

# CC-Link IE Field Network Waterproof Remote IO-Link Module Function Block Reference (For MELSEC-Q/L)

Applicable module:

NZ2GF12A-60IOLH8

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Reference Manual Revision History

Reference Manual Number	Date	Description
FBM-M214-A	2017/04/28	First edition

## 1. Overview

### 1.1 Overview of the FB Library

This FB library is for using Waterproof Type Remote IO-Link Master Module NZ2GF12A-60IOLH8 with CC-Link IE Field Network.

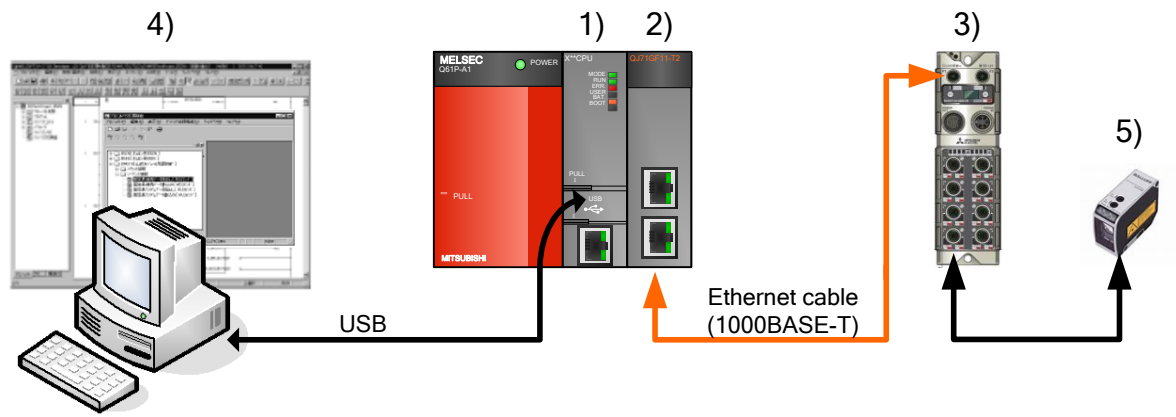
### 1.2 Function of the FB Library

Item	Description
M+NZ2GF12A-60IOLH8_CCIEFIOAdv	Sets process data size and operations for each CH.
M+NZ2GF12A-60IOLH8_RdEventData	Reads event data of a specified CH.
M+NZ2GF12A-60IOLH8_RdIdtData	Reads gateway identification data of Waterproof Type Remote IO-Link Master Module.
M+NZ2GF12A-60IOLH8_RdInitOprSet	Reads initial operation setting of Waterproof Type Remote IO-Link Master Module from a specified CH.
M+NZ2GF12A-60IOLH8_RdISDUData	Reads ISDU data of a specified CH.
M+NZ2GF12A-60IOLH8_RdStrData	Reads storage data of a specified CH.
M+NZ2GF12A-60IOLH8_WtDataStrSet	Writes data storage settings to each CH.
M+NZ2GF12A-60IOLH8_WtInitOprSet	Writes initial operation setting to Waterproof Type Remote IO-Link Master Module.
M+NZ2GF12A-60IOLH8_WtISDUData	Writes ISDU data to a specified CH.
M+NZ2GF12A-60IOLH8_WtDeviceValid	Writes device validation configurations to a specified CH.

1.3 System Configuration Examples

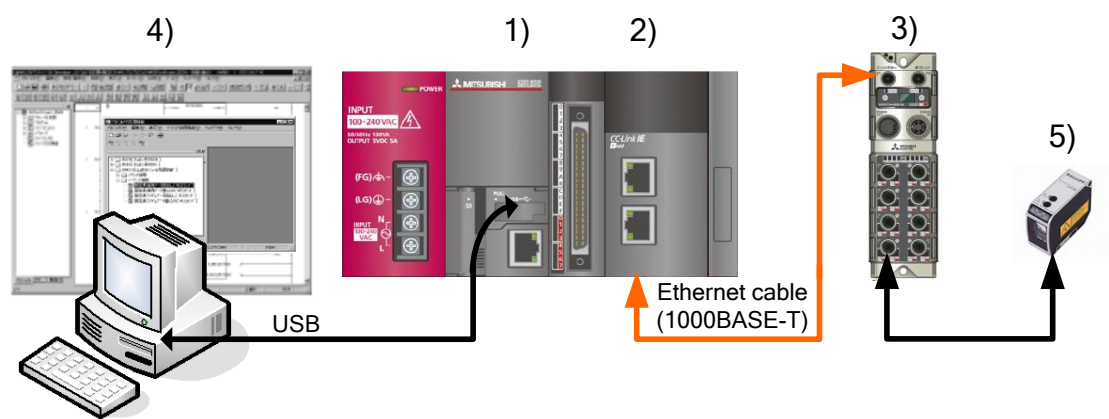
Programmable controller CPUs connect to Waterproof Type Remote IO-Link Master Module by using CC-Link IE Field Network master/local module as follows

(1)Q series system configuration



No.	Hardware	Description	
1)	Q series programmable controller CPU	This FB library can be used in following programmable controller CPU modules.	
		Series	Model
		MELSEC-Q series*1	Basic model QCPU*2
			High performance model QCPU*3
			Universal model QCPU
		*1 Not applicable to QCPU (A mode).	
*2 The first five digits of the serial number are "04122" or later.			
*3 The first five digits of the serial number are "04122" or later.			
2)	CC-Link IE Field Network master/local module	This FB library can be used in the following module.	
		Series	Model
		MELSEC-Q series	QJ71GF11-T2
3)	Waterproof Type Remote IO-Link Master Module	NZ2GF12A-60IOLH8	
4)	GX Works2	Ver 1.24A or later.	
5)	IO-Link device	-	

(2)L series system configuration



No.	Hardware	Description	
1)	L series programmable controller CPU	This FB library can be used in following programmable controller CPU modules.	
		Series	Model
		MELSEC-L Series	-
2)	CC-Link IE Field Network master/local module	This FB library uses CC-Link IE Field Network Interface as follows.	
		Series	Model
		MELSEC-L Series	LJ71GF11-T2
3)	Waterproof Type Remote IO-Link Master Module	NZ2GF12A-60IOLH8	
4)	GX Works2	Ver 1.24A or later.	
5)	IO-Link device	-	

1.4 Settings of CC-Link IE Field Network Master/Local Module

This section explains the settings of CC-Link IE Field Network master/local module based on Section "1.3 System Configuration Examples". Set the following items using GX Works2.

(1) Network parameters

Item	Description
Network Type	Select the CC IE Field (Master Station).
Start I/O No.	Set the Start I/O number of the master/local module in increments of 16 points. Set "0000" as an example.
Network No.	Set the network number of the master/local module Set "1" as an example.

Select "Set network configuration setting in CC IE Field configuration window" checkbox.

☒ Set network configuration setting in CC IE Field configuration window

	Module 1
Network Type	CC IE Field (Master Station)
Start I/O No.	0000
Network No.	1
Total Stations	1
Group No.	
Station No.	0
Mode	Online (Normal Mode)
	CC IE Field Configuration Setting
	Network Operation Settings
	Refresh Parameters
	Interrupt Settings
	Specify Station No. by Parameter

(2) CC IE Field configuration setting

Drag and drop "NZ2GF12A-60IOLH8" under Host Station from Module List under "IO-Link master module".

Item	Description								
STA#	Set station No. of Waterproof Type Remote IO-Link Master Module. Set "1" as an example.								
RX/Ry Setting	<div>RX/Ry is used as input-output signal. Points need to be the following number and above.<table><tr><th>Description of RX/Ry</th><th>Points to set</th></tr><tr><td>Input/Output points</td><td>80 points</td></tr></table> Set "80 points" as an example.</div>	Description of RX/Ry	Points to set	Input/Output points	80 points				
Description of RX/Ry	Points to set								
Input/Output points	80 points								
RWw/RW <sub>r</sub> Setting	<div>This setting depends on the function to be used.<table><tr><th>Description of RWw/RW<sub>r</sub></th><th>Words to set</th></tr><tr><td>IO-Link module</td><td>4 words</td></tr><tr><td>For process data</td><td>0 to 128 words</td></tr><tr><td>Total</td><td>4 to 132 words</td></tr></table> Number of words to set is different between IO-Link devices to connect. When the module is used only as SIO, not using as IO-Link devices, number of words to set for process data is 0 words. Set "132 points" as an example.</div>	Description of RWw/RW <sub>r</sub>	Words to set	IO-Link module	4 words	For process data	0 to 128 words	Total	4 to 132 words
Description of RWw/RW <sub>r</sub>	Words to set								
IO-Link module	4 words								
For process data	0 to 128 words								
Total	4 to 132 words								

CC IE Field Configuration Module 1 (Start I/O: 0000)

CC IE Field Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting

Mode Setting: Online (Standard Mode) Assignment Method: Point/Start Link Scan Time (Approx.):

No.	Model Name	STA#	Station Type	RX/Ry Setting			RWw/RW <sub>r</sub> Setting		
				Points	Start	End	Points	Start	End
0	Host Station	0	Master Station						
1	NZ2GF12A-60IOLH8	1	Intelligent Device Station	80	0000	004F	132	0000	0083

Module List

Select CC IE Field Find Module My Favorites

Basic Digital I/O Combined Module

Basic Analog Input Module

Basic Analog Output Module

Basic Temperature Control Module

Basic High-Speed Counter Module

Extension Digital Input Module

Extension Digital Output Module

Extension A/D Conversion Module

Extension D/A Conversion Module

GOT2000 Series

GOT1000 Series

Basic Multiple Input (Voltage/Current/Temperature) Module

IO-Link master module

NZ2GF12A-60IOLH8 8 channels, pin2 PNP and pin4 PNP

Servo Amplifier(MELSERVO-J4 Series)

bridge module(CC-Link IE Field-AnyWireASLINK)

[Outline]

IO-Link master module

[Specification]

Ambient temperature: 0°C to 55°C

Storage temperature: -25°C to 70°C

Protection category: IP67

[Manufacturer Name]

Mitsubishi Electric Corporation

[Station Type]

Intelligent Device Station

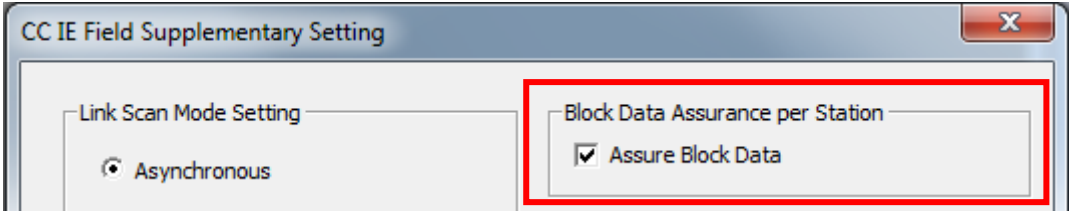
Host Station

STA#1

STA#0 Master  
Total STA#:1  
Line/Star

NZ2GF12A-60IOLH8

In "Supplementary settings" window from "CC IE Field Configuration", "Block data assurance" needs to be enabled.





### (3) Examples of refresh parameter setting

Item	Description	Setting value
Transfer SB	Select the link refresh range of SB device.	<ul style="list-style-type: none"> <li>● "Link Side Points" : 512</li> <li>● "Link Side Start" : 0000</li> <li>● "PLC Side Dev. Name" : SB</li> <li>● "PLC Side Start" : 0000</li> </ul>
Transfer SW	Select the link refresh range of SW device.	<ul style="list-style-type: none"> <li>● "Link Side Points" : 512</li> <li>● "Link Side Start" : 0000</li> <li>● "PLC Side Dev. Name" : SW</li> <li>● "PLC Side Start" : 0000</li> </ul>
Transfer 1	Select the link refresh range of RX device.	<ul style="list-style-type: none"> <li>● "Link Side Points" : 80</li> <li>● "Link Side Start" : 0000</li> <li>● "PLC Side Dev. Name" : X</li> <li>● "PLC Side Start" : 0100</li> </ul>
Transfer 2	Select the link refresh range of RY device.	<ul style="list-style-type: none"> <li>● "Link Side Points" : 80</li> <li>● "Link Side Start" : 0000</li> <li>● "PLC Side Dev. Name" : Y</li> <li>● "PLC Side Start" : 0100</li> </ul>
Transfer 3	Select the link refresh range of RWr device.	<ul style="list-style-type: none"> <li>● "Link Side Points" : 132</li> <li>● "Link Side Start" : 0000</li> <li>● "PLC Side Dev. Name" : W</li> <li>● "PLC Side Start" : 000100</li> </ul>
Transfer 4	Select the link refresh range of RWw device.	<ul style="list-style-type: none"> <li>● "Link Side Points" : 132</li> <li>● "Link Side Start" : 0000</li> <li>● "PLC Side Dev. Name" : W</li> <li>● "PLC Side Start" : 000500</li> </ul>

Assignment Method

☒ Points/Start  
☐ Start/End

\*Set 0000 for the start address of Link Side.

