MITSUBISHI ELECTRIC

Edge Computing Software

iQ Edgecross

SLMP Data Collector User's Manual

-SW1DND-DCSLMP-M
-SW1DND-DCSLMP-MD

SAFETY PRECAUTIONS

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

The precautions given in this manual are concerned with this product only. For the safety precautions of the programmable controller system, refer to the user's manual for the CPU module used.

In this manual, the safety precautions are classified into two levels: "⚠ WARNING" and "⚠ CAUTION".

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

Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

⚠ WARNING

- To perform an operation, such as data change or operating status change, to running devices, such as a programmable controller, servo, robot, or server, from an industrial PC equipped with this product, configure an interlock circuit outside of the devices so that the entire system always operates to the safety side. Additionally, read this manual carefully and ensure the safety before operations.
  Especially, in the above mentioned operations that are performed from external devices through network, any problems on devices may not be dealt with promptly due to an abnormal data communication.
- Configure a safety circuit outside of an industrial PC equipped with this product so that the entire system operates to the safely side even when a fault occurs in the PC.
  Failure to do so may result in an accident due to an incorrect output or malfunction.

[Design Precautions]

⚠ CAUTION

- During application of each setting, do not perform the operation that forcibly turns the industrial PC equipped with this product OFF.
  Otherwise, the data will be undefined and resetting and re-registering data will be required.
  Additionally, doing so may cause the malfunction of this product.

[Security Precautions]

⚠WARNING

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

CONDITIONS OF USE FOR THE PRODUCT

(1) This software shall be used under the following conditions;
i) that any failure occurred in this software, if any, shall not lead to any serious accident.
ii) that the backup and/or fail-safe functions are systematically performed outside the devices in the cases of any failure occurred in this software.

(2) Mitsubishi Electric assumes no responsibility and liability (including but not limited to, default liability, defect liability, quality assurance responsibility, tort liability, product liability) for the quality, performance, and safety of both this software and products using this software.

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

INTRODUCTION

Thank you for purchasing SLMP Data Collector.
This manual describes the specifications, procedures before operation, and troubleshooting of this product.
Before using this product, please read this manual and the relevant manuals carefully, and develop familiarity with the functions and performance of this product to handle correctly.
Please make sure that the end users read this manual.

CONTENTS

SAFETY PRECAUTIONS 1
CONDITIONS OF USE FOR THE PRODUCT 3
INTRODUCTION 3
RELEVANT MANUALS 6
TERMS 7

CHAPTER 1 SLMP Data Collector 8

CHAPTER 2 SPECIFICATIONS 10

2.1 SLMP connection 10
Functional Specifications 10
Operational Specifications 11
Access methods and available commands 12
Accessible devices (equipment), devices (locations), and device numbers 15
2.2 MELSEC connection 16
Functional Specifications 16
Operational Specifications 16
Accessible CPU modules and devices (locations) 17

CHAPTER 3 PROCEDURE BEFORE OPERATION 21

3.1 Setting Example for an Access Target Device 22
3.2 Procedures for Using SLMP Data Collector 24
Real-time Flow Manager 24
Management Shell 26

CHAPTER 4 FUNCTIONS 29

4.1 Data Collection Function 29
4.2 Data Reading Function 32
4.3 Data Writing Function 34
4.4 Considerations 35

CHAPTER 5 PARAMETER SETTINGS 38

5.1 SLMP connection 38
Communication parameters 38
Collection parameters 44
Location parameters 45
5.2 MELSEC connection 52
Communication parameters 52
Collection parameters 53
Location parameters 54

CHAPTER 6 TROUBLESHOOTING 57

6.1 Checking Method for Error Descriptions 57
Error type 57
6.2 Troubleshooting by Symptom 58
Troubleshooting on the SLMP Data Collector startup 58
Troubleshooting on data reading 58
Troubleshooting on data writing 60

Troubleshooting on Ethernet communication 61
Troubleshooting on parameter settings 63
Troubleshooting on Edgecross Basic Software 65
Troubleshooting on screens 66
6.3 Error Code List 67
6.4 Event Code List 80

APPENDIX 81

Appendix 1 Processing Performance and Processing Time 81
Collection processing performance 81
Read processing performance 92
Appendix 2 Data Assignment 101
Data assignment availability 101
Number of device points to be assigned to data 101
Appendix 3 Software Licenses 102
Software information 102
Appendix 4 Supported Edgecross Basic Software Version 104
Appendix 5 Added and Changed Functions 105

INDEX 107

REVISIONS 109
TRADEMARKS 110

RELEVANT MANUALS

Manual name [manual number]	Description	Available form
SLMP Data Collector User's Manual [SH-081919ENG] (this manual)	Specifications, procedure before operation, and troubleshooting of SLMP Data Collector	e-Manual PDF

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e-Manual refers to the Mitsubishi Electric FA electronic book manuals that can be browsed using a dedicated tool.

e-Manual has the following features:

- Required information can be cross-searched in multiple manuals.
- Other manuals can be accessed from the links in the manual.
- Hardware specifications of each part can be found from the product figures.
- Pages that users often browse can be bookmarked.
- Sample programs can be copied to an engineering tool.

TERMS

Unless otherwise specified, this manual uses the following terms.

Term	Description
3E frame	One of the message formats for MC protocol. 'ST type (Single-Transmission)' is the name used by the CC-Link Partner Association for this term.
4E frame	One of the message formats for MC protocol. 'MT type (Multi-Transmission)' is the name used by CC-Link Partner Association for this term.
Data model management	A function that abstracts devices, equipment, and lines in the production site and hierarchically manages them
Device	A device (X, Y, W, or others) in SLMP-compatible devices or CPU modules on another station
Device code	A device type. 'Memory type' is the name used by CC-Link Partner Association for this term.
Device number	An index number for a device. 'Memory number' is the name used by CC-Link Partner Association for this term.
Edge computing	An information processing method and area, for not only collecting and analyzing data in production sites in real-time, and feed backing the data, but summarizing the production site data and sharing information with IT systems efficiently with the hardware and software in production sites
Edgecross	A software platform that implements specifications and concepts for realizing manufacturing solutions by the FA-IT collaboration centering on the edge computing
Edgecross Basic Software	The name of the software product that implements the Edgecross function
Host station	A station that is directly connected to the industrial PC where SLMP Data Collector is running
Industrial PC	A PC specialized for industrial use with features such as high reliability, environmental resistance, and long-term supply
Location	Device memory that can be accessed by SLMP Data Collector
Location parameter	A parameter for setting the device memory that can be accessed by SLMP Data Collector
Management Shell	The name of the Windows version product that implements the data model management function
Management Shell Explorer	Software that sets and references data models managed by Management Shell
MELSEC connection	A connection to a MELSEC device
MELSEC device	A generic term for the following: • MELSEC iQ-R series • MELSEC iQ-F series • MELSEC-Q series • MELSEC-L series
Other station	A station on the network to which the host station is connected
Real-time data processing	A function that realizes the real-time diagnosis and feedback of the production site data
Real-time Flow Designer	The name of the software component that performs operation setting of Real-time Flow Manager
Real-time Flow Manager	The name of the Windows version software component that implements the real-time data processing
Request destination module I/O No.	A multiple CPU number. 'Request destination station processor number' is the name used by CC-Link Partner Association for this term.
SLMP	An abbreviation for Seamless Message Protocol. This protocol is used to access from an external device to an SLMP-compatible device or a programmable controller connected to an SLMP-compatible device.
SLMP connection	A connection to an SLMP-compatible device, that is equipped with the sever function, other than a MELSEC device

1 SLMP Data Collector

SLMP Data Collector is a software component that performs the data collection, data reading, and data writing functions to a MELSEC device or an SLMP-compatible device other than MELSEC devices connected via Ethernet.
Data in a MELSEC device or an SLMP-compatible device other than MELSEC devices can be collected and updated by using SLMP Data Collector in combination with Edgecross Basic Software.
For details on Edgecross Basic Software, refer to the following:
📖Edgecross Basic Software for Windows User's Manual

MEMO

2 SPECIFICATIONS

This chapter shows the specifications of SLMP Data Collector.

2.1 SLMP connection

This section shows the specifications for an SLMP connection.

Functional Specifications

The following table shows the functional specifications for an SLMP connection.

Item		Specification
Function		• Data collection function • Data reading function/Data writing function
Data collection function	Maximum number of process flow settings	—*1
	Maximum number of data sets for one process flow	256
	Maximum collectible size for one process flow	8192 (word)
	Collection interval	• 100 to 900 (ms) • 1 to 3600 (s)
	Input data type*2	• BOOL (Bit value) • INT (Signed 16-bit integer value) • UINT (Unsigned 16-bit integer value) • DINT (Signed 32-bit integer value) • UDINT (Unsigned 32-bit integer value) • LINT (Signed 64-bit integer value) • ULINT (Unsigned 64-bit integer value) • REAL (32-bit real number value) • LREAL (64-bit real number value) • STRING (Character string: UTF-8 (1 to 32 characters)) • WSTRING (Wide-character string: Unicode (UTF-16LE) (1 to 16 characters))
Data reading function/Data writing function	Maximum number of settings	—*1
	Input and output data type*2	• BOOL (Bit value) • INT (Signed 16-bit integer value) • UINT (Unsigned 16-bit integer value) • DINT (Signed 32-bit integer value) • UDINT (Unsigned 32-bit integer value) • LINT (Signed 64-bit integer value) • ULINT (Unsigned 64-bit integer value) • REAL (32-bit real number value) • LREAL (64-bit real number value) • STRING (Character string: UTF-8 (1 to 32 characters)) • WSTRING (Wide-character string: Unicode (UTF-16LE) (1 to 16 characters))

*1 For the maximum number, refer to the following:
Edgecross Basic Software for Windows User's Manual

*2 For details on data types, refer to the following:
Edgecross Basic Software for Windows User's Manual

Operational Specifications

The following shows the operational specifications for an SLMP connection.

Operating status

The status of SLMP Data Collector varies for each access target and is determined according to the communication status with the targets.

The communication status with access targets can be checked in Edgecross Basic Software.

Status of SLMP Data Collector	Description	Communication status with an access target
Data is being read from or written to an access target.	Data Collector and the access target are connected normally. (It will be in this state when the connection processing succeeds.)	Connected
Data is not being read from or written to an access target. (Reconnection is in progress.)	Data Collector and the access target are disconnected. (It will be in this state when the connection processing fails.)	Disconnected

Behavior when an error occurs

When SLMP Data Collector detects an error, the following operations are performed according to the error type.

Error type	Status of SLMP Data Collector	Behavior of SLMP Data Collector
Data collector operation stop error	• Operations according to the specifications cannot be guaranteed due to a hard disk error in an industrial PC of the installation destination or a failure of resource securing. • An error cannot be corrected even by changing the network configuration due to an incorrect parameter setting (device type out of range, for example).	• Discards collected data when this error occurs during data collection. • Stops the data collection, data reading, or data writing function and reports this error to Edgecross Basic Software.
Data collector operation continuation error	• Operations such as a program execution or data communication cannot be continued due to temporary network failure. • An error may be corrected by changing the network configuration even though there is no communication due to a mismatch between the parameter settings and the network configuration.	• Discards collected data when this error occurs during data collection. • Continues the data collection, data reading, or data writing function even after reporting this error to Edgecross Basic Software.

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The error types reported to Edgecross Basic Software are as follows:

- Data collector operation stop error: Moderate error
- Data collector operation continuation error: Minor error

Access methods and available commands

The following shows the access methods and available commands.

Access methods

The following shows the access methods.

○: Available ×: Not available

Item	Specification	Availability
Communication method	TCP	○
	UDP	×
Communication frame	4E frame	○
	3E frame	○
Data code	Binary	○
	ASCII	○

Point

Since the access methods above may not be available depending on devices, check the available access methods in the manuals of the devices.

Available commands

The following shows the available commands.

For details on the request message format for each command, refer to the following:

☞ Page 13 Request message format

"Command" in the communication parameters	Corresponding request message	
	Command	Subcommand*1
Random read/write (16-bit)	0403H: Read Random	0000H (word units)
	1402H: Write Random	0000H (word units)
		0001H (bit units)
Random read/write (32-bit)	0403H: Read Random	0002H (word units)
	1402H: Write Random	0002H (word units)
		0003H (bit units)

*1 An extension specification is not supported.

For details on each command, refer to the following:

SLMP Reference Manual

Point

The above commands and subcommands of the request messages may not be supported depending a device. Check the manual for the device before setting communication parameters, and set a command and subcommand supported by the device.

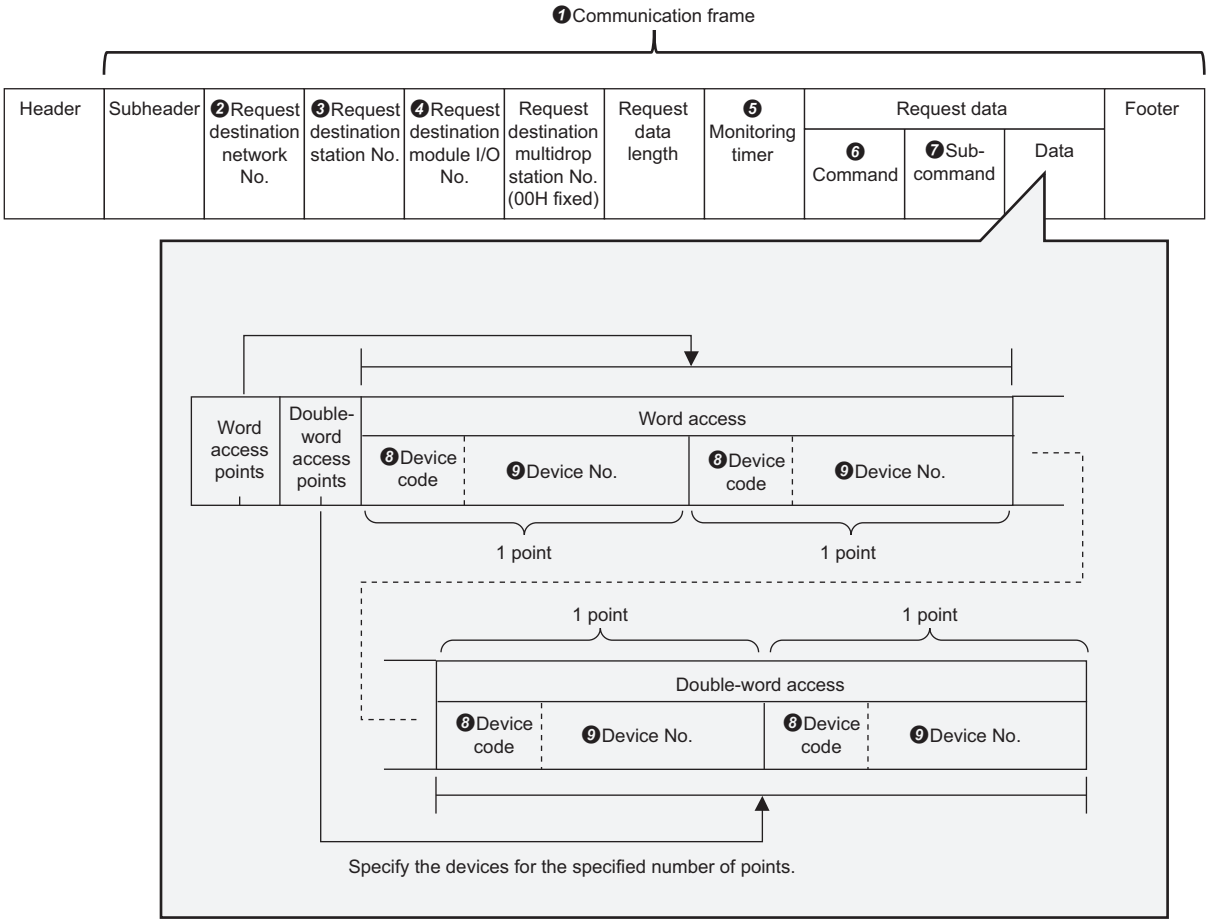
■Request message format

The following shows the request message format for each command.

For details on the formats, refer to the following:

📖SLMP Reference Manual

Read Random

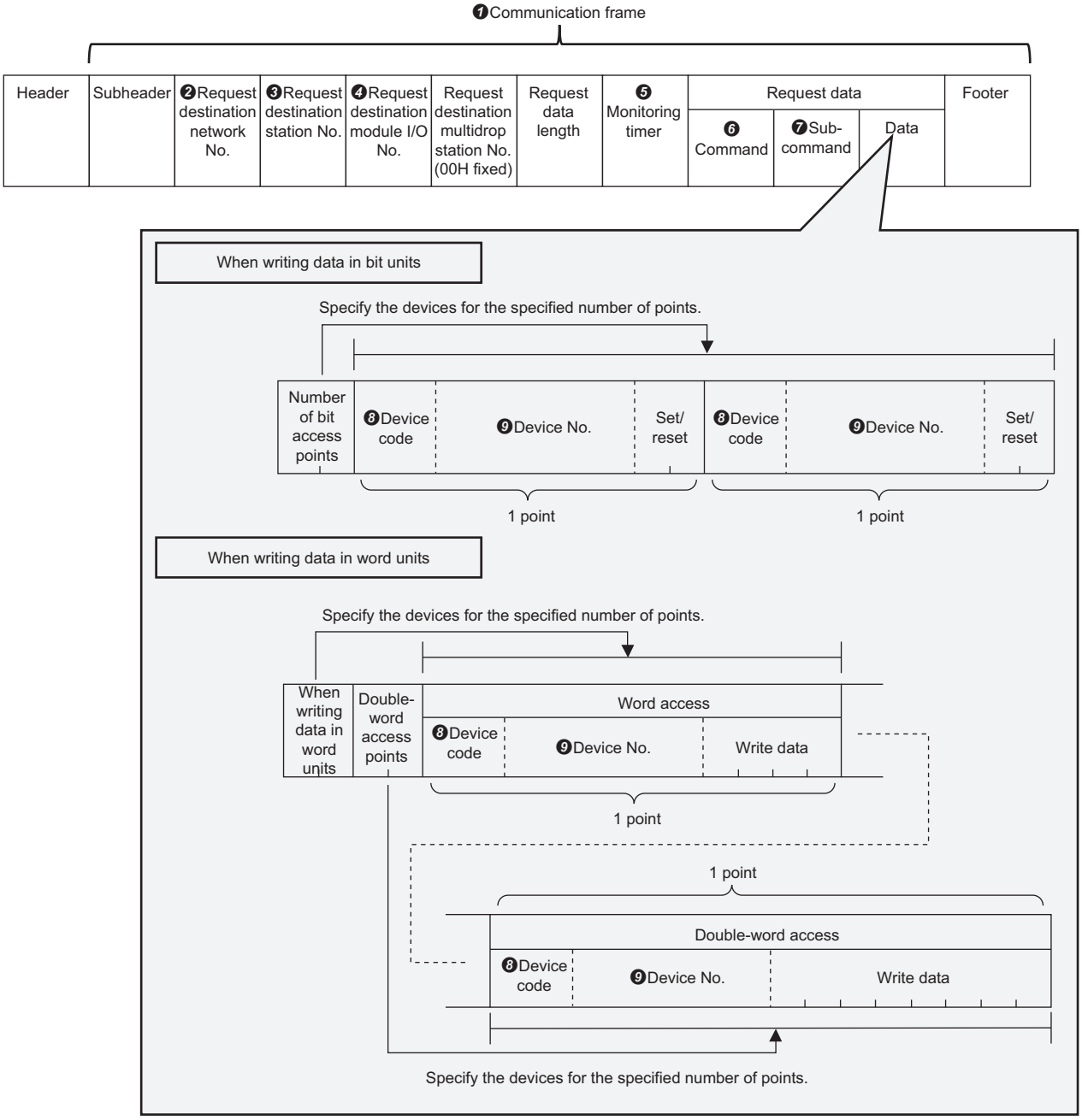


• Changing settings for the items in a request message

By changing settings for the following items in the communication parameters and the location parameters, corresponding settings for the items in a request message can be changed.

Parameter	Item		Corresponding item in a request message
Communication parameters (☞ Page 38 Communication parameters)	Communication frame	4E (Binary)	❶Communication frame
		3E (Binary)	
		4E (ASCII)	
		3E (ASCII)	
	Request destination network No.		❷Request destination network No.
	Request destination station No.		❸Request destination station No.
	Request destination module I/O No.		❹Request destination module I/O No.
	Time-out Time		❺Monitoring timer
	Command	Random read/write (16-bit)	❻Command ❼Subcommand (0000 to 0003)
		Random read/write (32-bit)	
Location parameters (☞ Page 45 Location parameters)	Device code		❽Device code
	Device number		❾Device No.

Write Random



• Changing settings for the items in a request message

Refer to the following:

☞ Changing settings for the items in a request message

Accessible devices (equipment), devices (locations), and device numbers

The following shows the accessible devices (equipment), devices (locations), and device numbers.

Accessible devices (equipment)

SLMP Data Collector can connect to SLMP-compatible devices that have the server function.

However, only the devices that satisfy both of the following conditions can be accessed.

● Devices supporting access methods and available commands shown in the following sections.

☞ Page 12 Access methods

☞ Page 12 Available commands

● Devices other than MELSEC iQ-R, MELSEC-Q, or MELSEC-L series*1

*1 To MELSEC iQ-R, MELSEC-Q, and MELSEC-L series devices, access by a MELSEC connection.

Precautions

Only the connected station (host station) can be accessed.

Accessible devices (locations)

For accessible devices (locations), check the manual for each device to be accessed.

For the device type and device code in the location parameter, check the specifications of a device to be accessed before setting.

When the location parameter settings are not compliant with the specifications of a device to be accessed, the device cannot be accessed normally.

If the combination of a device type and device code does not match among multiple location parameters used for a same access target device, a location parameter setting error (error code: 1A14H) occurs due to incorrect settings.

To set multiple devices with a same device code as access targets, match the case in the device code.

Accessible device number

For accessible device number, check the manual for each device to be accessed.

2.2 MELSEC connection

This section shows the specifications for a MELSEC connection.

Functional Specifications

The following table shows the functional specifications for a MELSEC connection.

