FALSE)) THEN
        MOV(TRUE, 5, Var_ControlData[7]);          (* Sets number of resends *)
        J_SREAD(TRUE,1,Var_ControlData,D250,D700,Var_Result,Var_Flag);
                                                   (* Performs readout *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                         (* Execution finished *)
        (* Process on completion of readout *)
        IF(Var_Result[1]=FALSE)THEN                (* Normal completion *)
                (* Process on normal completion *)
        ELSE                                       (* Error completion *)
                (* Process on error completion *)
                MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
        END_IF;
END_IF;
```

5.4.10 WRITE instruction

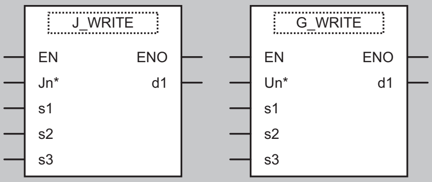
J_WRITE, G_WRITE

CC IE C **CC IE F** **NET/H** **Ether**

J(P)_WRITE
G(P)_WRITE

P: Executing condition :

Structured ladder/FBD



ST

ENO:= J_WRITE (EN, Jn*, s1, s2, s3, d1);
ENO:= G_WRITE (EN, Un*, s1, s2, s3, d1);

[ ] indicates any of the following instructions.

J_WRITE	JP_WRITE
G_WRITE	GP_WRITE

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Start number of the host station's device that stores write data	:ANY16
	s3:	Start number of the target station's device to which data are written	:ANY
Output argument	ENO:	Execution result	:Bit
	d1:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

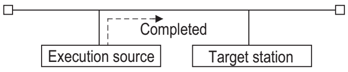
Setting data	Internal device Bit	Internal device Word	R, ZR	J\ Bit	J\ Word	U\G	Zn	Constant	Others
s1	–	○		–					
s2	–	○		–					
s3	–	○		–					
d1	○	○		–					

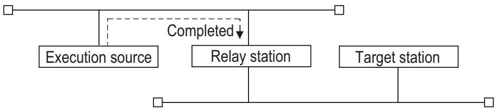
Function

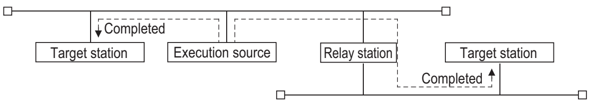
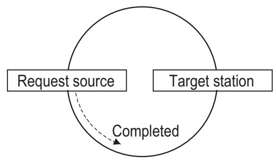
This instruction writes data to a word device of another station.

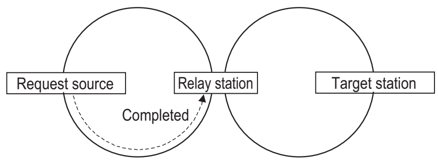
Control Data

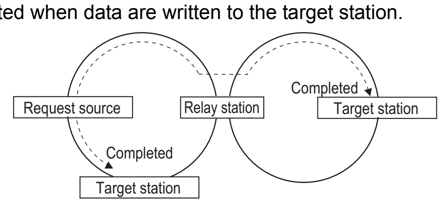
<table>
<tr><th>Device</th><th>Item</th><th colspan="2">Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td rowspan="3">ⓢ1 [0]</td><td rowspan="3">Execution/Error completion type</td><td colspan="2">b15 to b7 to b0
0 | ② | 0 | ①

① Execution type (bit 0)</td><td rowspan="3">0000H,
0001H,
0080H,
0081H</td><td rowspan="3">User</td></tr>
<tr><td>Ethernet</td><td>0: Without arrival confirmation
When the target station is on the same network... Completed when data are sent from the host station.


When the target station is on another network ..... Completed when data reach to a relay station on the same network.


1: With arrival confirmation
Completed when data are written to the target station.

</td></tr>
<tr><td>MELSECNET/H CC-Link IE</td><td>0: Without arrival confirmation
• When the target station is on the same network
Completed when data are sent from the host station.


• When the target station is on another network
Completed when data reach to a relay station on the same network.


1: With arrival confirmation
Completed when data are written to the target station.


When '0: Without arrival confirmation' is specified, even if writing to the target station is completed abnormally in the following cases, the processing of the instruction in the host station is completed normally.
• Communication itself was completed normally, although the sent data were erroneous.
• Data could not be written to the target station because instructions from multiple stations were executed to the same station. (An error code (F222H, E006H, E205H, D202H, or D282H) is detected at the target station.)</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s1 [0]</td><td>Execution/Error completion type</td><td>② Error completion type (bit 7)
Specify the clock data setup status at the time of error completion.
0: Clock data at the time of error completion is not set in the area starting from s1 [11].
1: Clock data at the time of error completion is set in the area starting from s1 [11].</td><td>0000H,
0001H,
0080H,
0081H</td><td>User</td></tr>
<tr><td>s1 [1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>s1 [2]</td><td>Channel used by host station</td><td>Specify the channel used by the host station.
<table><tr><th>Description</th><th>Setting value</th></tr><tr><td>Ethernet
MELSECNET/H</td><td>1 to 8</td></tr><tr><td>CC-Link IE Controller Network</td><td>1 to 10</td></tr><tr><td>CC-Link IE Field Network</td><td>1 to 2</td></tr></table></td><td>1 to 10</td><td>User</td></tr>
<tr><td rowspan="2">s1 [3]</td><td rowspan="2">Target station's CPU type</td><td rowspan="2">Specify the type of the target station CPU.
<table><tr><th colspan="2">Setting value</th><th>Description</th></tr><tr><td rowspan="2">Ethernet</td><td>0000H</td><td>Target station CPU/host system CPU (Specified data are the same as '03FFH'.)</td></tr><tr><td>03FFH*1</td><td>Target station CPU/host system CPU</td></tr><tr><td rowspan="6">MELSECNET/H
CC-Link IE</td><td>0000H</td><td>Target station CPU/host system CPU (Specified data are the same as '03FFH'.)</td></tr><tr><td>03E0H*2</td><td>Multi-CPU No. 1/target station CPU (single CPU system)</td></tr><tr><td>03E1H*2</td><td>Multi-CPU No. 2</td></tr><tr><td>03E2H*2</td><td>Multi-CPU No. 3</td></tr><tr><td>03E3H*2</td><td>Multi-CPU No. 4</td></tr><tr><td>03FFH*1</td><td>Target station CPU/host system CPU</td></tr></table></td><td>0000H,
03FFH</td><td rowspan="2">User</td></tr>
<tr><td>0000H,
03E0H to
03E3H,
03FFH</td></tr>
<tr><td>s1 [4]</td><td>Target station network No.</td><td>Specify the network number of the target station.
1 to 239 : Network number
254 : Specify this when 254 has been set in Jn.</td><td>1 to 239, 254</td><td>User</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s1[5]</td><td>Target station No.</td><td>Specify the station number of the target station.
(1) Station number specification
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr>
</table>
To increase the data reliability when the station number is specified, executing the instruction with setting Execution/Error completion type (s1[0]) to '1: With arrival confirmation' is recommended.
(2) Group specification (target station is anything other than CC-Link IE Field Network)
81H to A0H: All stations in group numbers 1 to 32
(Setting is available when Execution type is set to '0: Without arrival confirmation' in s1[0].)
Group No.1 · · · 81H
Group No.2 · · · 82H
to
Group No.32 · · · A0H
(3) All stations specification
FFH: All stations of the target network number (Except the host station.)
(Setting is available when Execution type is set to '0: Without arrival confirmation' in s1[0].)
To specify a group or all stations.
• Specify '0000H' or '03FFH' for the target station's CPU type (s1[3]).
• Group specification cannot be set for the station of the CC-Link IE Field Network.
• It cannot be confirmed if the data are written to the target station normally. Confirm the device of the target station of the write destination.</td><td>1 to 120,
125 (7DH)
81H to A0H,
FFH</td><td>User</td></tr>
<tr><td>s1[6]</td><td>–</td><td>(Fixed value)</td><td>0</td><td>User</td></tr>
<tr><td rowspan="2">s1[7]</td><td rowspan="2">Number of resends</td><td>① For instruction execution
Specify the number of instruction resends when the instruction is not completed within the monitoring time specified in s1[8]. (Setting is available when Execution type is set to '1: With arrival confirmation' in s1[0].)</td><td>0 to 15</td><td>User</td></tr>
<tr><td>② At instruction completion
The number of resends (result) is stored. (Setting is available when Execution type is set to '1: With arrival confirmation' in s1[0].)</td><td>–</td><td>System</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>(s1) [8]</td><td>Arrival monitoring time</td><td>Specify the monitoring time required for instruction completion. (Setting is available when Execution type is set to '1: With arrival confirmation' in (s1) [0].)
If the instruction is not completed within this time, it is resent by the number of times specified in (s1) [7].
<table>
<tr><th colspan="2">Description</th><th>Setting value</th></tr>
<tr><td>Ethernet</td><td>0 to TCP retransmission timer value: Monitoring is performed by the TCP retransmission timer value.
(TCP retransmission timer value + 1) to 16383: Monitoring time (unit: second)</td><td>0 to 16383</td></tr>
<tr><td>MELSECNET/H
CC-Link IE</td><td>0: 10 seconds
1 to 32767: 1 to 32767 seconds</td><td>0 to 32767</td></tr>
</table></td><td>0 to 32767</td><td>User</td></tr>
<tr><td>(s1) [9]</td><td>Write data length</td><td>Specify the number of write data.
<table>
<tr><th>Description</th><th>Setting value</th></tr>
<tr><td>Ethernet
MELSECNET/H
CC-Link IE Field Network</td><td>1 to 960
(word)</td></tr>
<tr><td>CC-Link IE Controller Network</td><td>1 to 8192
(word)</td></tr>
</table></td><td>1 to 8192</td><td>User</td></tr>
<tr><td>(s1) [10]</td><td>(Reserved)</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(s1) [11]</td><td>Clock set flag[*3]</td><td>Valid/invalid status of the data in the area starting from (s1) [12] is stored.
0: Invalid
1: Valid</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [12]
to
(s1) [15]</td><td>Clock data at the time of error completion[*3]</td><td>Clock data at the time of error completion are stored in BCD format.
<table>
<tr><th></th><th>b15 to b8</th><th>b7 to b0</th></tr>
<tr><td>(s1) [12]</td><td>Month (01H to 12H)</td><td>Year (00H to 99H) Last two digits</td></tr>
<tr><td>(s1) [13]</td><td>Hour (00H to 23H)</td><td>Day (01H to 31H)</td></tr>
<tr><td>(s1) [14]</td><td>Second (00H to 59H)</td><td>Minute (00H to 59H)</td></tr>
<tr><td>(s1) [15]</td><td>Year (00H to 99H) First two digits</td><td>Day of week (00H to 06H)</td></tr>
</table>
00H (Sun.) to 06H (Sat.)</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [16]</td><td>Error-detected network No. [*3]</td><td>Network number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
1 to 239: Network number</td><td>–</td><td>System</td></tr>
<tr><td>(s1) [17]</td><td>Error-detected station No. [*3]</td><td>Number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr>
</table></td><td>–</td><td>System</td></tr>
</table>

*1 : Specification is possible when the host station is a network module or Ethernet module of function version D or later.
(Specification is not possible for other modules. An access is always made to the target station CPU.)

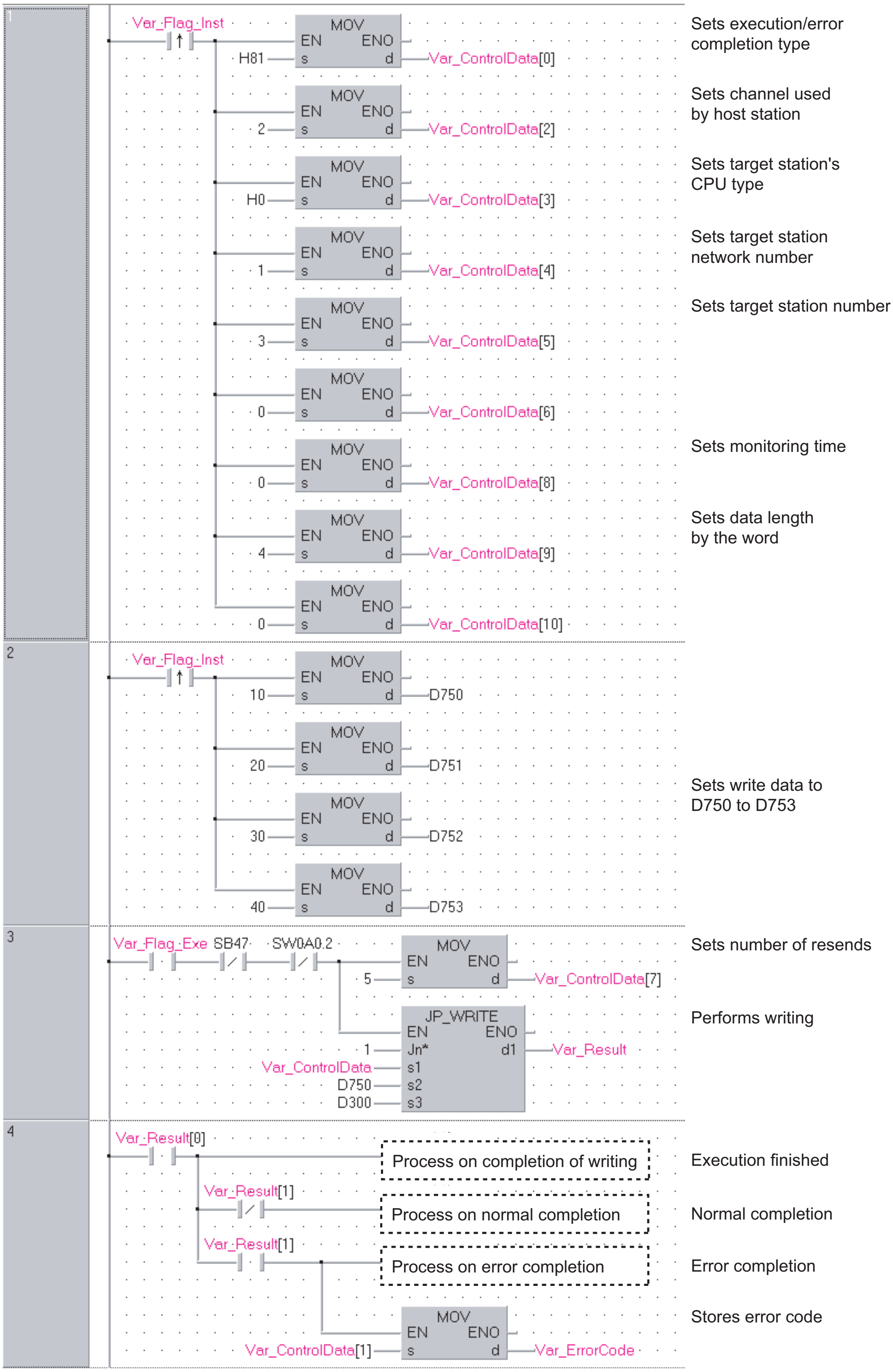
*2 : Specification is possible when the versions of the QCPU and the network module on the host station and the target station are as indicated below.
(Specification is not possible for other modules. An access is always made to the target station CPU.)
- Network module: The first five digits of the serial number are '06092' or higher.
- QCPU: The first five digits of the serial number are '06092' or higher.

*3 : Data are stored only when 1 is set in bit 7 of Error completion type ((s1) [0]).

Program Example

The following program writes data which are stored in the devices from D750 to D753 of the station number 2 (host station) to the devices from D300 to D303 of the station number 3 (target station).

[Structured ladder/FBD]



```
[ST]
IF (Var_Flag_Inst=TRUE) THEN
      MOV(TRUE,H81,Var_ControlData[0]);        (* Sets execution/error completion type *)
      MOV(TRUE,2,Var_ControlData[2]);          (* Sets channel used by host station *)
      MOV(TRUE,H0,Var_ControlData[3]);         (* Sets target station's CPU type *)
      MOV(TRUE,1,Var_ControlData[4]);          (* Sets target station network number *)
      MOV(TRUE,3,Var_ControlData[5]);          (* Sets target station number *)
      MOV(TRUE,0,Var_ControlData[6]);
      MOV(TRUE,0,Var_ControlData[8]);          (* Sets monitoring time *)
      MOV(TRUE,4,Var_ControlData[9]);          (* Sets data length by the word *)
      MOV(TRUE,0,Var_ControlData[10]);
END_IF;
IF (LDP(TRUE,Var_Flag_Inst2)) THEN
      MOV(TRUE,10,D750);                       (* Sets write data to D750 to D753 *)
      MOV(TRUE,20,D751);
      MOV(TRUE,30,D752);
      MOV(TRUE,40,D753);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.2=FALSE)) THEN
      MOV(TRUE, 5, Var_ControlData[7]);        (* Sets number of resends *)
      JP_WRITE(TRUE,1,Var_ControlData,D750,D300,Var_Result);
                                               (* Performs writing *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                     (* Execution finished *)
      (* Process on completion of writing *)
      IF(Var_Result[1]=FALSE)THEN              (* Normal completion *)
            (* Process on normal completion *)
      ELSE                                     (* Error completion *)
            (* Process on error completion *)
            MOV(TRUE, Var_ControlData[1], Var_ErrorCode);
                                               (* Stores error code *)
      END_IF;
END_IF;
```

5.4.11 SWRITE instruction

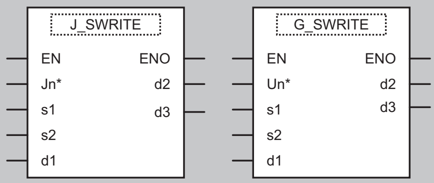
J_SWRITE, G_SWRITE

CC IE C | CC IE F | NET/H | Ether

J(P)_SWRITE
G(P)_SWRITE

P: Executing condition :

Structured ladder/FBD



ST

ENO:= J_SWRITE (EN, Jn*, s1, s2, d1, d2, d3);
ENO:= G_SWRITE (EN, Un*, s1, s2, d1, d2, d3);

[ ] indicates any of the following instructions.

J_SWRITE JP_SWRITE
G_SWRITE GP_SWRITE

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Start number of the host station's device that stores write data	:ANY16
	d1:	Start number of the target station's device to which data are written	:ANY16
Output argument	ENO:	Execution result	:Bit
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]
	d3:	Variable that turns ON upon completion of the instruction (Write notification device)	:Bit

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
d1	–	○		–					
d2	○	○		–					
d3	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

5 MODULE DEDICATED INSTRUCTION

J_SWRITE, G_SWRITE

Function

This instruction writes data to a word device of another station.

Control Data

For the control data of the SWRITE instruction that writes data to the word device memory of another station, refer to WRITE instruction.

The control data of the SWRITE instruction are the same as those of the WRITE instruction.

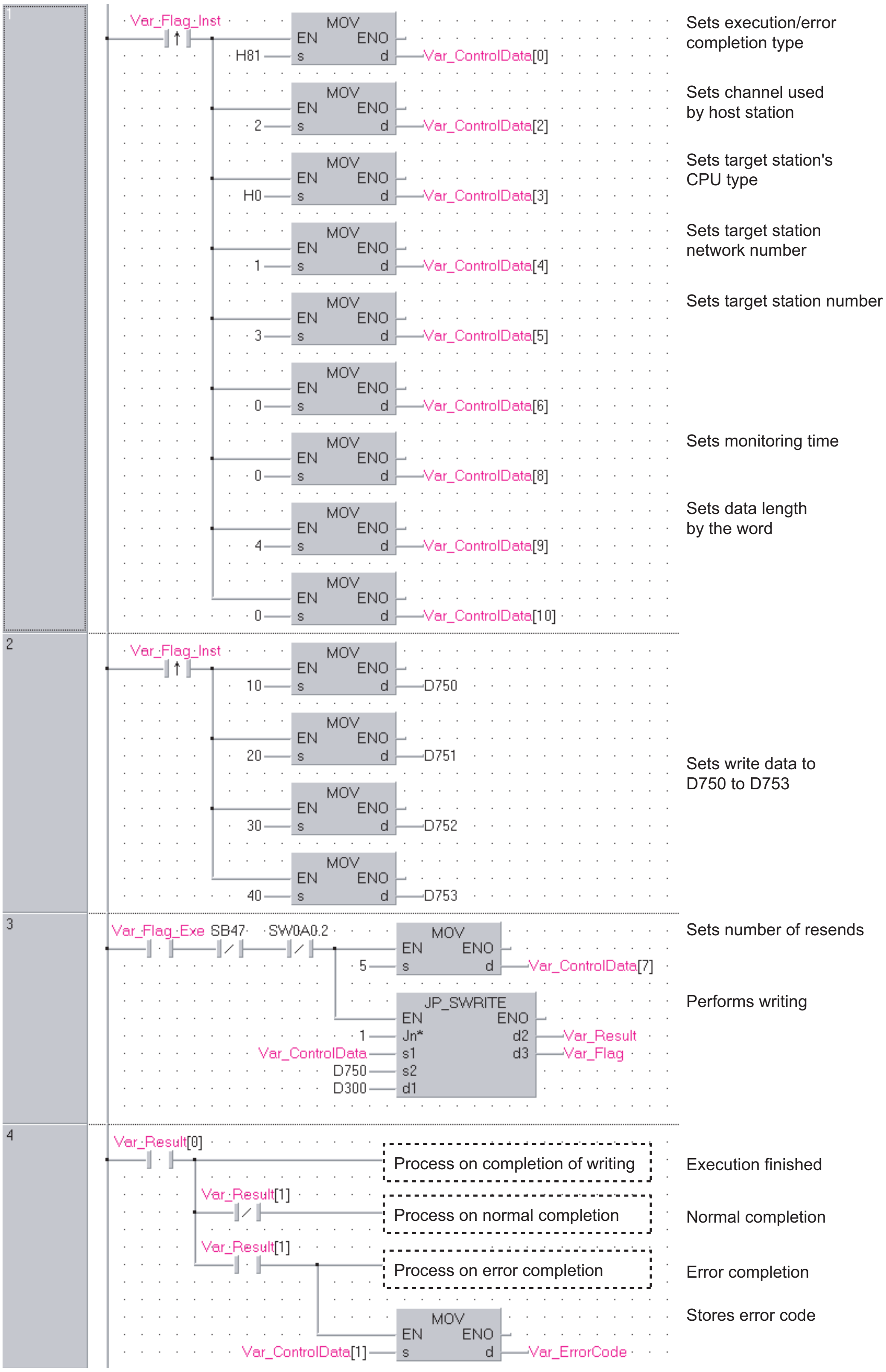
Accordingly, this section omits the explanation.

Program Example

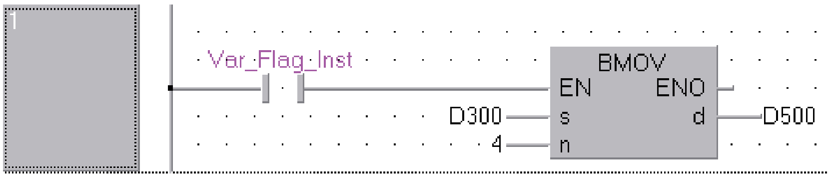
The following program example of the SWRITE instruction is different from that of the WRITE instruction by assigning the write notification device (d3) at the end of arguments.

[Structured ladder/FBD]

(1) Program on the request source (station number 2) of the SWRITE instruction



(2) Program on the request target (station number 3) of the SWRITE instruction



Stores data of devices from D300 to D303 to devices from D500 to D503

[ST]

(1) Program on the request source (station number 2) of the SWRITE instruction

```
IF (Var_Flag_Inst=TRUE) THEN
        MOV(TRUE,H81,Var_ControlData[0]);       (* Sets execution/error completion type *)
        MOV(TRUE,2,Var_ControlData[2]);         (* Sets channel used by host station *)
        MOV(TRUE,H0,Var_ControlData[3]);        (* Sets target station's CPU type *)
        MOV(TRUE,1,Var_ControlData[4]);         (* Sets target station network number *)
        MOV(TRUE,3,Var_ControlData[5]);         (* Sets target station number *)
        MOV(TRUE,0,Var_ControlData[6]);
        MOV(TRUE,0,Var_ControlData[8]);         (* Sets monitoring time *)
        MOV(TRUE,4,Var_ControlData[9]);         (* Sets data length by the word *)
        MOV(TRUE,0,Var_ControlData[10]);
END_IF;
IF (Var_Flag_Inst2=TRUE) THEN
        MOV(TRUE,10,D750);                      (* Sets write data to D750 to D753 *)
        MOV(TRUE,20,D751);
        MOV(TRUE,30,D752);
        MOV(TRUE,40,D753);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.2=FALSE)) THEN
        MOV(TRUE, 5, Var_ControlData[7]);       (* Sets number of resends *)
        JP_SWRITE(TRUE,1,Var_ControlData,D750,D300,Var_Result,Var_Flag);
                                                (* Performs writing *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                      (* Execution finished *)
        (* Process on completion of writing *)
        IF(Var_Result[1]=FALSE)THEN             (* Normal completion *)
                (* Process on normal completion *)
        ELSE                                    (* Error completion *)
                (* Process on error completion *)
                MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
        END_IF;
END_IF;
```

(2) Program on the request target (station number 3) of the SWRITE instruction

```
IF(Var_Flag=TRUE) THEN
        BMOV(TRUE,D300,4,D500);
                (* Stores data of devices from D300 to D303 to devices from D500 to D503 *)
END_IF;
```

5.4.12 SEND instruction

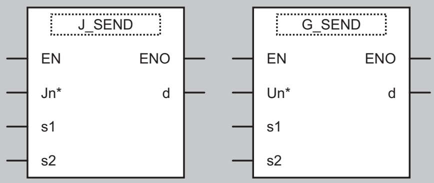
J_SEND, G_SEND

CC IE C | CC IE F | NET/H | Ether

J(P)_SEND
G(P)_SEND

P: Executing condition :

Structured ladder/FBD



ST

ENO:= J_SEND (EN, Jn*, s1, s2, d);
ENO:= G_SEND (EN, Un*, s1, s2, d);

[ ] indicates any of the following instructions.

J_SEND JP_SEND
G_SEND GP_SEND

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Start number of the host station's device that stores write data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

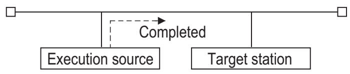
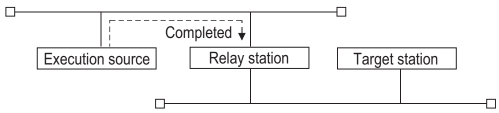
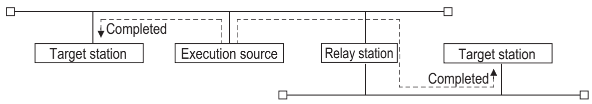
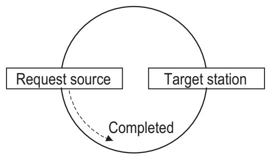
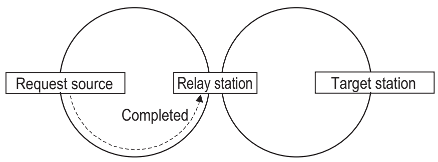
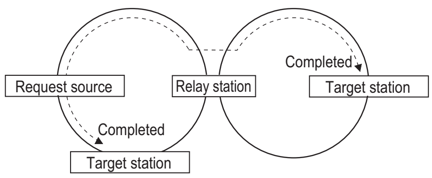
Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends data to another station.

Control Data

Device	Item	Setting data	Setting range	Setting side
ⓢ1 [0]	Execution/Error completion type	b15 to b7 to b0 0 | ② | 0 | ① ① Execution type (bit 0) **Ethernet** 0: Without arrival confirmation When the target station is on the same network... Completed when data are sent from the host station.  When the target station is on another network ..... Completed when data reach to a relay station on the same network.  1: With arrival confirmation Completed when data are stored in the specified channel of the target station.  **MELSECNET/H CC-Link IE** 0: Without arrival confirmation • When the target station is on the same network Completed when data are sent from the host station.  • When the target station is on another network Completed when data reach to a relay station on the same network.  1: With arrival confirmation Completed when data are written to the target station.  When '0: Without arrival confirmation' is specified, even if writing to the target station is completed abnormally in the following cases, the processing of the instruction in the host station is completed normally. • Communication itself was completed normally, although the sent data were erroneous. • Data could not be written to the target station because instructions from multiple stations were executed to the same station. (An error code (F222H, E006H, E205H, D202H, or D282H) is detected at the target station.)	0000H, 0001H, 0080H, 0081H	User

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>(s1)[0]</td><td>Execution/Error completion type</td><td>② Error completion type (bit 7)
Specify the clock data setup status at the time of error completion.
0: Clock data at the time of error completion is not set in the area starting from (s1)[11].
1: Clock data at the time of error completion is set in the area starting from (s1)[11].</td><td>0000H,
0001H,
0080H,
0081H</td><td>User</td></tr>
<tr><td>(s1)[1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>(s1)[2]</td><td>Channel used by host station</td><td>Specify the channel used by the host station.<table><tr><th>Description</th><th>Setting value</th></tr><tr><td>Ethernet
MELSECNET/H
CC-Link IE Controller Network</td><td>1 to 8</td></tr><tr><td>CC-Link IE Field Network</td><td>1 to 2</td></tr></table></td><td>1 to 8</td><td>User</td></tr>
<tr><td>(s1)[3]</td><td>Target station channel</td><td>Specify the channel of the target station that stores data.*2<table><tr><th>Description</th><th>Setting value</th></tr><tr><td>MELSECNET/H</td><td>1 to 64</td></tr><tr><td>Ethernet
CC-Link IE</td><td>1 to 8</td></tr></table></td><td>1 to 64</td><td>User</td></tr>
<tr><td>(s1)[4]</td><td>Target station network No.</td><td>Specify the network number of the target station.
1 to 239 : Network number
254 : Specify this when 254 has been set in Jn. (Network specified in 'Valid module during other station access')</td><td>1 to 239, 254</td><td>User</td></tr>
</table>

5 MODULE DEDICATED INSTRUCTION

J_SEND, G_SEND

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s1 [5]</td><td>Target station No.</td><td>Specify the station number of the target station.
(1) Station number specification
<table><tr><th>Setting value</th><th>Description</th></tr><tr><td>MELSECNET/H</td><td>1 to 64</td></tr><tr><td>Ethernet
CC-Link IE Controller Network</td><td>-</td></tr><tr><td>Host station is Universal model QCPU</td><td>1 to120</td></tr><tr><td>Host station is anything other than Universal model QCPU</td><td>1 to 64</td></tr><tr><td>CC-Link IE Field Network</td><td>-</td></tr><tr><td>Master station</td><td>125 (7D$_H$)</td></tr><tr><td>Local station or the intelligent device station</td><td>1 to 120</td></tr></table>To increase the data reliability when the station number is specified, executing the instruction with setting Execution/Error completion type (s1 [0]) to '1: With arrival confirmation' is recommended.
(2) Group specification (target station is anything other than CC-Link IE Field Network)
81$_H$ to A0$_H$: All stations in group numbers 1 to 32
(Setting is available when Execution type is set to '0: Without arrival confirmation' in s1 [0].)
Group No.1 · · · 81$_H$
Group No.2 · · · 82$_H$
to
Group No.32 · · · A0$_H$
(3) All stations specification
FF$_H$: All stations of the target network number (Except the host station.)
(Setting is available when Execution type is set to '0: Without arrival confirmation' in s1 [0].)
To specify a group or all stations.
• Specify '0000$_H$' or '03FF$_H$' for the target station's CPU type (s1 [3]).
• Group specification cannot be set for the station of the CC-Link IE Field Network.
• It cannot be confirmed if the data are written to the target station normally. Confirm the device of the target station of the write destination.</td><td>1 to 120,
125 (7D$_H$)
81$_H$ to A0$_H$,
FF$_H$</td><td>User</td></tr>
<tr><td>s1 [6]</td><td>–</td><td>(Fixed value)</td><td>0</td><td>User</td></tr>
<tr><td rowspan="2">s1 [7]</td><td rowspan="2">Number of resends</td><td>① For instruction execution
Specify the number of instruction resends when the instruction is not completed within the monitoring time specified in s1 [8]. (Setting is available when Execution type is set to '1: With arrival confirmation' in s1 [0].)</td><td>0 to 15</td><td>User</td></tr>
<tr><td>② At instruction completion
The number of resends (result) is stored. (Setting is available when the Execution type is set to '1: With arrival confirmation' in s1 [0].)</td><td>–</td><td>System</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>S1[8]</td><td>Arrival monitoring time</td><td>Specify the monitoring time required for instruction completion. (Setting is available when Execution type is set to '1: With arrival confirmation' in S1[0].)
If the instruction is not completed within this time, it is resent by the number of times specified in S1[7].
<table>
<tr><th colspan="2">Description</th><th>Setting value</th></tr>
<tr><td>Ethernet</td><td>0 to TCP retransmission timer value: Monitoring is performed by the TCP retransmission timer value.
(TCP retransmission timer value + 1) to 16383: Monitoring time (unit: second)</td><td>0 to 16383</td></tr>
<tr><td>MELSECNET/H
CC-Link IE</td><td>0: 10 seconds
1 to 32767: 1 to 32767 seconds</td><td>0 to 32767</td></tr>
</table></td><td>0 to 32767</td><td>User</td></tr>
<tr><td>S1[9]</td><td>Send data length</td><td>Specify the number of send data.</td><td>1 to 960</td><td>User</td></tr>
<tr><td>S1[10]</td><td>(Reserved)</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>S1[11]</td><td>Clock set flag *1</td><td>Valid/invalid status of the data in the area starting from S1[12] is stored.
0: Invalid
1: Valid</td><td>–</td><td>System</td></tr>
<tr><td>S1[12]
to
S1[15]</td><td>Clock data at the time of error completion*1</td><td>Clock data at the time of error completion are stored in BCD format.
<table>
<tr><th></th><th>b15 to b8</th><th>b7 to b0</th></tr>
<tr><td>S1[12]</td><td>Month (01H to 12H)</td><td>Year (00H to 99H) Last two digits</td></tr>
<tr><td>S1[13]</td><td>Hour (00H to 23H)</td><td>Day (01H to 31H)</td></tr>
<tr><td>S1[14]</td><td>Second (00H to 59H)</td><td>Minute (00H to 59H)</td></tr>
<tr><td>S1[15]</td><td>Year (00H to 99H) First two digits</td><td>Day of week (00H to 06H)</td></tr>
</table>
00H (Sun.) to 06H (Sat.)</td><td>–</td><td>System</td></tr>
<tr><td>S1[16]</td><td>Error-detected network No.*1</td><td>Network number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
1 to 239: Network number</td><td>–</td><td>System</td></tr>
<tr><td>S1[17]</td><td>Error-detected station No.*1</td><td>Number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr>
</table></td><td>–</td><td>System</td></tr>
</table>

*1 : Data are stored only when 1 is set in bit 7 of Error completion type (S1[0]).
*2 : Logical channel setting is not available for the CC-Link IE network module.

Program Example

The following program sends data of the devices from D750 to D753 of the station number 1 (host station) to the channel 5 of the station number 2 (target station).

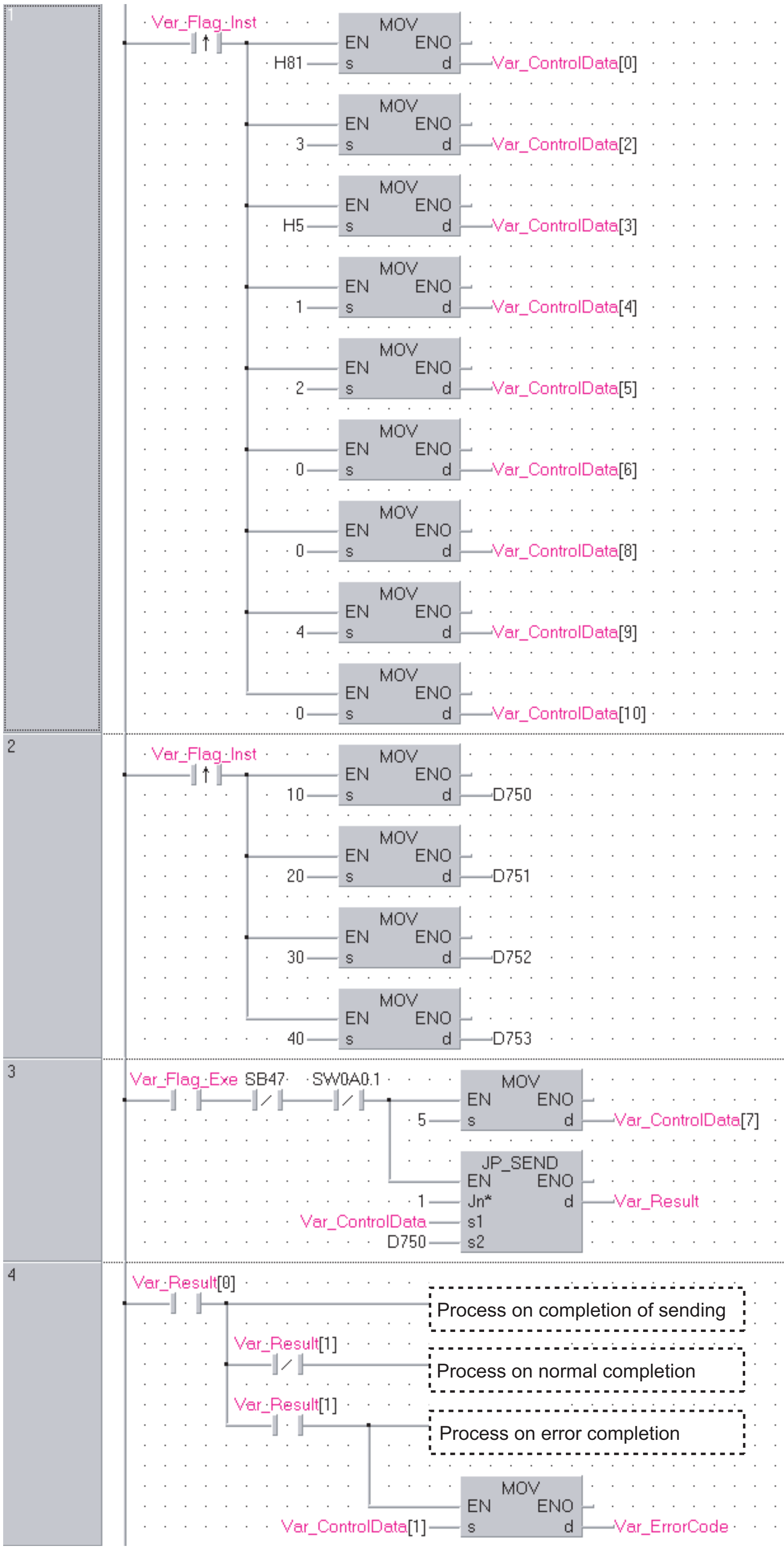
For the method for reading the data, which are sent by the SEND instruction, from the channel 5 of the station number 2 (target station), refer to the following sections.

- For reading out data in a main program

  ☞ Section 5.4.13 RECV instruction
- For reading out data in an interrupt program

  ☞ Section 5.4.14 RECVS instruction

[Structured ladder/FBD]



Sets execution/error completion type

Sets channel used by host station

Sets target station channel

Sets target station network number

Sets target station number

Sets monitoring time

Sets data length by the word

Sets send data to D750 to D753

Sets number of resends

Sends data

Execution finished

Normal completion

Error completion

Stores error code