	Link Side					PLC Side			
	Dev. Name	Points	Start	End		Dev. Name	Points	Start	End
Transfer SB	SB	512	0000	01FF	↕	SB	512	0000	01FF
Transfer SW	SW	512	0000	01FF	↕	SW	512	0000	01FF
Transfer 1	RX	80	0000	004F	↕	X	80	0100	014F
Transfer 2	RY	80	0000	004F	↕	Y	80	0100	014F
Transfer 3	RWr	132	0000	0083	↕	W	132	000100	000183
Transfer 4	RWw	132	0000	0083	↕	W	132	000500	000583
Transfer 5					↕				
Transfer 6					↕				
Transfer 7					↕				
Transfer 8					↕				

### 1.5 Communication settings of NZ2GF12A-60IOLH8

Before communication, Station No. and Network No. of NZ2GF12A-60IOLH8 need to be set.  
Set communication settings of NZ2GF12A-60IOLH8 as follows.

Item	Description
STATION NUMBER	Set Station No. of NZ2GF12A-60IOLH8. Set the same Station No. which is set in CC IE Field configuration setting. Set "1" as an example.
NETWORK NUMBER	Set Network No. of NZ2GF12A-60IOLH8. Set the same Network No. which is set in network parameters setting. Set "1" as an example.

For details of setting procedure, refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

2. Details of the FB Library

2.1 M+NZ2GF12A-60IOLH8\_CCIEFIOAdv (Advanced settings)

FB Name

M+NZ2GF12A-60IOLH8\_CCIEFIOAdv

Function Overview

Item	Description	
Function overview	Sets process data size and operations for each CH.	
Symbol	<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div><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Item	Description	
	GX Works2	Ver 1.24A or later.
Programming language	Ladder	
Number of steps	810 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.	
Function description	By turning ON FB_EN (Execution command), process data size and operations settings for each CH are set.	
Compiling method	Macro type	
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program. 5) Every input must be provided with a value for proper FB operation. 6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code. 7) This FB converts and outputs input-output switching operation, mode switching operation and event clear operation setting to the format which can write to remote output in Waterproof Type Remote IO-Link Master Module. Program separately the process which writes the output value to remote output in Waterproof Type Remote IO-Link Master Module. 8) This FB does not include the process which turns on the initialization process completion flag after FB completion. Program separately the process which turns on the initialization process completion flag. 9) Turn ON the operation condition setting request flag after 500ms from completion of this FB.	
FB operation	Pulse type (multiple-scan execution type)	

Item	Description
Timing chart	<div style="display: flex; justify-content: space-around;"> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

- Error code list

About error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.

Name(Comment)	Label name	Data type	Setting range	Description
Input-output switching operation	iw_InOutSwitch	Word	0 to FFFF (Hexadecimal)	Specify input/output for each CH of Q/CQ.  This setting does not reflect when the CQ of the specified CH is IO-Link mode. About details to specify setting refer to "Appendix 1.1 Input-output switching operation".
Mode switching operation	iw_ModeSwitch	Word	0 to FF (Hexadecimal)	Specify a mode for each CH. About details to specify setting refer to "Appendix 1.2 Mode switching operation".
Events clear setting	iw_EventsClear	Word	0 to FF (Hexadecimal)	Specify events clear setting for each CH. About details to specify setting refer to "Appendix 1.3 Event clear setting"
Byte order swapping setting	iw_DataSwap	Word	0 to FF (Hexadecimal)	Specify ON/OFF of byte order swapping setting for each CH. About details to specify setting refer to "Appendix 1.4 Byte order swapping setting".
Process data size setting	iw_ProcDataSize	Word	-	Specify start device which stores process data size. The unit of process data size is words. Range of process data size of each CH is 1 to 16 words. About details to specify setting refer to "Appendix 1.5 Process data size setting".

- Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.
Remote output value	ow_RYOutputs	Word	0	Returns a value to write to remote output of Waterproof Type Remote IO-Link Master Module. Specify start device to store the value to write to remote output of Waterproof Type Remote IO-Link Master Module. Write the stored value to remote output as follows. (Start device to be output)+0: (Start device of remote output)+1 (Start device to be output)+1: (Start device of remote output)+2
Error status flag	ob_UnitError	Bit	OFF	This indicates error status flag in module status area.  ON: Moderate or major error occurred. OFF: Error did not occur.
Remote READY status	ob_UnitReady	Bit	OFF	This indicates remote READY status in module status area.  ON: Remote READY is ON. OFF: Remote READY is OFF.

## FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

## Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_CCIEFIOAdv function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.



2.2 M+NZ2GF12A-60IOLH8\_RdEventData (Event data read)

FB Name

M+NZ2GF12A-60IOLH8\_RdEventData

Function Overview

Item	Description		
Function overview	Reads event data of a specified CH.		
Symbol	<div><div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div><div>CHNo.</div></div><div><div>M+NZ2GF12A-60IOLH8_RdEventData</div><div><div>B : FB_EN</div><div>W : iw_StartIONo</div><div>W : iw_StationNo</div><div>W : iw_CHNo</div></div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div><div>ow_EventDisc : W</div><div>o_wEventCode : W</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Event descriptor</div><div>Event code</div></div></div></div>		
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module.	
		Series	Model
		MELSEC-Q series	QJ71GF11-T2
		MELSEC-L series	LJ71GF11-T2
	Applicable programmable controller	Applicable programmable controller	This FB library can be used in following programmable controller CPU modules.
Series			Model
MELSEC-Q series *1			Basic model QCPU*2
			High performance model QCPU*3
			Universal model QCPU
MELSEC-L series			-
*1 Not applicable to QCPU (A mode).			
*2 The first five digits of the serial number are "04122" or later.			
*3 The first five digits of the serial number are "04122" or later.			
GX Works2	Ver 1.24A or later.		



Item	Description
Programming language	Ladder
Number of steps	580 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	By turning ON FB_EN (Execution command), event data of a specified CH is read.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
CHNo.	iw_CHNo	Word	1 to 8 (Hexadecimal)	Specify CH to read event data.

- Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.
Event descriptor	ow_EventDisc	Word	0	Returns a read event descriptor.
Event code	ow_EventCode	Word	0	Returns a read event code. About details of event codes refer to the manual of the connected IO-Link device.

## FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

## Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_RdEventData function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

2.3 M+NZ2GF12A-60IOLH8\_RdIdtData (Gateway identification data read)

FB Name

M+NZ2GF12A-60IOLH8\_RdIdtData

Function Overview

Item	Description		
Function overview	Reads gateway identification data of Waterproof Type Remote IO-Link Master Module.		
Symbol	<div><div><div><div>M+NZ2GF12A-60IOLH8_RdIdtData</div><div><div>Execution command</div><div>B : FB_EN</div><div>FB_ENO : B</div><div>Execution status</div></div><div><div>Start I/O No.</div><div>W : iw_StartIONo</div><div>FB_OK : B</div><div>Normal completion</div></div><div><div>Station No.</div><div>W : iw_StationNo</div><div>FB_ERROR : B</div><div>Error completion</div></div><div><div>Gateway identification data index</div><div>W : iw_IdtIndex</div><div>ERROR_ID : W</div><div>Error code</div></div><div><div></div><div>ow_IdtData : W</div><div>Gateway identification data</div></div></div></div></div>		
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module.	
		Series	Model
		MELSEC-Q series	QJ71GF11-T2
	MELSEC-L series	LJ71GF11-T2	
	Applicable programmable controller	This FB library can be used in following programmable controller CPU modules.	
		Series	Model
		MELSEC-Q series *1	Basic model QCPU*2
			High performance model QCPU*3
Universal model QCPU			
MELSEC-L series	-		
		*1 Not applicable to QCPU (A mode).	
		*2 The first five digits of the serial number are "04122" or later.	
		*3 The first five digits of the serial number are "04122" or later.	
	GX Works2	Ver 1.24A or later.	
Programming language	Ladder		
Number of steps	606 steps (For MELSEC-Q series universal model CPU)  *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.		

Item	Description
Function description	By turning ON FB_EN (Execution command), Gateway identification data of the specified Waterproof Type Remote IO-Link Master Module is read.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div>[When operation completes without error]</div> </div> <div> <div>[When an error occurs]</div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

### ● Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

### ● Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
Gateway identification data index	iw_IdtIndex	Word	10 to 14 (Hexadecimal)	Specify identification data index to read. H10: Vendor name H11: Vendor text H12: Product name H13: Product ID H14: Product text

### ● Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.
Gateway identification data	ow_IdtData	Word	0	Returns a read gateway identification data. Specify start device to store gateway identification data. The size of the area which is stored identification data depends on the read gateway identification data index.

## FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

## Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_RdIdtData function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

FB Name

M+NZ2GF12A-60IOLH8\_RdInitOprSet

Function Overview

Item	Description		
Function overview	Reads initial operation setting of Waterproof Type Remote IO-Link Master Module.		
Symbol	<div><div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div></div><div><div>M+NZ2GF12A-60IOLH8_RdInitOprSet</div><div>B : FB_EN</div><div>W : iw_StartIONo</div><div>W : iw_StationNo</div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div><div>ob_InitSetting : B</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Initial operation setting</div></div></div></div>		
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module.	
		Series	Model
		MELSEC-Q series	QJ71GF11-T2
		MELSEC-L series	LJ71GF11-T2
	Applicable programmable controller	This FB library can be used in following programmable controller CPU modules.	Series
MELSEC-Q series *1			Basic model QCPU*2
			High performance model QCPU*3
			Universal model QCPU
MELSEC-L series			-
		*1 Not applicable to QCPU (A mode).	
		*2 The first five digits of the serial number are "04122" or later.	
		*3 The first five digits of the serial number are "04122" or later.	
	GX Works2	Ver 1.24A or later.	
Programming language	Ladder		



Item	Description
Number of steps	610 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	By turning ON FB_EN (Execution command), Initial operation setting of Waterproof Type Remote IO-Link Master Module is read from the specified station.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div>[When operation completes without error]</div> </div> <div> <div>[When an error occurs]</div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.

- Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.
Initial operation setting	ob_InitSetting	Bit	OFF	ON: Initial operation setting is OFF. OFF: Initial operation setting is ON.

## FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

## Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_RdInitOprSet function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

FB Name

M+NZ2GF12A-60IOLH8\_RdISDUData

Function Overview

Item	Description		
Function overview	Reads ISDU data of a specified CH.		
Symbol	<div><div><div><div>Execution command</div><div>Start I/ONo.</div><div>Station No.</div><div>CHNo.</div><div>Index</div><div>Subindex</div><div>ISDU data length</div></div><div><div>M+NZ2GF12A-60IOLH8_RdISDUData</div><div><div>B : FB_EN</div><div>W : iw_StartIONo</div><div>W : iw_StationNo</div><div>W : iw_CHNo</div><div>W : iw_Index</div><div>W : iw_SubIndex</div><div>W : iw_ISDUDataLen</div></div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div><div>ow_ISDUData : W</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>ISDU data</div></div></div></div>		
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module.	
		Series	Model
		MELSEC-Q series	QJ71GF11-T2
		MELSEC-L series	LJ71GF11-T2
	Applicable programmable controller	This FB library can be used in following programmable controller CPU modules.	Series
MELSEC-Q series *1			Basic model QCPU*2
			High performance model QCPU*3
			Universal model QCPU
MELSEC-L series			-
		*1 Not applicable to QCPU (A mode).	
		*2 The first five digits of the serial number are "04122" or later.	
		*3 The first five digits of the serial number are "04122" or later.	
	GX Works2	Ver 1.24A or later.	
Programming language	Ladder		

Item	Description
Number of steps	727 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	By turning ON FB_EN (Execution command), ISDU data of a specified CH is read.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
CHNo.	iw_CHNo	Word	1 to 8 (Hexadecimal)	Specify CH to read ISDU data.
Index	iw_Index	Word	0 to FFFF (Hexadecimal)	Specify the index value of ISDU data to read. About details of index values refer to the manual of the connected IO-Link device.
Subindex	iw_SubIndex	Word	0 to FF (Hexadecimal)	Specify the subindex value of ISDU data to read. About details of subindex values refer to the manual of the connected IO-Link device.
ISDU data length	iw_ISDUDataLen	Word	This depends on ISDU data to read. For more details refer to the manual of the connected IO-Link device.	Specify ISDU data length (byte)*1 to read.

\*1 When a specified ISDU data length is an odd number, ISDU data which is added to the data length by 1 byte is read.  
Example) When ISDU data length set as 3 bytes, 4 bytes of ISDU data are read.

● Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.
ISDU data	ow_ISDUData	Word	0	Returns the value of ISDU data. Specify start device to store the value of ISDU data. The size of the area which is stored ISDU data depends on the read ISDU data.

### FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

### Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_RdISDUData function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

2.6 M+NZ2GF12A-60IOLH8\_RdStrData (Storage data read)

FB Name

M+NZ2GF12A-60IOLH8\_RdStrData

Function Overview

Item	Description								
Function overview	Reads storage data of a specified CH.								
Symbol	<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>Execution command</div><div>Start I/ONo.</div><div>Station No.</div><div>CHNo.</div><div>Section No.</div><div>Storage data length</div></div><div><div>M+NZ2GF12A-60IOLH8_RdStrData</div><div><div>B : FB_EN</div><div>W : iw_StartIONo</div><div>W : iw_StationNo</div><div>W : iw_CHNo</div><div>W : iw_SectionNo</div><div>W : iw_StrDataLen</div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div><div>ow_StorageData : W</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Storage data</div></div></div></div></div>								
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module. <table><tr><td>Series</td><td>Model</td></tr><tr><td>MELSEC-Q series</td><td>QJ71GF11-T2</td></tr><tr><td>MELSEC-L series</td><td>LJ71GF11-T2</td></tr></table>	Series	Model	MELSEC-Q series	QJ71GF11-T2	MELSEC-L series	LJ71GF11-T2	
		Series	Model						
		MELSEC-Q series	QJ71GF11-T2						
	MELSEC-L series	LJ71GF11-T2							
Applicable programmable controller	This FB library can be used in following programmable controller CPU modules. <table><tr><td>Series</td><td>Model</td></tr><tr><td rowspan="3">MELSEC-Q series *1</td><td>Basic model QCPU*2</td></tr><tr><td>High performance model QCPU*3</td></tr><tr><td>Universal model QCPU</td></tr><tr><td>MELSEC-L series</td><td>-</td></tr></table> <div>*1 Not applicable to QCPU (A mode).</div> <div>*2 The first five digits of the serial number are "04122" or later.</div> <div>*3 The first five digits of the serial number are "04122" or later.</div>	Series	Model	MELSEC-Q series *1	Basic model QCPU*2	High performance model QCPU*3	Universal model QCPU	MELSEC-L series	-
Series	Model								
MELSEC-Q series *1	Basic model QCPU*2								
	High performance model QCPU*3								
	Universal model QCPU								
MELSEC-L series	-								
	GX Works2	Ver 1.24A or later.							
Programming language	Ladder								



Item	Description
Number of steps	601 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	By turning ON FB_EN (Execution command), Storage data of a specified CH is read.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
CHNo.	iw_CHNo	Word	1 to 8 (Hexadecimal)	Specify CH to read storage data.
Section No.	iw_SectionNo	Word	0 to 2 (Hexadecimal)	Specify the section of the storage data to read.
Storage data length	iw_StrDataLen	Word	Section 0, 1:1 to 156 Section 2 :1 to 154 (Hexadecimal)	Specify the data length (word) of the storage data to read.

● Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.
Storage data	ow_StorageData	Word	0	Returns the storage data. Specify start device to store the value of storage data. The storage data is stored to the area of which size is specified in storage data length (iw_StrDataLen).

### FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

### Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_RdStrData function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

2.7 M+NZ2GF12A-60IOLH8\_WtDataStrSet (Data storage settings write)

FB Name

M+NZ2GF12A-60IOLH8\_WtDataStrSet

Function Overview

Item	Description									
Function overview	Writes data storage settings to each CH.									
Symbol	<div><div><div>M+NZ2GF12A-60IOLH8_WtDataStrSet</div><div><div>Execute command</div><div>B : FB_EN</div></div><div><div>Start I/ONo.</div><div>W : iw_StartIONo</div></div><div><div>Station No.</div><div>W : iw_StationNo</div></div><div><div>Data storage available setting</div><div>W : iw_DataStrSU</div></div><div><div>Upload setting</div><div>W : iw_DataStrUL</div></div><div><div>Download setting</div><div>W : iw_DataStrDL</div></div><div><div>Data storage clear setting</div><div>W : iw_DataStrClr</div></div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div></div></div>									
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module.								
		<table><tr><td>Series</td><td>Model</td></tr><tr><td>MELSEC-Q series</td><td>QJ71GF11-T2</td></tr><tr><td>MELSEC-L series</td><td>LJ71GF11-T2</td></tr></table>	Series	Model	MELSEC-Q series	QJ71GF11-T2	MELSEC-L series	LJ71GF11-T2		
		Series	Model							
	MELSEC-Q series	QJ71GF11-T2								
MELSEC-L series	LJ71GF11-T2									
Applicable programmable controller	This FB library can be used in following programmable controller CPU modules.	<table><tr><td>Series</td><td>Model</td></tr><tr><td rowspan="3">MELSEC-Q series *1</td><td>Basic model QCPU*2</td></tr><tr><td>High performance model QCPU*3</td></tr><tr><td>Universal model QCPU</td></tr><tr><td>MELSEC-L series</td><td>-</td></tr></table>	Series	Model	MELSEC-Q series *1	Basic model QCPU*2	High performance model QCPU*3	Universal model QCPU	MELSEC-L series	-
		Series	Model							
		MELSEC-Q series *1	Basic model QCPU*2							
			High performance model QCPU*3							
Universal model QCPU										
MELSEC-L series	-									
		*1 Not applicable to QCPU (A mode).								
		*2 The first five digits of the serial number are "04122" or later.								
		*3 The first five digits of the serial number are "04122" or later.								
	GX Works2	Ver 1.24A or later.								

Item	Description
Programming language	Ladder
Number of steps	959 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	By turning ON FB_EN (Execution command), Data storage settings are written to each CH.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> <li>7) After the FB completion, operation condition setting request flag needs to be turned ON to reflect the settings. Program separately the process to reflect the settings.</li> <li>8) Turn ON the operation condition setting request flag after 500ms from completion of this FB.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
Data storage available setting	iw_DataStrSU	Word	0 to FF (Hexadecimal)	Specify ON/OFF of Data storage available setting for each CH.
Upload setting	iw_DataStrUL	Word	0 to FF (Hexadecimal)	Specify whether to upload the parameter of data storage of each CH to IO-Link gateway or not.
Download setting	iw_DataStrDL	Word	0 to FF (Hexadecimal)	Specify whether to download the parameter of data storage of each CH to IO-Link gateway or not.
Data storage clear setting	iw_DataStrClr	Word	0 to FF (Hexadecimal)	Specify whether to clear the parameter of data storage of each CH to IO-Link gateway or not.

- Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.

### FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

### Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_WtDataStrSet function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.8 M+NZ2GF12A-60IOLH8\_WtInitOprSet (Initial operation setting write)

### FB Name

M+NZ2GF12A-60IOLH8\_WtInitOprSet

### Function Overview

Item	Description									
Function overview	Writes initial operation setting to Waterproof Type Remote IO-Link Master Module.									
Symbol	<div><div><div>Execution command</div><div>Start I/ONo.</div><div>Station No.</div><div>Initial operation setting</div></div><div><div>M+NZ2GF12A-60IOLH8_WtInitOprSet</div><div>B : FB_EN</div><div>W : iw_StartIONo</div><div>W : iw_StationNo</div><div>B : ib_InitSetting</div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div></div></div>									
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module.								
		<table><tr><td>Series</td><td>Model</td></tr><tr><td>MELSEC-Q series</td><td>QJ71GF11-T2</td></tr><tr><td>MELSEC-L series</td><td>LJ71GF11-T2</td></tr></table>	Series	Model	MELSEC-Q series	QJ71GF11-T2	MELSEC-L series	LJ71GF11-T2		
		Series	Model							
		MELSEC-Q series	QJ71GF11-T2							
MELSEC-L series	LJ71GF11-T2									
Applicable programmable controller	This FB library can be used in following programmable controller CPU modules.									
		<table><tr><td>Series</td><td>Model</td></tr><tr><td rowspan="3">MELSEC-Q series*1</td><td>Basic model QCPU*2</td></tr><tr><td>High performance model QCPU*3</td></tr><tr><td>Universal model QCPU</td></tr><tr><td>MELSEC-L series</td><td>-</td></tr></table>	Series	Model	MELSEC-Q series*1	Basic model QCPU*2	High performance model QCPU*3	Universal model QCPU	MELSEC-L series	-
		Series	Model							
		MELSEC-Q series*1	Basic model QCPU*2							
			High performance model QCPU*3							
Universal model QCPU										
MELSEC-L series	-									
*1 Not applicable to QCPU (A mode).										
*2 The first five digits of the serial number are "04122" or later.										
*3 The first five digits of the serial number are "04122" or later.										
	GX Works2	Ver 1.24A or later.								
Programming language	Ladder									
Number of steps	607 steps (For MELSEC-Q series universal model CPU)  *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.									
Function description	By turning ON FB_EN (Execution command), Initial operation setting is written to a specified Waterproof Type Remote IO-Link Master Module.									



Item	Description
Compiling method	Macro type
Restrictions and precautions	<p>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</p> <p>2) The FB cannot be used in an interrupt program.</p> <p>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</p> <p>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</p> <p>5) Every input must be provided with a value for proper FB operation.</p> <p>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</p> <p>7) After the FB completion, operation condition setting request flag needs to be turned ON to reflect the settings. Program separately the process to reflect the settings.</p> <p>8) Turn ON the operation condition setting request flag after 500ms from completion of this FB.</p>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual

Error codes		
<ul style="list-style-type: none"> <li>Error code list</li> </ul>		
Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

### ● Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
Initial operation setting	ib_InitSetting	Bit	ON, OFF	ON: Initial operation setting is OFF OFF: Initial operation setting is ON

### ● Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.

## FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

## Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_WtInitOprSet function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

FB Name

M+NZ2GF12A-60IOLH8\_WtISDUData

Function Overview

Item	Description									
Function overview	Writes ISDU data to a specified CH.									
Symbol	<div><div><div>Execution command</div><div>Start I/ONo.</div><div>Station No.</div><div>CHNo.</div><div>Index</div><div>Subindex</div><div>ISDU data length</div><div>ISDU data</div></div><div><div>M+NZ2GF12A-60IOLH8_WtISDUData</div><div>B : FB_EN</div><div>W : iw_StartIONo</div><div>W : iw_StationNo</div><div>W : iw_CHNo</div><div>W : iw_Index</div><div>W : iw_SubIndex</div><div>W : iw_ISDUDataLen</div><div>W: iw_ISDUData</div></div><div><div>FB_ENO : B</div><div>FB_OK : B</div><div>FB_ERROR : B</div><div>ERROR_ID : W</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div></div></div>									
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	<div>This FB library can be used in the following module.</div> <table><tr><td>Series</td><td>Model</td></tr><tr><td>MELSEC-Q series</td><td>QJ71GF11-T2</td></tr><tr><td>MELSEC-L series</td><td>LJ71GF11-T2</td></tr></table>	Series	Model	MELSEC-Q series	QJ71GF11-T2	MELSEC-L series	LJ71GF11-T2		
	Series	Model								
MELSEC-Q series	QJ71GF11-T2									
MELSEC-L series	LJ71GF11-T2									
	Applicable programmable controller	<div>This FB library can be used in following programmable controller CPU modules.</div> <table><tr><td>Series</td><td>Model</td></tr><tr><td rowspan="3">MELSEC-Q series *1</td><td>Basic model QCPU*2</td></tr><tr><td>High performance model QCPU*3</td></tr><tr><td>Universal model QCPU</td></tr><tr><td>MELSEC-L series</td><td>-</td></tr></table> <div>*1 Not applicable to QCPU (A mode).</div> <div>*2 The first five digits of the serial number are "04122" or later.</div> <div>*3 The first five digits of the serial number are "04122" or later.</div>	Series	Model	MELSEC-Q series *1	Basic model QCPU*2	High performance model QCPU*3	Universal model QCPU	MELSEC-L series	-
Series	Model									
MELSEC-Q series *1	Basic model QCPU*2									
	High performance model QCPU*3									
	Universal model QCPU									
MELSEC-L series	-									

Item	Description	
	GX Works2	Ver 1.24A or later.
Programming language	Ladder	
Number of steps	628 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.	
Function description	By turning ON FB_EN (Execution command), ISDU data is written to a specified CH.	
Compiling method	Macro type	
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program. 5) Every input must be provided with a value for proper FB operation. 6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.	
FB operation	Pulse type (multiple-scan execution type)	
Timing chart	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>[When operation completes without error]</p> </div> <div style="text-align: center;"> <p>[When an error occurs]</p> </div> </div>	
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual	

## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
CHNo.	iw_CHNo	Word	1 to 8 (Hexadecimal)	Specify CH to write ISDU data.
Index	iw_Index	Word	0 to FFFF (Hexadecimal)	Specify the index value of ISDU data to write. About details of index values refer to the manual of the connected IO-Link device.
Subindex	iw_SubIndex	Word	0 to FF (Hexadecimal)	Specify the subindex value of ISDU data to write. About details of subindex values refer to the manual of the connected IO-Link device.
ISDU data length	iw_ISDUDataLen	Word	This depends on ISDU data to write. For more details refer to the manual of the connected IO-Link device.	Specify ISDU data length (byte) to write.
ISDU data	iw_ISDUData	Word	This depends on ISDU data to write. For more details refer to the manual of the connected IO-Link device.	Specify data to write ISDU data.

● Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.

### FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

### Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_WtISDUData function block.