Item			Specification
Access target device	Connectable path	Personal computer side I/F	Ethernet board (UDP used)
		Programmable controller side I/F	• CPU module (No another station specified) • Ethernet module (another module (single network))
Function			• Data collection function • Data reading function/Data writing function
Data collection function	Maximum number of process flow settings		—*1
	Maximum number of data sets for one process flow		256
	Maximum collectible size for one process flow		8192 (word)
	Collection interval		• 100 to 900 (ms) • 1 to 3600 (s)
	Input data type*2		• BOOL (Bit value) • INT (Signed 16-bit integer value) • UINT (Unsigned 16-bit integer value) • DINT (Signed 32-bit integer value) • UDINT (Unsigned 32-bit integer value) • LINT (Signed 64-bit integer value) • ULINT (Unsigned 64-bit integer value) • REAL (32-bit real number value) • LREAL (64-bit real number value) • STRING (Character string: UTF-8 (1 to 32 characters)) • WSTRING (Wide-character string: Unicode (UTF-16LE) (1 to 16 characters))
Data reading function/Data writing function	Maximum number of settings		—*1
	Input and output data type*2		• BOOL (Bit value) • INT (Signed 16-bit integer value) • UINT (Unsigned 16-bit integer value) • DINT (Signed 32-bit integer value) • UDINT (Unsigned 32-bit integer value) • LINT (Signed 64-bit integer value) • ULINT (Unsigned 64-bit integer value) • REAL (32-bit real number value) • LREAL (64-bit real number value) • STRING (Character string: UTF-8 (1 to 32 characters)) • WSTRING (Wide-character string: Unicode (UTF-16LE) (1 to 16 characters))

*1 For the maximum number, refer to the following:
Edgecross Basic Software for Windows User's Manual

*2 For details on data types, refer to the following:
Edgecross Basic Software for Windows User's Manual

Operational Specifications

For the operational specifications for a MELSEC connection, refer to the following:

☞ Page 11 Operational Specifications

Accessible CPU modules and devices (locations)

The following shows the accessible CPU modules and devices (locations).

Accessible CPU modules

Series		Model name
RCPU	Programmable controller CPU	R00CPU, R01CPU, R02CPU, R04CPU, R04ENCPU, R08CPU, R08ENCPU, R16CPU, R16ENCPU, R32CPU, R32ENCPU, R120CPU, R120ENCPU
	Process CPU	R08PCPU, R16PCPU, R32PCPU, R120PCPU
	Safety CPU	R08SFCPU, R16SFCPU, R32SFCPU, R120SFCPU
	C Controller module	R12CCPU-V
FXCPU	Programmable controller CPU	FX5UCPU, FX5UCCPU
QCPU (Q mode)	Programmable controller CPU	Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q03UDECPU, Q03UDVCPU, Q04UDHCPU, Q04UDEHCPU, Q04UDVCPU, Q06UDHCPU, Q06UDEHCPU, Q06UDVCPU, Q10UDHCPU, Q10UDEHCPU, Q13UDHCPU, Q13UDEHCPU, Q13UDVCPU, Q20UDHCPU, Q20UDEHCPU, Q26UDHCPU, Q26UDEHCPU, Q26UDVCPU, Q50UDEHCPU, Q100UDEHCPU
	Process CPU	Q02PHCPU, Q04UDPVCPU, Q06PHCPU, Q06UDPVCPU, Q12PHCPU, Q13UDPVCPU, Q25PHCPU, Q26UDPVCPU
	C Controller module*1	Q12DCCPU-V*2, Q24DHCCPU-V, Q24DHCCPU-LS, Q24DHCCPU-VG, Q26DHCCPU-LS
LCPU	Programmable controller CPU	L02SCPU, L02CPU, L06CPU, L26CPU, L26CPU-BT

*1 It is not accessible in the direct connection via an Ethernet port.

*2 In the basic mode, it is accessible for only ones with a serial number of which the first five digits is '12042' or higher.

Precautions

- Devices in a single network can only be accessed. (Devices cannot be accessed via co-existence network.)
- It may be possible to connect to a device not included in the accessible CPU module list, however, it is not guaranteed.
- Access target devices to which remote passwords are set cannot be accessed.

Accessible devices (locations)

The following table shows the accessible devices (locations).

○: Accessible, ×: Not accessible, —: No device

Device name (device)[*1]		Type	Access target type (series)						Base
			RCPU[*2]		FXCPU	QCPU (Q mode)[*2]		LCPU	
			Programmable controller CPU, process CPU, safety CPU	C Controller module	Programmable controller CPU	Programmable controller CPU, process CPU	C Controller module	Programmable controller CPU	
Special relay (SM)		Bit	○	○	○	○	○[*3]	○	10
Special register (SD)		Word	○	○	○	○	○[*3]	○	10
Input relay (X)		Bit	○	○	○	○	○[*3]	○	16[*4]
Output relay (Y)		Bit	○	○	○	○	○[*3]	○	16[*4]
Internal relay (M)		Bit	○	○	○	○	○[*3]	○	10
Latch relay (L)		Bit	○	—	○	○	—	○	10
Annunciator (F)		Bit	○	—	○	○	—	○	10
Edge relay (V)		Bit	○	—	—	○	—	○	10
Link relay (B)		Bit	○	○	○	○	○[*5]	○	16
Data register (D)		Word	○	○	○	○	○[*3]	○	10
Link register (W)		Word	○	○	○	○	○[*5]	○	16
Timer	Contact (TS)	Bit	○	—	○	○	—	○	10
	Coil (TC)	Bit	○	—	○	○	—	○	10
	Current value (TN)	Word	○	—	○	○	—	○	10
Retentive timer	Contact (STS)	Bit	○	—	○	○	—	○	10
	Coil (STC)	Bit	○	—	○	○	—	○	10
	Current value (STN)	Word	○	—	○	○	—	○	10
Counter	Contact (CS)	Bit	○	—	○	○	—	○	10
	Coil (CC)	Bit	○	—	○	○	—	○	10
	Current value (CN)	Word	○	—	○	○	—	○	10
Link special relay (SB)		Bit	○	—	○	○	—	○	16
Link special register (SW)		Word	○	—	○	○	—	○	16
Index register	(Z)	Word	○	—	○	○	—	○	10
	(V)	—	—	—	—	—	—	—	10
Long index register (LZ)		Double word	○	—	×	—	—	—	10
File register	(R)	Word	○	—	○	○[*6]	—	○	10
	(ZR)	Word	○	○	—	○[*6]	—	○	10
Extension file register	(ERn\R)	—	—	—	—	—	—	—	10
Link direct device	Link input (Jn\X)	Bit	○	○	—	○	○	○	16
	Link output (Jn\Y)	Bit	○	○	—	○	○	○	16
	Link relay (Jn\B)	Bit	○	○	—	○	○	—	16
	Link special relay (Jn\SB)	Bit	○	○	—	○	○	○	16
	Link register (Jn\W)	Word	○	○	—	○	○	○	16
	Link special register (Jn\SW)	Word	○	○	—	○	○	○	16

Device name (device)[*1]		Type	Access target type (series)						Base
			RCPU[*2]		FXCPU	QCPU (Q mode)[*2]		LCPU	
			Programmable controller CPU, process CPU, safety CPU	C Controller module	Programmable controller CPU	Programmable controller CPU, process CPU	C Controller module	Programmable controller CPU	
Module access device	Module access device/ intelligent function module device (Un\G)	Word	○	○	○	○[*7]	○	○	10
	Multiple CPU shared device (U3En\G)	Word	○	○	—	○	○	—	10
CPU buffer memory access device	CPU buffer memory access device (U3En\G)	Word	○	○	—	○	○	—	10
	CPU buffer memory access device (fixed cycle communication area) (U3En\HG)	Word	○[*8]	○	—	—	—	—	10
Step relay (S)		Bit	×	—	○	×	—	×	10
Long timer	Contact (LTS)	Bit	○	—	—	—	—	—	10
	Coil (LTC)	Bit	○	—	—	—	—	—	10
	Current value (LTN)	Double word	○	—	—	—	—	—	10
Long retentive timer	Contact (LSTS)	Bit	○	—	—	—	—	—	10
	Coil (LSTC)	Bit	○	—	—	—	—	—	10
	Current value (LSTN)	Double word	○	—	—	—	—	—	10
Long counter	Contact (LCS)	Bit	○	—	○	—	—	—	10
	Coil (LCC)	Bit	○	—	○	—	—	—	10
	Current value (LCN)	Double word	○	—	○	—	—	—	10
Function input (FX)		Bit	×	—	—	×	—	×	16
Function output (FY)		Bit	×	—	—	×	—	×	16
Function register (FD)		Word	×	—	—	×	—	×	10
Direct input (DX)		Bit	×	—	—	×	—	×	16
Direct output (DY)		Bit	×	—	—	×	—	×	16
Refresh data register (RD)		Word	○	—	—	—	—	—	10
Safety input (SA\X)		Bit	×	—	—	—	—	—	16
Safety output (SA\Y)		Bit	×	—	—	—	—	—	16
Safety internal relay (SA\M)		Bit	×	—	—	—	—	—	10
Safety link relay (SA\B)		Bit	×	—	—	—	—	—	16
Safety timer	Contact (SA\TS)	Bit	×	—	—	—	—	—	10
	Coil (SA\TC)	Bit	×	—	—	—	—	—	10
	Current value (SA\TN)	Word	×	—	—	—	—	—	10
Safety retentive timer	Contact (SA\STS)	Bit	×	—	—	—	—	—	10
	Coil (SA\STC)	Bit	×	—	—	—	—	—	10
	Current value (SA\STN)	Word	×	—	—	—	—	—	10

Device name (device)*1		Type	Access target type (series)						Base
			RCPU*2		FXCPU	QCPU (Q mode)*2		LCPU	
			Programmable controller CPU, process CPU, safety CPU	C Controller module	Programmable controller CPU	Programmable controller CPU, process CPU	C Controller module	Programmable controller CPU	
Safety counter	Contact (SA\CS)	Bit	×	—	—	—	—	—	10
	Coil (SA\CC)	Bit	×	—	—	—	—	—	10
	Current value (SA\CN)	Word	×	—	—	—	—	—	10
Safety data register (SA\D)		Word	×	—	—	—	—	—	10
Safety link register (SA\W)		Word	×	—	—	—	—	—	16
Safety special relay (SA\SM)		Bit	×	—	—	—	—	—	10
Safety special register (SA\SD)		Word	×	—	—	—	—	—	10

*1 Even if specifying the program name, local devices and file registers that are set for each program cannot be accessed. Do not use local devices and file registers that are set for each program because they may not be read or written correctly.

*2 When the access target device is a C Controller module and if "Device Type" of the communication parameters is set as shown below, the devices that are not supported by the C Controller module ("×" and "—" in the table above) can be set as the access target; however, they cannot be accessed.
RCPU: MELSEC iQ-R (Programmable controller CPU/Process CPU/Safety CPU)
QCPU (Q mode): MELSEC-Q (Programmable controller CPU/Process CPU)

*3 For Q12DCCPU-V (basic mode), select "Use device function" in a tool for a C Controller module.

*4 It will be the octal notation when a connected device is an FXCPU.

*5 For Q12DCCPU-V, this device can be accessed from Q12DCCPU-V (extended mode).

*6 This device cannot be accessed from Q00UJCPU.

*7 In a multiple CPU configuration, this device cannot be read from the shared memory in the host CPU. In addition, this device cannot be written to the shared memory regardless of the host CPU and other CPUs.

*8 The device are not included in RnENCPUs and RnSFCPUs.

3 PROCEDURE BEFORE OPERATION

This chapter shows the procedure from start-up to operation of SLMP Data Collector.

Operating procedure

1. Install SLMP Data Collector in an industrial PC in which Edgecross Basic Software is installed.

For the installation procedure and the operating environment of SLMP Data Collector, refer to the following:

📖SLMP Data Collector Installation Instructions

Point

To use SLMP Data Collector version 1.02C or later, Edgecross Basic Software version 1.10 or later is required.

2. Configure the settings and wirings for a MELSEC device or an SLMP-compatible device other than MELSEC devices and connect the device to the industrial PC.

For the setting, wiring, and connection methods, refer to the manuals of the SLMP-compatible or MELSEC device and the industrial PC to be used.

For a setting example for an access target device, refer to the following:

☞ Page 22 Setting Example for an Access Target Device

3. Start the operation of SLMP Data Collector.

☞ Page 24 Procedures for Using SLMP Data Collector

Precautions

When running a data collector on an industrial PC where an antivirus software is installed, an exceeded collection cycle or data missing may occur due to an operation of the antivirus software. Exclude the following folders from the monitoring targets in the antivirus software settings. For the setting methods, refer to the manual for each antivirus software.

- Data Collector installation destination folder
- Following files and folders of Windows

Pagefile.sys
*.pst
%systemroot%\System32\Spool
%systemroot%\SoftwareDistribution\Datastore
%windir%\Security\Database
%allusersprofile%\NTUser.pol
%systemroot%\system32\GroupPolicy\Machine\registry.pol
%systemroot%\system32\GroupPolicy\User\registry.pol

3.1 Setting Example for an Access Target Device

Procedure for setting an SLMP-compatible device

The following shows the setting procedure for using a GOT2000 as an SLMP-compatible device.

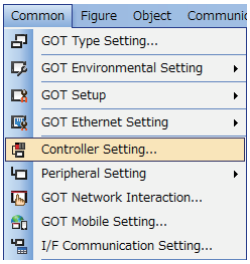
For details, refer to the following:

GT Designer3 (GOT2000) Screen Design Manual

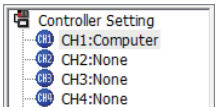
GOT2000 Series Connection Manual (Microcomputers, MODBUS/Fieldbus Products, Peripherals) For GT Works3 Version1

Operating procedure

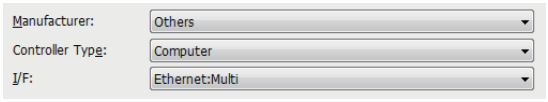
1. Open a project for a GOT2000 in GT Designer3.
2. Select [Common] ⇨ [Controller Setting].



3. Select a channel to be used.



4. Set a connection destination.

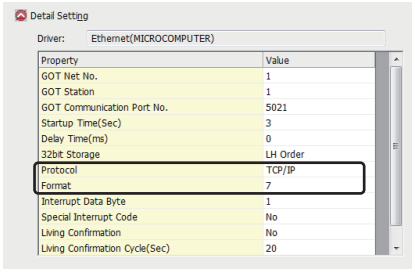


5. Set each item in "Detail Setting".

Set "TCP/IP" for "Protocol".

For "Format", set a value as follows according to the communication frame and data code to be used.

- When the communication frame is '4E' and the data code is 'ASCII': 6
- When the communication frame is '4E' and the data code is 'Binary': 7
- When the communication frame is '3E' and the data code is 'ASCII': 8
- When the communication frame is '3E' and the data code is 'Binary': 9



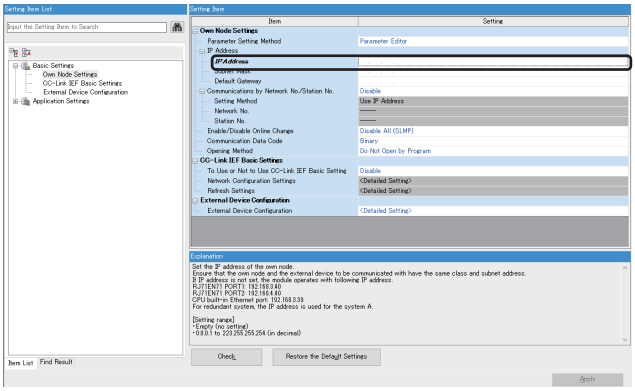
6. Click the [OK] button.
7. Write the set parameters to the GOT2000.
8. Restart the GOT2000.

Procedure for setting a MELSEC device

The following shows the setting procedure for using an R04CPU as a MELSEC device.

Operating procedure

1. Open a project for an R04CPU in GX Works3.
2. Select [View] ⇨ [Docking Window] ⇨ [Navigation].
3. Double-click "Parameter" ⇨ "R04CPU" ⇨ "Module Parameter" in the "Navigation" window.
4. Select "Basic Settings" ⇨ "Own Node Settings" ⇨ "IP Address" ⇨ "IP Address", and set an IP address.



5. Click the [Apply] button.
6. Write the set parameters to the R04CPU, and restart it.

3.2 Procedures for Using SLMP Data Collector

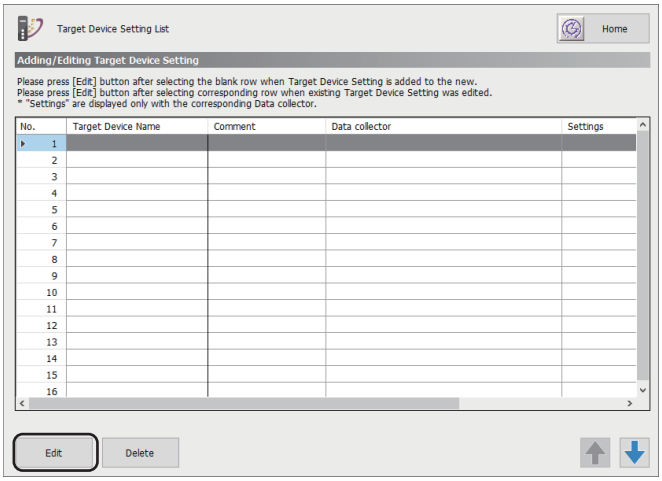
This section shows the procedures for using SLMP Data Collector in Real-time Flow Manager and Management Shell.
For details, refer to the following:
Edgecross Basic Software for Windows User's Manual

Real-time Flow Manager

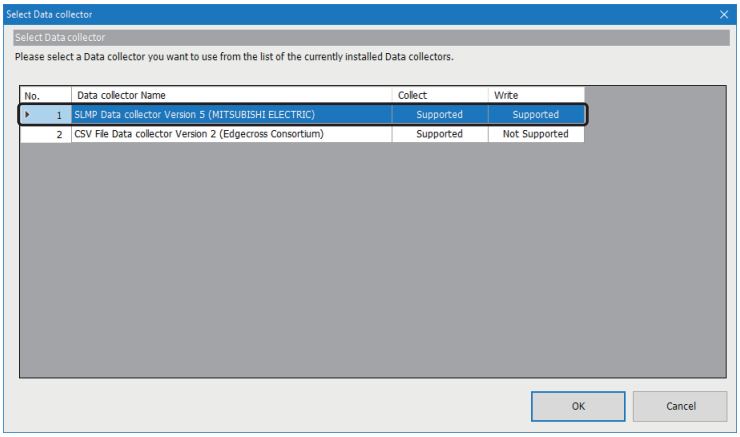
The following shows the procedure for using SLMP Data Collector in Real-time Flow Manager.

Operating procedure

1. Start Real-time Flow Designer.
2. Select "Target Device Setting" in the edit item tree.
3. Select a blank row in the access target device setting list, and click the [Edit] button.



4. Select SLMP Data Collector in the "Select Data collector" screen, and click the [OK] button.



5. Set communication parameters.

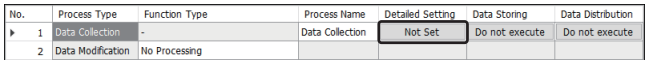
- SLMP connection (☞ Page 38 Communication parameters)
- MELSEC connection (☞ Page 52 Communication parameters)

Point

To communicate with multiple access target devices, configure the target device settings for all the devices.

6. Click the [OK] button.
7. Click "Data Logging Flow Setting" in the edit item tree.
8. Click the [Edit] button.

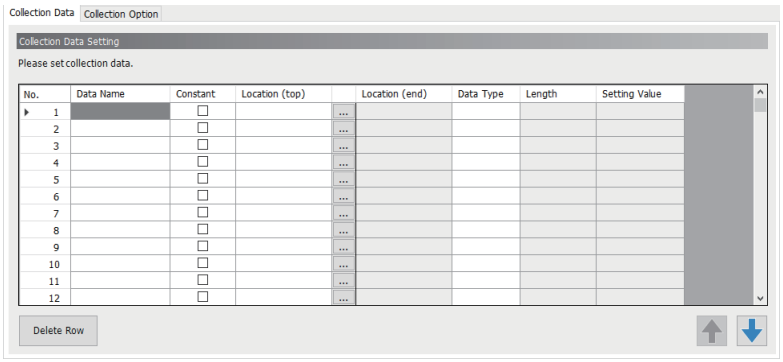
9. Click the button in the "Detailed Setting" column.



10. Select "Target Device" in the "Data Collection Setting" screen.

Select the access target device set in step 3 to 6.

11. Set location parameters in the [Collection Data] tab.



- For an SLMP connection, refer to the following:

☞ Page 45 Location parameters

- For a MELSEC connection, directly enter accessible devices (locations) listed in the following section directly.

☞ Page 18 Accessible devices (locations)

12. Set collection parameters in the [Collection Option] tab.

- For an SLMP connection, refer to the following:

☞ Page 44 Collection parameters

- For a MELSEC connection, refer to the following:

☞ Page 53 Collection parameters

13. Click the [OK] button in the "Data Collection Setting" screen.

14. Click the [OK] button in the "Data Logging Flow Setting" screen.

A data logging flow setting is created.

Point

To execute multiple process flows, configure the process flow settings for all the flows.