```
[ST]
IF (Var_Flag_Inst=TRUE) THEN
    MOV(TRUE,H81,Var_ControlData[0]);       (* Sets execution/error completion type *)
    MOV(TRUE,3,Var_ControlData[2]);         (* Sets channel used by host station *)
    MOV(TRUE,H5,Var_ControlData[3]);        (* Sets target station channel *)
    MOV(TRUE,1,Var_ControlData[4]);         (* Sets target station network number *)
    MOV(TRUE,2,Var_ControlData[5]);         (* Sets target station number *)
    MOV(TRUE,0,Var_ControlData[6]);
    MOV(TRUE,0,Var_ControlData[8]);         (* Sets monitoring time *)
    MOV(TRUE,4,Var_ControlData[9]);         (* Sets data length by the word *)
    MOV(TRUE,0,Var_ControlData[10]);
END_IF;
IF (Var_Flag_Inst2=TRUE) THEN
    MOV(TRUE,10,D750);                  (*Sets send data to D750 to D753 *)
    MOV(TRUE,20,D751);
    MOV(TRUE,30,D752);
    MOV(TRUE,40,D753);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.1=FALSE)) THEN
    MOV(TRUE, 5, Var_ControlData[7]);       (* Sets number of resends *)
    JP_SEND(TRUE,1,Var_ControlData,D750,Var_Result);(* Sends data *)
END_IF;
IF(Var_Result[0]=TRUE)THEN              (* Execution finished *)
    (* Process on completion of sending *)
    IF(Var_Result[1]=FALSE)THEN         (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                (* Error completion *)
        (* Process on error completion *)
        MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
    END_IF;
END_IF;
```

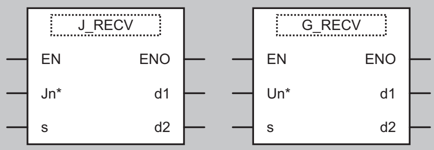
5.4.13 RECV instruction

J_RECV, G_RECV

CC IE C | CC IE F | NET/H | Ether

J(P)_RECV
G(P)_RECV

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= J_RECV (EN, Jn*, s, d1, d2); ENO:= G_RECV (EN, Un*, s, d1, d2);

[ ] indicates any of the following instructions.

J_RECV	JP_RECV
G_RECV	GP_RECV

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s:	Variable that stores control data	:Array of ANY16 [0..17]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the host station's device that stores read data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○				–			
d1	–	○				–			
d2	○	○				–			

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads received data (for main program).

Control Data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>ⓢ[0]</td><td>Error completion type</td><td>
<table><tr><td>b15</td><td>to</td><td>b7</td><td>to</td><td>b0</td></tr><tr><td colspan="2">0</td><td>①</td><td colspan="2">0</td></tr></table>
① Error completion type (bit 7)
Specify the clock data setup status at the time of error completion.
0: Clock data at the time of error completion is not set in the area starting from ⓢ[11].
1: Clock data at the time of error completion is set in the area starting from ⓢ[11].</td><td>0000H,
0080H</td><td>User</td></tr>
<tr><td>ⓢ[1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>ⓢ[2]</td><td>Host station channel</td><td>Specify the channel of host station that stores receive data.
<table><tr><th>Description</th><th>Setting value</th></tr><tr><td>MELSECNET/H
Ethernet
CC-Link IE Controller Network</td><td>1 to 8</td></tr><tr><td>CC-Link IE Field Network</td><td>1 to 2</td></tr></table></td><td>1 to 8</td><td>User</td></tr>
<tr><td>ⓢ[3]</td><td>Channel used by sending station</td><td>Channel used by the sending station is stored.
1 to 8: Channel</td><td>–</td><td>System</td></tr>
<tr><td>ⓢ[4]</td><td>Network No. of sending station</td><td>Network number of the sending station is stored.
1 to 239: Network number</td><td>–</td><td>System</td></tr>
<tr><td>ⓢ[5]</td><td>Sending station No.</td><td>Station number of the sending station is stored.
<table><tr><th colspan="2">Setting value</th><th>Description</th></tr><tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr><tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr><tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr><tr><td></td><td>Master station</td><td>125 (7DH)</td></tr><tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr></table></td><td>–</td><td>System</td></tr>
<tr><td>ⓢ[6]</td><td>(Reserved)</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>ⓢ[7]</td><td>(Reserved)</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>ⓢ[8]</td><td>Arrival monitoring time</td><td>Specify the monitoring time required for the instruction completion.
When the instruction is not completed within the monitoring time, it completes abnormally.
<table><tr><th colspan="2">Description</th><th>Setting value</th></tr><tr><td>Ethernet</td><td>0 to TCP retransmission timer value: Monitoring is performed by the TCP retransmission timer value.
(TCP retransmission timer value + 1) to 16383: Monitoring time (unit: second)</td><td>0 to 16383</td></tr><tr><td>CC-Link IE
MELSECNET/H</td><td>0: 10 seconds
1 to 32767: 1 to 32767 seconds</td><td>0 to 32767</td></tr></table></td><td>0 to 32767</td><td>User</td></tr>
</table>

Device	Item	Setting data	Setting range	Setting side
Ⓢ[9]	Receive data length	The number of received data stored in Ⓓ1 to Ⓓ1+ n is stored. 0 : No receive data 1 to 960 : Number of words of receive data	–	System
Ⓢ[10]	(Reserved)	–	–	–
Ⓢ[11]	Clock set flag *1	Valid/invalid status of the data in the area starting from Ⓢ[12] is stored. 0: Invalid 1: Valid	–	System
Ⓢ[12] to Ⓢ[15]	Clock data at the time of error completion*1	Clock data at the time of error completion are stored in BCD format. b15 to b8 / b7 to b0 Ⓢ[12]: Month (01H to 12H) / Year (00H to 99H) Last two digits Ⓢ[13]: Hour (00H to 23H) / Day (01H to 31H) Ⓢ[14]: Second (00H to 59H) / Minute (00H to 59H) Ⓢ[15]: Year (00H to 99H) First two digits / Day of week (00H to 06H) 00H (Sun.) to 06H (Sat.)	–	System
Ⓢ[16]	Error-detected network No. *1	Network number of the station where an error was detected is stored. (However, when an error was detected at the host station, the network number is not stored.) 1 to 239: Network number	–	System

Ⓢ[17]	Error-detected station No.*1	Number of the station where an error was detected is stored.
		(However, when an error was detected at the host station, the network number is not stored.)
		Setting value / **Description**
		MELSECNET/H: 1 to 64
		Ethernet, CC-Link IE Controller Network: 1 to 120
		CC-Link IE Field Network: -
		  Master station: 125 (7DH)
		  Local station or the intelligent device station: 1 to 120
			–	System

*1 : Data are stored only when 1 is set in bit 7 of Error completion type (Ⓢ[0]).

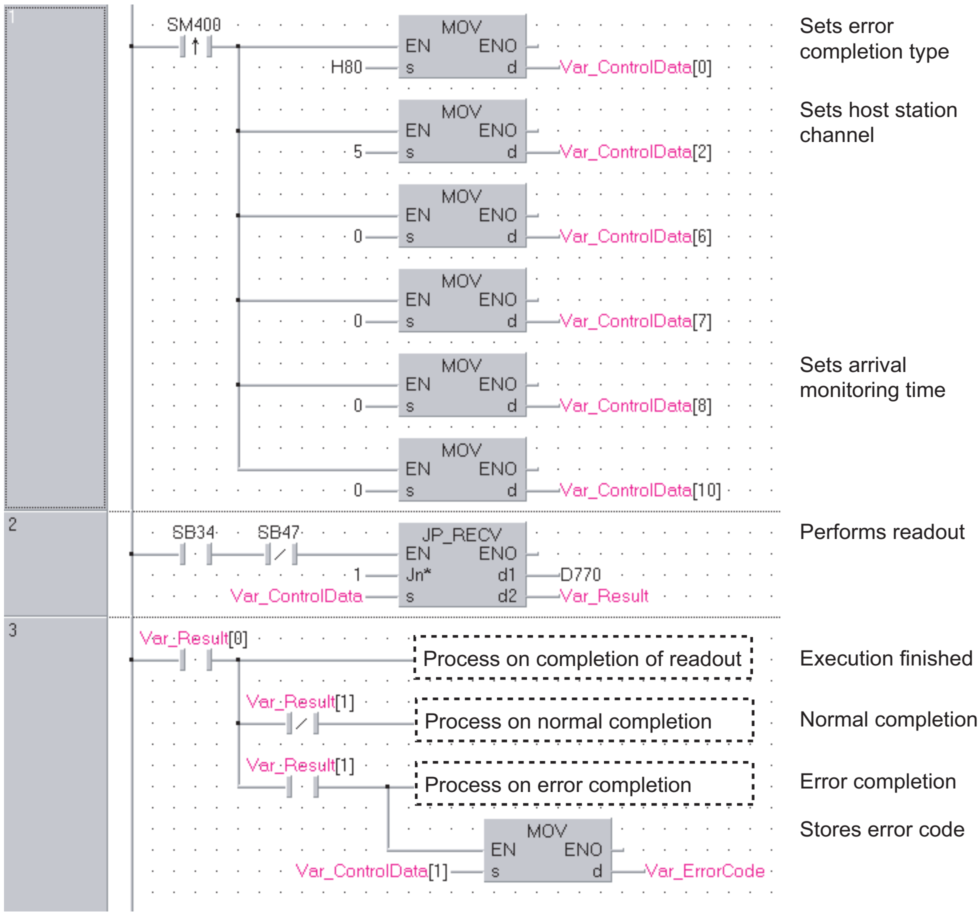
Program Example

The following program reads out data, which is sent from the station number 1 by the SEND instruction, from the channel 5 of the station number 2 (host station) and stores the data to the devices from D770 to D773 of the station number 2 (host station) when SB0034 turns ON.

For the SEND instruction, refer to the following section.

☞ Section 5.4.12 SEND instruction

[Structured ladder/FBD]



[ST]

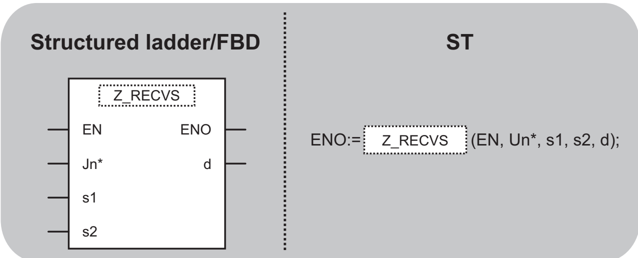
```
IF (SM400=TRUE) THEN
    MOV(TRUE,H80,Var_ControlData[0]);        (* Sets error completion type *)
    MOV(TRUE,5,Var_ControlData[2]);          (* Sets host station channel *)
    MOV(TRUE,0,Var_ControlData[6]);
    MOV(TRUE,0,Var_ControlData[7]);
    MOV(TRUE,0,Var_ControlData[8]);          (* Sets arrival monitoring time *)
    MOV(TRUE,0,Var_ControlData[10]);
END_IF;
IF((SB34=TRUE) AND (SB47=FALSE)) THEN
    JP_RECV(TRUE,1,Var_ControlData,D770,Var_Result);(* Performs readout *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                   (* Execution finished *)
    (* Process on completion of readout *)
    IF(Var_Result[1]=FALSE)THEN              (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                     (* Error completion *)
        (* Process on error completion *)
        MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
    END_IF;
END_IF;
```

5.4.14 RECVS instruction

Z_RECVS

CC IE C | CC IE F | NET/H | Ether

Z_RECVS



[ ] indicates the following instruction.

Z_RECVS

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Start number of the host station's device that stores read data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Dummy	:Bit

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○	–						
s2	–	○	–						
d	○	○	–						

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction reads received data (for interrupt program).

Control Data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>S[0]</td><td>Completion type</td><td>b15 to b0
0 (Fixed)</td><td>0</td><td>User</td></tr>
<tr><td>S[1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>S[2]</td><td>Host station channel</td><td>Specify the channel of host station that stores receive data.
<table>
<tr><th>Description</th><th>Setting value</th></tr>
<tr><td>MELSECNET/H
Ethernet
CC-Link IE Controller Network</td><td>1 to 8</td></tr>
<tr><td>CC-Link IE Field Network</td><td>1 to 2</td></tr>
</table></td><td>1 to 8</td><td>User</td></tr>
<tr><td>S[3]</td><td>Channel used by sending station</td><td>Channel used by the sending station is stored.
1 to 8: Channel</td><td>–</td><td>System</td></tr>
<tr><td>S[4]</td><td>Network No. of sending station</td><td>Network number of the sending station is stored.
1 to 239: Network number</td><td>–</td><td>System</td></tr>
<tr><td>S[5]</td><td>Sending station No.</td><td>Station number of the sending station is stored.
<table>
<tr><th>Setting value</th><th>Description</th></tr>
<tr><td>MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td>Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr>
<tr><td>CC-Link IE Field Network</td><td>-</td></tr>
<tr><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td>slave station</td><td>1 to 120</td></tr>
</table></td><td>–</td><td>System</td></tr>
<tr><td>S[6]
S[7]
S[8]</td><td>System area</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>S[9]</td><td>Receive data length</td><td>The number of received data stored in d1 to d1 + n is stored.
0 : No receive data
1 to 960 : Number of words of receive data</td><td>–</td><td>System</td></tr>
<tr><td>S[10]
to
S[17]</td><td>System area</td><td>–</td><td>–</td><td>–</td></tr>
</table>

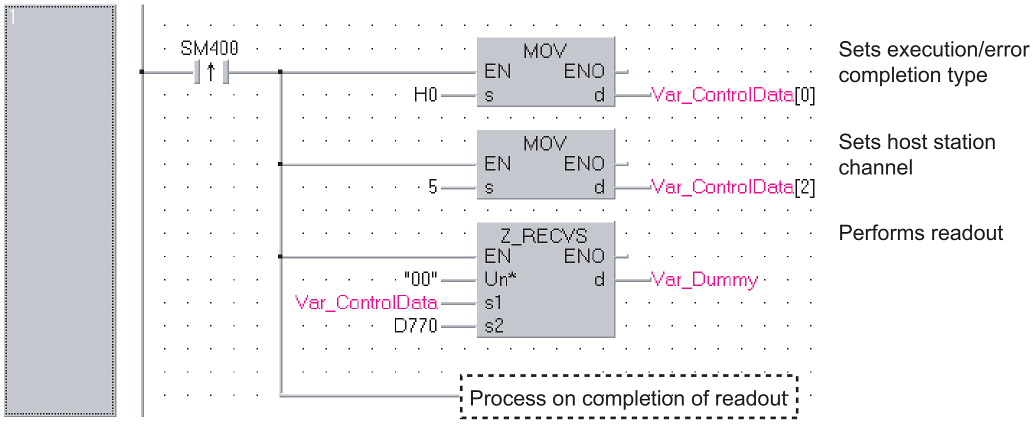
Program Example

The following program reads data, which is sent from the station number 1 by the SEND instruction, from the channel 5 of the station number 2 (host station) and stores the data to the devices from D770 to D773 of the station number 2 (host station) when an interruption program starts up.

For the SEND instruction, refer to the following section.

Section 5.4.12 SEND instruction

[Structured ladder/FBD]



[ST]

```
IF (SM400=TRUE) THEN
    MOV(TRUE,H0,Var_ControlData[0]);        (* Sets execution/error completion type *)
    MOV(TRUE,5,Var_ControlData[2]);         (* Sets host station channel *)
    Z_RECVS(TRUE,"00",Var_ControlData,D770,Var_Dummy);
                                            (* Performs readout *)

    (* Process on completion of readout *)

END_IF;
```

5.4.15 REQ instruction

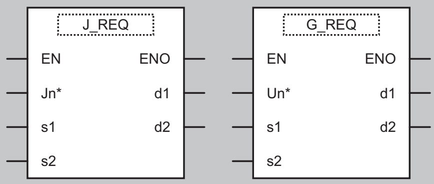
J_REQ, G_REQ

CC IE C | CC IE F | NET/H | Ether

J(P)_REQ
G(P)_REQ

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= J_REQ (EN, Jn*, s1, s2, d1, d2);
ENO:= G_REQ (EN, Un*, s1, s2, d1, d2);

[ ] indicates any of the following instructions.

J_REQ	JP_REQ
G_REQ	GP_REQ

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:ANY16
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:ANY16
	s1:	Variable that stores control data	:Array of ANY16 [0..17]
	s2:	Variable that stores request data	:Array of ANY16 [0..5]
Output argument	ENO:	Execution result	:Bit
	d1:	Variable that stores response data	:Array of ANY16 [0..5]
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s1</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>s2</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>d1</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>d2</td><td>○</td><td colspan="2">○</td><td colspan="6">–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

Function

Remotely runs or stops a programmable controller on another station.

Also, reads/writes clock data from/to a programmable controller on another station.

Control Data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s1 [0]</td><td>Error completion type</td><td><table><tr><td>b15</td><td>to</td><td>b7</td><td>to</td><td>b4</td><td>to</td><td>b0</td></tr><tr><td colspan="2">0</td><td>①</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table>① Error completion type (bit 7)
Specify the clock data setup status at the time of error completion.
0: Clock data at the time of error completion is not set in the area starting from s1 [11].
1: Clock data at the time of error completion is set in the area starting from s1 [11].</td><td>0011H,
0091H</td><td>User</td></tr>
<tr><td>s1 [1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>s1 [2]</td><td>Channel used by host station</td><td>Specify the channel used by the host station.
1 to 8: Channel</td><td>1 to 8</td><td>User</td></tr>
<tr><td rowspan="2">s1 [3]</td><td rowspan="2">Target station's CPU type</td><td rowspan="2">Specify the type of the target station CPU.<table><tr><th colspan="2">Setting value</th><th>Description</th></tr><tr><td rowspan="2">Ethernet</td><td>0000H</td><td>Target station CPU/host system CPU
(Specified data are the same as '03FFH'.)</td></tr><tr><td>03FFH*1</td><td>Target station CPU/host system CPU</td></tr><tr><td rowspan="6">MELSECNET/H
CC-Link IE</td><td>0000H</td><td>Target station CPU/host system CPU
(Specified data are the same as '03FFH'.)</td></tr><tr><td>03E0H*2</td><td>Multi-CPU No. 1/target station CPU (single CPU system)</td></tr><tr><td>03E1H*2</td><td>Multi-CPU No. 2</td></tr><tr><td>03E2H*2</td><td>Multi-CPU No. 3</td></tr><tr><td>03E3H*2</td><td>Multi-CPU No. 4</td></tr><tr><td>03FFH*1</td><td>Target station CPU/host system CPU</td></tr></table></td><td>0000H,
03FFH</td><td rowspan="2">User</td></tr>
<tr><td>0000H,
03E0H to
03E3H,
03FFH</td></tr>
<tr><td>s1 [4]</td><td>Target station network No.</td><td>Specify the network number of the target station.
1 to 239 : Network number
254 : Specify this when 254 has been set in Jn.
(Network specified in 'Valid module during other station access')</td><td>1 to 239, 254</td><td>User</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>S1 [5]</td><td>Target station No.</td><td>Specify the station number of the target station.
(1) Station number specification
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>-</td></tr>
<tr><td></td><td>Host station is Universal model QCPU</td><td>1 to120</td></tr>
<tr><td></td><td>Host station is anything other than Universal model QCPU</td><td>1 to 64</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>Local station or the intelligent device station</td><td>1 to 120</td></tr>
</table>
(2) Group specification (target station is anything other than CC-Link IE Field Network)
81H to A0H: All stations in group numbers 1 to 32 (Available only at clock data writing and remote RUN/STOP)

Group No.1 · · · 81H
Group No.2 · · · 82H
to
Group No.32 · · · A0H

(3) All stations specification
FFH: All stations of the target network number (Except the host station.) (Available only at clock data writing and remote RUN/STOP)
To specify a group or all stations.
• Specify '0000H' or '03FFH' for the target station's CPU type (S1 [3]).
• Group specification cannot be set for the station of the CC-Link IE Field Network.
• It cannot be confirmed if the data are written to the target station normally. Confirm the device of the target station of the write destination.</td><td>1 to 120,
125 (7DH)
81H to A0H,
FFH</td><td>User</td></tr>
<tr><td>S1 [6]</td><td>–</td><td>(Fixed value)</td><td>0</td><td>User</td></tr>
<tr><td rowspan="2">S1 [7]</td><td rowspan="2">Number of resends</td><td>① For instruction execution
Specify the number of resends when the instruction is not completed within the monitoring time specified in S1 [8].</td><td>0 to 15</td><td>User</td></tr>
<tr><td>② At instruction completion
The number of resends (result) is stored</td><td>0 to 15</td><td>System</td></tr>
<tr><td>S1 [8]</td><td>Arrival monitoring time</td><td>Specify the monitoring time required for the instruction completion.
If the instruction is not completed within this time, it is resent by the number of times specified in S1 [7].
<table>
<tr><th colspan="2">Description</th><th>Setting value</th></tr>
<tr><td>Ethernet</td><td>0 to TCP retransmission timer value: Monitoring is performed by the TCP retransmission timer value.
(TCP retransmission timer value + 1) to 16383: Monitoring time (unit: second)</td><td>0 to 16383</td></tr>
<tr><td>MELSECNET/H
CC-Link IE</td><td>0: 10 seconds
1 to 32767: 1 to 32767 seconds</td><td>0 to 32767</td></tr>
</table></td><td>0 to 32767</td><td>User</td></tr>
</table>

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>(s1)[9]</td><td>Request data length</td><td>Specify the number of request data (words).
(Number of words of the data stored in request data storage device (s2))
4: Remote RUN
3: Remote STOP
2: Clock data read 6: Clock data write</td><td>2 to 4, 6</td><td>User</td></tr>
<tr><td>(s1)[10]</td><td>Response data length</td><td>Number of response data (words) are stored.
(Number of words of the data stored in response data storage device)
2: Remote RUN/STOP
6: Clock data read 2: Clock data write</td><td>–</td><td>System</td></tr>
<tr><td>(s1)[11]</td><td>Clock set flag*3</td><td>Valid/invalid status of the data in the area starting from (s1)[12] is stored.
0: Invalid
1: Valid</td><td>–</td><td>System</td></tr>
<tr><td>(s1)[12]
to
(s1)[15]</td><td>Clock data on error completion*3</td><td>Clock data at the time of error completion are stored in BCD format.
<table>
<tr><th></th><th>b15 to b8</th><th>b7 to b0</th></tr>
<tr><td>(s1)[12]</td><td>Month (01H to 12H)</td><td>Year (00H to 99H) Last two digits</td></tr>
<tr><td>(s1)[13]</td><td>Hour (00H to 23H)</td><td>Day (01H to 31H)</td></tr>
<tr><td>(s1)[14]</td><td>Second (00H to 59H)</td><td>Minute (00H to 59H)</td></tr>
<tr><td>(s1)[15]</td><td>Year (00H to 99H) First two digits</td><td>Day of week (00H to 06H)
00H (Sun.) to 06H (Sat.)</td></tr>
</table></td><td>–</td><td>System</td></tr>
<tr><td>(s1)[16]</td><td>Error-detected network No. *3</td><td>Network number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
1 to 239: Network number</td><td>–</td><td>System</td></tr>
<tr><td>(s1)[17]</td><td>Error-detected station No. *3</td><td>Number of the station where an error was detected is stored.
(However, when an error was detected at the host station, the network number is not stored.)
<table>
<tr><th colspan="2">Setting value</th><th>Description</th></tr>
<tr><td colspan="2">MELSECNET/H</td><td>1 to 64</td></tr>
<tr><td colspan="2">Ethernet
CC-Link IE Controller Network</td><td>1 to 120</td></tr>
<tr><td colspan="2">CC-Link IE Field Network</td><td>-</td></tr>
<tr><td></td><td>Master station</td><td>125 (7DH)</td></tr>
<tr><td></td><td>slave station</td><td>1 to 120</td></tr>
</table></td><td>–</td><td>System</td></tr>
</table>

*1 : Specification is possible when the host station is a network module or Ethernet module of function version D or later.
(Specification is not possible for other modules. An access is always made to the target station CPU.)

*2 : Specification is possible when the versions of the QCPU and the network module on the host station and the target station are as indicated below.
(Specification is not possible for other modules. An access is always made to the target station CPU.)
- Network module: The first five digits of the serial number are '06092' or higher.
- QCPU: The first five digits of the serial number are '06092' or higher.

*3 : This becomes valid only when 1 is set in bit 7 of Error completion type ((s1) [0]).

(1) Remote RUN/STOP

Request data (all set by the user)

Device	Item	Description	Remote RUN	Remote STOP
s2 [0]	Request type	0010H: When station number is specified in s1 [5] 0030H: When all stations a group is specified in s1 [5]	○	○
s2 [1]	Sub-request type	0001H: Remote RUN 0002H: Remote STOP	○	○
s2 [2]	Operation mode	Specify whether to forcibly execute remote RUN/STOP. The forced execution is a function that forces a station which has stopped by remote STOP to RUN remotely from another station. • For remote RUN 0001H: No forced execution 0003H: Forced execution (This setting can be specified for remote RUN.) • For remote STOP 0003H: (Fixed)	○	○
s2 [3]	Clear mode	Specify the status of device memory in the CPU module only for remote RUN. 0000H: Not cleared (Note that the local devices are cleared.) 0001H: Cleared (excluding the latch range and settings in remote RUN) 0002H: Cleared (including the latch range and settings in remote RUN) Clear mode (s2 [3]) allows specification to clear (initialize) the devices in the CPU module at the start of CPU module operation activated by remote RUN. After performing the specified clear processing, CPU module runs according to the setting that specified by Device Initial Value in GX Works2.	○	×

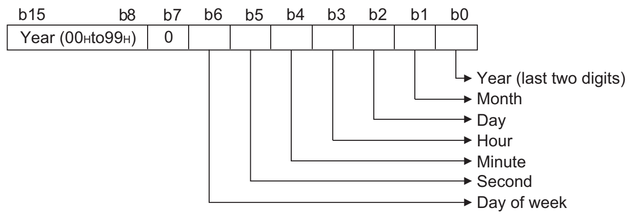
Response data*1 (all set by the system)

Device	Item	Description	Remote RUN	Remote STOP
d1 [0]	Request type	0090H: When station number is specified in s1 [5] 00B0H: When all stations or a group is specified in s1 [5]	○	○
d1 [1]	Sub-request type	0001H: Remote RUN 0002H: Remote STOP	○	○

*1 : When "all stations or a group (81H to A0H, FFH)" is specified in s1 [5], no response data will be stored.

(2) Reading/writing the clock data

Request data (all set by the user)

Device	Item	Setting data	Read clock data	Write clock data
s2 [0]	Request type	0001H: Clock data read 0011H: Clock data write (When station number is specified in s1 [5]) 0031H: Clock data write (When all stations or a group is specified in s1 [5])	○	○
s2 [1]	Sub-request type	0002H: Clock data read 0001H: Clock data write	○	○
s2 [2]	Change pattern Clock data to be changed	① Change pattern (bit 0 to 7) Specify the items to be written in high-order byte of s2 [2] to s2 [5]. 0: Not changed 1: Changed ② Year to be changed (bit 8 to 15)*1 Store the year (last two digits) in BCD format.  	×	○
s2 [3]	Clock data to be changed (continued)	High-order 8 bits: Day (01H to 31H), low-order 8 bits: Month (01H to 12H) b15 to b8 b7 to b0 Day (01H to 31H) Month (01H to 12H)	×	○
s2 [4]		High-order 8 bits: Minute (00H to 59H), low-order 8 bits: Hour (00H to 23H) b15 to b8 b7 to b0 Minute (00H to 59H) Hour (00H to 23H)	×	○
s2 [5]		High-order 8 bits: Day of week (00H (Sunday) to 06H (Saturday)), low-order 8 bits: Second (00H to 59H) b15 to b8 b7 to b0 Day of week (00H to 06H) Second (00H to 59H) 00H (Sun.) to 06H (Sat.)	×	○

*1 : This function cannot change the first two digits of year data.
To change the year data including the first two digits, set the clock data using another function (such as GX Works2).

Response data (all set by the system)

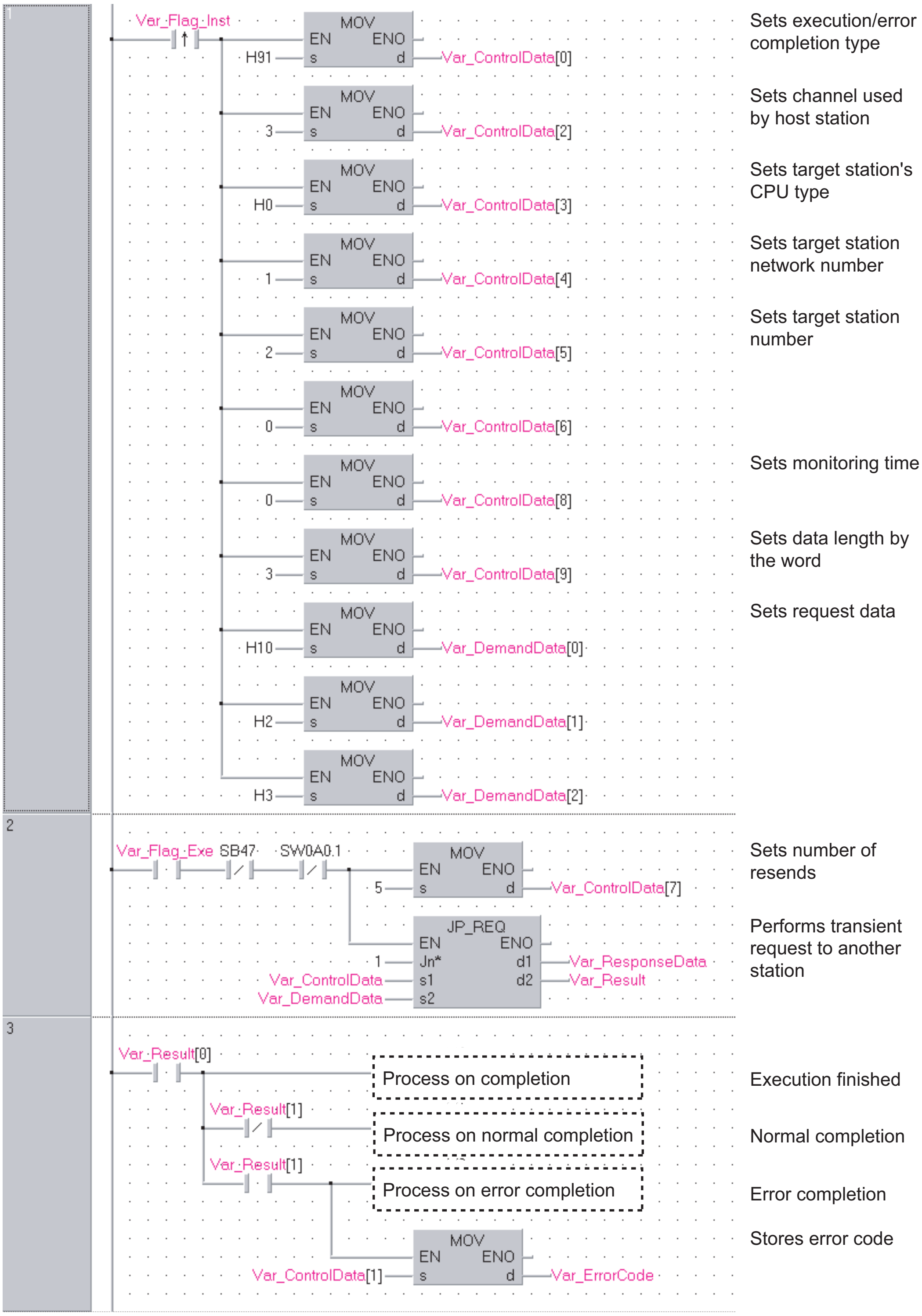
Device	Item	Setting data	Read clock data	Write clock data
d1 [0]	Request type	0081H: Clock data read 0091H: Clock data write (When station number is specified in s1 [5]) 00B1H: Clock data write (When all stations or a group is specified in s1 [5])*2	○	○
d1 [1]	Sub-request type	0002H: Clock data read 0001H: Clock data write	○	○
d1 [2]	Read clock data	High-order 8 bits: Month (01H to 12H), low-order 8 bits: Year (00H to 99H) *3 b15 to b8: Month (01H to 12H); b7 to b0: Year (00H to 99H)	○	×
d1 [3]		High-order 8 bits: Hour (00H to 23H), low-order 8 bits: Day (01H to 31H) b15 to b8: Hour (00H to 23H); b7 to b0: Day (01H to 31H)	○	×
d1 [4]		High-order 8 bits: Second (00H to 59H), low-order 8 bits (00H to 59H) b15 to b8: Second (00H to 59H); b7 to b0: Minute (00H to 59H)	○	×
d1 [5]		High-order 8 bits: (00H), low-order 8 bits: Day of week (00H (Sunday) to 06H (Saturday)) b15 to b8: 00H; b7 to b0: Day of week (00H to 06H) → 00H (Sun.) to 06H (Sat.)	○	×

*2 : When "all stations or a group (81H to A0H, FFH)" is specified in s1 [5], no response data will be stored.
*3 : Last two digits of year data

Program Example

The following program performs remote STOP to the QCPU, which is the station number 2 (target station).

[Structured ladder/FBD]



```
[ST]
IF (Var_Flag_Inst=TRUE) THEN
        MOV(TRUE,H91,Var_ControlData[0]); (* Sets execution/error completion type *)
        MOV(TRUE,3,Var_ControlData[2]);      (* Sets channel used by host station *)
        MOV(TRUE,H0,Var_ControlData[3]);    (* Sets target station's CPU type *)
        MOV(TRUE,1,Var_ControlData[4]);      (* Sets target station network number *)
        MOV(TRUE,2,Var_ControlData[5]);      (* Sets target station number *)
        MOV(TRUE,0,Var_ControlData[6]);
        MOV(TRUE,0,Var_ControlData[8]);      (* Sets monitoring time *)
        MOV(TRUE,3,Var_ControlData[9]);      (* Sets data length by the word *)