It does not include information on restriction of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

FB Name

M+NZ2GF12A-60IOLH8\_WtDeviceValid

Function Overview

Item	Description								
Function overview	Writes device validation configurations to a specified CH.								
Symbol	<div><div><div>M+NZ2GF12A-60IOLH8_WtDeviceValid</div><div><div>Execution command</div><div>B : FB_EN</div><div>FB_ENO : B</div><div>Execution Status</div></div><div><div>Start I/ONo.</div><div>W : iw_StartIONo</div><div>FB_OK : B</div><div>Normal completion</div></div><div><div>Station No.</div><div>W : iw_StationNo</div><div>FB_ERROR : B</div><div>Error completion</div></div><div><div>CHNo.</div><div>W : iw_CHNo</div><div>ERROR_ID : W</div><div>Error code</div></div><div><div>Validation Type</div><div>W : iw_ValidType</div><div></div><div></div></div><div><div>Vendor ID</div><div>W : iw_VendorID</div><div></div><div></div></div><div><div>Device ID</div><div>D : id_DeviceID</div><div></div><div></div></div><div><div>Serial Number</div><div>D : id_SerialNo</div><div></div><div></div></div></div></div>								
Applicable hardware and software	Applicable CC-Link IE Field Network master/local module	This FB library can be used in the following module. <table><tr><th>Series</th><th>Model</th></tr><tr><td>MELSEC-Q series</td><td>QJ71GF11-T2</td></tr><tr><td>MELSEC-L series</td><td>LJ71GF11-T2</td></tr></table>	Series	Model	MELSEC-Q series	QJ71GF11-T2	MELSEC-L series	LJ71GF11-T2	
		Series	Model						
		MELSEC-Q series	QJ71GF11-T2						
	MELSEC-L series	LJ71GF11-T2							
Applicable programmable controller	This FB library can be used in following programmable controller CPU modules. <table><tr><th>Series</th><th>Model</th></tr><tr><td rowspan="3">MELSEC-Q series *1</td><td>Basic model QCPU*2</td></tr><tr><td>High performance model QCPU*3</td></tr><tr><td>Universal model QCPU</td></tr><tr><td>MELSEC-L series</td><td>-</td></tr></table> <div>*1 Not applicable to QCPU (A mode).</div> <div>*2 The first five digits of the serial number are "04122" or later.</div> <div>*3 The first five digits of the serial number are "04122" or later.</div>	Series	Model	MELSEC-Q series *1	Basic model QCPU*2	High performance model QCPU*3	Universal model QCPU	MELSEC-L series	-
	Series	Model							
	MELSEC-Q series *1	Basic model QCPU*2							
High performance model QCPU*3									
Universal model QCPU									
MELSEC-L series	-								
GX Works2	Ver 1.24A or later.								

Item	Description
Programming language	Ladder
Number of steps	627 steps (For MELSEC-Q series universal model CPU) *The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	By turning ON FB_EN (Execution command), Device validation configurations are written to a specified CH.
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z9, Z8, Z7 and Z6. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) There is a module error code in the module status area of Waterproof Type Remote IO-Link Master Module. This FB does not output this error code.</li> <li>7) After the FB completion, operation condition setting request flag needs to be turned ON to reflect the settings. Program separately the process to reflect the settings.</li> <li>8) Turn ON the operation condition setting request flag after 500ms from completion of this FB.</li> </ol>
FB operation	Pulse type (multiple-scan execution type)
Timing chart	<div> <div> <p>[When operation completes without error]</p> </div> <div> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual



## Error codes

- Error code list

Error code	Description	Action
10 (Hexadecimal)	Remote READY status is not ON.	Turn ON remote READY status.

About other error codes refer to "CC-Link IE Field Network Waterproof Remote IO-Link Module User's Manual".

## Labels

- Input labels

Name(Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Start I/O No.	iw_StartIONo	Word	0 to FFFF (Hexadecimal)	Specify the start I/O number of CC-Link IE Field Network master/local module in hexadecimal.
Station No.	iw_StationNo	Word	1 to 78 (Hexadecimal)	Specify the station number of the target Waterproof Type Remote IO-Link Master Module.
CHNo.	iw_CHNo	Word	1 to 8 (Hexadecimal)	Specify CH to write validation configuration.
Validation configuration	iw_ValidConf	Word	0 to 2 (Hexadecimal)	Specify validation configuration. H00: Deactivate H01: Compatibility validation H02: Identicalness validation
Vendor ID	iw_VendorID	Word	0 to FFFF (Hexadecimal)	Specify vendor ID to compare with connected IO-Link device. About details to specify setting refer to "Appendix 1.7 Device validation configuration settings".

Name(Comment)	Label name	Data type	Setting range	Description
Device ID	id_DeviceID	Double word	0 to FFFFFFFF (Hexadecimal)	Specify device ID to compare with connected IO-Link device. About details to specify setting refer to "Appendix 1.7 Device validation configuration settings".
Serial number	id_SerialNo	Double word	-	Specify start device which stores area for the serial number to compare with connected IO-Link device. About details to specify setting refer to "Appendix 1.7 Device validation configuration settings".

● Output labels

Name(Comment)	Label name	Data type	Initial Value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	ON: FB execution completed without errors. OFF: FB execution is not completed.
Error Completion	FB_ERROR	Bit	OFF	ON: An error occurred during FB execution. OFF: FB execution is not completed.
Error code	ERROR_ID	Word	0	FB error code output.

### FB Version Upgrade History

Version	Date	Description
1.00A	2017/04/28	First edition

### Note

This chapter includes information related to the M+NZ2GF12A-60IOLH8\_WtDeviceValid function block.  
It does not include information on restriction of use such as combination with modules or programmable controller CPUs.  
Before using any Mitsubishi products, please read all the relevant manuals.

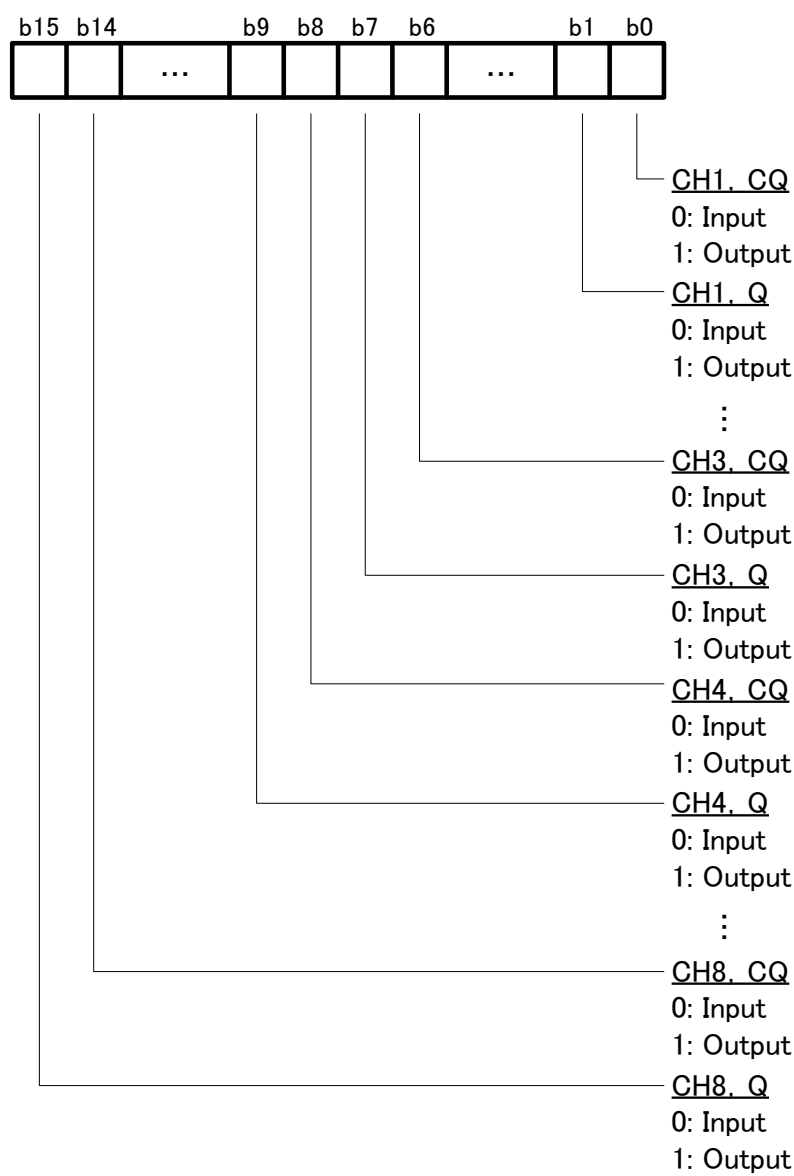
Appendix 1.        Setting Parameters

This section explains the settings of parameters which are used in FB library.

Appendix 1.1.     Input-output switching operation

Specify input or output for Q/CH of each CH.

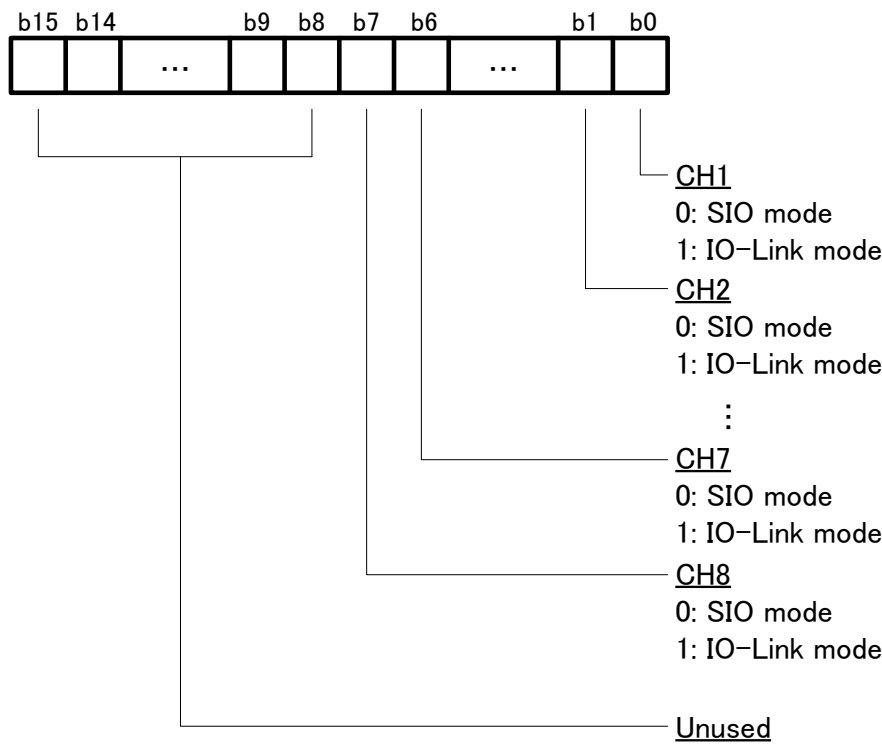
Corresponding CH and Q/CQ for each bit are shown as follows.



Appendix 1.2. Mode switching operation

Specify mode for each CH.

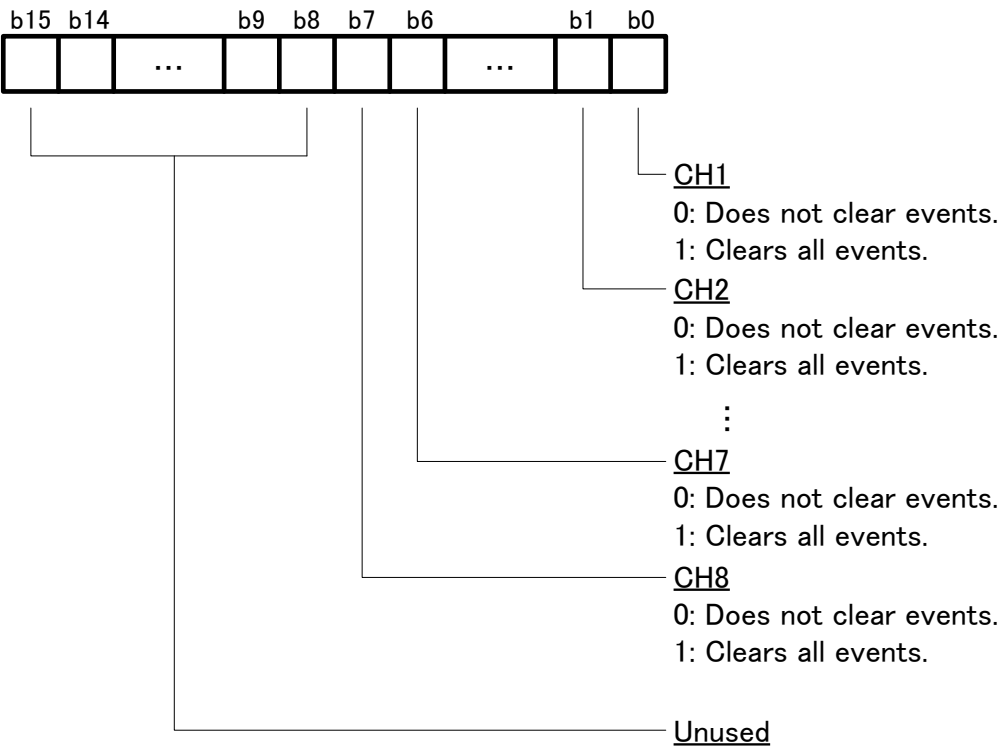
Corresponding CH for each bit are shown as follows.



Appendix 1.3. Event clear setting

Specify whether to clear events occur to each CH or not.

