

# CC-Link IE Field Network Digital-Analog Converter Module FB Library Reference Manual

Applicable module:

NZ2GF2B-60DA4, NZ2GF2BN-60DA4

## <CONTENTS>

Reference Manual Revision History .....	2
1. Overview .....	3
1.1. Overview of the FB Library .....	3
1.2. Function of the FB Library.....	3
1.3. System Configuration Example .....	4
1.4. Setting the CC-Link IE Field Network Master/Local Module .....	5
1.5. Setting Global Labels.....	9
1.6. Creating Interlock Programs .....	10
1.6.1. Cyclic Transmission Program .....	10
1.7. Relevant Manuals .....	11
1.8. Note.....	11
2. Details of the FB Library.....	12
2.1. M+NZ2GF2B60DA4_SetInitData (Initial data setting).....	12
2.2. M+NZ2GF2B60DA4_ErrorOperation (Error operation).....	18
Appendix 1. When Using the FB for 2 or More Master/Local Modules .....	24
Appendix 1.1. Entering Network Parameters .....	25
Appendix 1.2. Entering Global Labels .....	29
Appendix 1.3. Copying MELSOFT Library to Create an FB for the Second module.....	30
Appendix 1.4. Replacing Devices to Create the FB for the Second Module .....	32
Appendix 2. FB Library Application Examples.....	34

## Reference Manual Revision History

Reference Manual Number	Date	Description
FBM-M098-A	2013/07/31	First edition
FBM-M098-B	2015/08/31	<ol style="list-style-type: none"><li>1) Added about the following module.<ul style="list-style-type: none"><li>• CC-Link IE Field Network Digital- Analog Converter Module NZ2GF2BN-60DA4</li></ul></li><li>2) Added applicable GX Works2 Version.<ul style="list-style-type: none"><li>• This FB is able to install on GX Works2 of all language versions.</li></ul></li></ol>

## 1. Overview

### 1.1. Overview of the FB Library

This FB Library is for using the CC-Link IE Field Network Digital-Analog Converter Module NZ2GF2B-60DA4, NZ2GF2BN-60DA4.

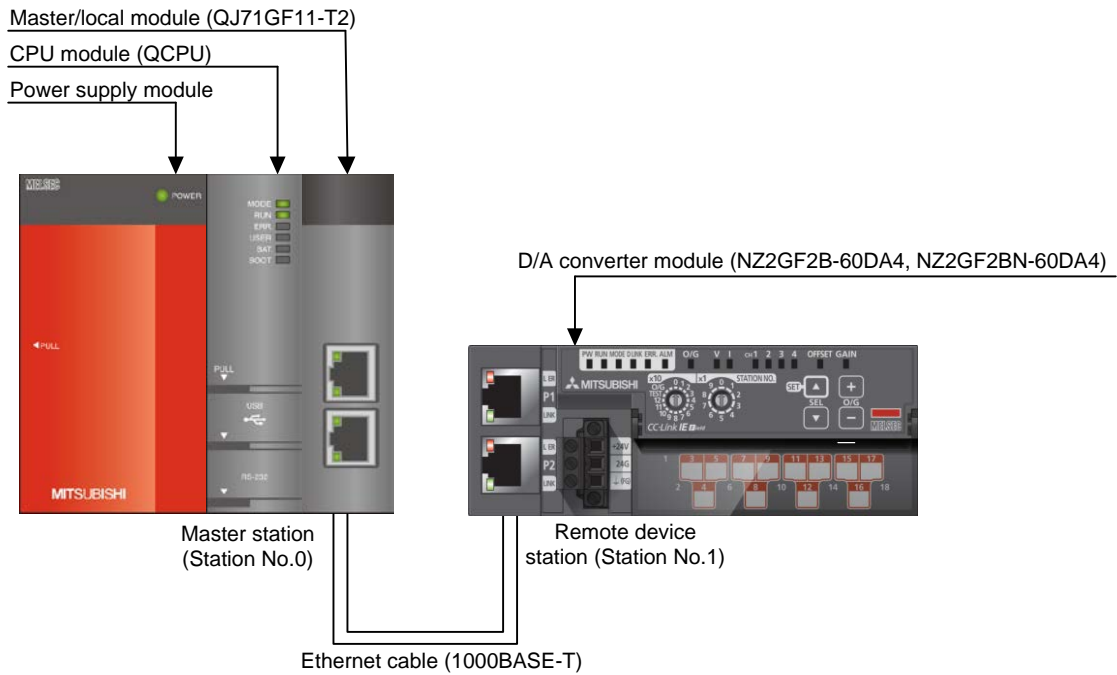
### 1.2. Function of the FB Library

Item	Description
M+NZ2GF2B60DA4_SetInitData	Configures the initial data setting.
M+NZ2GF2B60DA4_ErrorOperation	Monitors the error status and the warning status and clears an error and an alert output.

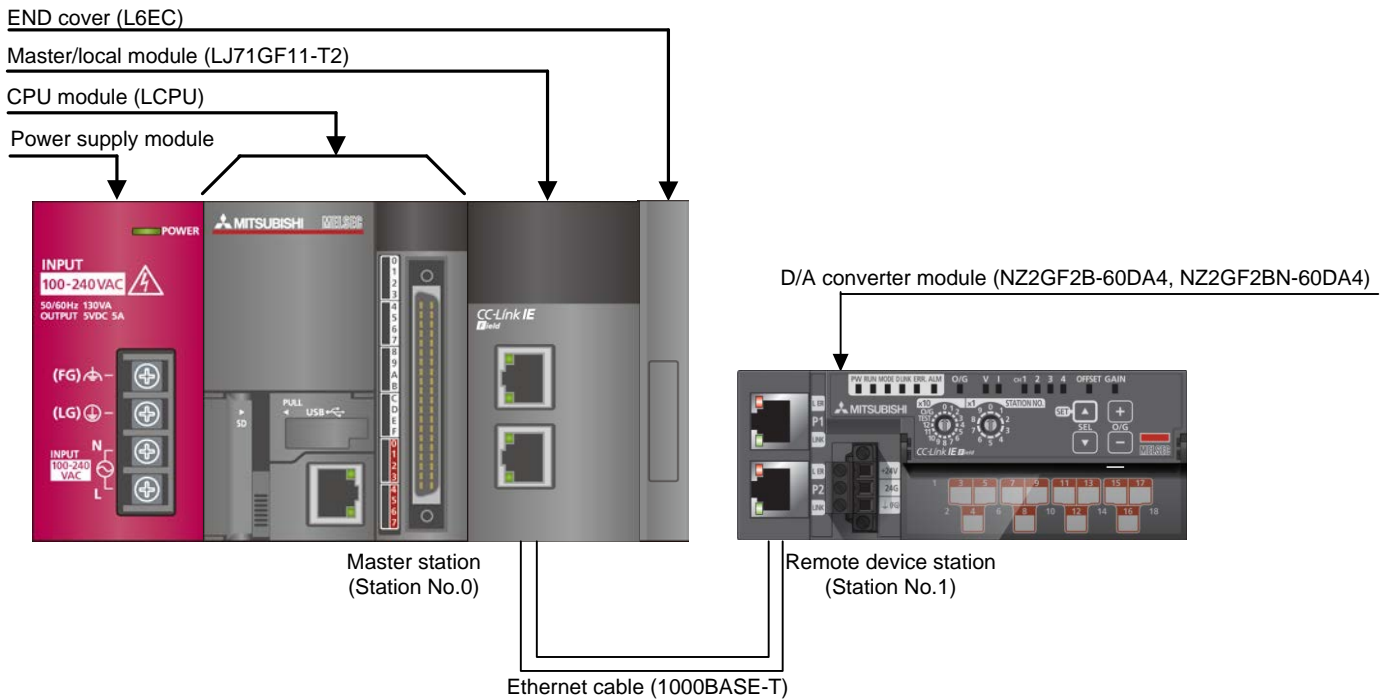
### 1.3. System Configuration Example

The following shows the system configuration when the digital-analog converter module (NZ2GF2B-60DA4, NZ2GF2BN-60DA4) is used as the remote device station.