        MOV(TRUE,H10,Var_DemandData[0]);(* Sets request data *)
        MOV(TRUE,H2,Var_DemandData[1]);
        MOV(TRUE,H3,Var_DemandData[2]);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.1=FALSE)) THEN
        MOV(TRUE, 5, Var_ControlData[7]);    (* Sets number of resends *)
        JP_REQ(TRUE,1,Var_ControlData,Var_DemandData,Var_ResponseData,Var_Result);
                                                  (* Performs transient request to another station *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                   (* Execution finished *)
        (* Process on completion *)
        IF(Var_Result[1]=FALSE)THEN          (* Normal completion *)
                (* Process on normal completion *)
        ELSE                                 (* Error completion *)
                (* Process on error completion *)
                MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
        END_IF;
END_IF;
```

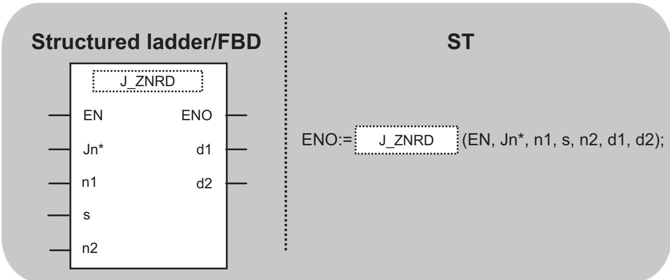
5.4.16 ZNRD instruction

J_ZNRD

CC IE C NET/H Ether

J(P)_ZNRD

P: Executing condition :



[ ] indicates any of the following instructions.

J_ZNRD JP_ZNRD

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239)	:ANY16
	n1:	Target station number (1 to 64)	:ANY16
	s	Target station's start device number where data to be read are stored	:ANY16
	n2:	Read data length When the target station is Q/QnA/AnUCPU: 1 to 230 words When the target station is anything other than Q/QnA/AnUCPU: 1 to 32 words	:ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	The host station's start device number where readout data will be stored (A contiguous area for the read data length is required.)	:ANY16
	d2:	The host station's device that is turned on for one scan upon completion of the instruction d2[1] also turns ON if the instruction execution has failed.	:Array of bit [0..1]

Setting data *1,*2	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n1	○			–				○	–
s	–	○	–	–				–	–
n2	○			–				○	–
d1	–	○		–				–	–
d2	○			–				–	–

*1: Local devices and file registers per program cannot be used as setting data.
*2: In addition to the setting data, the ZNRD instruction is executed using the following fixed values.
Channel used by host station: Channel 1
Arrival monitoring time (monitoring time until instruction completion): 10 seconds
Number of resends for arrival monitoring timeout: 5 times

☆ Function

This instruction reads data from devices of a programmable controller CPU on another station. (In units of words)

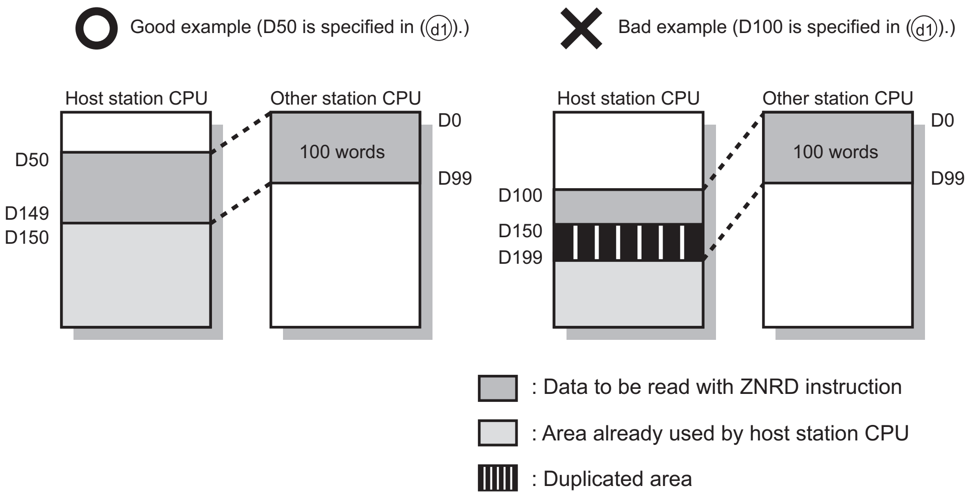
POINT

1. Specify devices of the target station's CPU within the range allowed for the host station CPU when reading data from the devices with the ZNRD instruction.
   (Target station's start device number (s1) where data to be read are stored) + (Read points - 1) ≦ (End device No. of host station's CPU[*1])

[*1] End device No. of the device in the host station CPU, and whose device name is same as in (s1)

2. Specify the host station's start device number (d1) within the range allowed for storing
   read data.

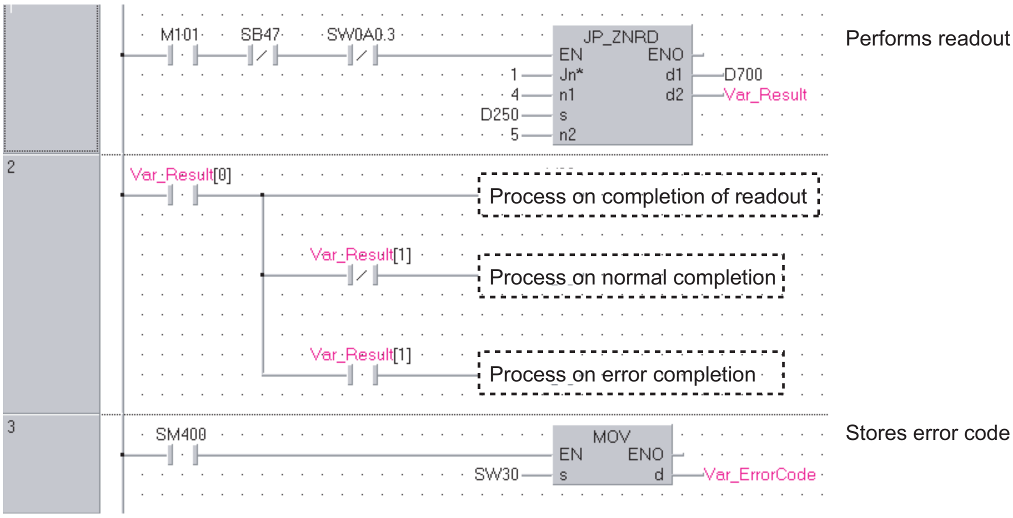
(Example) When D150 and after the area in the host station's CPU has been already used



Program Example

In this program example, when M101 turns ON, data in D250 to D254 of station No.4 (target station) are read out to D700 to D704 of station No.1 (host station).

[Structured ladder/FBD]



[ST]

```
IF((M101=TRUE) &(SB47=FALSE) & (SW0A0.3=FALSE)) THEN
    JP_ZNRD(TRUE,1,4,D250,5,D700, Var_Result);(* Performs ZNRD instruction*)
END_IF;

IF(Var_Result[0]=TRUE)THEN                          (* Execution finished *)
    (* Process on completion of readout *)
    IF(Var_Result[1]=FALSE)THEN                     (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                            (* Error completion *)
        (* Process on error completion *)
    END_IF;
END_IF;

IF(SM400=TRUE)THEN
    MOV(TRUE,SW30,Var_ErrorCode);                   (* Stores error code *)
END_IF;
```

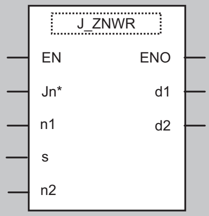
5.4.17 ZNWR instruction

J_ZNWR

CC IE C NET/H Ether

J(P)_ZNWR

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= J_ZNWR (EN, Jn*, n1, s, n2, d1, d2);

J_ZNWR indicates any of the following instructions.

J_ZNWR JP_ZNWR

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239)	:ANY16
	n1:	Target station number (1) Station No. specification 1 to 64: Station number (2) Group specification 81H to A0H: All stations of a group (No.1 to 32) (3) All stations FFH: All stations of the target network number (Except the host station)	:ANY16
	s	Host station's start device number where data to be written are stored	:ANY16
	n2:	Write data length When the target station is Q/QnA/AnUCPU: 1 to 230 words When the target station is anything other than Q/QnA/AnUCPU: 1 to 32 words	:ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	Target station's start device number where data is written (A contiguous area for the write data length is required.)	:ANY16
	d2:	The host station's device that is turned on for one scan upon completion of the instruction d2[1] also turns ON if the instruction execution has failed.	:Array of bit [0..1]

Setting data *1,*2	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n1	○			–				○	–
(s)	–	○	–	–				–	–
n2	○			–				–	–
(d1)	–	○		–				○	–
(d2)	○			–				–	–

*1: Local devices and file registers per program cannot be used as a device which is used in setting data.
*2: In addition to the setting data, the ZNWR instruction is executed using the following fixed values.
Channel used by host station: Channel 2
Arrival monitoring time (monitoring time until instruction completion): 10 seconds
Number of resends for arrival monitoring timeout: 5 times

☆ Function

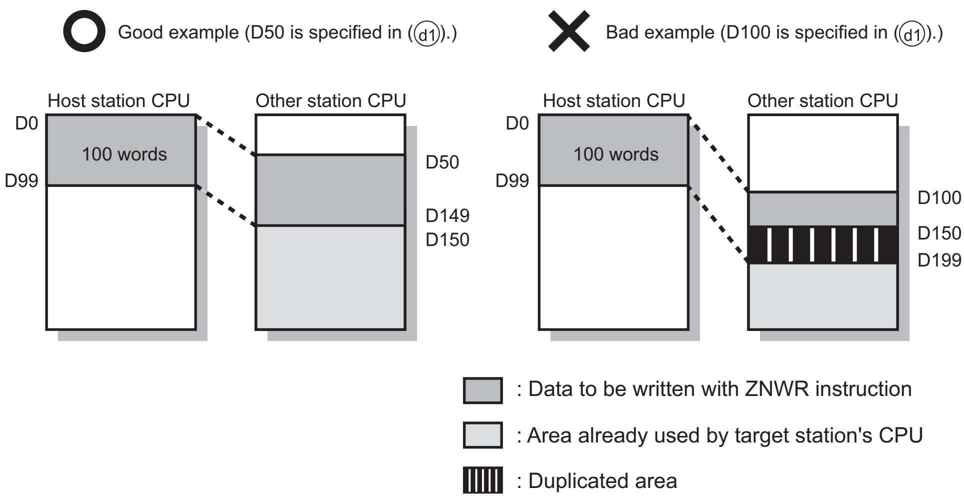
This instruction writes data to devices of a programmable controller CPU on another station. (In units of words)

POINT

1. Specify devices of the target station's CPU within the range allowed for the host station CPU when writing data to the devices with the ZNWR instruction.
   (Target station's start device number (s1) where data are written)
   + (Write points - 1) ≦ (End device No. of host station's CPU *1)

   *1 End device No. of the device in the host station CPU, and whose device name is same as in (s1)
2. Specify the host station's start device number (d1) within the range allowed for storing
   write data.

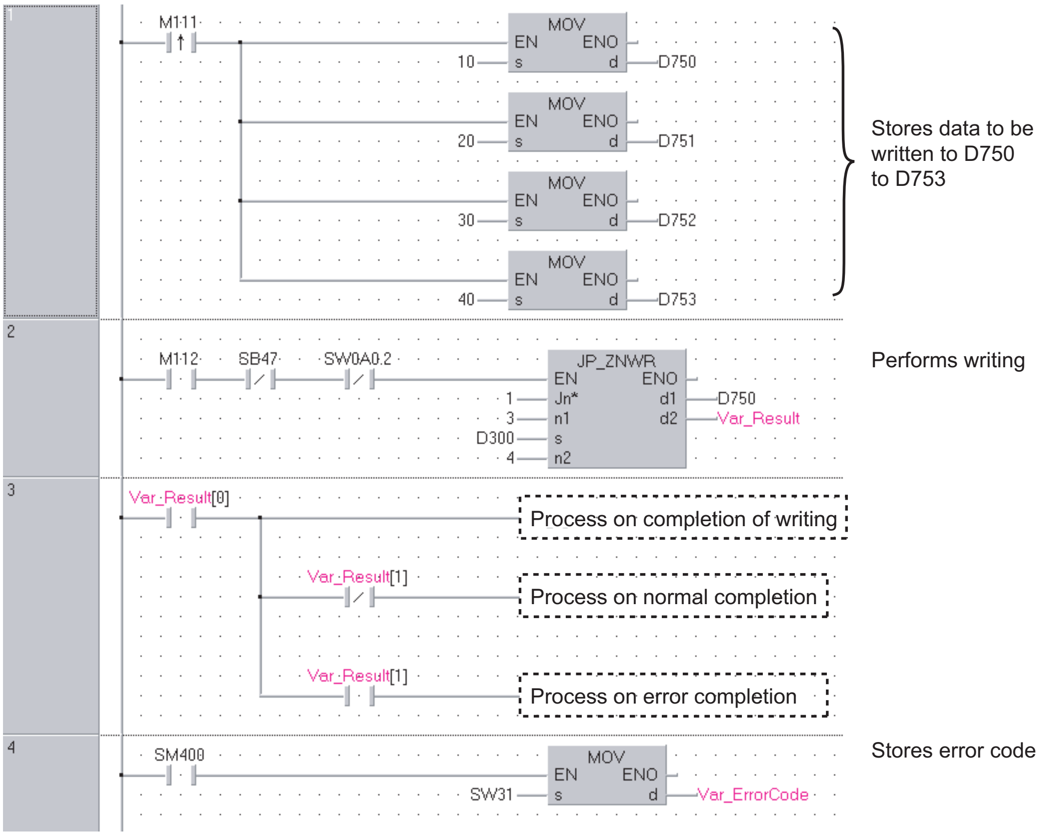
(Example) When D150 and after the area in the host station's CPU has been already used



Program Example

In this program example, when M112 turns ON, data in D750 to D753 of station No.2 (host station) are written to D300 to D303 of station No.3 (target station).

[Structured ladder/FBD]



```
[ST]
IF(M111=TRUE)THEN                                  (* Instruction flag ON *)
    MOV( TRUE, 10, D750);
    MOV( TRUE, 20, D751);
    MOV( TRUE, 30, D752 );
    MOV( TRUE, 40, D753 );
                                          (* Stores data to be written to D750 to D753 *)
END_IF;

IF((M112=TRUE) &(SB47=FALSE) & (SW0A0.2=FALSE)) THEN
    JP_ZNWR(TRUE,1,3,D300,4, D750, Var_Result);        (* Performs writing *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                         (* Completion of writing *)
    (* Process on completion of writing *)
    IF(Var_Result[1]=FALSE)THEN                    (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                           (* Error completion *)
        (* Process on error completion *)
    END_IF;
END_IF;

IF(SM400=TRUE)THEN
    MOV(TRUE,SW31,Var_ErrorCode);                  (* Stores error code *)
END_IF;
```

5.4.18 RRUN instruction

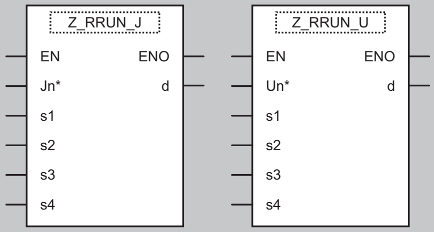
Z_RRUN_J, Z_RRUN_U

CC IE C NET/H

Z(P)_RRUN_J
Z(P)_RRUN_U

P: Executing condition :

Structured ladder/FBD



ST

ENO:= Z_RRUN_J (EN, Jn*, s1, s2, s3, s4, d);
ENO:= Z_RRUN_U (EN, Un*, s1, s2, s3, s4, d);

indicates any of the following instructions.

Z_RRUN_J	ZP_RRUN_J
Z_RRUN_U	ZP_RRUN_U

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the target station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:String
	Un*:	Start I/O number of the host station network No. (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Channel used by host station For the RRUN instruction, specify the channel used by host station that is the same as the one used for the RSTOP instruction.	:ANY16
	s2:	Target station number (1) Station number specification Host station is Universal model QCPU: 1 to 120 Host station is anything other than Universal model QCPU: 1 to 64 (2) Group specification 81H to A0H: All stations of a group (No.1 to 32) (3) All stations FFH: All stations of the target network No. (Except the host station) To specify a group or all stations, specify '0000H' or '03FFH' for the target station's CPU type (s3).	:ANY16
	s3:	Target station's CPU type 0000H: Target station CPU/control CPU/host system CPU (Specified data are the same as '03FFH'.) 03E0H: Multi-CPU No. 1/ target station CPU (single CPU system) 03E1H: Multi-CPU No. 2 03E2H: Multi-CPU No. 3 03E3H: Multi-CPU No. 4 03FFH: Target station CPU/control CPU/host system CPU	:ANY16
	s4:	Mode	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
(s1)	–	○	–					○	–
(s2)	–	○	–					○	–
(s3)	–	○	–					○	–
(s4)	–	○	–					○	–
(d)	○	○	–					–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction remotely switches a CPU module on another station to RUN.

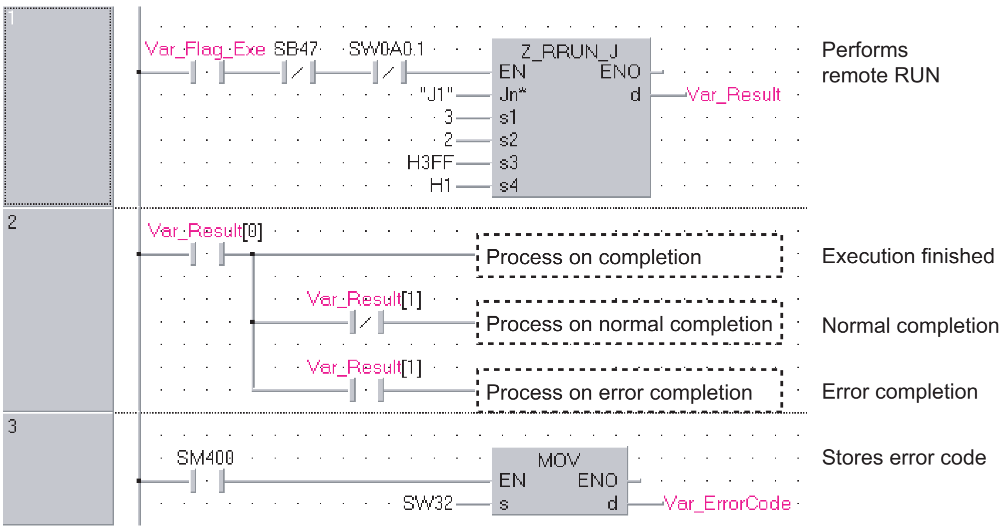
Precautions

This instruction is applicable to the QJ71LP21 or QJ71BR11 with the function version B or later.

Program Example

The following program remotely switches the QCPU on the station number 2 (target station) to RUN.

[Structured ladder/FBD]



```
[ST]
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.1=FALSE)) THEN
    Z_RRUN_J(TRUE,"J1",3,2,H3FF,H1,Var_Result);(* Performs remote RUN *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                    (* Execution finished *)
    (* Process on completion *)
    IF(Var_Result[1]=FALSE)THEN               (* Normal completion *)
        (* Process on normal completion *)
    ELSE                                      (* Error completion *)
        (* Process on error completion *)
    END_IF;
END_IF;

MOV(SM400,SW32,Var_ErrorCode);             (* Stores error code *)
```

5.4.19 RSTOP instruction

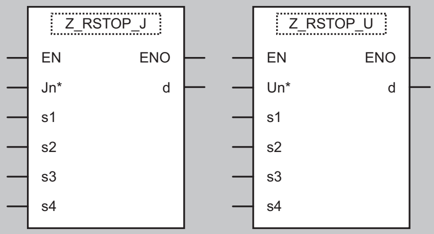
Z_RSTOP_J, Z_RSTOP_U

CC IE C NET/H

Z(P)_RSTOP_J
Z(P)_RSTOP_U

P: Executing condition :

Structured ladder/FBD



ST

ENO:= Z_RSTOP_J (EN, Jn*, s1, s2, s3, s4, d);
ENO:= Z_RSTOP_U (EN, Un*, s1, s2, s3, s4, d);

[ ] indicates any of the following instructions.

Z_RSTOP_J	ZP_RSTOP_J
Z_RSTOP_U	ZP_RSTOP_U

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239) 254: Network specified in "Valid module during other station access"	:String
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Channel used by host station	:ANY16
	s2:	Target station number (1) Station number specification Host station is Universal model QCPU: 1 to 120 Host station is anything other than Universal model QCPU: 1 to 64 (2) Group specification 81H to A0H: All stations of a group (No.1 to 32) (3) All stations FFH: All stations of the target network No. (Except the host station)	:ANY16
	s3:	Target station's CPU type 0000H: Target station CPU/control CPU/host system CPU (Specified data are the same as '03FFH'.) 03E0H: Multi-CPU No. 1/ target station CPU (single CPU system) 03E1H: Multi-CPU No. 2 03E2H: Multi-CPU No. 3 03E3H: Multi-CPU No. 4 03FFH: Target station CPU/control CPU/host system CPU	:ANY16
	s4:	Specify options for the operation mode and clear mode. (1) Operation mode 1H: No forced execution 3H: Forced execution (2) Clear mode 0H: Do not clear (Note that the local devices are cleared.) 1H: Clear (excluding the latch range) 2H: Clear (including the latch range)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant K, H	Others
(s1)	–	○	–					○	–
(s2)	–	○	–					○	–
(s3)	–	○	–					○	–
(s4)	–	○	–					○	–
(d)	○	○	–					–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction remotely switches a CPU module on another station to STOP.

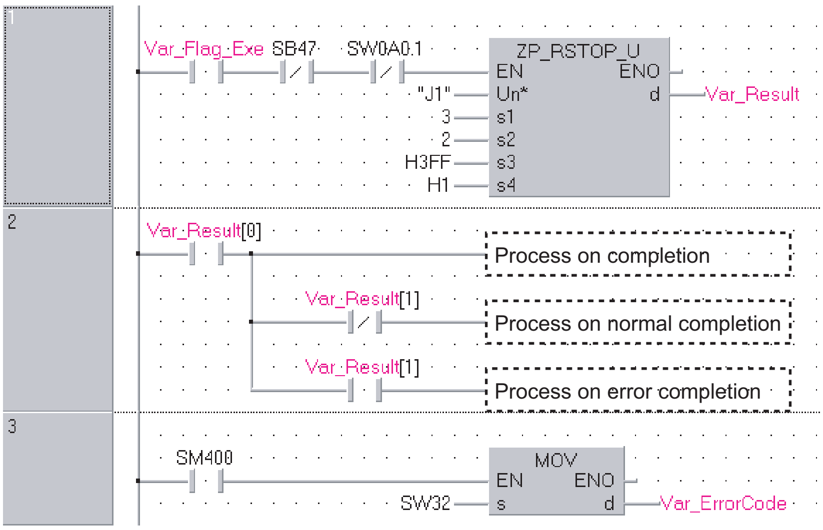
Precautions

This instruction is applicable to the QJ71LP21 or QJ71BR11 with the function version B or later.

Program Example

The following program remotely switches the QCPU on the station number 2 (target station) to STOP.

[Structured ladder/FBD]



Performs remote STOP

Execution finished

Normal completion

Error completion

Stores error code

[ST]

```
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.1=FALSE)) THEN
        ZP_RSTOP_J(TRUE,"J1",3,2,H3FF,H1,Var_Result);(* Performs remote STOP *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                          (* Execution finished *)
        (* Process on completion *)
        IF(Var_Result[1]=FALSE)THEN                 (* Normal completion *)
                (* Process on normal completion *)
        ELSE                                        (* Error execution *)
                (* Process on error completion *)
        END_IF;
END_IF;

MOV(SM400, SW32, Var_ErrorCode);        (* Stores error code *)
```

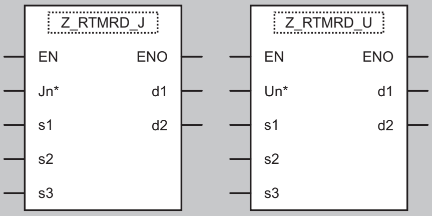
5.4.20 RTMRD instruction

Z_RTMRD_J, Z_RTMRD_U

CC IE C NET/H

Z(P)_RTMRD_J
Z(P)_RTMRD_U

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= Z_RTMRD_J (EN, Jn*, s1, s2, s3, d1, d2); ENO:= Z_RTMRD_U (EN, Un*, s1, s2, s3, d1, d2);

indicates any of the following instructions.

Z_RTMRD_J	ZP_RTMRD_J
Z_RTMRD_U	ZP_RTMRD_U

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239) 254: Network specified in "Valid module during other station access"	:String
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Channel used by host station	:ANY16
	s2:	Target station number Host station is Universal model QCPU: 1 to 120 Host station is anything other than Universal model QCPU: 1 to 64	:ANY16
	s3:	Target station's CPU type 0000H: Target station CPU/control CPU/host system CPU (Specified data are the same as '03FFH'.) 03E0H: Multi-CPU No. 1/ target station CPU (single CPU system) 03E1H: Multi-CPU No. 2 03E2H: Multi-CPU No. 3 03E3H: Multi-CPU No. 4 03FFH: Target station CPU/control CPU/host system CPU	:ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	Variable that stores read clock data	:Array of ANY16 [0..3]
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant K, H</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s1</td><td>–</td><td>○</td><td colspan="5">–</td><td>○</td><td>–</td></tr>
<tr><td>s2</td><td>–</td><td>○</td><td colspan="5">–</td><td>○</td><td>–</td></tr>
<tr><td>s3</td><td>–</td><td>○</td><td colspan="5">–</td><td>○</td><td>–</td></tr>
<tr><td>d1</td><td>–</td><td>○</td><td colspan="5">–</td><td>–</td><td>–</td></tr>
<tr><td>d2</td><td>○</td><td>○</td><td colspan="5">–</td><td>–</td><td>–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads clock data from a CPU module on another station.

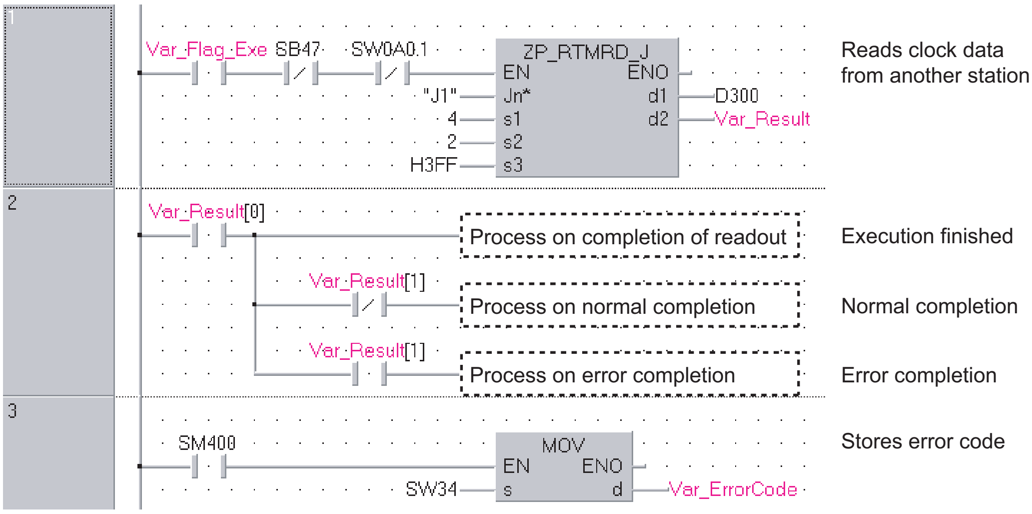
Precautions

This instruction is applicable to the QJ71LP21 or QJ71BR11 with the function version B or later.

Program Example

The following program reads out clock data from the QCPU on the station number 2 (target station) and stores the clock data in the station number 1 (host station).

[Structured ladder/FBD]



[ST]

```
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SW0A0.1=FALSE)) THEN
        ZP_RTMRD_J(TRUE,"J1",4,2,H3FF,D300,Var_Result);
                (* Reads clock data from another station *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                    (* Execution finished *)
        (* Process on completion of readout *)
        IF(Var_Result[1]=FALSE)THEN           (* Normal completion *)
                (* Process on normal completion *)
        ELSE                                  (* Error completion *)
                (* Process on error completion *)
        END_IF;
END_IF;
MOV(SM400, SW33, Var_ErrorCode);        (* Stores error code *)
```

5.4.21 RTMWR instruction

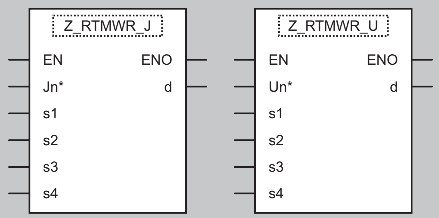
Z_RTMWR_J, Z_RTMWR_U

CC IE C NET/H

Z(P)_RTMWR_J
Z(P)_RTMWR_U

P: Executing condition :

Structured ladder/FBD



ST

ENO:= Z_RTMWR_J (EN, Jn*, s1, s2, s3, s4, d);
ENO:= Z_RTMWR_U (EN, Un*, s1, s2, s3, s4, d);

[ ] indicates any of the following instructions.

Z_RTMWR_J ZP_RTMWR_J
Z_RTMWR_U ZP_RTMWR_U

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the target station (1 to 239, 254) 254: Network specified in "Valid module during other station access"	:String
	Un*:	Start I/O number of the host station network No. (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Channel used by host station (1 to 8)	:ANY16
	s2:	Target station number (1) Station number specification Host station is Universal model QCPU: 1 to 120 Host station is anything other than Universal model QCPU: 1 to 64 (2) Group specification 81H to A0H: All stations of a group (No.1 to 32) (3) All stations FFH: All stations of the target network No. (Except the host station) To specify a group or all stations, specify '0000H' or '03FFH' for the target station's CPU type (s3).	:ANY16
	s3:	Target station's CPU type 0000H: Target station CPU/control CPU/host system CPU (Specified data are the same as '03FFH'.) 03E0H: Multi-CPU No. 1/ target station CPU (single CPU system) 03E1H: Multi-CPU No. 2 03E2H: Multi-CPU No. 3 03E3H: Multi-CPU No. 4 03FFH: Target station CPU/control CPU/host system CPU	:ANY16
	s4:	Variable that stores write clock data	:Array of ANY16 [0..4]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
(s1)	–	○		–				○	–
(s2)	–	○		–				○	–
(s3)	–	○		–				○	–
(s4)	–	○		–				–	–
(d)	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction writes clock data to a CPU module on another station.

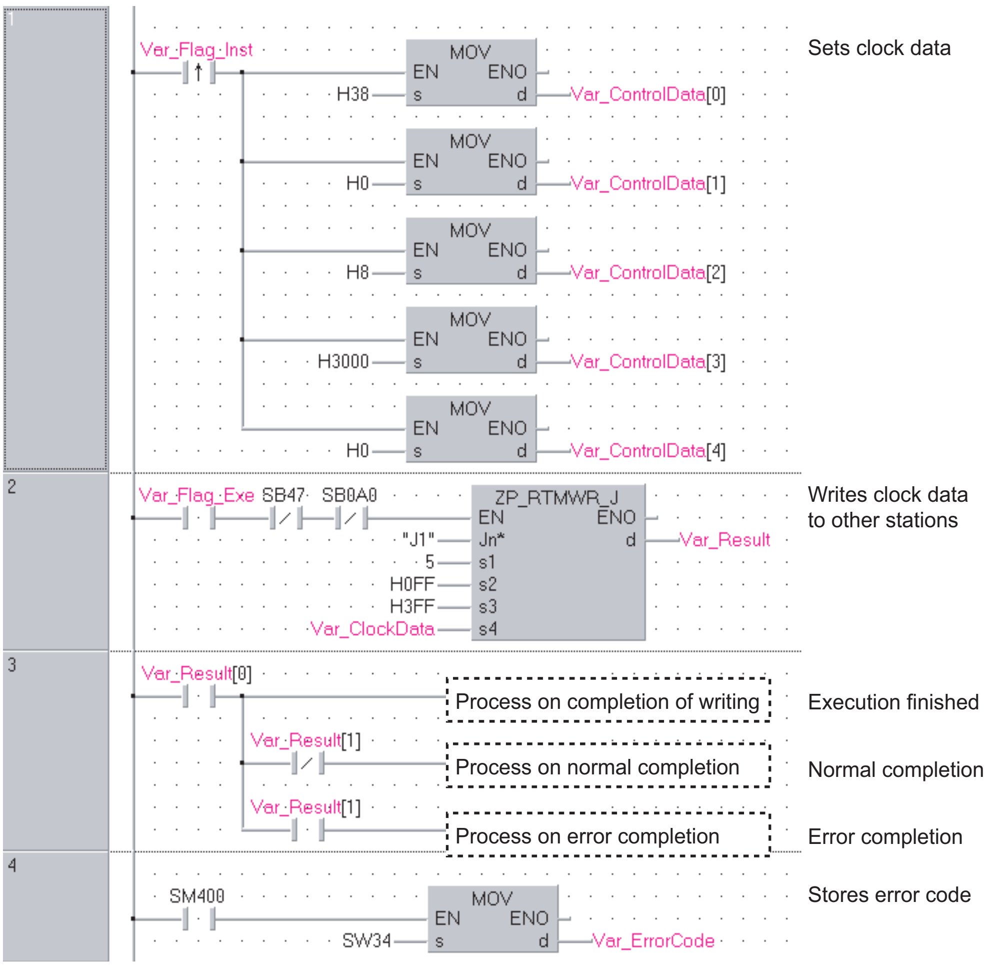
Precautions

This instruction is applicable to the QJ71LP21 or QJ71BR11 with the function version B or later.

Program Example

The following program writes the clock data (8:30:00) to all stations on the network number 1.

[Structured ladder/FBD]



[ST]

```
IF (Var_Flag_Inst=TRUE) THEN
        MOV(TRUE,H38,Var_ClockData[0]);    (* Sets clock data *)
        MOV(TRUE,H0,Var_ClockData[1]);
        MOV(TRUE,H8,Var_ClockData[2]);
        MOV(TRUE,H3000,Var_ClockData[3]);
        MOV(TRUE,H0,Var_ClockData[4]);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB47=FALSE) AND (SB0A0=FALSE)) THEN
        ZP_RTMWR_J(TRUE,"J1",5,H0FF,H3FF,Var_ClockData,Var_Result);
                                           (* Writes clock data to other stations*)
END_IF;
IF(Var_Result[0]=TRUE)THEN                 (* Execution finished *)
        (* Process on completion of writing *)
        IF(Var_Result[1]=FALSE)THEN        (* Normal completion *)
                (* Process on normal completion *)
        ELSE                               (* Error completion *)
                (* Process on error completion *)
        END_IF;
END_IF;

MOV(SM400, SW34, Var_ErrorCode);(* Stores error code *)
```

5.4.22 REMFR instruction

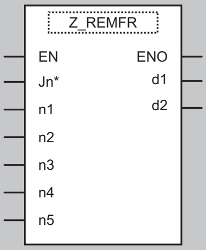
Z_REMFR

CC IE F NET/H

Z(P)_REMFR

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= Z_REMFR (EN, Jn*, n1, n2, n3, n4, n5, d1, d2);

[ ] indicates any of the following instructions.

Z_REMFR ZP_REMFR

Input argument	EN:	Executing condition	:Bit
	Jn*:	Target network number (1 to 239)	:String
	n1:	Channel number (1 to 32)	:ANY16
	n2:	Target station number (1 to 120)	:ANY16
	n3:	Start I/O number of the target intelligent function module For the CC-Link IE Field Network, the higher two digits when expressing the I/O number in three digits. For the MELSECNET/H, the higher three digits when expressing the I/O number in four digits.	:ANY16
	n4:	Read buffer memory start address Specifies the start address of the buffer memory for the read destination intelligent function module.	:ANY16
	n5:	Number of read points (1 to 240 words)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores read data (host station) Specifies the start number of the host station's device that stores read data.	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant K, H</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>n1</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n2</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n3</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n4</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n5</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>d1</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
<tr><td>d2</td><td>○</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

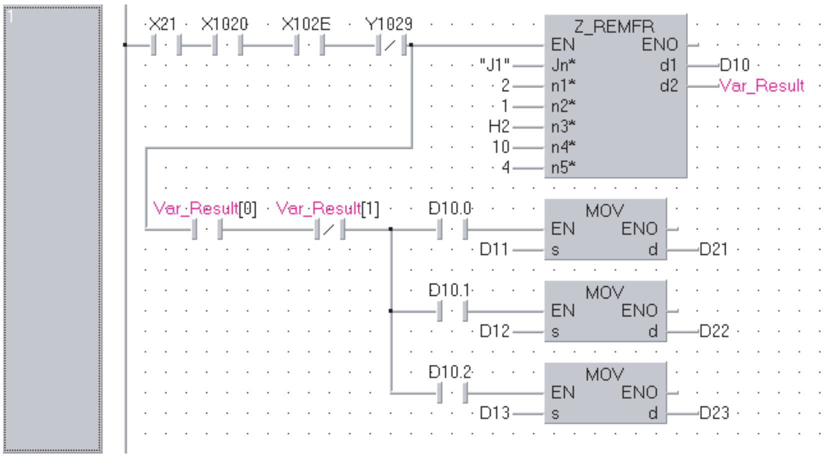
Function

This instruction reads data from the buffer memory of an intelligent function module to the host station's word device (starting from ⓓ1) on the intelligent device station/remote I/O station.

Program Example

The following program reads digital output values.

[Structured ladder/FBD]



Reads data from buffer memory

Reads CH1 digital value

Reads CH2 digital value

Reads CH3 digital value

[ST]

```
IF((X21=TRUE) AND (X1020=TRUE) AND (X102E=TRUE) AND (Y1029=FALSE))THEN
    Z_REMFR(TRUE,"J1",2,1,H2,10,4,D10,Var_Result);
    (* Reads data from buffer memory *)
    (*Reads digital values of CH1 to CH3 at once*)
    IF((Var_Result[0]=TRUE) AND (Var_Result[1]=FALSE))THEN
        IF(D10.0=TRUE)THEN
            MOV(TRUE,D11,D21);
                    (* Reads CH1 digital output value *)
        END_IF;
        IF(D10.1=TRUE)THEN
            MOV(TRUE,D12,D22);
                    (* Reads CH2 digital output value *)
        END_IF;
        IF(D10.2=TRUE)THEN
            MOV(TRUE,D13,D23);
                    (* Reads CH3 digital output value *)
        END_IF;
    END_IF;
END_IF;
```

5.4.23 REMTO instruction

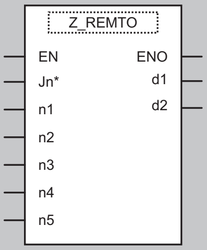
Z_REMTO

CC IE F NET/H

Z(P)_REMTO

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= Z_REMTO (EN, Jn*, n1, n2, n3, n4, n5, d1, d2);

[ ] indicates any of the following instructions.

Z_REMTO ZP_REMTO

Input argument	EN:	Executing condition	:Bit
	Jn*:	Network number of the host station (1 to 239)	:String
	n1:	Channel number (1 to 32)	:ANY16
	n2:	Target station number (1 to 120)	:ANY16
	n3:	Start I/O number of the target intelligent function module For the CC-Link IE Field Network, the higher two digits when expressing the I/O number in three digits. For the MELSECNET/H, the higher three digits when expressing the I/O number in four digits.	:ANY16
	n4:	Write buffer memory start address Specifies the start address of the buffer memory for the write destination intelligent function module.	:ANY16
	n5:	Number of write points (1 to 240 words)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores write data (host station) Specifies the start number of the host station's device that stores write data.	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J[ ]\[ ]</th><th rowspan="2">U[ ]\G[ ]</th><th rowspan="2">Zn</th><th rowspan="2">Constant K, H</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>n1</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n2</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n3</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n4</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>n5</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>○</td><td>–</td></tr>
<tr><td>d1</td><td>–</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
<tr><td>d2</td><td>○</td><td colspan="2">○</td><td colspan="4">–</td><td>–</td><td>–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

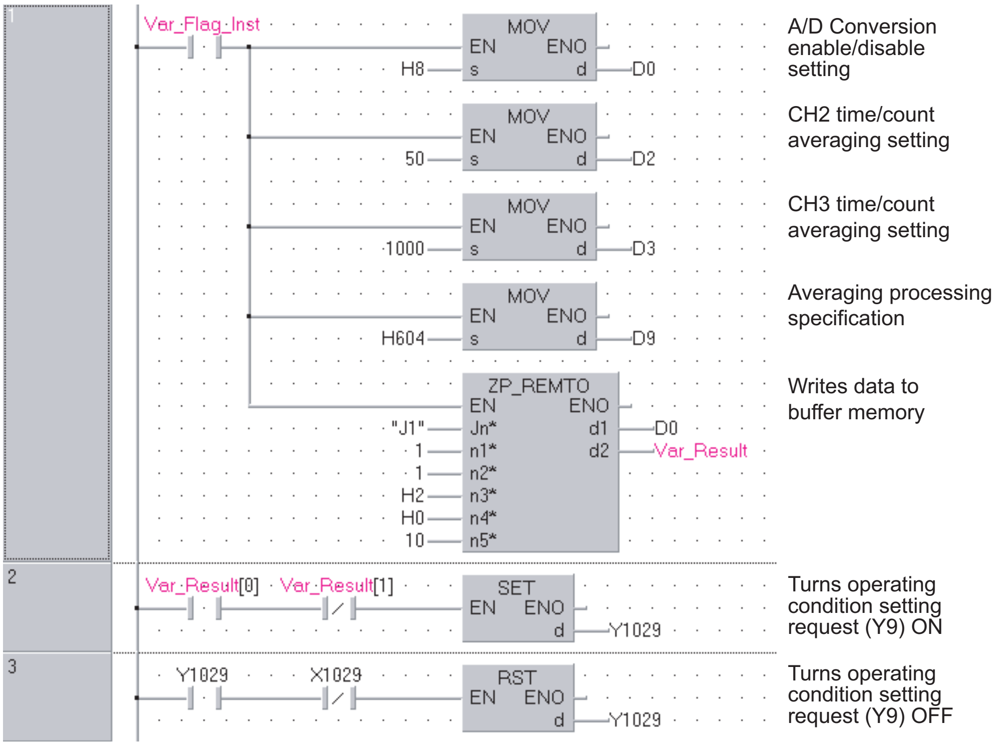
Function

This instruction writes data to the buffer memory of an intelligent function module on the intelligent device station/remote I/O station.

Program Example

The following program makes the A/D conversion enable setting on channels.

[Structured ladder/FBD]



[ST]