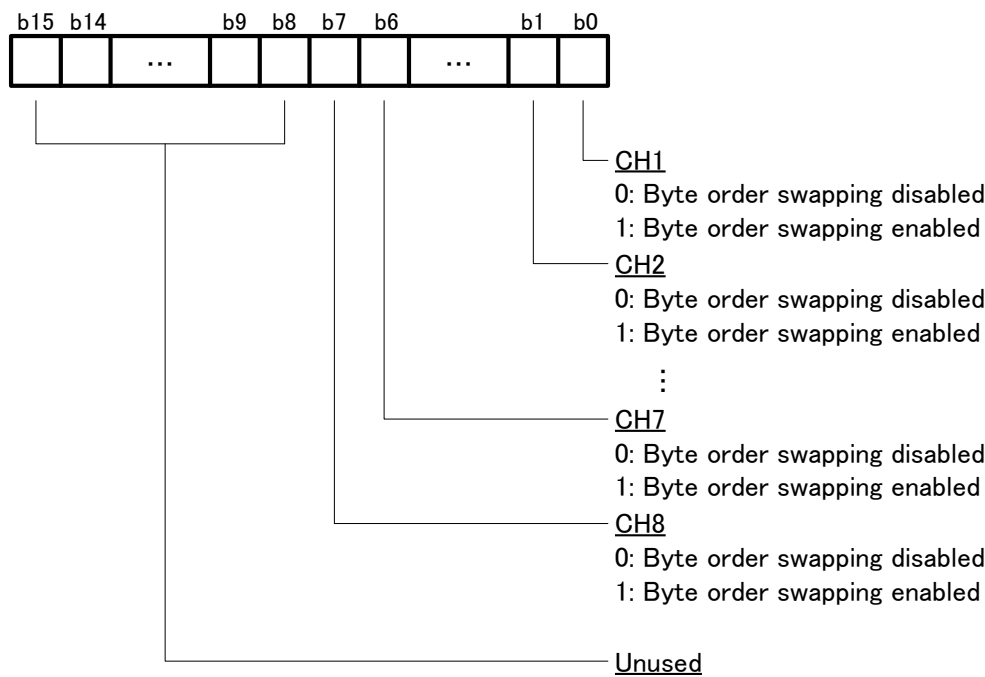
Corresponding CH for each bit are shown as follows.



Appendix 1.4.      Byte order swapping setting

Specify byte order swapping setting for each CH.

Corresponding CH for each bit are shown as follows.



Appendix 1.5.      Process data size setting

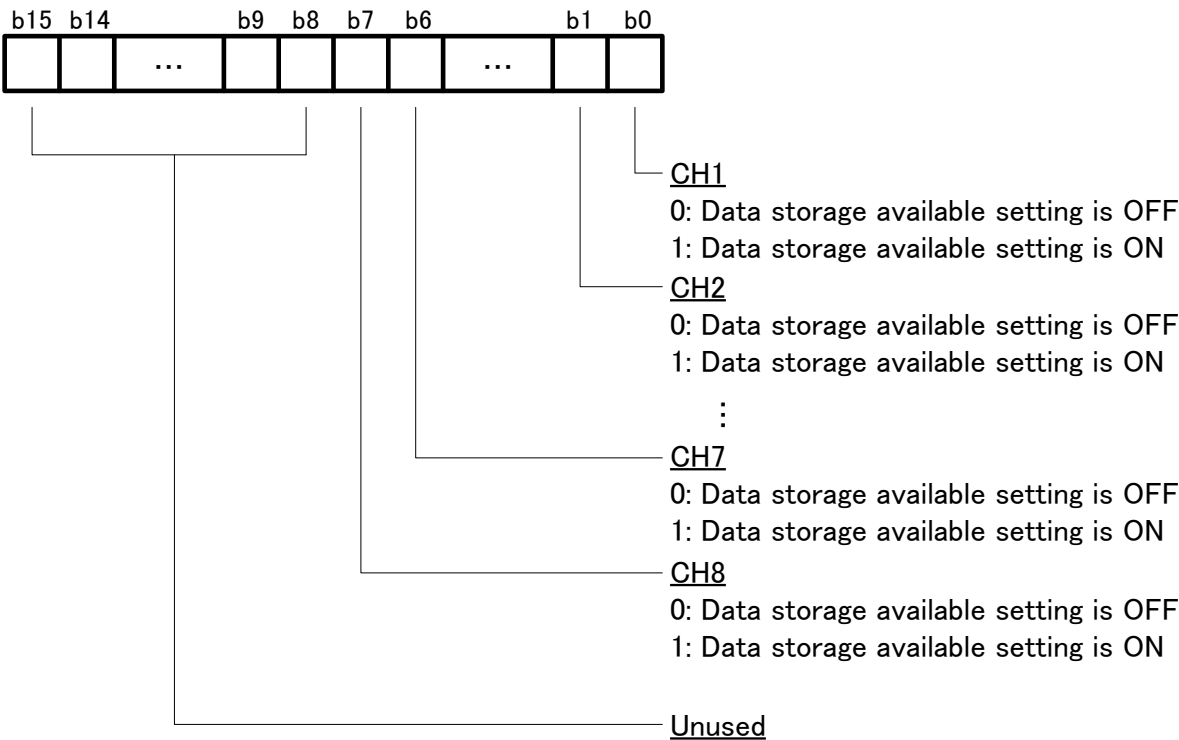
Specify process data size to set to consecutive 8 words of device for each CH.  
Specify process data size for each CH as follows.

(Start device) +0	CH1 Process data size
(Start device) +1	CH2 Process data size
(Start device) +2	CH3 Process data size
(Start device) +3	CH4 Process data size
(Start device) +4	CH5 Process data size
(Start device) +5	CH6 Process data size
(Start device) +6	CH7 Process data size
(Start device) +7	CH8 Process data size

Appendix 1.6.      Data storage setting

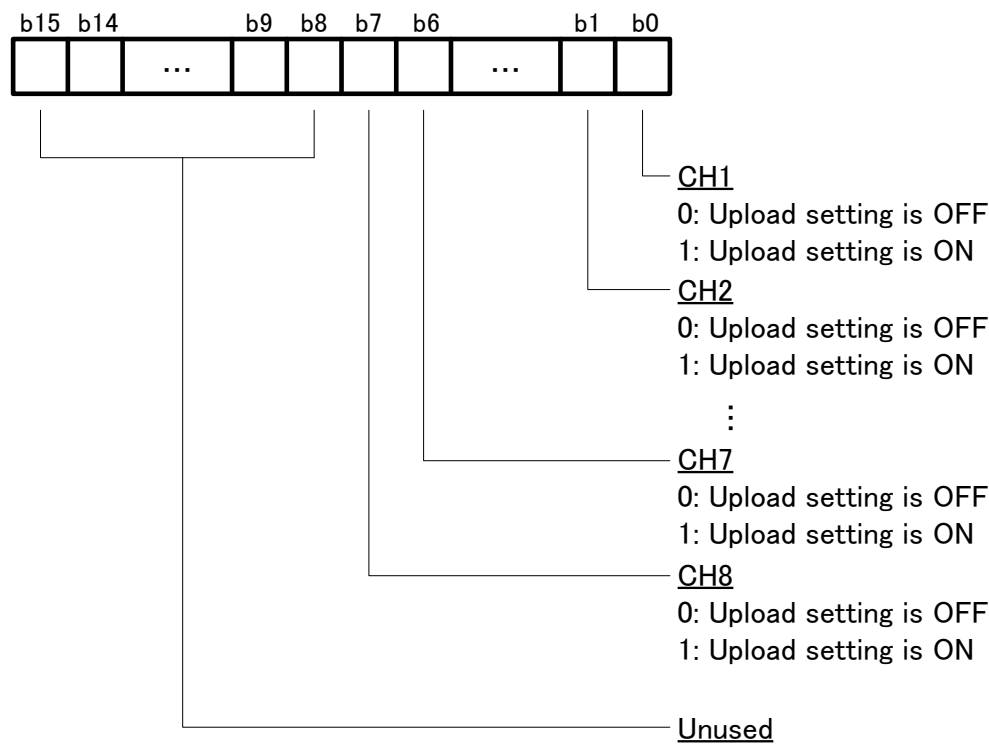
(1) Data storage available setting

Specify ON/OFF of data storage available setting for each CH.  
Corresponding CH for each bit are shown as follows.



(2) Upload setting

Specify data storage upload setting for each CH.  
Corresponding CH for each bit are shown as follows.





(3) Download setting

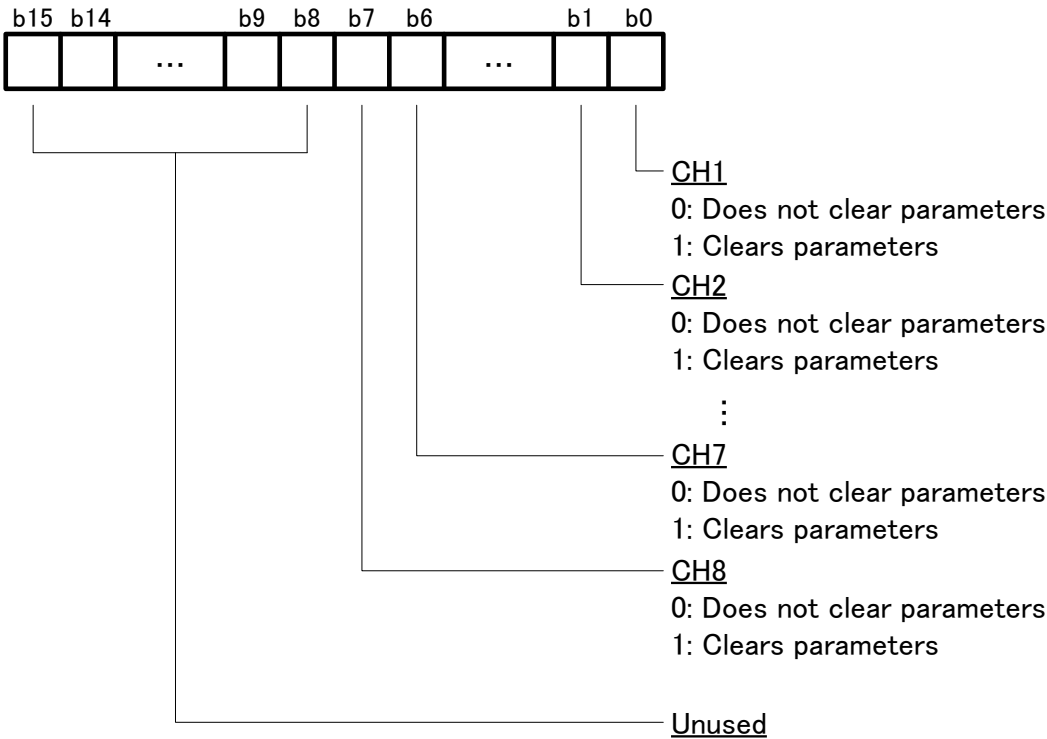
Specify data storage download setting for each CH.

Corresponding CH for each bit are shown as follows.



(4) Data storage clear setting

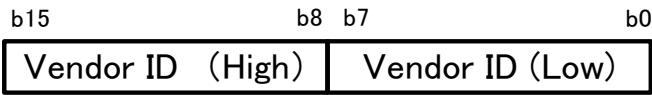
Specify whether to clear parameters of data storage of each CH or not.  
Corresponding CH for each bit are shown as follows.



Appendix 1.7. Device validation configuration settings

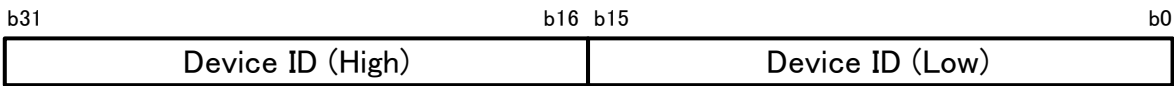
(1) Vendor ID

Specify vendor ID to set for device validation.  
Specify vendor ID as follows.



(2) Device ID

Specify device ID to set for device validation.  
Specify device ID as follows.



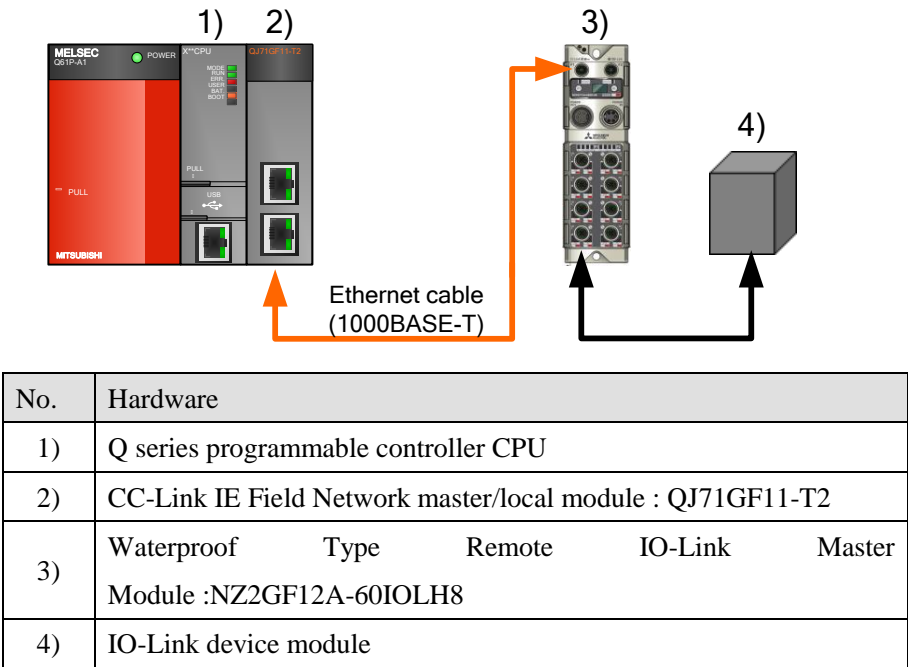
(3) Serial Number

Specify serial number to set for device validation.  
Specify serial number as follows.