15. Change the operating status of Real-time Flow Manager to RUN, and execute the created process flow.

For changing the operating status of Real-time Flow Manager, refer to the following:

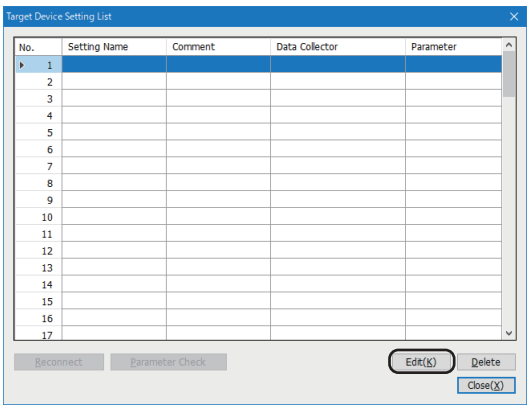
📖Edgecross Basic Software for Windows User's Manual

Management Shell

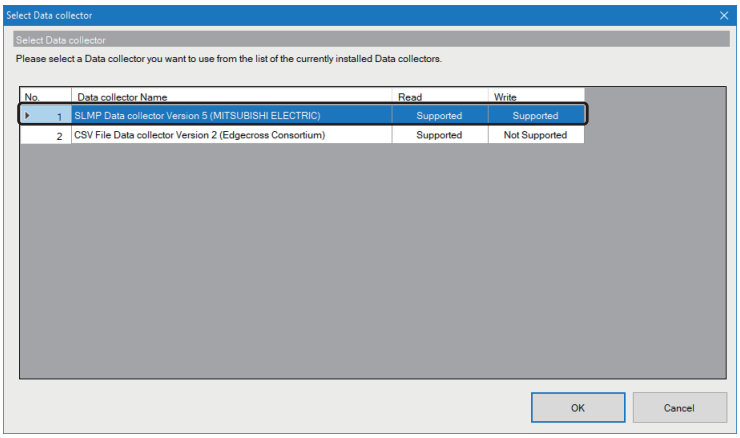
The following shows the procedure for using SLMP Data Collector in Management Shell.
In this procedure, the data tag resource monitor window of Management Shell Explorer is used.

Operating procedure

1. Start Management Shell Explorer.
2. Select [Setting] ⇨ [Target Device Setting].
3. Select a blank row in the access target device setting list, and click the [Edit] button.



4. Select SLMP Data Collector in the "Select Data collector" screen, and click the [OK] button.



5. Set communication parameters.
- SLMP connection (☞ Page 38 Communication parameters)
- MELSEC connection (☞ Page 52 Communication parameters)

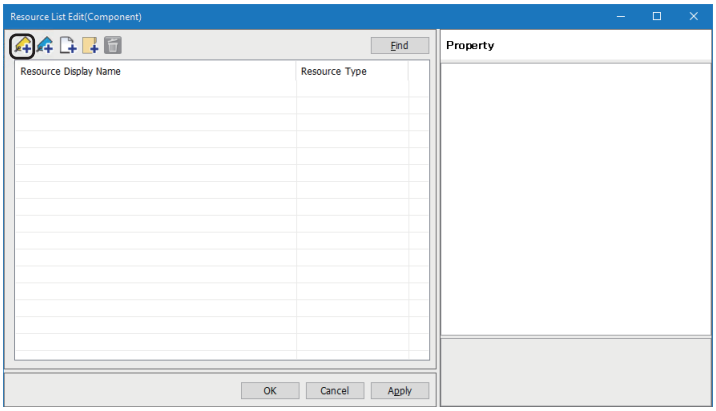
6. Click the [OK] button.

Point

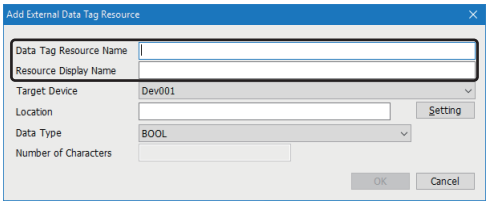
To communicate with multiple access target devices, configure the target device settings for all the devices.

7. Select [Window] ⇨ [Resource List Edit].

8. Select the icon for adding an external data tag resource ( ).

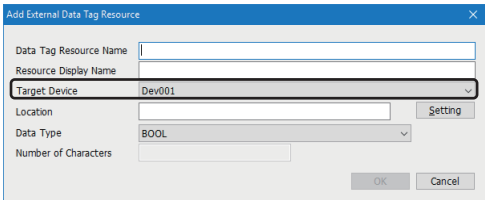


9. Set a name for "Data Tag Resource Name" and "Resource Display Name".

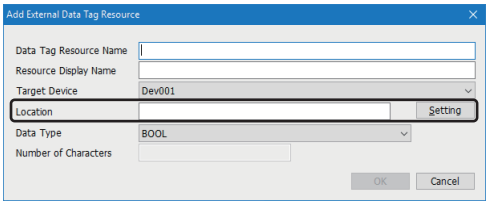


10. Select "Target Device".

Select the access target device set in step 3 to 6.



11. Set location parameters.



- For an SLMP connection, refer to the following:

☞ Page 45 Location parameters

- For a MELSEC connection, directly enter accessible devices (locations) listed in the following section directly.

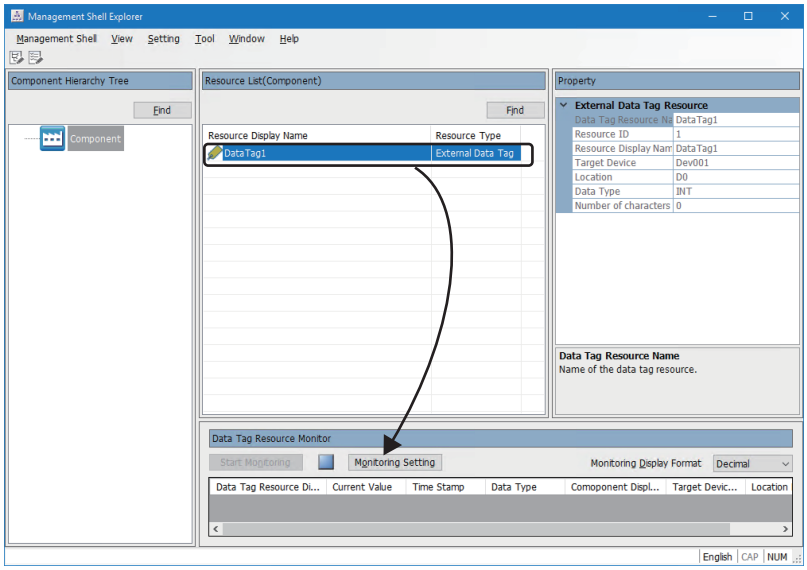
☞ Page 18 Accessible devices (locations)

12. Click the [OK] button.

Point

To monitor multiple external data tag resources, add all the external data tag resources.

13. Drag and drop the external data tag resource onto the Data Tag Resource Monitor window.
The external data tag resource is registered and monitoring starts.



4 FUNCTIONS

This chapter shows the functions of SLMP Data Collector.

4.1 Data Collection Function

This function sends a data reading request to a MELSEC device or an SLMP-compatible device other than MELSEC devices in the interval of the set collection cycle and collects data when receiving a response from the device.
Data collection starts at the time when the set time has elapsed since the operating status of Edgecross Basic Software was turned to RUN. After that, data is read periodically at specific intervals.
This function works at specific intervals without the effects of the time change of an industrial PC in which SLMP Data Collector runs.

Collection processing time report

When an enabled data collection setting is included in Edgecross Basic Software and the operating status of the software switches from RUN to STOP, the maximum and minimum collection processing times in the RUN state are reported to the software.
The collection processing time is reported as follows:

- Unit: 100 ms
- Range: 0 to 4294967200

Point

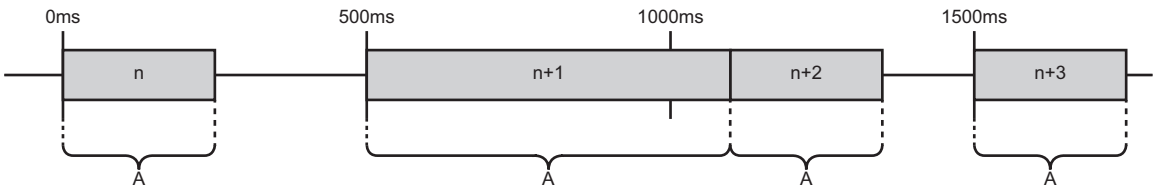
- Among times for each data collection executed from when the operation status of Edgecross Basic Software is turned to RUN until when it is switched to STOP, the longest time is referred to as the maximum collection processing time and the shortest time is referred to as the minimum collection processing time.
- The collection processing time is rounded down to 100 milliseconds.
- The collection processing time less than 100 milliseconds is regarded as 100 milliseconds.
- When no data is collected while Edgecross Basic Software is in the RUN state, the maximum and minimum collection processing times are reported as '0'.

■Collection processing time

Collection processing time is the time from the start to completion of data collection performed at every collection cycle.

Ex.

When the collection cycle is set to 500 milliseconds, if the time from the start to completion of the (n)th data collection is within the collection cycle, the time taken to collect data will be the collection processing time. Even If time from the start to completion exceeds the collection cycle as the (n+1)th collection, the time from the start to completion will be the collection processing time. When the completion exceeds the collection cycle, the (n+2)th collection will be started after the completion of the (n+1)th collection, and measurement of the collection processing time for the (n+2)th collection is started corresponding to its start.



: Data collection processing
A: Measurement range

Precautions

■Collection time

Time added to collected data (time stamp) is the time when SLMP Data Collector sends a data reading request to a MELSEC device or an SLMP-compatible device other than MELSEC devices.

■Collection processing time when a response timeout error occurs

For a MELSEC connection, if there is a problem on the access path, a response timeout error may occur when communicating with an access target device.

When a response timeout error occurs, the collection processing time will be extended according to the timeout time and the number of retries.

Collection processing time when a response timeout error occurs is calculated as follows:

- Collection processing time = timeout time (second) × (number of retries + 2) × (number of settings[*2] for a same access target device[*1])

*1 Even if a same IP address is set in multiple target device settings, those devices are regarded as the same device.

*2 It is the total number of settings for the data collection, data reading, and data writing functions

■Exceeded collection cycle

If data collection is not started even after the allowable collection processing delay time (the set collection cycle × 2) elapsed, an exceeded collection cycle is detected and data whose collection could not be started will be missing.

When an exceeded collection cycle occurs, the maximum collection processing time is not affected by the collection cycle.

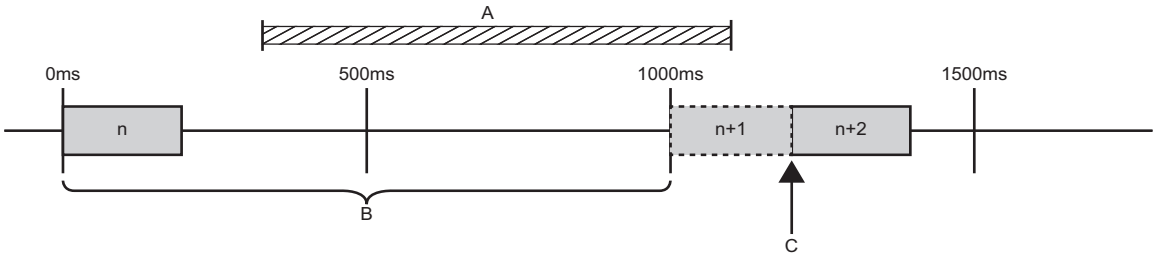
To avoid data missing, lengthen the collection cycle or review the communication path so that data can be collected from a MELSEC device or an SLMP-compatible device other than MELSEC devices within the collection cycle.

The following shows examples in which an exceeded collection cycle occurs when data collection cannot be started within the allowable collection processing delay time due to a delayed start of the collection or a delayed completion of the previous collection.

Ex.

A start of data collection is delayed:

When the collection cycle is set to 500 milliseconds, if the (n+1)th data collection cannot be started even after the allowable collection processing delay time (1000 milliseconds) elapsed due to some reasons such as system load, an exceeded collection cycle is detected and data of the (n+1)th collection will be missing.



: Data collection processing

A: Period in which the system is overloaded

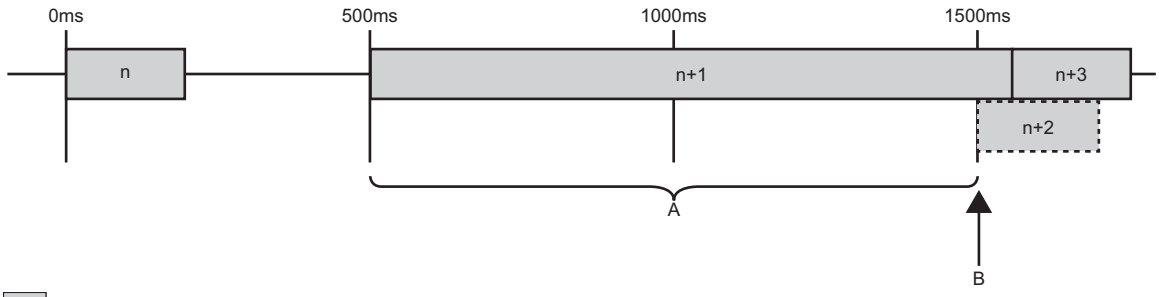
B: Allowable collection processing delay time

C: Detection of an exceeded collection cycle

Ex.

A completion of the previous collection is delayed:

When the collection cycle is set to 500 milliseconds, if the (n+1)th data collection is not completed even after the allowable collection processing delay time (1000 milliseconds) elapsed due to a late response from an access target device, an exceeded collection cycle is detected and data of the (n+2)th collection will be missing.



: Data collection processing

A: Allowable collection processing delay time

B: Detection of an exceeded collection cycle

■Operation when collecting data

The operations when collecting WSTRING type data are as follows:

- For non-surrogate characters, one word is collected from a target device.
- For surrogate characters, two words are collected from a target device.

Ex.

Setting of data to be collected

WSTRING type data [Number of characters = 4] (D0-D7)

Values of D0-D7

D0: 'A'

D1: 'B'

D2-D3: '□'

D4: 'C'

D5: 'D'

D6: 'E'

D7: 'F'

□ indicates a surrogate character.

Collection result

'AB□C'

4.2 Data Reading Function

This function sends a data reading request to a MELSEC device or an SLMP-compatible device other than MELSEC devices according to a request from Edgecross Basic Software and reads data.
If multiple data reading requests are sent to a same access target device, time to pass data to Edgecross Basic Software will be delayed compared with a case in which a single data reading request is sent.

Read processing time report

When reconnecting to an access target device in Edgecross Basic Software, the maximum and minimum read processing times among times measured while the software was running are reported to the software.
The read processing time is reported as follows:

- Unit: Millisecond
- Range: 0 to 4294967295

Point

- Among times for each read processing executed from when Management Shell is started until when it is stopped, the longest time is referred to as the maximum read processing time and the shortest time is referred to as the minimum read processing time.
- Read processing time is the time from when the data collector sends a data reading request to an access target device to when it receives a response from the device.
- When no data is read during the operation, the maximum and minimum read processing times are reported as '0'.

Precautions

■Target device settings in Management Shell

When Management Shell is running, all of the access target devices set in Management Shell Explorer will be connected regardless of the following statuses; a connection error may occur due to an unintentional connection.

- Access status from Management Shell Explorer to an external data tag resource
- Start status of Management Shell Explorer

Delete unnecessary target device settings in Management Shell to avoid the connection error.

■Specifications for reading WSTRING type data

The operations when reading WSTRING type data are as follows:

- For non-surrogate characters, one word is read from a target device.
- For surrogate characters, two words are read from a target device.

Ex.
Setting of data to be read
WSTRING type data [Number of characters = 4] (D0-D7)
Values of D0-D7
D0: 'A'
D1: 'B'
D2-D3: '□'
D4: 'C'
D5: 'D'
D6: 'E'
D7: 'F'
□ indicates a surrogate character.
Reading result
'AB□C'

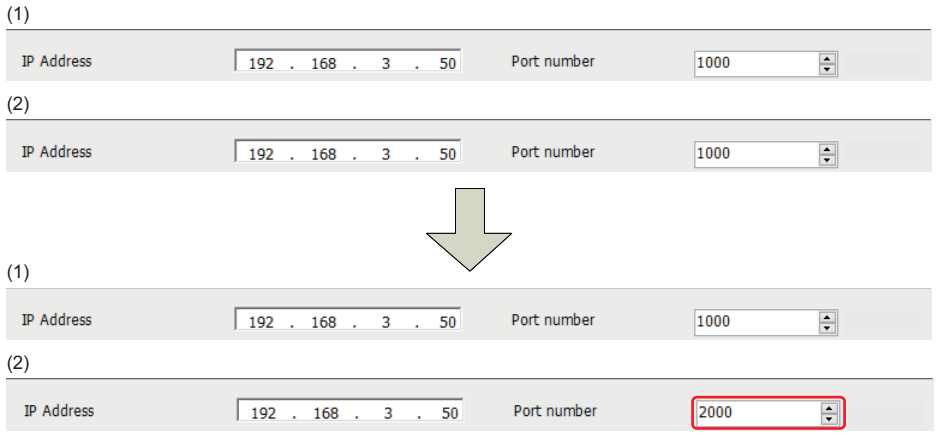
■Processing time for reading data from a same access target device

For an SLMP connection, when a same IP address and port number are specified in multiple target device settings, the processing may be delayed; however, this delay can be avoided by setting different port numbers.

The following figure shows a change example.

Ex.

Change "Port number" of target device setting No.2 to '2000'.



(1) Target device setting No.1
(2) Target device setting No.2

4.3 Data Writing Function

This function sends a data writing request to a MELSEC device or an SLMP-compatible device other than MELSEC devices according to a request from Edgecross Basic Software and writes data.
If multiple data writing requests are sent to a same access target device, time to notify the completion of data writing to Edgecross Basic Software will be delayed compared with a case in which a single data writing request is sent.

Precautions

■Target device settings in Management Shell

Refer to the following:

☞ Page 34 Target device settings in Management Shell

■Specifications for writing WSTRING type data

The operations when writing WSTRING type data are as follows:

- For non-surrogate characters, one word is written to a target device.
- For surrogate characters, two words are written to a target device.

Ex.

Setting of data to be written

WSTRING type data [Number of characters = 4] (D0-D7)

Setting of a value to be written

ABC□

□ indicates a surrogate character.

Writing result

D0: 'A'

D1: 'B'

D2: 'C'

D3-D4: '□'

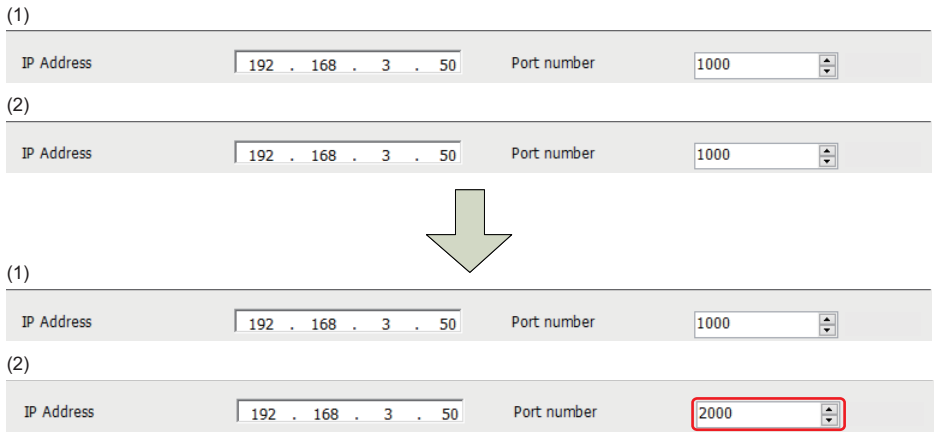
D5-D7: '\0'

■Processing time for writing data to a same access target device

For an SLMP connection, when a same IP address and port number are specified in multiple target device settings, the processing may be delayed; however, this delay can be avoided by setting different port numbers.
The following figure shows a change example.

Ex.

Change "Port number" of target device setting No.2 to '2000'.



(1) Target device setting No.1
(2) Target device setting No.2

4.4 Considerations

This section shows common considerations for the functions of SLMP Data Collector.

Access path failure

Data missing will occur when data is not read due to a problem on an access path, and a data writing error will occur when data is not written.

When data missing occurs, it is reported from SLMP Data Collector to Edgecross Basic Software.

When a data writing error occurs, it is also reported from SLMP Data Collector to Edgecross Basic Software.

SLMP Data Collector checks its connection with a MELSEC device or an SLMP-compatible device other than MELSEC devices every 30 seconds and attempts a re-connection if disconnected.

If re-connection fails, it will be disconnected until the next connection check to be executed in another 30 seconds.

Data inconsistency

When both conditions listed below are satisfied, data inconsistency may occur. To avoid this issue, review the collection settings of Real-time Flow Designer.

- Any of the following type of data is included:
  DINT
  UDINT
  LINT
  ULINT
  REAL
  LREAL
  STRING
  WSTRING
- The total number of assigned device points for data to be read or written is larger than the following number of assigned device points:

SLMP connection

Communication frame	Command	Assigned device point	
		Reading	Writing
'4E (Binary)' or '3E (Binary)'	Random read/write (16-bit)	192	80
	Random read/write (32-bit)	96	68
'4E (ASCII)' or '3E (ASCII)'	Random read/write (16-bit)	192	80
	Random read/write (32-bit)	96	68

MELSEC connection

Device type	Assigned device point	
	Reading	Writing
MELSEC iQ-R MELSEC iQ-F	58	38
MELSEC-Q MELSEC-L	96	80

The number of device points assigned to data to be read or written is determined by the combination of the location and data type. For the number of device points to be assigned, refer to the following:

☞ Page 101 Number of device points to be assigned to data

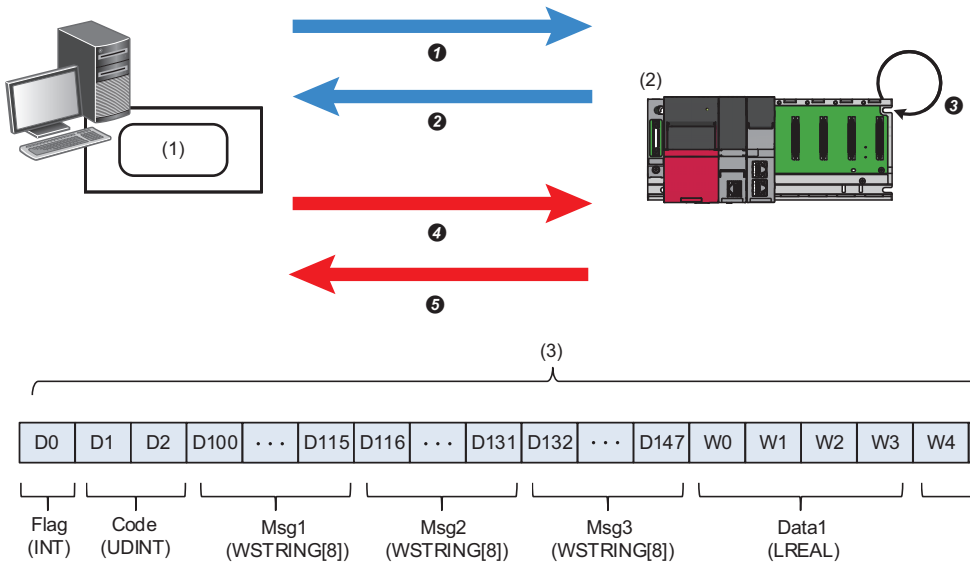
Even when data inconsistency has occurred, data can be read or written; however, the read/written data values may differ from the actual data values in an access target device.

