

## SC-GU3-04 Series

### FB Library Reference Manual for Mitsubishi MELSEC iQ-R series Sequencer

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Edition 1.0

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MELSOFT Library

*SC-GU3-04 Series FB Library Reference Manual for Mitsubishi MELSEC iQ-R series Sequencer*  
*WUME-SCGU304IQRFB-1*

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#### How to import the FBs described in this manual to GX Works3

From the GX Works3 menu, choose [Project] - [Library Operation] - [Register to Library List] to select and import your desired FB from the list of programs (with a file extension of mslm). (If the menu is disabled, open an existing project or create a new project.)

The FB is added to the "library" on the [Library] tab displayed when you choose [View] - [Docking Window] - [Element Selection] - [Library] from the menu.

#### [Customer Precautions]

- \* Sample programs are not guaranteed to work correctly.
- \* Use them at your own risk.



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Reference Manual Revision History

Reference manual number	Revision date	Record of changes
WUME-SCGU304IQRFB-1	2019/06/03	Newly created

## 1. Overview

### 1.1. Functional overview

This FB library is intended for use in accessing the output information of connectable sensor amplifiers and the configuration and management of optically communicatable sensor amplifiers via a Panasonic Industrial Devices SUNX Co., Ltd. "CC-Link IE Field Communication Unit SC-GU3-04" connected to a MELSEC CC-Link IE Field Master Unit.

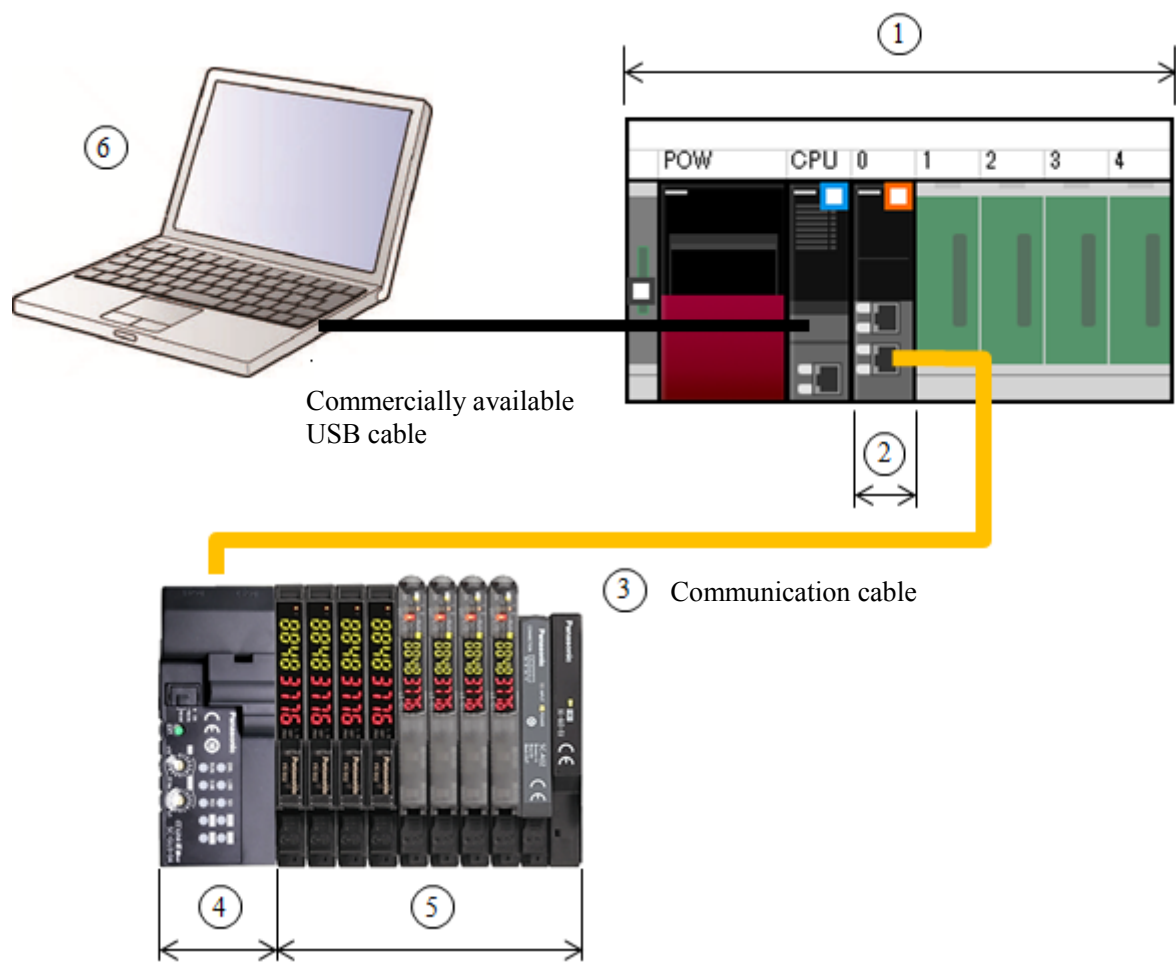
### 1.2. Functional contents of the FB library

No.	FB name (*1)	Description
1	P+SUNX-SC-GU3-04_InitializeUnit_R	Initialize settings request without reboot.
2	P+SUNX-SC-GU3-04_ClearError_R	Error clear is executed.
3	P+SUNX-SC-GU3-04_SetBlankUnit_R	Set blank unit and output set controller to reflect blank unit.
4	P+SUNX-SC-GU3-04_CheckOutData_R	Read connecting amplifier output and detected value.
5	P+SUNX-SC-GU3-04_ExecuteCommand_R	Set command execution.
6	P+SUNX-SC-GU3-04_SetOutTimer_R	Output operation setting.
7	P+SUNX-SC-GU3-04_ExecuteTeaching_R	Perform teaching for set amplifier on own timing.
8	P+SUNX-SC-GU3-04_SetSpeedMode_R	Execute to read or write speed mode.
9	P+SUNX-SC-GU3-04_SetOutputMode_R	Normally open or normally closed setting for amplifier.
10	P+SUNX-SC-GU3-04_SetThreshold_R	Threshold setting.
11	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	Shift DPS series displayed value to "0".
12	P+SUNX-SC-GU3-04_CheckUnitNumber_R	Check number of connected units.
13	P+SUNX-SC-GU3-04_CheckModelInfo_R	Check model information of connected amplifiers.
14	P+SUNX-SC-GU3-04_SetDataBank_R	Data bank load or save.
15	P+SUNX-SC-GU3-04_SetGain_R	Received light sensitivity setting for LS series.
16	P+SUNX-SC-GU3-04_SetEmitterPw_R	Emission adjustment setting for FX series.
17	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	Execute or perform reset to keylock and Eco setting.

\*1 This reference manual omits the FB version information such as "\_00A" that is normally indicated behind a FB name.



1.3. System configuration example



No.	Device name	Description
1	MELSEC iQ-R series Sequencer	Use the base unit, the power supply unit, and the iQ-R series Sequencer CPU module.
2	CC-Link IE Field master/local module	Use RJ71EN71.
3	Communication cable	Connect the CC-Link IE Field master/local module and the communication unit. Use a cable recommended by the CC-Link Partner Association or compliant with the following specifications. Ethernet cable compliant with the 1000BASE-T standard: Category 5e or higher (STP with double shields) straight cable
4	CC-Link IE Field Communication Unit	Use SC-GU3-04.
5	Sensor amplifier	Use an NPN output type sensor amplifier that can be connected via the Coupling Connector unit SC-71. For information on compliant sensor amplifiers, see "Appendix 1.3 Connectable models".
6	Windows® PC	Configure various settings, using the following tool on a windows® PC. - GX Works3 Connect the PC to the CPU module via a commercially available USB cable and configure the basic settings of the communication unit.



## 1.4. Global labels

### 1.4.1 Global label configuration

Use GX Works3 to configure the global labels.

(1) G\_bRX The global label for remote input (RX) access is described below:

Item	Description
Label name	Enter "G_bRX".
Data type	Select "bit".
Class	Select "VAR_GLOBAL".
Assign (device/label)	Add an index register "Z9" to the starting device configured for the module parameter link refresh setting. In the following example, X1000Z9 is configured.

(2) G\_bRY The global label for remote output (RY) access is described below:

Item	Description
Label name	Enter "G_bRY".
Data type	Select "bit".
Class	Select "VAR_GLOBAL".
Assign (device/label)	Add an index register "Z9" to the starting device configured for the module parameter link refresh setting. In the following example, Y1000Z9 is configured.

(3) G\_wRW<sub>r</sub> The global label for remote register (RW<sub>r</sub>) access is described below:

Item	Description
Label name	Enter "G_wRW <sub>r</sub> ".
Data type	Select "word [signed]".
Class	Select "VAR_GLOBAL".
Assign (device/label)	Add an index register "Z8" to the starting device configured for the module parameter link refresh setting. In the following example, W0Z8 is configured.

(4) G\_wRW<sub>w</sub> The global label for remote register (RW<sub>w</sub>) access is described below:

Item	Description
Label name	Enter "G_wRW <sub>w</sub> ".
Data type	Select "word [signed]".
Class	Select "VAR_GLOBAL".
Assign (device/label)	Add an index register "Z8" to the starting device configured for the module parameter link refresh setting. In the following example, W1000Z8 is configured.



	Label Name	Data Type		Class	Assign (Device/Label)
1	G_bRX	Bit	...	VAR_GLOBAL	X1 00029
2	G_bRY	Bit	...	VAR_GLOBAL	Y1 00029
3	G_wRWw	Word [Signed]	...	VAR_GLOBAL	W028
4	G_wRWw	Word [Signed]	...	VAR_GLOBAL	W1 00028
5			...		

Navigation window → Label → Global label

Figure 1-4-1: Examples of configuring global labels

#### 1.4.2 Checking the number of index register points

Two index registers, "Z9" and "Z8", are used.

Ensure that the number of index register points are higher than or equal to 10.

The screenshot displays the 'Setting Item List' and 'Setting Item' windows. The 'Setting Item List' on the left shows a tree view with 'Index Register Setting' selected. The 'Setting Item' window on the right shows a table of settings for 'Index Register Setting'. The 'Index Register (Z)' setting is highlighted with a red dashed box, showing a value of 10 Points. Below the table is an 'Explanation' section with text about setting the points of index register (Z) and a range of 0 to 24 points. At the bottom are buttons for 'Check', 'Restore the Default Settings', and 'Apply'.

Item	Setting
<b>Index Register Setting</b>	
Points Setting	
Total Points	14 Word
<b>Index Register (Z)</b>	<b>10 Points</b>
Long Index Register (LZ)	2 Points
Local Setting	
Points Setting	
Local Index Register (Z)	0 Points
Local Long Index Register (LZ)	0 Points
Start	
Index Register (Z)	0
Long Index Register (LZ)	0

**Explanation**

Set the points of index register (Z).

[Setting range]  
0 to 24 [Points](2 Points Unit)

Setting is in the following range.

Check      Restore the Default Settings      Apply

Navigation window → Parameter → (CPU module) → CPU parameter

Memory/device setting → Index register setting

Figure 1-4-2: Link refresh setting examples

1.4.3 Identifying the starting device

A starting device is configured for each CC-Link IE Field master/local module. Check the link refresh setting configured for the CC-Link IE Field master/local module connected to the communication unit where you want to run the FB.

No.	Link Side					CPU Side				
	Device Name	Points	Start	End		Target	Device Name	Points	Start	End
-	SB									
-	SW									
1	RX	352	00000	0015F		Specify Device	X	352	01000	0115F
2	RY	352	00000	0015F		Specify Device	Y	352	01000	0115F
3	RWr	44	00000	0002B		Specify Device	W	44	00000	0002B
4	RWw	44	00000	0002B		Specify Device	W	44	01000	0102B

Navigation window → Parameter → Module information → (Destination CC-Link IE Field master) → Module parameter  
Basic setting → Link refresh setting

Figure 1-4-3: Link refresh setting examples

1.5 Related manuals

- MELSEC iQ-R CPU Module User's Manual (Startup)
- MELSEC iQ-R CPU Module User's Manual (Application)
- MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)
- MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)
- MELSEC iQ-R Programming Manual (CPU Module Instructions, Standard Functions/Function Blocks)
- GX Works3 Operating Manual
- CC-Link IE Field Communication Unit SC-GU3-04 User's Manual

1.6 Precaution

Before use, be sure to read the User's Manuals of the products you are going to use.

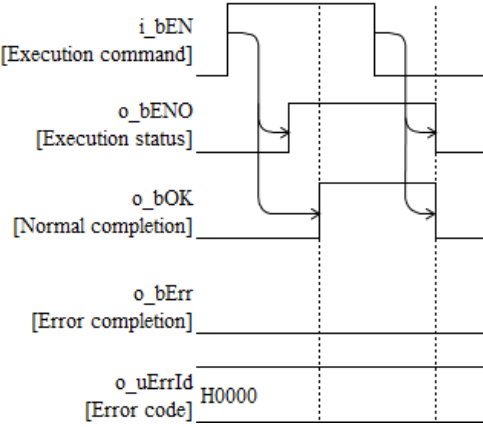
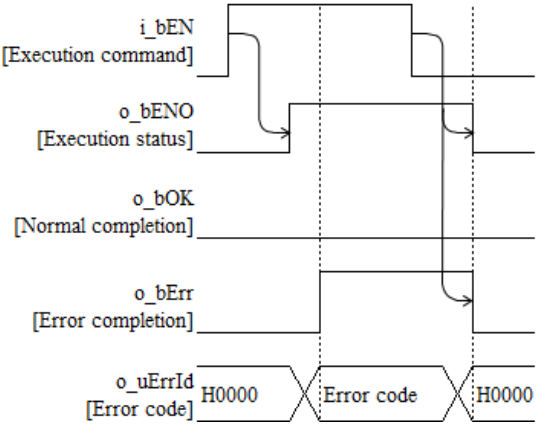
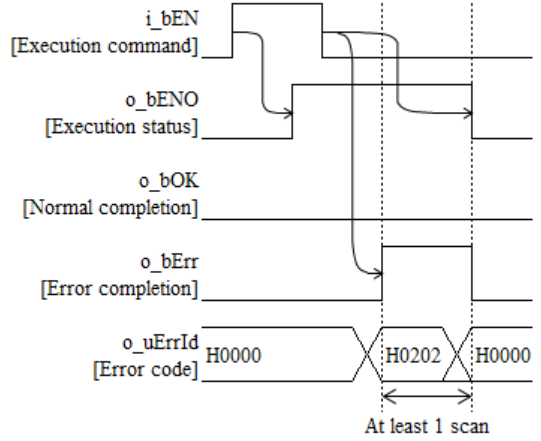
2. Details of the FB library

2.1. P+SUNX-SC-GU3-04\_InitializeUnit\_R (initialization)

Name
P+SUNX-SC-GU3-04_InitializeUnit_R

Functional contents
---------------------

Item	Description																	
Functional overview	Initialize settings request without reboot.																	
Symbol	<div><div><div>P+SUNX-SC-GU3-04_InitializeUnit_R</div><div><div>Execution command</div><div>B : i_bEN</div><div>Start I/O No.</div><div>UW : i_uStartIONo</div><div>Station No.</div><div>UW : i_uStationNo</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div></div></div></div>																	
Target devices	Target module	RJ71EN71																
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model															
		MELSEC iQ-R series	R04CPU	R04ENCPU														
R08CPU			R08ENCPU															
R16CPU			R16ENCPU															
R32CPU	R32ENCPU																	
R120CPU	R120ENCPU																	
Target engineering tool	GX Works3 Version 1.035M or later																	
Program language	Ladder																	
Number of basic steps	196 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																	
FB dependencies	None																	

Item	Description	
Description of functions	When Execution Command (i_bEN) is turned ON, this FB requests initialization.	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p>  <p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p> 

Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) This FB does not check the module error.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index register Z9. Do not use Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).