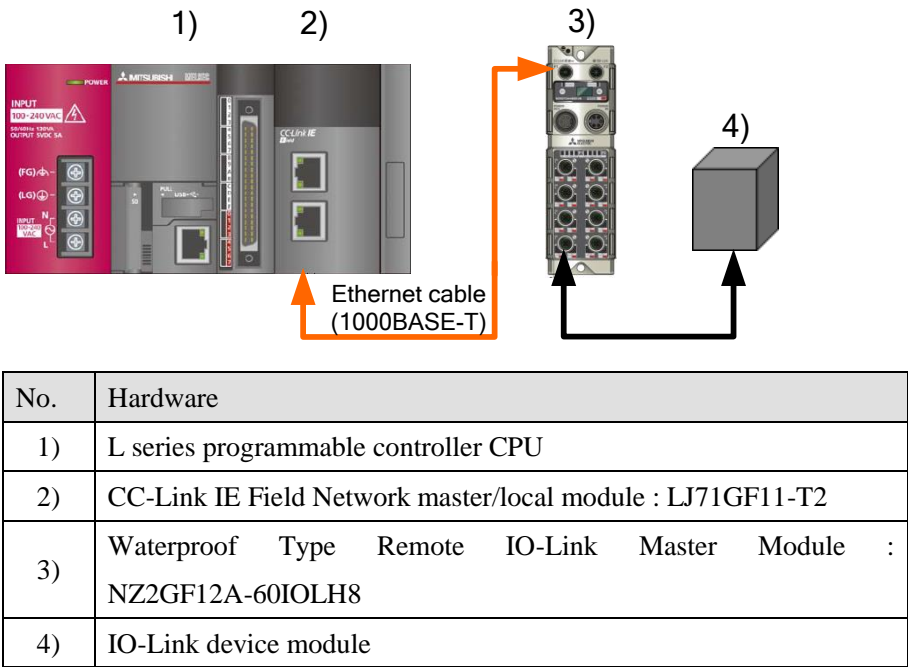
	b31	b16 b15		b0
(Start device) +0	Serial Number 4	Serial Number 3	Serial Number 2	Serial Number 1
(Start device) +1	Serial Number 8	Serial Number 7	Serial Number 6	Serial Number 5
(Start device) +2	Serial Number 12	Serial Number 11	Serial Number 10	Serial Number 9
(Start device) +3	Serial Number 16	Serial Number 15	Serial Number 14	Serial Number 13

System Configuration

(1) Q series system configuration Example



(2) L series system configuration Example



Reminder

- Every input must be provided with a value for proper FB operation. If not set, the values will be unspecified.
- Abbreviations may be used in label comments due to the limitation on the number of the characters to display in GX

## About settings of QJ71GF11-T2(LJ71GF11-T2) and NZ2GF12A-60IOLH8

About settings of QJ71GF11-T2 (LJ71GF11-T2) and NZ2GF12A-60IOLH8 refer to "1.4 Settings of CC-Link IE Field Network Master/Local Module" and "1.5 Communication settings of NZ2GF12A-60IOLH8".

### Device list

#### a) External Input (commands)

Device	FB name	Application(ON details)
M0	M+NZ2GF12A-60IOLH8_CCIEFIOAdv	Advanced setting FB execution
D200 to D207		Start devices of the device area to store process data size for each CH.
M10	M+NZ2GF12A-60IOLH8_RdEventData	Event data read FB execution
M20	M+NZ2GF12A-60IOLH8_RdIdtData	Gateway identification FB execution
M30	M+NZ2GF12A-60IOLH8_RdInitOprSet	Initial operation setting read FB execution
M40	M+NZ2GF12A-60IOLH8_RdISDUData	ISDU data read FB execution
M50	M+NZ2GF12A-60IOLH8_RdStrData	Storage data read FB execution
M60	M+NZ2GF12A-60IOLH8_WtDataStrSet	Data storage setting write FB execution
M70	M+NZ2GF12A-60IOLH8_WtInitOprSet	Initial operation setting write FB execution
M73		Initial operation is ON
M80	M+NZ2GF12A-60IOLH8_WtISDUData	ISDU data write FB execution
M90	M+NZ2GF12A-60IOLH8_WtDeviceValid	Device validation configurations write FB execution
D91 to D98		Serial number

#### b) External Output (checks)

Device	FB name	Application(ON details)
M1	M+NZ2GF12A-60IOLH8_CCIEFIOAdv	Advanced setting FB is executing.
M2		Advanced setting FB is normal completion.
F0		Advance setting FB is error completion.
D0		When the FB is error completion the error code is stored.
D1		Start device to store the value to remote output device is stored.
M3		Error status flag is ON.
M4		Remote READY is ON.
M11	M+NZ2GF12A-60IOLH8_RdEventData	Event data read FB is executing.
M12		Event data read FB is normal completion.
F10		Event data read FB is error completion.
D10		When the FB is error completion the error code is stored.
D11		The read event descriptor is stored.
D12		The read event code is stored.

Device	FB name	Application(ON details)
M21	M+NZ2GF12A-60IOLH8_RdIdtData	Gateway identification data read FB is executing.
M22		Gateway identification data read FB is normal completion.
F20		Gateway identification data read FB is error completion.
D20		When the FB is error completion the error code is stored.
D21 to D28		The read gateway identification data is stored.
M31	M+NZ2GF12A-60IOLH8_RdInitOprSet	Initial operation setting read FB is executing.
M32		Initial operation setting read FB is normal completion.
F30		Initial operation setting read FB is error completion.
D30		When the FB is error completion the error code is stored.
M33		Initial operation is ON.
M41	M+NZ2GF12A-60IOLH8_RdISDUData	ISDU data read FB is executing.
M42		ISDU data read FB is normal completion.
F40		ISDU data read FB is error completion.
D40		When the FB is error completion the error code is stored.
D300 to		The read ISDU data is stored.
M51	M+NZ2GF12A-60IOLH8_RdStrData	Storage data read FB is executing.
M52		Storage data read FB is normal completion.
F50		Storage data read FB is error completion.
D50		When the FB is error completion the error code is stored.
D51		The read storage data is stored.
M61	M+NZ2GF12A-60IOLH8_WtDataStrSet	Data storage settings write FB is executing.
M62		Data storage settings write FB is normal completion.
F60		Data storage settings write FB is error completion.
D60		When the FB is error completion the error code is stored.
M71	M+NZ2GF12A-60IOLH8_WtInitOprSet	Initial operation setting write FB is executing.
M72		Initial operation setting write FB is normal completion.
F70		Initial operation setting write FB is error completion.
D70		When the FB is error completion the error code is stored.
M81	M+NZ2GF12A-60IOLH8_WtISDUData	ISDU data write FB is executing.
M82		ISDU data write FB is normal completion.
F80		ISDU data write FB is error completion.
D80		When the FB is error completion the error code is stored.
M91	M+NZ2GF12A-60IOLH8_WtDeviceValid	Device validation configurations write FB is executing.
M92		Device validation configurations write FB is normal completion.
F90		Device validation configurations write FB is error completion.
D90		When the FB is error completion the error code is stored.

## Application example settings

### a) Common setting

Input and output item	Value	Description
Start I/O No.	H0	Set Start I/O number of CC-Link IE Field Network master/local module to communicate to H0000.
Station No.	K1	Set target Station No. to 1.

## Program

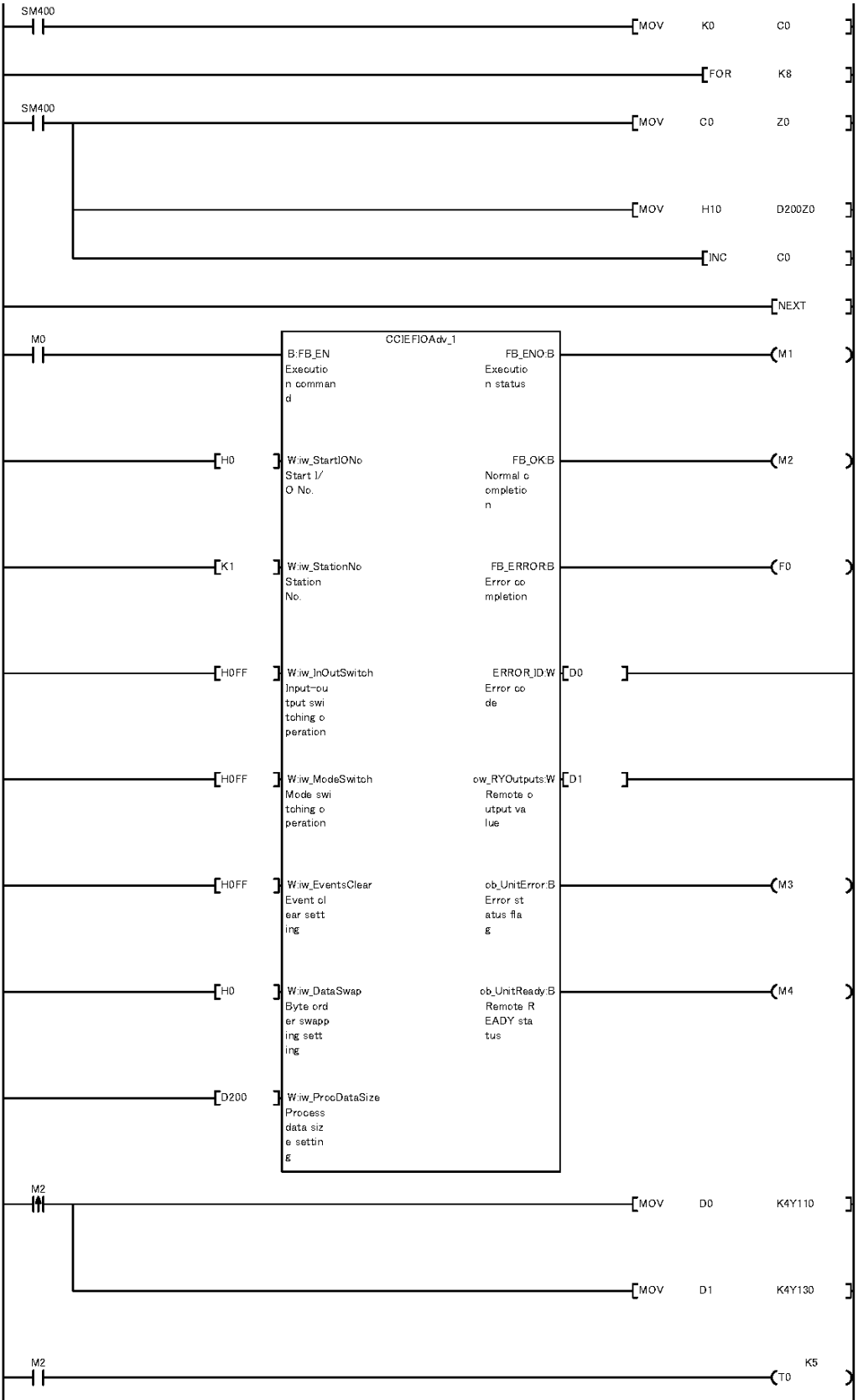
M+NZ2GF12A-60IOLH8\_CCIEFIOAdv (Advanced setting)

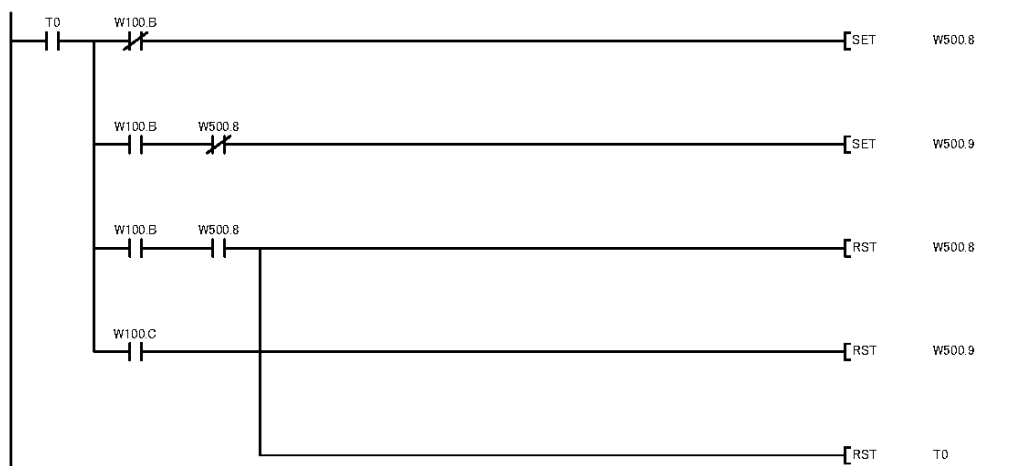
The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_InOutSwitch	HFF	Set Q/CQ of CH1 to 4 as output. Set Q/CQ of CH 5 to 8 as input.
iw_ActivateIO	HFF	Set all CH as IO-Link mode.
iw_EventClear	HFF	Clear all events of all CH.
iw_DataSwap	H0	Set byte order swapping setting of all CH as OFF
iw_ProcDataSize	H10(CH1)	Set process data size of CH1 as 16 words.
	H10(CH2)	Set process data size of CH2 as 16 words.
	H10(CH3)	Set process data size of CH3 as 16 words.
	H10(CH4)	Set process data size of CH4 as 16 words.
	H10(CH5)	Set process data size of CH5 as 16 words.
	H10(CH6)	Set process data size of CH6 as 16 words.
	H10(CH7)	Set process data size of CH7 as 16 words.
	H10(CH8)	Set process data size of CH8 as 16 words.