■Example of data inconsistency (for a MELSEC connection)

In the following collection data, data inconsistency may occur between 'W4 to W6' and 'W7' in 'Data2'.

	Data Name	Constant	Location (top)		Location (end)	Data Type	Length
1	Flag	☐	D0	...	D0	INT	
2	Code	☐	D1	...	D2	UDINT	
3	Msg1	☐	D100	...	D115	WSTRING	8
4	Msg2	☐	D116	...	D131	WSTRING	8
5	Msg3	☐	D132	...	D147	WSTRING	8
6	Data1	☐	W0	...	W3	LREAL	
7	Data2	☐	W4	...	W7	LREAL	

Steps on how data inconsistency occurs are shown below.



(1) SLMP Data Collector
(2) MELSEC device
(3) Number of points in which no data inconsistency occurs (58 points)

❶A data reading request for 58 points from the first collection data (D0 to D2, D100 to D147, and W0 to W6) is sent to a MELSEC device.

❷Values of D0 to D2, D100 to D147, and W0 to W6 are returned to SLMP Data Collector.

❸The values from W4 to W7 are updated in the MELSEC device.

❹The request to read the one remaining point of collection data (W7) is sent to the MELSEC device.

❺The value of W7 is returned to SLMP Data Collector. Since the values from W4 to W7 has been updated in step ❸, the value of 'Data2' collected with SLMP Data Collector may be inconsistent with the actual data value in the MELSEC device. (Data inconsistency may occur.)

Packet loss

For a MELSEC connection, SLMP Data Collector communicates with an access target device by using UDP.
During the communication, it is possible to lose a packet.
The behavior when a packet is lost is as follows:

- Waits until the timeout time elapses. (If the next data collection period is reached before the timeout time elapses, an exceeded collection cycle occurs.)
- Reports a packet loss error (error code: 1932H) to Edgecross Basic Software. (In the detailed information, the following cumulative number of occurrences and elapsed time are displayed.)

Item	Description
Cumulative number of occurrences	The number of times which a packet loss has occurred since any of the following operations. • Real-time Flow Manager: Turning the operating status of Real-time Flow Manager to RUN • Management Shell: Starting Management Shell Adding or Changing a target device setting Clicking the [Reconnect] button after selecting SLMP Data Collector in the "Target Device Setting List" screen When the number exceeds 99 times, "100 times or more" is displayed.
Elapsed time	Time which has been elapsed since the previous packet loss occurred (n days hh:mm:ss) For the first packet loss detected after any of the following operations, it represents time from the operation execution to the packet loss detection. • Real-time Flow Manager: Turning the operating status of Real-time Flow Manager to RUN • Management Shell: Starting Management Shell Adding or Changing a target device setting Clicking the [Reconnect] button after selecting SLMP Data Collector in the "Target Device Setting List" screen When the time exceeds 999 days 23:59:59, "1000 days or more" is displayed. Period in which a data collector is not connected with an access target device is not included in the elapsed time.

Timeout error

A timeout error occurs when there is no response from an access target device even after the timeout time set in the communication parameter elapsed.
For an SLMP connection, however, a data send/receive error (error code: 1A09H) may occur before the timeout time set in the communication parameters elapses.
This error occurs after a TCP retransmission timeout time[*1] in Windows elapses if both of the following conditions are satisfied.

- A timeout time is longer than a TCP retransmission timeout time[*1] in Windows.
- An Ethernet cable was disconnected during the operation of SLMP Data Collector.

*1 The default is 21 seconds.

CPU parameter change of an access target device

For a MELSEC connection, perform the following operations to change CPU parameters of an access target device.

■For Real-time Flow Manager

1. Switch the operating status of Real-time Flow Manager to STOP in Real-time Flow Designer.
2. Change CPU parameters of an access target device.
3. Switch the operating status of Real-time Flow Manager to RUN in Real-time Flow Designer.

■For Management Shell

1. Switch Management Shell to the stop state in Management Shell Explorer.
2. Change CPU parameters of an access target device.
3. Switch Management Shell to the operating state in Management Shell Explorer.

5 PARAMETER SETTINGS

This chapter shows the parameters of SLMP Data Collector that can be set in Edgecross Basic Software.
For the display of the setting screens for each parameter, refer to the following:
Edgecross Basic Software for Windows User's Manual

5.1 SLMP connection

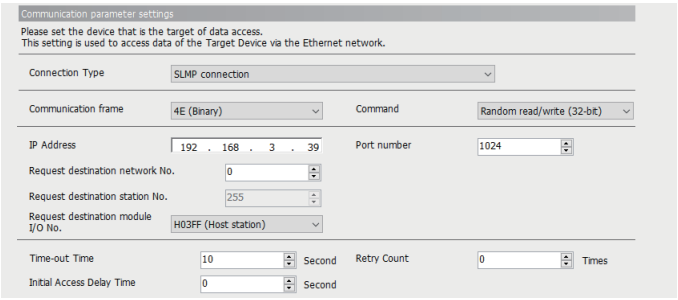
This section shows the parameters for an SLMP connection.

Communication parameters

Configure the connection between SLMP Data Collector and an SLMP-compatible device.

Window

- The "Target Device Setting" screen of Real-time Flow Designer
- The "Target Device Setting" screen of Management Shell Explorer



Displayed items

Item	Description
Connection Type*1	Select "SLMP connection".
Communication frame*1	Set the communication frame and data code ("4E (Binary)", "3E (Binary)", "4E (ASCII)", or "3E (ASCII)") according to the packet message format with an access target device.
Command*1	Select a command. For available commands, refer to the following: ☞ Page 12 Available commands
IP Address*2,*3	Set the IP address specified in an access target device.
Port number*4	Set the port number specified in an access target device (1 to 65535).
Request destination network No.*5,*6,*7	Set the network number specified in an access target device (0 to 239).
Request destination station No.*7,*8,*9	Set the station number specified in an access target device (1 to 120).
Request destination module I/O No.*10	When an access target device is in a multiple CPU system configuration, select the access target CPU number (module I/O number of a request destination). When an access target device is in a single CPU system configuration, select "H03FF (Host station)".
Time-out Time	Set a timeout time for accessing a target device (1 to 30 seconds).
Retry Count*11	Set the number of retries when communication with an access target fails (0 to 2).
Initial Access Delay Time	Set a waiting time from when the initialization processing of an access target device is completed until data collection can be performed (0 to 255 seconds).

*1 It cannot be changed when the target device setting is used for a process flow and an external data tag resource.
*2 Only numbers can be entered.
*3 The available range is as follows:
1.0.0.0 to 126.255.255.255, 128.0.0.0 to 223.255.255.255
*4 When setting an access target device by the procedure in the following section, enter the value for "GOT Communication Port No." set in the procedure.
☞ Page 22 Procedure for setting an SLMP-compatible device
*5 When setting an access target device by the procedure in the following section, enter the value for "GOT Net No." set in the procedure.
☞ Page 22 Procedure for setting an SLMP-compatible device
*6 Do not access another station since SLMP Data Collector can only access the host station.
Enter '0' (Host station) to access the host station.
*7 If the number for accessing the host station is specified by an access target device, enter the value according to its specification.
*8 When setting an access target device by the procedure in the following section, enter the value for "GOT Station" set in the procedure.
☞ Page 22 Procedure for setting an SLMP-compatible device
*9 It cannot be set if '0' is set for "Request destination network No.". (It will be fixed to '255' (Host station).)
*10 When "H03FF (Host station)" is selected, it refers to the control CPU of an access target network module.
*11 Retry is not performed while the data collection function is used.

Point

When accessing target devices with the same IP address, the processing performance may be improved by setting a different port number for each device.
However, consider the system configuration and performance specifications for deciding the setting contents.

Considerations

If both of the following conditions are satisfied, using multiple target device settings in Edgecross Basic Software may cause communication parameter mismatch errors in starting the data collector.

- Same IP address and port number have been specified in multiple target settings.
- Setting contents*1 do not completely match among the target device settings.

*1 They refer to the following items:
Communication frame
Command
Request destination network No.
Request destination station No.
Request destination module I/O No.
Time-out Time
Retry Count
Initial Access Delay Time

Methods to clear communication parameter errors that occur while multiple target device settings are used are as follows.

■For Real-time Flow Manager

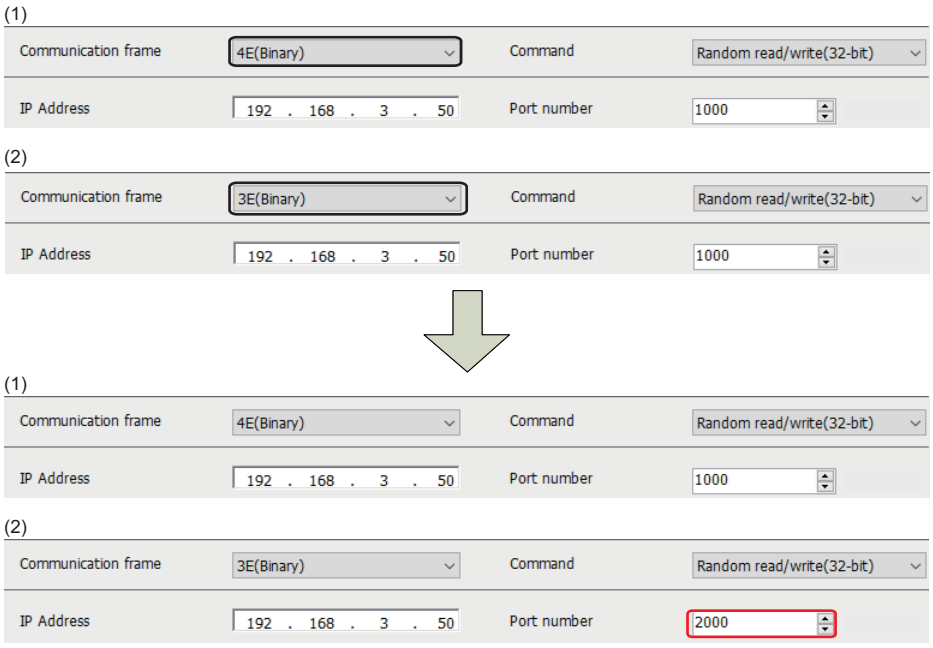
1. Click the [Stop Operation] button in the "Real-time Flow Manager Diagnostics" screen.
2. Perform any of the following operations to the target device settings that satisfy both of the conditions.

- Change their IP addresses or port numbers so that they are not duplicated.

The following shows an example in which setting for "Communication frame" differs between two target device settings.

Ex.

Change "Port number" of target device setting No.2 to '2000'.



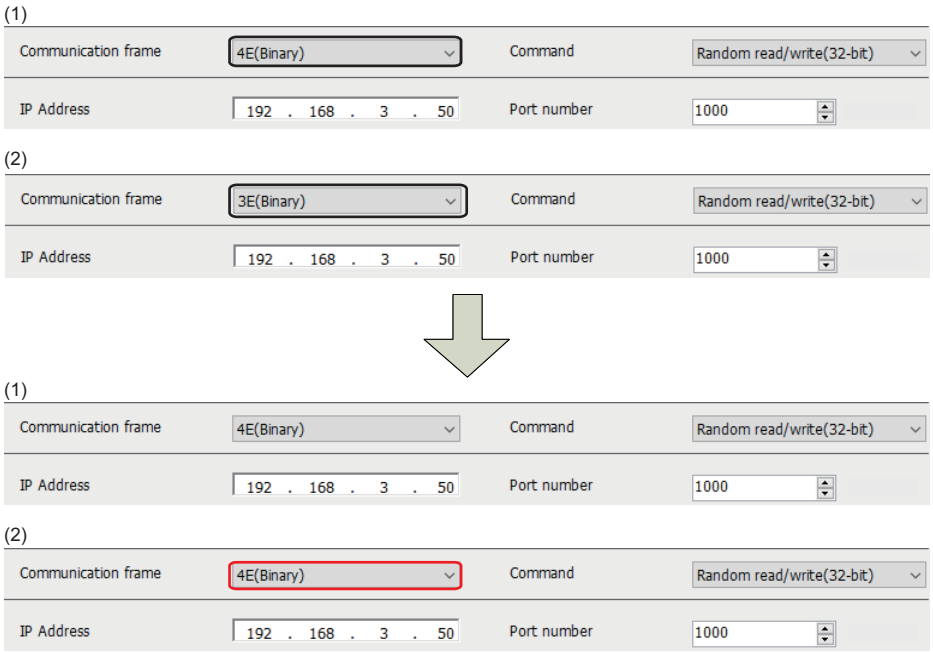
(1) Target device setting No.1
(2) Target device setting No.2

• Match all the setting contents among the target device settings.

The following shows an example in which setting for "Communication frame" differs between two target device settings.

Ex.

Change "Communication frame" of target device setting No.2 to "4E (Binary)".



(1) Target device setting No.1

(2) Target device setting No.2

• Use only one target device setting, and delete the rest.*1

*1 The settings can be deleted only when they are not used in Real-time Flow Manager or Management Shell.

3. Click the [Start Operation] button in the "Real-time Flow Manager Diagnostics" screen.

■For Management Shell

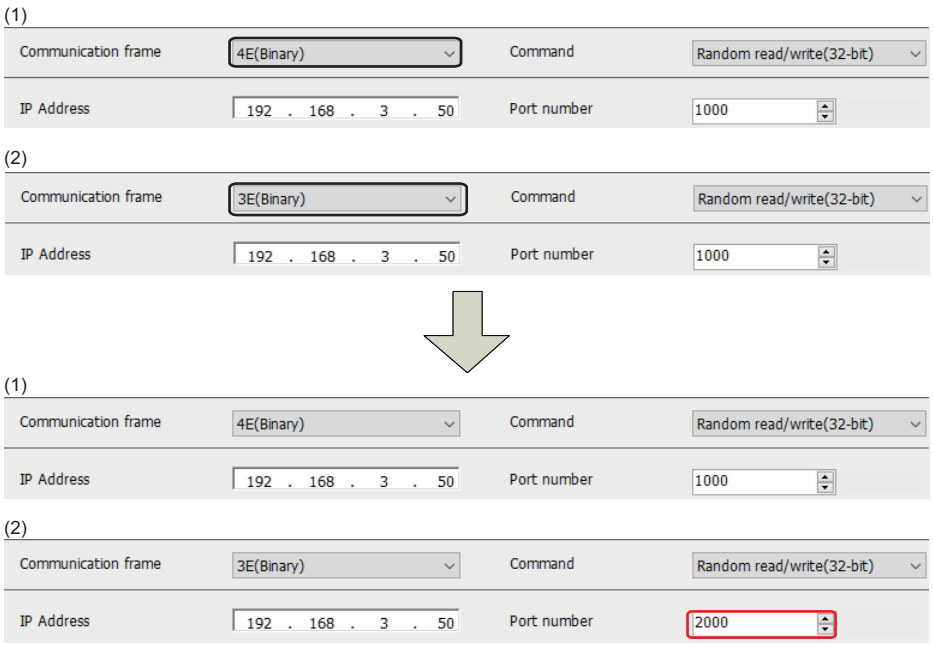
1. Perform any of the following operations to the target device settings that satisfy both of the conditions.

• Change their IP addresses or port numbers so that they are not duplicated.

The following shows an example in which setting for "Communication frame" differs between two target device settings.

Ex.

Change "Port number" of target device setting No.2 to '2000'.



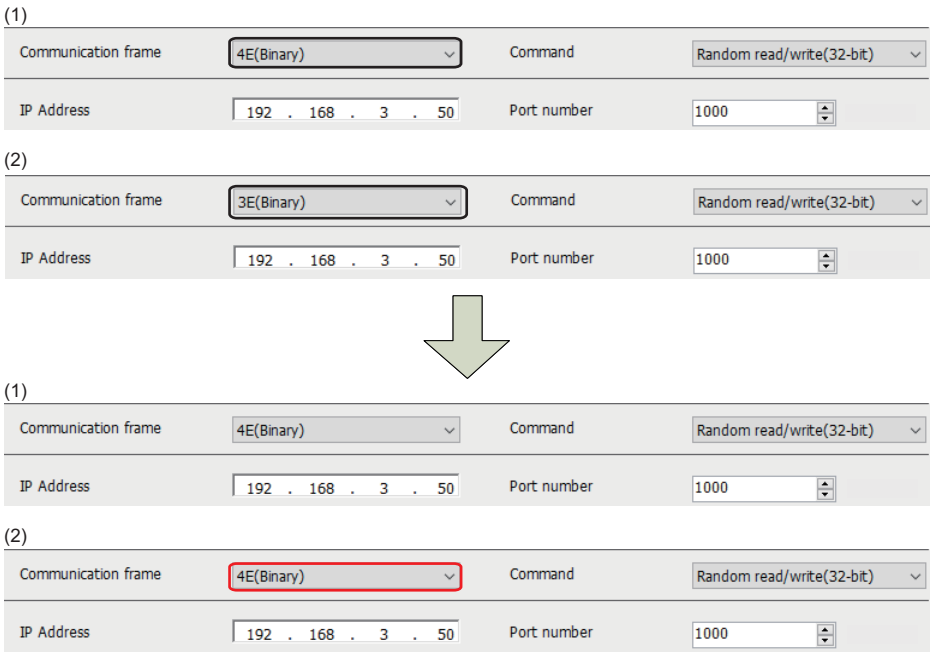
(1) Target device setting No.1
(2) Target device setting No.2

• Match all the setting contents among the target device settings.

The following shows an example in which setting for "Communication frame" differs between two target device settings.

Ex.

Change "Communication frame" of target device setting No.2 to "4E (Binary)".



(1) Target device setting No.1
(2) Target device setting No.2

- Use only one target device setting, and delete the rest.*1

*1 The settings can be deleted only when they are not used in Real-time Flow Manager or Management Shell.

2. Select [Management Shell] ⇨ [Management Shell Stop].

3. Select [Management Shell] ⇨ [Management Shell Start].

Collection parameters

Configure the settings on data collection in SLMP Data Collector.

Window

- The [Collection Option] tab in the "Data Collection Setting" screen of Real-time Flow Designer

Displayed items

Item	Description
Collection Interval	Set an interval and the unit for collecting data.

Precautions

In communication with SLMP Data Collector, transmission delays depending on the access target device response time, the transmission time, and the number of collection device points. Set a collection interval considering the transmission delay.

- Transmission delay time =(Access target device response time[*1] + transmission time × 2) × number of divided data sending[*2]

*1 It is determined according to the service processing time or scan time for an SLMP-compatible device to be used. For details, refer to the manual of the device.

*2 It is calculated (rounding up after the decimal point) as follows according to the type of an SLMP-compatible device.
Random read/write (32-bit): Number of collection device points ÷ 96
Random read/write (16-bit): Number of collection device points ÷ 192
For details on the number of points, refer to the following:
☞ Page 101 Number of device points to be assigned to data

Location parameters

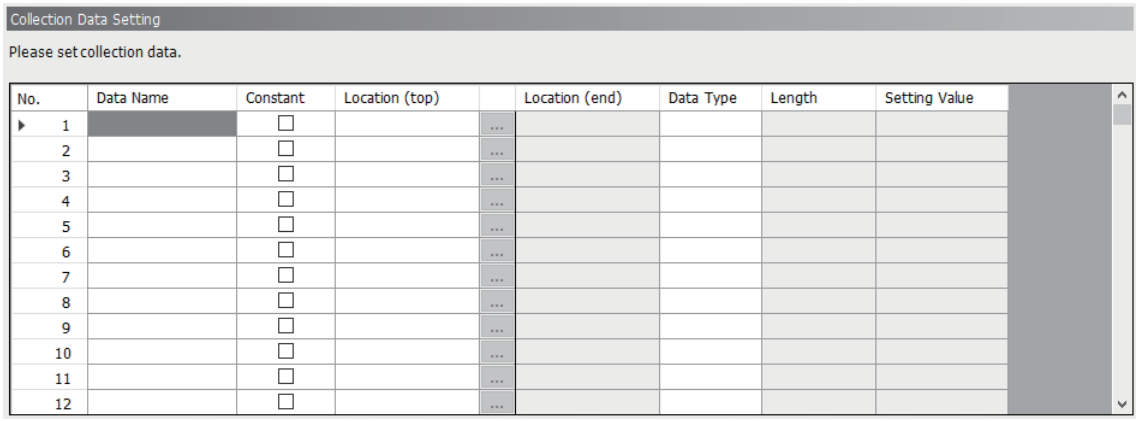
Configure the settings on target devices for SLMP Data Collector.

Real-time Flow Designer

■Data collection function

Window

The [Collection Data] tab in the "Data Collection Setting" screen of Real-time Flow Designer



Displayed items

Item	Description
Data Name	Set a data name (up to 32 characters).
Constant	Select the checkbox to add a constant value or fixed character string to collection data.
Location (top)	Set an access target device memory.
Location (end)	It is automatically set according to the settings in "Location (top)" and "Data Type." When selecting "STRING" or "WSTRING" for "Data Type," it is also affected by a value set in "Length."
Data Type	Select the data type of a location to access.
Length	Set the number of characters within the following ranges when selecting "STRING" or "WSTRING" for "Data Type." • STRING: 1 to 32 • WSTRING: 1 to 16
Setting Value	Set a constant value or fixed character string to add to collection data.