## Labels To Be Used

### ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the station number of the communication unit you want to configure.

### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.





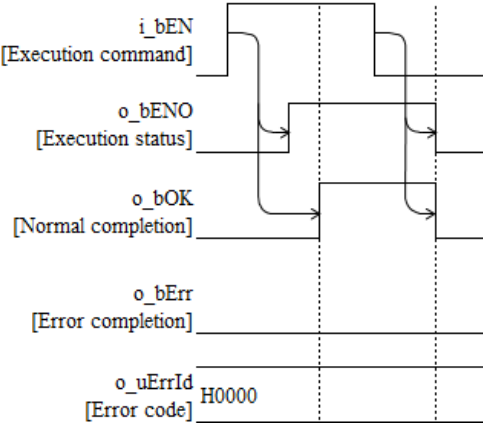
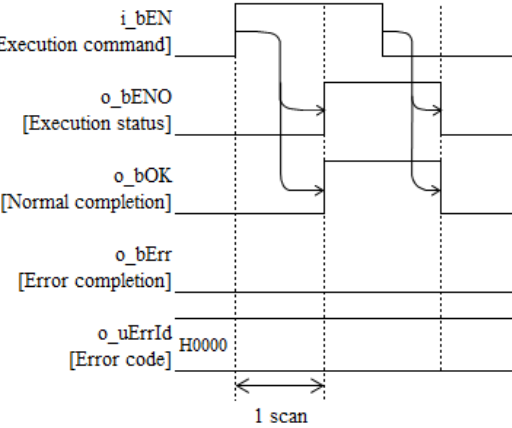
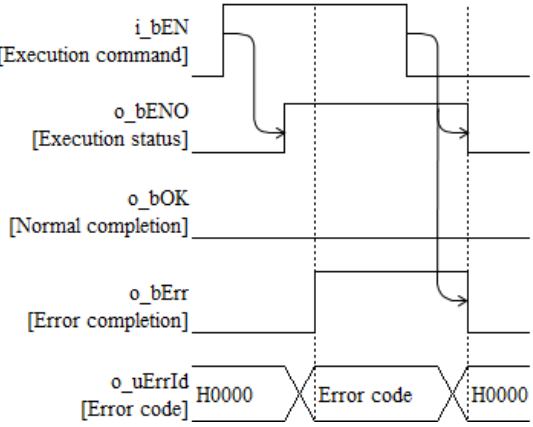
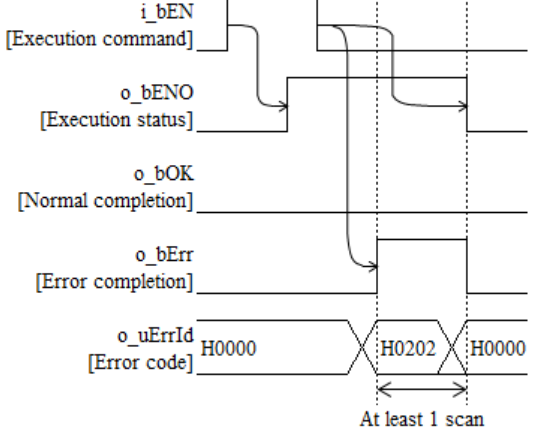
2.2. P+SUNX-SC-GU3-04\_ClearError\_R (error clear)

Name

P+SUNX-SC-GU3-04\_ClearError\_R

Functional contents

Item	Description																	
Functional overview	Error clear is executed.																	
Symbol	<div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div></div><div><div>P+SUNX-SC-GU3-04_ClearError_R</div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div></div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div></div></div>																	
Target devices	Target module	RJ71EN71																
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model															
		MELSEC iQ-R series	R04CPU	R04ENCPU														
R08CPU			R08ENCPU															
R16CPU			R16ENCPU															
R32CPU	R32ENCPU																	
R120CPU	R120ENCPU																	
Target engineering tool	GX Works3 Version 1.035M or later																	
Program language	Ladder																	
Number of basic steps	179 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																	
FB dependencies	None																	

Item	Description	
Description of functions	When Execution Command (i_bEN) is turned ON, this FB resets the communication unit error. If no error has occurred, Normal Completion (o_bOK) turns ON in one scan.	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> <p>If executed with a communication unit error:</p>  <p>If executed without a communication unit error:</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p>  <p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p> 



Item	Description
Restrictions and precautions	<p>(1) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</p> <p>(2) Use this FB as a macro type FB.</p> <p>(3) You cannot use this FB in an interrupt program.</p> <p>(4) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</p> <p>(5) Configure the global label as instructed in "1.4 Global labels".</p> <p>(6) This FB uses the index register Z9. Do not use Z9 in an interrupt program.</p> <p>(7) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</p> <p>(8) Do not run this FB on any device other than SC-GU3-04.</p> <p>(9) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each local module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</p>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).



## Labels To Be Used

### ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.

### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.

2.3. P+SUNX-SC-GU3-04\_SetBlankUnit\_R (set blank unit controller)

Name
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P+SUNX-SC-GU3-04\_SetBlankUnit\_R

Functional contents
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Item	Description																																
Functional overview	Set blank unit and output set controller to reflect blank unit.																																
Symbol	<table><tr><td colspan="4">P+SUNX-SC-GU3-04_SetBlankUnit_R</td></tr><tr><td>Execution command</td><td>B</td><td>: i_bEN</td><td>o_bENO : B</td><td>Execution status</td></tr><tr><td>Start I/O No.</td><td>UW</td><td>: i_uStartIONo</td><td>o_bOK : B</td><td>Normal completion</td></tr><tr><td>Station No.</td><td>UW</td><td>: i_uStationNo</td><td>o_bErr : B</td><td>Error completion</td></tr><tr><td>Set controller</td><td>UW</td><td>: i_uSetController</td><td>o_uErrId : UW</td><td>Error code</td></tr><tr><td>Set blank unit controller</td><td>UW</td><td>: i_uBlankUnit</td><td>o_uBlankUnitSet : UW</td><td>Set controller reflected blank unit</td></tr></table>				P+SUNX-SC-GU3-04_SetBlankUnit_R				Execution command	B	: i_bEN	o_bENO : B	Execution status	Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion	Station No.	UW	: i_uStationNo	o_bErr : B	Error completion	Set controller	UW	: i_uSetController	o_uErrId : UW	Error code	Set blank unit controller	UW	: i_uBlankUnit	o_uBlankUnitSet : UW	Set controller reflected blank unit
P+SUNX-SC-GU3-04_SetBlankUnit_R																																	
Execution command	B	: i_bEN	o_bENO : B	Execution status																													
Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion																													
Station No.	UW	: i_uStationNo	o_bErr : B	Error completion																													
Set controller	UW	: i_uSetController	o_uErrId : UW	Error code																													
Set blank unit controller	UW	: i_uBlankUnit	o_uBlankUnitSet : UW	Set controller reflected blank unit																													
Target devices	Target module	RJ71EN71																															
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU															
		Series	Model																														
		MELSEC iQ-R series	R04CPU	R04ENCPU																													
R08CPU			R08ENCPU																														
R16CPU			R16ENCPU																														
R32CPU			R32ENCPU																														
R120CPU	R120ENCPU																																
Target engineering tool	GX Works3 Version 1.035M or later																																
Program language	Ladder																																
Number of basic steps	199 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																																
FB dependencies	None																																

Item	Description
Description of functions	<p>When Execution Command (i_bEN) is turned ON, this FB acquires the 16-bit information specified in Set Blank Unit Controller (i_uBlankUnit) and configures the blank unit accordingly.</p> <p>To clear the blank unit information, execute this FB with Set Blank Unit Controller (i_uBlankUnit) set to 0.</p> <p>If the Set Controller (i_uSetController) is non-zero, the set sensor amplifier information updated to reflect Set Blank Unit Controller (i_uBlankUnit) is output to Set Controller Reflected Blank Unit (o_uBlankUnitSet).</p> <p>If the sensor amplifier cannot be set based on Set Blank Unit Controller (i_uBlankUnit), Normal Completion (o_bOK) turns ON but Set Controller Reflected Blank Unit (o_uBlankUnitSet) is set to 0.</p>
FB compilation method	Macro type
FB behavior	Pulse execution type (single-scan execution type)
i_bEN input condition	None
I/O signal flow movement	<div> <p>[Normal completion]</p> <p>If the Set Controller (i_uSetController) is 0 or the sensor amplifier cannot be set:</p> </div> <div> <p>[Error completion]</p> </div>



Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) Use this FB as a macro type FB.</li> <li>(3) You cannot use this FB in an interrupt program.</li> <li>(4) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(5) This FB does not check the module error.</li> <li>(6) Configure the global label as instructed in "1.4 Global labels".</li> <li>(7) This FB uses the index register Z9. Do not use Z9 in an interrupt program.</li> <li>(8) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(9) Do not run this FB on any device other than SC-GU3-04.</li> <li>(10) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>





## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the station number of the communication unit you want to configure.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier when not updated to reflect the blank unit setting. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Set Blank Unit Controller	i_uBlankUnit	Word [Unsigned]	16-bit data	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier updated to reflect the blank unit setting. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Set Controller Reflected Blank Unit	o_uBlankUnitSet	Word [Unsigned]	0	Stores the word information (consisting of 16 pieces of bit information) that represents the status after updated to reflect the blank unit setting. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



## 2.4. P+SUNX-SC-GU3-04\_CheckOutData\_R (sensor output read)

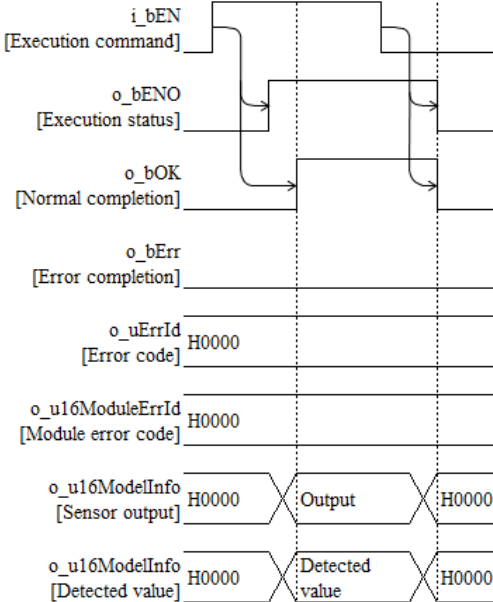
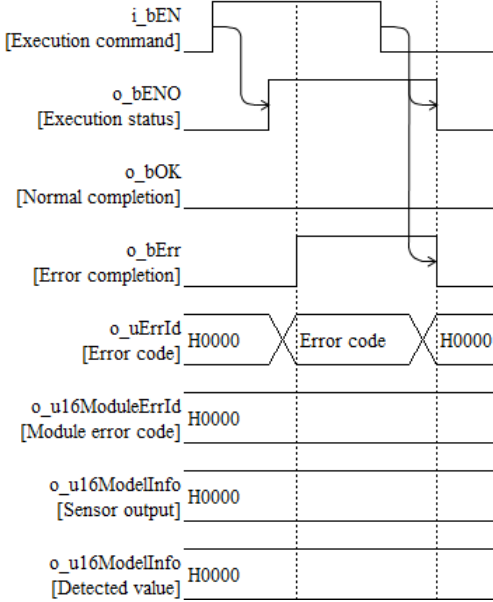
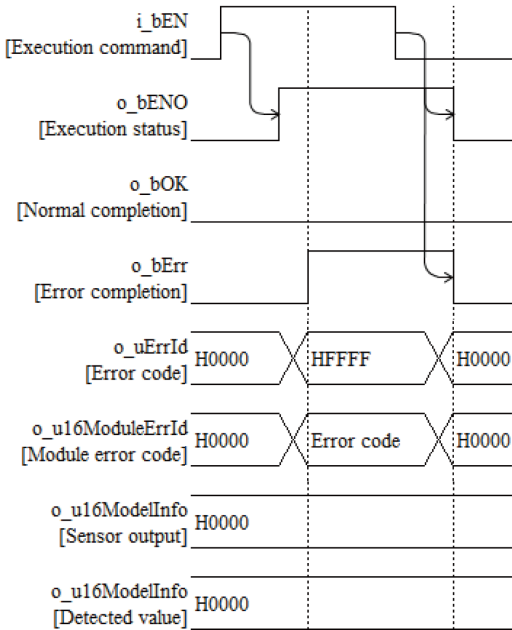
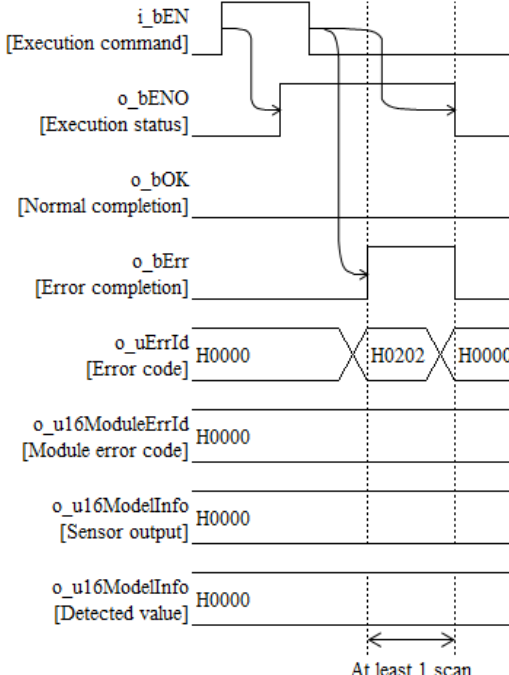
Name

P+SUNX-SC-GU3-04\_CheckOutData\_R

Functional contents

Item	Description			
Functional overview	Read connecting amplifier output and detected value.			
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	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p> 
	<p>If a module error occurs:</p> 	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>  <p style="text-align: right;">At least 1 scan</p>

Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) The Sensor Output (o_uSensorOutput) and Detected Value (o_w16DetectedValue) used by this FB are cleared when Execution Command (i_bEN) is turned OFF. The Sensor Output (o_uSensorOutput) and Detected Value (o_w16DetectedValue) are all zero while Execution Status (o_bENO) is OFF. Carefully note this when you turn ON and OFF Execution Command (i_bEN) and then update the data.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ol>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module Error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.

## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Sensor Output	o_uSensorOutput	Word [Unsigned]	0	Stores the word information (consisting of 16 pieces of bit information) that represents the connected sensor amplifier output status. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Detected Value	o_w16DetectedValue[n]	Word [Signed]	0	Stores the sensor amplifier detected value. 16 arrays exist and each array stores (n+1)th sensor amplifier detected value.





## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



2.5. P+SUNX-SC-GU3-04\_ExecuteCommand\_R (execute specified command)

Name

P+SUNX-SC-GU3-04\_ExecuteCommand\_R

Functional contents

Item	Description																
Functional overview	Set command execution.																
Symbol	<div><div><div>P+SUNX-SC-GU3-04_ExecuteCommand_R</div><div><div><div>Execution command</div><div>B : i_bEN</div><div>o_bENO : B</div><div>Execution status</div></div><div><div>Start I/O No.</div><div>UW : i_uStartIONo</div><div>o_bOK : B</div><div>Normal completion</div></div><div><div>Station No.</div><div>UW : i_uStationNo</div><div>o_bErr : B</div><div>Error completion</div></div><div><div>Set controller</div><div>UW : i_uSetController</div><div>o_uErrId : UW</div><div>Error code</div></div><div><div>All controller set request</div><div>B : i_bAllSettingFlag</div><div>o_uModuleErrId : UW</div><div>Module error code</div></div><div><div>Input Command</div><div>UW : i_uCommand</div><div>o_w16CommandResponse : W</div><div>Read command response</div></div><div><div>Command data</div><div>W : i_wCommandData</div><div></div><div></div></div></div></div></div>																
Target devices	Target module	RJ71EN71															
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>		Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model														
		MELSEC iQ-R series	R04CPU	R04ENCPU													
R08CPU			R08ENCPU														
R16CPU			R16ENCPU														
R32CPU	R32ENCPU																
R120CPU	R120ENCPU																
Target engineering tool	GX Works3 Version 1.035M or later																
Program language	Ladder																
Number of basic steps	613 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																
FB dependencies	None																

Item	Description
Description of functions	<p>When Execution Command (i_bEN) is turned ON, this FB executes the command input to Input Command (i_uCommand) on the sensor amplifier specified by Set Controller (i_uSetController).</p> <p>If All Controller Set Request (i_bAllSettingFlag) is ON, the command is executed on all the sensor amplifiers with the value input to Set Controller (i_uSetController) being ignored.</p> <p>If the command to execute is a write command, input data to Command Data (i_wCommandData). The input data will be written as values to the set sensor amplifier.</p> <p>If the command to execute is a read command, the command response values for all the sensor amplifiers will be output to the Read Command Response (o_w16CommandResponse) with the values input to Set Controller (i_uSetController) and Command Data (i_wCommandData) being ignored.</p>
FB compilation method	Macro type
FB behavior	Pulse execution type (multi-scan execution type)
i_bEN input condition	None



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>When executing a read command: (When executing a write command, only the sensor amplifier settings are changed.)</p>	<p>[Error completion]</p> <p>If an FB error occurs:</p>
	<p>If a module error occurs:</p>	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>

At least 1 scan

Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) Configure the global label as instructed in "1.4 Global labels".</li> <li>(7) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(8) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(9) Do not run this FB on any device other than SC-GU3-04.</li> <li>(10) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent local modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0 or turn ON All Controller Set Request (i_bAllSettingFlag).
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
104	Input Command (i_uCommand) is outside the valid range	Enter the correct command.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to execute the command. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
All Controller Set Request	i_bAllSettingFlag	Bit	ON, OFF	Starting the FB with this label ON sends the command to all the sensor amplifiers. Starting the FB with this label OFF sends the command to the sensor amplifier specified by Set Controller (i_uSetController).
Input Command	i_uCommand	Word [Unsigned]	H0 to HFF (hexadecimal)	For information on available commands and the command data, refer to the SC-GU3-04 User's Manual.
Command Data	i_wCommandData	Word [Signed]	-32768 to 32767 (decimal) The valid range differs from command to command.	



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Command Response	o_w16CommandResponse[n]	Word [Signed]	0	Stores the response data after the execution of the read command. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.





2.6. P+SUNX-SC-GU3-04\_SetOutTimer\_R (output operation setting)

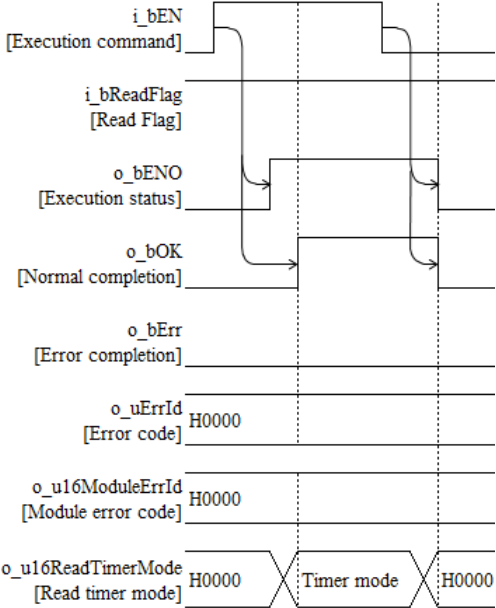
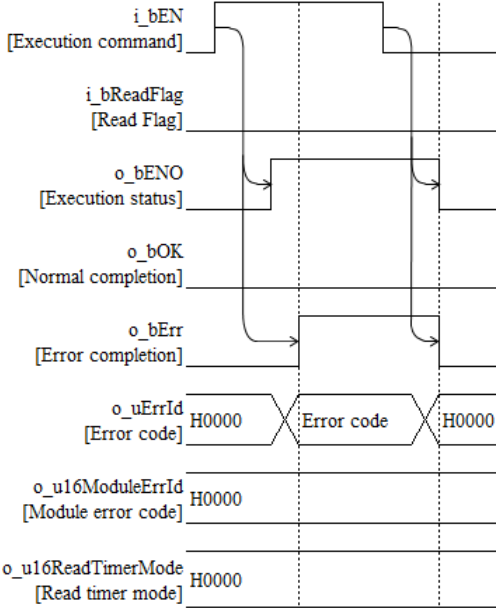
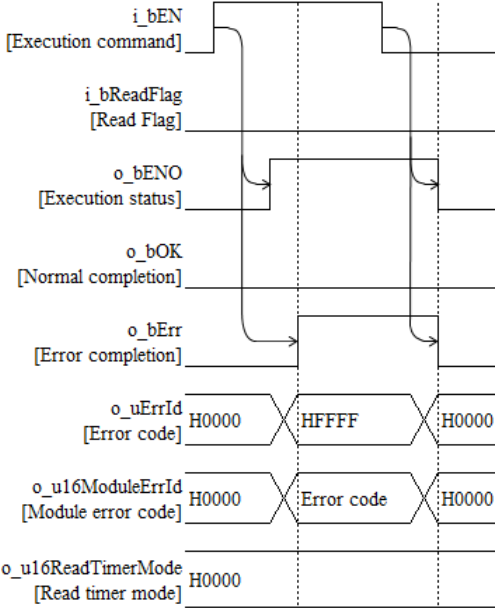
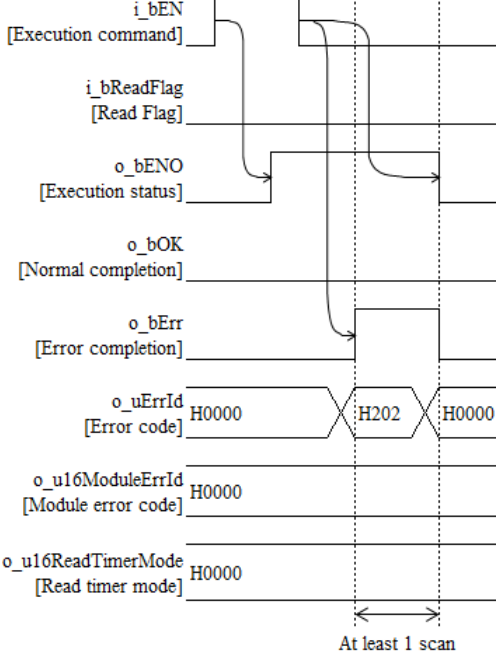
Name

P+SUNX-SC-GU3-04\_SetOutTimer\_R

Functional contents

Item	Description																
Functional overview	Output operation setting.																
Symbol	<div><div><div>P+SUNX-SC-GU3-04_SetOutTimer_R</div><div><div>Execution command</div><div>B : i_bEN</div><div>Start I/O No.</div><div>UW : i_uStartIONo</div><div>Station No.</div><div>UW : i_uStationNo</div><div>Read Flag</div><div>B : i_bReadFlag</div><div>Set controller</div><div>UW : i_uSetController</div><div>Timer mode</div><div>UW : i_uTimerMode</div><div>Timer Range</div><div>UW : i_uTimerRange</div><div>Timer span1</div><div>UW : i_uTimerSpan1</div><div>Timer span2</div><div>UW : i_uTimerSpan2</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div><div>o_u16ReadTimerMode : UW</div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Module error code</div><div>Read timer mode</div></div></div></div>																
Target devices	Target module	RJ71EN71															
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>		Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model														
MELSEC iQ-R series		R04CPU	R04ENCPU														
		R08CPU	R08ENCPU														
		R16CPU	R16ENCPU														
	R32CPU	R32ENCPU															
	R120CPU	R120ENCPU															
Target engineering tool	GX Works3 Version 1.035M or later																
Program language	Ladder																
Number of basic steps	695 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																
FB dependencies	None																

Item	Description																					
Description of functions	When Execution Command (i_bEN) is turned ON, this FB executes the settings on the sensor amplifier specified by Set Controller (i_uSetController) in accordance with the various input values. If Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) ON, however, all the timer settings for the sensor amplifiers connected to Read Timer Mode (o_u16ReadTimerMode) are output in accordance with the data values shown in the table below. In this case, the subsequent setting values are ignored, and no setting takes place. If Read Flag (i_bReadFlag) is OFF, you can execute various settings by entering the data values corresponding to the timer settings in Timer Mode (i_uTimerMode).																					
	<table><tr><th>Timer setting</th><th>Data value</th><th>Unconfigurable sensor amplifier</th></tr><tr><td>Without timer</td><td>H0000</td><td>-</td></tr><tr><td>OFF delay</td><td>H0001</td><td>-</td></tr><tr><td>ON delay</td><td>H0002</td><td>-</td></tr><tr><td>ON/OFF delay</td><td>H0003</td><td>FX-301, LS-403</td></tr><tr><td>One-shot delay</td><td>H0004</td><td>-</td></tr><tr><td>ON delay, one-shot</td><td>H0005</td><td>FX-301, LS-403</td></tr></table>	Timer setting	Data value	Unconfigurable sensor amplifier	Without timer	H0000	-	OFF delay	H0001	-	ON delay	H0002	-	ON/OFF delay	H0003	FX-301, LS-403	One-shot delay	H0004	-	ON delay, one-shot	H0005	FX-301, LS-403
	Timer setting	Data value	Unconfigurable sensor amplifier																			
	Without timer	H0000	-																			
	OFF delay	H0001	-																			
	ON delay	H0002	-																			
	ON/OFF delay	H0003	FX-301, LS-403																			
	One-shot delay	H0004	-																			
	ON delay, one-shot	H0005	FX-301, LS-403																			
	Timer Range (i_uTimerRange) is determined in accordance with the following table.																					
FX-301, FX-305, and LS-403 are fixed timers [ms] and return an error if a different range is selected.																						
<table><tr><th>Setting values</th><th>Range</th><th>Display value</th></tr><tr><td>H0000</td><td>[dms]</td><td>Display value x 10us</td></tr><tr><td>H0001</td><td>[ms]</td><td>Display value x 1ms</td></tr><tr><td>H0002</td><td>[s]</td><td>Display value x 1s</td></tr></table>	Setting values	Range	Display value	H0000	[dms]	Display value x 10us	H0001	[ms]	Display value x 1ms	H0002	[s]	Display value x 1s										
Setting values	Range	Display value																				
H0000	[dms]	Display value x 10us																				
H0001	[ms]	Display value x 1ms																				
H0002	[s]	Display value x 1s																				
For Timer Span 1 (i_uTimerSpan1), enter the control time. Set the time from 0 to 9999 in accordance with the timer range. If you set the timer span to 0, '0.5' is assumed. For example, if you select the [ms] timer range and set the timer span to 0, '0.5'[ms] is assumed.																						
Also, selecting "ON/OFF delay" or "ON delay, one-shot" requires you to set the Timer Span 2 (i_uTimerSpan2). The respective time charts are shown below.																						
<div><div><p>Time chart (L-ON)</p></div><div><p>Time chart (D-ON)</p></div></div>																						

Item	Description	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> <p>Read Flag (i_bReadFlag) is ON (When it is OFF, only the sensor amplifier settings are changed.)</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p> 
	<p>If a module error occurs:</p> 	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>  <p style="text-align: right;">At least 1 scan</p>



Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) This FB executes multiple commands. You can stop this FB by turning OFF Execution Command (i_bEN). You cannot, however, cancel the commands that have been executed before you stop the FB.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
105	Timer Mode (i_uTimerMode) is outside the valid range	Set Timer Mode (i_uTimerMode) to a value not greater than 5.
106	Timer Range (i_uTimerRange) is outside the valid range	Set Timer Range (i_uTimerRange) to a value not greater than 2.
107	Timer Span (i_uTimerSpan1/i_uTimerSpan2) is outside the valid range	Set Timer Span (i_uTimerSpan1/i_uTimerSpan2) to a value not greater than 9999.
108	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	Set it to a sensor amplifier other than DPS-401, DPS-402, SC-A01, and SC-A02.
109	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	Setting Timer Mode (i_uTimerMode) to 3 or 5 requires you to select sensor amplifier other than FX-301 and LS-403.
10A	Set to unconfigurable range	Setting Timer Range (i_uTimerRange) to other than 1 requires you to select sensor amplifier other than FX-301, FX-305, and LS-403.



Error code (hexadecimal)	Description	Meaning
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Read Flag	i_bReadFlag	Bit	ON, OFF	Start the FB with label ON to execute it in data read mode. Start the FB with label OFF to execute it in data write mode.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to set the timer spans. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Timer Mode	i_uTimerMode	Word [Unsigned]	0 to 5	Specify one of the following timer modes. 0: Without timer 1: OFF delay 2: ON delay 3: ON/OFF delay 4: One-shot delay 5: ON delay, one-shot
Timer Range	i_uTimerRange	Word [Unsigned]	0 to 2	Set the timer span unit. 0: [dms] 1: [ms] 2: [s]
Timer Span	i_uTimerSpan1 i_uTimerSpan2	Word [Unsigned]	0 to 9999 (decimal)	Set the delay time. If you specify 0, 0.5 is assumed.



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Timer Mode	o_u16ReadTimerMode[n]	Word [Unsigned]	0	Stores the timer mode. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.