```
IF(Var_Flag_Inst=TRUE)THEN
    MOV(TRUE,H8,D0);
            (* A/D Conversion enable/disable setting *)
    MOV(TRUE,50,D2);
            (* CH2 time/count averaging setting *)
    MOV(TRUE,1000,D3);
            (* CH3 time/count averaging setting *)
    MOV(TRUE,H604,D9);
            (* Averaging processing specification *)
    ZP_REMTO(TRUE,"J1",1,1,H2,H0,10,D0,Var_Result);
            (* Writes data to buffer memory *)
END_IF;
IF((Var_Result[0]=TRUE) AND (Var_Result[1]=FALSE))THEN
    SET(TRUE,Y1029);
            (* Turns operating condition setting request (Y9) ON *)
END_IF;
IF((Y1029=TRUE) AND (X1029=FALSE))THEN
    RST(TRUE,Y1029);
            (* Turns operating condition setting request (Y9) OFF *)
END_IF;
```

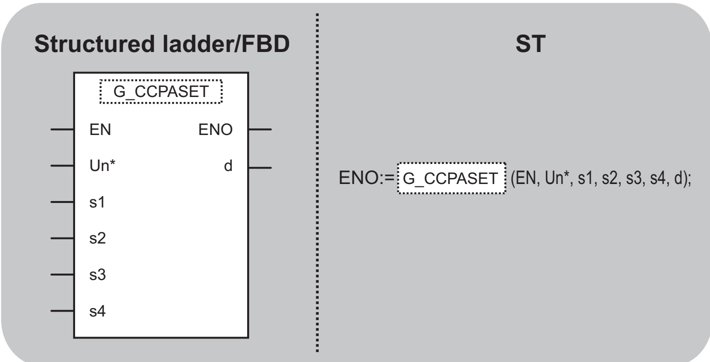
5.4.24 CCPASET instruction

G_CCPASET

CC IE F

G(P)_CCPASET

P: Executing condition :



[ ] indicates any of the following instructions.

G_CCPASET GP_CCPASET

Input argument	EN:	Executing condition	: Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	: ANY16
	s1:	Variable that stores control data	: Array of ANY16 [0..3]
	s2:	Start number of the host station's device that stores network configuration setting data.	: Array of ANY16 [0..599]
	s3:	Start number of the host station's device that stores reserved station specification data.	: Array of ANY16 [0..7]
	s4:	Start number of the host station's device that stores error invalid station setting data.	: Array of ANY16 [0..7]
Output argument	ENO:	Execution result	: Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	: Array of Bit [0..1]

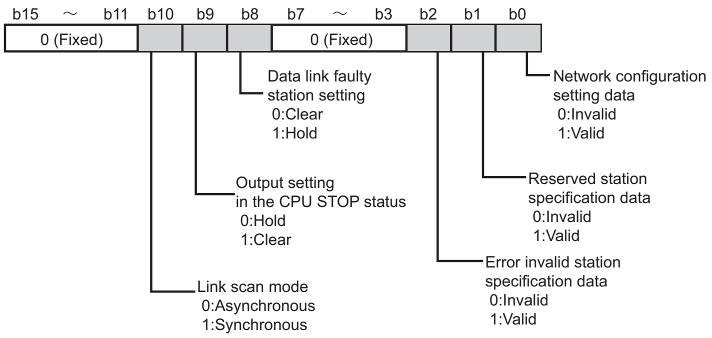
Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	–	○		–					
s3	–	○		–					
s4	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sets parameters for master/local module (master station).

Control Data

Device	Item	Setting data	Setting range	Setting side
s1 [0]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	-	System
s1 [1]	Setting flag	Specify the validity of setting data from s2 to s4 in the range from b0 to b2. '0: Invalid' is specified, default parameter is applied. The supplementary setting and the network operation setting in the range from b8 to bA. 	-	User
s1 [2]	Total number of slave station	Specify the number of connected slave stations.	1 to 120	User
s1 [3]	Constant link scan time	Set the constant link scan time. 0 : No setting 5 to 2000: Constant link scan time	5 to 2000 (ms)	User

(1) Network configuration setting data

Set the network configuration settings when network configuration setting data (b0) is enabled in the setting flag ((s1)[1]).

Device	Item		Setting data	Setting range	Setting side
(s2)[0]	1st	Slave station setting information	Specify the station type and station number. b15 ～ b12: Station type (0 : Remote I/O station, 1 : Remote device station, 2 : Intelligent device station, 3 : Local station) b11 ～ b8: 1 (Fixed) b7 ～ b0: Station number (1 to 120 : Station number)	-	User
(s2)[1]		RX/RY offset	Specify the start number of RX/RY in units of 16 points.	0 to 3FF0H	
(s2)[2]		RX/RY size	Specify the number of RX/RY in units of 16 points.	0 to 2048	
(s2)[3]		RWr/RWw offset	Specify the start number of RWr/RWw in units of 4 points.	0 to 1FFCH	
(s2)[4]		RWr/RWw size	Specify the number of RWr/RWw in units of 4 points.	0 to 1024	
(s2)[5] to (s2)[594]	⋮				
(s2)[595]	120th	Slave station setting information	The same as from (s2)[0] to (s2)[4].		
(s2)[596]		RX/RY offset			
(s2)[597]		RX/RY size			
(s2)[598]		RWr/RWw offset			
(s2)[599]		RWr/RWw size			

(2) Reserved station specification data

Set the slave station as the reserved station when reserved station specification data (b1) is enabled in the setting flag ((s1)[1]).

Device	Item	Setting data	Setting side
(s3)[0] to (s3)[7]	Reserved station specification	Specify the reserved station. 0: Not specified (Default) 1: Specified	User

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(s3)[0]	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
(s3)[1]	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
(s3)[2]	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
(s3)[3]	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
(s3)[4]	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
(s3)[5]	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
(s3)[6]	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
(s3)[7]	—	—	—	—	—	—	—	—	120	119	118	117	116	115	114	113

Numbers in the table indicate the station numbers.

(3) Error invalid station setting data

Set the slave station as the error invalid station when error invalid station setting data(b2) is enabled in the setting flag (s1[1])

Device	Item	Setting data	Setting side
s4[0] to s4[7]	Error invalid station setting*1	Specify the error invalid station. 0: Not specified (Default) 1: Specified	User

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
s4[0]	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
s4[1]	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
s4[2]	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
s4[3]	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
s4[4]	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
s4[5]	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
s4[6]	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
s4[7]	—	—	—	—	—	—	—	—	120	119	118	117	116	115	114	113

Numbers in the table indicate the station numbers.

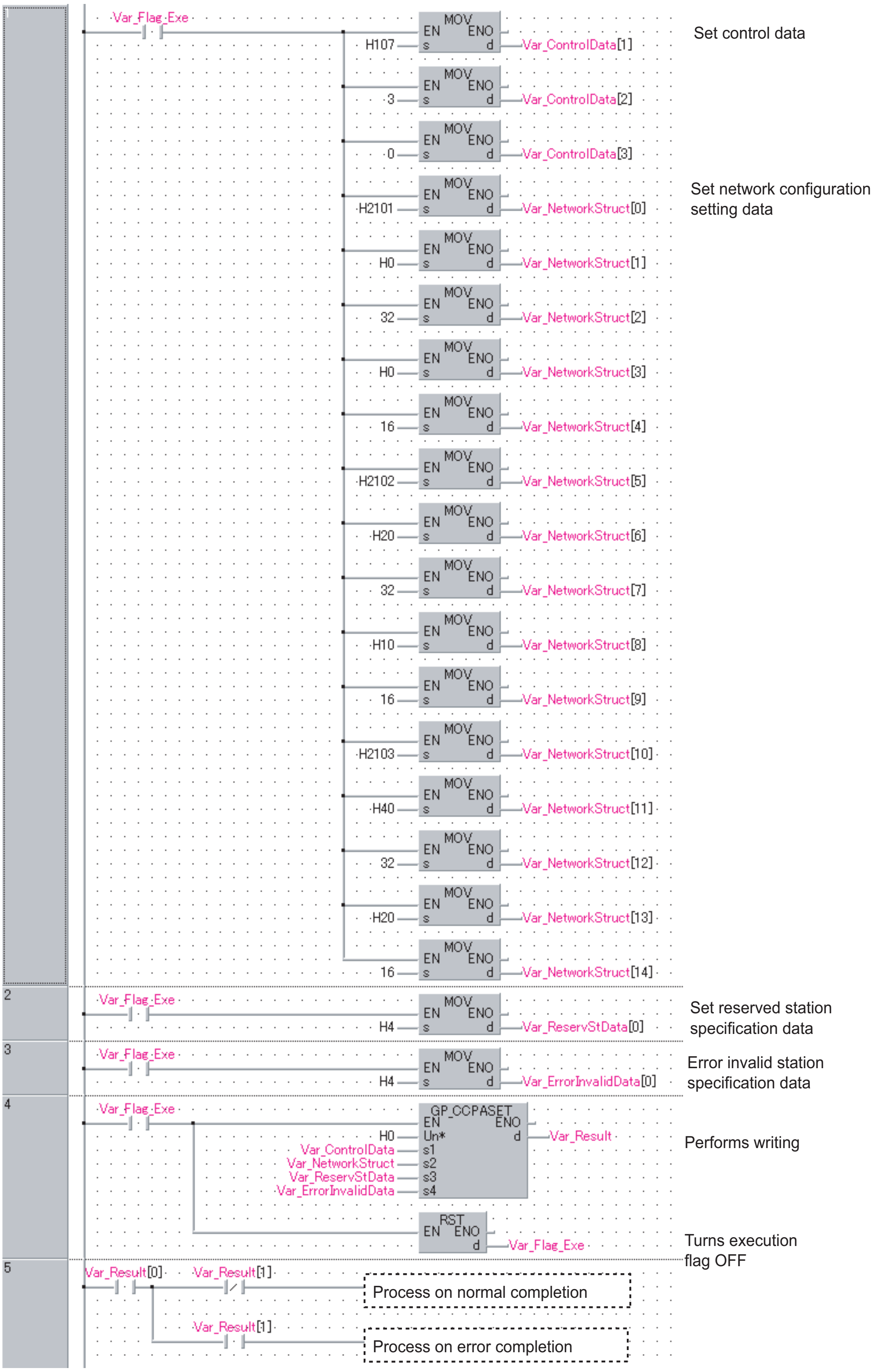
*1 : Reserved station specification has a priority when an error invalid station and reserved station are specified for the same station.

Program Example

The following program sets parameters for master station of network No.1 when Var_Flag_Exe turns ON.

(Total number of slave stations is 3.)

[Structured ladder/FBD]



[ST]

```
IF( Var_Flag_Exe = TRUE )  (* Execution flag *)
    MOV( TRUE, H107, Var_ControlData[1]);     (* Sets control data *)
    MOV( TRUE, 3, Var_ControlData[2]);
    MOV( TRUE, 0, Var_ControlData[3]);
                                    (* Sets data of network configuration setting *)
    MOV( TRUE, H2101, Var_NetworkStruct[0] );
    MOV( TRUE, H0, Var_NetworkStruct[1] );
    MOV( TRUE, 32, Var_NetworkStruct[2] );
    MOV( TRUE, H0, Var_NetworkStruct[3] );
    MOV( TRUE, 16, Var_NetworkStruct[4] );
    MOV( TRUE, H2102, Var_NetworkStruct[5] );
    MOV( TRUE, H20, Var_NetworkStruct[6 ] );
    MOV( TRUE, 32, Var_NetworkStruct[7] );
    MOV( TRUE, H10, Var_NetworkStruct[8] );
    MOV( TRUE, 16, Var_NetworkStruct[9] );
    MOV( TRUE, H2103, Var_NetworkStruct[10] );
    MOV( TRUE, H40, Var_NetworkStruct[11] );
    MOV( TRUE, 32, Var_NetworkStruct[12] );
    MOV( TRUE, H20, Var_NetworkStruct[13] );
    MOV( TRUE, 16, Var_NetworkStruct[14] );
END_IF;

IF( Var_Flag_Exe = TRUE )  (* Execution flag  *)
    MOV( TRUE, H4, Var_ReservStData[0] );
                                    (* Sets data of reserved station specification *)
END_IF;

IF( Var_Flag_Exe = TRUE )  (* Execution flag *)
    MOV( TRUE, H4, Var_ErrorInvalidData[0] );
                                    (* Sets data of error invalid station setting *)
END_IF;

IF( Var_Flag_Exe = TRUE )  (* Execution flag *)
    GP_CCPASET(TRUE, H0, Var_ControlData, Var_NetworkStruct, Var_ReservStData,
                  Var_ErrorInvalidData, Var_Result);          (* Performs writing *)
    RST( TRUE, Var_Flag_Exe );          (* Turns execution flag OFF *)
END_IF;

IF(Var_Result[0]=TRUE)THEN        (*Execution finished *)
    IF(Var_Result[1]=FALSE)THEN(* Normal completion *)
    (* Process on normal completion *)
    ELSE                            (* Error completion *)
    (* Process on error completion *)
    END_IF;

END_IF;
```

5 MODULE DEDICATED INSTRUCTION

G_CCPASET

5.4.25 OPEN instruction

ZP_OPEN

Ether

ZP_OPEN

Executing condition : ↑

Structured ladder/FBD	ST
ZP_OPEN EN ENO Un* d s1 s2	ENO:= ZP_OPEN (EN, Un*, s1, s2, d);

indicates the following instruction.

ZP_OPEN

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..9]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○		–				○	–
s2	–	○		–				–	–
d	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction establishes (opens) a connection with external device for data communication.

Control Data

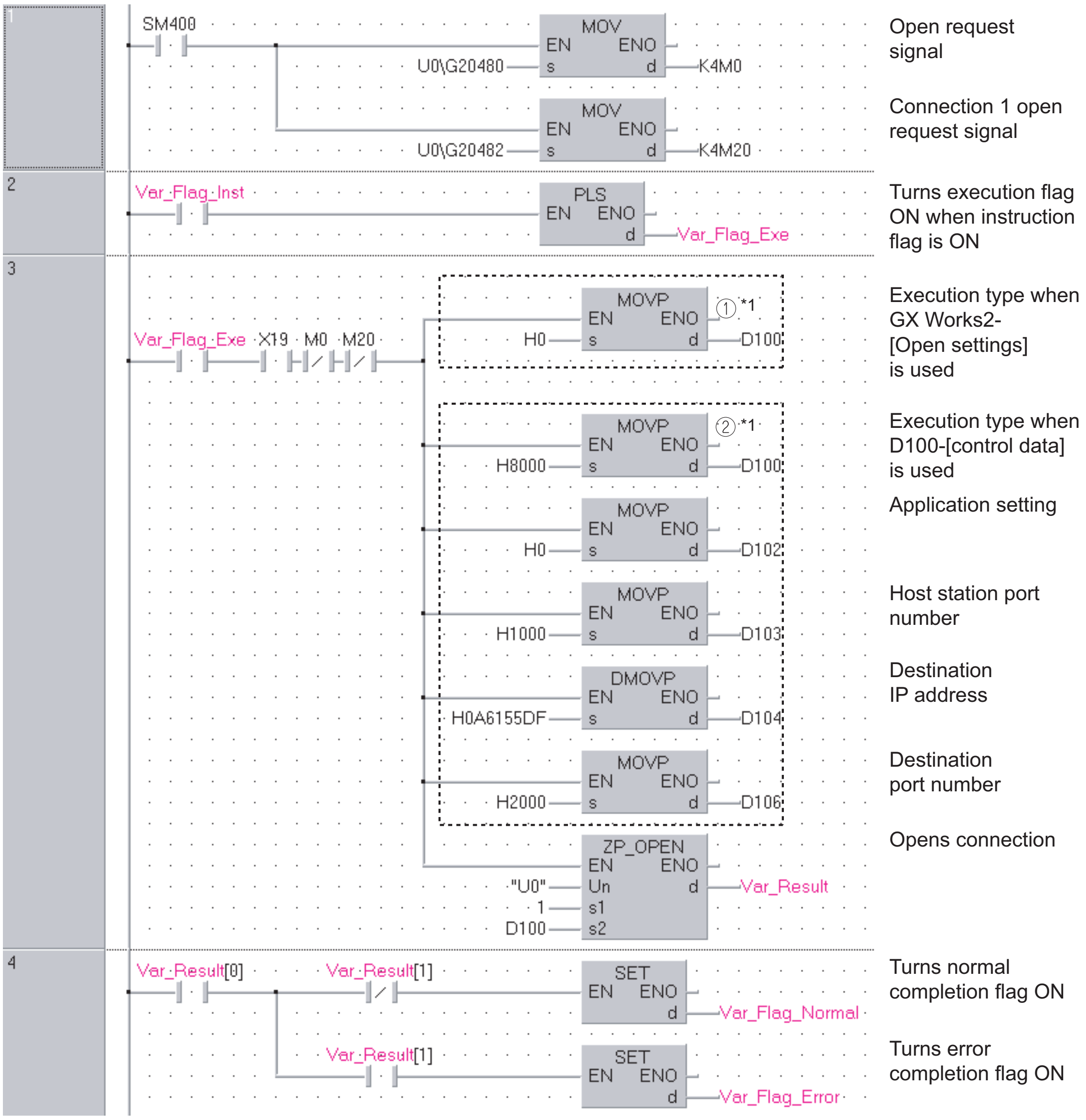
Device	Item	Setting data	Setting range	Setting side
s2 [0]	Execution type/ Completion type	Specify whether to use the parameter values set by GX Works2 or the setting values of the following control data (s2 [2] to s2 [9]) at open processing of a connection. 0000H: Uses the parameter set in [Open settings] of GX Works2. 8000H: Uses the settings of control data s2 [2] to s2 [9].	0000H, 8000H	User
s2 [1]	Completion status	The instruction application status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2]	Application setting area	Specify the application of connection. b15 b14 / b13 to b10 / b9 / b8 / b7 / b6 to b2 / b1 / b0 ⑥ / 0 / ⑤ / ④ / ③ / 0 / ② / ① ① Application of fixed buffer 0: For sending, or fixed buffer is not used in communication 1: For receiving ② Check of existence of the target 0: Not checked 1: Checked ③ Pairing open setting 0: No pairing open 1: Pairing open ④ Communication method (protocol) 0: TCP/IP 1: UDP/IP ⑤ With/without procedure in fixed buffer communication 0: Procedural communication 1: Nonprocedural communication ⑥ Open system 00: Active open or UDP/IP 10: Unpassive open 11: Fullpassive open	(See the left column.)	User
s2 [3]	Host station port No.	Specify the port number of the host station.	401H to 1387H, 138BH to FFFEH	User
s2 [4] s2 [5]	Destination IP address	Specify the IP address of the external device.	1H to FFFFFFFFH (FFFFFFFFH : broadcast)	User
s2 [6]	Destination port No.	Specify the port number of the external device.	401H to FFFFH (FFFFH: broadcast)	User
s2 [7] to s2 [9]	Destination Ethernet address	Specify the Ethernet address of the external device.	n 000000000000H FFFFFFFFFFFFH	User

Program Example

The following program opens the connection 1 for TCP/IP communication using the Active open process.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



*1 : For divisions of ① and ② in the program, ① is necessary when the [Open settings] of GX Works2 is used and ② is necessary when it is not used.

[ST]

```
IF(SM400=TRUE)THEN
                    (* Always ON *)
    MOV(TRUE,U0\G20480,K4M0);
                    (* Open completed signal/connection 1 open completion signal *)
    MOV(TRUE,U0\G20482,K4M20);
                    (* Open request signal/connection 1 open request signal *)
END_IF;
IF(Var_Flag_Inst=TRUE)THEN          (* When instruction flag is ON*)
    PLS(TRUE,Var_Flag_Exe);         (* Turns execution flag ON *)
END_IF;
IF((Var_Flag_Exe=TRUE) AND (X19=TRUE)
                        (* Execution flag/initialization normal completion signal *)
    AND (M0=FALSE) AND (M20=FALSE))THEN
        (* Connection 1 open completion signal/connection 1 open request signal *)
①*1             (*Use GX Works2-[Open settings]*)
    MOVP(TRUE,H0,D100);
                (*Execution type*)
②*1             (*Use D100-[control data]*)
    MOVP(TRUE,H8000,D100);
                (*Execution type*)
    MOVP(TRUE,H0,D102);
                (*Application setting*)
    MOVP(TRUE,H1000,D103);
                (*Host station port number*)
    DMOVP(TRUE,H0A6155DF,D104);
                (*Destination IP address*)
    MOVP(TRUE,H2000,D106);
                (*Destination port number*)
    ZP_OPEN(TRUE,"U0",1,D100,Var_Result);  (* Opens connection *)

END_IF;
IF(Var_Result[0]=TRUE)THEN                 (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN            (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);        (* Turns normal completion flag ON *)
    END_IF;
    IF(Var_Result[1]=TRUE)THEN             (* Error completion *)
        SET(TRUE, Var_Flag_Error);         (* Turns error completion flag ON *)
    END_IF;
END_IF;
```

*1 : For divisions of ① and ② in the program, ① is necessary when the [Open settings] of GX Works2 is used and ② is necessary when it is not used.

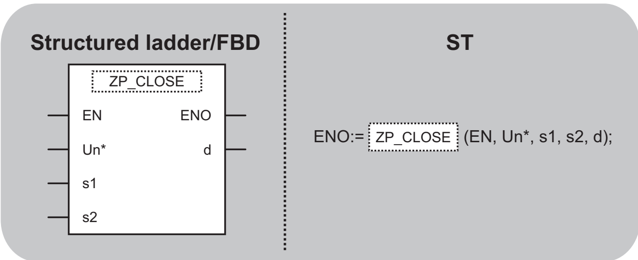
5.4.26 CLOSE instruction

ZP_CLOSE

Ether

ZP_CLOSE

Executing condition :



indicates the following instruction.

ZP_CLOSE

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J⬚\⬚		U⬚\G⬚	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○		–				○	–
s2	–	○		–				–	–
d	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction shuts off (closes) a connection with external device during data communication.

Control Data

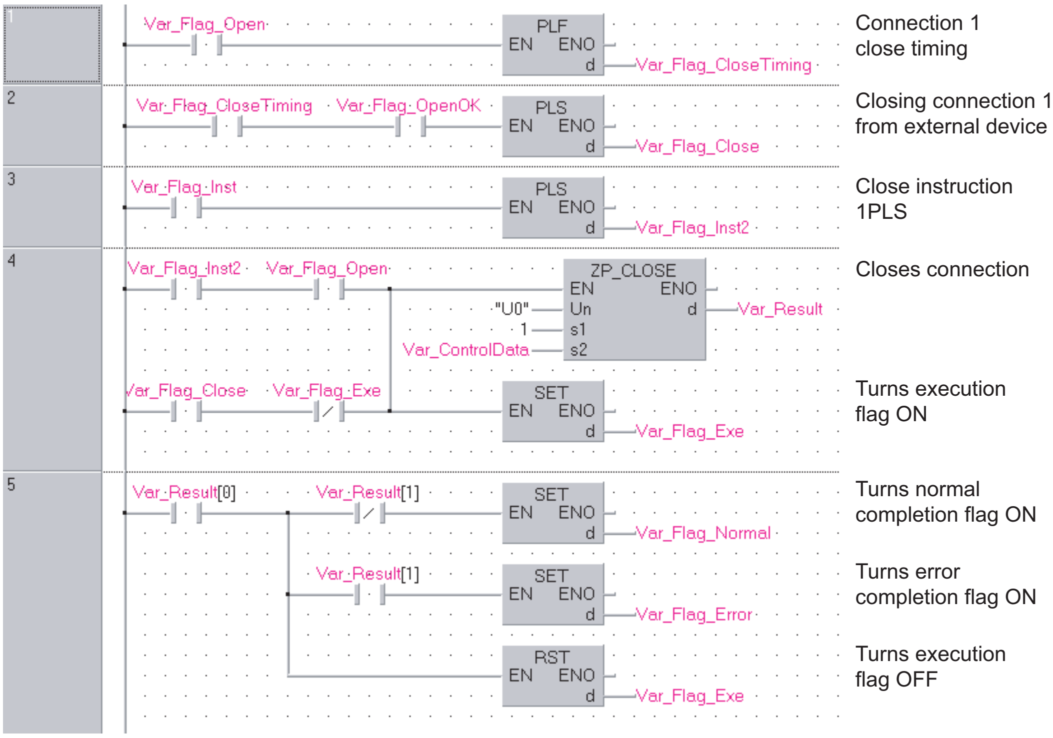
Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

Program Example

The following program closes the connection 1.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



[ST]

```
IF(Var_Flag_Open=TRUE)THEN              (* Connection 1 open completion signal *)
    PLF(TRUE,Var_Flag_CloseTiming);     (* Connection 1 close timing *)
END_IF;
IF((Var_Flag_CloseTiming=TRUE) AND (Var_Flag_OpenOK=TRUE))THEN
                        (* Connection 1 close timing/open instruction normal completion *)
    PLS(TRUE,Var_Flag_Close);           (* Closing connection from external device *)
END_IF;
IF(Var_Flag_Inst=TRUE)THEN              (* Close instruction *)
    PLS(TRUE,Var_Flag_Inst2);           (* Close instruction 1PLS *)
END_IF;
IF(((Var_Flag_Inst2=TRUE) AND (Var_Flag_Open=TRUE))
                        (* Close instruction 1PLS/connection 1 open completion signal *)
    OR ((Var_Flag_Close=TRUE) AND (Var_Flag_Exe=FALSE)))THEN
        (* Closing connection 1 from external device/CLOSE instruction is in execution *)

    ZP_CLOSE(TRUE,"U0",1,Var_ControlData,Var_Result);
                                        (* Closes connection *)
    SET(TRUE,Var_Flag_Exe);             (* Turns execution flag ON *)
END_IF;
IF(Var_Result[0]=TRUE)THEN              (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN         (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);(* Turns normal completion flag ON *)
    END_IF;
    IF(Var_Result[1]=TRUE)THEN          (* Error completion *)
        SET(TRUE, Var_Flag_Error);      (* Turns error completion flag ON *)
    END_IF;
    RST(TRUE,Var_Flag_Exe);             (* Turns execution flag OFF *)
END_IF;
```

5.4.27 BUFRCV instruction

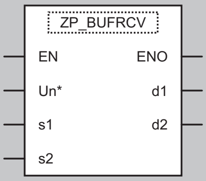
ZP_BUFRCV

Ether

ZP_BUFRCV

Executing condition : ↑

Structured ladder/FBD



ST

ENO:= ZP_BUFRCV (EN, Un*, s1, s2, d1, d2);

[ ] indicates the following instruction.

ZP_BUFRCV

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores read data	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○		–				○	–
s2	–	○		–				–	–
d1	–	○		–				–	–
d2	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads receive data from external device in fixed buffer communication.

This instruction is used in a main program.

5 MODULE DEDICATED INSTRUCTION

ZP_BUFRCV

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

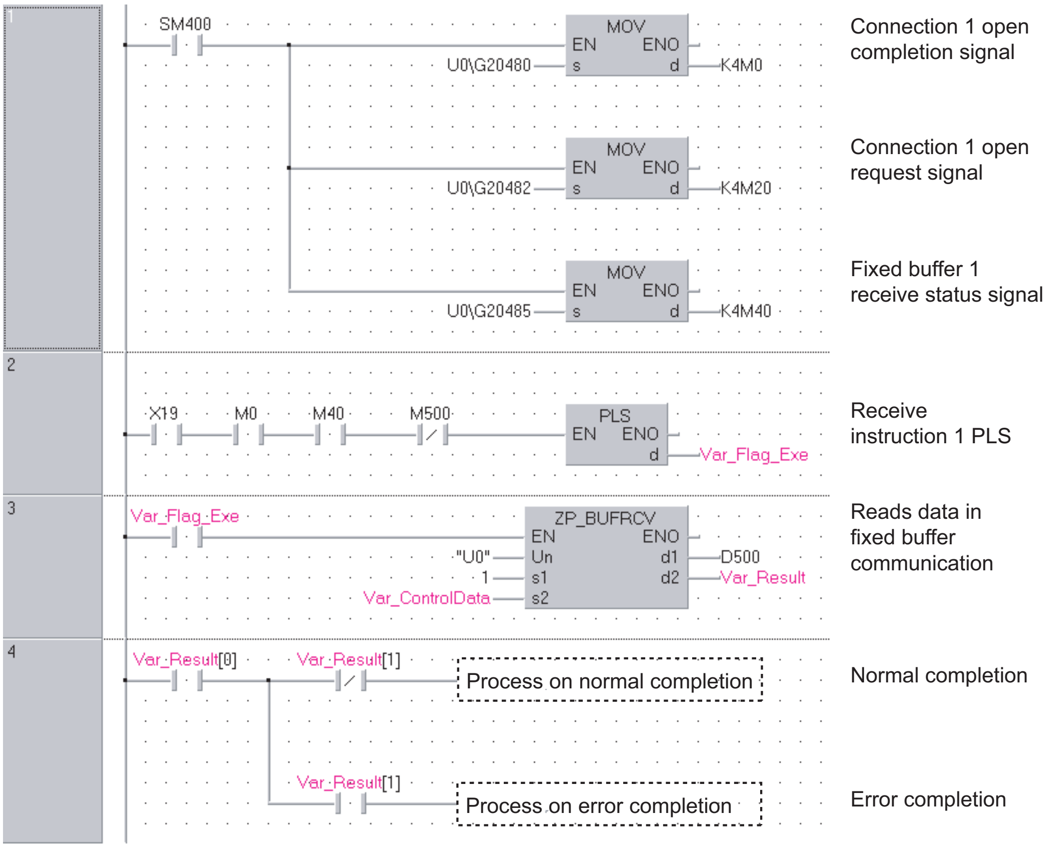
Device	Item	Setting data		Setting range	Setting side
d1 +0	System area	Data length of the data read from the fixed buffer data area is stored. (Data length becomes the number of words or the number of bytes depending on the procedure used in fixed buffer communication.)		–	System
			With procedure (communication in binary code): The number of words	1 to 1017	
			With procedure (communication in ASCII code): The number of words	1 to 508	
			Nonprocedural communication (communication in binary code): The number of bytes	1 to 2046	
d1 +1 to d1 +n	Receive data	Data read from the fixed buffer data area are stored in ascending address order.		–	System

Program Example

The following program reads out receive data from the fixed buffer of the connection 1.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



[ST]

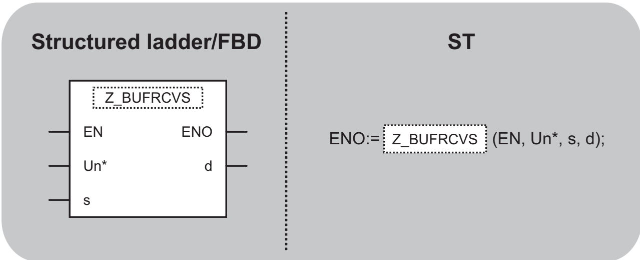
```
IF(SM400=TRUE)THEN
                    (* Always ON *)
    MOV(TRUE,U0\G20480,K4M0);
                    (* Open completion signal/connection 1 open completion signal *)
    MOV(TRUE,U0\G20482,K4M20);
                    (* Open request signal/connection 1 open request signal *)
    MOV(TRUE,U0\G20485,K4M40);
                    (* Fixed buffer receive status signal/fixed buffer 1 receive status signal *)
END_IF;
(* Program to receive fixed buffer number 1 (main program) *)
IF((X19=TRUE) AND (M0=TRUE) AND (M40=TRUE) AND (M500=FALSE))THEN
    (* Initialization normal completion signal/connection 1 normal open completion signal *)
    (* Fixed buffer 1 receive status signal/receive instruction completion signal *)
    PLS(TRUE,Var_Flag_Exe);
                    (* Receive instruction 1PLS *)
END_IF;
IF(Var_Flag_Exe=TRUE)THEN
                    (* Receive instruction 1PLS *)
    ZP_BUFRCV(TRUE,"U0",1,Var_ControlData,D500,Var_Result);
                    (* Reads data in fixed buffer communication *)
END_IF;
IF(Var_Result[0]=TRUE)THEN          (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN     (* Normal completion *)
        (* Process on normal completion *)
    ELSE                            (* Error completion *)
        (* Process on error completion *)
    END_IF;
END_IF;
```

5.4.28 BUFRCVS instruction

Z_BUFRCVS

Ether

Z_BUFRCVS



indicates the following instruction.

Z_BUFRCVS

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Connection number (1 to 16)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores read data	:ANY16

Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant K, H	Others
s	–	○		–				○	–
d	–	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction reads receive data from external device in fixed buffer communication.

This instruction is used in an interrupt program.

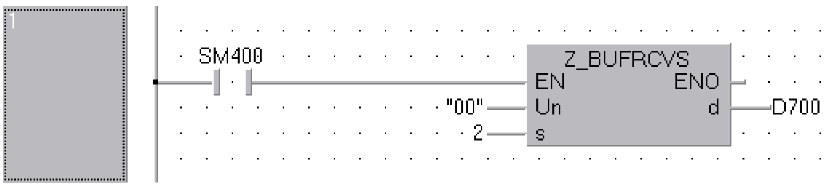
Device	Item	Setting data	Setting range	Setting side
d+0	Receive data length	Data length of the data read from the fixed buffer data area is stored. (Data length becomes the number of words or the number of bytes depending on the procedure used in fixed buffer communication.)	–	System
		With procedure (communication in binary code): The number of words	1 to 1017	
		With procedure (communication in ASCII code): The number of words	1 to 508	
		Nonprocedural communication (communication in binary code): The number of bytes	1 to 2046	
d+1 to d+n	Receive data	Data read from the fixed buffer data area are stored in ascending address order.	–	System

Program Example

The following program reads receive data from the fixed buffer of the connection 2.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



Performs readout in fixed buffer communication

[ST]

```
Z_BUFRCVS(SM400,"00",2,D700);(* Reads data in fixed buffer communication *)
```

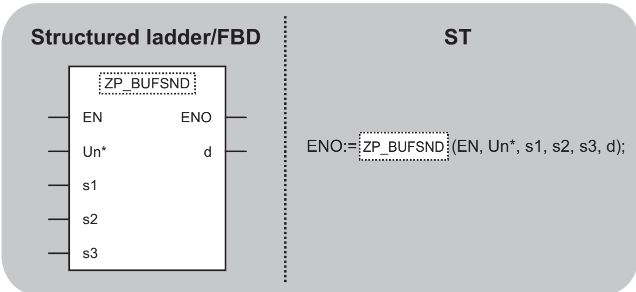
5.4.29 BUFSND instruction

ZP_BUFSND

Ether

ZP_BUFSND

Executing condition : ↑



indicates the following instruction.

ZP_BUFSND

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
	s3:	Start number of the device that stores write data	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○		–				○	–
s2	–	○		–				–	–
s3	–	○		–				–	–
d	○	○		–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends data to external device in fixed buffer communication.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

(1) Send data

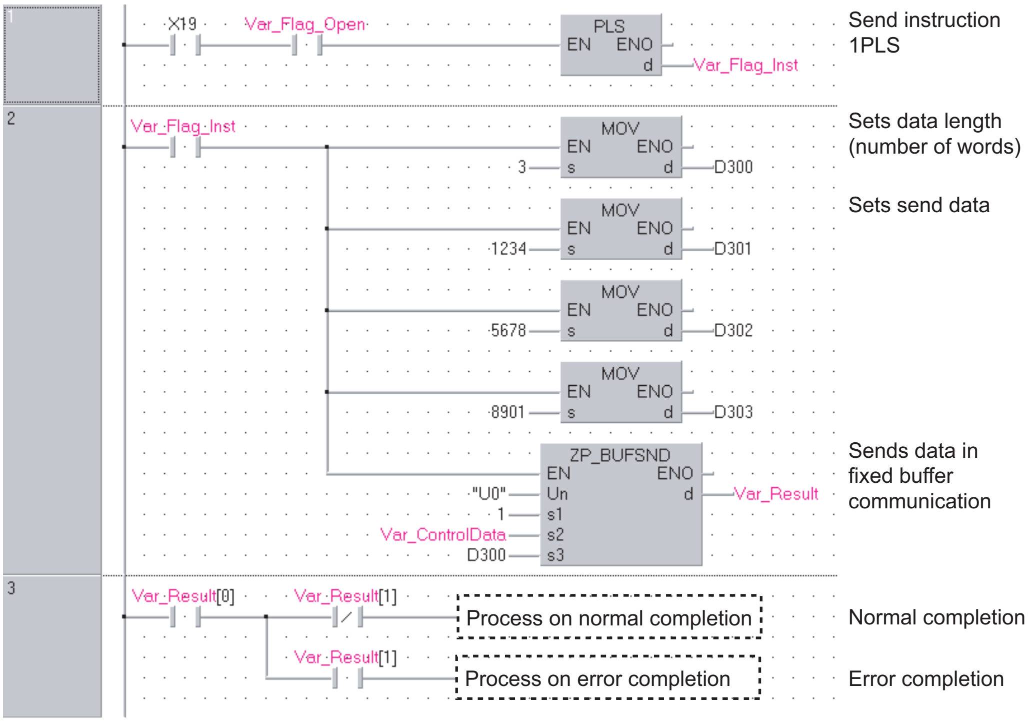
Device	Item	Setting data	Setting range	Setting side
s3 +0	Send data length	Data length of the data read from the fixed buffer data area is stored. (Data length becomes the number of words or the number of bytes depending on the procedure used in fixed buffer communication.)	–	User
		With procedure (communication in binary code): The number of words	1 to 1017	
		With procedure (communication in ASCII code): The number of words	1 to 508	
		Nonprocedural communication (communication in binary code): The number of bytes	1 to 2046	
s3 +1 to s3 +n	Send data	Specify the send data.	–	User

Program Example

The following program sends data from the fixed buffer of the connection 1.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