• Location setting

For an SLMP connection, a location can be set by either of the following methods:

☞ Page 48 Setting in the location setting screen

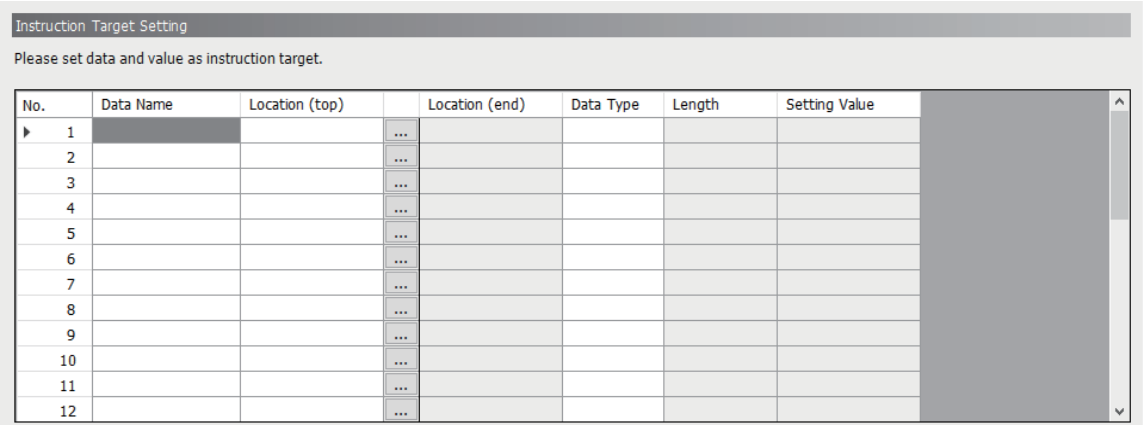
☞ Page 49 Entering directly

When setting the location parameters, check the manual for a device to be accessed.

■Data writing function

Window

The [Instruction Target data] tab in the "Instruction Feedback Setting" screen of Real-time Flow Designer



Displayed items

Item	Description
Data Name	Set a data name (up to 32 characters).
Location (top)	Set an access target device memory.
Location (end)	It is automatically set according to the settings in "Location (top)" and "Data Type." When selecting "STRING" or "WSTRING" for "Data Type," it is also affected by a value set in "Length."
Data Type	Select the data type of a location to access.
Length	Set the number of characters within the following ranges when selecting "STRING" or "WSTRING" for "Data Type." • STRING: 1 to 32 • WSTRING: 1 to 16
Setting Value	Set a value to substitute for an access target location.

• Location setting

For an SLMP connection, a location can be set by either of the following methods:

☞ Page 48 Setting in the location setting screen

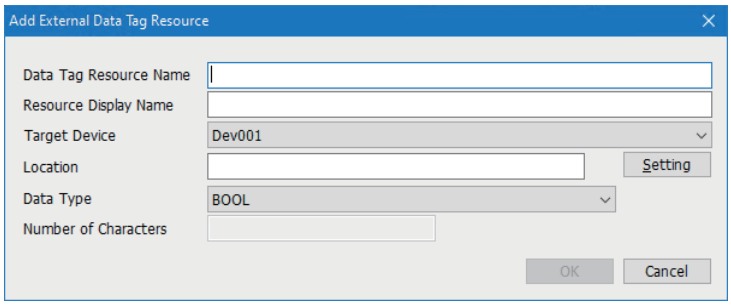
☞ Page 49 Entering directly

When setting the location parameters, check the manual for a device to be accessed.

Management Shell

Window

The "Add External Data Tag Resource" or "Edit External Data Tag Resource" screen of Management Shell Explorer



Displayed items

Item	Description
Data Tag Resource Name	Set the name of an external data tag resource (up to 32 characters).
Resource Display Name	Set the display name of an external data tag resource (up to 64 characters).
Target Device	Select an access target device for an external data tag resource.
Location	Set an access target device memory.
Data Type	Select the data type of a location to access.
Number of Characters	Set the number of characters within the following ranges when selecting "STRING" or "WSTRING" for "Data Type." • STRING: 1 to 32 • WSTRING: 1 to 16

■Location setting

For an SLMP connection, a location can be set by either of the following methods:

☞ Page 48 Setting in the location setting screen

☞ Page 49 Entering directly

When setting the location parameters, check the manual for a device to be accessed.

Setting in the location setting screen

The following shows the "Location Setting" screen for setting a location.

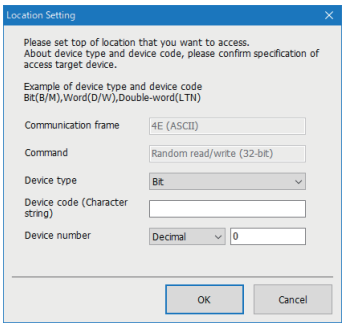
Window

■Real-time Flow Designer

- Data collection function: Click the [...] button in the [Collection Data] tab in the "Data Collection Setting" screen of Real-time Flow Designer.
- Data writing function: Click the [...] button in the [Instruction Target data] tab in the "Instruction Feedback Setting" screen of Real-time Flow Designer.

■Management Shell

Click the [Setting] button in the "Add External Data Tag Resource" or "Edit External Data Tag Resource" screen of Management Shell Explorer.



Displayed items

Item	Description
Communication frame	The communication frame and data code are displayed.
Command	The command is displayed.
Device type	Select a device type. Check the specifications of a device to be accessed before selecting. An error occurs if the setting does not match to the device type of the device to be accessed.*1 The device type is displayed in the following screens as below according to the selected value: the "Data Collection Setting", "Instruction Feedback Setting", "Add External Data Tag Resource", and "Edit External Data Tag Resource" screens. • Bit: B • Word: W • Double word: D
Device code*2	Set a device code. Check the specifications of a device to be accessed before setting. An error occurs if the setting does not match to "Device type".*3 To set multiple devices with a same device code as access targets, match the case in the device code. For input formats, refer to the following: ☞ Page 50 Input format of a device code
Device number*4,*5	Set the number and radix of a device. Check the specifications of a device to be accessed before setting. The radix is displayed in the following screens as shown below according to the selected value: the "Data Collection Setting", "Instruction Feedback Setting", "Add External Data Tag Resource", and "Edit External Data Tag Resource" screens. • Octal: O • Decimal: D • Hexadecimal: H For input formats, refer to the following: ☞ Page 50 Input format of a device number

*1 Selection examples are as follow:
When a device code is 'B' or 'M': Bit
When a device code is 'D' or 'W': Word
When a device code is 'LTN': Double word

*2 When "4E (Binary)" or "3E (Binary)" is displayed in "Communication frame", '0' is inserted for padding according to the maximum number of digits.

*3 A setting example when a device type is 'D' is as follow:

ASCII: D
Binary: A8

*4 When "Octal" or "Hexadecimal" is set for the device number (radix), '0' is inserted for padding according to the maximum number of digits.

*5 When "Decimal" is set for the device number (radix), unnecessary '0' is deleted.

Entering directly

The following shows the details on entering a location directly.

■Input format for a location

Enter a location by the following format.

- Device type | Device code | Device number (Radix) | Device number

Item	Description
Device code	Set a device code. For input formats, refer to the following: ☞ Page 50 Input format of a device code
Device number (Radix)	Set the radix of a device number. • Octal: O • Decimal: D • Hexadecimal: H
Device number*1,*2	Set a device number. For input formats, refer to the following: ☞ Page 50 Input format of a device number
Device type	Set a device type. • Bit: B • Word: W • Double word: D

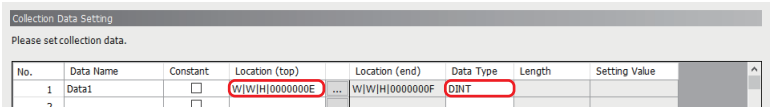
*1 When 'O' or 'H' is entered for the device number (radix), '0' is inserted for padding according to the maximum number of digits.

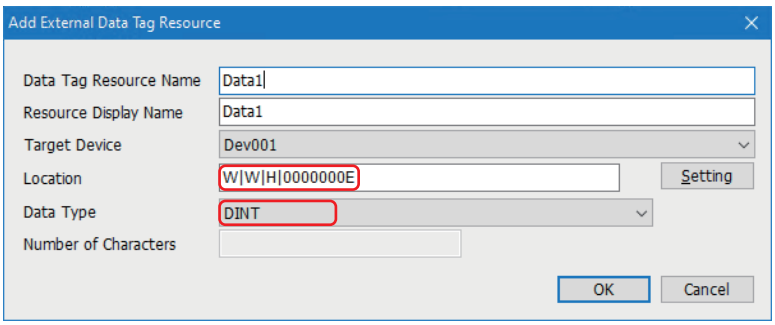
*2 When 'D' is entered for the device number (radix), unnecessary '0' is deleted.

Ex.

A setting example for each of the following items is shown below.

- Data Name: Data1
- Location: W|W|H|00000E
  (Device type: W, Device code: W, Device number (Radix): H, Device number: 0E)
- Data Type: DINT





Input format of a device code

The input format of a device code differs depending on the settings for the command, communication frame, and data code.

Command	Communication frame and data code	Input format	
		Available character	Input range
Random read/write (16-bit)	'4E (Binary)' or '3E (Binary)'	0 to 9, a to f, A to F	0 to FF
	'4E (ASCII)' or '3E (ASCII)'	ASCII codes available in SLMP Data Collector*1	1 or 2 characters
Random read/write (32-bit)	'4E (Binary)' or '3E (Binary)'	0 to 9, a to f, A to F	0 to FFFF
	'4E (ASCII)' or '3E (ASCII)'	ASCII codes available in SLMP Data Collector*1	1 to 4 characters

*1 Available ASCII codes are shown in the table below.
Characters in the shaded area can be used.

	0	1	2	3	4	5	6	7
0	NUL		(SP)	0	@	P	‘	p
1			!	1	A	Q	a	q
2			"	2	B	R	b	r
3			#	3	C	S	c	s
4			$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9			)	9	I	Y	i	y
A			*	:	J	Z	j	z
B			+	;	K	[	k	{
C			,	<	L	\	l	|
D			-	=	M	]	m	}
E			.	>	N	^	n	~
F			/	?	O	_	o	

Input format of a device number

The input format of a device number differs depending on the command and the device number (radix).

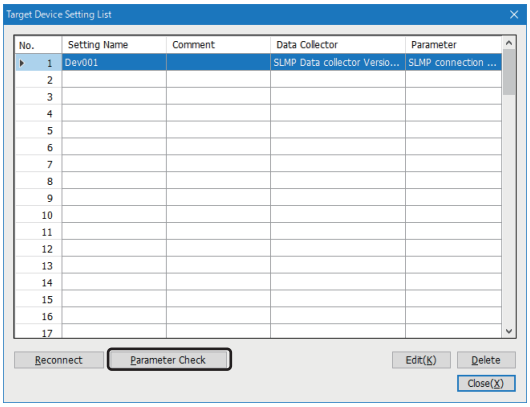
Command	Device number (Radix)	Input format	
		Available character	Input range
Random read/write (16-bit)	Octal	0 to 7	0 to 777777
	Decimal	0 to 9	0 to 999999
	Hexadecimal	0 to 9, a to f, A to F	0 to FFFFFF
Random read/write (32-bit)	Octal	0 to 7	0 to 77777777
	Decimal	0 to 9	0 to 99999999
	Hexadecimal	0 to 9, a to f, A to F	0 to FFFFFFFF

Considerations

When using Management Shell Explorer, check whether location parameters are correct by clicking the [Parameter Check] button in the "Target Device Setting List" screen after setting all the location parameters.*1

If there are incorrect location parameters, a data collector internal error (error code: 1A00H) occurs.

*1 Checking location parameters may take time.



5.2 MELSEC connection

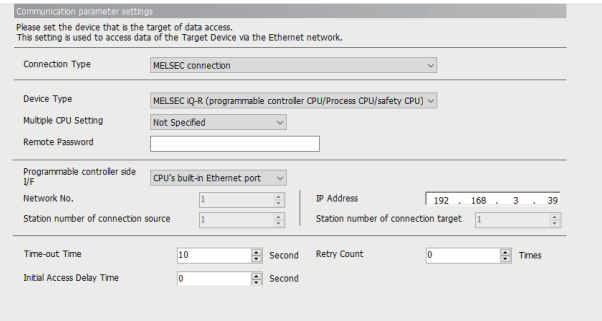
This section shows the parameters for a MELSEC connection.

Communication parameters

Configure the connection between SLMP Data Collector and a MELSEC device.

Window

- The "Target Device Setting" screen of Real-time Flow Designer
- The "Target Device Setting" screen of Management Shell Explorer



Displayed items

Item	Description
Connection Type[*1,*2]	Select "MELSEC connection".
Device Type[*2,*3]	Select the type of access target device.
Multiple CPU Setting[*4]	When an access target device is in a multiple CPU system configuration, set the target CPU number. When it is in a single CPU system configuration, select "Not Specified".
Remote password[*3,*5,*6]	Set the remote password registered to a target device as necessary. The number of available characters differs depending on the selected device type. ■ Available number of characters • MELSEC iQ-R (Programmable controller CPU/Process CPU/safety CPU): 6 to 32 characters • MELSEC iQ-R (C controller): 6 to 32 characters • MELSEC iQ-F (Programmable controller CPU): 6 to 32 characters • MELSEC-Q (Programmable controller CPU/Process CPU): 4 characters • MELSEC-Q (C controller): 4 characters • MELSEC-L (Programmable controller CPU): 4 characters ■ Available characters • ASCII characters (alphanumeric characters and spaces[*7]) • `, ~, !, @, #, $, %, ^, &, *, (,), _, +, -, =, {, }, |, \, :, ", ;, ', <, >, ?, ,, ., /, [,]
Programmable controller side I/F	Select a connection interface of a programmable controller.
Network No.[*8,*9]	Set the network number specified in an access target Ethernet module (1 to 239).
Station number of connection source[*8,*9,*10]	Set the station number of the connection source specified in the industrial PC where this product is running (1 to 120).
IP Address[*11,*12]	Set the IP address specified in an access target device.
Station number of connection target[*8,*9,*10]	Set the station number specified in an access target Ethernet module (1 to 120).
Time-out Time	Set a timeout time for accessing a target device (1 to 30 seconds).
Retry Count[*13]	Set the number of retries when communication with an access target fails (0 to 2).
Initial Access Delay Time	Set a waiting time from when the initialization processing of an access target device is completed until data collection can be performed (0 to 255 seconds).

*1 When "MELSEC connection" is selected for "Connection Type", it is not necessary to set the external device configuration setting of an access target device. However, when accessing to a MELSEC iQ-F series device, select "MELSOFT Connection Module" for the setting as necessary.

*2 It cannot be changed when the target device setting is used for a process flow and an external data tag resource.

*3 The setting is deleted once "Device Type" is changed.

*4 It cannot be set when "MELSEC iQ-F (Programmable controller CPU)" or "MELSEC-L (Programmable controller CPU)" is selected for "Device Type".

*5 It does not need to be set when a remote password is not set to an access target device.

6 Each entered character is displayed as ''.
Entered characters cannot be copied or cut.
*7 It cannot be used when "MELSEC-Q (Programmable controller CPU/Process CPU)", "MELSEC-Q (C controller)", or "MELSEC-L (Programmable controller CPU)" is selected for "Device Type".
*8 A connection will be established with any value in the range when a MELSEC iQ-R series device for which communications with the network number and station number are disabled is set as a target device.
*9 It cannot be set when "CPU's built-in Ethernet port" is selected for "Programmable controller side I/F". (It will be fixed to '1'.)
*10 Set different numbers for "Station number of connection source" and "Station number of connection target," regardless of the setting (enabled or disabled) of communications with a network number and station number.
*11 Only numbers can be entered.
*12 The available range is as follows:
1.0.0.0 to 126.255.255.255, 128.0.0.0 to 223.255.255.255
*13 Retry is not performed while the data collection function is used.

Point

For accessible CPU modules, refer to the following:
☞ Page 17 Accessible CPU modules

Collection parameters

Configure the settings on data collection in SLMP Data Collector.

Window

- The [Collection Option] tab in the "Data Collection Setting" screen of Real-time Flow Designer

Displayed items

Item	Description
Collection Interval	Set an interval and the unit for collecting data.

Precautions

In communication with SLMP Data Collector, transmission delays depending on the CPU response time, the transmission time, and the number of collection device points. Set a collection interval considering the transmission delay.

- Transmission delay time =(CPU response time[*1] + transmission time × 2) × number of divided data sending[*2]

*1 It is determined according to the service processing time or scan time for a programmable controller CPU to be used. For details, refer to the manual of the programmable controller CPU.
*2 It is calculated (rounding up after the decimal point) as follows according to the type of a MELSEC device.
RCPU, FXCPU: Number of collection device points ÷ 58
QCPU (Q mode), LCPU: Number of collection device points ÷ 96
For details on the number of points, refer to the following:
☞ Page 101 Number of device points to be assigned to data

Location parameters

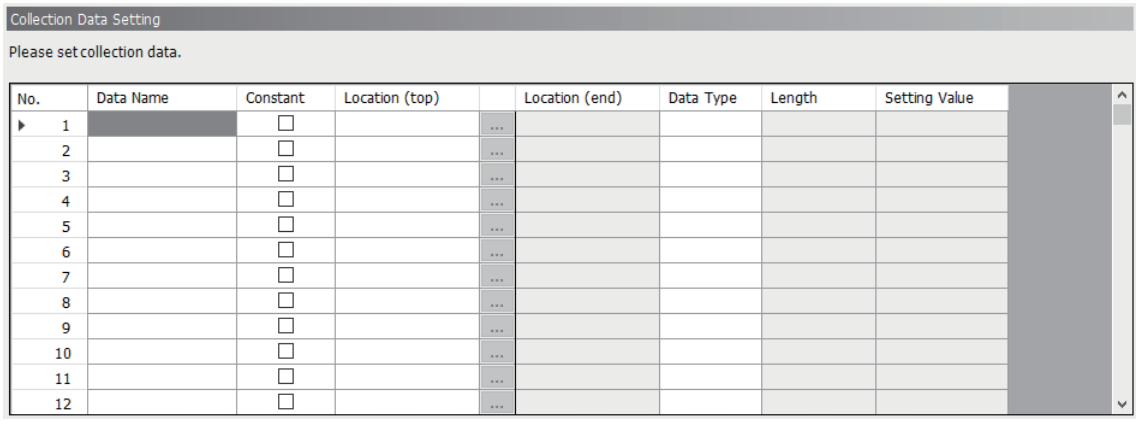
Configure the settings on target devices for SLMP Data Collector.

Real-time Flow Designer

■Data collection function

Window

The [Collection Data] tab in the "Data Collection Setting" screen of Real-time Flow Designer



Displayed items

Item	Description
Data Name	Set a data name (up to 32 characters).
Constant	Select the checkbox to add a constant value or fixed character string to collection data.
Location (top)	Set an access target device memory.
Location (end)	It is automatically set according to the settings in "Location (top)" and "Data Type." When selecting "STRING" or "WSTRING" for "Data Type," it is also affected by a value set in "Length."
Data Type	Select the data type of a location to access.
Length	Set the number of characters within the following ranges when selecting "STRING" or "WSTRING" for "Data Type." • STRING: 1 to 32 • WSTRING: 1 to 16
Setting Value	Set a constant value or fixed character string to add to collection data.

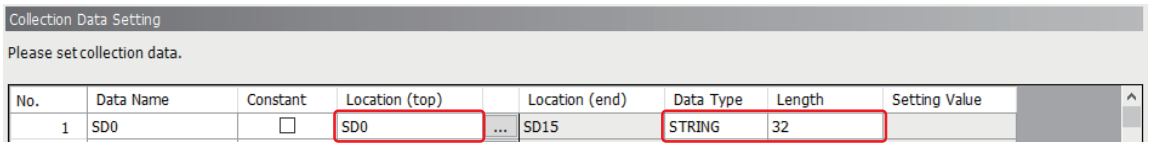
• Location setting

For a MELSEC connection, a screen for setting location parameters is not provided.

Enter an accessible device (location) directly.

Ex.

When setting SD0 as the STRING type with 32 characters



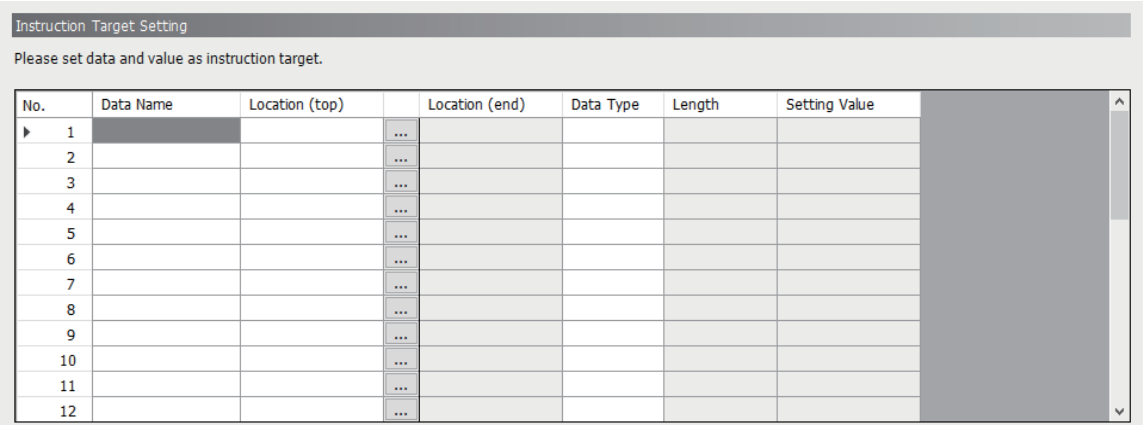
For accessible devices (locations), refer to the following:

☞ Page 18 Accessible devices (locations)

■Data writing function

Window

The [Instruction Target data] tab in the "Instruction Feedback Setting" screen of Real-time Flow Designer



Displayed items

Item	Description
Data Name	Set a data name (up to 32 characters).
Location (top)	Set an access target device memory.
Location (end)	It is automatically set according to the settings in "Location (top)" and "Data Type." When selecting "STRING" or "WSTRING" for "Data Type," it is also affected by a value set in "Length."
Data Type	Select the data type of a location to access.
Length	Set the number of characters within the following ranges when selecting "STRING" or "WSTRING" for "Data Type." • STRING: 1 to 32 • WSTRING: 1 to 16
Setting Value	Set a value to substitute for an access target location.