By turning ON M0, the FB sets process data size and outputs value to set to remote output device. The output value is stored to remote output device after the FB completion.



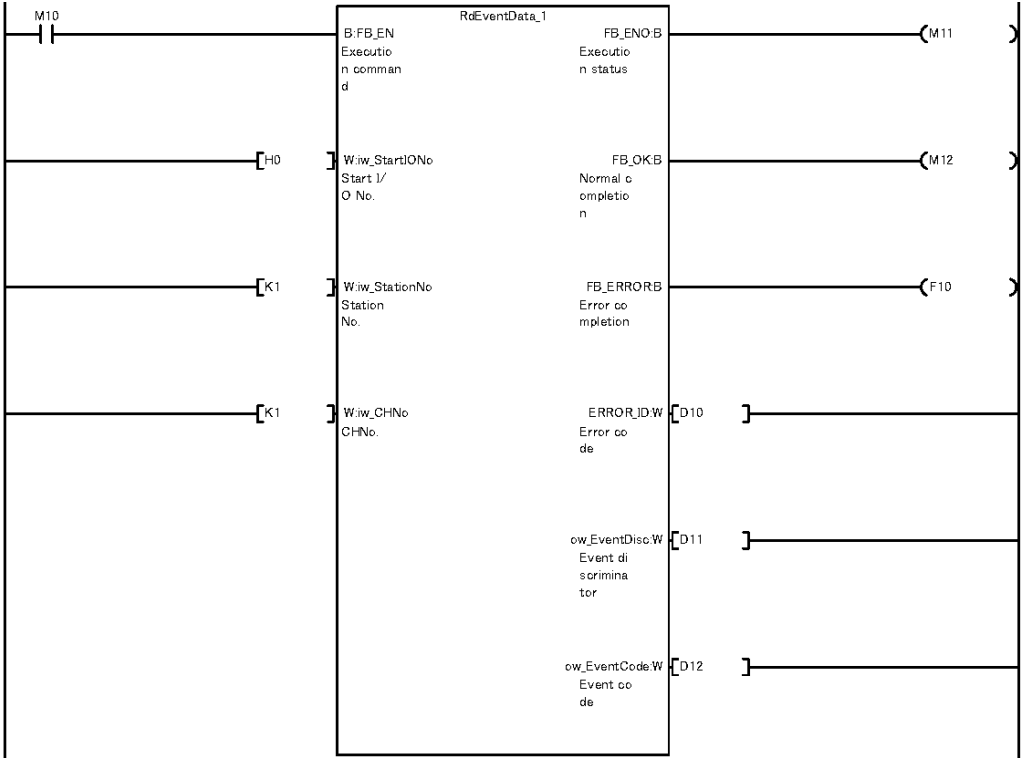


M+NZ2GF12A-60IOLH8\_RdEventData (Event data read)

The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_CHNo	K1	Set CH1 as the target CH.

By turning ON M10, event data is read.

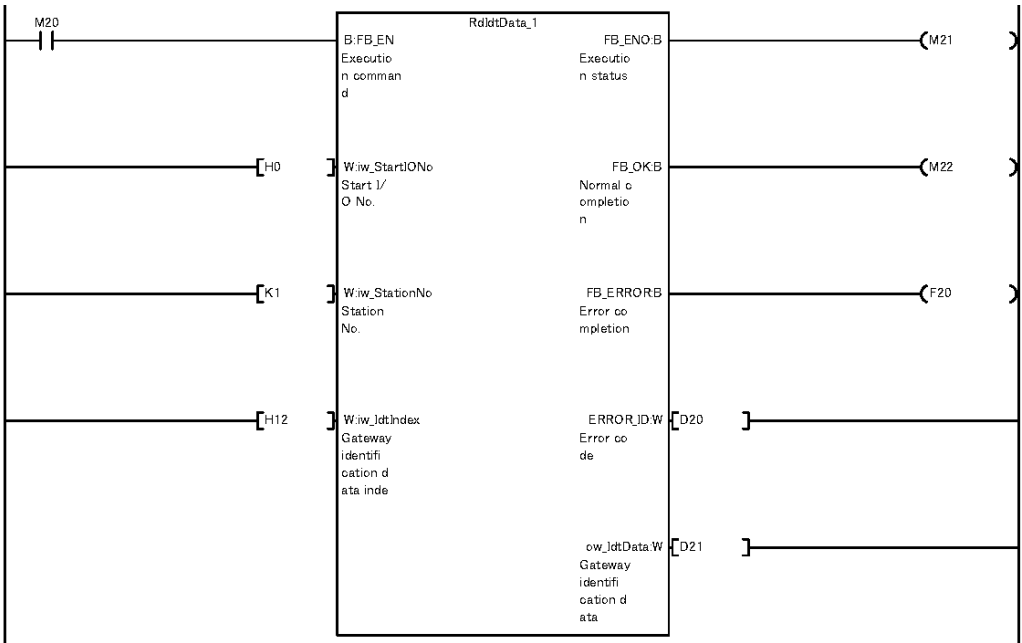


M+NZ2GF12A-60IOLH8\_RdIdtData (Gateway identification data read)

The example below shows a program with the following conditions.

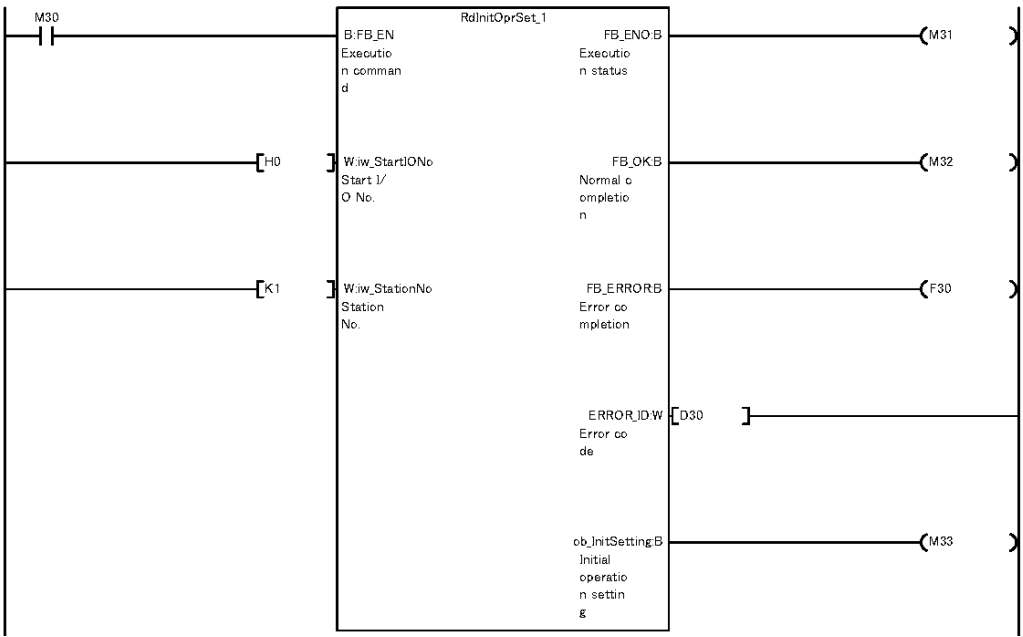
Label Name	Setting Values	Description
iw_IdtIndex	H12	Set H12 as gateway identification data to read.

By turning ON M20, the FB reads product name (H12) from gateway identification data and stores the read value to D21 and subsequent devices.



M+NZ2GF12A-60IOLH8\_RdInitOprSet (Initial operation setting read)

By turning ON M30, initial operation setting is read.

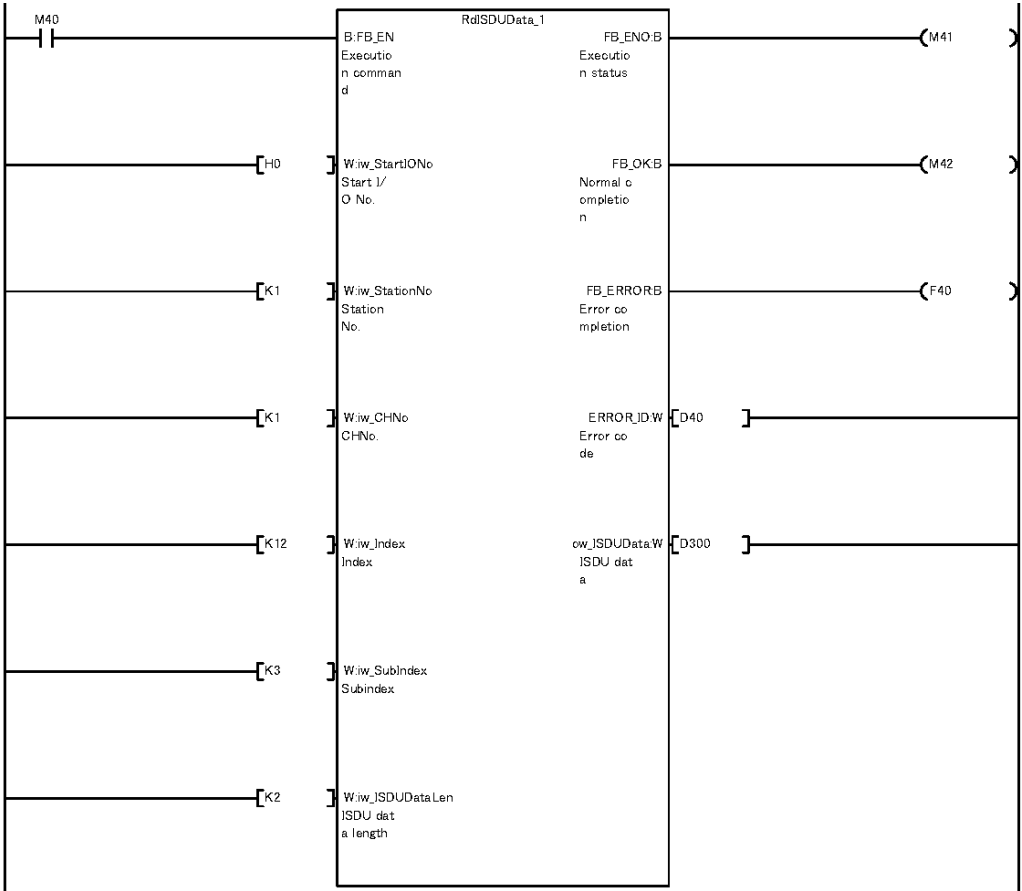


M+NZ2GF12A-60IOLH8\_RdISDUData (ISDU data read)

The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_CHNo	K1	Set CH1 as the target CH.
iw_Index	K12	Set 16 as the index value to read.
iw_SubIndex	K3	Set 0 as the subindex value to read.
iw_ISDUDataLen	K2	Set 2 as the ISDU data length to read.

By turning ON M40, the FB reads data from set ISDU data (Index: 12, Subindex: 3) and stores the read value to D300 and subsequent devices.