## 2.7. P+SUNX-SC-GU3-04\_ExecuteTeaching\_R (execute teaching)

Name

P+SUNX-SC-GU3-04\_ExecuteTeaching\_R

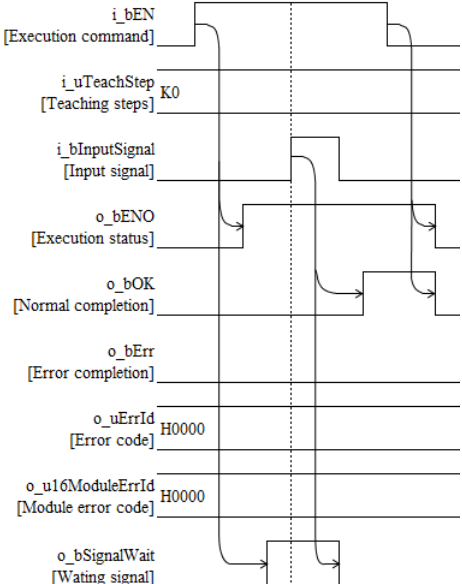
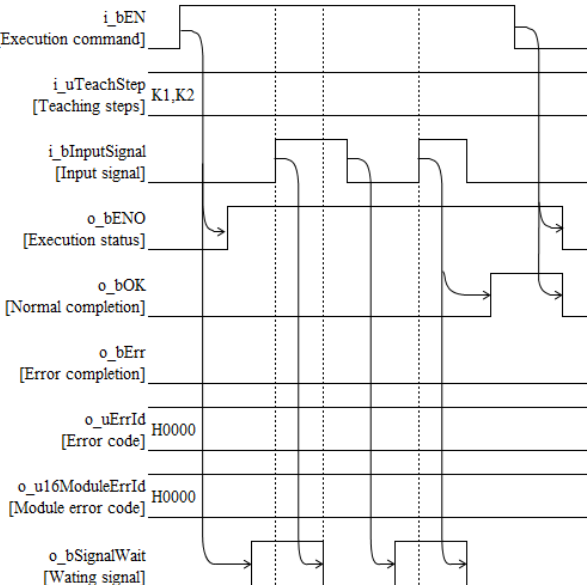
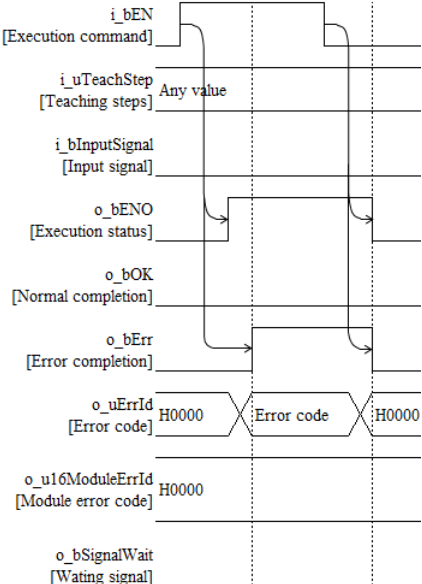
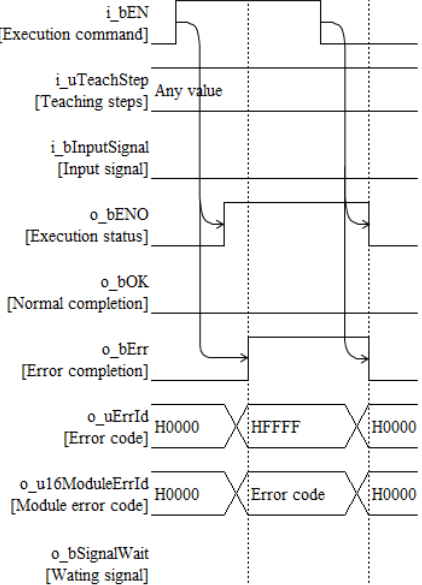
Functional contents

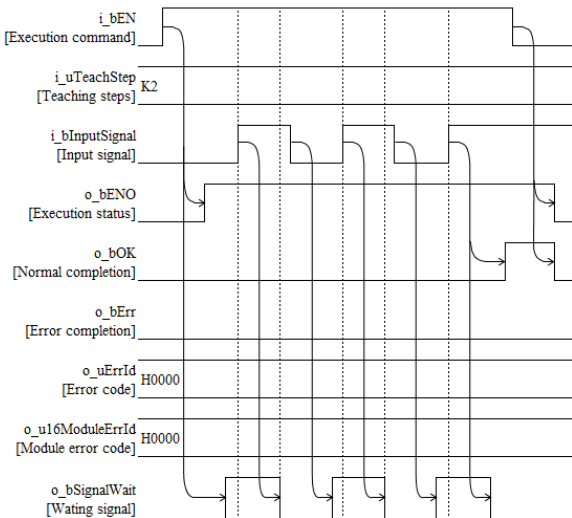
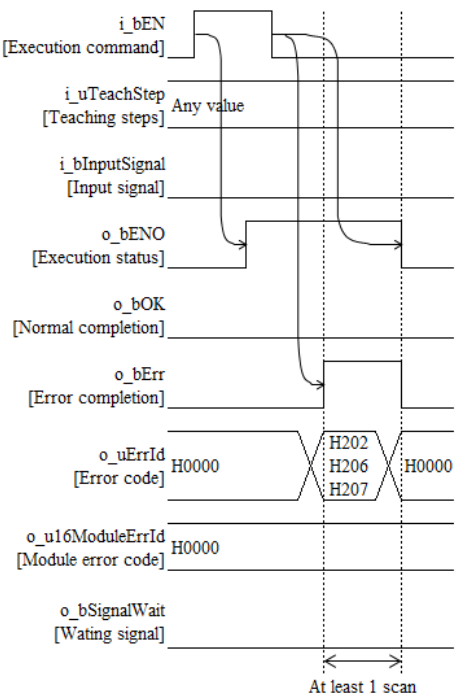
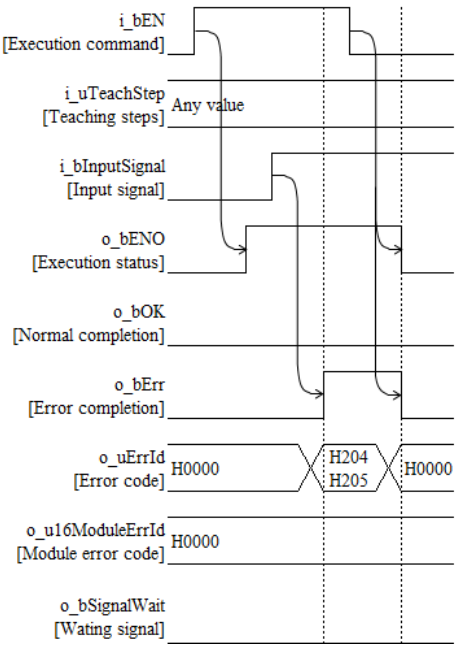
Item	Description																
Functional overview	Perform teaching for set amplifier on own timing.																
Symbol	<div><div><div><div><div></div><div>Execution command</div></div><div><div></div><div>Start I/O No.</div></div><div><div></div><div>Station No.</div></div><div><div></div><div>Set controller</div></div><div><div></div><div>Teaching Mode Setting</div></div><div><div></div><div>Teaching steps</div></div><div><div></div><div>Shift amount</div></div><div><div></div><div>Input signal</div></div></div><div><div><div>P+SUNX-SC-GU3-04_ExecuteTeaching_R</div><div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div><div>UW : i_uSetController</div><div>UW : i_uTeachMode</div><div>UW : i_uTeachStep</div><div>W : i_wShiftAmount</div><div>B : i_bInputSignal</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div><div>o_bWaitSignal : B</div></div></div></div><div><div></div><div>Execution status</div></div><div><div></div><div>Normal completion</div></div><div><div></div><div>Error completion</div></div><div><div></div><div>Error code</div></div><div><div></div><div>Module error code</div></div><div><div></div><div>Wating signal</div></div></div></div></div>																
Target devices	Target module	RJ71EN71															
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>		Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
	Series	Model															
	MELSEC iQ-R series	R04CPU	R04ENCPU														
		R08CPU	R08ENCPU														
R16CPU		R16ENCPU															
R32CPU		R32ENCPU															
R120CPU		R120ENCPU															
Target engineering tool	GX Works3 Version 1.035M or later																
Program language	Ladder																
Number of basic steps	834 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																
FB dependencies	None																



Item	Description																																											
Description of functions	When Execution Command (i_bEN) is turned ON, this FB operates as specified in accordance with various input values. The various settings are executed on the sensor amplifier specified by Set Controller (i_uSetController).																																											
	Teaching Mode (i_uTeachMode) allows you to select one of the following output operation types: "Normal Operation", "Window Comparator Operation", and "Hysteresis Operation".																																											
	Teaching Steps (i_uTeachStep) allows you to select one of the following four teaching types: "1-point teaching (limit teaching)", "2-point teaching", "3-point teaching", and "full-auto teaching".																																											
	Whether or not Teaching Steps (i_uTeachStep) is available differs depending on the mode setting. See the following table.																																											
	<table><tr><td colspan="3"></td><th colspan="3">Teaching Mode Setting (i_uTeachMode)</th></tr><tr><td colspan="3"></td><th>0</th><th>1</th><th>2</th></tr><tr><td colspan="3"></td><th>Normal Operation</th><th>Window Comparator Operation</th><th>Hysteresis Operation</th></tr><tr><td rowspan="4">Teaching steps (i_uTeachStep)</td><td>0</td><td>1-point teaching (Limit Teaching)</td><td>○</td><td>○</td><td>○</td></tr><tr><td>1</td><td>2-point teaching</td><td>○</td><td>○</td><td>○</td></tr><tr><td>2</td><td>3-point teaching</td><td>—</td><td>○</td><td>○</td></tr><tr><td>3</td><td>Full-auto Teaching</td><td>○</td><td>—</td><td>—</td></tr></table>								Teaching Mode Setting (i_uTeachMode)						0	1	2				Normal Operation	Window Comparator Operation	Hysteresis Operation	Teaching steps (i_uTeachStep)	0	1-point teaching (Limit Teaching)	○	○	○	1	2-point teaching	○	○	○	2	3-point teaching	—	○	○	3	Full-auto Teaching	○	—	—
				Teaching Mode Setting (i_uTeachMode)																																								
				0	1	2																																						
				Normal Operation	Window Comparator Operation	Hysteresis Operation																																						
	Teaching steps (i_uTeachStep)	0	1-point teaching (Limit Teaching)	○	○	○																																						
		1	2-point teaching	○	○	○																																						
2		3-point teaching	—	○	○																																							
3		Full-auto Teaching	○	—	—																																							
Selecting "1-point teaching" requires you to set Shift Amount (i_wShiftAmount). The behavior differs depending on the sign of Shift Amount (i_wShiftAmount). For information on how the behavior differs depending on the mode, see the table below. The input value is ignored if you specify a type other than "1-point teaching".																																												
<table><tr><th></th><th>Normal Operation</th><th>Window Comparator Operation</th><th>Hysteresis Operation</th></tr><tr><td>Positive</td><td>+ Limit teaching (percentage)*</td><td colspan="2">± Shift (digit)</td></tr><tr><td>Negative</td><td>- Limit teaching (percentage)*</td><td colspan="2">± Shift (percentage)</td></tr></table>						Normal Operation	Window Comparator Operation	Hysteresis Operation	Positive	+ Limit teaching (percentage)*	± Shift (digit)		Negative	- Limit teaching (percentage)*	± Shift (percentage)																													
	Normal Operation	Window Comparator Operation	Hysteresis Operation																																									
Positive	+ Limit teaching (percentage)*	± Shift (digit)																																										
Negative	- Limit teaching (percentage)*	± Shift (percentage)																																										
* For FX-501, FX-502, and LS-501, this FB operates the sensor amplifiers and, if the Shift amount setting is "Display value: digit", it operates them in the unit of "digit". In this case, you cannot make changes from the communication unit side; to make changes, operate the sensor amplifiers as appropriate. If you opt to continue the teaching, "Display value: digit" is applied.																																												
Upon completion of the various settings, Waiting Signal (o_bSignalWait) turns ON to indicate the readiness for teaching.																																												
Check that Waiting Signal (o_bSignalWait) is ON and then turn Input Signal (i_bInputSignal) from OFF to ON to ensure that the incident light amount required for teaching reaches the sensor amplifiers. If you need to configure the settings twice or more times, temporarily turn Input Signal (i_bInputSignal) from ON to OFF and wait for Waiting Signal (o_bSignalWait) to turn ON again, then turn Input Signal (i_bInputSignal) from OFF to ON.																																												
Normal Completion (o_bOK) turns ON when the teaching is complete.																																												



Item	Description	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Teaching Steps (i_uTeachStep) is 0</p>  <p>If Teaching Steps (i_uTeachStep) is 1 or 3</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p>  <p>If a module error occurs:</p> 

Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Teaching Steps (i_uTeachStep) is 2</p> 	<p>[Error completion]</p> <p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p> <p>If Execution Command (i_bEN) is turned from ON to OFF before the start of the teaching for the 2nd point</p>  <p>At least 1 scan</p> <p>Input Signal (i_bInputSignal) is turned from OFF to ON with Waiting Signal (o_bSignalWait) OFF</p> 

Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) This FB executes multiple commands. You can stop this FB by turning OFF Execution Command (i_bEN). You cannot, however, cancel the commands that have been executed before you stop the FB.</li> <li>(7) Teaching Steps (i_uTeachStep) set to 1, 2, or 3 requires you to turn Input Signal (i_bInputSignal) from OFF to ON twice or three times. When Execution Command (i_bEN) is turned OFF after an Input signal is received, the teaching is cancelled. Until the completion of this processing, Execution Status (o_bENO) stays ON. Therefore, ensure that the communication unit knows the turning OFF of Execution Status so that the next command is executed.</li> <li>(8) Configure the global label as instructed in "1.4 Global labels".</li> <li>(9) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(10) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(11) Do not run this FB on any device other than SC-GU3-04.</li> <li>(12) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ol>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
108	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	Set it to a sensor amplifier other than DPS-401, DPS-402, SC-A01, and SC-A02.
10B	Teaching Mode (i_uTeachMode) is outside the valid range	Set Teaching Mode (i_uTeachMode) to a value not greater than 2.
10C	Teaching Steps (i_uTeachStep) is outside the valid range	Set Teaching Steps (i_uTeachStep) to a value not greater than 3.
10D	"1-point teaching (limit teaching)" is selected and Shift Amount (i_wShiftAmount) is set to 0	Selecting "1-point teaching (limit teaching)" requires you to set Shift Amount (i_wShiftAmount) to a non-zero value within the valid range.
10E	Input Signal (i_bInputSignal) is ON and Execution Command (i_bEN) is ON	Turn OFF Input Signal (i_bInputSignal) and then turn ON Execution Command (i_bEN).
10F	Teaching Steps (i_uTeachStep) not configurable with the specify Teaching Mode (i_uTeachMode)	If Teaching Mode (i_uTeachMode) is zero, set Teaching Steps (i_uTeachStep) to a value other than 2. If Teaching Mode (i_uTeachMode) is 1 or 2, set Teaching Steps (i_uTeachStep) to a value other than 3.
110	Teaching Mode (i_uTeachMode) not configurable when FX-301 is included	When you perform teaching on sensor amplifiers including FX-301, set Teaching Mode (i_uTeachMode) to 0.
111	Teaching Mode (i_uTeachMode) not configurable when FX-305 is included	When you perform teaching on sensor amplifiers including FX-305, do not set Teaching Mode (i_uTeachMode) to 2.



Error code (hexadecimal)	Description	Meaning
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
204	Input Signal (i_bInputSignal) is turned from OFF to ON with Waiting Signal (o_bSignalWait) OFF	Check that Waiting Signal (o_bSignalWait) is ON and then turn ON Input Signal (i_bInputSignal). Teaching is not executed but the output mode has been changed. Check for any problem.
205	After the teaching for the 1st point, Input Signal (i_bInputSignal) is turned from OFF to ON with Waiting Signal (o_bSignalWait) OFF	Input Signal (i_bInputSignal) was turned ON before the teaching for the 2nd or 3rd point became acceptable. Check that Waiting Signal (o_bSignalWait) is ON and then turn ON Input Signal (i_bInputSignal). This FB will forcibly terminate the teaching. Check the threshold.
206	Execution Command (i_bEN) turns OFF after the teaching for the 1st point	Execution Command (i_bEN) was turned OFF before the teaching for the 2nd or 3rd point was successfully executed. This FB will forcibly terminate the teaching. Check the threshold.
207	Execution Command (i_bEN) turned OFF before the completion of the final processing for teaching execution	Teaching was completed but Execution Command (i_bEN) turned OFF before Normal Completion (o_bOK) turned ON. Check that Normal Completion (o_bOK) is turned ON and then turn OFF Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to execute the teaching. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Teaching Mode	i_uTeachMode	Word [Unsigned]	0 to 2	Specify the output operation that triggers teaching. 0: Normal Operation 1: Window Comparator Operation 2: Hysteresis Operation
Teaching Steps	i_uTeachStep	Word [Unsigned]	0 to 3	Set the teaching type. 0: Limit teaching 1: 2-point teaching 2: 3-point teaching 3: Full-auto teaching
Shift Amount	i_wShiftAmount	Word [Signed]	FX-301, FX-305 -80 to 80(*) (Decimal) FX-501, FX-502, LS-403, LS-501 -999 to 999(*) (Decimal) (*) Except 0	Selecting "limit teaching" from Teaching Steps (i_uTeachStep) requires you to set this value. A module error occurs if the setting is outside the valid range or a FB error occurs if the setting is 0.