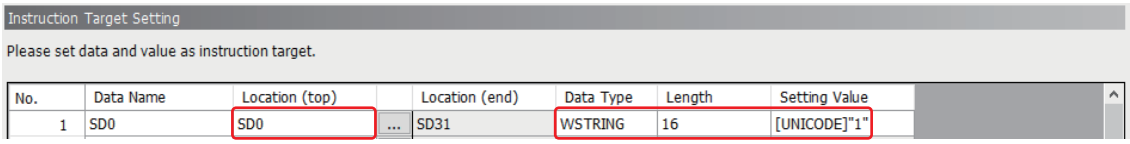
• Location setting

For a MELSEC connection, a screen for setting location parameters is not provided.

Enter an accessible device (location) directly.

Ex.

When setting the character string '1' for SD0 as the WSTRING type (number of characters: 16)



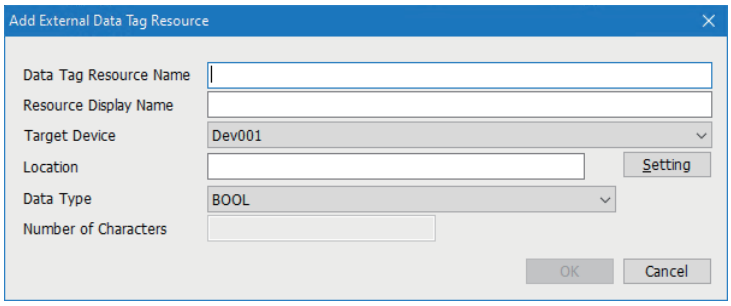
For accessible devices (locations), refer to the following:

☞ Page 18 Accessible devices (locations)

Management Shell

Window

The "Add External Data Tag Resource" or "Edit External Data Tag Resource" screen of Management Shell Explorer



Displayed items

Item	Description
Data Tag Resource Name	Set the name of an external data tag resource (up to 32 characters).
Resource Display Name	Set the display name of an external data tag resource (up to 64 characters).
Target Device	Select an access target device for an external data tag resource.
Location	Set an access target device memory.
Data Type	Select the data type of a location to access.
Number of Characters	Set the number of characters within the following ranges when selecting "STRING" or "WSTRING" for "Data Type." • STRING: 1 to 32 • WSTRING: 1 to 16

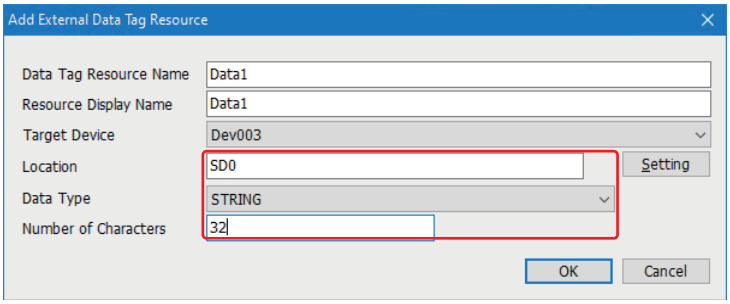
■Location setting

For a MELSEC connection, a screen for setting location parameters is not provided.

Enter an accessible device (location) directly.

Ex.

When setting SD0 as the STRING type with 32 characters



For accessible devices (locations), refer to the following:

☞ Page 18 Accessible devices (locations)

6 TROUBLESHOOTING

This chapter explains the errors which may occur when using SLMP Data Collector and the troubleshooting.

6.1 Checking Method for Error Descriptions

The following are the methods for checking error descriptions.

Checking method	Details
Real-time Flow Designer	Error codes can be checked in the "Real-time Flow Manager Diagnostics" screen of Real-time Flow Designer. For details, refer to the following: 📖Edgecross Basic Software for Windows User's Manual
Management Shell Explorer	Error codes can be checked in the "Error Information List" screen of Management Shell Explorer. For details, refer to the following: 📖Edgecross Basic Software for Windows User's Manual

Error type

There are two types of errors for SLMP Data Collector: moderate error and minor error.

6.2 Troubleshooting by Symptom

If a function of SLMP Data Collector does not perform properly, check the applicable items in the following and troubleshoot the error.

Troubleshooting on the SLMP Data Collector startup

The data collector is not recognized at the Edgecross Basic Software start.

Check point	Corrective action
Does a signed-in user who started Edgecross Basic Software have the access right to a folder in which SLMP Data Collector is stored?	• Sign in as a user with the access right to the folder in which SLMP Data Collector is stored, and start Edgecross Basic Software. • Grant the user access to the folder in which SLMP Data Collector is stored.

Troubleshooting on data reading

Data cannot be read.

Check point	Corrective action
Is the initial access delay time set?	• Wait until the set initial access delay time elapses. • Set the initial access delay time shorter.
Has a reading error occurred in Edgecross Basic Software even though there is no error in this product?	• Decrease the number of points for data reading. • Check the status of an access target device. • Check whether the path to an access target device is correct. • Review the devices and paths on the access path.
Is a remote password set to an access target device?	• Set the remote password specified in the access target device in the communication parameters. • Disable the remote password setting.
Has an communication parameter mismatch error (error code: 1A0CH to 1A13H) occurred even though there is only one target device setting registered in Real-time Flow Designer?	Find the target device settings whose "Connection Type" is set to "SLMP connection" and both IP address and port number are duplicated with others in Management Shell Explorer. Then, set all of the communication parameter items the same as the ones of target device settings in Real-time Flow Designer. ☞ Page 40 Considerations
Has an communication parameter mismatch error (error code: 1A0CH to 1A13H) occurred even though there is only one target device setting registered in Management Shell?	Find the target device settings whose "Connection Type" is set to "SLMP connection" and both IP address and port number are duplicated with others in Real-time Flow Designer. Then, set all of the communication parameter items the same as the ones of target device settings in Management Shell Explorer. ☞ Page 40 Considerations
Does the radix of a device to be read match to the one set for "Device number" in the location parameters?	Check the radix of a device specified for the device number in the manual for an access target device. Then, set the same value as the checked radix for the one in "Device number" of the location parameters.
Has a data collector internal error (error code: 1A00H) occurred?	Check the location parameter where an error has occurred, and clear the error. For the checking method, refer to the following: ☞ Page 51 Considerations
Does the device type of a device to be read match to the one set in the location parameters?	Check the device type specified for the device code in the manual for an access target device. Then, set the same value as the checked device type for "Device type" in the location parameters.
Has a location parameter setting error (unmatch of device type and device code) (error code: 1A14H) occurred when "SLMP connection" is selected for "Connection type"?	• Review all the location parameters used for an access target device where an error has occurred. • Correct all the location parameters used for an access target device where an error has occurred so that their settings match to the device type and device code given in the manual of the access target device. • When multiple devices with a same device code are set as access targets, match the case in the device code. ■When using Real-time Flow Manager only • Switch the operating status to STOP, and then switch it back to RUN. ■When using Management Shell only • Stop the operation and then start it again. ■When using Real-time Flow Manager and Management Shell Perform the following procedure. ❶ Switch the operating status of Real-time Flow Manager to STOP. ❷ Stop the operation of Management Shell, and then start it again. ❸ Switch the operating status of Real-time Flow Manager to RUN.

Check point	Corrective action
Has a packet loss error (error code: 1932H) occurred?	Check the cumulative number of occurrences and the elapsed time displayed in the detailed information. If a packet loss occurs frequently*1, take the following corrective actions since the Ethernet line may be unstable: • Review the access target device or communication path. • Reduce frequency of access to a device and amount of communication data. • Separate the communication path between this product and other software. • Reduce communication to be simultaneously executed for one access target device. For details on a packet loss, refer to the following: ☞ Page 37 Packet loss

*1 It refers to either of the following cases:
A packet has been lost 50 times or more in total.
A packet get lost again within an hour after the previous loss.

Data inconsistency has occurred in read data.

Check point	Corrective action
Does the number of points for a single data reading exceed that of points in which no data inconsistency occurs?	Set the number of device points to be read which does not cause data inconsistency. ☞ Page 35 Data inconsistency

Data missing has occurred in collected data.

Check point	Corrective action
Has an exceeded collection cycle (event code: F800H) occurred?	• Review the communication parameters. • Check the statuses of a communication cable and access target device. • Review whether the access target device is supported. • Check the configuration of an access target device. ■Reduction methods when the network load is high • Reduce frequency of access to a device and amount of communication data. • Separate the communication path between this product and other software. • Reduce communication to be simultaneously executed for one access target device.
Has a packet loss error (error code: 1932H) occurred?	Check the cumulative number of occurrences and the elapsed time displayed in the detailed information. If a packet loss occurs frequently*1, take the following corrective actions since the Ethernet line may be unstable: • Review the access target device or communication path. • Reduce frequency of access to a device and amount of communication data. • Separate the communication path between this product and other software. • Reduce communication to be simultaneously executed for one access target device. For details on a packet loss, refer to the following: ☞ Page 37 Packet loss

*1 It refers to either of the following cases:
A packet has been lost 50 times or more in total.
A packet get lost again within an hour after the previous loss.

Unintended data has been read.

Check point	Corrective action
Is an address of a file register (ZR or R) which does not exist in the access target device specified?	Review the addresses of file registers (ZR and R) in location parameters. (If an address does not exist in the access target devices, an invalid value (FFFFH, -1, etc.) may be read out.)
Is a device number which does not exist in the access target device specified?	Check the device number range for the access target device and set the number within the range. (If the device number does not exist in the access target device, an invalid value (FFFFH, -1, etc.) may be read out.)
Does the radix of a device to be read match to the one set for "Device number" in the location parameters?	Check the radix of a device specified for the device number in the manual for an access target device. Then, set the same value as the checked radix for the one in "Device number" of the location parameters.
Does the device type of a device to be read match to the one set in the location parameters?	Check the device type specified for the device code in the manual for an access target device. Then, set the same value as the checked device type for "Device type" in the location parameters.
Does the request destination module I/O number of an access target device match to the one set in the target device setting?	Set the same value to the request destination module I/O number of the access target device and the one in target device setting.

Troubleshooting on data writing

Data cannot be written.

Check point	Corrective action
Is the initial access delay time set?	• Wait until the set initial access delay time elapses. • Set the initial access delay time shorter.
Is a corresponding device value operated by using a MELSEC device?	Do not operate device values by using a MELSEC device at the timing of data writing from a data collector.
Has an error detected on the target device (error code: 1A02H) occurred when "SLMP connection" is selected for "Connection type"?	Check the error code of the target device shown in 'Data Collector Detail Information'. Then, take corrective actions according to the end codes returned to an access target device during data communications, which are given in the manual of the access target device.
Has a writing error occurred in Edgecross Basic Software even though there is no error in this product?	• Decrease the number of points for data writing. • Check the status of an access target device. • Check whether the path to an access target device is correct. • Review the devices and paths on the access path.
Is a remote password set to an access target device?	• Set the remote password specified in the access target device in the communication parameters. • Disable the remote password setting.
Has an communication parameter mismatch error (error code: 1A0CH to 1A13H) occurred even though there is only one target device setting registered in Real-time Flow Designer?	Find the target device settings whose "Connection Type" is set to "SLMP connection" and both IP address and port number are duplicated with others in Management Shell Explorer. Then, set all of the communication parameter items the same as the ones of target device settings in Real-time Flow Designer. ☞ Page 40 Considerations
Has an communication parameter mismatch error (error code: 1A0CH to 1A13H) occurred even though there is only one target device setting registered in Management Shell?	Find the target device settings whose "Connection Type" is set to "SLMP connection" and both IP address and port number are duplicated with others in Real-time Flow Designer. Then, set all of the communication parameter items the same as the ones of target device settings in Management Shell Explorer. ☞ Page 40 Considerations
Does the radix of a device to be written match to the one set for "Device number" in the location parameters?	Check the radix of a device specified for the device number in the manual for an access target device. Then, set the same value as the checked radix for the one in "Device number" of the location parameters.
Does the device type of a device to be written match to the one set in the location parameters?	Check the device type specified for the device code in the manual for an access target device. Then, set the same value as the checked device type for "Device type" in the location parameters.
Does the request destination module I/O number of an access target device match to the one set in the target device setting?	Set the same value to the request destination module I/O number of the access target device and the one in target device setting.
Has a data collector internal error (error code: 1A00H) occurred?	Check the location parameter where an error has occurred, and clear the error. For the checking method, refer to the following: ☞ Page 51 Considerations
Has a location parameter setting error (unmatch of device type and device code) (error code: 1A14H) occurred when "SLMP connection" is selected for "Connection type"?	• Review all the location parameters used for an access target device where an error has occurred. • Correct all the location parameters used for an access target device where an error has occurred so that their settings match to the device type and device code given in the manual of the access target device. • When multiple devices with a same device code are set as access targets, match the case in the device code. ■When using Real-time Flow Manager only • Switch the operating status to STOP, and then switch it back to RUN. ■When using Management Shell only • Stop the operation and then start it again. ■When using Real-time Flow Manager and Management Shell Perform the following procedure. ❶ Switch the operating status of Real-time Flow Manager to STOP. ❷ Stop the operation of Management Shell, and then start it again. ❸ Switch the operating status of Real-time Flow Manager to RUN.
Has a packet loss error (error code: 1932H) occurred?	Check the cumulative number of occurrences and the elapsed time displayed in the detailed information. If a packet loss occurs frequently*1, take the following corrective actions since the Ethernet line may be unstable: • Review the access target device or communication path. • Reduce frequency of access to a device and amount of communication data. • Separate the communication path between this product and other software. • Reduce communication to be simultaneously executed for one access target device. For details on a packet loss, refer to the following: ☞ Page 37 Packet loss

*1 It refers to either of the following cases:
A packet has been lost 50 times or more in total.

A packet get lost again within an hour after the previous loss.

Unintended data has been written.

Check point	Corrective action
Does the radix of a device to be written match to the one set for "Device number" in the location parameters?	Check the radix of a device specified for the device number in the manual for an access target device. Then, set the same value as the checked radix for the one in "Device number" of the location parameters.
Does the device type of a device to be written match to the one set in the location parameters?	Check the device type specified for the device code in the manual for an access target device. Then, set the same value as the checked device type for "Device type" in the location parameters.

Troubleshooting on Ethernet communication

Ethernet communication to a MELSEC device cannot be established.

Issue a ping from the industrial PC to the MELSEC device and check the response.

■Failure in the ping response

Check item	Corrective action
Is the Ethernet cable wired correctly?	Wire the Ethernet cable correctly.
Is the Ethernet cable disconnected?	Replace the Ethernet cable.
Is there an IP address duplicating with that of the industrial PC or MELSEC device in the connected LAN.	Contact the network administrator of the connected LAN and change the duplicate IP address.
Has the industrial PC in which this product was installed been replaced?	Reset all devices connected in the network.
Is the network highly loaded?	• Contact the network administrator of the connected LAN and disconnect other devices connected via Ethernet of high load. • Change the network used for connecting the industrial PC with MELSEC devices to another network.
Is the specified IP address correct?	Specify the correct IP address.
Is the connection prevented by the security setting of the MELSEC device?	• Delete the applicable IP address in the IP filter setting of the security setting of the MELSEC device. • Set the security setting of the MELSEC device so that the IP filter function is not used.

■No failure in the ping response

Check item	Corrective action
Is the Ethernet cable reconnected?	• Wait until the time which is set in the timer setting for data exchange of the MELSEC device elapses, then connect it again. • Set the time which is set in the timer setting for data exchange of the MELSEC device shorter.

Ethernet communication to an SLMP-compatible device cannot be established.

Issue a ping from the industrial PC to the SLMP-compatible device and check the response.

■Failure in the ping response

Check item	Corrective action
Is the Ethernet cable wired correctly?	Wire the Ethernet cable correctly.
Is the Ethernet cable disconnected?	Replace the Ethernet cable.
Is there an IP address duplicated with that of the industrial PC or SLMP-compatible device in the connected LAN?	Contact the network administrator of the connected LAN and change the duplicate IP address.
Has the industrial PC in which this product was installed been replaced?	Reset all devices connected in the network.
Is the network highly loaded?	• Contact the network administrator of the connected LAN and disconnect other devices connected via Ethernet of high load. • Change the connection of the industrial PC and an SLMP-compatible device to another network.
Is the specified IP address correct?	Specify the correct IP address.

If the problem persists, refer to the user's manual of the SLMP-compatible device.

■No failure in the ping response

Check item	Corrective action
Has the communication failed even if the operation status of Real-time Flow Manager was switched to RUN after it was switched to STOP in the "Real-time Flow Manager Diagnostics" screen of Real-time Flow Designer?	Switch the status to RUN again after the existence check[*1] of an SLMP-compatible device is finished.
Has the communication failed even after the reconnection operation was performed in the "Target Device Setting List" screen of Management Shell Explorer?	Perform the reconnection operation again after the existence check[*1] of an SLMP-compatible device is finished.
Has an error detected on the target device (error code: 1A02H) or a data send/receive error (error code: 1A09H) occurred?	• Check the IP address set in an SLMP-compatible device, and set the same IP address in the communication parameters. • Check the port number set in an SLMP-compatible device, and set the same port number in communication parameters. • Check the communication frame set in an SLMP-compatible device, and set the same communication frame in communication parameters. • Check the command supported by an SLMP-compatible device, and set the same command in the communication parameters.

*1 It refers to the existence check function performed on the SLMP-compatible device side. Since the TCP communication port is occupied on the SLMP-compatible device side, Ethernet communication from the data collector cannot be established.

If the problem persists, refer to the user's manual of the SLMP-compatible device.

Troubleshooting on parameter settings

The Target Device Setting screen

■Unable to change the device type

Message	Check item	Corrective action
The device type cannot be changed. An inconvertible device memory is specified in the setting of the Target Device of this setting. Please change the device type after deleting the specification of the inconvertible device memory: X,Y.	Is an X/Y device specified for a process flow of Real-time Flow Designer or for an external data tag resource of Management Shell Explorer? Alternatively, is an access target device to be changed being used?	■For Real-time Flow Designer*2 Set parameters according to the following procedure. ❶ In the "Data Collection Setting" screen or the "Instruction Feedback Setting" screen, replace the X/Y device of "Location (top)" with a bit device other than X/Y. Example: When "X0" is set for "Location (top)", replace it with "M0". ❷ In the "Target Device Setting" screen, change the device type. ❸ In the "Data Collection Setting" screen or the "Instruction Feedback Setting" screen, restore the device in "Location (top)" to the original device.
		■For Management Shell*2 Set parameters according to the following procedure. ❶ In the "Edit External Data Tag Resource" screen, replace the X/Y device of "Location (top)" with a bit device other than X/Y. Example: When "X0" is set for "Location (top)", replace it with "M0". ❷ In the "Target Device Setting" screen, change the device type. ❸ In the "Edit External Data Tag Resource" screen, restore the device in "Location (top)" to the original device.
□*1 cannot be changed. This Target Device Setting is used by other setting. Please change □*1 after deleting data used by other setting.	Is an access target device to be changed being used for a process flow of Real-time Flow Designer or for an external data tag resource of Management Shell Explorer?	■For Real-time Flow Designer*2 By following the procedure below, set parameters of a process flow that is using an access target device to be changed to use a newly added access target device. ❶ Add a new target device setting in the "Target Device Setting" screen. ❷ Change the set target device setting to the one added in step ❶ in the "Data Collection Setting" and "Instruction Feedback Setting" screens. ❸ Review settings for the following items. • "Data Collection Setting" screen: "Collection Data" and "Collection Option" • "Instruction Feedback Setting" screen: "Instruction Target data" ❹ Delete the old target device setting in the "Target Device Setting" screen.
		■For Management Shell*2 By following the procedure below, set parameters of an external data tag resource that is using an access target device to be changed to use a newly added access target device. ❶ Add a new target device setting in the "Target Device Setting" screen. ❷ Change the set target device setting to the one added in step ❶ in the "Edit External Data Tag Resource" screen. ❸ Review settings for the following items. • Location • Data Type • Number of characters ❹ Delete the old target device setting in the "Target Device Setting" screen.

*1 □: An setting item that cannot be changed is displayed.

*2 For details of each screen, refer to the following:

Edgecross Basic Software for Windows User's Manual

■Unable to change the connection type, communication frame, and command

Message	Check item	Corrective action
□[*1] cannot be changed. This Target Device Setting is used by other setting. Please change □[*1] after deleting data used by other setting.	Is an access target device to be changed being used for a process flow of Real-time Flow Designer or for an external data tag resource of Management Shell Explorer?	■For Real-time Flow Designer[*2] By following the procedure below, set parameters of a process flow that is using an access target device to be changed to use a newly added access target device. ❶ Add a new target device setting in the "Target Device Setting" screen. ❷ Change the set target device setting to the one added in step ❶ in the "Data Collection Setting" and "Instruction Feedback Setting" screens. ❸ Review settings for the following items. • "Data Collection Setting" screen: "Collection Data" and "Collection Option" • "Instruction Feedback Setting" screen: "Instruction Target data" ❹ Delete the old target device setting in the "Target Device Setting" screen.
		■For Management Shell[*2] By following the procedure below, set parameters of an external data tag resource that is using an access target device to be changed to use a newly added access target device. ❶ Add a new target device setting in the "Target Device Setting" screen. ❷ Change the set target device setting to the one added in step ❶ in the "Edit External Data Tag Resource" screen. ❸ Review settings for the following items. • Location • Data Type • Number of characters ❹ Delete the old target device setting in the "Target Device Setting" screen.

*1 □: An setting item that cannot be changed is displayed.

*2 For details of each screen, refer to the following:
Edgecross Basic Software for Windows User's Manual

Troubleshooting on Edgecross Basic Software

An error caused by this product has occurred in Edgecross Basic Software.

Check item	Corrective action
Has a timeout error occurred in Edgecross Basic Software after operating the software?	• Decrease the number of points for data collection. • Decrease the number of points for data reading. • Decrease the number of points for data writing. • Check the status of an access target device. • Check whether the path to an access target device is correct. • Review the devices and paths on the access path.
Has a data collector startup error occurred in Edgecross Basic Software?	Reinstall this product since the file may have been moved or deleted.