#### (1) Q-series system configuration



#### (2) L-series system configuration



#### 1.4. Setting the CC-Link IE Field Network Master/Local Module

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

##### (1) Network parameters

Item	Description
Network Type	Select "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".
Network No.	Set the network number of the master/local module. Set "1".
Total Stations	Set the number of remote device stations connected to the master station. Include the number of reserved slave stations. Set "1".

	Module 1	Module 2
Network Type	CC IE Field (Master Station) ▼	None ▼
Start I/O No.	0000	
Network No.	1	
Total Stations	1	
Group No.		
Station No.	0	
Mode	Online (Normal Mode) ▼	
	<a href="#">Network Configuration Settings</a>	
	<a href="#">Network Operation Settings</a>	
	<a href="#">Refresh Parameters</a>	
	<a href="#">Interrupt Settings</a>	
	Specify Station No. by Parameter ▼	

(2) Network configuration setting

Item	Description
Station No.	Set the station number of the remote device stations connected to the master station. Set "1".
Station Type	Set the station type of the remote device stations connected to the master station. Set "Remote Device Station".
RX/Ry Setting	Set assignment for RX/Ry for the remote device station connected to the master station. (a) Points Set "32". (b) Start Set "0000".
RWw/RWr Setting	Set assignment for RWw/RWr for the remote device station connected to the master station. (a) Points Set "16". (b) Start Set "0000".

Set up Network configuration.

Assignment Method  
 Points/Start  
 Start/End

The column contents for refresh device will be changed corresponding to refresh parameter setting. Please reopen the window after completing refresh parameter setting when changing refresh para

Module No.	Station No.	Station Type	RX/Ry Setting			RWw/RWr Setting		
			Points	Start	End	Points	Start	End
0	0	Master Station						
1	1	Remote Device Station	32	0000	001F	16	0000	000F

(3) 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 Dev. Name": RX</li> <li>• "Link Side Points" : 32</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": M</li> <li>• "PLC Side Start" : 1024</li> </ul>
Transfer 2	Select the link refresh range of RY device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RY</li> <li>• "Link Side Points" : 32</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": M</li> <li>• "PLC Side Start" : 2048</li> </ul>
Transfer 3	Select the link refresh range of RWr device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RWr</li> <li>• "Link Side Points" : 16</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": W</li> <li>• "PLC Side Start" : 1000</li> </ul>
Transfer 4	Select the link refresh range of RWw device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RWw</li> <li>• "Link Side Points" : 16</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": W</li> <li>• "PLC Side Start" : 1100</li> </ul>

\* Make sure to set "0000" for Start of Link Side.

\* Change the Points of Link Side and Dev. Name and Start of PLC Side according to the system.

They must be the same as for "M\_F\_RX", "M\_F\_RY", and "M\_F\_RWr" devices of the global label setting.

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	32	0000	001F	↕	M	32	1024	1055
Transfer 2	RY	32	0000	001F	↕	M	32	2048	2079
Transfer 3	RWr	16	0000	000F	↕	W	16	001000	00100F
Transfer 4	RWw	16	0000	000F	↕	W	16	001100	00110F
Transfer 5					↕				
Transfer 6					↕				
Transfer 7					↕				
Transfer 8					↕				

Default      Check      End      Cancel



### 1.5. Setting Global Labels

Global labels must be set before using this FB. This section explains global label settings.

(1) M\_F\_RX Set remote input (RX).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RX".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z9" prefix.

(2) M\_F\_RY Set remote output (RY).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RY".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z8" prefix.

(3) M\_F\_RWr Set remote output (RWr).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RWr".
Data Type	Select "Word[Signed]".
Device	Enter the refresh device set for the refresh parameter with a "Z7" prefix.

	Class	Label Name	Data Type	Constant	Device	Comment
1	VAR_GLOBAL	M_F_RX	Bit	...	M1024Z9	RX refresh device
2	VAR_GLOBAL	M_F_RY	Bit	...	M2048Z8	RY refresh device
3	VAR_GLOBAL	M_F_RWr	Word[Signed]	...	w1000Z7	RWr refresh device
4				...		
5				...		

## 1.6. Creating Interlock Programs

Interlock programs must be created for the FBs. The following is an example of an interlock program.

Set one interlock program to the cyclic transmission.

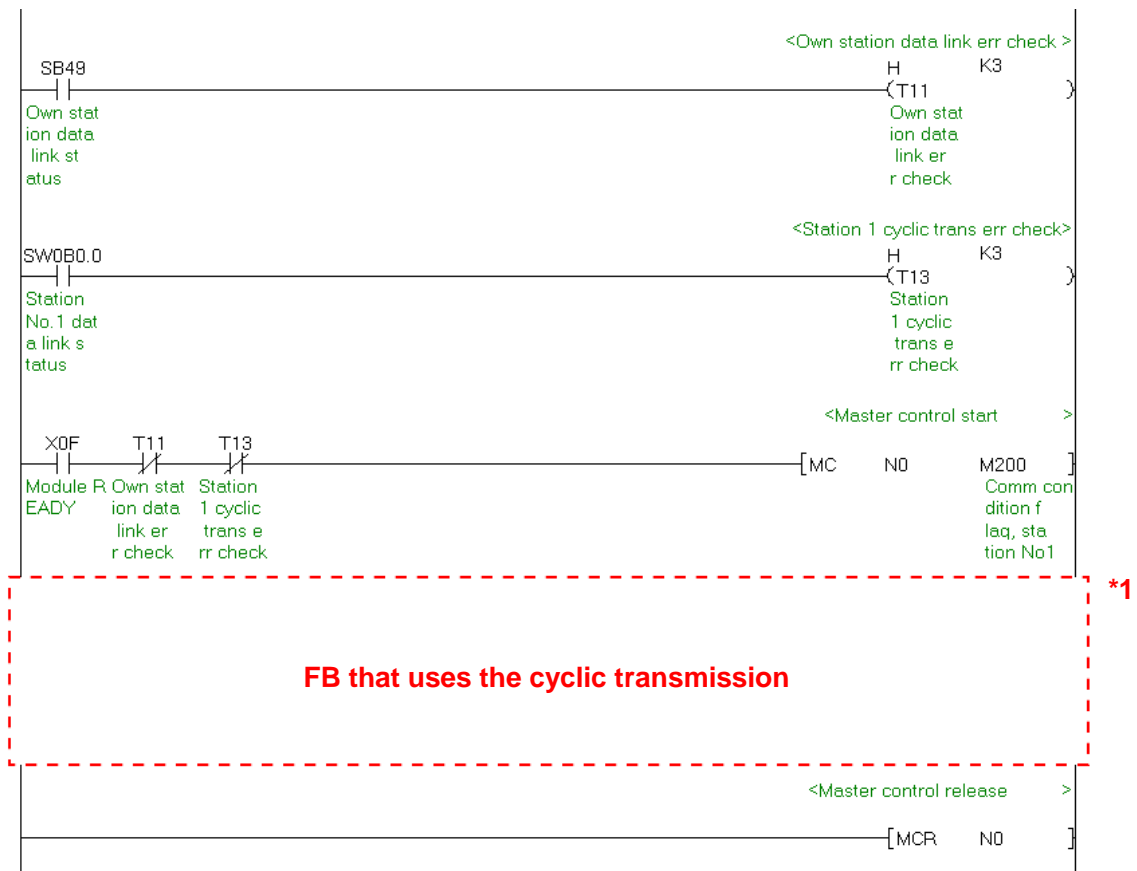
(Set a corresponding FB between MC and MCR instructions.)

### 1.6.1. Cyclic Transmission Program

Use link special relay (SB) and link special register (SW) to create an interlock for a cyclic transmission program.

- Own station data link status (SB0049)
- Each station data link status (SW00B0 to SW00B7)

Example: Interlock example (station No.1)



\*1 All the FBs in this manual use the cyclic transmission.