Name	Variable name	Data type	Valid range	Description
Input Signal	i_bInputSignal	Bit	ON, OFF	Turn ON this label when you want to execute teaching. An FB error occurs if you turn it ON with Waiting Signal (o_bSignalWait) OFF.

#### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Waiting Signal	o_bSignalWait	Bit	OFF	ON: Waiting for teaching input OFF: No teaching accepted

#### FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

#### Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



2.8. P+SUNX-SC-GU3-04\_SetSpeedMode\_R (response speed setting)

Name
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P+SUNX-SC-GU3-04\_SetSpeedMode\_R

Functional contents
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Item	Description																															
Functional overview	Execute to read or write speed mode.																															
Symbol	<table><tr><td colspan="4">P+SUNX-SC-GU3-04_SetSpeedMode_R</td></tr><tr><td>Execution command</td><td>B : i_bEN</td><td>o_bENO : B</td><td>Execution status</td></tr><tr><td>Start I/O No.</td><td>UW : i_uStartIONo</td><td>o_bOK : B</td><td>Normal completion</td></tr><tr><td>Station No.</td><td>UW : i_uStationNo</td><td>o_bErr : B</td><td>Error completion</td></tr><tr><td>Read Flag</td><td>B : i_bReadFlag</td><td>o_uErrId : UW</td><td>Error code</td></tr><tr><td>Set controller</td><td>UW : i_uSetController</td><td>o_u16ModuleErrId : UW</td><td>Module error code</td></tr><tr><td>Speed mode</td><td>UW : i_uSpeedMode</td><td>o_u16ReadSpeedMode : UW</td><td>Read speed mode</td></tr></table>				P+SUNX-SC-GU3-04_SetSpeedMode_R				Execution command	B : i_bEN	o_bENO : B	Execution status	Start I/O No.	UW : i_uStartIONo	o_bOK : B	Normal completion	Station No.	UW : i_uStationNo	o_bErr : B	Error completion	Read Flag	B : i_bReadFlag	o_uErrId : UW	Error code	Set controller	UW : i_uSetController	o_u16ModuleErrId : UW	Module error code	Speed mode	UW : i_uSpeedMode	o_u16ReadSpeedMode : UW	Read speed mode
P+SUNX-SC-GU3-04_SetSpeedMode_R																																
Execution command	B : i_bEN	o_bENO : B	Execution status																													
Start I/O No.	UW : i_uStartIONo	o_bOK : B	Normal completion																													
Station No.	UW : i_uStationNo	o_bErr : B	Error completion																													
Read Flag	B : i_bReadFlag	o_uErrId : UW	Error code																													
Set controller	UW : i_uSetController	o_u16ModuleErrId : UW	Module error code																													
Speed mode	UW : i_uSpeedMode	o_u16ReadSpeedMode : UW	Read speed mode																													
Target devices	Target module	RJ71EN71																														
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU														
		Series	Model																													
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R08CPU			R08ENCPU																													
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R32CPU			R32ENCPU																													
R120CPU	R120ENCPU																															
Target engineering tool	GX Works3 Version 1.035M or later																															
Program language	Ladder																															
Number of basic steps	659 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																															
FB dependencies	P+SUNX-SC-GU3-04_SetSpeedMode_R └P+SUNX-SC-GU3-04_ExecuteCommand_R																															

Item	Description						
Description of functions	When Execution Command (i_bEN) is turned ON, this FB executes speed mode settings on the sensor amplifier specified by Set Controller (i_uSetController) in accordance with the settings of Speed Mode (i_uSpeedMode).						
	If Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) ON, however, all the speed mode settings for the sensor amplifiers connected to Read Speed Mode (o_u16ReadSpeedMode) are output in accordance with the settings shown in the table below. In this case, the input setting values are ignored, and no setting takes place.						
	Setting values	FX-301	FX-305	FX-501 FX-502	LS-403	LS-501	DPS-401 DPS-402
	H0000	H-SP 65 us	H-SP 65 us	H-SP 25 us	H-SP 150 us	H-SP 60 us	150 us
	H0001	FASt 150 us	FASt 150 us	FASt 60 us	FASt 250 us	FASt 150 us	500 us
	H0002	S-d 250 us	-	-	-	-	1 ms
	H0003	Std 250 us	Std 250 us	Std 250 us	Std 500 us	Std 250 us	5 ms
	H0004	-	StdF 700 us	-	-	-	10 ms
	H0005	Long 2 ms	Long 2 ms	Long 2ms	-	Long 500 us	50 ms
	H0006	-	U-Lg 4.5ms	U-Lg 4ms	U-Lg 4ms	U-Lg 5 ms	100 ms
H0007	-	-	Hypr 24ms	-	Hypr 24 ms	500 ms	
FB compilation method	Macro type						
FB behavior	Pulse execution type (multi-scan execution type)						
i_bEN input condition	None						



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Read Flag (i_bReadFlag) is ON (When it is OFF, only the sensor amplifier settings are changed.)</p>	<p>[Error completion]</p> <p>If an FB error occurs:</p>
	<p>If a module error occurs:</p>	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>

Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) If Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) OFF, this FB changes the sensor amplifier internal settings for a period of 100 ms after Normal Completion (o_bOK) has turned ON. During this period, therefore, do not execute the command on the same sensor amplifier.</li> <li>(7) The detected value varies as you change the settings of this FB. Adjust the emitted light amount or the received light sensitivity as needed.</li> <li>(8) Configure the global label as instructed in "1.4 Global labels".</li> <li>(9) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(10) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(11) Do not run this FB on any device other than SC-GU3-04.</li> <li>(12) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
112	The Speed Mode (i_uSpeedMode) is outside the valid range	Set the Speed Mode (i_uSpeedMode) to a value not greater than 7.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Read Flag	i_bReadFlag	Bit	ON, OFF	Start the FB with label ON to execute it in data read mode. Start the FB with label OFF to execute it in data write mode.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to set the speed mode. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Speed Mode	i_uSpeedMode	Word [Unsigned]	0 to 7	Set the speed mode. The valid setting range differs depending on the sensor amplifier model. Refer to the Functional Description.



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Speed Mode	o_u16ReadSpeedMode[n]	Word [Unsigned]	0	Stores the speed mode settings. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created
01A	2018/11/29	Fix the wrong local label comment at English

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.





2.9. P+SUNX-SC-GU3-04\_SetOutputMode\_R (output logic settings)

Name

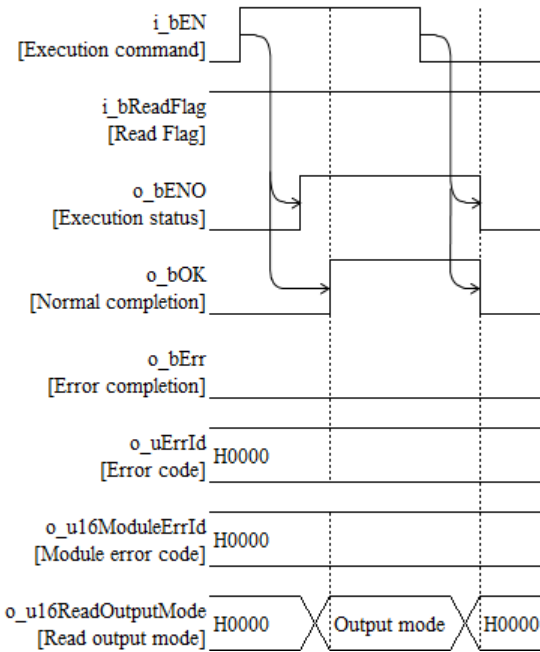
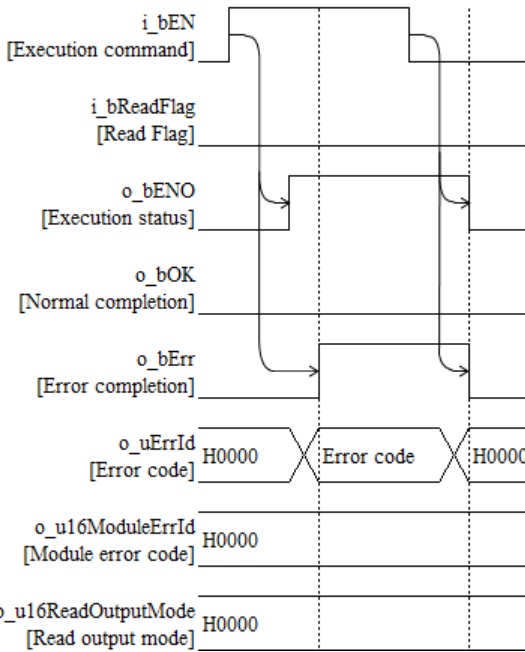
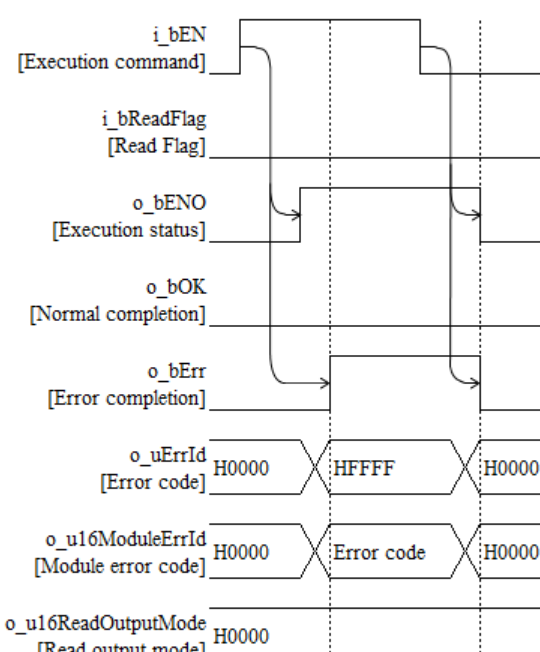
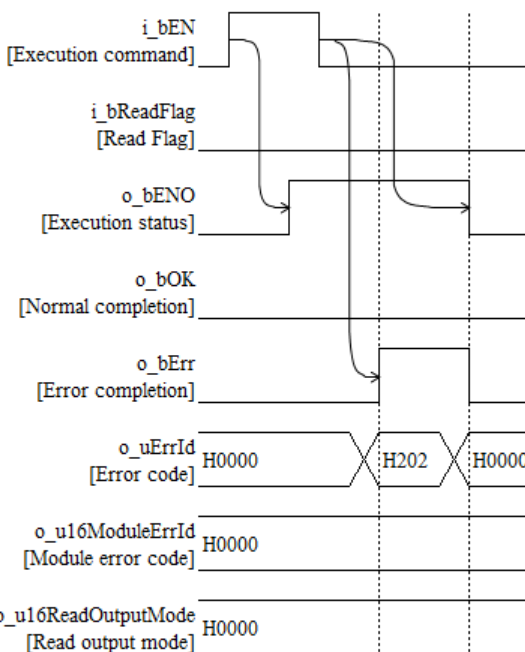
P+SUNX-SC-GU3-04\_SetOutputMode\_R

Functional contents

Item	Description																																					
Functional overview	Normally open or normally closed setting for amplifier.																																					
Symbol	<table><tr><td colspan="4">P+SUNX-SC-GU3-04_SetOutputMode_R</td></tr><tr><td>Execution command</td><td>B</td><td>: i_bEN</td><td>o_bENO : B</td><td>Execution status</td></tr><tr><td>Start I/O No.</td><td>UW</td><td>: i_uStartIONo</td><td>o_bOK : B</td><td>Normal completion</td></tr><tr><td>Station No.</td><td>UW</td><td>: i_uStationNo</td><td>o_bErr : B</td><td>Error completion</td></tr><tr><td>Read Flag</td><td>B</td><td>: i_bReadFlag</td><td>o_uErrId : UW</td><td>Error code</td></tr><tr><td>Set controller</td><td>UW</td><td>: i_uSetController</td><td>o_u16ModuleErrId : UW</td><td>Module error code</td></tr><tr><td>Output mode</td><td>UW</td><td>: i_uOutputMode</td><td>o_u16ReadOutputMode : UW</td><td>Read output mode</td></tr></table>				P+SUNX-SC-GU3-04_SetOutputMode_R				Execution command	B	: i_bEN	o_bENO : B	Execution status	Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion	Station No.	UW	: i_uStationNo	o_bErr : B	Error completion	Read Flag	B	: i_bReadFlag	o_uErrId : UW	Error code	Set controller	UW	: i_uSetController	o_u16ModuleErrId : UW	Module error code	Output mode	UW	: i_uOutputMode	o_u16ReadOutputMode : UW	Read output mode
P+SUNX-SC-GU3-04_SetOutputMode_R																																						
Execution command	B	: i_bEN	o_bENO : B	Execution status																																		
Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion																																		
Station No.	UW	: i_uStationNo	o_bErr : B	Error completion																																		
Read Flag	B	: i_bReadFlag	o_uErrId : UW	Error code																																		
Set controller	UW	: i_uSetController	o_u16ModuleErrId : UW	Module error code																																		
Output mode	UW	: i_uOutputMode	o_u16ReadOutputMode : UW	Read output mode																																		
Target devices	Target module	RJ71EN71																																				
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU																				
		Series	Model																																			
		MELSEC iQ-R series	R04CPU	R04ENCPU																																		
R08CPU			R08ENCPU																																			
R16CPU			R16ENCPU																																			
R32CPU			R32ENCPU																																			
R120CPU	R120ENCPU																																					
Target engineering tool	GX Works3 Version 1.035M or later																																					
Program language	Ladder																																					
Number of basic steps	742 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																																					
FB dependencies	P+SUNX-SC-GU3-04_SetOutputMode_R └P+SUNX-SC-GU3-04_ExecuteCommand_R																																					

Item	Description																													
Description of functions	<p>When Execution Command (i_bEN) is turned ON, this FB executes output logic settings on the sensor amplifier specified by Set Controller (i_uSetController) in accordance with the settings of Output Mode (i_uOutputMode).</p> <p>If Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) ON, however, all the output logic settings for the sensor amplifiers connected to Read Output Mode (o_u16ReadOutputMode) are output in accordance with the settings shown in the table below. In this case, the input setting values are ignored, and no setting takes place.</p> <table><tr><th rowspan="2">Setting values</th><th colspan="2">FX series/LS series</th><th colspan="2">DPS series</th></tr><tr><th>OUT1</th><th>OUT2</th><th>OUT1</th><th>OUT2</th></tr><tr><td>H0000</td><td>L-ON</td><td>L-ON</td><td>NO</td><td>NO</td></tr><tr><td>H0001</td><td>D-ON</td><td>L-ON</td><td>NC</td><td>NO</td></tr><tr><td>H0010</td><td>L-ON</td><td>D-ON</td><td>NO</td><td>NC</td></tr><tr><td>H0011</td><td>D-ON</td><td>D-ON</td><td>NC</td><td>NC</td></tr></table>	Setting values	FX series/LS series		DPS series		OUT1	OUT2	OUT1	OUT2	H0000	L-ON	L-ON	NO	NO	H0001	D-ON	L-ON	NC	NO	H0010	L-ON	D-ON	NO	NC	H0011	D-ON	D-ON	NC	NC
Setting values	FX series/LS series		DPS series																											
	OUT1	OUT2	OUT1	OUT2																										
H0000	L-ON	L-ON	NO	NO																										
H0001	D-ON	L-ON	NC	NO																										
H0010	L-ON	D-ON	NO	NC																										
H0011	D-ON	D-ON	NC	NC																										
FB compilation method	Macro type																													
FB behavior	Pulse execution type (multi-scan execution type)																													
i_bEN input condition	None																													



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Read Flag (i_bReadFlag) is ON (When it is OFF, only the sensor amplifier settings are changed.)</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p> 
	<p>If a module error occurs:</p> 	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>  <p style="text-align: right;">At least 1 scan</p>



Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) This FB executes multiple commands. You can stop this FB by turning OFF Execution Command (i_bEN). You cannot, however, cancel the commands that have been executed before you stop the FB.</li> <li>(7) Do not input "H0010" or "H0011" to Output Mode (i_uOutputMode) for a one-output FX-301 or FX-501 amplifier because doing so causes a module error.</li> <li>(8) Configure the global label as instructed in "1.4 Global labels".</li> <li>(9) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(10) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(11) Do not run this FB on any device other than SC-GU3-04.</li> <li>(12) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
113	Output Mode (i_uOutputMode) is outside the valid range	Set Output Mode (i_uOutputMode) to H0000, H0001, H0010, or H0011.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Read Flag	i_bReadFlag	Bit	ON, OFF	Start the FB with label ON to execute it in data read mode. Start the FB with label OFF to execute it in data write mode.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to set the output logic. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Output Mode	i_uOutputMode	Word [Unsigned]	H0000, H0001, H0010, H0011 (hexadecimal)	Set the output logic. The valid setting range differs depending on the sensor amplifier model. Refer to the Functional Description.