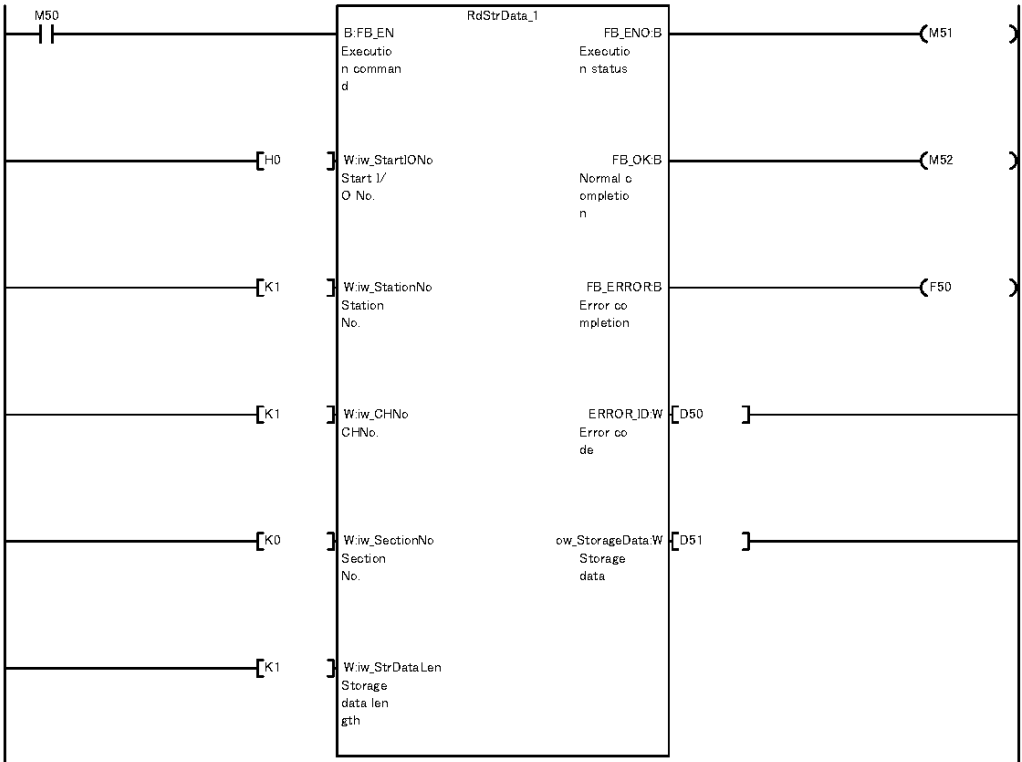


M+NZ2GF12A-60IOLH8\_RdStrData (Storage data read)

The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_CHNo	K1	Set CH1 as the target CH.
iw_SectionNo	K0	Set No.0 as section No. of storage data to read.
iw_StrDataLen	K1	Set 1 as the data length to read.

By turning ON M50, the FB reads 1 word data from data storage of which section No. is 0.

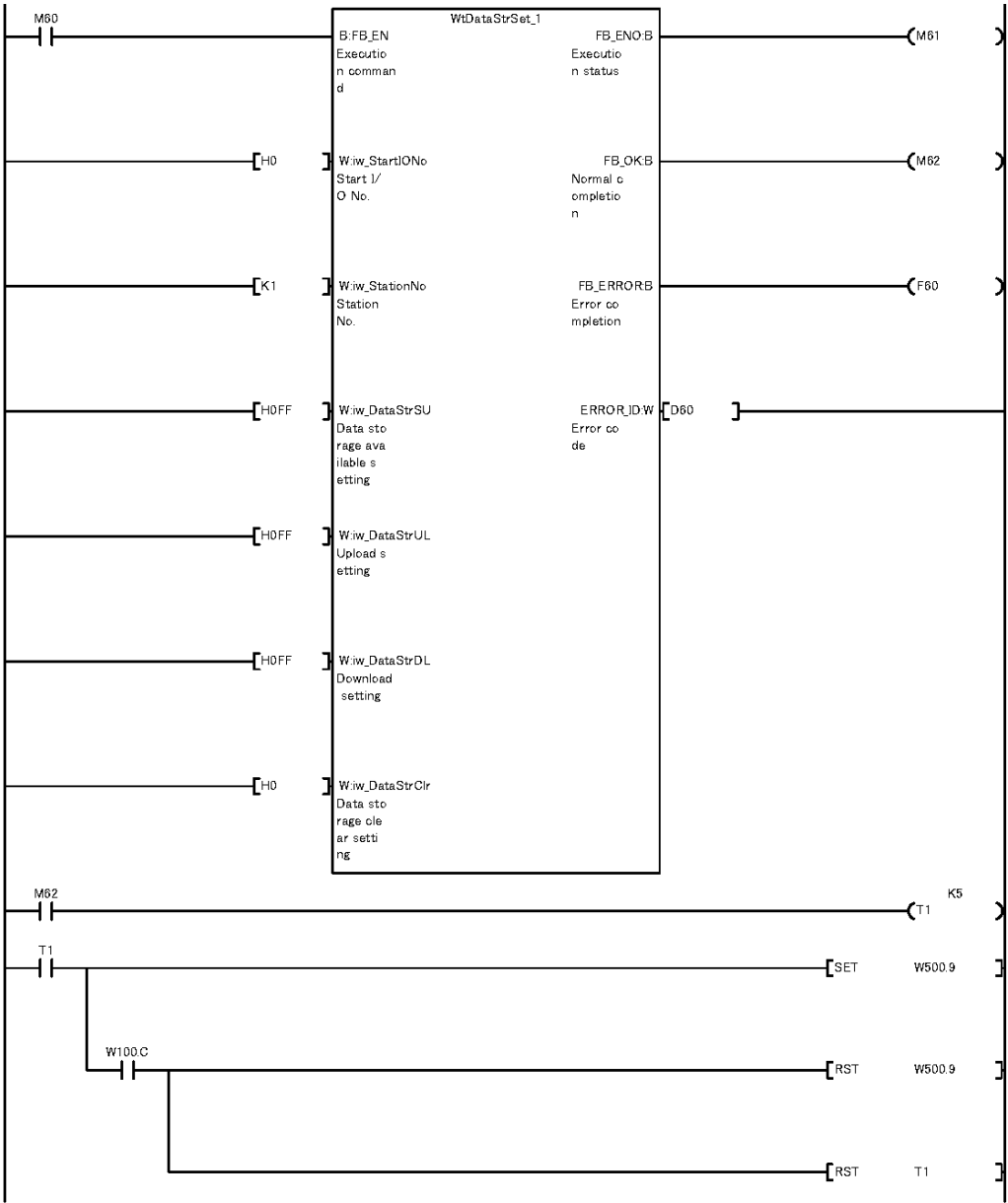


M+NZ2GF12A-60IOLH8\_WtDataStrSet (Data storage settings write)

The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_DataStrSU	HFF	Set ON to data storage of all CH.
iw_DataStrUL	HFF	Set ON to data upload of all CH.
iw_DataStrDL	HFF	Set ON to data download of all CH.
iw_DataStrClr	H0	Set ON to data storage clear of all CH.

By turning ON M60, the FB sets specified value to each CH.



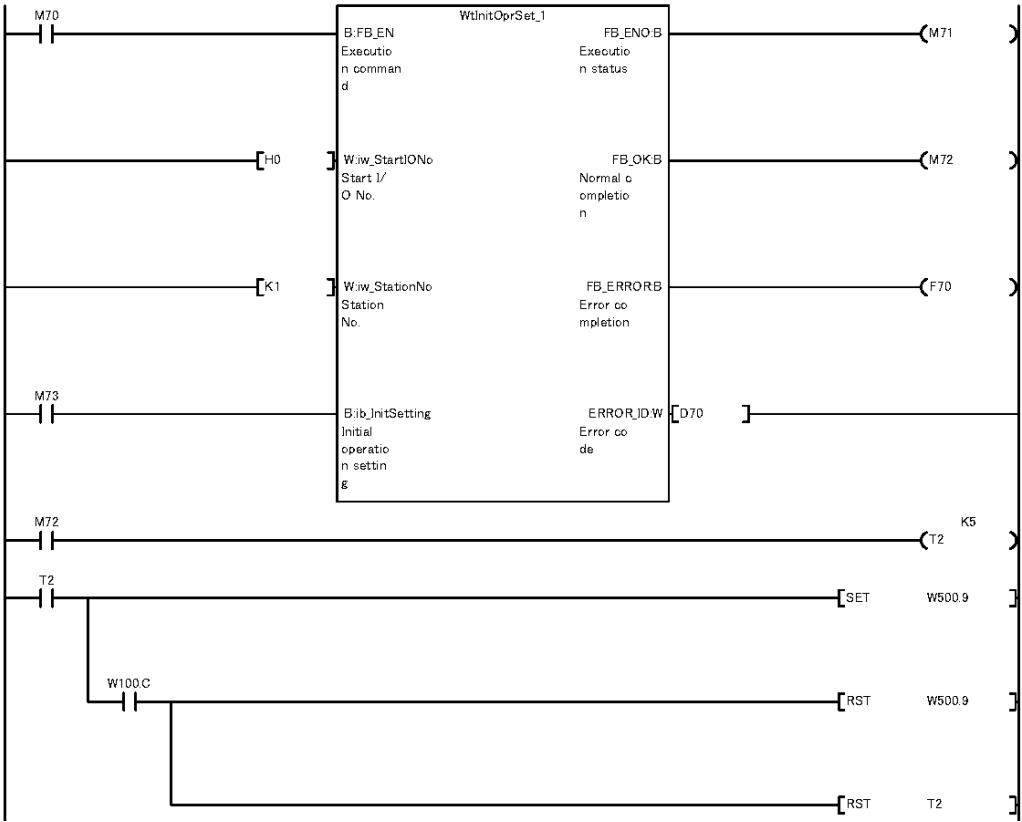


M+NZ2GF12A-60IOLH8\_WtInitOprSet (Initial operation setting write)

The example below shows a program with the following conditions.

Label Name	Setting Values	Description
ib_InitSetting	ON	Set initial operation setting to OFF.

By turning ON M70, Initial operation setting is set to OFF.

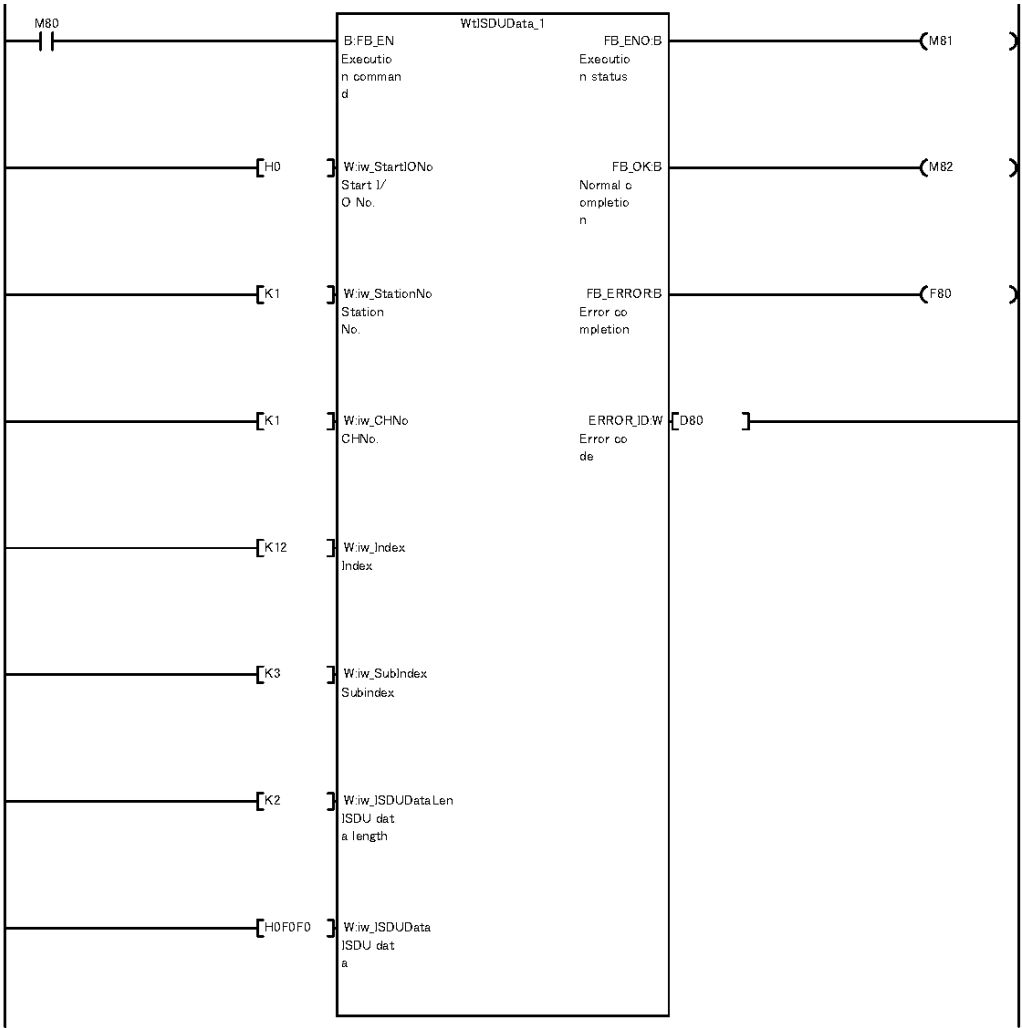


M+NZ2GF12A-60IOLH8\_WtISDUData (ISDU data write)

The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_CHNo	K1	Set CH1 as the target CH.
iw_Index	K12	Set 12 as the index value to write.
iw_SubIndex	K3	Set 3 as the subindex value to write.
iw_ISDUDataLen	K2	Set 2 as the ISDU data length to write.
iw_ISDUData	HF0F0	Set HF0F0 as the ISDU data to write.

By turning ON M80, the FB writes "F0F0" to the specified ISDU(Index: 12, Subindex: 3).



The example below shows a program with the following conditions.

Label Name	Setting Values	Description
iw_CHNo	K1	Set CH1 as the target CH.
iw_ValidConf	H1	Set H1(Compatibility validation) as device validation type.
iw_VendorID	H1234	Set H1234 as vendor ID.
id_DeviceID	H56789A	Set H56789A as device ID.
id_SerialNo	H0000, H0000, H0000, H0000, H0000, H0000, H0000, H0000	Set H00000000, H00000000, H00000000, H00000000 as Serial number.

By turning ON M90, this FB reflects the specified setting value in device validation configuration of CH1.