## 1.7. Relevant Manuals

- CC-Link IE Field Network Digital-Analog Converter Module User's Manual
- MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual
- MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual
- QCPU User's Manual (Hardware Design, Maintenance and Inspection)
- MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)
- GX Works2 Version 1 Operating Manual (Common)
- GX Works2 Version 1 Operating Manual (Simple Project, Function Block)

## 1.8. Note

Please make sure to read user's manuals for the corresponding products before using the products.

## 2. Details of the FB Library

### 2.1. M+NZ2GF2B60DA4\_SetInitData (Initial data setting)

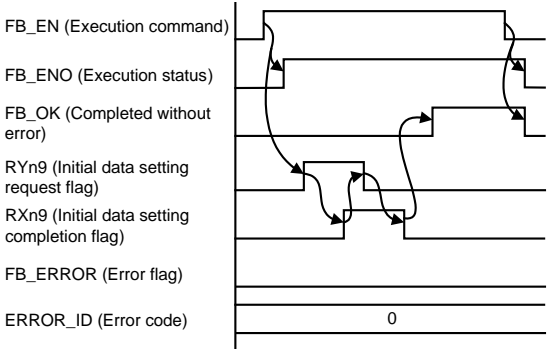
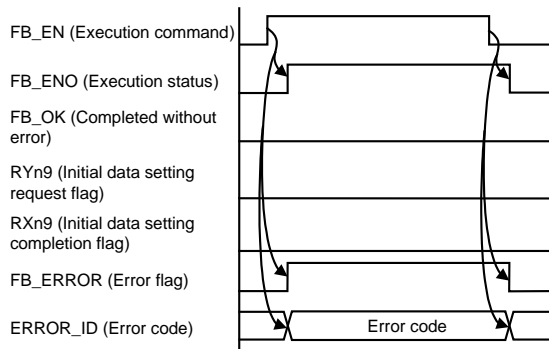
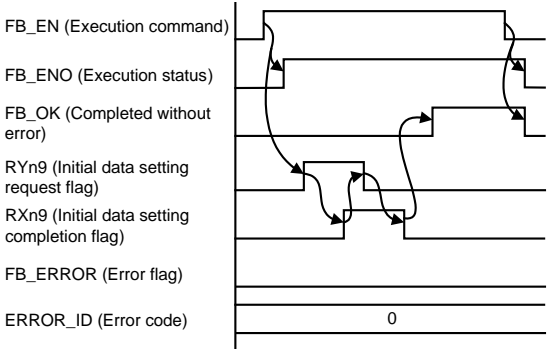
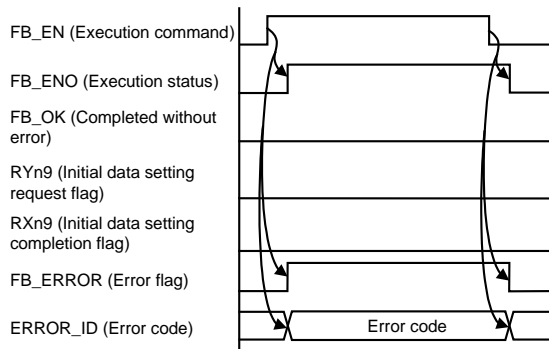
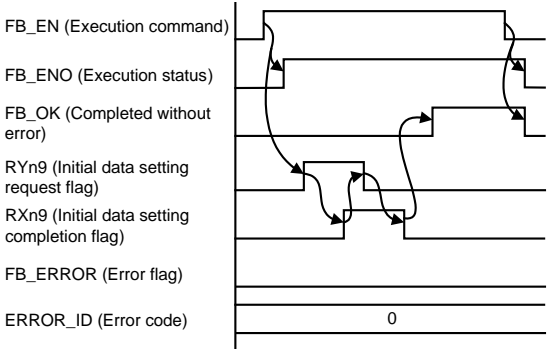
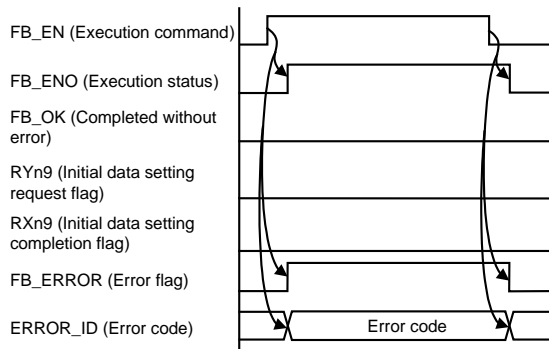
#### FB Name

M+NZ2GF2B60DA4\_SetInitData

#### Function Overview

Item	Description													
Function overview	Configures the initial data setting.													
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GF2B60DA4_SetInitData</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;">           Execution command — B : FB_EN            Module start XY address — W : i_Start_IO_No            Station No. — W : i_Station_No         </td> <td style="width: 40%; vertical-align: top; text-align: center;">           FB_ENO : B            FB_OK : B            FB_ERROR : B            ERROR_ID : W         </td> <td style="width: 30%; vertical-align: top;">           — Execution status            — Completed without error            — Error flag            — Error code         </td> </tr> </table> </div>		Execution command — B : FB_EN Module start XY address — W : i_Start_IO_No Station No. — W : i_Station_No	FB_ENO : B FB_OK : B FB_ERROR : B ERROR_ID : W	— Execution status — Completed without error — Error flag — Error code									
Execution command — B : FB_EN Module start XY address — W : i_Start_IO_No Station No. — W : i_Station_No	FB_ENO : B FB_OK : B FB_ERROR : B ERROR_ID : W	— Execution status — Completed without error — Error flag — Error code												
Applicable hardware and software	CC-Link IE Field Network digital-analog converter module	NZ2GF2B-60DA4, NZ2GF2BN-60DA4												
	CC-Link IE Field Network module	CC-Link IE Field Network master/local module *1 *1 The first five digits of the serial number are "14102" or later.												
	CPU module	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> *1 Not applicable to QCPU (A mode) *2 The first five digits of the serial number are "12012" or later. *3 The first five digits of the serial number are "13012" or later.	Series	Model	MELSEC-Q Series *1	Universal model *2	MELSEC-L Series	LCPU *3						
Series	Model													
MELSEC-Q Series *1	Universal model *2													
MELSEC-L Series	LCPU *3													
Engineering software	GX Works2 *1	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>Japanese version</td> <td>Version 1.86Q or later</td> </tr> <tr> <td>English version</td> <td>Version 1.24A or later</td> </tr> <tr> <td>Chinese (Simplified) version</td> <td>Version 1.49B or later</td> </tr> <tr> <td>Chinese (Traditional) version</td> <td>Version 1.49B or later</td> </tr> <tr> <td>Korean version</td> <td>Version 1.49B or later</td> </tr> </tbody> </table> *1 For software versions applicable to the modules used, refer to "Relevant manuals".	Language	Software version	Japanese version	Version 1.86Q or later	English version	Version 1.24A or later	Chinese (Simplified) version	Version 1.49B or later	Chinese (Traditional) version	Version 1.49B or later	Korean version	Version 1.49B or later
Language	Software version													
Japanese version	Version 1.86Q or later													
English version	Version 1.24A or later													
Chinese (Simplified) version	Version 1.49B or later													
Chinese (Traditional) version	Version 1.49B or later													
Korean version	Version 1.49B or later													

Item	Description
Programming language	Ladder
Number of steps	441 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	<ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the operating condition of the target module is set.</li> <li>2) FB operation is one-shot only, triggered by the FB_EN signal.</li> <li>3) After FB_EN (Execution command) is turned ON, the FB is completed in multiple scans.</li> <li>4) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</li> <li>5) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code 60 (Decimal) is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</li> </ol>
Compiling method	Macro type