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Output Mode	o_u16ReadOutputMode[n]	Word [Unsigned]	0	Stores the output logic settings. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



2.10. P+SUNX-SC-GU3-04\_SetThreshold\_R (threshold settings)

Name
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P+SUNX-SC-GU3-04\_SetThreshold\_R

Functional contents
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Item	Description																																					
Functional overview	Threshold setting.																																					
Symbol	<table><tr><td colspan="4">P+SUNX-SC-GU3-04_SetThreshold_R</td></tr><tr><td>Execution command</td><td>B</td><td>: i_bEN</td><td>o_bENO : B</td><td>Execution status</td></tr><tr><td>Start I/O No.</td><td>UW</td><td>: i_uStartIONo</td><td>o_bOK : B</td><td>Normal completion</td></tr><tr><td>Station No.</td><td>UW</td><td>: i_uStationNo</td><td>o_bErr : B</td><td>Error completion</td></tr><tr><td>Read Flag</td><td>B</td><td>: i_bReadFlag</td><td>o_uErrId : UW</td><td>Error code</td></tr><tr><td>Set controller</td><td>UW</td><td>: i_uSetController</td><td>o_u16ModuleErrId : UW</td><td>Module error code</td></tr><tr><td>Write threshold</td><td>W</td><td>: i_wThreshold</td><td>o_w16ReadThreshold : W</td><td>Read threshold</td></tr></table>				P+SUNX-SC-GU3-04_SetThreshold_R				Execution command	B	: i_bEN	o_bENO : B	Execution status	Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion	Station No.	UW	: i_uStationNo	o_bErr : B	Error completion	Read Flag	B	: i_bReadFlag	o_uErrId : UW	Error code	Set controller	UW	: i_uSetController	o_u16ModuleErrId : UW	Module error code	Write threshold	W	: i_wThreshold	o_w16ReadThreshold : W	Read threshold
P+SUNX-SC-GU3-04_SetThreshold_R																																						
Execution command	B	: i_bEN	o_bENO : B	Execution status																																		
Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion																																		
Station No.	UW	: i_uStationNo	o_bErr : B	Error completion																																		
Read Flag	B	: i_bReadFlag	o_uErrId : UW	Error code																																		
Set controller	UW	: i_uSetController	o_u16ModuleErrId : UW	Module error code																																		
Write threshold	W	: i_wThreshold	o_w16ReadThreshold : W	Read threshold																																		
Target devices	Target module	RJ71EN71																																				
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU																				
		Series	Model																																			
		MELSEC iQ-R series	R04CPU	R04ENCPU																																		
R08CPU			R08ENCPU																																			
R16CPU			R16ENCPU																																			
R32CPU			R32ENCPU																																			
R120CPU	R120ENCPU																																					
Target engineering tool	GX Works3 Version 1.035M or later																																					
Program language	Ladder																																					
Number of basic steps	636 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																																					
FB dependencies	None																																					



Item	Description																								
Description of functions	When Execution Command (i_bEN) is turned ON, this FB executes OUT1-1 threshold writing on the sensor amplifier specified by Set Controller (i_uSetController).																								
	If Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) ON, however, the OUT1-1 thresholds for all the sensor amplifiers connected to Read Threshold (o_w16ReadThreshold) are output. In this case, the input setting values are ignored, and no setting takes place.																								
	The valid range of Write Threshold (i_wThreshold) differs depending on the sensor amplifier model. See the following table to set the thresholds.																								
	<table><tr><th colspan="2">Sensor amplifier type</th><th>Valid threshold range</th></tr><tr><td colspan="2">FX-301</td><td>1 to 4000</td></tr><tr><td colspan="2">FX-305</td><td rowspan="3">1 to 9999</td></tr><tr><td colspan="2">FX-501, FX-502</td></tr><tr><td colspan="2">LS-403, LS-501</td></tr><tr><td rowspan="3">DPS series</td><td>Combined pressure head</td><td>-1013 to 1051</td></tr><tr><td>Positive pressure head</td><td>-51 to 1020</td></tr><tr><td>Negative pressure head</td><td>-1013 to 51</td></tr><tr><td colspan="2">SC-A01, SC-A02</td><td>Threshold not configurable</td></tr></table>		Sensor amplifier type		Valid threshold range	FX-301		1 to 4000	FX-305		1 to 9999	FX-501, FX-502		LS-403, LS-501		DPS series	Combined pressure head	-1013 to 1051	Positive pressure head	-51 to 1020	Negative pressure head	-1013 to 51	SC-A01, SC-A02		Threshold not configurable
	Sensor amplifier type		Valid threshold range																						
	FX-301		1 to 4000																						
	FX-305		1 to 9999																						
	FX-501, FX-502																								
	LS-403, LS-501																								
	DPS series	Combined pressure head	-1013 to 1051																						
Positive pressure head		-51 to 1020																							
Negative pressure head		-1013 to 51																							
SC-A01, SC-A02		Threshold not configurable																							
* Displayed values are decimals																									
FB compilation method	Macro type																								
FB behavior	Pulse execution type (multi-scan execution type)																								
i_bEN input condition	None																								



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Read Flag (i_bReadFlag) is ON (When it is OFF, only the sensor amplifier settings are changed.)</p>	<p>[Error completion]</p> <p>If an FB error occurs:</p>
	<p>If a module error occurs:</p>	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>

At least 1 scan

Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) With the FX series sensor amplifiers except FX-301 and the LS series sensor amplifiers, the threshold upper and lower limit values may differ among the speed mode, the hysteresis mode, and the received light sensitivity settings even when within the valid range. Carefully note that any threshold set above the upper limit or below the lower limit will be automatically set to the upper or lower limit.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ol>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
114	Write Threshold (i_wThreshold) is outside the valid range	Specify a value from -1013 to 9999. The valid range differs depending on the sensor amplifier model. Check the valid range.
115	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	Set it to a sensor amplifier other than SC-A01 and SC-A02.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Read Flag	i_bReadFlag	Bit	ON, OFF	Start the FB with label ON to execute it in data read mode. Start the FB with label OFF to execute it in data write mode.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to set the thresholds. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Write Threshold	i_wThreshold	Word [Signed]	-1013 to 9999 (decimal)	Specify the threshold. The valid range differs depending on the sensor amplifier model and configuration. A module error occurs if the setting is rejected within the valid range.



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Threshold	o_w16ReadThreshold[n]	Word [Signed]	0	Stores the thresholds. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



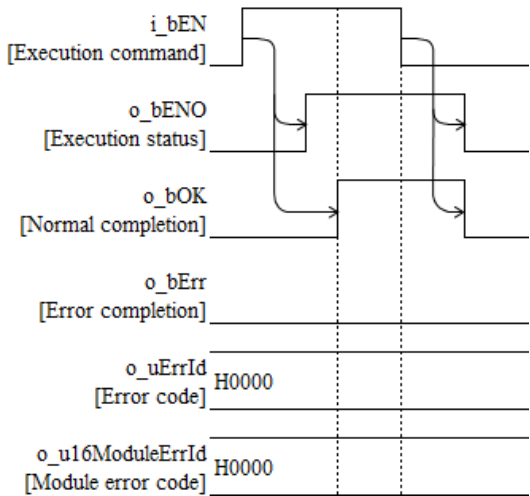
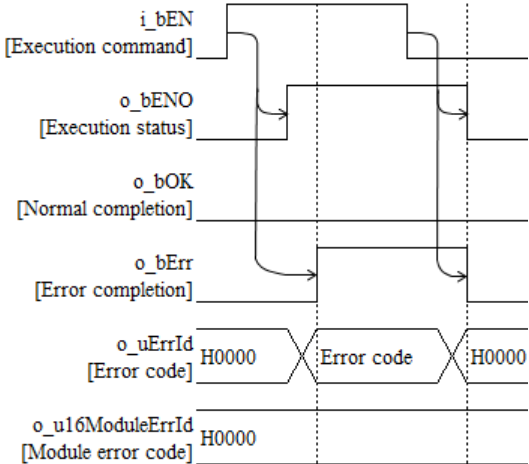
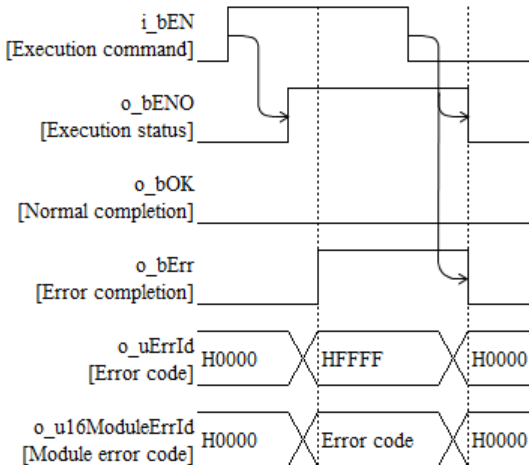
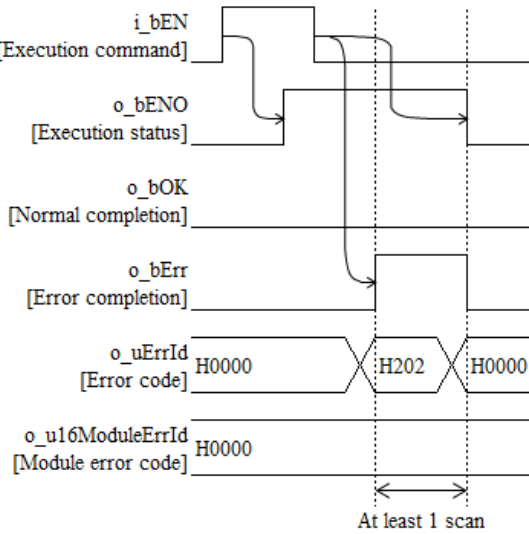
2.11. P+SUNX-SC-GU3-04\_ExecuteZeroAdjust\_R (execute zero shift)

Name

P+SUNX-SC-GU3-04\_ExecuteZeroAdjust\_R

Functional contents

Item	Description																
Functional overview	Shift DPS series displayed value to "0".																
Symbol	<div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div></div><div><div><div>P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R</div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div></div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Module error code</div></div></div></div>																
Target devices	Target module	RJ71EN71															
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>		Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model														
		MELSEC iQ-R series	R04CPU	R04ENCPU													
R08CPU			R08ENCPU														
R16CPU			R16ENCPU														
R32CPU	R32ENCPU																
R120CPU	R120ENCPU																
Target engineering tool	GX Works3 Version 1.035M or later																
Program language	Ladder																
Number of basic steps	637 Steps (for MELSEC iQ-R series) * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																
FB dependencies	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R └P+SUNX-SC-GU3-04_ExecuteCommand_R																

Item	Description	
Description of functions	When Execution Command (i_bEN) is turned ON, this FB executes zero shift on all the DPS series sensor amplifiers connected.	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> 	
	<p>[Error completion]</p> <p>If an FB error occurs:</p> 	
	<p>If a module error occurs:</p> 	
	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>  <p style="text-align: right;">At least 1 scan</p>	



Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) Configure the global label as instructed in "1.4 Global labels".</li> <li>(7) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(8) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(9) Do not run this FB on any device other than SC-GU3-04.</li> <li>(10) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.

## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.



## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



## 2.12. P+SUNX-SC-GU3-04\_CheckUnitNumber\_R (check number of connected units)

Name

P+SUNX-SC-GU3-04\_CheckUnitNumber\_R

Functional contents

Item	Description																
Functional overview	Check number of connected units.																
Symbol	<div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div></div><div><div><div>P+SUNX-SC-GU3-04_CheckUnitNumber_R</div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div><div>o_uUnitNumber : UW</div></div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Module error code</div><div>Number of connecting unit</div></div></div></div>																
Target devices	Target module	RJ71EN71															
	Target CPU		<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>	Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model														
MELSEC iQ-R series		R04CPU	R04ENCPU														
		R08CPU	R08ENCPU														
		R16CPU	R16ENCPU														
	R32CPU	R32ENCPU															
	R120CPU	R120ENCPU															
Target engineering tool	GX Works3 Version 1.035M or later																
Program language	Ladder																
Number of basic steps	643 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																
FB dependencies	P+SUNX-SC-GU3-04_CheckUnitNumber_R ↳P+SUNX-SC-GU3-04_ExecuteCommand_R																
Description of functions	When Execution Command (i_bEN) is turned ON, this FB checks the number of optically communicatable sensor amplifiers that are connected and outputs the result to Number of Connecting Unit (o_uUnitNumber).																
FB compilation method	Macro type																
FB behavior	Pulse execution type (multi-scan execution type)																
i_bEN input condition	None																



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p>	<p>[Error completion]</p> <p>If an FB error occurs:</p>
	<p>If a module error occurs:</p>	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>

At least 1 scan



Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) Configure the global label as instructed in "1.4 Global labels".</li> <li>(7) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(8) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(9) Do not run this FB on any device other than SC-GU3-04.</li> <li>(10) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".





## Labels To Be Used

### ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.

### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Number of Connecting Unit	o_uUnitNumber	Word [Unsigned]	0	Stores the number of connected units.



## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



### 2.13. P+SUNX-SC-GU3-04\_CheckModelInfo\_R (check model information)

Name

P+SUNX-SC-GU3-04\_CheckModelInfo\_R

Functional contents

Item	Description																	
Functional overview	Check model information of connected amplifiers.																	
Symbol	<div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div></div><div><div><div>P+SUNX-SC-GU3-04_CheckModelInfo_R</div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div><div>o_u16ModelInfo : UW</div></div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Module error code</div><div>Model information</div></div></div></div>																	
Target devices	Target module	RJ71EN71																
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model															
		MELSEC iQ-R series	R04CPU	R04ENCPU														
R08CPU			R08ENCPU															
R16CPU			R16ENCPU															
R32CPU	R32ENCPU																	
R120CPU	R120ENCPU																	
Target engineering tool	GX Works3 Version 1.035M or later																	
Program language	Ladder																	
Number of basic steps	637 Steps (for MELSEC iQ-R series) * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																	
FB dependencies	P+SUNX-SC-GU3-04_CheckModelInfo_R └P+SUNX-SC-GU3-04_ExecuteCommand_R																	



Item	Description																		
Description of functions	<p>When Execution Command (i_bEN) is turned ON, this FB checks the model information of sensor amplifiers connected and outputs the result to Model Information (o_u16ModelInfo).</p> <p>The model information is output in accordance with the following settings.</p> <table> <tr> <th>Setting values</th><th>Model</th></tr> <tr> <td>H0000</td><td>FX-301</td></tr> <tr> <td>H0001</td><td>FX-305</td></tr> <tr> <td>H0002</td><td>LS-403</td></tr> <tr> <td>H0003</td><td>DPS-401, DPS-402</td></tr> <tr> <td>H0004</td><td>SC-A01, SC-A02</td></tr> <tr> <td>H0005</td><td>FX-501</td></tr> <tr> <td>H0006</td><td>FX-502</td></tr> <tr> <td>H000A</td><td>LS-501</td></tr> </table>	Setting values	Model	H0000	FX-301	H0001	FX-305	H0002	LS-403	H0003	DPS-401, DPS-402	H0004	SC-A01, SC-A02	H0005	FX-501	H0006	FX-502	H000A	LS-501
Setting values	Model																		
H0000	FX-301																		
H0001	FX-305																		
H0002	LS-403																		
H0003	DPS-401, DPS-402																		
H0004	SC-A01, SC-A02																		
H0005	FX-501																		
H0006	FX-502																		
H000A	LS-501																		
FB compilation method	Macro type																		
FB behavior	Pulse execution type (multi-scan execution type)																		
i_bEN input condition	None																		



Item	Description	
I/O signal flow movement	[Normal completion]	[Error completion] If an FB error occurs:
	If a module error occurs:	If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:

Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) Configure the global label as instructed in "1.4Global labels".</li> <li>(7) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(8) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(9) Do not run this FB on any device other than SC-GU3-04.</li> <li>(10) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## Labels To Be Used

### ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.

### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Model Information	o_u16ModelInfo[n]	Word [Unsigned]	0	Stores the model information. 16 arrays exist and each array stores (n+1)th read command response.





## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



2.14. P+SUNX-SC-GU3-04\_SetDataBank\_R (save or load data bank)

Name
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P+SUNX-SC-GU3-04\_SetDataBank\_R

Functional contents
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Item	Description																	
Functional overview	Data bank load or save.																	
Symbol	<div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div><div>Set controller</div><div>Load flag</div><div>Data bank No.</div></div><div><div><div>P+SUNX-SC-GU3-04_SetDataBank_R</div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div><div>UW : i_uSetController</div><div>B : i_bLoadFlag</div><div>UW : i_uDataBankNo</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div></div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Module error code</div></div></div></div>																	
Target devices	Target module	RJ71EN71																
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model															
		MELSEC iQ-R series	R04CPU	R04ENCPU														
R08CPU			R08ENCPU															
R16CPU			R16ENCPU															
R32CPU	R32ENCPU																	
R120CPU	R120ENCPU																	
Target engineering tool	GX Works3 Version 1.035M or later																	
Program language	Ladder																	
Number of basic steps	661 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																	
FB dependencies	P+SUNX-SC-GU3-04_SetDataBank_R └P+SUNX-SC-GU3-04_ExecuteCommand_R																	

Item	Description	
Description of functions	When Execution Command (i_bEN) is turned ON and Load Flag (i_bLoadFlag) is OFF, this FB saves the setting value to the data bank identified by the value of Data Bank No. (i_uDataBankNo) for Set Controller (i_uSetController). If Load Flag (i_bLoadFlag) is ON, loads the data bank identified by the value Data Bank No. (i_uDataBankNo).	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	[Normal completion]	[Error completion] If an FB error occurs:
	If a module error occurs:	If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:



Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) The valid setting range of Data Bank No. (i_uDataBankNo) is "H0000" to "H0007" for FX-501, FX-502, LS-403, and LS-501 or "H0000" to "H0002" for FX-301, FX-305, DPS-401, and DPS-402. This means that setting Data Bank No. (i_uDataBankNo) to a value from "H0003" to "H0007" for FX-301, FX-305, DPS-401, DPS-402 results in a module error.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
116	Data Bank No. (i_uDataBankNo) is outside the valid range	Set Data Bank No. (i_uDataBankNo) to a value not more than 7.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to execute save and load data banks. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Load Flag	i_bLoadFlag	Bit	ON, OFF	When started with this flag ON, the FB loads data bank. When started with this flag OFF, the FB saves data bank.
Data Bank No.	i_uDataBankNo	Word [Unsigned]	0 to 7	Specify the data bank number. For FX-301, FX-305, DPS-401, and DPS-402, setting this label to 4 to 7 results in a module error.



#### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.

#### FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

#### Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



## 2.15. P+SUNX-SC-GU3-04\_SetGain\_R (received light sensitivity setting)

Name

P+SUNX-SC-GU3-04\_SetGain\_R

Functional contents

Item	Description																
Functional overview	Received light sensitivity setting for LS series.																
Symbol	<div><div><div>Execution command</div><div>Start I/O No.</div><div>Station No.</div><div>Read Flag</div><div>Set controller</div><div>Set gain</div></div><div><div><div>P+SUNX-SC-GU3-04_SetGain_R</div><div><div>B : i_bEN</div><div>UW : i_uStartIONo</div><div>UW : i_uStationNo</div><div>B : i_bReadFlag</div><div>UW : i_uSetController</div><div>UW : i_uGainSet</div></div><div><div>o_bENO : B</div><div>o_bOK : B</div><div>o_bErr : B</div><div>o_uErrId : UW</div><div>o_u16ModuleErrId : UW</div><div>o_u16ReadGain : UW</div></div></div><div><div>Execution status</div><div>Normal completion</div><div>Error completion</div><div>Error code</div><div>Module error code</div><div>Read gain setting</div></div></div></div>																
Target devices	Target module	RJ71EN71															
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>		Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU
		Series	Model														
		MELSEC iQ-R series	R04CPU	R04ENCPU													
R08CPU			R08ENCPU														
R16CPU			R16ENCPU														
R32CPU	R32ENCPU																
R120CPU	R120ENCPU																
Target engineering tool	GX Works3 Version 1.035M or later																
Program language	Ladder																
Number of basic steps	659 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																
FB dependencies	P+SUNX-SC-GU3-04_SetGain_R ↳P+SUNX-SC-GU3-04_ExecuteCommand_R																





Item	Description										
Description of functions	<p>When Execution Command (i_bEN) is turned ON, this FB executes received light sensitivity settings on LS series sensor amplifier specified by Set Controller (i_uSetController) in accordance with the Set Gain (i_uGainSet) shown in the table below.</p> <table border="1"> <thead> <tr> <th>Setting values</th><th>Setting</th></tr> </thead> <tbody> <tr> <td>H0000</td><td>Level 1 (lowest sensitivity)</td></tr> <tr> <td>H0001</td><td>Level 2 (low sensitivity)</td></tr> <tr> <td>H0002</td><td>Level 3 (standard sensitivity)</td></tr> <tr> <td>H0003</td><td>Level 4 (high sensitivity) * Only if response time U-Lg is set</td></tr> </tbody> </table> <p>When Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) ON, however, this FB loads the current settings and output them to Read Gain Setting (o_u16ReadGain). In this case, the input setting values are ignored, and no setting takes place.</p>	Setting values	Setting	H0000	Level 1 (lowest sensitivity)	H0001	Level 2 (low sensitivity)	H0002	Level 3 (standard sensitivity)	H0003	Level 4 (high sensitivity) * Only if response time U-Lg is set
Setting values	Setting										
H0000	Level 1 (lowest sensitivity)										
H0001	Level 2 (low sensitivity)										
H0002	Level 3 (standard sensitivity)										
H0003	Level 4 (high sensitivity) * Only if response time U-Lg is set										
FB compilation method	Macro type										
FB behavior	Pulse execution type (multi-scan execution type)										
i_bEN input condition	None										



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Read Flag (i_bReadFlag) is ON (When it is OFF, only the sensor amplifier settings are changed.)</p>	<p>[Error completion]</p> <p>If an FB error occurs:</p>
	<p>If a module error occurs:</p>	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>

Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) No module error occurs even if this FB is executed on a sensor amplifier other than the LS series or a sensor amplifier not connected.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
117	Set Gain (i_uGainSet) is outside the valid range	Set Gain (i_uGainSet) to a value not more than 3.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Read Flag	i_bReadFlag	Bit	ON, OFF	Start the FB with label ON to execute it in data read mode. Start the FB with label OFF to execute it in data write mode.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to set the received light sensitivity. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Set Gain	i_uGainSet	Word [Unsigned]	0 to 3	Set the received light sensitivity.



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Gain Setting	o_u16ReadGain[n]	Word [Unsigned]	0	Stores the gain settings. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



2.16. P+SUNX-SC-GU3-04\_SetEmitterPw\_R (emission adjustment)

Name

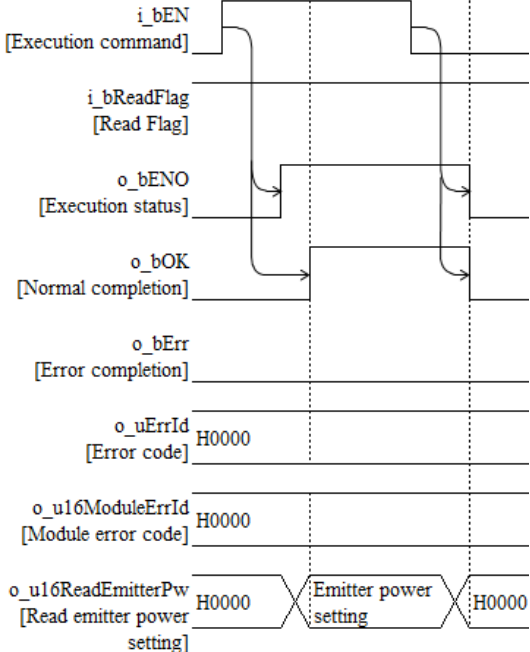
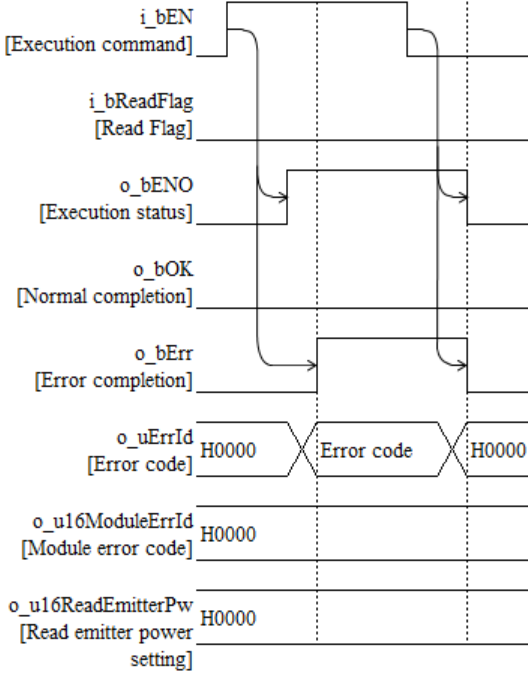
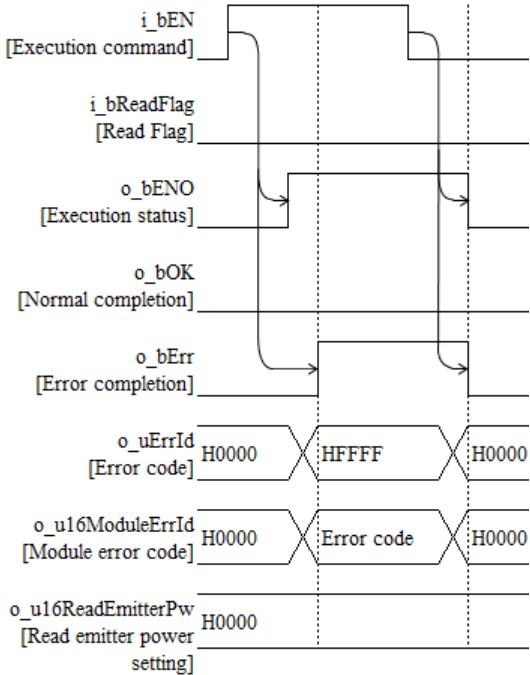
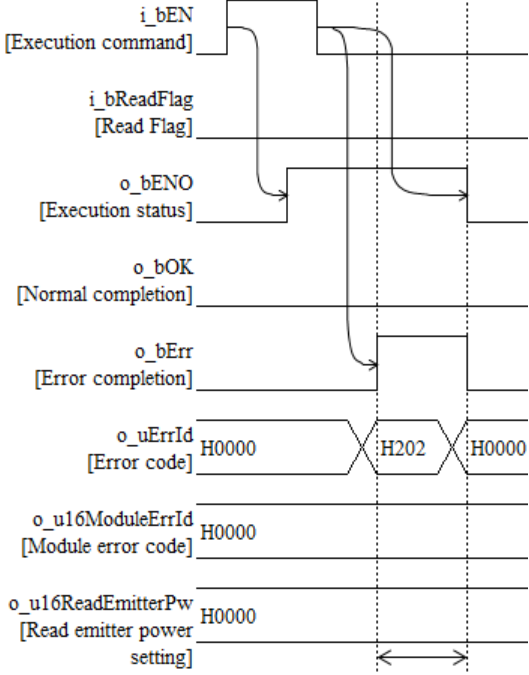
P+SUNX-SC-GU3-04\_SetEmitterPw\_R