```
[ST]
IF((X19=TRUE) AND (Var_Flag_Open=TRUE))THEN
        (* Initialization normal completion signal/connection 1 open completion signal*)
        PLS(TRUE,Var_Flag_Inst);
                    (* Send instruction 1PLS *)
END_IF;
IF(Var_Flag_Inst=TRUE)THEN
                    (* Send instruction 1PLS *)
        MOV(TRUE,3,D300);
                    (* Sets data length (number of words) *)
        MOV(TRUE,1234,D301);
                    (* Sets send data *)
        MOV(TRUE,5678,D302);
                    (* Sets send data *)
        MOV(TRUE,8901,D303);
                    (* Sets send data *)
        ZP_BUFSND(TRUE,"U0",1,Var_ControlData,D300,Var_Result);
                    (* Sends data in fixed buffer communication *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
        IF(Var_Result[1]=FALSE)THEN         (* Normal completion *)
            (* Process on normal completion *)
        ELSE                                (* Error completion *)
            (* Process on error completion *)
        END_IF;
END_IF;
```

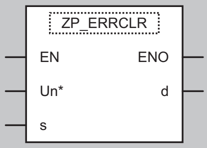
5.4.30 ERRCLR instruction

ZP_ERRCLR

Ether

ZP_ERRCLR

Executing condition : ↑

Structured ladder/FBD	ST
	ENO:= ZP_ERRCLR (EN, Un*, s, d);

(dotted box) indicates the following instruction.

ZP_ERRCLR

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..7]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant	Others
(s)	–	○		–					
(d)	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction turns OFF the LED on Ethernet module and clears error information stored in the buffer memory.

Control Data

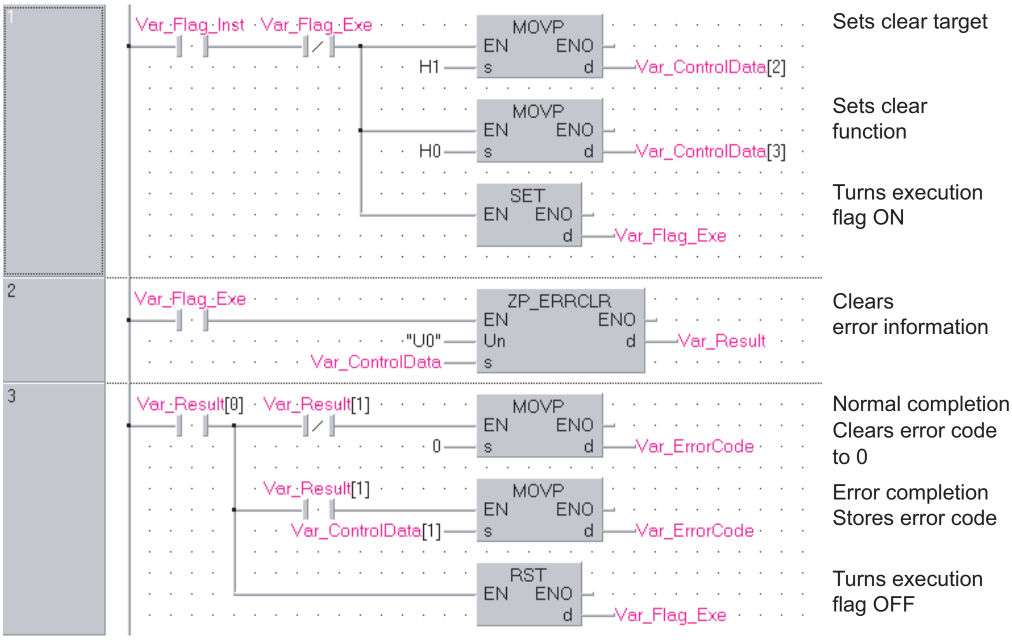
Device	Item	Setting data	Setting range	Setting side
(s) [0]	System area	–	–	–
(s) [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
(s) [2]	Clear target specification	Specify the error information to be cleared. 0000H: Initial error code 0001H to 0010H: Open error code of the corresponding connection 0100H: Error log block area 0101H: Communication status - Status by protocol 0102H: Communication status - E-mail reception status 0103H: Communication status - E-mail transmission status FFFFH: Clears all of the above.	(See the left column.)	User
(s) [3]	Clear function specification	Specify the function to be cleared. 0000H: [COM.ERR] LED is turned OFF and an error code is cleared. FFFFH: Error log clear	0000H, FFFFH	User
(s) [4] to (s) [7]	System area	–	–	–

Program Example

The following program clears the open error code of the connection 1.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



```
[ST]
IF((Var_Flag_Inst=TRUE) AND (Var_Flag_Exe=FALSE))THEN
    MOVP(TRUE,H1,Var_ControlData[2]);          (* Sets clear target *)
    MOVP(TRUE,H0,Var_ControlData[3]);          (* Sets clear function *)
    SET(TRUE,Var_Flag_Exe);                    (* Turns execution flag ON *)
END_IF;
IF(Var_Flag_Exe=TRUE)THEN
    ZP_ERRCLR(TRUE,"U0",Var_ControlData,Var_Result);
                                               (* Clears error information *)
END_IF;
IF(Var_Result[0]=TRUE)THEN                     (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN                (* Normal completion *)
        MOVP(TRUE,0,Var_ErrorCode);            (* Clears error code to 0 *)
    END_IF;
    IF(Var_Result[1]=TRUE)THEN                 (* Error completion *)
        MOVP(TRUE,Var_ControlData[1],Var_ErrorCode);(* Stores error code *)
    END_IF;
    RST(TRUE,Var_Flag_Exe);                    (* Turns execution flag OFF *)
END_IF;
```

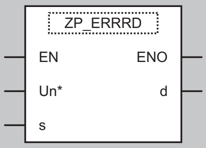
5.4.31 ERRRD instruction

ZP_ERRRD

Ether

ZP_ERRRD

Executing condition :

Structured ladder/FBD	ST
	ENO:= ZP_ERRRD (EN, Un*, s, d);

indicates the following instruction.

ZP_ERRRD

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..7]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads the error information stored in the buffer memory of the Ethernet module.

Control Data

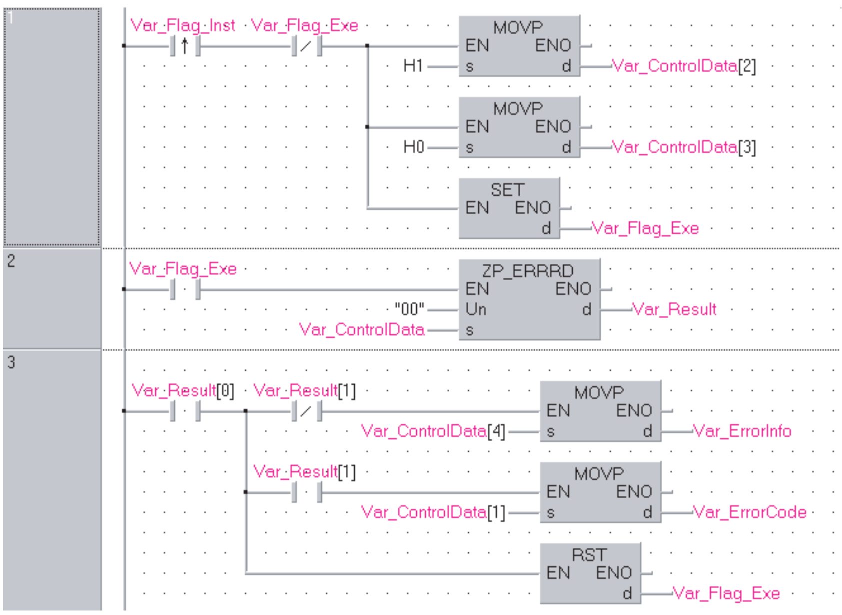
Device	Item	Setting data	Setting range	Setting side
(s) [0]	System area	–	–	–
(s) [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
(s) [2]	Read information specification	Specify the error information to be read. 0 : Initial error code 1 to 16 : Open error code of the corresponding connection	0, 1 to 16	User
(s) [3]	Read target information specification	Specify the target error information to be read. 0000H: Latest error information	0000H	User
(s) [4]	Error information	The read error information is stored. 0000H : No error Other than 0000H : Error code	–	System
(s) [5] to (s) [7]	System area	–	–	–

Program Example

The following program reads the open error code of the connection 1.

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



[ST]
```
IF((Var_Flag_Inst=TRUE) AND (Var_Flag_Exe=FALSE))THEN
	MOVP(TRUE,H1,Var_ControlData[2]);
			(* Sets open error code of connection number 1 *)
	MOVP(TRUE,H0,Var_ControlData[3]);
			(* Sets latest error information *)
	SET(TRUE,Var_Flag_Exe);		(* Turns execution flag ON*)
END_IF;
IF(Var_Flag_Exe=TRUE)THEN
	ZP_ERRRD(TRUE,"00",Var_ControlData,Var_Result);
					(* Reads error information *)
END_IF;
IF(Var_Result[0]=TRUE)THEN		(* Execution finished *)
	IF(Var_Result[1]=FALSE)THEN(* Normal completion *)
		MOVP(TRUE,Var_ControlData[4],Var_ErrorInfo);
					(* Stores error information*)
	END_IF;
	IF(Var_Result[1]=TRUE)THEN	(* Error completion *)
		MOVP(TRUE,Var_ControlData[1],Var_ErrorCode);
					(* Stores error code *)
	END_IF;
	RST(TRUE,Var_Flag_Exe);		(* Turns execution flag OFF *)
END_IF;
```

5.4.32 UINI instruction

Z_UINI

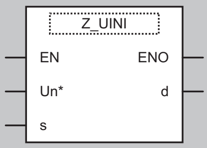
CC IE C Ether *1

*1: ZP_UINI instruction only

Z(P)_UINI

P: Executing condition :

Structured ladder/FBD



ST

ENO:= Z_UINI (EN, Un*, s, d);

indicates any of the following instructions.

Z_UINI ZP_UINI

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..9]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

<table>
<tr><th rowspan="2">Setting data *1</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
<tr><td>d</td><td>○</td><td colspan="2">○</td><td colspan="6">–</td></tr>
</table>

*1: Local devices and file registers per program cannot be used as setting data.

Function

Ethernet: This instruction reinitializes the Ethernet module.

CC-Link IE Controller Network: For Universal model QCPU, this instruction sets the station number of the CC-Link IE Controller Network module on normal station (host station).

Control Data

(1) Ethernet

Device	Item	Setting data	Setting range	Setting side
Ⓢ[0]	System area	–	–	–
Ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
Ⓢ[2]	Modification specification	[When updating the address information of external devices which are held by the Ethernet module] • Specify '0H'.*1 [When modifying the host station IP address, operation settings, transmission speed, communication mode] • Specify the parameter to be modified. However, Modification specification of transmission speed, communication mode cannot be executed simultaneously with that of host station IP address, operation settings. If executed, only modification specification of host station IP address and operation settings will be set. b15 to b12: ③ / b11 to b2: 0 / b1: ② / b0: ① ① Modification specification of host station IP address Specify whether the host station IP address is modified or not. (To modify the IP address, specify the address in Ⓢ1[3] and Ⓢ1[4].) 0: Not changed 1: Changed ② Modification specification of operation setting Specify whether the operation setting is modified or not. (To modify the operation setting, specify the operation setting in Ⓢ1[5].) 0: Not changed 1: Changed ③ Modification specification of transmission speed, communication mode Specify the transmission speed, communication mode. 0: not changed 1: automatic negotiation 2: 100Mbps/full-duplex communication 3: 100Mbps/half-duplex communication 4: 10Mbps/full-duplex communication 5: 10Mbps/half-duplex communication	0H to 5000H	User
Ⓢ[3] Ⓢ[4]	Host station IP address	Specify the IP address of the host station.	00000001H to FFFFFFFEH	User

Device	Item	Setting data	Setting range	Setting side
ⓢ[5]	Operation setting	b15 to b9 / b8 / b7 / b6 / b5 / b4 / b3 / b2 / b1 / b0 0 / ⑤ / 0 / ④ / ③ / ② / 0 / ① / 0 ① Communication data code setting 0: Binary code 1: ASCII code ② TCP existence confirmation setting 0: Use Ping 1: Use KeepAlive ③ Transmission frame setting 0: Ethernet frame 1: IEEE802.3 frame ④ Setting for enabling/disabling write during RUN 0: Disable 1: Enable ⑤ Initial timing setting 0: Do not wait for OPEN (communication impossible during STOP status) 1: Always wait for OPEN (communication possible during STOP status)	0 or 1	User
ⓢ[6] to ⓢ[9]	–	Specify 0.	0	User

*1 : The Ethernet module enables data exchange to restart by clearing the address information retained in the module and by performing re-initial processing.
(The Initial normal completion signal (X19) is on.)

(2) CC-link IE Controller Network

Device	Item	Setting data	Setting range	Setting side
ⓢ[0]	–	Specify 0.	0	User
ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
ⓢ[2]	Modification specification	Specify the change target 0001H: With station number setting	0001H	User
ⓢ[3]	Host station No.	Specify the station number of the host station.	1 to 120	User
ⓢ[4] to ⓢ[9]	–	Specify 0.	0	User

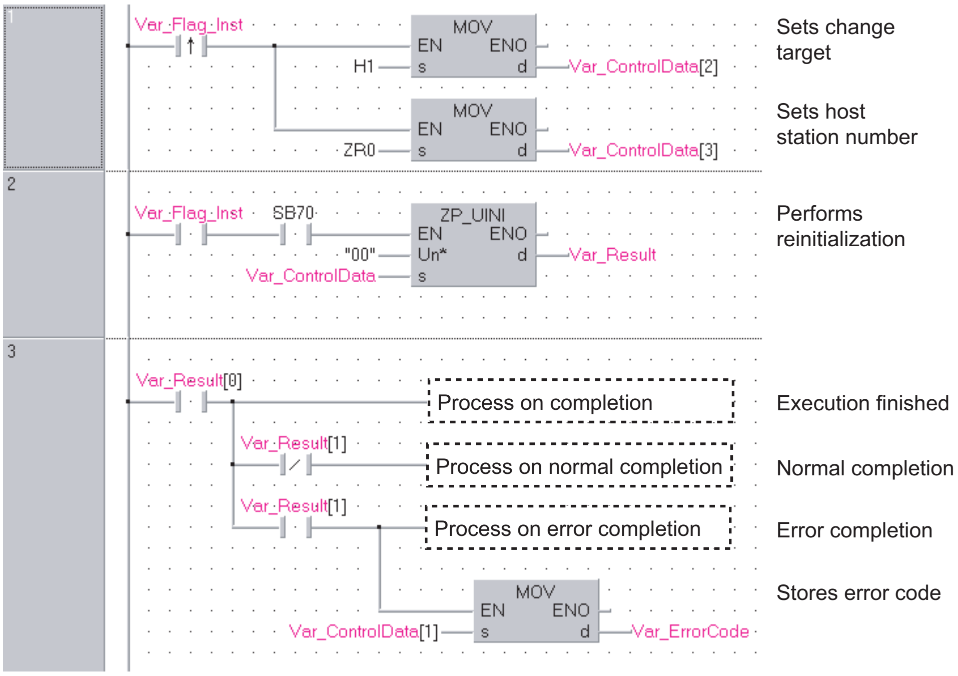
POINT

The UINI instruction can be executed only once. The UINI instruction cannot be executed again after determination of station number. (It caused an error completion.)
However, in the case of the UINI instruction with the error completion, execute the UINI instruction again after taking corrective action.

Program Example

The following program sets the station number 2. The following is an example for Ethernet.

[Structured ladder/FBD]



[ST]

```
IF (Var_Flag_Inst=TRUE) THEN
    MOV(TRUE,H1,Var_ControlData[2]);   (* Sets change target *)
    MOV(TRUE,ZR0,Var_ControlData[3]);(* Sets host station number *)
END_IF;
IF((Var_Flag_Exe=TRUE) AND (SB70=TRUE))THEN
    ZP_UINI(TRUE,"00",Var_ControlData,Var_Result);
                                       (* Performs reinitialization *)
END_IF;
IF(Var_Result[0]=TRUE)THEN             (* Execution finished *)
    (* Process on completion *)
    IF(Var_Result[1]=FALSE)THEN        (* Normal completion *)
        (* Process on normal completion *)
    ELSE                               (* Error completion *)
        (* Process on error completion *)
        MOV(TRUE, Var_ControlData[1], Var_ErrorCode);(* Stores error code *)
    END_IF;
END_IF;
```

5.4.33 MRECV instruction

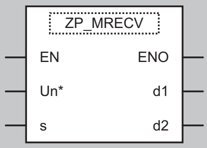
ZP_MRECV

Ether

ZP_MRECV

Executing condition : ↑

Structured ladder/FBD



ST

ENO:= ZP_MRECV (EN, Un*, s, d1, d2);

[ ] indicates the following instruction.
ZP_MRECV

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s:	Variable that stores control data	:Array of ANY16 [0..15]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the host station's device that stores the content of the received e-mail (header + attached file)	:ANY16
	d2:	Variable that turns ON upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					
d1	–	○		–					
d2	○	○		–					

*1: Local devices and file registers per program cannot be used as setting data.

5 MODULE DEDICATED INSTRUCTION

ZP_MRECV

Function

This instruction reads received e-mail.

Control Data

Device	Item	Setting data	Setting range	Setting side
ⓢ[0]	Execution/Error completion type	b15 to b10 | b9 | b8 | b7 | to b0 0 | ② | 0 | ① | 0 ① Error completion type (bit 7) Specify the clock data setup status at the time of error completion. 0: Clock data at the time of error completion is not set in the area starting from ⓢ[11]. 1: Clock data at the time of error completion is set in the area starting from ⓢ[11]. ② Execution type (bit 9) *1 Specify whether to inquire about existence of mails in the server after reading received mails. 0: Not requested (not read) 1: Requested (read)	0000H, 0080H, 0200H, 0280H	User
ⓢ[1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
ⓢ[2]	E-mail No. to be read	Specify the number of a mail to be read when multiple mails are received. 0 : First mail 1 or more : Specified mail	0 or more	User
ⓢ[3] to ⓢ[8]	System area	–	–	–
ⓢ[9]	Receive data length: For instruction execution	Specify the data length (header + attached file) of the mail that can be stored in ⓓ1 to ⓓ1+n. (Header: 1 to 373, attached file: 1 to 6144) 0 : Adjust data length to that of the received mail. 1 to 6517 : The number of data that can be stored in (ⓓ1 to ⓓ1 + n)	0 to 6517 (word) * Includes the header length explained below.	User
	Receive data length: At instruction completion	Data length (header + attached file) of the mail stored in ⓓ1 to ⓓ1 + n is stored. 1 to 6517: The number of receive data stored in (ⓓ1 to ⓓ1 + n)		System
ⓢ[10]	Header length: For instruction execution	Specify the header data length of the mail that can be stored in ⓓ1 to ⓓ1 + n. 0 : Adjust header data length to that of the received mail. 1 to 373 : The number of data that can be stored in (ⓓ1 to ⓓ1 + n)	0 to 373 (word)	User
	Header length: At instruction completion	Header data length of the mail stored in ⓓ1 to ⓓ1 + n is stored. 1 to 373: Number of receive data stored in (ⓓ1 to ⓓ1 + n)		System
ⓢ[11]	Clock set flag	Valid/invalid status of the data in the area starting from ⓢ[12] is stored. 0: Invalid 1: Valid	0,1	System

Device	Item	Setting data	Setting range	Setting side
s[12] to s[15]	Clock data (set only when errors occur)	Clock data at the time of error completion are stored in BCD format. b15 to b8 / b7 to b0 s[12] Month (01H to 12H) / Year (00H to 99H) Last two digits s[13] Hour (00H to 23H) / Day (01H to 31H) s[14] Second (00H to 59H) / Minute (00H to 59H) s[15] Year (00H to 99H) First two digits / Day of week (00H to 06H) 00H (Sun.) to 06H (Sat.)	–	System

Device	Item	Setting data	Setting range	Setting side
d1 +0 to d1 +n	Receive data	Content (header + attached file) of the received mail are stored.	–	System

*1 : The following table shows the processing that depends on the selection of the execution type after executing the MRECV instruction.

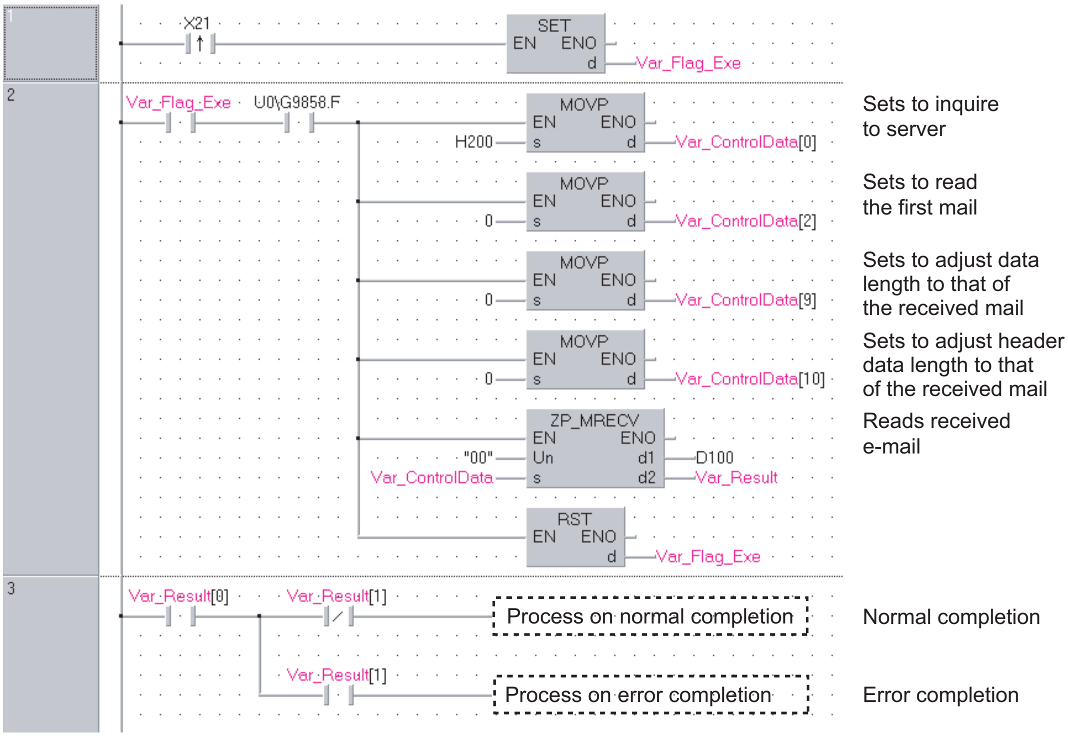
Setting option	Processing	Advantage	Disadvantage
No request (not read)	• Only e-mail read processing from the mail server is performed. • Inquiry (reading) for the information of received mails remaining in the mail server is performed after the time set in the GX Works2 parameter has elapsed.	Unnecessary read processing is not performed when the mail server has no mail.	Even if mails remain in the mail server, they cannot be read immediately. Mails tend to be accumulated in the mail server.
Request (read)	• E-mail read processing from the mail server is performed. • After the execution of the MRECV instruction, inquiry (read) processing for information on the received mails remaining in the mail server is performed. (Inquiry for receiving of a mail is made immediately.)	Received mails stored in the mail server can be read in series.	Inquiries to the mail server are made more often. Internal processing of the module increases, which affects other internal processing to a certain degree.

Program Example

The following program performs the e-mail receiving process by the receive instruction (X21).

(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

[Structured ladder/FBD]



```
[ST]
IF (X21=TRUE) THEN
        SET(TRUE,Var_Flag_Exe);
END_IF;
IF((Var_Flag_Exe=TRUE) AND (U0\G9858.F=TRUE))THEN
        MOVP(TRUE,H200,Var_ControlData[0]);
                    (* Sets to inquire to server *)
        MOVP(TRUE,0,Var_ControlData[2]);
                    (* Sets to read the first mail *)
        MOVP(TRUE,0,Var_ControlData[9]);
                    (* Sets to adjust data length to that of the received mail *)
        MOVP(TRUE,0,Var_ControlData[10]);
                    (* Sets to adjust header data length to that of the received mail *)
        ZP_MRECV(TRUE,"00",Var_ControlData,D100,Var_Result);
                    (* Reads received e-mail *)
        RST(TRUE,Var_Flag_Exe);
END_IF;
IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
        IF(Var_Result[1]=FALSE)THEN         (* Normal completion *)
              (* Process on normal completion *)
        ELSE                                (* Error completion *)
              (* Process on error completion *)
        END_IF;
END_IF;
```

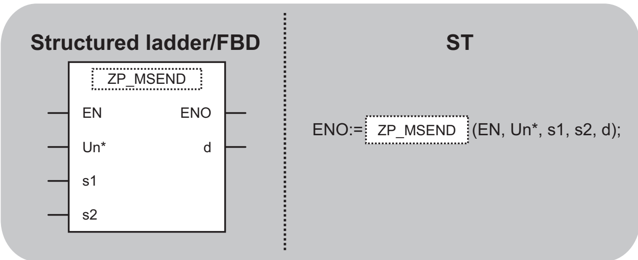
5.4.34 MSEND instruction

ZP_MSEND

Ether

ZP_MSEND

Executing condition :



indicates the following instruction.

ZP_MSEND

Input argument	EN:	Executing condition	:Bit
	Un*:	Start I/O number of the module (00 to FE: Higher two digits when expressing the I/O number in three digits)	:String
	s1:	Variable that stores control data	:Array of ANY16 [0..15]
	s2:	Start number of the host station's device that stores the content of the sent e-mail (subject + attached file) or (subject + text)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data *1	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○	–						
s2	–	○	–						
d	○	○	–						

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends an e-mail.

Control Data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Setting side</th></tr>
<tr><td>s1 [0]</td><td>Execution/Error completion type
Send data format</td><td>
<table>
<tr><td>b15 to b12</td><td>b12 to b8</td><td>b7</td><td>to b0</td></tr>
<tr><td>0</td><td>②</td><td>①</td><td>0</td></tr>
</table>
① Error completion type (bit 7)
Specify the clock data setup status at the time of error completion.
0: Clock data at the time of error completion is not set in the area starting from s1 [11].
1: Clock data at the time of error completion is set in the area starting from s1 [11].
② Send data format (bit 12 to bit 8)
Specify the data format of the send data.
(Sending the data as an attached file)
<table>
<tr><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>Data format</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>Binary data</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>ASCII data (converted from binary into ASCII)</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>CSV data (converted from binary into CSV)</td></tr>
</table>
(Sending the data as a text)
<table>
<tr><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>Data format</th></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>Binary data</td></tr>
</table>
[Precautions for specifying a text]
• When a text is specified, setting at bit 11 to bit 8 is invalid.
• Specify the text in ASCII characters in a sequence program. (Ethernet module does not convert text into ASCII characters.)
• The following binary code data are treated as control codes.
0D0AH : Line feed code, CR+LF
00H : End of the text
• The number of characters per line in a text to 78 characters or less
(Enter the line feed code, CR+LF (0D0AH), at the last line of a text.)
</td><td>(See the left column.)</td><td>User</td></tr>
<tr><td>s1 [1]</td><td>Completion status</td><td>The instruction completion status is stored.
0 : Normal completion
Other than 0 : Error completion (error code)</td><td>–</td><td>System</td></tr>
<tr><td>s1 [2]</td><td>Transmission destination No.</td><td>Specify the external device to which e-mails are to be sent by the setting number on [Send mail address setting] of GX Works2.
1 to 16: Setting number of the external device</td><td>1 to 16</td><td>User</td></tr>
<tr><td>s1 [3]
to
s1 [8]</td><td>System area</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>s1 [9]</td><td>Send data length</td><td>Specify the data length ((subject + attached file) or (subject + text)) of the mail stored in s2 to s2 + n.
① Sending the data as an attached file (subject: 0 to 373, attached file: 1 to 6144)
1 to 6517: Data length (word) of a mail
② Sending the data as a text (subject: 0 to 373, text: 1 to 960)
1 to 1333: Data length (word) of a mail</td><td>1 to 6517,
1 to 1333</td><td>User</td></tr>
<tr><td>s1 [10]</td><td>Subject length</td><td>Specify the subject data length of the mail stored in s2 to s2 + n.
0 to 373: Data length (word) of subject</td><td>0 to 373</td><td>User</td></tr>
</table>

Device	Item	Setting data	Setting range	Setting side
(s1)[11]	Clock set flag	Valid/invalid status of the data in the area starting from (s1)[12] is stored. 0: Invalid 1: Valid	–	System
(s1)[12] to (s1)[15]	Clock data (set only when errors occur)	Clock data at the time of error completion are stored in BCD format. b15 to b8 / b7 to b0 (s1)[12]: Month (01H to 12H) / Year (00H to 99H) Last two digits (s1)[13]: Hour (00H to 23H) / Day (01H to 31H) (s1)[14]: Second (00H to 59H) / Minute (00H to 59H) (s1)[15]: Year (00H to 99H) First two digits / Day of week (00H to 06H) 00v (Sun.) to 06H (Sat.)	–	System

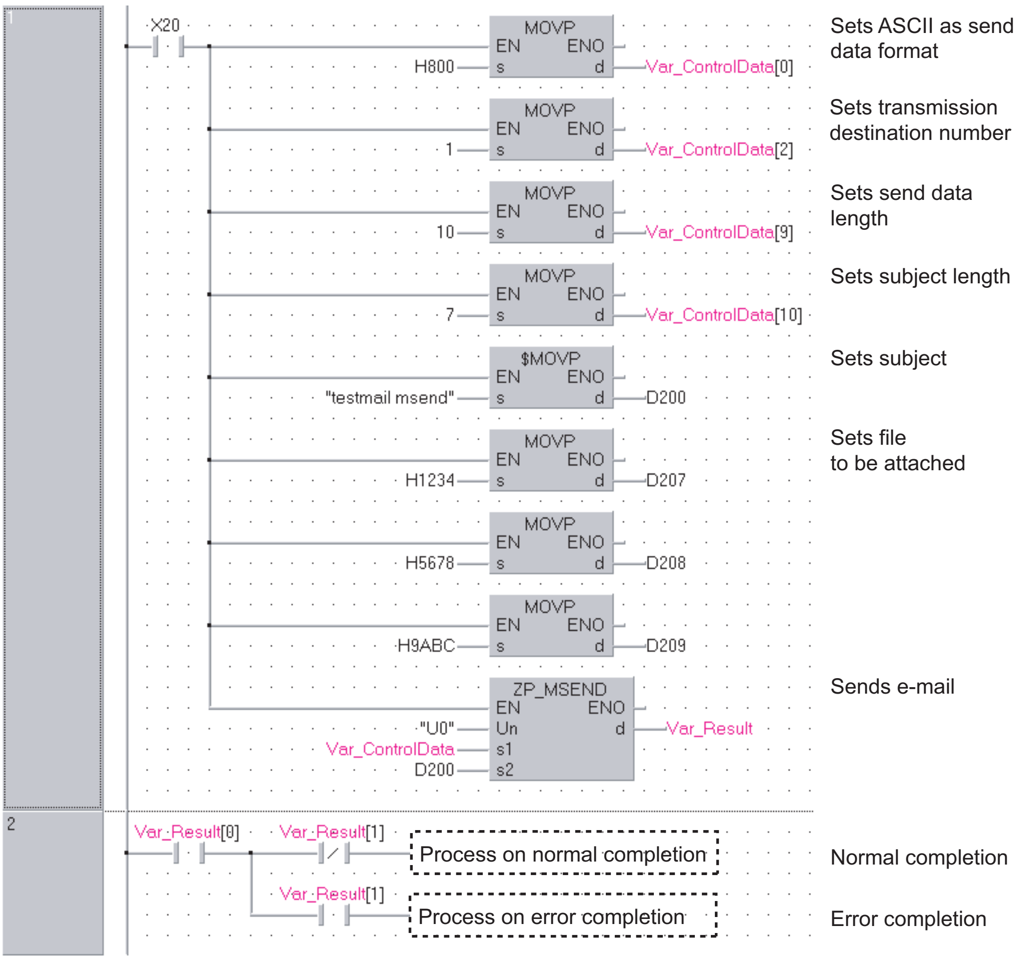
(1) Send data

Device	Item	Setting data	Setting range	Setting side
(s2) +0 to (s2) +n	Send data	Specify the content of ((subject + attached file) or (Subject + text)) of a mail to be sent.	–	User

Program Example

The following program performs e-mail sending process by the send instruction (X20).
(The I/O signals of the Ethernet module are X/Y00 to X/Y1F)

(1) Sending the data as an attached file



[ST]

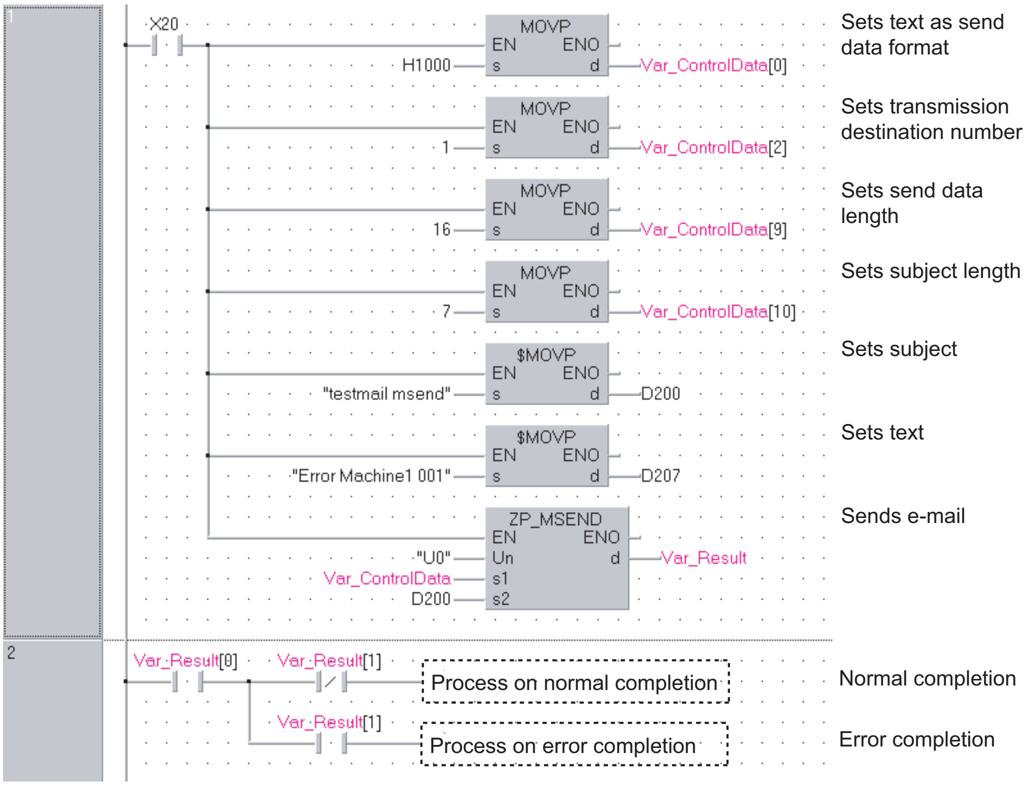
```
IF(X20=TRUE)THEN
	MOVP(TRUE,H800,Var_ControlData[0]);
					(* Sets ASCII as send data format *)
	MOVP(TRUE,1,Var_ControlData[2]);
					(* Sets transmission destination number *)
	MOVP(TRUE,10,Var_ControlData[9]);
					(* Sets send data length *)
	MOVP(TRUE,7,Var_ControlData[10]);
					(* Sets subject length *)

	Int_Msg[0] := H6574;		(* te *)
	Int_Msg[1] := H7473;		(* st *)
	Int_Msg[2] := H616d;		(* ma *)
	Int_Msg[3] := H6c69;		(* il *)
	Int_Msg[4] := H6d20;		(*  m *)
	Int_Msg[5] := H6573;		(* se *)
	Int_Msg[6] := H646e;		(* nd *)
					(* Sets subject *)