Item	Description		
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 because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z8 and Z9. Please do not use these index registers in an interrupt program.</li> <li>5) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) This FB uses the cyclic transmission. Therefore, an interlock program for the cyclic transmission is required. For the interlock program, refer to "1.6.1 Cyclic Transmission Program".</li> <li>8) Set the refresh device of the network parameter setting according to "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>9) Set the global label setting according to "1.5 Setting Global Labels".</li> <li>10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>11) If processing of the FB is not completed, check if the station number of CC-Link IE Field matches with the network station number.</li> </ol>		
FB operation type	Pulsed execution (multiple scan execution type)		
Application example	Refer to "Appendix 2. FB Library Application Examples".		
Timing chart	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top; padding-right: 20px;"> <p data-bbox="375 1411 893 1444">[When operation completes without error]</p>  <p data-bbox="454 1825 853 1859">n: The address assigned to the master module in the station number setting</p> </td> <td style="width: 50%; vertical-align: top;"> <p data-bbox="949 1411 1468 1444">[When an error occurs]</p>  <p data-bbox="1029 1825 1428 1859">n: The address assigned to the master module in the station number setting</p> </td> </tr> </table>	<p data-bbox="375 1411 893 1444">[When operation completes without error]</p>  <p data-bbox="454 1825 853 1859">n: The address assigned to the master module in the station number setting</p>	<p data-bbox="949 1411 1468 1444">[When an error occurs]</p>  <p data-bbox="1029 1825 1428 1859">n: The address assigned to the master module in the station number setting</p>
<p data-bbox="375 1411 893 1444">[When operation completes without error]</p>  <p data-bbox="454 1825 853 1859">n: The address assigned to the master module in the station number setting</p>	<p data-bbox="949 1411 1468 1444">[When an error occurs]</p>  <p data-bbox="1029 1825 1428 1859">n: The address assigned to the master module in the station number setting</p>		

Item	Description
Relevant manuals	<ul style="list-style-type: none"> <li>• CC-Link IE Field Network Digital-Analog Converter Module User's Manual</li> <li>• MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>• MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>• QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>• MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>• GX Works2 Version 1 Operating Manual (Common)</li> <li>• GX Works2 Version 1 Operating Manual (Simple Project, Function Block)</li> </ul>

## Error codes

### ●Error code list

Error code	Description	Action
50 (Decimal)	The network configuration setting of the station number specified by i_Station_No is incorrect.	Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting Refer to (2) of 1.4 Setting the CC-Link IE Field Network Master/Local Module.</li> <li>• The value entered in i_Station_No</li> </ul>
60 (Decimal)	The specified station number is not valid. The station number is not within the range of 1 to 120.	Please try again after confirming the setting.

## 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.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range of the CPU. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted or connected. (For example, enter H10 for X10.)
Station No.	i_Station_No	Word	1 to 120	Specify the station number of the target station.

### ●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	When ON, it indicates that the initial data setting is completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output.



## FB Version Upgrade History

Version	Date	Description
1.00A	2013/07/31	First edition

## Note

This chapter includes information related to the function block.

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

Please make sure to read user's manuals for the corresponding products before using the products.

## 2.2. M+NZ2GF2B60DA4\_ErrorOperation (Error operation)

### FB Name

M+NZ2GF2B60DA4\_ErrorOperation

### Function Overview

Item	Description																																	
Function overview	Monitors the error status and the warning status and clears an error and an alert output.																																	
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GF2B60DA4_ErrorOperation</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: none;">Execution command</td> <td style="width: 30%; border: none;">B : FB_EN</td> <td style="width: 30%; border: none;">FB_ENO : B</td> <td style="width: 10%; border: none;">Execution status</td> </tr> <tr> <td style="border: none;">Module start XY address</td> <td style="border: none;">W : i_Start_IO_No</td> <td style="border: none;">FB_OK : B</td> <td style="border: none;">Completed without error</td> </tr> <tr> <td style="border: none;">Station No.</td> <td style="border: none;">W : i_Station_No</td> <td style="border: none;">o_UNIT_ERROR : B</td> <td style="border: none;">Module error detection</td> </tr> <tr> <td style="border: none;">Error clear request</td> <td style="border: none;">B : i_ErrorReset</td> <td style="border: none;">o_UNIT_ERR_CODE : W</td> <td style="border: none;">Module error code</td> </tr> <tr> <td style="border: none;">Alert output clear request</td> <td style="border: none;">B : i_AlertOutClear</td> <td style="border: none;">o_UNIT_WARNING : B</td> <td style="border: none;">Module warning detection</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;">o_UNIT_WAR_CODE : W</td> <td style="border: none;">Module warning code</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;">FB_ERROR : B</td> <td style="border: none;">Error flag</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;">ERROR_ID : W</td> <td style="border: none;">Error code</td> </tr> </table> </div>		Execution command	B : FB_EN	FB_ENO : B	Execution status	Module start XY address	W : i_Start_IO_No	FB_OK : B	Completed without error	Station No.	W : i_Station_No	o_UNIT_ERROR : B	Module error detection	Error clear request	B : i_ErrorReset	o_UNIT_ERR_CODE : W	Module error code	Alert output clear request	B : i_AlertOutClear	o_UNIT_WARNING : B	Module warning detection			o_UNIT_WAR_CODE : W	Module warning code			FB_ERROR : B	Error flag			ERROR_ID : W	Error code
Execution command	B : FB_EN	FB_ENO : B	Execution status																															
Module start XY address	W : i_Start_IO_No	FB_OK : B	Completed without error																															
Station No.	W : i_Station_No	o_UNIT_ERROR : B	Module error detection																															
Error clear request	B : i_ErrorReset	o_UNIT_ERR_CODE : W	Module error code																															
Alert output clear request	B : i_AlertOutClear	o_UNIT_WARNING : B	Module warning detection																															
		o_UNIT_WAR_CODE : W	Module warning code																															
		FB_ERROR : B	Error flag																															
		ERROR_ID : W	Error code																															
Applicable hardware and software	CC-Link IE Field Network digital-analog converter module	NZ2GF2B-60DA4, NZ2GF2BN-60DA4																																
	CC-Link IE Field Network module	CC-Link IE Field Network master/local module *1 *1 The first five digits of the serial number are "14102" or later.																																
	CPU module	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode) *2 The first five digits of the serial number are "12012" or later. *3 The first five digits of the serial number are "13012" or later.</p>	Series	Model	MELSEC-Q Series *1	Universal model *2	MELSEC-L Series	LCPU *3																										
Series	Model																																	
MELSEC-Q Series *1	Universal model *2																																	
MELSEC-L Series	LCPU *3																																	