A message has been displayed in Edgecross Basic Software.

Message	Check item	Corrective action
This function can not be executed because the Data collector used does not satisfy the implementation requirements of Edgecross specification.	Is Edgecross Basic Software whose version is 1.01 or earlier being used?	Update Edgecross Basic Software to version 1.10 or later. ☞ Page 104 Supported Edgecross Basic Software Version

Troubleshooting on screens

Contents in the screen are not displayed properly.

Check item	Corrective action
Is a value other than 100% set for "Change the size of text, apps, and other items" in Windows?	• Change the value to 100% for "Change the size of text, apps, and other items". • For Windows 10 (version 1703 or later)*1, the display of a screen can be enlarged with high DPI scaling by using a Windows 10 function*2. ❶ Select 'ProcessDesigner.exe'*3, then select [Properties] on the right-click menu. ❷ Select the checkbox of "Override high DPI scaling behavior. Scaling performed by:" in the [Compatibility] tab, then select "System" from the pull-down list. ❸ Click the [OK] button.

*1 The Windows version can be checked by the following procedure.
❶ Press Windows key + R, or select [Windows System] ⇨ [Run] from Windows Start.
❷ Enter 'winver' in the "Run" screen.
❸ Check the version in the displayed screen.

*2 The display will be blurred by enlarging.
The following lists the setting values for "Change the size of text, apps, and other items" and the recommended display resolution for each setting value in Windows 10.
Setting value: 100%, display resolution: 1024 × 768 dots or more
Setting value: 125%, display resolution: 1900 × 1200 dots or more
Setting value: 150%, display resolution: 1900 × 1200 dots or more
Setting value: 175%, display resolution: 2880 × 1620 dots or more
Setting value: 200%, display resolution: 2880 × 1620 dots or more
Setting value: 225%, display resolution: 3840 × 2160 dots or more
Setting value: 250%, display resolution: 3840 × 2160 dots or more

*3 'ProcessDesigner.exe' is stored in the folder in which Edgecross Basic Software is installed.
The following is an example of a storage location.
(Example) When starting the operating system on the C drive and setting the installation destination folder as the default
C:\Edgecross\Edgecross Basic Software\Real-timeFlowDesigner\ProcessDesigner.exe

6.3 Error Code List

This section shows the codes for errors that occur in SLMP Data Collector.

Error code	Error name	Error description	Corrective action
1800H	Communication parameter setting error	There is an error in the communication parameter.	Please review the communication parameter because there is an error.
1801H	Collection parameter setting error	There is an error in the collection parameter.	Please review the collection parameter because there is an error.
1802H	Location parameter setting error	There is an error in the location parameter.	Please review the location parameter because there is an error.
1804H	Insufficient memory error	There is not enough memory available to execute this operation.	• Please restart the Industrial PC running this product. • Please close other applications.
1805H	Data Collector internal error	An error was detected in the operation of this product.	• If Real-time Flow Manager is used, please write Real-time Flow Manager Parameter again. • Please restart the Industrial PC running this product. • Please close other applications. • Please reinstall this product. • If the same error occurs, a hardware error may have occurred in the operating environment of this product. Please consult your local Mitsubishi representative.
1806H	Resource contention error	Resource contention has occurred between this product and other applications.	• Please restart the Industrial PC running this product. • Please close other applications.
1807H	Abnormal termination of internal process of Data Collector	Operation of the internal process of the Data Collector has stopped.	• Please restart the Industrial PC running this product. • Please close other applications. • Please review the number of Data Collector configurations. • Please consult your local Mitsubishi representative if the same error occurs again.
1808H	Abnormal communication between internal processes of Data Collector	Operation of the internal process of the Data Collector has stopped.	• Please restart the Industrial PC running this product. • Please close other applications. • Please review the number of Data Collector configurations. • Please consult your local Mitsubishi representative if the same error occurs again.
1809H	Failed to start internal process	Failed to start the internal process.	• Please restart the Industrial PC running this product. • Please reinstall this product. • Please consult your local Mitsubishi representative if the same error occurs again.
180AH	SLMP connection file creating failure	Failed to create an SLMP connection file because there is not enough free space or there is no access authority to the storage destination of SLMP Data Collector.	• Please delete unnecessary files in the Industrial PC running this product. • Please grant the SYSTEM user the access authority.
180BH	Shared resource operation error	Failed to operate the shared resource.	• If Real-time Flow Manager is used, please write the Real-time Flow Manager parameter again. • Please restart the Industrial PC running this product. • Please close other applications. • Please review the number of Data Collector configurations. • Please reinstall this product. • Please consult your local Mitsubishi representative if the same error occurs again.
180CH	Initialization error	Initialization has failed.	• If Real-time Flow Manager is used, please write the Real-time Flow Manager parameter again. • Please restart the Industrial PC running this product. • Please close other applications. • Please review the number of Data Collector configurations. • Please reinstall this product. • Please consult your local Mitsubishi representative if the same error occurs again.
1900H	Unsupported device error (incorrect command)	An unsupported device or path exists on the access path for which the communication through the MELSEC connection is performed.	Please review the devices and paths on the access path.

Error code	Error name	Error description	Corrective action
1901H	Target Device communication error	An error occurred upon access to the Target Device for which the communication through the MELSEC connection is performed.	• Please check whether the communication parameter is correct. • Please check the status of the Target Device. • Please check whether the path to the Target Device is correct. • Please review the devices and paths on the access path.
1902H	Target Device error (incorrect open parameter)	The setting value of the communication parameter using the MELSEC connection is incorrect.	Please review the communication parameter.
1903H	Target Device error (incorrect port)	The setting value of the communication parameter using the MELSEC connection is incorrect.	Please review the communication parameter.
1904H	Target Device error (incorrect module)	• A device which does not exist is specified in the communication parameter using the MELSEC connection. • An unsupported device or path exists on the access path for which the communication through the MELSEC connection is performed.	• Please review the communication parameter. • Please review the devices and paths on the access path.
1905H	Target Device error (incorrect CPU)	• A device which does not exist is specified in the communication parameter using the MELSEC connection. • An unsupported device or path exists on the access path for which the communication through the MELSEC connection is performed.	• Please review the communication parameter. • Please review the devices and paths on the access path.
1906H	Target Device error (incorrect target station)	An inaccessible device is specified in the communication parameter using the MELSEC connection.	Please review the communication parameter.
1907H	Device memory type error	The device memory type that does not exist is specified for the Target Device for which the communication through the MELSEC connection is performed. (Or, the device memory exceeds the allowable range.)	Please review the device memory type specified in the location parameter.
1908H	Device memory No. error	The device memory No. that does not exist is specified for the Target Device for which the communication through the MELSEC connection is performed.	• Please review the device memory No. specified in the location parameter. • Please review the device memory type specified in the location parameter. ■If Real-time Flow Manager is used • Please perform the STOP operation with Real-time Flow Designer, and then perform the RUN operation again. ■If Management Shell is used • Please select the Target Device and press the reconnect button with Management Shell Explorer.
1909H	Target Device communication error (incorrect program type)	An error occurred upon access to the Target Device for which the communication through the MELSEC connection is performed.	• Please check whether the communication parameter is correct. • Please check the status of the Target Device. • Please check whether the path to the Target Device is correct. • Please check whether there is any problem in the path to the Target Device.
190AH	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (A sum-check error occurred during communication.)	Please review the devices and paths on the access path.
190BH	Size error	The device memory specified for the Target Device for which the communication through the MELSEC connection is performed exceeds the allowable range.	Please review the device memory No. specified in the location parameter.
190CH	Block error	An invalid block No. of the extended file register is specified for the Target Device for which the communication through the MELSEC connection is performed.	Please review the block No. (device memory type) of the extended file register.
190DH	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (Invalid data is received.)	Please review the devices and paths on the access path.

Error code	Error name	Error description	Corrective action
190EH	Write protection error	A block No. of the extended file register within the write protection area of the memory cassette is specified for the Target Device for which the communication through the MELSEC connection is performed.	• Please review the block No. (device memory type) of the extended file register. • Please review the write protection dip switch of the memory cassette of the Target Device.
190FH	Device type unmatched error	A device type different from the one of the actual Target Device is specified in the communication parameter using the MELSEC connection.	Please review the communication parameter.
1910H	Station number specification error	An incorrect station number is specified in the communication parameter using the MELSEC connection.	Please review the communication parameter.
1911H	ROM operation error	The TC setting value was written to the CPU module where ROM is running for which the communication through the MELSEC connection is performed.	Please change the TC setting value while RAM is running.
1913H	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (An error occurred in the motion CPU.)	Please review the devices and paths on the access path.
1914H	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (An error occurred during communication to motion CPU.)	Please review the devices and paths on the access path.
1915H	Communication parameter error (IP address)	An incorrect IP address is specified in the communication parameter using the MELSEC connection.	• Please review the IP address of the communication parameter. • Please check the IP address of the Target Device. • Please review the devices and paths on the access path.
1916H	Target Device communication receiving data error (incorrect packet CRC)	The incorrect data was received from the Target Device for which the communication through the MELSEC connection is performed.	• Please review the communication parameter. • Please check the status of the Target Device or path.
1917H	Target Device communication receiving data error (incorrect data CRC)	The incorrect data was received from the Target Device for which the communication through the MELSEC connection is performed.	• Please review the communication parameter. • Please check the status of the Target Device or path.
1918H	Unsupported device error (connection to FX PLC imitations)	An unsupported device or path exists on the access path for which the communication through the MELSEC connection is performed.	Please review the devices and paths on the access path.
1919H	Data reception error	Multiple responses were received during the direct Ethernet communication using the MELSEC connection.	Please check if the configuration is 1 to 1 direct connection with a module.
191AH	Target Device status error	Communication failed because other devices communicate with the industrial PC during direct Ethernet communication using the MELSEC connection.	Please check if the configuration is 1 to 1 direct connection with a module.
191BH	Communication parameter error (station number/network No.)	An incorrect station number or network number is specified in the communication parameter using the MELSEC connection.	• Please review the content (station number/network No.) of the communication parameter. • Please check the device configuration of the Target Device (station number/network No.).
191CH	Target Device communication connection error (IP address)	An incorrect IP address is specified in the communication parameter using the MELSEC connection.	• Please review the IP address of the communication parameter. • Please check the IP address of the Target Device. • Please review the devices and paths on the access path.
191DH	Target Device communication timeout error	There is no response from the Target Device for which the communication through the MELSEC connection is performed.	• Please check the status of the Target Device. • Please review the communication parameter. • Please adjust the response monitoring time of the Target Device. • Please review the devices and paths on the access path.
191EH	Data transmission error	Failed to send data to the Target Device for which the communication through the MELSEC connection is performed. (Windows failed to send data.)	Please review the devices and paths on the access path.
191FH	Data transmission error	Failed to send data to the Target Device for which the communication through the MELSEC connection is performed. (Send data size error.)	Please review the devices and paths on the access path.

Error code	Error name	Error description	Corrective action
1920H	Data transmission error	Failed to send data to the Target Device for which the communication through the MELSEC connection is performed. (Queue clear error.)	Please review the devices and paths on the access path.
1921H	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (Windows failed to receive data.)	Please review the devices and paths on the access path.
1922H	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (An error occurred by attempt to receive data before send data.)	Please review the devices and paths on the access path.
1923H	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (Message queue receive error.)	Please review the devices and paths on the access path.
1924H	Data reception error	Failed to receive data from the Target Device for which the communication through the MELSEC connection is performed. (Insufficient size of the read buffer.)	Please review the devices and paths on the access path.
1925H	Response timeout error	There is no response from the Target Device for which the communication through the MELSEC connection is performed.	• Please review the communication parameter. • Please check the status of the Target Device or path. • Please review if the Target Device is supported. • Please check the device configuration of the Target Device. ■If the load on the network is high, please reduce the load. • Reduction of access frequency to device, amount of communication data. • Separation of communication path of this product and communication path of other software. • Reduction of communication to be simultaneously executed for one Target Device.
1927H	Error detected on the Target Device	An error occurred in the Target Device for which the communication through the MELSEC connection is performed.	Please check the error code of the Target Device in the user's manual of the Target Device.
192AH	Error detected on the module with Ethernet	An error occurred in the module with Ethernet for which the communication through the MELSEC connection is performed.	Please check the error shown on the error code of the Target Device in the user's manual of the module with Ethernet.
192EH	Target Device communication error (other)	An error occurred upon access to the Target Device for which the communication through the MELSEC connection is performed.	• Please check whether the communication parameter is correct. • Please check the status of the Target Device. • Please check whether the path to the Target Device is correct. • Please review the devices and paths on the access path.
192FH	Communication driver initialization error	Failed to initialize the communication driver for the MELSEC connection.	• Please restart the Industrial PC running this product. • Please reinstall this product. • Please consult your local Mitsubishi representative if the same error occurs again.
1930H	Error detected in the Target Device or communication module	An error occurred in the Target Device or communication module for which the communication through the MELSEC connection is performed.	Please check the error shown on the error code of the Target Device in the user's manual of the Target Device or communication module.
1931H	Remote password setting error	An incorrect remote password is set in the communication parameters using the MELSEC connection.	Set the remote password set in the Target Device to the one for the communication parameters.
1932H	Packet loss error	A packet loss occurred in the data communication with the Target Device for which the communication through the MELSEC connection is performed.	• Please check the status of the Target Device or path. ■If the load on the network is high, please reduce the load. • Reduction of access frequency to device, amount of communication data. • Separation of communication path of this product and communication path of other software. • Reduction of communication to be simultaneously executed for one Target Device.

Error code	Error name	Error description	Corrective action
1A00H	Data Collector internal error	An error was detected in the operation of this product during the communication through the SLMP connection.	• If Real-time Flow Manager is used, please write Real-time Flow Manager Parameter again. • Please restart the industrial PC running this product. • Please close other applications. • Please reinstall this product. • If the same error occurs, a hardware error may have occurred in the operating environment of this product. Please consult your local Mitsubishi representative.
1A01H	Target Device incorrect error	An inaccessible device is set in the communication parameters using the SLMP connection.	• Please review the communication parameter. • Please review the location parameter. • Please restart the Industrial PC running this product. • Please reinstall this product. • Please consult your local Mitsubishi representative if the same error occurs again.
1A02H	Error detected on the Target Device	An error occurred in the Target Device for which the communication through the SLMP connection is performed.	Check the measures with the error code displayed on the Target Device in the user's manual of the Target Device and perform it.
1A04H	Insufficient memory error	Failed to secure the memory required for the communication through the SLMP connection.	• Please restart the Industrial PC running this product. • Please close other applications.
1A09H	Data send/receive error	Failed to send/receive data to/from the Target Device for which the communication through the SLMP connection is performed.	• Please check the status of the Target Device. • Please review the communication parameters. • The communication between other device and the Target Device may be interfered. Please check if the connection to the same port of the same IP address with other device is not performed. • Please review the devices and paths on the access path. ■If the existence check function is enabled in the Target Device • Establish the connection again after the existence check of the Target Device is finished. • Please review the timer setting for data communication of the Target Device.
1A0AH	Target Device communication timeout error	There is no response from the Target Device for which the communication through the SLMP connection is performed.	• Please check the status of the Target Device. • Please review the communication parameter. • Please adjust the response monitoring time of the Target Device. • Please review the devices and paths on the access path.
1A0BH	Target Device connection error	There is no response from the Target Device for which the communication through the SLMP connection is performed.	• Please review the communication parameters. • The communication between other device and the Target Device may be interfered. Please check if the connection to the same port of the same IP address with other device is not performed.
1A0CH	Communication parameter mismatch error (Time-out Time)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Time-out Time differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Time-out Time of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Time-out Time of all the multiple communication parameters to the same value.

Error code	Error name	Error description	Corrective action
1A0DH	Communication parameter mismatch error (Communication frame)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Communication frame differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Communication frame of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Communication frame of all the multiple communication parameters to the same value.
1A0EH	Communication parameter mismatch error (Request destination module I/O No.)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Request destination module I/O No. differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Request destination module I/O No. of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Request destination module I/O No. of all the multiple communication parameters to the same value.
1A0FH	Communication parameter mismatch error (Command)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Command differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Command of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Command of all the multiple communication parameters to the same value.
1A10H	Communication parameter mismatch error (Retry Count)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Retry Count differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Retry Count of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Retry Count of all the multiple communication parameters to the same value.
1A11H	Communication parameter mismatch error (Initial Access Delay Time)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Initial Access Delay Time differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Initial Access Delay Time of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Initial Access Delay Time of all the multiple communication parameters to the same value.

Error code	Error name	Error description	Corrective action
1A12H	Communication parameter mismatch error (Request destination network No.)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Request destination network No. differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Request destination network No. of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Request destination network No. of all the multiple communication parameters to the same value.
1A13H	Communication parameter mismatch error (Request destination station No.)	There are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, and the setting of the Request destination station No. differs among those multiple communication parameters.	• When there are multiple settings to connect to the same IP address and port in the communication parameters using the SLMP connection, set the Request destination station No. of all the multiple communication parameters to the same value. • Check that Real-time Flow Manager and Management Shell have the same Target Device setting. When there are multiple settings to connect to the same IP address and port regardless of Real-time Flow Designer and Management Shell Explorer, set the Request destination station No. of all the multiple communication parameters to the same value.
1A14H	Location parameter setting error (unmatch of device type and device code)	There is an error in the location parameter using SLMP connection. There is an unmatch with set device type and device code. Communication with this access target device has stopped because location cannot be connected normally.	• Please review all location parameter using this access target device in Real-time Flow Manager and Management Shell. • Please match device type and device code explained in the manual of access target device with location parameter of this access target device setting. ■In the case using Real-time Flow Manager • Please execute STOP operation with Real-time Flow Designer, then execute RUN operation again. ■In the case using Management Shell • Please execute stop operation with Management Shell Explorer, then execute start operation again. ■In the case using Real-time Flow Manager and Management Shell • Please execute STOP operation with Real-time Flow Designer. • Please execute stop operation with Management Shell Explorer, then execute start operation again. • Please execute RUN operation again.
F001H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F002H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F003H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F004H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F005H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F006H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.

Error code	Error name	Error description	Corrective action
F007H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F008H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F009H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F00AH	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F00BH	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F00CH	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F00DH	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F00EH	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F00FH	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Carry out review to lower the load caused by collection cycle, number of collections, and contents of processing. • Lower the load on Windows by closing other applications or by other means. • Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F010H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F011H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F012H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F013H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F100H	Error in the initialization process of Data Collector	An error occurred in the initialization process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F104H	Error in the initialization process of Data Collector	An error occurred in the initialization process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.

Error code	Error name	Error description	Corrective action
F105H	Error in the initialization process of Data Collector	An error occurred in the initialization process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F106H	Error in the collection process of Data Collector	An error occurred in the collection process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F107H	Error in the read process of Data Collector	An error occurred in the read process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F108H	Error in the write process of Data Collector	An error occurred in the write process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F109H	Error in the read process of Data Collector	An error occurred in the read process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F10AH	Error in the write process of Data Collector	An error occurred in the write process.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F200H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F205H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F207H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F20AH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F20BH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F20CH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F20DH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F20EH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F20FH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F212H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.

Error code	Error name	Error description	Corrective action
F217H	Error in module reference	An error occurred when the module (JSON parser) was referenced.	• Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F218H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F219H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F21AH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F21BH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F21CH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F21EH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F221H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F223H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F227H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F228H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F229H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F22AH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F22BH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F22DH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F22FH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.

Error code	Error name	Error description	Corrective action
F232H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F233H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F234H	Data Collector I/F error	An error occurred during the access to Edgecross Basic Software.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F240H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F242H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F244H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F245H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F247H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F248H	Data reference error in Data Collector	An error occurred when the argument of the communication parameter acquisition was referenced.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F249H	Data reference error in Data Collector	An error occurred when the argument of the collection parameter acquisition was referenced.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F24AH	Data reference error in Data Collector	An error occurred when the argument of the data parameter acquisition was referenced.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F24CH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F24DH	Process data buffer overflow in Data Collector	Data buffering has overflowed.	• Carry out review to lower the load caused by collection cycle, number of collections, and contents of processing. • Lower the load on Windows by closing other applications or by other means.
F24EH	Process data buffer overflow in Data Collector	Data buffering has overflowed.	• Carry out review to lower the load caused by collection cycle, number of collections, and contents of processing. • Lower the load on Windows by closing other applications or by other means.
F260H	Error: Character is out of range	The character string acquired from the Data Collector contains characters out of range.	Please do not set characters out of range to collected STRING type character string.
F261H	Error: Character is out of range	The character string acquired from the Data Collector contains characters out of range.	Please do not set characters out of range to read STRING type character string.

Error code	Error name	Error description	Corrective action
F262H	Error: Number of characters exceeded	It exceeds the maximum number of character string acquired from the Data Collector.	• Please review the location parameter so that the number of characters in the collected STRING type character string does not exceed the maximum number. • Please review the Target Device value so that the number of characters in the collected STRING type character STRING does not exceed the maximum number.
F263H	Error: Number of characters exceeded	It exceeds the maximum number of character string acquired from the Data Collector.	• Please review the location parameter so that the number of characters in the read STRING type character string does not exceed the maximum number. • Please review the Target Device value so that the number of characters in the read STRING type character STRING does not exceed the maximum number.
F264H	Error: Character is out of range	The character string acquired from the Data Collector contains characters out of range.	Please do not set characters out of range to collected WSTRING type character string.
F265H	Error: Character is out of range	The character string acquired from the Data Collector contains characters out of range.	Please do not set characters out of range to read WSTRING type character string.
F266H	Error: Number of characters exceeded	It exceeds the maximum number of character string acquired from the Data Collector.	• Please review the location parameter so that the number of characters in the collected WSTRING type character string does not exceed the maximum number. • Please review the Target Device value so that the number of characters in the collected WSTRING type character STRING does not exceed the maximum number.
F267H	Error: Number of characters exceeded	It exceeds the maximum number of character string acquired from the Data Collector.	• Please review the location parameter so that the number of characters in the read WSTRING type character string does not exceed the maximum number. • Please review the Target Device value so that the number of characters in the read WSTRING type character STRING does not exceed the maximum number.
F268H	Invalid real number data	The real number acquired from the Data Collector is invalid(NaN, ±∞).	Please do not set invalid value(NaN, ±∞) to read REAL type real number.
F269H	Invalid real number data	The real number acquired from the Data Collector is invalid(NaN, ±∞).	Please do not set invalid value(NaN, ±∞) to read LREAL type real number.
F280H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F281H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F282H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F283H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F284H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F2C5H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.