	MOVP(TRUE,H1234,Int_Msg[7]);
					(* Sets file to be attached *)
	MOVP(TRUE,H5678,Int_Msg[8]);
	MOVP(TRUE,H9ABC,Int_Msg[9]);
	ZP_MSEND(TRUE,"U0",Var_ControlData,Int_Msg[0],Var_Result);
					(* Sends e-mail *)
END_IF;
IF(Var_Result[0]=TRUE)THEN		(* Execution finished *)
	IF(Var_Result[1]=FALSE)THEN(* Normal completion *)
		(* Process on normal completion *)
	ELSE				(* Error completion *)
		(* Process on error completion *)
	END_IF;
END_IF;
```

5 MODULE DEDICATED INSTRUCTION

ZP_MSEND

(2) Sending the data as a text

[Structured ladder/FBD]



[ST]

```
IF(X20=TRUE)THEN
    MOVP(TRUE,H1000,Var_ControlData[0]);
                (* Sets text as send data format *)
    MOVP(TRUE,1,Var_ControlData[2]);
                (* Sets transmission destination number *)
    MOVP(TRUE,16,Var_ControlData[9]);
                (* Sets send data length *)
    MOVP(TRUE,7,Var_ControlData[10]);
                (* Sets subject length *)

    Int_Msg[0] := H6574;     (* te *)
    Int_Msg[1] := H7473;     (* st *)
    Int_Msg[2] := H616d;     (* ma *)
    Int_Msg[3] := H6c69;     (* il *)
    Int_Msg[4] := H6d20;     (*  m *)
    Int_Msg[5] := H6573;     (* se *)
    Int_Msg[6] := H646e;     (* nd *)
                             (* Sets subject *)

    Int_Msg[7] := H7274;     (* Er *)
    Int_Msg[8] := H6f72;     (* ro *)
    Int_Msg[9] := H2072;     (* r  *)
    Int_Msg[10] := H614d;    (* Ma *)
    Int_Msg[11] := H6863;    (* ch *)
    Int_Msg[12] := H6e69;    (* in  *)
    Int_Msg[13] := H3165;    (* e1 *)
    Int_Msg[14] := H3020;    (*  0 *)
    Int_Msg[15] := H3130;    (* 01 *)
                             (* Sets text *)

    ZP_MSEND(TRUE,"U0",Var_ControlData,Int_Msg[0],Var_Result);
                             (* Sends e-mail *)
END_IF;
IF(Var_Result[0]=TRUE)THEN          (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN(* Normal completion *)
        (* Process on normal completion *)
    ELSE                            (* Error completion *)
        (* Process on error completion *)
    END_IF;
END_IF;
```

5

MODULE DEDICATED INSTRUCTION

ZP_MSEND

MEMO

6 PID CONTROL INSTRUCTION

6.1 PID Control Instruction (Inexact Differential)

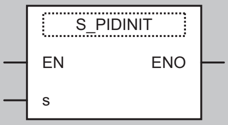
6.1.1 PIDINIT instruction

S_PIDINIT

SP_PIDINIT

P: Executing condition :

Structured ladder/FBD



ST

ENO:= S_PIDINIT (EN, s);

[ ] indicates any of the following instructions.

S_PIDINIT
SP_PIDINIT

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device that stores PID control data	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J[ ]\[ ]		U[ ]\G[ ]	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					

Function

This instruction enables PID control by registering the PID control data for the number of loops to be used to the CPU module in batch.

(1) PID control data

Device	Data item	Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
Common setting data (device: ⓢ+0 to ⓢ+1)						
ⓢ +0	Number of loops	Set the number of loops for PID operation.	1 to 32		User	An error occurs and the PID operation for all loops is not performed.
ⓢ +1	Number of loops in one scan	Set the number of loops for PID operation in one scan if multiple loops have reached the sampling cycle time.	1 to 32		User	
Setting data for No. 1 loop (device: ⓢ+2 to ⓢ+15)						
ⓢ +2	Operational expression selection	Select the PID operational expression. *1	0: Forward operation 1: Reverse operation	0: Forward operation 1: Reverse operation	User	An error occurs and the PID operation for the corresponding loop is not performed.
ⓢ +3	Sampling cycle (T_S)	Set the PID operation cycle.	1 to 6000 (unit: 10ms)	1 to 6000 (unit: 10ms)	User	
ⓢ +4	Proportional constant (K_P)	Proportional gain of PID operation	1 to 10000 (unit: 0.01)	1 to 10000 (unit: 0.01)	User	
ⓢ +5	Integral constant (T_I)	Constant that expresses the magnitude of the integral action (I action) effect. Increasing the integral constant slows down the manipulated value change.	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	User	
ⓢ +6	Derivative constant (T_D)	Constant that expresses the magnitude of the derivative action (D action) effect. Increasing the derivative constant causes a significant change in the manipulated value even with a slight change of the control target.	0 to 30000 (unit: 10ms)	0 to 30000 (unit: 10ms)	User	
ⓢ +7	Filter coefficient (α)	Set the degree of filtering to be applied to the process value. The filtering effect decreases as the value gets closer to 0.	0 to 100	0 to 100	User	

*1 : For the PID operational expressions to be set for Operational expression selection, refer to MELSEC-Q/L/QnA Programming Manual (PID Control Instructions).

Device	Data item	Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
Ⓢ +8	MV lower limit (MVLL)	Set the lower limit for the manipulated value (MV) calculated in PID operation in automatic mode. If the MV is less than the set lower limit value (MVLL), the value is clipped to the MVLL.	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the MVLL or MVHL is less than -50, the value is clipped to -50. • If the MVLL or MVHL is greater than 2050, the value is clipped to 2050.
Ⓢ +9	MV upper limit (MVHL)	Set the upper limit for the manipulated value calculated in PID operation in automatic mode. If the MV is greater than the set upper limit value (MVHL), the value is clipped to the MVHL.	-50 to 2050	-32768 to 32767	User	
Ⓢ +10	MV change rate limit (△MVL)	Set the variation limit between the previous MV and the present MV. When the MV variation is greater than the limit value, bit 1 (b1) of the alarm device is set to '1'. MV variation is not limited. (Even if the MV variation exceeds the limit value, the actual MV variation is used as it is for calculating the MV.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the △MVL value is less than 0, the value is clipped to 0. • If the △MVL value is greater than 2000, the value is clipped to 2000.
Ⓢ +11	PV change rate limit (△PVL)	Set the variation limit between the previous PV and the present PV. When the PV variation is greater than the limit value, bit 0 (b0) of the alarm device is set to '1'. PV variation is not limited. (Even if the PV variation exceeds the limit value, the actual PV variation is used as it is for performing the PID operation.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the △PVL value is less than 0, the value is clipped to 0. • If the △PVL value is greater than 2000, the value is clipped to 2000.

<table>
<tr><th rowspan="2">Device</th><th rowspan="2">Data item</th><th rowspan="2">Description</th><th colspan="2">Setting range</th><th rowspan="2">Setting side</th><th rowspan="2">Processing when the setting data are outside the setting range</th></tr>
<tr><th>With PID limits</th><th>Without PID limits</th></tr>
<tr><td>Ⓢ +12</td><td>(Fixed value)</td><td>–</td><td>0</td><td>0</td><td>User</td><td>–</td></tr>
<tr><td>Ⓢ +13</td><td>Derivative gain (K_D)</td><td>Set a duration (delay in action) for derivative action.
As the setting value increases, the duration becomes smaller and action becomes closer to exact differential.
Ideal value K_D = 8.00</td><td>0 to 32767 (unit: 0.01)

If setting value > 30000

K_D = Infinite (∞)</td><td>0 to 32767 (unit: 0.01)

If setting value > 30000

K_D = Infinite (∞)</td><td>User</td><td>An error occurs and the PID operation for the corresponding loop is not performed.</td></tr>
<tr><td>Ⓢ +14</td><td>(Fixed value)</td><td>–</td><td>0</td><td>0</td><td>User</td><td>–</td></tr>
<tr><td>Ⓢ +15</td><td>(Fixed value)</td><td>–</td><td>0</td><td>0</td><td>User</td><td>–</td></tr>
<tr><td colspan="7">Setting data for No. 2 loop (device: Ⓢ+16 to Ⓢ+29)</td></tr>
<tr><td>Ⓢ +16</td><td>Operational expression selection</td><td colspan="5" rowspan="14">The same as Setting data for No. 1 loop</td></tr>
<tr><td>Ⓢ +17</td><td>Sampling cycle (T_S)</td></tr>
<tr><td>Ⓢ +18</td><td>Proportional constant (K_P)</td></tr>
<tr><td>Ⓢ +19</td><td>Integral constant (T_I)</td></tr>
<tr><td>Ⓢ +20</td><td>Derivative constant (T_D)</td></tr>
<tr><td>Ⓢ +21</td><td>Filter coefficient (α)</td></tr>
<tr><td>Ⓢ +22</td><td>MV lower limit (MVLL)</td></tr>
<tr><td>Ⓢ +23</td><td>MV upper limit (MVHL)</td></tr>
<tr><td>Ⓢ +24</td><td>MV change rate limit ($\triangle$ MVL)</td></tr>
<tr><td>Ⓢ +25</td><td>PV change rate limit ($\triangle$ PVL)</td></tr>
<tr><td>Ⓢ +26</td><td>(Fixed value)</td></tr>
<tr><td>Ⓢ +27</td><td>Derivative gain (K_D)</td></tr>
<tr><td>Ⓢ +28</td><td>(Fixed value)</td></tr>
<tr><td>Ⓢ +29</td><td>(Fixed value)</td></tr>
</table>

Device	Data item	Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
Setting data for No. n loop						
Ⓢ +(m+0)	Operational expression selection	The same as Setting data for No. 1 loop				
Ⓢ +(m+1)	Sampling cycle (TS)					
Ⓢ +(m+2)	Proportional constant (KP)					
Ⓢ +(m+3)	Integral constant (TI)					
Ⓢ +(m+4)	Derivative constant (TD)					
Ⓢ +(m+5)	Filter coefficient (α)					
Ⓢ +(m+6)	MV lower limit (MVLL)					
Ⓢ +(m+7)	MV upper limit (MVHL)					
Ⓢ +(m+8)	MV change rate limit (△ MVL)					
Ⓢ +(m+9)	PV change rate limit (△ PVL)					
Ⓢ +(m+10)	(Fixed value)					
Ⓢ +(m+11)	Derivative gain (KD)					
Ⓢ +(m+12)	(Fixed value)					
Ⓢ +(m+13)	(Fixed value)					

m=(n-1)×14+2
n: number of loops

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

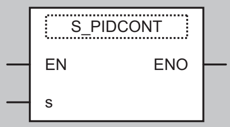
○: Applicable, ×: Not applicable

6.1.2 PIDCONT instruction

S_PIDCONT

S(P)_PIDCONT

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= S_PIDCONT (EN, s);

indicates any of the following instructions.

S_PIDCONT SP_PIDCONT

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device that is assigned in I/O data area	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					

Function

(1) This instruction measures sampling cycle and performs PID operation at instruction execution.

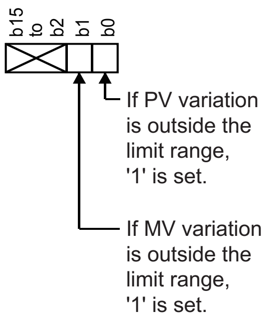
(2) This instruction performs PID operation based on the set value (SV) and process value (PV) in the I/O data area set to the device number specified by s or later, and stores the operation result to the automatic manipulated value (MV) area in the I/O data area.

(3) PID operation is performed in response to the first execution of the PIDCONT instruction after the set sampling cycle time has elapsed.

(1) I/O data

Device	Data name		Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
Ⓢ +0	Initial processing flag		Processing method at the start of PID operation	0 : PID operation for the number of loops to be used is batch-processed in one scan. Other than 0: PID operation for the number of loops to be used is processed in several scans.		User	–
Ⓢ +1 to Ⓢ +9	PID control work area (reserved by the system)			–	–	–	–
I/O data area for No. 1 loop (device: Ⓢ+10 to Ⓢ+27)							
Ⓢ +10	Set value	SV	• PID control target value	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If SV is less than 0, the value is clipped to 0. • If SV is greater than 2000, the value is clipped to 2000.
Ⓢ +11	Process value	PV	• Feedback data from the control target to the A/D conversion module	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If PV is less than -50, the value is clipped to -50. • If PV is greater than 2050, the value is clipped to 2050.
Ⓢ +12	Automatic manipulated value	MV	• Manipulated value obtained by PID operation • The value is output from the D/A conversion module to the control target.	-50 to 2050	-32768 to 32767	System	–
Ⓢ +13	Process value after filtering	PVf	• Process value obtained by calculation using operational expression. *1	-50 to 2050	-32768 to 32767	System	–
Ⓢ +14	Manual manipulated value	MV_{MAN}	• Store the data output from the D/A conversion module in manual operation.	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If MV_{MAN} is less than -50, the value is clipped to -50. • If MV_{MAN} is greater than 2050, the value is clipped to 2050.

*1 : For Process value after filtering (PVf), the value calculated based on the process value of input data are stored.
For the operational expression, refer to MELSEC-Q/L/QnA Programming Manual (PID Control Instructions).

Device	Data name		Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
Ⓢ +15	Manual/ automatic selection	MAN/ AUTO	• Select whether the output to the D/A conversion module is a manual manipulated value or an automatic manipulated value. • In manual operation, the automatic manipulated value remains unchanged.	0: Automatic manipulated value 1: Manual manipulated value		User	When other than 0 or 1 is selected, an error occurs and the operation for the corresponding loop is not performed.
Ⓢ +16	Alarm	ALARM	• Used to determine if the change rate of the MV (manipulated value) and the PV (process value) is within or outside the limit value range. • Once set, the alarm data are maintained until the user resets it. • When the MV variation is outside the limit range, bit 1 (b1) is set to '1'. • When the PV variation is outside the limit range, bit 0 (b0) is set to '1'.			User System	–
Ⓢ +17 to Ⓢ +32	PID control work area (reserved by the system)			–		–	–
I/O data area for No. 2 loop (device: Ⓢ +28 to Ⓢ +45)							
Ⓢ +33	Set value	SV	The same as I/O data area for No. 1 loop				
Ⓢ +34	Process value	PV					
Ⓢ +35	Automatic manipulated value	MV					
Ⓢ +36	Process value after filtering	PVf					
Ⓢ +37	Manual manipulated value	MVMAN					
Ⓢ +38	Manual/ automatic selection	MAN/ AUTO					
Ⓢ +39	Alarm	ALARM					
Ⓢ +40 to Ⓢ +55	PID control work area (reserved by the system)			–		–	–

Device	Data name		Description	Setting range		Setting side	Processing when the setting data are outside the setting range
				With PID limits	Without PID limits		
I/O data area for No. n loop							
S +(m+0)	Set value	SV	The same as I/O data area for No. 1 loop				
S +(m+1)	Process value	PV					
S +(m+2)	Automatic manipulated value	MV					
S +(m+3)	Process value after filtering	PVf					
S +(m+4)	Manual manipulated value	MVMAN					
S +(m+5)	Manual/ automatic selection	MAN/ AUTO					
S +(m+6)	Alarm	ALARM					
S +(m+7) to S +(m+22)	PID control work area (reserved by the system)			–		–	–

m=(n-1) × 23+10
n: number of loops

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

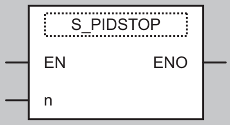
○: Applicable, ×: Not applicable

6.1.3 PIDSTOP instruction and PIDRUN instruction

S_PIDSTOP, S_PIDRUN

S(P)_PIDSTOP
S(P)_PIDRUN

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= S_PIDSTOP (EN, n);

[ ] indicates any of the following instructions.

S_PIDSTOP S_PIDRUN
SP_PIDSTOP SP_PIDRUN

Input argument	EN:	Executing condition	:Bit
	n:	Loop number for stop/start	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device Bit	Internal device Word	R, ZR	J\ Bit	J\ Word	U\G	Zn	Constant K, H	Others
n	○			–				○	–

Function

(1) S(P)_PIDSTOP
This instruction stops the PID operation for the loop number specified by 'n'.

(2) S(P)_PIDRUN
This instruction starts the PID operation for the loop number specified by 'n'.

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

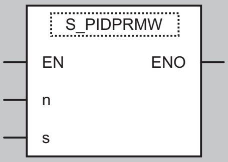
○: Applicable, ×: Not applicable

6.1.4 PIDPRMW instruction

S_PIDPRMW

S(P)_PIDPRMW

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= S_PIDPRMW (EN, n, s);

indicates any of the following instructions.

S_PIDPRMW SP_PIDPRMW

Input argument	EN:	Executing condition	:Bit
	n:	Loop number to be changed	:ANY16
	s:	Start number of the device that stores PID control data to be changed	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant K, H	Others
n	○	○		–				○	–
ⓢ	–	○		–				–	–

Function

This instruction changes the operation parameter of the loop number specified by 'n' to the PID control data stored in the devices starting from the device number specified by ⓢ .

(1) PID control data

Device	Data item	Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
ⓢ +0	Operational expression selection	Select the PID operational expression. *1	0: Forward operation 1: Reverse operation	0: Forward operation 1: Reverse operation	User	An error occurs and the PID operation for the corresponding loop is not performed.
ⓢ +1	Sampling cycle (Ts)	Set the PID operation cycle.	1 to 6000 (unit: 10ms)	1 to 6000 (unit: 10ms)	User	

*1 : For the PID operational expressions set for Operational expression selection, refer to MELSEC-Q/L/QnA Programming Manual (PID Control Instructions).

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
Ⓢ +2	Proportional constant (K_P)	Proportional gain of PID operation	1 to 10000 (unit: 0.01)	1 to 10000 (unit: 0.01)	User	An error occurs and the PID operation for the corresponding loop is not performed.
Ⓢ +3	Integral constant (T_I)	Constant that expresses the magnitude of the integral action (I action) effect. Increasing the integral constant slows down the manipulated value change.	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	User	
Ⓢ +4	Derivative constant (T_D)	Constant that expresses the magnitude of the derivative action (D action) effect. Increasing the derivative constant causes significant changes in the manipulated value even with a slight change of the control target.	0 to 30000 (unit: 10ms)	0 to 30000 (unit: 10ms)	User	
Ⓢ +5	Filter coefficient (α)	Set the degree of filtering to be applied to the process value. The filtering effect decreases as the value gets closer to 0.	0 to 100	0 to 100	User	
Ⓢ +6	MV lower limit (MVLL)	Set the lower limit for the manipulated value (MV) calculated in PID operation in automatic mode. If the MV is less than the set lower limit value (MVLL), the value is clipped to the MVLL.	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If MVLL or MVHL value is less than -50, the value is clipped to -50. • If MVLL or MVHL value is greater than 2050, the value is clipped to 2050.
Ⓢ +7	MV upper limit (MVHL)	Set the upper limit for the manipulated value calculated in PID operation in automatic mode. If the MV is greater than the set upper limit value (MVHL), the value is clipped to the MVHL.	-50 to 2050	-32768 to 32767	User	

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
Ⓢ +8	MV change rate limit (△ MVL)	Set the variation limit between the previous MV and the present MV. When the MV variation is greater than the limit value, bit 1 (b1) of the alarm device is set to '1'. MV variation is not limited. (Even if the MV variation exceeds the limit value, the actual MV variation is used as it is for calculating the MV.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the △ MVL value is less than 0, the value is clipped to 0. • If the △ MVL value is greater than 2000, the value is clipped to 2000.
Ⓢ +9	PV change rate limit (△ PVL)	Set the variation limit between the previous PV and the present PV. When the PV variation is greater than the limit value, bit 0 (b0) of the alarm device is set to '1'. PV variation is not limited. (Even if the PV variation exceeds the limit value, the actual PV variation is used as it is for performing the PID operation.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the △ PVL value is less than 0, the value is clipped to 0. • If the △ PVL value is greater than 2000, the value is clipped to 2000.
Ⓢ +10	(Fixed value)	–	0	0	User	–
Ⓢ +11	Derivative gain (K_D)	Set a duration (delay in action) for derivative action. As the setting value increases, the duration becomes smaller and action becomes closer to exact differential. Ideal value K_D = 8.00	0 to 32767 (unit: 0.01) If setting value > 30000 K_D = Infinite (∞)	0 to 32767 (unit: 0.01) If setting value > 30000 K_D = Infinite (∞)	User	An error occurs and the PID operation for the corresponding loop is not performed.
Ⓢ +12	(Fixed value)	–	0	0	User	–
Ⓢ +13	(Fixed value)	–	0	0	User	–

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

○: Applicable, ×: Not applicable

6.2 PID Control Instruction (Exact Differential)

6.2.1 PIDINIT instruction

PIDINIT

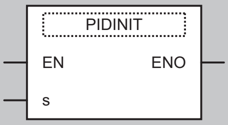
PIDINIT(P)

P: Executing condition :

indicates any of the following instructions.

PIDINIT	PIDINITP

Structured ladder/FBD



ST

ENO:= PIDINIT (EN, s);

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device that stores PID control data	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					

Function

This instruction enables PID control by registering the PID control data for the number of loops to be used to the CPU module in batch.

(1) PID control data

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
Common setting data (device: S +0 to S +1)						
S +0	Number of loops	Set the number of loops for PID operation.	1 to 32		User	An error occurs and the PID operation for all loops is not performed.
S +1	Number of loops in one scan	Set the number of loops for PID operation in one scan if multiple loops have reached the sampling cycle time.	1 to 32		User	
Setting data for No. 1 loop (device: S +2 to S +11)						
S +2	Operational expression selection	Select the PID operational expression. *1	0: Forward operation 1: Reverse operation	0: Forward operation 1: Reverse operation	User	An error occurs and the PID operation for the corresponding loop is not performed.
S +3	Sampling cycle (T_S)	Set the PID operation cycle.	1 to 6000 (unit: 10ms)	1 to 6000 (unit: 10ms)	User	
S +4	Proportional constant (K_P)	Proportional gain of PID operation	1 to 10000 (unit: 0.01)	1 to 10000 (unit: 0.01)	User	
S +5	Integral constant (T_I)	Constant that expresses the magnitude of the integral action (I action) effect. Increasing the integral constant slows down the manipulated value change.	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	User	
S +6	Derivative constant (T_D)	Constant that expresses the magnitude of the derivative action (D action) effect. Increasing the derivative constant causes a significant changes in the manipulated value even with a slight change of the control target.	0 to 30000 (unit: 10ms)	0 to 30000 (unit: 10ms)	User	
S +7	Filter coefficient (α)	Set the degree of filtering to be applied to the process value. The filtering effect decreases as the value gets closer to 0.	0 to 100	0 to 100	User	

*1 : For the PID operational expressions set for Operational expression selection, refer to MELSEC-Q/L/QnA Programming Manual (PID Control Instructions).

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
Ⓢ +8	MV lower limit (MVLL)	Set the lower limit for the manipulated value (MV) calculated in PID operation in automatic mode. If the MV is less than the set lower limit value (MVLL), the value is clipped to the MVLL.	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If MVLL or MVHL value is less than -50, the value is clipped to -50. • If MVLL or MVHL value is greater than 2050, the value is clipped to 2050.
Ⓢ +9	MV upper limit (MVHL)	Set the upper limit for the manipulated value calculated in PID operation in automatic mode. If the MV is greater than the set upper limit value (MVHL), the value is clipped to the MVHL.	-50 to 2050	-32768 to 32767	User	
Ⓢ +10	MV change rate limit (△MVL)	Set the variation limit between the previous MV and the present MV. When the MV variation is greater than the limit value, bit 1 (b1) of the alarm device is set to '1'. MV variation is not limited. (Even if the MV variation exceeds the limit value, the actual MV variation is used as it is for calculating the MV.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the △MVL value is less than 0, the value is clipped to 0. • If the △MVL value is greater than 2000, the value is clipped to 2000.
Ⓢ +11	PV change rate limit (△PVL)	Set the variation limit between the previous PV and the present PV. When the PV variation is greater than the limit value, bit 0 (b0) of the alarm device is set to '1'. PV variation is not limited. (Even if the PV variation exceeds the limit value, the actual PV variation is used as it is for performing the PID operation.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If the △PVL value is less than 0, the value is clipped to 0. • If the △PVL value is greater than 2000, the value is clipped to 2000.

Device	Data item	Description	Setting range: With PID limits	Setting range: Without PID limits	Setting side	Processing when the setting data are outside the setting range
Setting data for No. 2 loop (device: Ⓢ+12 to Ⓢ+21)						
Ⓢ +12	Operational expression selection	The same as Setting data for No. 1 loop				
Ⓢ +13	Sampling cycle (TS)					
Ⓢ +14	Proportional constant (KP)					
Ⓢ +15	Integral constant (TI)					
Ⓢ +16	Derivative constant (TD)					
Ⓢ +17	Filter coefficient (α)					
Ⓢ +18	MV lower limit (MVLL)					
Ⓢ +19	MV upper limit (MVHL)					
Ⓢ +20	MV change rate limit (△ MVL)					
Ⓢ +21	PV change rate limit (△ PVL)					
Setting data for No. n loop						
Ⓢ +(m+0)	Operational expression selection	The same as Setting data for No. 1 loop				
Ⓢ +(m+1)	Sampling cycle (TS)					
Ⓢ +(m+2)	Proportional constant (KP)					
Ⓢ +(m+3)	Integral constant (TI)					
Ⓢ +(m+4)	Derivative constant (TD)					
Ⓢ +(m+5)	Filter coefficient (α)					
Ⓢ +(m+6)	MV lower limit (MVLL)					
Ⓢ +(m+7)	MV upper limit (MVHL)					
Ⓢ +(m+8)	MV change rate limit (△ MVL)					
Ⓢ +(m+9)	PV change rate limit (△ PVL)					

m=(n-1)×10+2
n: number of loops

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

○: Applicable, ×: Not applicable

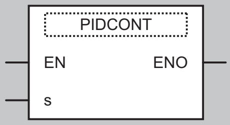
6.2.2 PIDCONT instruction

PIDCONT

PIDCONT(P)

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= PIDCONT (EN, s);

[ ] indicates any of the following instructions.

PIDCONT PIDCONTP

Input argument EN: Executing condition :Bit
s: Start number of the device that is assigned in I/O data area :ANY16

Output argument ENO: Execution result :Bit

Setting data	Internal device Bit	Internal device Word	R, ZR	J[ ]\[ ] Bit	J[ ]\[ ] Word	U[ ]\G[ ]	Zn	Constant	Others
s	–	○		–					

Function

(1) This instruction measures sampling cycle and performs PID operation at instruction execution.

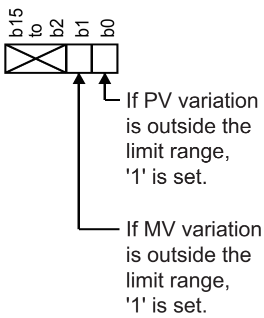
(2) This instruction performs PID operation based on the set value (SV) and process value (PV) in the I/O data area set to the device number specified by s or later, and stores the operation result to the automatic manipulated value (MV) area in the I/O data area.

(3) PID operation is performed in response to the first execution of the PIDCONT instruction after the set sampling cycle time has elapsed.

(1) I/O data

Device	Data name		Description	Setting range		Setting side	Processing when the setting data are outside the setting range
				With PID limits	Without PID limits		
Ⓢ+0	Initial processing flag		Processing method at the start of PID operation	0 : PID operation for the number of loops to be used is batch-processed in one scan. Other than 0: PID operation for the number of loops to be used is processed in several scans.		User	–
Ⓢ+1 to Ⓢ+9	PID control work area (reserved by the system)			–	–	–	–
I/O data area for No. 1 loop (device: Ⓢ+10 to Ⓢ+27)							
Ⓢ+10	Set value	SV	• PID control target value	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If SV is less than 0, the value is clipped to 0. • If SV is greater than 2000, the value is clipped to 2000.
Ⓢ+11	Process value	PV	• Feedback data from the control target to the A/D conversion module	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If PV is less than -50, the value is clipped to -50. • If PV is greater than 2050, the value is clipped to 2050.
Ⓢ+12	Automatic manipulated value	MV	• Manipulated value obtained by PID operation • The value is output from the D/A conversion module to the control target.	-50 to 2050	-32768 to 32767	System	–
Ⓢ+13	Process value after filtering	PVf	• Process value obtained by calculation using operational expression. *1	-50 to 2050	-32768 to 32767	System	–

*1 : For process value after filtering (PVf), the value calculated based on the process value of input data are stored.
For the operational expression, refer to MELSEC-Q/L/QnA Programming Manual (PID Control Instructions).

Device	Data name		Description	Setting range		Setting side	Processing when the setting data are outside the setting range
				With PID limits	Without PID limits		
Ⓢ +14	Manual manipulated value	MV_{MAN}	• Store the data output from the D/A conversion module in manual operation.	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • If MV_{MAN} is less than -50, the value is clipped to -50. • If MV_{MAN} is greater than 2050, the value is clipped to 2050.
Ⓢ +15	Manual/ automatic selection	MAN/ AUTO	• Select whether the output to the D/A conversion module is a manual manipulated value or an automatic manipulated value. • In manual operation, the automatic manipulated value remains unchanged.	0: Automatic manipulated value 1: Manual manipulated value		User	When other than 0 or 1 is selected, an error occurs and the operation for the corresponding loop is not performed.
Ⓢ +16	Alarm	ALARM	• Used to determine if the change rate of the MV (manipulated value) and the PV (process value) is within or outside the limit value range. • Once set, the alarm data are maintained until the user resets it. • When the MV variation is outside the limit range, bit 1 (b1) is set to '1'. • When the PV variation is outside the limit range, bit 0 (b0) is set to '1'.			User System	–
Ⓢ +17 to Ⓢ +27	PID control work area (reserved by the system)			–		–	–

<table>
<tr><th rowspan="2">Device</th><th rowspan="2" colspan="2">Data name</th><th rowspan="2">Description</th><th colspan="2">Setting range</th><th rowspan="2">Setting side</th><th rowspan="2">Processing when the setting data are outside the setting range</th></tr>
<tr><th>With PID limits</th><th>Without PID limits</th></tr>
<tr><td colspan="8">I/O data area for No. 2 loop (device: Ⓢ+28 to Ⓢ+45)</td></tr>
<tr><td>Ⓢ +28</td><td>Set value</td><td>SV</td><td colspan="5" rowspan="7">The same as I/O data area for No. 1 loop</td></tr>
<tr><td>Ⓢ +29</td><td>Process value</td><td>PV</td></tr>
<tr><td>Ⓢ +30</td><td>Automatic manipulated value</td><td>MV</td></tr>
<tr><td>Ⓢ +31</td><td>Process value after filtering</td><td>PVf</td></tr>
<tr><td>Ⓢ +32</td><td>Manual manipulated value</td><td>MV_{MAN}</td></tr>
<tr><td>Ⓢ +33</td><td>Manual/ automatic selection</td><td>MAN/ AUTO</td></tr>
<tr><td>Ⓢ +34</td><td>Alarm</td><td>ALARM</td></tr>
<tr><td>Ⓢ +35
to
Ⓢ +45</td><td colspan="3">PID control work area
(reserved by the system)</td><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="8">I/O data area for No. n loop</td></tr>
<tr><td>Ⓢ +(m+0)</td><td>Set value</td><td>SV</td><td colspan="5" rowspan="7">The same as I/O data area for No. 1 loop</td></tr>
<tr><td>Ⓢ +(m+1)</td><td>Process value</td><td>PV</td></tr>
<tr><td>Ⓢ +(m+2)</td><td>Automatic manipulated value</td><td>MV</td></tr>
<tr><td>Ⓢ +(m+3)</td><td>Process value after filtering</td><td>PVf</td></tr>
<tr><td>Ⓢ +(m+4)</td><td>Manual manipulated value</td><td>MV_{MAN}</td></tr>
<tr><td>Ⓢ +(m+5)</td><td>Manual/ automatic selection</td><td>MAN/ AUTO</td></tr>
<tr><td>Ⓢ +(m+6)</td><td>Alarm</td><td>ALARM</td></tr>
<tr><td>Ⓢ +(m+7)
to
Ⓢ +(m+17)</td><td colspan="3">PID control work area
(reserved by the system)</td><td colspan="2">–</td><td>–</td><td>–</td></tr>
</table>

m=(n-1) × 18+10
n: number of loops

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

○: Applicable, ×: Not applicable

6.2.3 PIDSTOP instruction and PIDRUN instruction

PIDSTOP, PIDRUN

PIDSTOP(P)
PIDRUN(P)

P: Executing condition :

Structured ladder/FBD	ST
PIDSTOP (EN, n → ENO)	ENO:= PIDSTOP (EN, n);

[ ] indicates any of the following instructions.

PIDSTOP	PIDSTOPP
PIDRUN	PIDRUNP

Input argument	EN:	Executing condition	:Bit
	n:	Loop number for stop/start	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J[ ]\[ ]		U[ ]\G[ ]	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n	○								–

Function

(1) PIDSTOP(P)
This instruction stops the PID operation for the loop number specified by 'n'.

(2) PIDRUN(P)
This instruction starts the PID operation for the loop number specified by 'n'.

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

○: Applicable, ×: Not applicable

6.2.4 PIDPRMW instruction

PIDPRMW

PIDPRMW(P)

P: Executing condition :

Structured ladder/FBD

PIDPRMW
EN ENO
n
s

ST

ENO:= PIDPRMW (EN, n, s);

indicates any of the following instructions.

PIDPRMW PIDPRMWP

Input argument	EN:	Executing condition	:Bit
	n:	Loop number to be changed	:ANY16
	s:	Start number of the device that stores PID control data to be changed	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
n	○	○		○				○	–
s	–	○		–				–	–

Function

This instruction changes the operation parameter of the loop number specified by 'n' to the PID control data stored in the devices starting from the device number specified by s.

(1) PID control data

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
s +0	Operational expression selection	Select the PID operational expression. *1	0: Forward operation 1: Reverse operation	0: Forward operation 1: Reverse operation	User	An error occurs and the PID operation for the corresponding loop is not performed.
s +1	Sampling cycle (Ts)	Set the PID operation cycle.	1 to 6000 (unit: 10ms)	1 to 6000 (unit: 10ms)	User	

*1 : For the PID operational expressions set for Operational expression selection, refer to MELSEC-Q/L/QnA Programming Manual (PID Control Instructions).

6
PID CONTROL INSTRUCTION
PIDPRMW

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
S +2	Proportional constant (K_P)	Proportional gain of PID operation	1 to 10000 (unit: 0.01)	1 to 10000 (unit: 0.01)	User	An error occurs and the PID operation for the corresponding loop is not performed.
S +3	Integral constant (T_I)	Constant that expresses the magnitude of the integral action (I action) effect. Increasing the integral constant slows down the manipulated value change.	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	1 to 32767 (unit: 100ms) If setting value > 30000 T_I = Infinite (∞)	User	
S +4	Derivative constant (T_D)	Constant that expresses the magnitude of the derivative action (D action) effect. Increasing the derivative constant causes significant changes in the manipulated value even with a slight change of the control target.	0 to 30000 (unit: 10ms)	0 to 30000 (unit: 10ms)	User	
S +5	Filter coefficient (α)	Set the degree of filtering to be applied to the process value. The filtering effect decreases as the value gets closer to 0.	0 to 100	0 to 100	User	
S +6	MV lower limit (MVLL)	Set the lower limit for the manipulated value (MV) calculated in PID operation in automatic mode. If the MV is less than the set lower limit value (MVLL), the value is clipped to the MVLL.	-50 to 2050	-32768 to 32767	User	In the case of "With PID limits", the PID operation is not performed after values are replaced as follows: • If MVLL or MVHL value is less than -50, the value is clipped to -50. • If MVLL or MVHL value is greater than 2050, the value is clipped to 2050.
S +7	MV upper limit (MVHL)	Set the upper limit for the manipulated value calculated in PID operation in automatic mode. If the MV is greater than the set upper limit value (MVHL), the value is clipped to the MVHL.	-50 to 2050	-32768 to 32767	User	

Device	Data item	Description	Setting range		Setting side	Processing when the setting data are outside the setting range
			With PID limits	Without PID limits		
Ⓢ +8	MV change rate limit (△MVL)	Set the variation limit between the previous MV and the present MV. When the MV variation is greater than the limit value, bit 1 (b1) of the alarm device is set to '1'. MV variation is not limited. (Even if the MV variation exceeds the limit value, the actual MV variation is used as it is for calculating the MV.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed after values are replaced as follows: • △MVL value is less than 0, the value is clipped to 0. • △MVL value is greater than 2000, the value is clipped to 2000.
Ⓢ +9	PV change rate limit (△PVL)	Set the variation limit between the previous PV and the present PV. When the PV variation is greater than the limit value, bit 0 (b0) of the alarm device is set to '1'. PV variation is not limited. (Even if the PV variation exceeds the limit value, the actual PV variation is used as it is for performing the PID operation.)	0 to 2000	-32768 to 32767	User	In the case of "With PID limits", the PID operation is performed values are replaced as follows: • If the △PVL value is less than 0, the value is clipped to 0. • If the △PVL value is greater than 2000, the value is clipped to 2000.

Precautions

The following table shows the CPU modules applicable to the PID control instructions (inexact differential) and the PID control instructions (exact differential).

CPU module model		Inexact differential	Exact differential
Basic model QCPU	The first five digits of the serial number are '04122' or higher	○	○
High Performance model QCPU	The first five digits of the serial number are '05031' or lower.	×	○
	The first five digits of the serial number are '05032' or higher.	○	○
Universal model QCPU		○	○
LCPU		○	○

○: Applicable, ×: Not applicable

MEMO

7

SOCKET COMMUNICATION FUNCTION INSTRUCTION

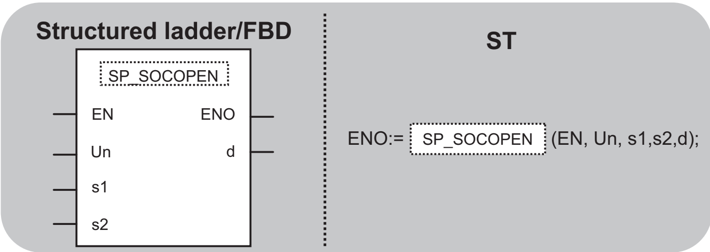
7.1 SOCOPEN Instruction

SP_SOCOPEN

QnUDE(H) LCPU

SP_SOCOPEN

Executing condition : ↑



[ ] indicates the following instruction.
SP_SOCOPEN

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..9]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON during one scan upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○	–				○	–
s2	–	△*1	△*1	–				–	–
d	△*1	–	△*1	–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

☆ Function

This instruction establishes a connection.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	Execution type/ Completion type	Specify which to use the parameter values set by GX Works2 or the setting values of the following control data (s2 [2] to s2 [9]) at open processing of a connection. 0000H: Uses the parameter set in [Open settings] of GX Works2. 8000H: Uses the settings of control data s2 [2] to s2 [9].	0000H, 8000H	User
s2 [1]	Completion status	The instruction application status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2]	Application setting area	b15 b14 b13 to b10 b9 b8 b7 to b0 s2 [2] | ③ | 0 | ② | ① | 0 | ① Communication method (protocol) 0: TCP/IP 1: UDP/IP ② With/without procedure in socket communication function 1: Nonprocedural communication ③ Open system 00: Active open or UDP/IP 10: Unpassive open 11: Fullpassive open	(See the left column.)	User
s2 [3]	Host station port No.	Specify the port number of the host station.	1H to 1387H, 1392H to FFFEH (400H or later is recommended)	User
s2 [4] s2 [5]	Destination IP address*2	Specify the IP address of the external device.	1H to FFFFFFFFH (FFFFFFFFH: broadcast)	User
s2 [6]	Destination port No.*2	Specify the port number of the external device.	1H to FFFFH (FFFFH: broadcast)	User
s2 [7] to s2 [9]	–	Unavailable	–	System

*1 : "Destination IP address" and "Destination port No" are neglected at Unpassive open.

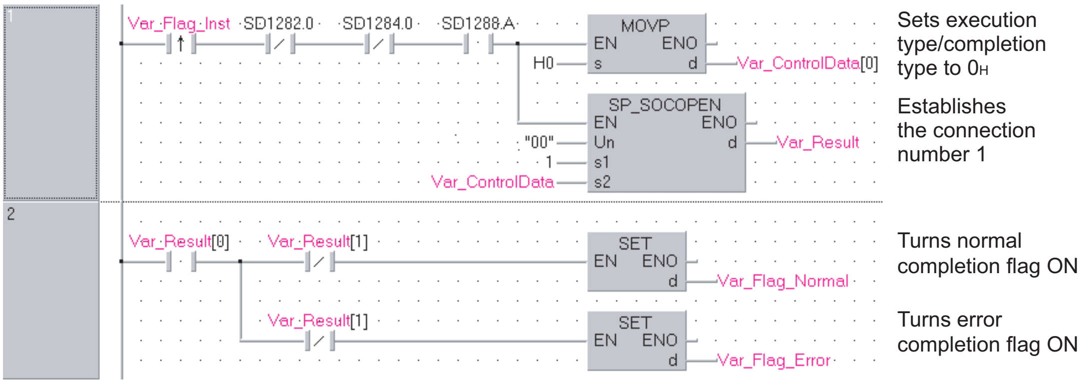
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program opens the connection 1.

[Structured ladder/FBD]



[ST]