Item	Description													
	Engineering software	GX Works2 *1 <table border="1" data-bbox="691 248 1497 544"> <thead> <tr> <th data-bbox="691 248 1098 297">Language</th> <th data-bbox="1098 248 1497 297">Software version</th> </tr> </thead> <tbody> <tr> <td data-bbox="691 297 1098 347">Japanese version</td> <td data-bbox="1098 297 1497 347">Version1.86Q or later</td> </tr> <tr> <td data-bbox="691 347 1098 396">English version</td> <td data-bbox="1098 347 1497 396">Version1.24A or later</td> </tr> <tr> <td data-bbox="691 396 1098 445">Chinese (Simplified) version</td> <td data-bbox="1098 396 1497 445">Version1.49B or later</td> </tr> <tr> <td data-bbox="691 445 1098 495">Chinese (Traditional) version</td> <td data-bbox="1098 445 1497 495">Version1.49B or later</td> </tr> <tr> <td data-bbox="691 495 1098 544">Korean version</td> <td data-bbox="1098 495 1497 544">Version1.49B or later</td> </tr> </tbody> </table> <p data-bbox="691 555 1497 633">*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>	Language	Software version	Japanese version	Version1.86Q or later	English version	Version1.24A or later	Chinese (Simplified) version	Version1.49B or later	Chinese (Traditional) version	Version1.49B or later	Korean version	Version1.49B or later
Language	Software version													
Japanese version	Version1.86Q or later													
English version	Version1.24A or later													
Chinese (Simplified) version	Version1.49B or later													
Chinese (Traditional) version	Version1.49B or later													
Korean version	Version1.49B or later													
Programming language	Ladder													
Number of steps	749 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	<ol style="list-style-type: none"> <li data-bbox="371 891 1506 969">1) When FB_EN (Execution command) is turned ON, the error status and the warning status of the target module are monitored.</li> <li data-bbox="371 987 1506 1066">2) o_UNIT_ERROR (Module error detection) is turned ON and an error code is stored in o_UNIT_ERR_CODE (Module error code) when an error occurs.</li> <li data-bbox="371 1084 1506 1162">3) o_UNIT_WARNING (Module warning detection) is turned ON and a warning code is stored in o_UNIT_WAR_CODE (Module warning code) when a warning occurs.</li> <li data-bbox="371 1180 1506 1308">4) An alarm code is stored in o_UNIT_WAR_CODE (Module warning code) when an alarm occurs, and o_UNIT_WARNING (Module warning detection) is turned ON when an alarm (a check code is generated) occurs.</li> <li data-bbox="371 1326 1506 1592">5) After FB_EN (Execution command) is turned ON, an error is cleared when i_ErrorReset (Error clear request) is turned ON during error occurrence. A warning that has occurred is automatically cleared five seconds after the cause of the minor error in the module is eliminated. By turning ON i_AlertOutClear (Alert output clear request) during alarm (alert output) occurrence, an alert output is cleared.</li> <li data-bbox="371 1610 1506 1783">6) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</li> <li data-bbox="371 1800 1506 1971">7) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code 60 (Decimal) is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</li> </ol>													

Item	Description
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 because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z7 to Z9. Please do not use these index registers in an interrupt program.</li> <li>5) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) This FB uses the cyclic transmission. Therefore, an interlock program for the cyclic transmission is required. For the interlock program, refer to "1.6.1 Cyclic Transmission Program".</li> <li>8) Set the refresh device of the network parameter setting according to "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>9) Set the global label setting according to "1.5 Setting Global Labels".</li> <li>10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>11) If processing of the FB is not completed, check if the station number of CC-Link IE Field matches with the network station number. Check that the causes of errors, warnings, and alarms are all eliminated.</li> </ol>
FB operation type	Real-time execution
Application example	Refer to "Appendix 2. FB Library Application Examples".

Item	Description	
Timing chart	<p>[When operation completes without error]</p>	<p>[When an error occurs]</p>
Relevant manuals	<ul style="list-style-type: none"> <li>● CC-Link IE Field Network Digital-Analog Converter Module User's Manual</li> <li>● MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>● MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>● QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>● MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>● GX Works2 Version 1 Operating Manual (Common)</li> <li>● GX Works2 Version 1 Operating Manual (Simple Project, Function Block)</li> </ul>	

## Error codes

### ● Error code list

Error code	Description	Action
50 (Decimal)	The network configuration setting of the station number specified by i_Station_No is incorrect.	Review the following setting. <ul style="list-style-type: none"> <li>● Network configuration setting Refer to (2) of 1.4 Setting the CC-Link IE Field Network Master/Local Module.</li> <li>● The value entered in i_Station_No</li> </ul>
60 (Decimal)	The specified station number is not valid. The station number is not within the range of 1 to 120.	Please try again after confirming the setting.

## 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.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range of the CPU. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted or connected. (For example, enter H10 for X10.)
Station No.	i_Station_No	Word	1 to 120	Specify the station number of the target station.
Error clear request	i_ErrorReset	Bit	ON, OFF	Turn ON for the error clear. Turn OFF after Completed without error (FB_OK) is turned ON.
Alert output clear request	i_AlertOutClear	Bit	ON, OFF	Turn ON for the alert output clear. Turn OFF after Completed without error (FB_OK) is turned 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	When ON, it indicates that clearing the error or the alert output is completed.
Module error detection	o_UNIT_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Module error code	o_UNIT_ERR_CODE	Word	0	Module error code output.
Module warning detection	o_UNIT_WARNING	Bit	OFF	When ON, it indicates that a warning has occurred.
Module warning code	o_UNIT_WAR_CODE	Word	0	Module warning code output.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output.

### FB Version Upgrade History

Version	Date	Description
1.00A	2013/07/31	First edition

### Note

This chapter includes information related to the function block.

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

Please make sure to read user's manuals for the corresponding products before using the products.

## Appendix 1. When Using the FB for 2 or More Master/Local Modules

To use 2 or more CC-Link IE field master/local modules and to use an FB for the second and subsequent CC-Link IE field master/local modules, it is necessary to create an FB for the second and subsequent modules from the MELSOFT Library CC-Link IE field master/local module FB using the following procedure.

The following four steps are required to create the FB for the second and subsequent modules.

- (1) Enter network parameters
- (2) Set global labels
- (3) Copy MELSOFT Library to create the FB for the second module
- (4) Replace devices to create the FB for the second module



## Appendix 1.1. Entering Network Parameters

(1) Enter the network parameters for the second module.

Item	Description
Network Type	Select "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 "0020".
Network No.	Set the network number of the master/local module. Set "2".
Total Stations	Set the number of remote device stations connected to the master station. Include the number of reserved slave stations. Set "1".

	Module 1	Module 2	Module 3
Network Type	CC IE Field (Master Station)	CC IE Field (Master Station)	None
Start I/O No.	0000	0020	
Network No.		2	
Total Stations		1	
Group No.			
Station No.	0	0	
Mode	Online (Normal Mode)	Online (Normal Mode)	
	<a href="#">Network Configuration Settings</a>	<a href="#">Network Configuration Settings</a>	
	<a href="#">Network Operation Settings</a>	<a href="#">Network Operation Settings</a>	
	<a href="#">Refresh Parameters</a>	<a href="#">Refresh Parameters</a>	
	<a href="#">Interrupt Settings</a>	<a href="#">Interrupt Settings</a>	
	<a href="#">Specify Station No. by Parameter</a>	<a href="#">Specify Station No. by Parameter</a>	

(2) Set the network configuration setting for the second module.

Item	Description
Station No.	Set the station number of the remote device stations connected to the master station. Set "1".
Station Type	Set the station type of the remote device stations connected to the master station. Set "Remote Device Station".
RX/RV Setting	Set assignment for RX/RV for the remote device station connected to the master station. (a) Points Set "32". (b) Start Set "0000".
RWr/RVw Setting	Set assignment for RWr/RVw for the remote device station connected to the master station. (a) Points Set "16". (b) Start Set "0000".

Set up Network configuration.

Assignment Method  
 Points/Start  
 Start/End

The column contents for refresh device will be changed corresponding to refresh parameter setting.  
Please reopen the window after completing refresh parameter setting when changing refresh parameter.

Module No.	Station No.	Station Type	RX/RV Setting			RWr/RVw Setting		
			Points	Start	End	Points	Start	End
0	0	Master Station						
1	1	Remote Device Station	32	0000	001F	16	0000	000F

(3) Enter the network parameters for the second module.

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" : 0200</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" : 0200</li> </ul>
Transfer 1	Select the link refresh range of RX device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RX</li> <li>• "Link Side Points" : 32</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": M</li> <li>• "PLC Side Start" : 1056</li> </ul>
Transfer 2	Select the link refresh range of RY device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RY</li> <li>• "Link Side Points" : 32</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": M</li> <li>• "PLC Side Start" : 2080</li> </ul>
Transfer 3	Select the link refresh range of RWr device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RWr</li> <li>• "Link Side Points" : 16</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": W</li> <li>• "PLC Side Start" : 1010</li> </ul>
Transfer 4	Select the link refresh range of RWw device.	<ul style="list-style-type: none"> <li>• "Link Side Dev. Name": RWw</li> <li>• "Link Side Points" : 16</li> <li>• "Link Side Start" : 0000</li> <li>• "PLC Side Dev. Name": W</li> <li>• "PLC Side Start" : 1110</li> </ul>

\* Change the Points of Link Side and Dev. Name and Start of PLC Side according to the system.