Error code	Error name	Error description	Corrective action
F2C6H	Process data buffer overflow in Data Collector	Data buffering has overflowed.	• Carry out review to lower the load caused by collection cycle, number of collections, and contents of processing. • Lower the load on Windows by closing other applications or by other means.
F300H	Error: Not enough memory	There is not enough memory available to execute this operation.	• Please close other applications. • Please restart the Industrial PC.
F303H	Error: Not enough memory	There is not enough memory available to execute this operation.	• Please close other applications. • Please restart the Industrial PC.
F306H	Error: Not enough memory	There is not enough memory available to execute this operation.	• Please close other applications. • Please restart the Industrial PC.
F30EH	Error: Not enough memory	There is not enough memory available to execute this operation.	• Please close other applications. • Please restart the Industrial PC.
F380H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F382H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F383H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F386H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F387H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F388H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F389H	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F38AH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F38BH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F38DH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.
F38FH	Data Collector internal error	An unexpected error occurred inside this product.	• Please restart the Industrial PC. • Please reinstall Data Collector. • Please consult your local Mitsubishi representative if the same error occurs again.

6.4 Event Code List

This section shows the codes for events that occur in SLMP Data Collector.

Event code	Event status	Event name	Event description
8800H	Information	Collection processing time	Measurement of collection processing time has been completed.
8801H	Information	Read processing time	Measurement of Read processing time has been completed.
F800H	Warning	Exceeded collection cycle	Collection process was not completed within the collection cycle. ☞ Page 59 Data missing has occurred in collected data.

APPENDIX

Appendix 1 Processing Performance and Processing Time

This section shows the processing performance and processing time of SLMP Data Collector.

Collection processing performance

Measurement conditions 1

■Industrial PC

Item		Description
CPU		Intel® Core™ i7CPU 2.59 GHz
RAM		12.0 GB
OS (64-bit version)		Windows® 10 Enterprise LTSB 64-bit
Ethernet network I/F	Interface	1000BASE-T
	Communication method	Full-duplex
	Communication speed	1000 Mbps (1000BASE-T)

■Parameters of a data collector

The following table shows the setting values of parameters affecting to the processing performance among the parameters of a data collector used for measurement.

• SLMP connection (for one process flow)

Setting item		Setting content
Communication parameter	Request destination module I/O No.	H03FF (Host station)
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	• When the word device collection points is 2048 or less: 1 second • When the word device collection points is 4096: 2 seconds

• MELSEC connection (for one process flow)

Setting item		Setting content
Communication parameter	Device type	RCPU
	Multiple CPU setting	Not specified
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	• When the word device collection points is 2048 or less: 1 second • When the word device collection points is 4096: 2 seconds

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• SLMP connection (for multiple process flows)

Setting item		Setting content
Communication parameter*1	Request destination module I/O No.	H03FF (Host station)
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	1 second
Collection target device (for one process flow)		INT type device × 256 data

*1 Except for the port number, the same communication parameters are set to all of the target device settings.
For each processing performance for the cases in which a same port number is set and in which different port numbers are set, refer to the following:
☞ Processing performance for multiple process flows

• MELSEC connection (for multiple process flows)

Setting item		Setting content
Communication parameter*1	Device type	RCPU
	Multiple CPU setting	Not specified
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	1 second
Collection target device (for one process flow)		INT type device × 256 data

*1 The setting contents are matched among all of the target device settings.

■Connection destination device

Item	Description
Connection destination device	• SLMP connection: SLMP-compatible device • MELSEC connection: R16CPU (built-in Ethernet port)
Connection method	Ethernet connection (direct)

■Parameters of Real-time Flow Manager

Process flow type	Setting item	Setting content
Data Logging Flow	Data Collection	Data Storing: Do not execute Data Distribution: Do not execute
	Data Modification	No Processing
Data Diagnosis Flow	Data Collection	Data Storing: Do not execute Data Distribution: Do not execute
	Data Modification	No Processing
	Data Diagnosis	Data Diagnosis Plug-in*1
	Feedback	Feedback Type: Instruction Feedback*2 Deterrence Period: 1 minute Instruction target: 1 point of word device

*1 It is distributed by the Edgecross Consortium. Contact the consortium to obtain it.
*2 4 pieces are set for one data diagnosis flow.

■Parameters of an SLMP-compatible device

The parameters are set to their defaults.

■Parameters of a MELSEC device

The parameters are set to their defaults.

Point

The sequence scan time is less than 1 millisecond because the measurement is performed in the following conditions; the constant scan setting is not set for the CPU parameters and a scan program does not exist.

Measurement conditions 2

■Industrial PC

Item		Description
CPU		Intel® Atom™ E3826 1.46 GHz (Dual Core)
RAM		4 GB
OS (64-bit version)		Windows® 10 Pro (64-bit)
Ethernet network I/F	Interface	100BASE-TX
	Communication method	Full-duplex
	Communication speed	100 Mbps (100BASE-TX)

■Parameters of a data collector

The following table shows the setting values of parameters affecting to the processing performance among the parameters of a data collector used for measurement.

• SLMP connection (for one process flow)

Setting item		Setting content
Communication parameter	Request destination module I/O No.	H03FF (Host station)
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection Interval	• When the number of word device collection points is 256 or less: 1 second • When the number of word device collection points is 512: 2 seconds • When the number of word device collection points is 1024: 3 seconds • When the number of word device collection points is 2048: 4 seconds • When the number of word device collection points is 4096: 8 seconds

• MELSEC connection (for one process flow)

Setting item		Setting content
Communication parameter	Device type	RCPU
	Multiple CPU setting	Not specified
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	• When the number of word device collection points is 256 or less: 1 second • When the number of word device collection points is 512: 2 seconds • When the number of word device collection points is 1024: 3 seconds • When the number of word device collection points is 2048: 4 seconds • When the number of word device collection points is 4096: 8 seconds

• SLMP connection (for multiple process flows)

Setting item		Setting content
Communication parameter*1	Request destination module I/O No.	H03FF (Host station)
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	• For 2 process flows: 2 seconds • For 4 process flows: 3 seconds • For 8 process flows: 4 seconds • For 12 process flows: 6 seconds
Collection target device (for one process flow)		INT type device × 256 data

*1 Except for the port number, the same communication parameters are set to all of the target device settings.
For each processing performance for the cases in which a same port number is set and in which different port numbers are set, refer to the following:
☞ Processing performance for multiple process flows

• MELSEC connection (for multiple process flows)

Setting item		Setting content
Communication parameter*1	Device type	RCPU
	Multiple CPU setting	Not specified
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Collection parameter	Collection interval	• For 2 process flows: 2 seconds • For 4 process flows: 3 seconds • For 8 process flows: 4 seconds • For 12 process flows: 6 seconds
Collection target device (for one process flow)		INT type device × 256 data

*1 The setting contents are matched among all of the target device settings.

■Parameters of a data collector

For parameters, refer to the following:

☞ Page 81 Parameters of a data collector

■Connection destination device

For connection destination devices, refer to the following:

☞ Page 82 Connection destination device

■Parameters of Real-time Flow Manager

For parameters, refer to the following:

☞ Page 82 Parameters of Real-time Flow Manager

■Parameters of an SLMP-compatible device

The parameters are set to their defaults.

■Parameters of a MELSEC device

The parameters are set to their defaults.

Point

The sequence scan time is less than 1 millisecond because the measurement is performed in the following conditions; the constant scan setting is not set for the CPU parameters and a scan program does not exist.

Processing performance

The following table shows the processing performance capable of collecting all data in a specified cycle per collection processing time (single collection cycle).

■Processing performance under measurement conditions 1

• Processing performance for one process flow[*1]

*1 Only one data logging flow is used.

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	1	10
32	100	1	10
64	100	1	12
128	100	1	12
256	100	1	12
512	100	1	12
1024	100	1	12
2048	200	2	14
4096	400	3	14

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	1	4
32	100	1	6
64	100	1	6
128	100	1	6
256	100	1	8
512	100	1	10
1024	100	1	10
2048	200	1	10
4096	400	1	10

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	1	8
32	100	1	8
64	100	1	8
128	100	1	10
256	100	1	10
512	100	1	10
1024	100	1	10
2048	200	1	10
4096	400	4	10

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	1	3
32	100	1	3
64	100	1	8
128	100	1	10
256	100	1	10
512	100	1	10
1024	100	1	10
2048	200	1	10
4096	400	2	10

Accessing by a MELSEC connection

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	1	19
32	100	1	19
64	100	1	20
128	100	1	20
256	100	1	20
512	100	1	20
1024	100	4	20
2048	200	5	20
4096	400	5	20

- Processing performance for multiple process flows[*1, *2]

*1 For the cases in which the number of process flows is 2, 4, and 8, only data logging flows are used.
*2 For the case in which the number of process flows is 12, eight data logging flows and four diagnosis flows are used.

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	11
4	100	1	12
8	100	1	15
12	200	3	15

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	13
4	100	1	14
8	100	1	14
12	200	4	15

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	14
4	100	1	14
8	100	2	14
12	200	4	15

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	12
4	100	2	12
8	100	2	12
12	200	3	17

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	3
4	100	1	3
8	100	1	3
12	200	3	5

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	3
4	100	1	3
8	100	1	7
12	200	2	7

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	3
4	100	1	3
8	100	1	3
12	200	3	5

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	1	2
4	100	1	2
8	100	1	2
12	200	2	5

Accessing by a MELSEC connection

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	100	2	4
4	100	3	17
8	100	7	13
12	200	13	20

■Processing performance under measurement conditions 2

- Processing performance for one process flow*1

*1 Only one data logging flow is used.

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	5	13
32	100	5	16
64	100	6	19
128	100	6	19
256	100	6	19
512	100	6	19
1024	400	10	19
2048	500	10	19
4096	1000	10	19

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	5	7
32	100	5	7
64	100	5	13
128	100	5	15
256	100	5	17
512	100	7	17
1024	400	7	17
2048	500	7	17
4096	1000	7	17

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	5	17
32	100	5	17
64	100	5	17
128	100	5	17
256	100	5	17
512	100	5	17
1024	400	5	17
2048	500	6	17
4096	1000	6	17

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)")

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	7	17
32	100	7	17
64	100	7	17
128	100	7	17
256	100	7	17
512	100	7	17
1024	400	7	17
2048	500	7	17
4096	1000	7	17

Accessing by a MELSEC connection

Number of word device collection points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	100	6	17
32	100	6	17
64	100	6	17
128	100	7	17
256	100	8	17
512	100	9	19
1024	400	11	19
2048	500	15	23
4096	1000	23	31

- Processing performance for multiple process flows*1, *2

*1 For the cases in which the number of process flows is 2, 4, and 8, only data logging flows are used.
*2 For the case in which the number of process flows is 12, eight data logging flows and four diagnosis flows are used.

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	12	23
4	200	13	26
8	300	16	28
12	3100	22	42

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	6	15
4	200	9	16
8	300	12	16
12	3100	42	47

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	5	15
4	200	6	15

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
8	300	10	20
12	3100	23	31

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using a same port number

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	7	16
4	200	9	18
8	300	17	29
12	3100	29	39

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	19	49
4	200	21	53
8	300	21	53
12	3100	58	74

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	5	14
4	200	5	14
8	300	11	26
12	3100	47	56

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	5	10
4	200	6	16
8	300	14	32
12	3100	46	58

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using different port numbers

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	5	7
4	200	6	18
8	300	16	31
12	3100	46	66

Accessing by a MELSEC connection

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	200	6	17
4	200	7	21

Number of process flows	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
8	300	24	27
12	3100	96	100

Precautions

Processing of SLMP Data Collector may be delayed if interrupted by processing of other software or an operating system of Windows.

Read processing performance

Measurement conditions 1

■Industrial PC

Item		Description
CPU		Intel® Core™ i7CPU 2.59 GHz
RAM		12.0 GB
OS (64-bit version)		Windows® 10 Enterprise LTSB 64-bit
Ethernet network I/F	Interface	1000BASE-T
	Communication method	Full-duplex
	Communication speed	1000 Mbps (1000BASE-T)

■Parameters of a data collector

The following table shows the setting values of parameters affecting to the processing performance among the parameters of a data collector used for measurement.

• SLMP connection (for one target device setting)

Setting item		Setting content
Communication parameter	Request destination module I/O No.	H03FF (Host station)
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Monitoring setting	Current value update interval	1 second
External data tag resource	Data type	INT

• MELSEC connection (for one target device setting)

Setting item		Setting content
Communication parameter	Device type	RCPU
	Multiple CPU Setting	Not specified
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Monitoring setting	Current value update interval	1 second
External data tag resource	Data type	INT

• SLMP connection (for multiple target device settings)

Setting item		Setting content
Communication parameter*1	Request destination module I/O No.	H03FF (Host station)
	Port number	Any number
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Monitoring setting	Current value update interval	1 second
Monitoring target (for one access target device)		INT type device × 64 data

*1 Except for the port number, the same communication parameters are set to all of the target device settings.
For each processing performance for the cases in which a same port number is set and in which different port numbers are set, refer to the following:
☞ Processing performance for multiple target device settings

• MELSEC connection (for multiple target device settings)

Setting item		Setting content
Communication parameter*1	Device type	RCPU
	Multiple CPU setting	Not specified
	Time-out time	10
	Retry count	0
	Initial access delay time	0
Monitoring setting	Current value update interval	1 second
Monitoring target (for one access target device)		INT type device × 64 data

*1 Set the same communication parameters to all of the target device settings.

■Connection destination device

Item	Description
Connection destination device	• SLMP connection: SLMP-compatible device • MELSEC connection: R16CPU (built-in Ethernet port)
Connection method	Ethernet connection (direct)

■Parameters of an SLMP-compatible device

The parameters are set to their defaults.

■Parameters of a MELSEC device

The parameters are set to their defaults.

Point

The sequence scan time is less than 1 millisecond because the measurement is performed in the following conditions; the constant scan setting is not set for the CPU parameters and a scan program does not exist.

A

Measurement conditions 2

■Industrial PC

Item		Description
CPU		Intel® Atom™ E3826 1.46 GHz (Dual Core)
RAM		4 GB
OS (64-bit version)		Windows® 10 Pro (64-bit)
Ethernet network I/F	Interface	100BASE-TX
	Communication method	Full-duplex
	Communication speed	100 Mbps (100BASE-TX)

■Parameters of a data collector

For parameters, refer to the following:

☞ Page 92 Parameters of a data collector

■Connection destination device

For connection destination devices, refer to the following:

☞ Page 93 Connection destination device

■Parameters of an SLMP-compatible device

The parameters are set to their defaults.

■Parameters of a MELSEC device

The parameters are set to their defaults.

Point

The sequence scan time is less than 1 millisecond because the measurement is performed in the following conditions; the constant scan setting is not set for the CPU parameters and a scan program does not exist.

Processing performance

The following table shows the performance of read processing time.

■Processing performance under measurement conditions 1

• Processing performance for one target device setting

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
256	47	1	17
512	82	1	17
1024	141	1	17
2560	300	1	17
5120	744	1	17

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
256	42	1	10
512	133	1	10
1024	135	1	10
2560	300	2	11
5120	652	2	11

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
256	48	1	18
512	82	1	18
1024	182	1	18
2560	351	1	18
5120	745	1	18

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
256	43	1	10
512	76	1	10
1024	152	1	10
2560	292	1	10
5120	668	2	10

Accessing by a MELSEC connection

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
256	62	1	13
512	94	1	13
1024	188	3	14
2560	406	4	14
5120	781	6	14

• Processing performance for multiple target device settings

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	35	1	7
16	174	1	7
32	877	1	7
64	1667	17	19

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	35	1	9
16	198	1	9
32	358	2	9
64	522	3	17

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	39	1	10
16	193	1	10
32	353	1	10
64	709	3	11

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	35	1	16
16	247	1	16
32	313	1	16
64	803	2	16

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	38	1	3
16	73	1	3
32	143	2	4
64	268	22	24

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	38	1	2
16	106	1	2
32	135	1	2
64	256	23	25

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	34	1	3
16	78	1	3
32	232	1	5
64	368	20	26

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	34	1	2
16	89	1	3
32	175	1	4
64	456	23	25

Accessing by a MELSEC connection

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	46	1	1
16	159	5	7
32	254	8	10
64	592	23	27

■Processing performance under measurement conditions 2

• Processing performance for one target device setting

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	31	2	9
32	31	2	9
64	32	2	15
128	32	2	15
256	62	3	15
512	110	3	15
1024	172	4	15
2560	375	6	15
5120	735	11	17

Accessing by an SLMP connection (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	31	3	10
32	31	3	10
64	32	3	10
128	32	4	11
256	47	4	11
512	78	4	11
1024	172	4	11
2560	375	6	13

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
5120	766	11	29

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	31	2	15
32	31	2	15
64	32	2	15
128	47	2	15
256	62	2	15
512	94	3	16
1024	172	4	16
2560	657	6	16
5120	860	11	26

Accessing by an SLMP connection (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)")

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	31	2	14
32	31	2	14
64	31	2	24
128	32	2	24
256	78	3	24
512	94	3	24
1024	188	4	24
2560	375	6	24
5120	859	11	25

Accessing by a MELSEC connection

Number of word device read points	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
16	31	3	12
32	46	3	12
64	63	3	20
128	74	5	20
256	110	8	20
512	156	14	20
1024	313	24	27
2560	719	47	50
5120	1531	62	64

- Processing performance for multiple target device settings

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	40	2	10
16	170	8	15

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	69	2	10
16	204	7	16

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	36	2	13
16	182	7	13

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using a same port number

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	37	3	14
16	174	7	14

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (32-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	45	2	6
16	167	7	22

Accessing by SLMP connections (Communication frame: "4E (Binary)" or "3E (Binary)", Command: "Random read/write (16-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	40	2	11
16	349	8	23

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (32-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	37	2	4
16	883	7	26

Accessing by SLMP connections (Communication frame: "4E (ASCII)" or "3E (ASCII)", Command: "Random read/write (16-bit)") using different port numbers

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	49	2	15
16	343	8	15

Accessing by a MELSEC connection

Number of target device settings	Performance value (ms)	CPU usage rate (%)	
		Minimum value	Maximum value
2	58	5	7
16	851	41	48

Precautions

Processing of SLMP Data Collector may be delayed if interrupted by processing of other software or an operating system of Windows.

Appendix 2 Data Assignment

This section shows the data assignment availability and the number of device points to be assigned.

Data assignment availability

The following table shows the assignment availability of data for each data type.

○: Available, ×: Not available

Location type	Data type										
	BOOL	UINT	UDINT	ULINT	INT	DINT	LINT	REAL	LREAL	STRING	WSTRING
Bit device	○	×	×	×	×	×	×	×	×	×	×
Word device	×	○	○	○	○	○	○	○	○	○	○
Double-word device	×	○	○	○	○	○	○	○	○	○	○

Number of device points to be assigned to data

The following table shows the number of device points for data assignment for each data type.

Number: Fixed number of points for data assignment, ○: calculation formula, ×: Not available

Location type	Data type										
	1 bit	16 bit		32 bit			64 bit			Character string	
	BOOL	UINT	INT	UDINT	DINT	REAL	ULINT	LINT	LREAL	STRING	WSTRING
Bit device	1	×	×	×	×	×	×	×	×	×	×
Word device	×	1	1	2	2	2	4	4	4	○ (Number of characters ÷ 2)*1	○ (Number of characters × 2)
Double-word device	×	1*2	1*3	1	1	1	2	2	2	○ (Number of characters ÷ 4)*1	○ (Number of characters)

*1 Round up digits after a decimal points of a value obtained by division.

*2 '0' is set for the upper 16 bytes.

*3 For integers and zero, '0' is set for the upper 16 bytes. For negative numbers, '1' is set for them.

A

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Appendix 4 Supported Edgecross Basic Software Version

The following table shows the version of Edgecross Basic Software supported by SLMP Data Collector.

SLMP Data Collector version*1,*2	Data collector version*3	Data collector specifications version*3	Edgecross Basic Software version*3
1.00A	1	1.00	1.00 to 1.21
1.01B	2		
1.02C	3		1.10 to 1.21
1.03D	4		
1.04E	5		1.10 or later
1.05F or later	6		

*1 Can be checked in the screen displayed by selecting [Windows System] ⇨ [Control Panel] ⇨ [Programs] ⇨ [Programs and Features] from Windows Start.

*2 The version 1.02C or later is recommended to use this product in Management Shell.

*3 For the checking method, refer to the following:
Edgecross Basic Software for Windows User's Manual

Appendix 5 Added and Changed Functions

This section shows the added and changed functions of SLMP Data Collector.

Added/changed contents	Version	Reference
Accessible devices are added. • CPU buffer memory access device (C Controller module)	1.01B	Page 18 Accessible devices (locations)
Management Shell added in Edgecross Basic Software version 1.10 is supported.		—
An SLMP connection is supported.	1.03D	Page 10 SLMP connection
The data model import function added in Edgecross Basic Software version 1.22 is supported.	1.04E	—

A

MEMO

INDEX

A

Access method and available command 12
Accessible CPU module 17
Accessible device (equipment) 15
Accessible device (location) 15,18
Accessible device number 15

C

Collection parameter 44,53
Communication parameter 38,52

D

Data collection function 29
Data reading function 32
Data writing function 34

E

Error code list 67
Event code list 80

F

Functional specification 10,16

M

MELSEC connection 16

N

Number of device points 101

O

Operational specification 11,16

S

SLMP connection 10

T

Troubleshooting by symptom 58

I

MEMO

REVISIONS

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

Revision date	*Manual number	Description
May 2018	SH(NA)-081919ENG-A	First edition
May 2018	SH(NA)-081919ENG-B	Partial correction
September 2018	SH(NA)-081919ENG-C	■Added or modified parts Section 2.3, Section 6.2
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