```
IF((LDP(TRUE, Var_Flag_Inst))
&(SD1282.0=FALSE) &(SD1284.0=FALSE) &(SD1288.A=TRUE))THEN
    MOVP(TRUE, H0, Var_ControlData[0]);
                                (* Sets execution type/completion type to 0H *)
    SP_SOCOPEN(TRUE, "00", 1, Var_ControlData, Var_Result);
                                (* Establishes the connection number 1 *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN             (* Normal completion *)
        SET(FALSE, Var_Flag_Normal);        (* Turns normal completion flag ON *)
    ELSE                                    (* Error completion *)
        SET(TRUE, Var_Flag_Error);          (* Turns error completion flag ON *)
    END_IF;
END_IF;
```

7.2 SOCCLOSE Instruction

SP_SOCCLOSE

QnUDE(H) LCPU

SP_SOCCLOSE

Executing condition : ↑

Structured ladder/FBD

```
SP_SOCCLOSE
EN      ENO
Un        d
s1
s2
```

ST

ENO:= SP_SOCCLOSE (EN, Un, s1,s2,d);

[ ] indicates the following instruction.

SP_SOCCLOSE

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON during one scan upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J\		U\G	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○	–				○	–
s2	–	△*1	△*1	–				–	–
d	△*1	–	△*1	–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction shuts off a specified connection.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

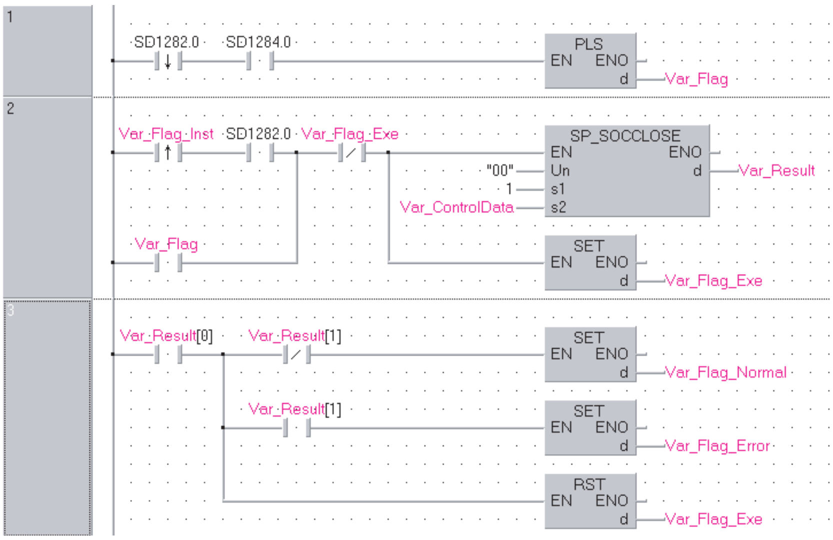
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program shuts off the connection 1 when the disconnect request flag turns ON or the external device closes the connection 1.

[Structured ladder/FBD]



[ST]

```
IF(LDF(TRUE, SD1282.0)&(SD1284.0=TRUE))THEN
                                        (* When open completion signal turns OFF *)
    PLS(TRUE, Var_Flag);                (* Turns flag ON *)
END_IF;

IF(((LDP(TRUE, Var_Flag_Inst) & SD1282.0) OR Var_Flag) & (NOT Var_Flag_Exe)) THEN
    SP_SOCCLOSE(TRUE, "00", 1, Var_ControlData, Var_Result);
                                        (* Shuts off the connection number 1 *)
    SET(TRUE, Var_Flag_Exe);            (* Turns execution flag ON *)
ELSE
    SP_SOCCLOSE(FALSE, "00", 1, Var_ControlData, Var_Result);
    SET(FALSE, Var_Flag_Exe);
END_IF;


IF(Var_Result[0]=TRUE)THEN                  (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN             (* Normal completion *)
        SET(FALSE, Var_Flag_Normal);(* Turns normal completion flag ON *)
    ELSE                                    (* Error completion *)
        SET(TRUE, Var_Flag_Error);          (* Turns error completion flag ON *)
    END_IF;
    RST(TRUE, Var_Flag_Exe);                (* Turns execution flag OFF *)
END_IF;
```

7.3 SOCRCV Instruction

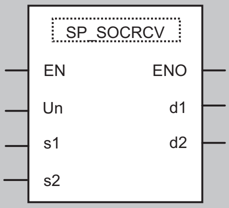
SP_SOCRCV

QnUDE(H) LCPU

SP_SOCRCV

Executing condition : ↑

Structured ladder/FBD



ST

ENO:= SP_SOCRCV (EN, Un, s1,s2,d1,d2);

[ ] indicates the following instruction.

SP_SOCRCV

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d1:	Start number of the device that stores receive data	:ANY16
	d2:	Variable that turns ON during one scan upon completion of the instruction d2[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device		R, ZR	J\		U\G	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○			–		○	–
s2	–	△*1	△*1			–		–	–
d1	–	△*1	△*1			–		–	–
d2	△*1	–	△*1			–		–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction reads receive data of a specified connection from the socket communication receive data area at the end process performed after the instruction execution.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

Device	Item	Setting data	Setting range	Setting side
d1 +0	Receive data length	Data length of the data read from the socket communication receive data area is stored. (number of bytes)	0 to 2046	System
d1 +1 to d1 +n	Receive data	Data read from the socket communication receive data area are stored in ascending address order.	–	System

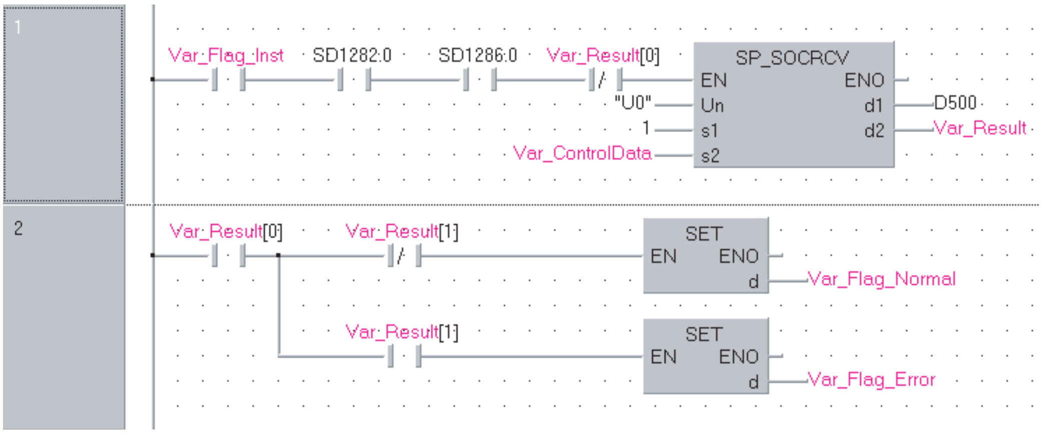
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program reads data received from the external device.

[Structured ladder/FBD]



Reads data from the connection number 1

Turns normal completion flag ON

Turns error completion flag OFF

[ST]

```
IF((Var_Flag_Inst=TRUE) &(SD1282.0=TRUE) &(SD1286.0=TRUE)
&(Var_Result[0]=FALSE))THEN
    SP_SOCRCV (TRUE, "U0", 1, Var_ControlData, D500, Var_Result);
                                        (* Reads data from the connection number 1 *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                (* Execution finished *)
    IF(Var_Result[1]=FALSE)THEN           (* Normal completion *)
        SET(TRUE, Var_Flag_Normal);       (* Turns normal completion flag ON *)
    ELSE                                  (* Error completion *)
        SET(TRUE, Var_Flag_Error);        (* Turns error completion flag ON *)
    END_IF;
END_IF;
```

7.4 SOCRCVS Instruction

S_SOCRCVS

QnUDE(H) LCPU

S_SOCRCVS

Executing condition : ↑ (rising edge)

Structured ladder/FBD	ST
S_SOCRCVS EN — ENO Un — d s	ENO:= S_SOCRCVS (EN, Un, s, d);

[ ] indicates the following instruction.
S_SOCRCVS

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s:	Connection number (1 to 16)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores receive data	:ANY16

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s	–	○	○	–				○	–
d	–	○	○	–				–	–

Function

This instruction reads receive data of a specified connection from the socket communication receive data area.

Control Data

Device	Item	Setting data	Setting range	Setting side
d [0]	Receive data length	Data length of the data read from the socket communication receive data area is stored. (number of bytes)	0 to 2046	System
d +1 to d +n	Receive data	Data read from the socket communication receive data area are stored in ascending address order.	–	System

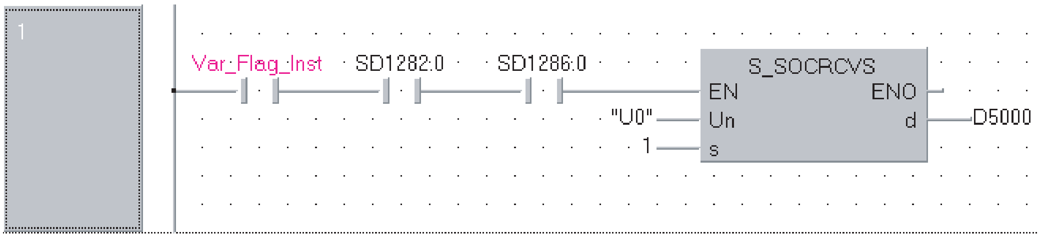
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program reads data received from the external device.

[Structured ladder/FBD]



Reads data from the connection number 1

[ST]

```
IF((Var_Flag_Inst=TRUE) &(SD1282.0=TRUE) &(SD1286.0=TRUE))THEN
	S_SOCRCVS(TRUE, "U0", 1, D5000);
					(* Reads data from the connection number 1 *)
END_IF;
```

7.5 SOCSND Instruction

SP_SOCSND

QnUDE(H) LCPU

SP_SOCSND

Executing condition : ↑

Structured ladder/FBD	ST
SP_SOCSND block: EN, Un, s1, s2, s3 → ENO, d	ENO:= SP_SOCSND (EN, Un, s1,s2,s3,d);

[ ] indicates the following instruction.

SP_SOCSND

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
	s3:	Start number of the device that stores send data	ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that turns ON during one scan upon completion of the instruction d[1] also turns ON at the time of error completion.	:Array of bit [0..1]

Setting data	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant K, H	Others
s1	–	○	○	–				○	–
s2	–	△*1	△*1	–				–	–
s3	–	○	○	–				–	–
d	△*1	–	△*1	–				–	–

*1: Local devices and file registers per program cannot be used as setting data.

Function

This instruction sends data to the external device of a specified connection.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction completion status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

Device	Item	Setting data	Setting range	Setting side
s3 +0	Send data length	Specify the data length of the send data. (number of bytes)	0 to 2046	User
s3 +1 to s3 +n	Send data	Specify the send data.	–	User

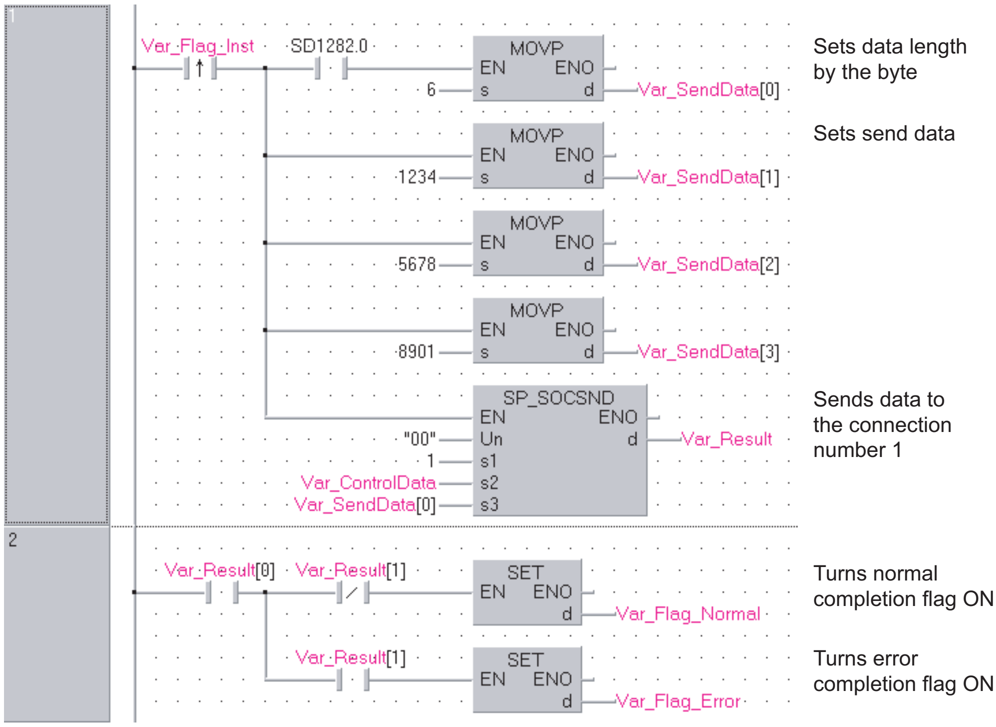
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program sends data (1234, 5678, and 8901) to the external device using the socket communication function.

[Structured ladder/FBD]



[ST]

```
IF((Var_Flag_Inst=TRUE) &(SD1282.0=TRUE))THEN
        MOVP(TRUE, 6, Var_SendData[0]);             (* Sets data length by the byte *)
        MOVP(TRUE, 1234, Var_SendData[1]);          (* Sets send data *)
        MOVP(TRUE, 5678, Var_SendData[2]);
        MOVP(TRUE, 8901, Var_SendData[3]);
        SP_SOCSND(TRUE, "00", 1, Var_ControlData, Var_SendData[0], Var_Result);
                                                (* Sends data to the connection number 1 *)
END_IF;

IF(Var_Result[0]=TRUE)THEN                          (* Execution finished *)
        IF(Var_Result[1]=FALSE)THEN                 (* Normal completion *)
                SET(FALSE, Var_Flag_Normal);        (* Turns normal completion flag ON *)
        ELSE                                        (* Error completion *)
                SET(TRUE, Var_Flag_Error);          (* Turns error completion flag OFF *)
        END_IF;
END_IF;
```

7.6 SOCCINF Instruction

SP_SOCCINF

QnUDE(H) LCPU

SP_SOCCINF

Executing condition : ↑

Structured ladder/FBD

	SP_SOCCINF	
EN		ENO
Un		d
s1		
s2		

ST

ENO:= SP_SOCCINF (EN, Un, s1,s2,d);

indicates the following instruction.

SP_SOCCINF

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
Output argument	ENO:	Execution result	:Bit
	d:	Variable that stores connection information	:Array of ANY16 [0..4]

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○	–				○	–
s2	–	○	○	–				–	–
d	–	○	○	–				–	–

Function

This instruction reads connection information of a specified connection.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction application status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

Device	Item	Setting data	Setting range	Setting side
d [0] d [1]	Destination IP address	The IP address of the external device is stored.	1H to FFFFFFFFH 0H : No destination (FFFFFFFFH : broadcast)	System
d [2]	Destination port No.	The port number of the external device is stored.	1H to FFFFH (FFFFH: broadcast)	System
d [3]	Host station port No.	The port number of the host station is stored.	1H to 1387H, 1392H to FFFEH	System
d [4]	Application setting area	b15 b14 b13 to b10 b9 b8 b7 to b0 d [4] | ③ | 0 | ② | ① | 0 | ① Communication method (protocol) 0: TCP/IP 1: UDP/IP ② With/without procedure in socket communication function 1: Nonprocedural communication ③ Open system 00: Active open or UDP/IP 10: Unpassive open 11: Fullpassive open	-	System

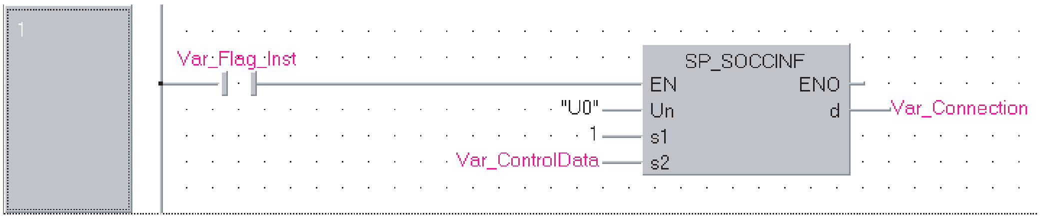
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program reads connection information of the connection number 1.

[Structured ladder/FBD]



Reads data from the connection number 1

[ST]

```
IF(Var_Flag_Inst=TRUE)THEN
	SP_SOCCINF(TRUE, "U0", 1, Var_ControlData, Var_Connection);
							(* Reads data from the connection number 1 *)
END_IF;
```

7.7 SOCCSET Instruction

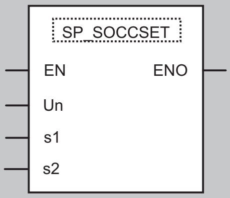
SP_SOCCSET

QnUDE(H) LCPU

SP_SOCCSET

Executing condition : ↑

Structured ladder/FBD



ST

ENO:= SP_SOCCSET (EN, Un, s1, s2);

indicates the following instruction.

SP_SOCCSET

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..4]
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○	–				○	–
s2	–	○	○	–				–	–

Function

This instruction changes the IP address and port number of the external device of a specified connection.
(Available only with a UDP/IP connection)

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction application status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2] s2 [3]	Destination IP address	Specify the IP address of the external device.	1H to FFFFFFFFH 0H : No destination (FFFFFFFFH : broadcast)	User
s2 [4]	Destination port No.	Specify the port number of the external device.	1H to FFFFH (FFFFH: broadcast)	User

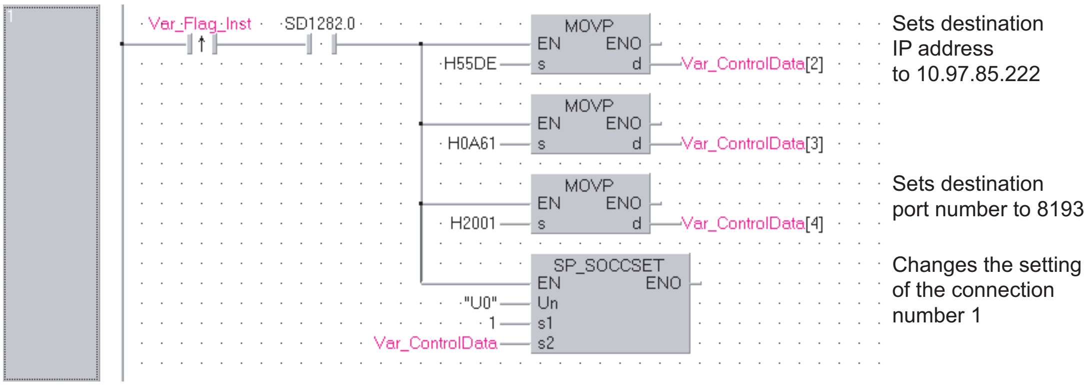
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program changes the destination (destination IP address and port number) of the connection number 1 which is being open.

[Structured ladder/FBD]



[ST]

```
IF((LDP(TRUE, Var_Flag_Inst)) &(SD1282.0=TRUE) THEN
    MOVP(TRUE, H55DE, Var_ControlData[2]);
    MOVP(TRUE, H0A61, Var_ControlData[3]);
                                (* Sets destination IP address to 10.97.85.222 *)
    MOVP(TRUE, H2001, Var_ControlData[4]);   (* Sets destination port number to 8193 *)
    SP_SOCCSET(TRUE, "U0", 1, Var_ControlData);
                                (* Changes the setting of the connection number 1 *)
END_IF;
```

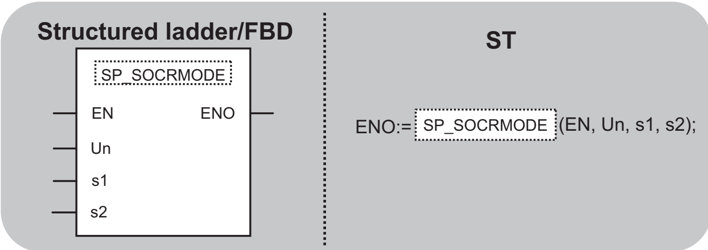
7.8 SOCRMODE Instruction

SP_SOCRMODE

QnUDE(H) LCPU

SP_SOCRMODE

Executing condition : ↑



[ ] indicates the following instruction.

SP_SOCRMODE

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..3]
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○	–				○	–
s2	–	○	○	–				–	–

Function

This instruction changes the TCP receive mode (unavailable for a UDP connection) and receive data size.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction application status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System
s2 [2]	TCP Receive Mode*1	Specify the TCP receive mode. 0 : TCP normal receive mode 1 : TCP fixed length receive mode	0, 1	User
s2 [3]	Receive Data Size	Specify the receive data size of the socket communication. (number of bytes)	1 to 2046	User

*1: Unavailable for a UDP connection.

Precautions

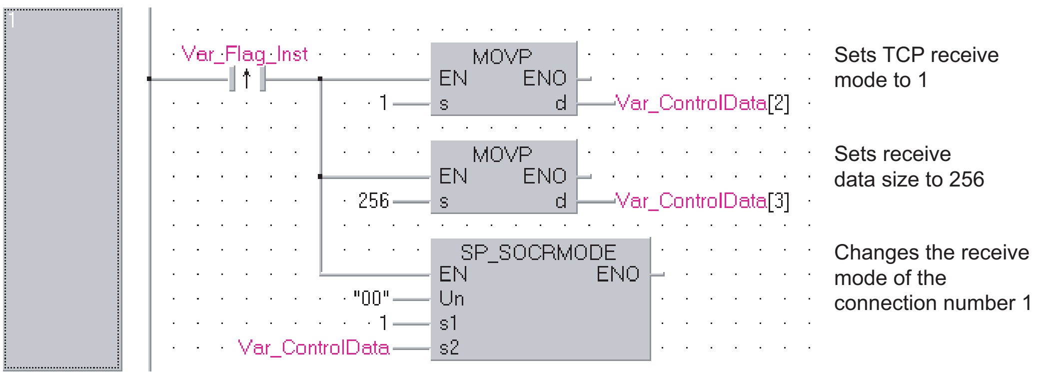
Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program changes the receive mode of the connection number1 to TCP fixed length receive mode and changes its receive data length to 256 bytes.

After instruction execution, the connection number 1 turns the receive status signal ON when the length of receive data reaches 256 bytes.

[Structured ladder/FBD]



[ST]

```
IF (Var_Flag_Inst=TRUE) THEN
        MOVP(TRUE, 1, Var_ControlData[2]);          (* Sets TCP receive mode to 1 *)
        MOVP(TRUE, 256, Var_ControlData[3]);        (* Sets receive data size to 256 *)
        SP_SOCRMODE(TRUE, "00", 1, Var_ControlData);
                                        (*Changes the receive mode of the connection number 1 *)
END_IF;
```

7.9 SOCRDATA Instruction

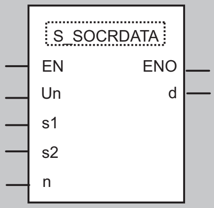
S_SOCRDATA

QnUDE(H) LCPU

S(P)_SOCRDATA

P:Executing condition:

Structured ladder/FBD



ST

ENO:= S_SOCRDATA (EN, Un, s1, s2, n, d);

indicates the following instructions.

S_SOCRDATA SP_SOCRDATA

Input argument	EN:	Executing condition	:Bit
	Un:	Dummy ("U0")	:String
	s1:	Connection number (1 to 16)	:ANY16
	s2:	Variable that stores control data	:Array of ANY16 [0..1]
	n:	Number of read data (1 to 1024 words)	ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Variable that stores read data	ANY16

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant K, H	Others
	Bit	Word		Bit	Word				
s1	–	○	○	–				○	–
s2	–	○	○	–				–	–
n	–	○	○	–				○	–
d	–	○	○	–				–	–

Function

This instruction reads data for the specified number of words from the socket communication receive data area of a specified connection, and stores it.

Control Data

Device	Item	Setting data	Setting range	Setting side
s2 [0]	System area	–	–	–
s2 [1]	Completion status	The instruction application status is stored. 0 : Normal completion Other than 0 : Error completion (error code)	–	System

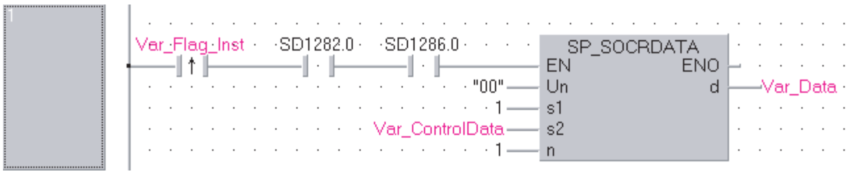
Precautions

Use the Built-in Ethernet port QCPU of which the function version is B or later and the first five digits of the serial number are '11012' or higher.

Program Example

The following program reads the receive data length of the connection number 1.

[Structured ladder/FBD]



Reads receive data length of the connection number 1

[ST]

```
IF((Var_Flag_Inst=TRUE) & (SD1282.0=TRUE) &(SD1286.0=TRUE))THEN
        SP_SOCRDATA(TRUE, "00", 1, Var_ControlData, 1, Var_Data);
                                        (* Reads receive data length of connection number 1 *)
END_IF;
```

MEMO

8 BUILT-IN I/O FUNCTION INSTRUCTION

8.1 Positioning Function Dedicated Instruction

8.1.1 IPPSTRT instruction

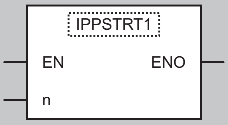
IPPSTRT1, IPPSTRT2

LCPU

IPPSTRT1(P)
IPPSTRT2(P)

P: Executing condition :

Structured ladder/FBD



ST

ENO:= IPPSTRT1 (EN, n);

indicates any of the following instructions.

IPPSTRT1	IPPSTRT1P
IPPSTRT2	IPPSTRT2P

Input argument	EN:	Executing condition	:Bit
	n:	Positioning data number (Setting range: 1 to 10)	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
n	–	○		–			○		–

Function

This instruction specifies a data number to be executed for 'n' from the positioning data No. 1 to No. 10 which are previously set in GX Works2, and starts the specified axis (refer to the following).

- IPPSTRT1(P): Axis 1
- IPPSTRT2(P): Axis 2

Program Example

The following program starts the "Positioning Data" No. 1 of the Axis 1 when M0 turns ON.

[Structured ladder/FBD]

[ST]

IPPSTRT1(M0, 1);

8.1.2 IPDSTRT instruction

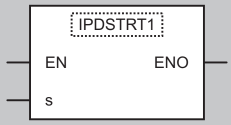
IPDSTRT1, IPDSTRT2

LCPU

IPDSTRT1(P)
IPDSTRT2(P)

P: Executing condition :

Structured ladder/FBD



ST

ENO:= IPDSTRT1 (EN, s);

indicates any of the following instructions.

IPDSTRT1	IPDSTRT1P
IPDSTRT2	IPDSTRT2P

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device in which the control data are stored	:Array of ANY16 [0..7]
Output argument	ENO:	Execution result	:Bit

<table>
<tr><th rowspan="2">Setting data</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s</td><td>–</td><td colspan="2">○</td><td colspan="6">–</td></tr>
</table>

Function

Regardless of "Positioning Data" No. 1 to No. 10 which are previously set in GX Works2, this instruction starts the positioning of the specified axis (refer to the following) using the data stored in the devices starting from s.

- IPDSTRT1(P): Axis 1
- IPDSTRT2(P): Axis 2

Control Data

Device	Item	Setting data	Setting range	Setting side
ⓢ [0]	Control system	1: Positioning control (ABS) 2: Positioning control (INC) 3: Speed/position switching control (forward RUN) 4: Speed/position switching control (reverse RUN) 5: Current value change 6: Speed control (forward RUN) 7: Speed control (reverse RUN)	1 to 7	User
ⓢ [1]	Acceleration/deceleration time	–	0 to 32767 (ms)	
ⓢ [2]	Deceleration stop time	–	0 to 32767 (ms)	
ⓢ [3]	Dwell time	–	0 to 65535 (ms)*1	
ⓢ [4] ⓢ [5]	Command speed	–	0 to 200000 (pulse/s)*2	
ⓢ [6] ⓢ [7]	Positioning address/movement amount	–	-2147483648 to 2147483647 (pulse)	

*1: Enter the setting value to the program as described below.
1 to 32767: Enter in decimal
32768 to 65535: Enter after converting it to hexadecimal

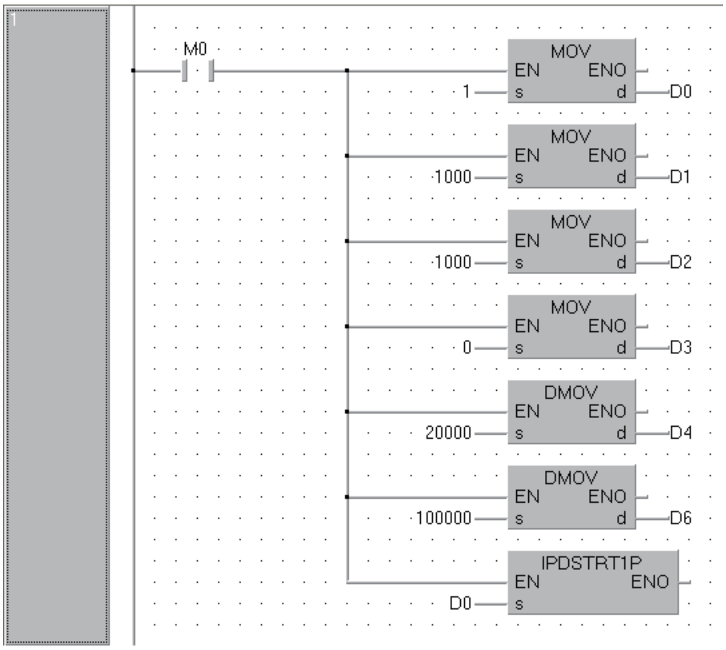
*2: The restricted speed value may be applied when the set value of the command speed is not within 0 to 200000.

Program Example

The following program sets the following positioning data and starts the axis 1 when M0 turns ON.

Device	Item	Setting data
D0	Control system	Positioning control (ABS)
D1	Acceleration/deceleration time	1000 (ms)
D2	Deceleration stop time	1000 (ms)
D3	Dwell time	0 (ms)
D4, D5	Command speed	20000 (pulse/s)
D6, D7	Positioning address/movement amount	100000 (pulse)

[Structured ladder/FBD]



[ST]