Assignment Method

- Points/Start
- Start/End

	Link Side					PLC Side			
	Dev. Name	Points	Start	End		Dev. Name	Points	Start	End
Transfer SB	SB	512	0000	01FF	↕	SB	512	0200	03FF
Transfer SW	SW	512	0000	01FF	↕	SW	512	0200	03FF
Transfer 1	RX	32	0000	001F	↕	M	32	1056	1087
Transfer 2	RY	32	0000	001F	↕	M	32	2080	2111
Transfer 3	RWr	16	0000	000F	↕	W	16	001010	00101F
Transfer 4	RWw	16	0000	000F	↕	W	16	001110	00111F
Transfer 5					↕				
Transfer 6					↕				
Transfer 7					↕				
Transfer 8					↕				

Default

Check

End

Cancel

## Appendix 1.2. Entering Global Labels

Enter the global labels for the second module.

Specify label names for the second module. The names must be different from the label names for the first module.

The following explains how to set the global label for the second module.

### (1) M\_F\_RX2 Set remote input (RX).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RX2".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z9" prefix.

### (2) M\_F\_RY2 Set remote output (RY).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RY2".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z8" prefix.

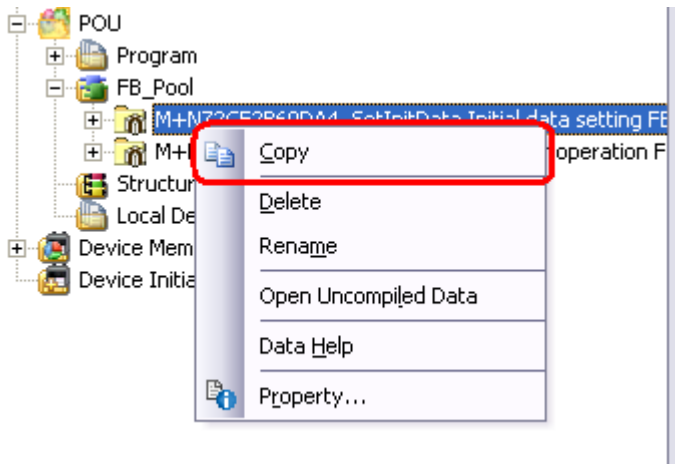
### (3) M\_F\_RWr2 Set remote output (RWr).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RWr2".
Data Type	Select "Word[Signed]".
Device	Enter the refresh device set for the refresh parameter with a "Z7" prefix.

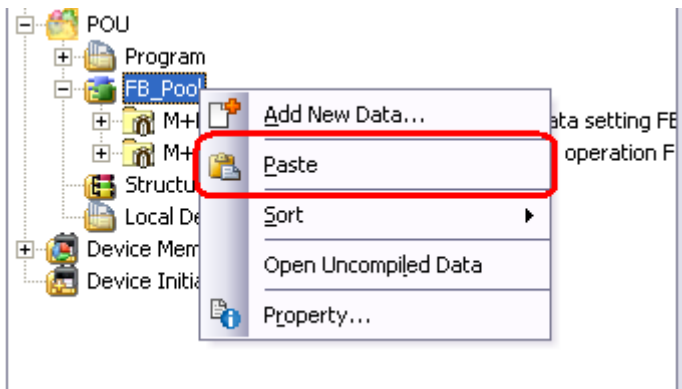
	Class	Label Name	Data Type	Constant	Device	Comment
1	VAR_GLOBAL	M_F_RX	Bit	...	M1024Z9	RX refresh device
2	VAR_GLOBAL	M_F_RY	Bit	...	M2048Z8	RY refresh device
3	VAR_GLOBAL	M_F_RWr	Word[Signed]	...	W1000Z7	RWr refresh device
4	VAR_GLOBAL	M_F_RX2	Bit	...	M1056Z9	RX refresh device
5	VAR_GLOBAL	M_F_RY2	Bit	...	M2080Z8	RY refresh device
6	VAR_GLOBAL	M_F_RWr2	Word[Signed]	...	W1010Z7	RWr refresh device
7				...		
8				...		
9				...		
10				...		

### Appendix 1.3. Copying MELSOFT Library to Create an FB for the Second module

(1) Select an FB necessary for the second module from the Project tab of the Navigation window. Execute the Copy command.



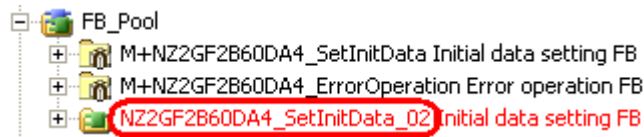
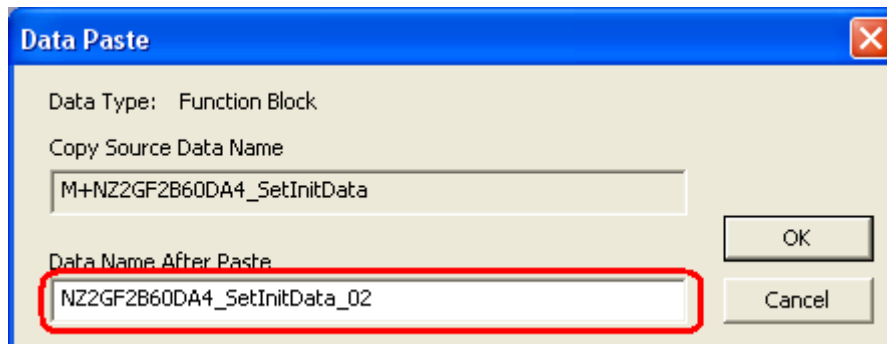
(2) Paste the copied FB to "FB\_Pool" on the Project tab of the Navigation window.



(3) After selecting the paste command, a window appears to enter an FB name. Enter an FB name after paste.

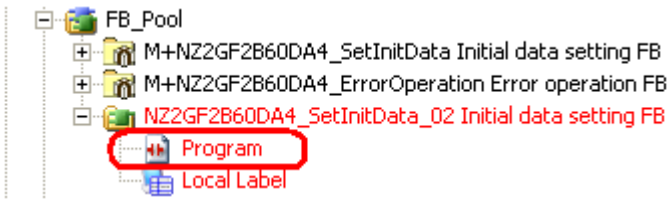
(Example: NZ2GF2B60DA4\_SetInitData\_02)

[Note] The character string "+" of M+... cannot be entered.

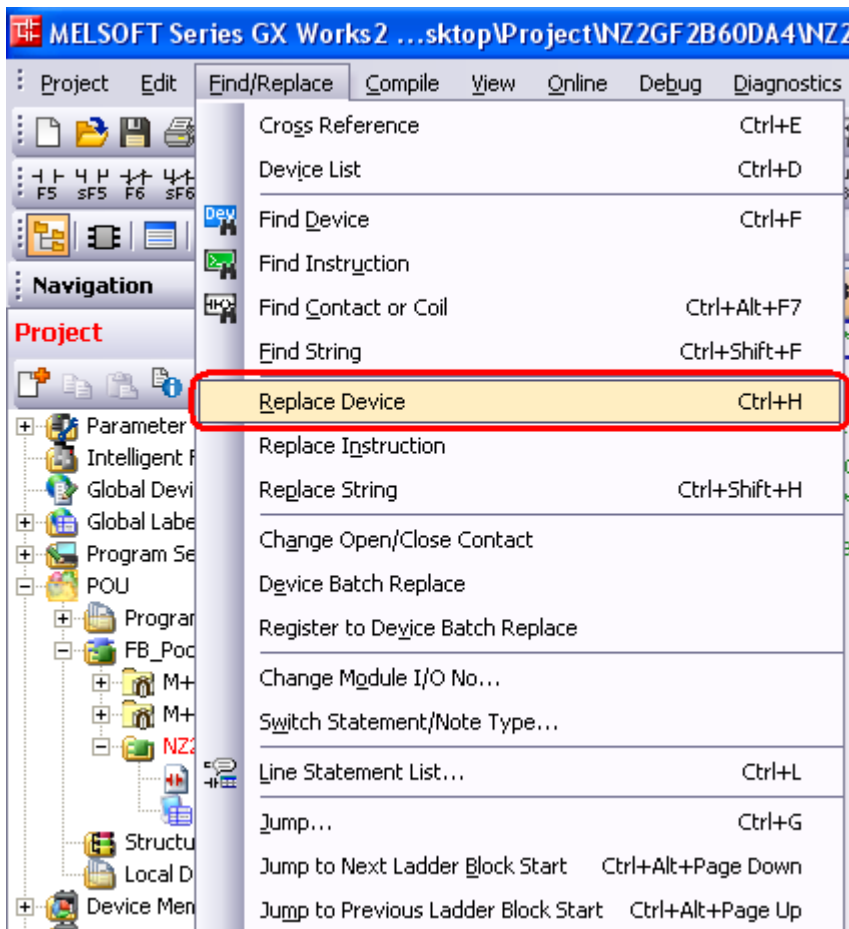


#### Appendix 1.4. Replacing Devices to Create the FB for the Second Module

(1) Open "Program" of the added FB.

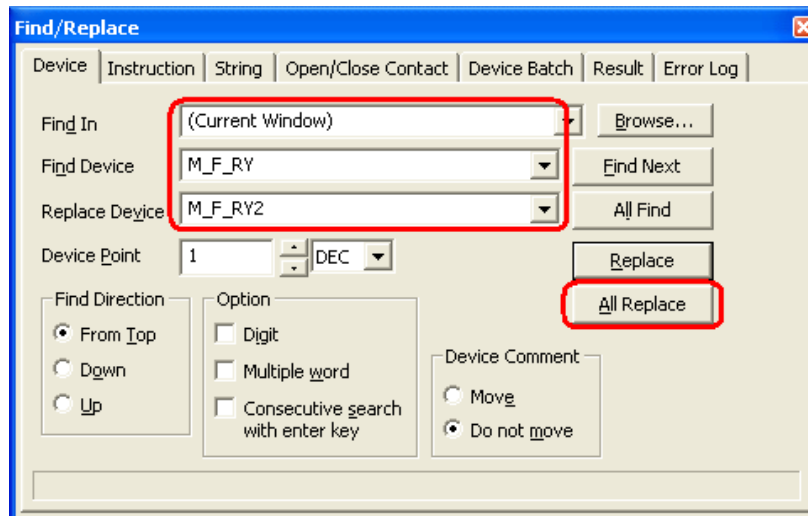


(2) Select "Find/Replace" menu and then select "Replace Device". "Find/Replace" window appears.





- (3) Select "Current Window" from Find In, "M\_F\_RY" from Find Device, and "M\_F\_RY2" from Replace Device. Then replace all devices. In the same way, replace "M\_F\_RX" and "M\_F\_RWr".



By performing the steps above, the CC-Link IE field master/local FB can be used for the second module.

[Point]

- (1) To use multiple FBs for the second CC-Link IE field master/local module, repeat the steps in Appendix 1. When Using the FB for 2 or More Master/Local Modules.
- (2) To use an FB for third or subsequent CC-Link IE field master/local modules, make sure that the preset "Global label name", "Data Name After Paste" that was set when pasting FB data and "Replace Device" that was set when replacing devices are not duplicated for the first and second modules.

[Note]

If MELSOFT Library is upgraded, MELSOFT Library FBs can be upgraded by importing them again. However, the FBs that were created by following these procedures for the second and subsequent modules are not upgraded even if the FBs are imported again.

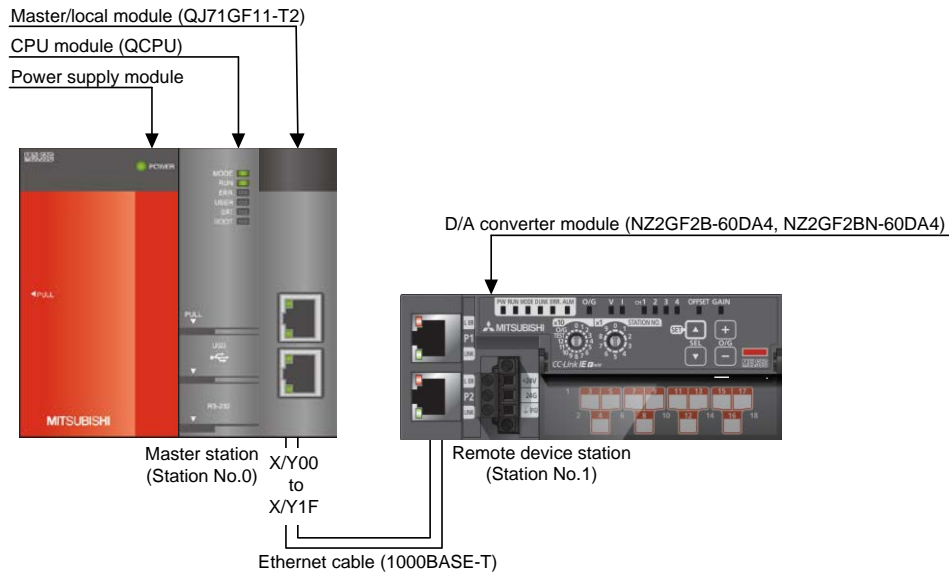
Therefore, to upgrade FBs that were created by following these procedures, after upgrading MELSOFT Library, follow these procedures again.

## Appendix 2. FB Library Application Examples

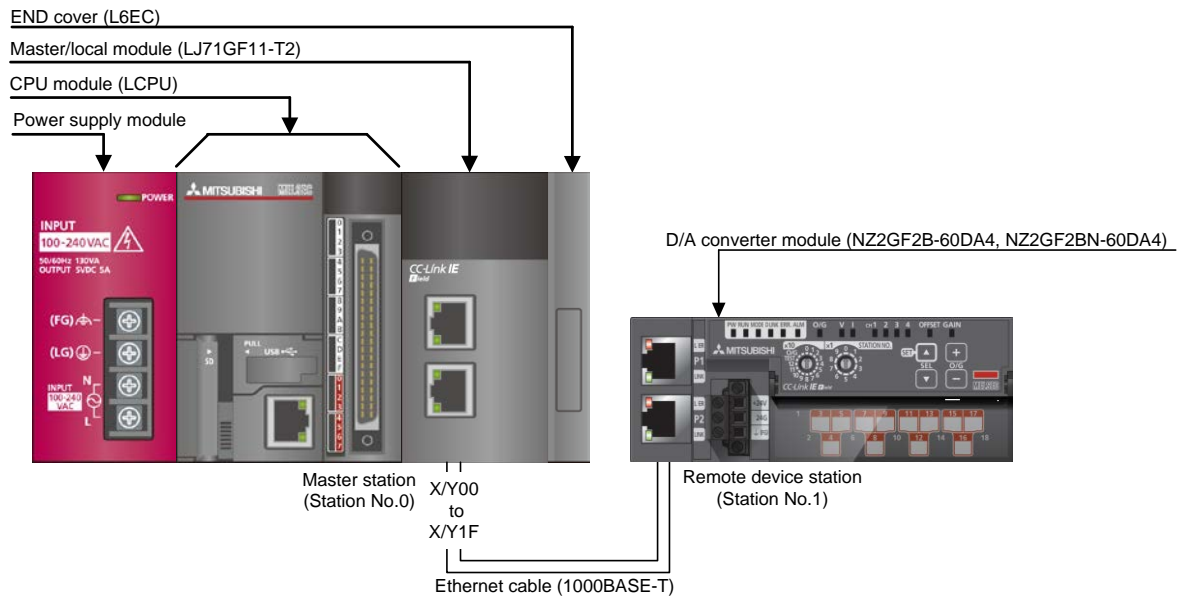
CC-Link IE Field Network digital-analog converter module FB application examples are as follows.