```
MOV(M0, 1, D0);
MOV(M0, 1000, D1);
MOV(M0, 1000, D2);
MOV(M0, 0, D3);
DMOV(M0, 20000, D4);
DMOV(M0, 100000, D6);
IPDSTRT1P(M0, D0);
```

8.1.3 IPSIMUL instruction

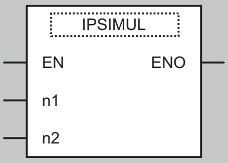
IPSIMUL

LCPU

IPSIMUL(P)

P: Executing condition : ↑

Structured ladder/FBD



ST

ENO:= IPSIMUL (EN, n1, n2);

(dotted box) indicates any of the following instructions.

IPSIMUL IPSIMULP

Input argument	EN:	Executing condition	:Bit
	n1:	Axis 1 positioning data number	:ANY16
	n2:	Axis 2 positioning data number	:ANY16
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device Bit	Internal device Word	R, ZR	J□\□ Bit	J□\□ Word	U□\G□	Zn	Constant	Others
n1	–	○		–			○		–
n2	–	○		–			○		–

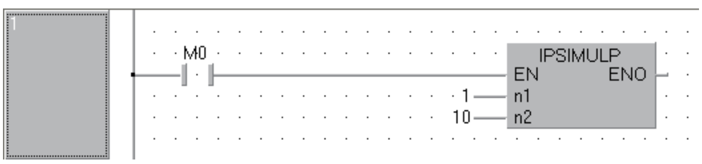
Function

This instruction simultaneously starts the positioning of the axis 1 positioning data number specified by n1 and the axis 2 positioning data number specified by n2.

Program Example

The following program simultaneously starts the axis 1 positioning data No. 1 and the axis 2 positioning data No. 10 when M0 turns ON.

[Structured ladder/FBD]



[ST]

IPSIMULP(M0, 1, 10);

8.1.4 IPOPR instruction

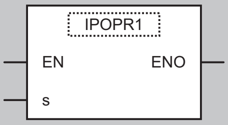
IPOPR1, IPOPR2

LCPU

IPOPR1(P)
IPOPR2(P)

P: Executing condition :

Structured ladder/FBD



ST

ENO:= IPOPR1 (EN, s);

indicates any of the following instructions.

IPOPR1	IPOPR1P
IPOPR2	IPOPR2P

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device in which the control data are stored	:Array of ANY16 [0..2]
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device Bit	Internal device Word	R, ZR	J\ Bit	J\ Word	U\G	Zn	Constant	Others
s	–	○		–					

Function

This instruction starts the OPR of which type is specified by s on the specified axis (refer to the following).

- IPOPR1(P): Axis 1
- IPOPR2(P): Axis 2

Control Data

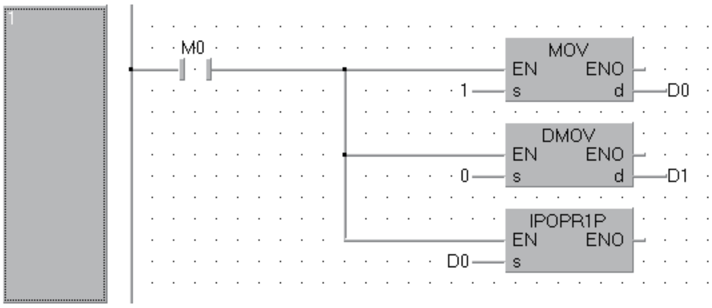
Device	Item	Setting data	Setting range	Setting side
s [0]	OPR type	1: Machine OPR 2: Fast OPR (OP address) 3: Fast OPR (standby address)	1 to 3	User
s [1] s [2]	Standby address (Set only when Fast OPR (standby address (3)) is set for the OPR type)	–	-2147483648 to 2147483647 (pulse) (Ignored when other than standby address (3))	User

Program Example

The following program starts the machine OPR of the axis 1 when M0 turns ON.

Device	Item	Setting data
D0	OPR type	Machine OPR
D1, D2	Standby address	0 (Ignored)

[Structured ladder/FBD]



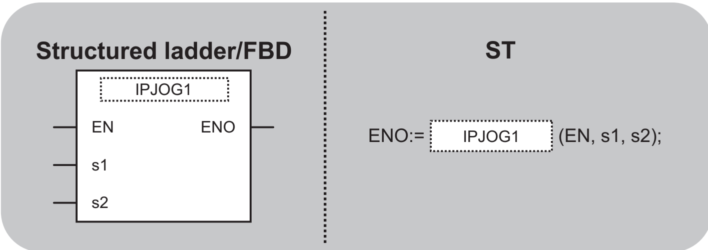
[ST]
```
MOV(M0, 1, D0);
DMOV(M0, 0, D1);
IPOPR1P(M0, D0);
```

8.1.5 IPJOG instruction

IPJOG1, IPJOG2

LCPU

IPJOG1
IPJOG2



[ ] indicates any of the following instructions.

IPJOG1
IPJOG2

Input argument	EN:	Executing condition	:Bit
	s1:	Start number of the device in which the control data are stored	:Array of ANY16 [0..3]
	s2:	Direction specification of the JOG operation 0: Forward RUN 1: Reverse RUN	:Bit
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–					
s2	○	–	○	–					

Function

This instruction starts the JOG operation of the specified axis (refer to the following).

- IPJOG1: Axis 1
- IPJOG2: Axis 2

The JOG operation is executed in the direction specified by s2, using the JOG speed, JOG acceleration/deceleration time stored in the devices starting from s1.

Control Data

Device	Item	Setting data	Setting range	Setting side
(s1) [0]	JOG speed	–	0 to 200000 (pulse/s)*1	User
(s1) [1]				
(s1) [2]	JOG acceleration time	–	0 to 32767 (ms)	
(s1) [3]	JOG deceleration time	–		

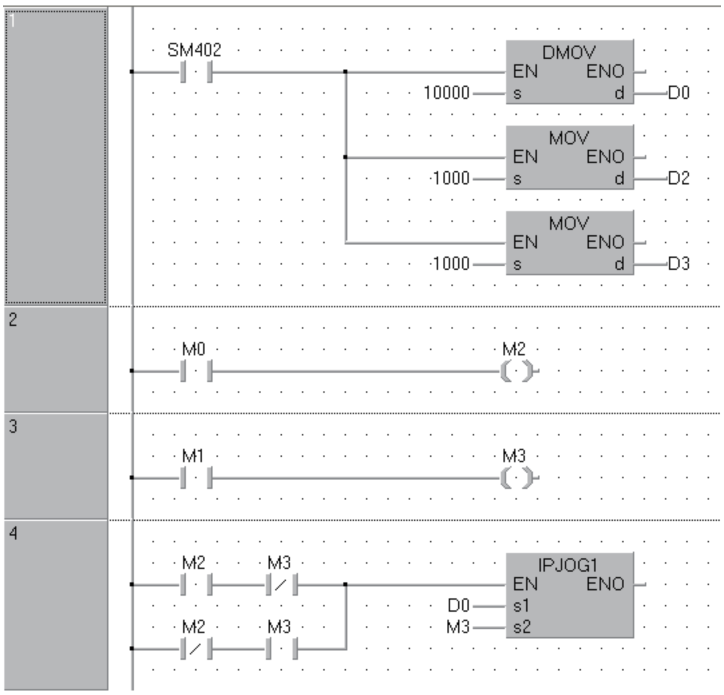
*1: The restricted speed value may be applied when the set value of the JOG speed is not within 0 to 200000.

Program Example

The following program starts the forward JOG operation when M0 turns ON, and starts the reverse JOG operation when M1 turns ON.

Device	Item	Setting data
D0, D1	JOG speed	10000 (pulse/s)
D2	JOG acceleration time	1000 (ms)
D3	JOG deceleration time	

[Structured ladder/FBD]



[ST]
DMOV(SM402, 10000, D0);
MOV(SM402, 1000, D2);
MOV(SM402, 1000, D3);
OUT(M0, M2);
OUT(M1, M3);
IPJOG1(M2 AND NOT M3 OR NOT M2 AND M3, D0, M3);

8.1.6 IPABRST instruction

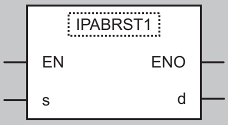
IPABRST1, IPABRST2

LCPU

IPABRST1
IPABRST2

Executing condition :

Structured ladder/FBD



ST

ENO:= IPABRST1 (EN, s, d);

indicates any of the following instructions.
IPABRST1
IPABRST2

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device for input	:Array of bit [0..2]
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device for output	:Array of bit [0..2]

Setting data	Internal device		R, ZR	J\		U\G\	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	○	–							
d	○	–							

Function

This instruction executes the absolute position restoration of the specified axis (refer to the following) by communicating with the servo amplifier using the input device specified by s and output device specified by d.

- IPABRST1: Axis 1
- IPABRST2: Axis 2

Control Data

(1) Signals imported from servo amplifier

Device	Item	Setting data	Setting range	Setting side
s [0]	Signals imported from servo amplifier	ABS send data bit0	0, 1	User
s [1]		ABS send data bit1		
s [2]		ABS send data ready		

(2) Signals exported to servo amplifier

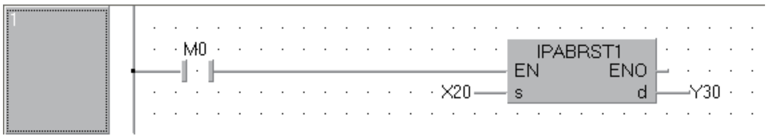
Device	Item	Setting data	Setting range	Setting side
ⓓ [0]	Signals exported to servo amplifier	Servo ON	–	System
ⓓ [1]		ABS transfer mode		
ⓓ [2]		ABS request flag		

Program Example

This instruction executes the absolute position restoration of the axis 1 when M0 turns ON.

- X20 to X22: Signals imported from the servo amplifier
- Y30 to Y32: Signals exported to the servo amplifier

[Structured ladder/FBD]



[ST]

IPABRST1(M0, X20, Y30);

8.1.7 IPSTOP instruction

IPSTOP1, IPSTOP2

LCPU

IPSTOP1
IPSTOP2

[ ] indicates any of the following instructions.
IPSTOP1
IPSTOP2

Input argument	EN:	Executing condition	:Bit
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device Bit	Internal device Word	R, ZR	J[ ]\[ ] Bit	J[ ]\[ ] Word	U[ ]\G[ ]	Zn	Constant	Others
–	–								

Function

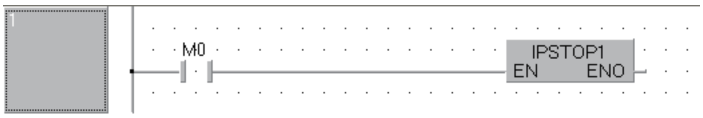
This instruction stops the positioning of the specified axis (refer to the following).

- IPSTOP1: Axis 1
- IPSTOP2: Axis 2

Program Example

The following program stops the axis 1 when M0 turns ON.

[Structured ladder/FBD]



[ST]

```
IPSTOP1(M0);
```

8.1.8 IPSPCHG instruction

IPSPCHG1, IPSPCHG2

LCPU

IPSPCHG1(P)
IPSPCHG2(P)

P: Executing condition :

Structured ladder/FBD	ST
IPSPCHG1 (EN, ENO, s)	ENO:= IPSPCHG1 (EN, s);

indicates any of the following instructions.

IPSPCHG1	IPSPCHG1P
IPSPCHG2	IPSPCHG2P

Input argument	EN:	Executing condition	:Bit
	s:	Start number of the device in which the control data are stored	:Array of ANY16 [0..3]
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s	–	○		–					

Function

This instruction changes the speed of the specified axis (refer to the following) using the acceleration/deceleration time at speed change, deceleration stop time at speed change, and new speed value stored in the devices starting from s.

- IPSPCHG1(P): Axis 1
- IPSPCHG2(P): Axis 2

Control Data

Device	Item	Setting data	Setting range	Setting side
s [0]	Acceleration/deceleration time at speed change	–	0 to 32767 (ms)	User
s [1]	Deceleration stop time at speed change	–		
s [2]	New speed value	–	0 to 200000 (pulse/s)*1	
s [3]				

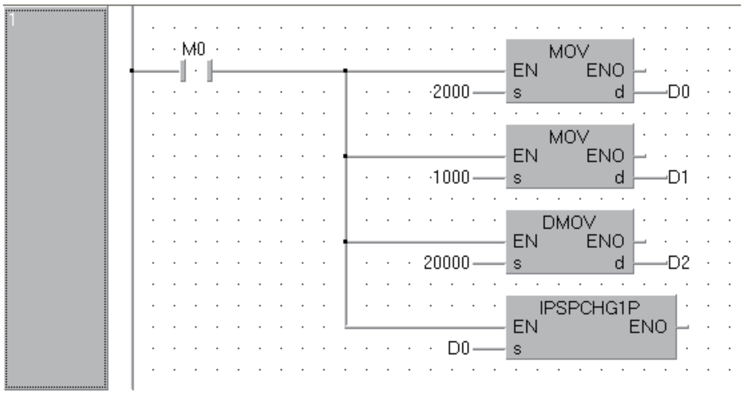
*1: The restricted speed value may be applied when the set value of the new speed is not within 0 to 200000.

Program Example

The following program changes the speed of the axis 1 when M0 turns ON.

Device	Item	Setting data
D0	Acceleration/deceleration time at speed change	2000 (ms)
D1	Deceleration stop time at speed change	1000 (ms)
D2, D3	New speed value	200000 (pulse/s)

[Structured ladder/FBD]



[ST]
MOV(M0, 2000, D0);
MOV(M0, 1000, D1);
DMOV(M0, 20000, D2);
IPSPCHG1P(M0, D0);

8.1.9 IPTPCHG instruction

IPTPCHG1, IPTPCHG2

LCPU

IPTPCHG1(P)
IPTPCHG2(P)

P: Executing condition :

Structured ladder/FBD	ST
IPTPCHG1 (EN → ENO, s)	ENO:= IPTPCHG1 (EN, s);

[ ] indicates any of the following instructions.

IPTPCHG1	IPTPCHG1P
IPTPCHG2	IPTPCHG2P

Input argument	EN:	Executing condition	:Bit
	s:	Target position change value (constant), or start number of the device in which the control data are stored.	:ANY32
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J[ ]\[ ]		U[ ]\G[ ]	Zn	Constant	Others
	Bit	Word		Bit	Word				
(s)	–	○		–				○	–

Function

This instruction changes the position of the specified axis (refer to the following) to the new target position specified by (s).

- IPTPCHG1(P): Axis 1
- IPTPCHG2(P): Axis 2

Control Data

Device	Item	Setting data	Setting range	Setting side
(s) +0 (s) +1	Target position change value	–	-2147483648 to 2147483647 (pulse/s)	User

Program Example

The following program changes the target position of the axis 1 to 2000 when M0 turns ON.

[Structured ladder/FBD]

[ST]

IPTPCHG1P(M0, 2000);

8.2 Counter Function Dedicated Instruction

8.2.1 ICCNTRD instruction

ICCNTRD1, ICCNTRD2

LCPU

ICCNTRD1(P)
ICCNTRD2(P)

P: Executing condition :

Structured ladder/FBD

ST

ENO:= ICCNTRD1 (EN);

indicates any of the following instructions.

ICCNTRD1	ICCNTRD1P
ICCNTRD2	ICCNTRD2P

Input argument	EN:	Executing condition	:Bit
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J\		U\G	Zn	Constant	Others
	Bit	Word		Bit	Word				
–	–								

Function

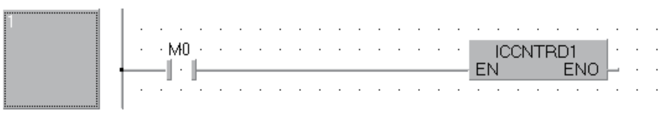
This instruction stores a value at the time of instruction execution to the current value of the specified CH (refer to the following).

Instruction	CH	Device in which the current value is stored
ICCNTRD1(P)	CH1	SD1880, SD1881
ICCNTRD2(P)	CH2	SD1900, SD1901

Program Example

The following program stores the most recent value to the CH 1 current value (SD1880, SD1881) when M0 turns ON.

[Structured ladder/FBD]



[ST]

ICCNTRD1(M0);

8.2.2 ICRNGWR instruction

ICRNGWR1, ICRNGWR2

LCPU

ICRNGWR1(P)
ICRNGWR2(P)

P: Executing condition :

Structured ladder/FBD	ST
ICRNGWR1 EN ENO s1 s2	ENO:= ICRNGWR1 (EN, s1, s2);

[ ] indicates any of the following instructions.

ICRNGWR1	ICRNGWR1P
ICRNGWR2	ICRNGWR2P

Input argument	EN:	Executing condition	:Bit
	s1:	Ring counter lower limit value (constant), or start number of the device that stores the ring counter lower limit value • Constant: Settings which is within the range of -2147483648 to 2147483647 and (s1 , s1 +1) ≦ (s2 , s2 +1) • Device: Within the range of specified device	:ANY32
	s2:	Ring counter upper limit value (constant), or start number of the device that stores the ring counter upper limit value • Constant: Settings which is within the range of -2147483648 to 2147483647 and (s1 , s1 +1) ≦ (s2 , s2 +1) • Device: Within the range of specified device	:ANY32
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
s1	–	○		–			○		–
s2	–	○		–			○		–

☆ Function

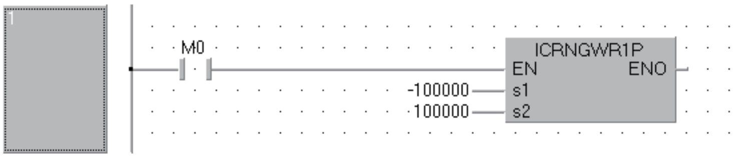
This instruction sets the ring counter lower limit value and the ring counter upper limit value of the specified CH (refer to the following).

- ICRNGWR1(P): CH1
- ICRNGWR2(P): CH2

Program Example

The following program sets -100000 for the ring counter lower limit value and 100000 for the ring counter upper limit value of CH 1 when M0 turns ON.

[Structured ladder/FBD]



[ST]

```
ICRNGWR1P(M0, -100000, 100000);
```

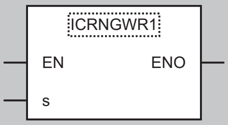
8.2.3 ICPREWR instruction

ICPREWR1, ICPREWR2

LCPU

ICPREWR1(P)
ICPREWR2(P)

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= ICRNGWR1 (EN, s);

ICRNGWR1 indicates any of the following instructions.

ICPREWR1	ICPREWR1P
ICPREWR2	ICPREWR2P

Input argument	EN:	Executing condition	:Bit
	s:	Preset value (constant), or start number of the device that stores the preset value • Constant: Settings which is within the range of -2147483648 to 2147483647 • Device: Within the range of specified device	:ANY32
Output argument	ENO:	Execution result	:Bit

<table>
<tr><th rowspan="2">Setting data</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s</td><td>–</td><td colspan="2">○</td><td colspan="3">–</td><td colspan="2">○</td><td>–</td></tr>
</table>

Function

This instruction sets a preset value of the specified CH (refer to the following).

- ICPREWR1(P): CH1
- ICPREWR2(P): CH2

Program Example

The following program sets 10000 for the preset value of CH 1 when M0 turns ON.

[Structured ladder/FBD]

[ST]

```
ICPREWR1(M0, 10000);
```

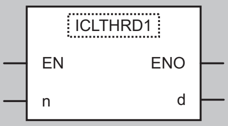
8.2.4 ICLTHRD instruction

ICLTHRD1, ICLTHRD2

LCPU

ICLTHRD1(P)
ICLTHRD2(P)

P: Executing condition :

Structured ladder/FBD	ST
	ENO:= ICLTHRD1 (EN, n, d);

[ ] indicates any of the following instructions.

ICLTHRD1	ICLTHRD1P
ICLTHRD2	ICLTHRD2P

Input argument	EN:	Executing condition	:Bit
	n:	Latch count value (1,2)	:ANY16
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device in which the latch count value is stored	:ANY32

Setting data	Internal device Bit	Internal device Word	R, ZR	J\ Bit	J\ Word	U\G	Zn	Constant	Others
n	–	○		–			○		–
d	–	○		–			○	–	

Function

This instruction stores a latch count value n of the specified CH (refer to the following) to d.

- ICLTHRD1(P): CH1
- ICLTHRD2(P): CH2

Program Example

The following program stores the latch count value 1 of CH 1 to D100 and D101 when M0 turns ON.

[Structured ladder/FBD]

[ST]

```
ICLTHRD1(M0, 1, D100);
```

8.2.5 ICSMPRD instruction

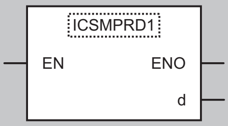
ICSMPRD1, ICSMPRD2

LCPU

ICSMPRD1(P)
ICSMPRD2(P)

P: Executing condition :

Structured ladder/FBD



ST

ENO:= ICSMPRD1 (EN, d);

[ ] indicates any of the following instructions.

ICSMPRD1	ICSMPRD1P
ICSMPRD2	ICSMPRD2P

Input argument EN: Executing condition :Bit
Output argument ENO: Execution result :Bit
d: Start number of the device in which the sampling count value is stored :ANY32

<table>
<tr><th rowspan="2">Setting data</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>ⓓ</td><td>–</td><td colspan="2">○</td><td colspan="3">–</td><td>○</td><td colspan="2">–</td></tr>
</table>

Function

This instruction stores a sampling count value of the specified CH (refer to the following) to ⓓ.

- ICSMPRD1(P): CH1
- ICSMPRD2(P): CH2

Program Example

The following program stores the sampling count value of CH 1 to D100 and D101 when M0 turns ON.

[Structured ladder/FBD]

[ST]
ICSMPRD1(M0, D100);

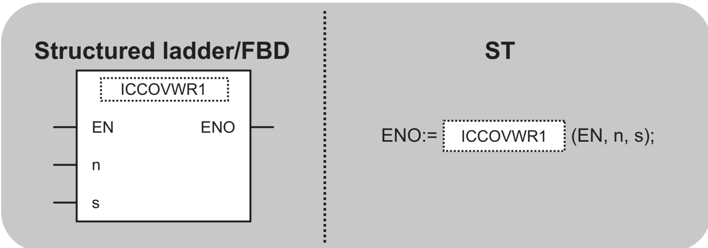
8.2.6 ICCOVWR instruction

ICCOVWR1, ICCOVWR2

LCPU

ICCOVWR1(P)
ICCOVWR2(P)

P: Executing condition :



indicates any of the following instructions.

ICCOVWR1	ICCOVWR1P
ICCOVWR2	ICCOVWR2P

Input argument	EN:	Executing condition	:Bit
	n:	Coincidence output No. n point (1,2)	:ANY16
	s:	Coincidence output No. n point (constant), or start number of the device in which coincidence output No. n point is stored • Constant: Settings which is within the range of -2147483648 to 2147483647 • Device: Within the range of specified device	:ANY32
Output argument	ENO:	Execution result	:Bit

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
n	–	○		–			○		–
s	–	○		–			○		–

Function

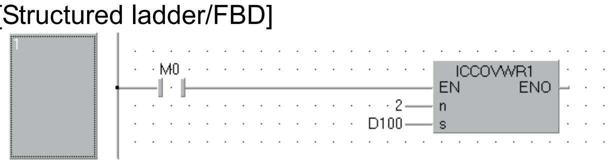
This instruction stores a coincidence output No. n point of the specified CH (refer to the following).

- ICCOVWR1(P): CH1
- ICCOVWR2(P): CH2

Program Example

The following program sets the value of D100 and D101 to the coincidence output No. 2 point of CH 1 when M0 turns ON.

[Structured ladder/FBD]



[ST]

ICCOVWR1(M0, 2, D100);

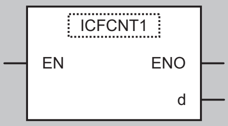
8.2.7 ICFCNT instruction

ICFCNT1, ICFCNT2

LCPU

ICFCNT1
ICFCNT2

Structured ladder/FBD



ST

ENO:= ICFCNT1 (EN, d);

indicates any of the following instructions.
ICFCNT1
ICFCNT2

Input argument	EN:	Executing condition	:Bit
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores the measured frequency value	:ANY32

Setting data	Internal device		R, ZR	J□\□		U□\G□	Zn	Constant	Others
	Bit	Word		Bit	Word				
ⓓ	–	○		–			○	–	

Function

This instruction measures a frequency of the specified CH (refer to the following) according to the settings such as the frequency measurement unit time setting.

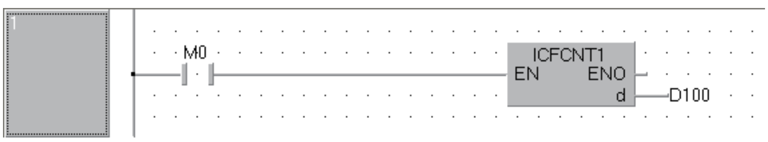
- ICFCNT1: CH1
- ICFCNT2: CH2

The measured value is stored to ⓓ at the ICFCNT instruction execution. The measurement starts at the rising pulse of the ICFCNT instruction execution command, and ends at the falling pulse.

Program Example

The following program executes the frequency measurement of CH 1 while M0 is ON.

[Structured ladder/FBD]



[ST]

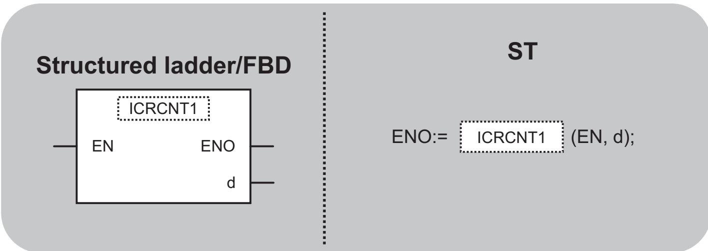
ICFCNT1(M0, D100);

8.2.8 ICRCNT instruction

ICRCNT1, ICRCNT2

LCPU

ICRCNT1
ICRCNT2



[ ] indicates any of the following instructions.

ICRCNT1
ICRCNT2

Input argument	EN:	Executing condition	:Bit
Output argument	ENO:	Execution result	:Bit
	d:	Start number of the device that stores the measured rotation speed	:ANY32

Setting data	Internal device		R, ZR	J\		U\G	Zn	Constant	Others
	Bit	Word		Bit	Word				
d	–	○		–			○	–	

Function

This instruction measures a rotation speed of the specified CH (refer to the following) according to the settings such as the rotation speed measurement unit time setting.

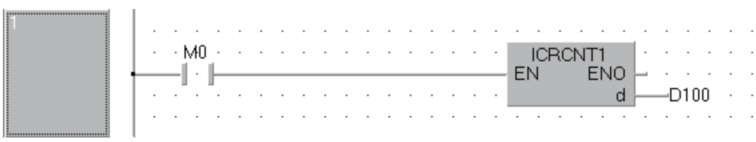
- ICRCNT1: CH1
- ICRCNT2: CH2

The measured value is stored to d at the ICRCNT instruction execution. The measurement starts at the rising pulse of the ICRCNT instruction execution command, and ends at the falling pulse.

Program Example

The following program stores the rotation speed measurement value of CH 1 to D100 and D101 while M0 is ON.

[Structured ladder/FBD]



[ST]

```
ICRCNT1(M0, D100);
```

8.2.9 ICPLSRD instruction

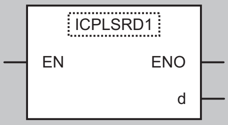
ICPLSRD1, ICPLSRD2

LCPU

ICPLSRD1(P)
ICPLSRD2(P)

P: Executing condition :

Structured ladder/FBD



ST

ENO:= ICPLSRD1 (EN, d);

indicates any of the following instructions.

ICPLSRD1	ICPLSRD1P
ICPLSRD2	ICPLSRD2P

Input argument	EN:	Executing condition	:Bit
Output argument	ENO:	Execution result	Bit
	d:	Start number of the device that stores the measured pulse value	:ANY32

Setting data	Internal device		R, ZR	J\		U\G	Zn	Constant	Others
	Bit	Word		Bit	Word				
d	–	○		–			○		–

Function

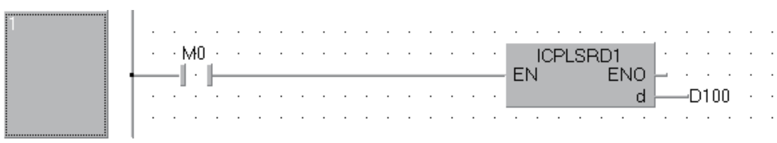
This instruction stores a measured pulse value of the specified CH (refer to the following) to d.

- ICPLSRD1(P): CH1
- ICPLSRD2(P): CH2

Program Example

The following program stores the measured pulse value of CH 1 to D100 and D101 when M0 turns ON.

[Structured ladder/FBD]



[ST]

```
ICPLSRD1(M0, D100);
```

8.2.10 ICPWM instruction

ICPWM1, ICPWM2

LCPU

ICPWM1
ICPWM2

Structured ladder/FBD	ST
ICPWM1 EN ENO s1 s2	ENO:= ICPWM1 (EN, s1, s2);

[ ] indicates any of the following instructions.

ICPWM1
ICPWM2

Input argument	EN:	Executing condition	:Bit
	s1:	PWM output ON time setting value (constant), or start number of the device that stores the PWM output ON time setting value • Constant: Settings which is 0 or within the range of 10 to 10^7 (0.1µs) and (s1, s1 +1) ≦ (s2, s2 +1) • Device: Within the range of specified device	:ANY32
	s2:	PWM output cycle time setting value (constant), or start number of the device that stores the PWM output cycle time setting value • Constant: Settings which is 0 or within the range of 50 to 10^7 (0.1µs) and (s1, s1 +1) ≦ (s2, s2 +1) • Device: Within the range of specified device	:ANY32
Output argument	ENO:	Execution result	:Bit

<table>
<tr><th rowspan="2">Setting data</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th rowspan="2">Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th></tr>
<tr><td>s1</td><td>–</td><td colspan="2">○</td><td colspan="3">–</td><td colspan="2">○</td><td>–</td></tr>
<tr><td>s2</td><td>–</td><td colspan="2">○</td><td colspan="3">–</td><td colspan="2">○</td><td>–</td></tr>
</table>

Function

This instruction outputs a PWM waveform of the specified CH (refer to the following).

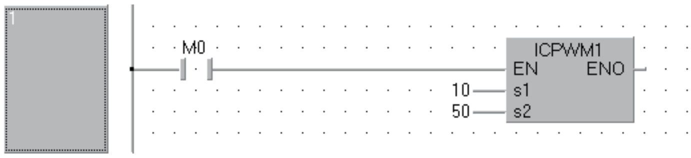
- ICPWM1: CH1
- ICPWM2: CH2

The PWM waveform with the ON time (s1) and the cycle time (s2) is output from the coincidence output No.1 signal during the ICPWM instruction execution. The output of the PWM waveform starts from OFF.

Program Example

The following program outputs the PWM waveform with 1μs ON time and 5μs cycle time from CH 1 while M0 is ON.

[Structured ladder/FBD]



[ST]

ICPWM1(M0, 10, 50);

MEMO

9 DATA LOGGING FUNCTION INSTRUCTION

9.1 LOGTRG Instruction, LOGTRGR Instruction

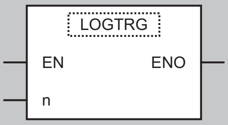
LOGTRG

LCPU

LOGTRG
LOGTRGR

Executing condition : ↑

Structured ladder/FBD



ST

ENO:= LOGTRG (EN, n);

[ ] indicates any of the following instructions.
LOGTRG
LOGTRGR

Input argument	EN:	Executing condition	:Bit
	n:	Data logging configuration number	:ANY16
Output argument	ENO:	Execution result	:Bit

<table>
<tr><th rowspan="2">Setting data</th><th colspan="2">Internal device</th><th rowspan="2">R, ZR</th><th colspan="2">J□\□</th><th rowspan="2">U□\G□</th><th rowspan="2">Zn</th><th>Constant</th><th rowspan="2">Others</th></tr>
<tr><th>Bit</th><th>Word</th><th>Bit</th><th>Word</th><th>K, H</th></tr>
<tr><td>n</td><td>–</td><td colspan="2">○</td><td colspan="3">–</td><td colspan="2">○</td><td>–</td></tr>
</table>

Function

LOGTRG

(1) The LOGTRG instruction generates a trigger in the trigger logging of the data logging configuration number specified by 'n'.

(2) A value from 1 to 10 is set for 'n'.

(3) When the LOGTRG instruction is executed, the special relay (data logging trigger) of the data logging configuration number specified by 'n' turns ON. After executing the trigger logging for the number of times set for "Number of records", the instruction latches the data and stops the trigger logging.

(4) Validated when "When trigger instruction executed" is selected as the trigger condition.

(5) No processing is performed with the following condition.

- Specifying a data logging configuration number for which other than "When trigger instruction executed" is specified as the trigger condition.
- Specifying a data logging configuration number which is not configured.
- Specifying a data logging configuration number which is currently used for continuous logging.
- Executing the LOGTRG instruction again without executing the LOGTRGR instruction after the LOGTRG instruction.

LOGTRGR

(1) The LOGTRGR instruction resets the LOGTRG instruction of the specified data logging configuration number.

(2) When the LOGTRGR instruction is executed, the special relay (data logging trigger, trigger logging complete) of the data logging configuration number specified by 'n' turns OFF.

(3) When the instruction is executed while transferring data in the buffer memory to the SD memory card, the instruction process is held until data transfer is complete.

Operation Error

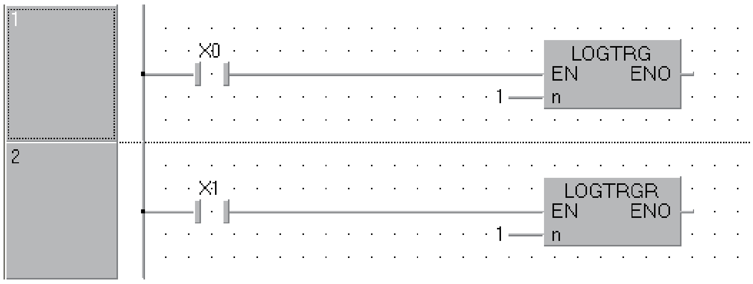
In the following case, an operation error occurs, the error flag (SM0) is turned ON, and the corresponding error code is stored to SD0.

- The value for n is outside the range of 1 to 10 (Error code: 4100)

Program Example

The following program executes the LOGTRG instruction on the data logging configuration No. 1 when X0 turns ON, and resets the trigger condition with the LOGTRGR instruction when X1 turns ON.

[Structured ladder/FBD]



[ST]

```
LOGTRG(X0,1);
LOGTRGR(X1,1);
```

10 SFC CONTROL INSTRUCTION

10.1 SFC Control Instruction

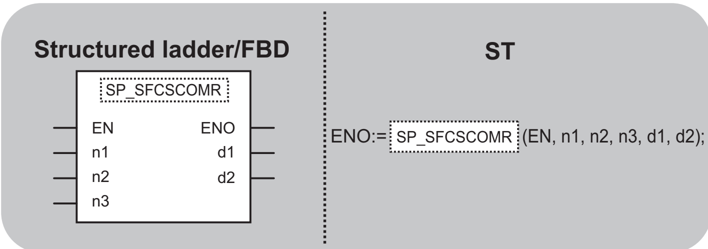
10.1.1 SFCSCOMR instruction

S(P)_SFCSCOMR

High performance Universal

S(P)_SFCSCOMR

P: Executing condition : ↑



[ ] indicates any of the following instructions.

S_SFCSCOMR SP_SFCSCOMR

Input argument	EN:	Executing condition	:Bit
	n1:	Block No. of an SFC program that read comments or device number where block No. is stored.	: ANY16
	n2:	The device number where the number of comments to read or the number of comments is stored.	: ANY16
	n3:	The number of comments to read in a single scan or device number where the number of comments is stored.	: ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	The first number of device that stores comment read.	: ANY16
	d2:	A device that turns ON for 1 scan at completion of the instruction.	:Bit

Setting data	Internal device		R	J□\□		U□\G□	Zn	Constant K, H	Expansion SFC BLm\Sn	Others	Sequence Program	SFC Program		Execution Site		
	Bit	Word		Bit	Word							Step	Transition Condition	Block	Step	Transition Condition
n1	–	○	–					○	–		○		–	○	–	–
n2	–	○	–					○	–				–		–	–
n3	–	○	–					○	–				–		–	–
d1	–	○*1	–					–	–				–		–	–
d2	○*1	–	–					–	–				–		–	–

*1: Local device cannot be used.

Function

This function reads step comments being activated in the SFC block specified at n1 , by the number of comment specified at n2 , and stores those to the device number of after specified at d1 .

Caution

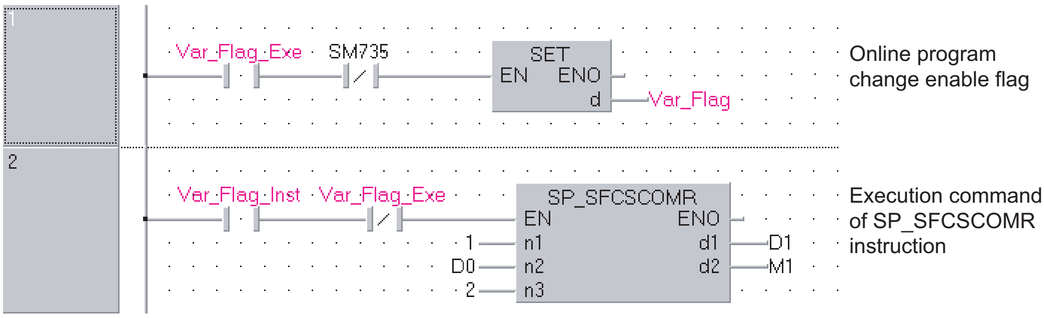
For High Performance model QCPU, use the function version is B or later and the first five digits of the serial number are '07012' or higher.

Program Example

This program reads 2 comments being activated at the SFC block No.1 when X1 is turned ON, and stores those to the storage device after D0.

(The number of comment to be read n3 in a single scan is also set in 2.)

[Structured ladder/FBD]



[ST]

```
IF((Var_Flag_Exe=TRUE) & (SM735=FALSE))THEN
                                        (*Online program change execution command*)
    SET(TRUE, Var_Flag);                      (*Online program change enable flag*)
END_IF;
IF((Var_Flag_Inst=TRUE) & (Var_Flag=FALSE))THEN
                              (*Execution command of SP_SFCSCOMR instruction*)
    SP_SFCSCOMR(TRUE, 1, D0, 2, D1, M1);
END_IF;
```

10.1.2 SFCTCOMR instruction

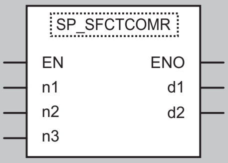
S(P)_SFCTCOMR

High performance Universal

S(P)_SFCTCOMR

P: Executing condition :

Structured ladder/FBD



ST

ENO:= SP_SFCTCOMR (EN, n1, n2, n3, d1, d2);

indicates any of the following instructions.

S_SFCTCOMR SP_SFCTCOMR

Input argument	EN:	Executing condition	:Bit
	n1:	Block No. of an SFC program that read comments or device number where block No. is stored.	: ANY16
	n2:	The device number where the number of comments to read or the number of comments is stored.	: ANY16
	n3:	The number of comments to read in a single scan or device number where the number of comments is stored.	: ANY16
Output argument	ENO:	Execution result	:Bit
	d1:	The first number of device that stores comment read.	: ANY16
	d2:	A device that turns ON for 1 scan at completion of the instruction.	:Bit

Setting data	Internal device		R	J□\□		U□\G□	Zn	Constant K, H	Expansion SFC BLm\Sn	Others	Sequence Program	SFC Program		Execution Site		
	Bit	Word		Bit	Word							Step	Transition Condition	Block	Step	Transition Condition
n1	–	○	–					○	–				–		–	–
n2	–	○	–					○	–				–		–	–
n3	–	○	–					○	–		○		–	○	–	–
d1	–	○*1	–					–	–				–		–	–
d2	○*1	–	–					–	–				–		–	–

*1: Local device cannot be used.

Function

This function reads comments of the transition condition 1 associated with steps activated in the SFC block specified at n1 with the number of comments specified at n2, and stores those to the device number of after specified at d1.

Caution

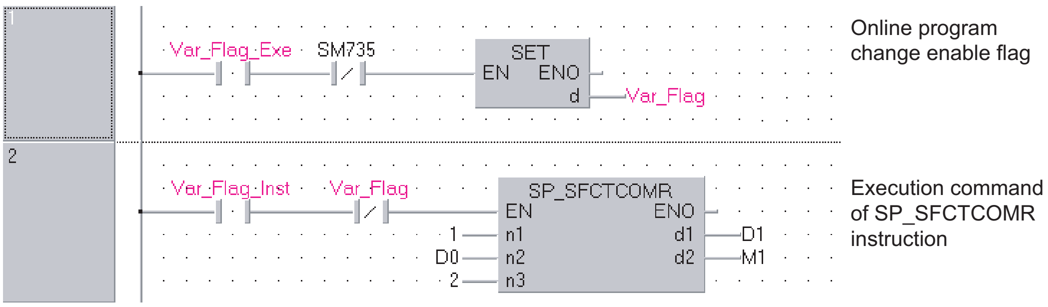
For High Performance model QCPU, use the function version is B or later and the first five digits of the serial number are '07012' or higher.

Program Example

This program reads 2 comments being activated at the SFC block No.1 when X1 is turned ON, and stores those to the storage device after D0.

(The number of comment to be read n3 in a single scan is also set in 2.)

[Structured ladder/FBD]



[ST]

```
IF((Var_Flag_Exe=TRUE) & (SM735=FALSE))THEN
                                        (*Online program change execution command*)
    SET(TRUE, Var_Flag);                (*Online program change enable flag*)
END_IF;
IF((Var_Flag_Inst=TRUE) & (Var_Flag=FALSE))THEN
                                 (*Execution command of SP_SFCTCOMR instruction*)
    SP_SFCTCOMR(TRUE, 1, D0, 2, D1, M1);
END_IF;
```

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MEMO

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 onsite that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.

1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, 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.

MELSEC-Q/L Structured Programming Manual

Special Instructions

MODEL	Q-KP-TM-E
MODEL CODE	13JW09
SH(NA)-080785ENG-I(1107)KWIX	

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