### 1) System configuration

#### (1) Q-series system configuration



#### (2) L-series system configuration

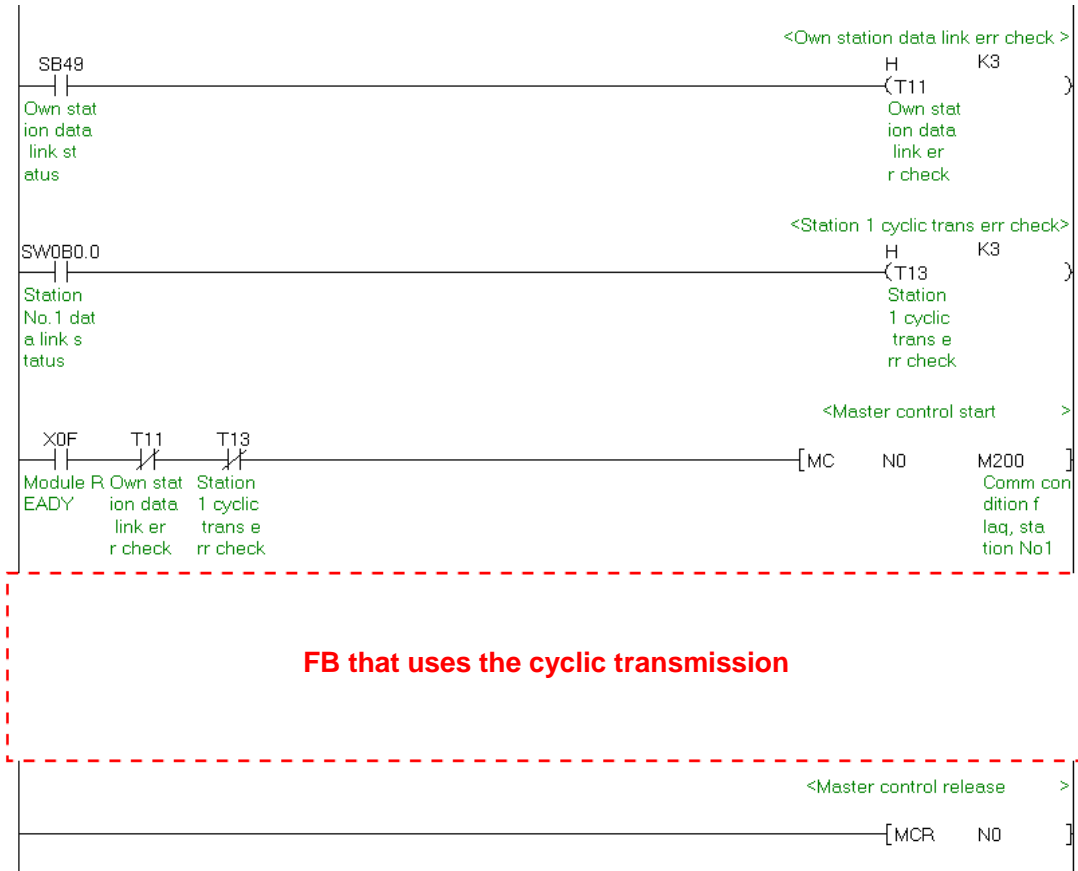


#### Reminder

- 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 the label comments due to the limitation on the number of the characters to display in GX Works2.

Interlock program

\* The following is an example of an interlock program.



\*1

\*1 All the FBs in this manual use the cyclic transmission.

## 2) List of devices

### a) External input (commands)

Device	FB name	Application (ON details)
M0	M+NZ2GF2B60DA4_SetInitData	Initial data setting request
M10	M+NZ2GF2B60DA4_ErrorOperation	Error operation request
M11		Error clear request
M12		Alert output clear request

### b) External output (checks)

Device	FB name	Application (ON details)
M1	M+NZ2GF2B60DA4_SetInitData	Initial data setting FB ready
M2		Initial data setting FB comp.
F0		Initial data setting FB error
D0		Initial data setting FB err code
M13	M+NZ2GF2B60DA4_ErrorOperation	Error operation FB ready
M14		Error operation FB completed
M15		Module error detection
D10		Module error code
M16		Module warning detection
D11		Module warning code
F5		Error operation FB error
D12		Error operation FB error code

## 3) Global label setting

### a) Common setting

Class	Label name	Data type	Device
VAR_GLOBAL	M_F_RX	Bit	M1024Z9
VAR_GLOBAL	M_F_RY	Bit	M2048Z8
VAR_GLOBAL	M_F_RWr	Word [signed]	W1000Z7

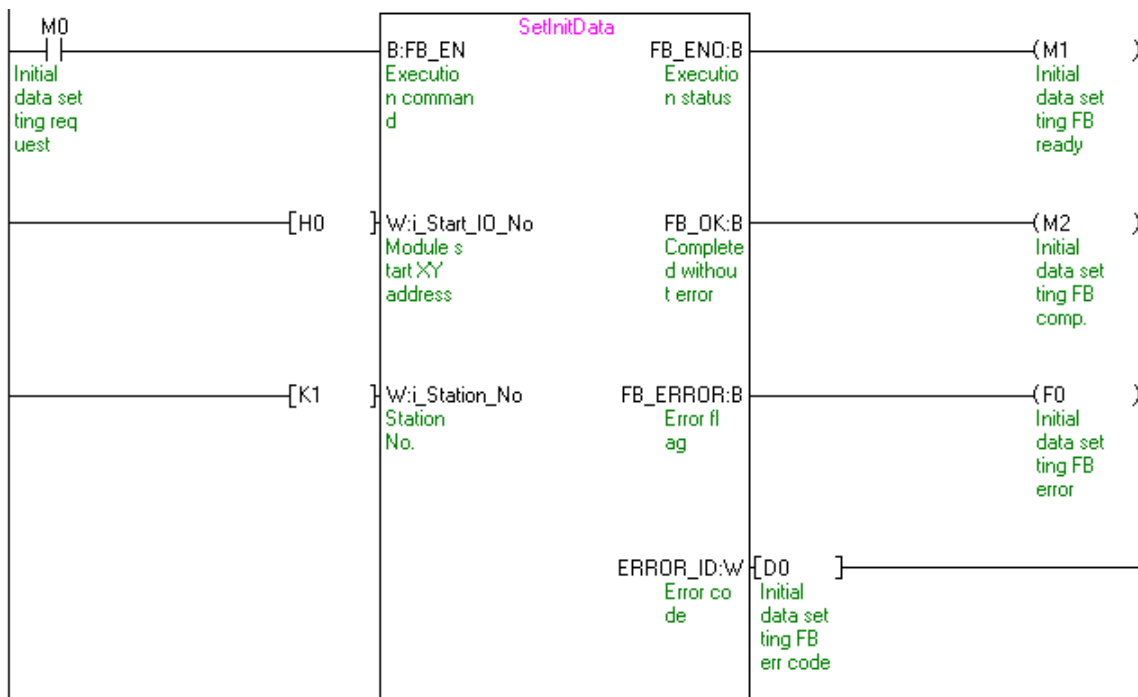
## 4) Programs

### M+NZ2GF2B60DA4\_SetInitData (Initial data setting)

The following shows the example program with the conditions described in the table below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local module is mounted or connected to 0H.
i_Station_No	K1	Set the target station number to 1.

By turning ON M0, the operating condition of the module is set.



## M+NZ2GF2B60DA4\_ErrorOperation (Error operation)

The following shows the example program with the conditions described in the table below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local module is mounted or connected to 0H.
i_Station_No	K1	Set the target station number to 1.
i_ErrorReset	ON/OFF	Turn ON for the error clear.
i_AlertOutClear	ON/OFF	Turn ON for the alert output clear.

By turning ON M10, occurrence of error and warning is monitored.

By turning ON M11 after turning ON M10, the error is cleared. By turning ON M12, the alert output is cleared.