Functional contents

Item	Description																																					
Functional overview	Emission adjustment setting for FX series.																																					
Symbol	<table><tr><td colspan="4">P+SUNX-SC-GU3-04_SetEmitterPw_R</td></tr><tr><td>Execution command</td><td>B</td><td>: i_bEN</td><td>o_bENO : B</td><td>Execution status</td></tr><tr><td>Start I/O No.</td><td>UW</td><td>: i_uStartIONo</td><td>o_bOK : B</td><td>Normal completion</td></tr><tr><td>Station No.</td><td>UW</td><td>: i_uStationNo</td><td>o_bErr : B</td><td>Error completion</td></tr><tr><td>Read Flag</td><td>B</td><td>: i_bReadFlag</td><td>o_uErrId : UW</td><td>Error code</td></tr><tr><td>Set controller</td><td>UW</td><td>: i_uSetController</td><td>o_u16ModuleErrId : UW</td><td>Module error code</td></tr><tr><td>Emitter power setting</td><td>UW</td><td>: i_uEmitterPwSetting</td><td>o_u16ReadEmitterPw : UW</td><td>Read emitter power setting</td></tr></table>				P+SUNX-SC-GU3-04_SetEmitterPw_R				Execution command	B	: i_bEN	o_bENO : B	Execution status	Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion	Station No.	UW	: i_uStationNo	o_bErr : B	Error completion	Read Flag	B	: i_bReadFlag	o_uErrId : UW	Error code	Set controller	UW	: i_uSetController	o_u16ModuleErrId : UW	Module error code	Emitter power setting	UW	: i_uEmitterPwSetting	o_u16ReadEmitterPw : UW	Read emitter power setting
P+SUNX-SC-GU3-04_SetEmitterPw_R																																						
Execution command	B	: i_bEN	o_bENO : B	Execution status																																		
Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion																																		
Station No.	UW	: i_uStationNo	o_bErr : B	Error completion																																		
Read Flag	B	: i_bReadFlag	o_uErrId : UW	Error code																																		
Set controller	UW	: i_uSetController	o_u16ModuleErrId : UW	Module error code																																		
Emitter power setting	UW	: i_uEmitterPwSetting	o_u16ReadEmitterPw : UW	Read emitter power setting																																		
Target devices	Target module	RJ71EN71																																				
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>			Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU																				
		Series	Model																																			
		MELSEC iQ-R series	R04CPU	R04ENCPU																																		
R08CPU			R08ENCPU																																			
R16CPU			R16ENCPU																																			
R32CPU			R32ENCPU																																			
R120CPU	R120ENCPU																																					
Target engineering tool	GX Works3 Version 1.035M or later																																					
Program language	Ladder																																					
Number of basic steps	664 Steps (for MELSEC iQ-R series)  * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																																					
FB dependencies	None																																					

Item	Description																									
Description of functions	When Execution Command (i_bEN) is turned ON, this FB changes the settings on the sensor amplifier specified by Set Controller (i_uSetController) in accordance with the settings of Emitter Power Setting (i_uEmitterPwSetting).																									
	If Execution Command (i_bEN) is turned ON with Read Flag (i_bReadFlag) ON, however, the settings for all the FX series sensor amplifiers connected to Read Emitter Power Setting (o_u16ReadEmitterPw) are output. In this case, the input setting values are ignored, and no setting takes place.																									
	<table><tr><th>Model</th><th>Setting values</th><th>Setting</th></tr><tr><td>FX-301</td><td>H0000</td><td>0% (Stop emission)</td></tr><tr><td rowspan="4">FX-305</td><td>H0002</td><td>Approx. 12%</td></tr><tr><td>H0003</td><td>Approx. 25%</td></tr><tr><td>H0004</td><td>Approx. 50%</td></tr><tr><td>H0005</td><td>100%</td></tr><tr><td>FX-501</td><td>H**00</td><td>Low emission power (*)</td></tr><tr><td rowspan="3">FX-502</td><td>H**01</td><td>Medium emission power (*)</td></tr><tr><td>H**02</td><td>High emission power (*)</td></tr><tr><td>H000A</td><td>Emitted light amount auto adjustment</td></tr></table>	Model	Setting values	Setting	FX-301	H0000	0% (Stop emission)	FX-305	H0002	Approx. 12%	H0003	Approx. 25%	H0004	Approx. 50%	H0005	100%	FX-501	H**00	Low emission power (*)	FX-502	H**01	Medium emission power (*)	H**02	High emission power (*)	H000A	Emitted light amount auto adjustment
	Model	Setting values	Setting																							
	FX-301	H0000	0% (Stop emission)																							
	FX-305	H0002	Approx. 12%																							
		H0003	Approx. 25%																							
		H0004	Approx. 50%																							
		H0005	100%																							
	FX-501	H**00	Low emission power (*)																							
FX-502	H**01	Medium emission power (*)																								
	H**02	High emission power (*)																								
	H000A	Emitted light amount auto adjustment																								
(*) The higher 8 bits control the light emission percentage within the range of 25 to 100%. (hexadecimal)																										
<table><tr><th></th><th colspan="2">Min.</th><th colspan="2">Max.</th></tr><tr><td>Higher 8 bits</td><td>Decimal</td><td>Hexadecimal</td><td>Decimal</td><td>Hexadecimal</td></tr><tr><td>Light emission percentage setting</td><td>25</td><td>H19**</td><td>100</td><td>H64**</td></tr></table>		Min.		Max.		Higher 8 bits	Decimal	Hexadecimal	Decimal	Hexadecimal	Light emission percentage setting	25	H19**	100	H64**											
	Min.		Max.																							
Higher 8 bits	Decimal	Hexadecimal	Decimal	Hexadecimal																						
Light emission percentage setting	25	H19**	100	H64**																						
If Read Flag (i_bReadFlag) is OFF, this FB configures settings on FX-301/FX-305 or FX-501/FX-502 depending on the value of Emitter Power Setting (i_uEmitterPwSetting). If specified settings are not compatible with the sensor amplifier specified by Set Controller (i_uSetController), such settings are not executed on that sensor amplifier.																										
FB compilation method	Macro type																									
FB behavior	Pulse execution type (multi-scan execution type)																									
i_bEN input condition	None																									



Item	Description	
I/O signal flow movement	<p>[Normal completion]</p> <p>If Read Flag (i_bReadFlag) is ON</p> <p>(When it is OFF, only the sensor amplifier settings are changed.)</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p> 
	<p>If a module error occurs:</p> 	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>  <p style="text-align: right;">At least 1 scan</p>

Item	Description
Restrictions and precautions	<ul style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) This FB executes multiple commands. You can stop this FB by turning OFF Execution Command (i_bEN). You cannot, however, cancel the commands that have been executed before you stop the FB.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ul>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
102	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0.
103	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
118	Emitter Power Setting (i_uEmitterPwSetting) is outside the valid range	Specify a value within the valid range.
119	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	The specified sensor amplifier is not an FX series sensor amplifier. Specify an FX series sensor amplifier.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that Execution Status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).



FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".
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## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the Station No. of the communication unit you want to configure.
Read Flag	i_bReadFlag	Bit	ON, OFF	Start the FB with label ON to execute it in data read mode. Start the FB with label OFF to execute it in data write mode.
Set Controller	i_uSetController	Word [Unsigned]	16-bit data other than 0	Stores the word information (consisting of 16 pieces of bit information) that corresponds to the sensor amplifier on which to set the emitted light amount. bit 0: 1st unit bit 1: 2nd unit to bit 14: 15th unit bit 15: 16th unit
Emitter Power Setting	i_uEmitterPwSetting	Word [Unsigned]	H0000, H0002 to H0005, H000A, H**00 to H**02 (** is H19 to H64 in hexadecimal)	Set the emitted light amount. For more information, see the Functional Description.



## ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.
Read Emitter Power Setting	o_u16ReadEmitterPw[n]	Word [Unsigned]	0	Stores the emitted light amount settings. 16 arrays exist and each array stores (n+1)th read command response.

## FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

## Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



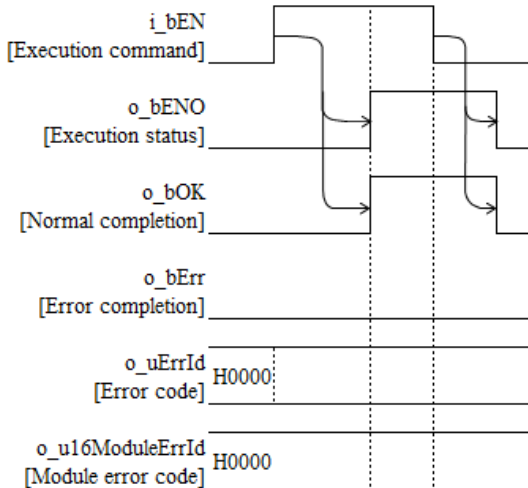
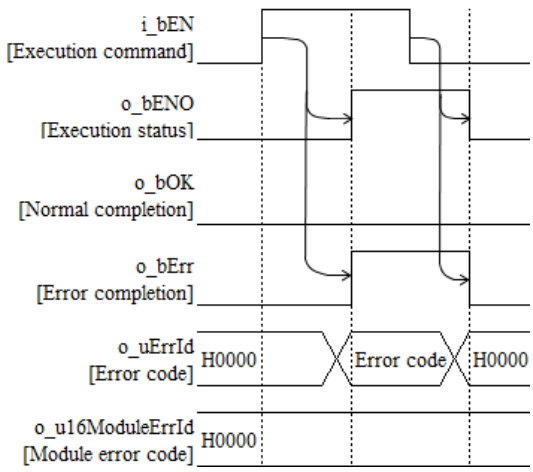
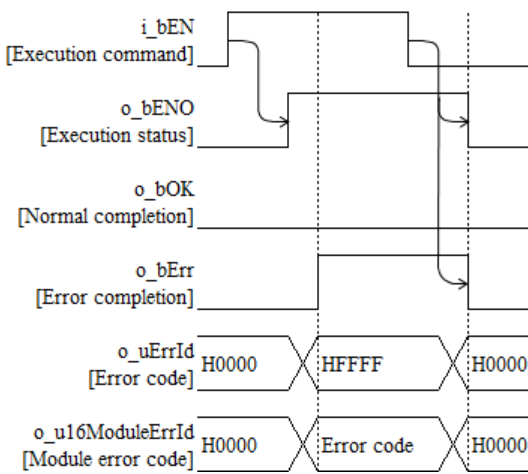
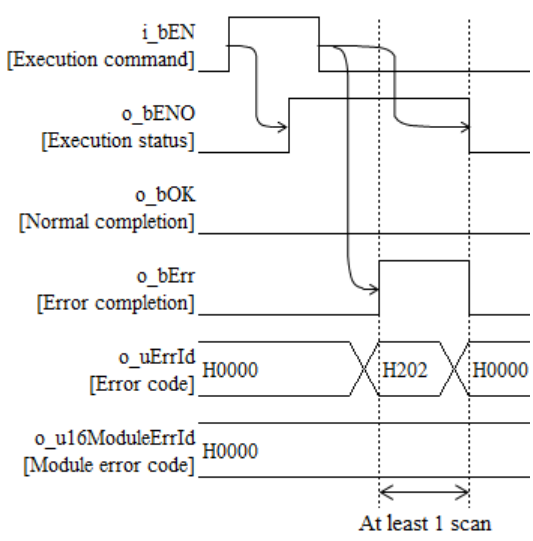
2.17. P+SUNX-SC-GU3-04\_ExecuteKeyLock\_R (turn on or off the keylock)

Name

P+SUNX-SC-GU3-04\_ExecuteKeyLock\_R

Functional contents

Item	Description																															
Functional overview	Execute or perform reset to keylock and Eco setting.																															
Symbol	<table><tr><td colspan="4">P+SUNX-SC-GU3-04_ExecuteKeyLock_R</td></tr><tr><td>Execution command</td><td>B</td><td>: i_bEN</td><td>o_bENO : B</td><td>Execution status</td></tr><tr><td>Start I/O No.</td><td>UW</td><td>: i_uStartIONo</td><td>o_bOK : B</td><td>Normal completion</td></tr><tr><td>Station No.</td><td>UW</td><td>: i_uStationNo</td><td>o_bErr : B</td><td>Error completion</td></tr><tr><td>Set Eco mode</td><td>B</td><td>: i_bEcoModeSet</td><td>o_uErrId : UW</td><td>Error code</td></tr><tr><td>Reset flag</td><td>B</td><td>: i_bReset</td><td>o_u16ModuleErrId : UW</td><td>Module error code</td></tr></table>			P+SUNX-SC-GU3-04_ExecuteKeyLock_R				Execution command	B	: i_bEN	o_bENO : B	Execution status	Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion	Station No.	UW	: i_uStationNo	o_bErr : B	Error completion	Set Eco mode	B	: i_bEcoModeSet	o_uErrId : UW	Error code	Reset flag	B	: i_bReset	o_u16ModuleErrId : UW	Module error code
P+SUNX-SC-GU3-04_ExecuteKeyLock_R																																
Execution command	B	: i_bEN	o_bENO : B	Execution status																												
Start I/O No.	UW	: i_uStartIONo	o_bOK : B	Normal completion																												
Station No.	UW	: i_uStationNo	o_bErr : B	Error completion																												
Set Eco mode	B	: i_bEcoModeSet	o_uErrId : UW	Error code																												
Reset flag	B	: i_bReset	o_u16ModuleErrId : UW	Module error code																												
Target devices	Target module	RJ71EN71																														
	Target CPU	<table><tr><th>Series</th><th colspan="2">Model</th></tr><tr><td rowspan="5">MELSEC iQ-R series</td><td>R04CPU</td><td>R04ENCPU</td></tr><tr><td>R08CPU</td><td>R08ENCPU</td></tr><tr><td>R16CPU</td><td>R16ENCPU</td></tr><tr><td>R32CPU</td><td>R32ENCPU</td></tr><tr><td>R120CPU</td><td>R120ENCPU</td></tr></table>		Series	Model		MELSEC iQ-R series	R04CPU	R04ENCPU	R08CPU	R08ENCPU	R16CPU	R16ENCPU	R32CPU	R32ENCPU	R120CPU	R120ENCPU															
		Series	Model																													
MELSEC iQ-R series		R04CPU	R04ENCPU																													
		R08CPU	R08ENCPU																													
		R16CPU	R16ENCPU																													
		R32CPU	R32ENCPU																													
	R120CPU	R120ENCPU																														
Target engineering tool	GX Works3 Version 1.035M or later																															
Program language	Ladder																															
Number of basic steps	689 Steps (for MELSEC iQ-R series) * The number of FB steps incorporated into a program differs depending on the CPU module in use, the I/O definitions, and the option settings of GX Works3. For information on GX Works3 option settings, refer to GX Works3 Operating Manual.																															
FB dependencies	P+SUNX-SC-GU3-04_ExecuteKeyLock_R └P+SUNX-SC-GU3-04_ExecuteCommand_R																															

Item	Description	
Description of functions	<p>Turns on or off the keylock and Eco setting on all the connected sensor amplifiers.</p> <p>If you turn ON Set Eco Mode (i_bEcoModeSet) with Reset Flag (i_bReset) OFF and turn ON Execution Command (i_bEN), this FB sets both the keylock and Eco mode. If you turn OFF Set Eco Mode (i_bEcoModeSet) and turn ON Execution Command (i_bEN), it sets only the keylock.</p> <p>When Reset Flag (i_bReset) is ON, this FB ignores Set Eco Mode (i_bEcoModeSet) and turns off the keylock and Eco mode.</p>	
FB compilation method	Macro type	
FB behavior	Pulse execution type (multi-scan execution type)	
i_bEN input condition	None	
I/O signal flow movement	<p>[Normal completion]</p> 	<p>[Error completion]</p> <p>If an FB error occurs:</p> 
	<p>If a module error occurs:</p> 	<p>If Execution Command (i_bEN) is turned from ON to OFF before Normal Completion (o_bOK) or Error Completion (o_bErr) turns ON:</p>  <p style="text-align: right;">At least 1 scan</p>





Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> <li>(1) This FB does not contain error recovery processing. As needed, create an error recovery processing block to suit your system requirements and other needs.</li> <li>(2) With this FB, the communication unit may be communicating with the sensor amplifier until Execution Status (o_bENO) is turned OFF. While Execution Status (o_bENO) is ON, do not run any FB other than this on the same communication unit.</li> <li>(3) Use this FB as a macro type FB.</li> <li>(4) You cannot use this FB in an interrupt program.</li> <li>(5) If this FB is used in a run-once program (such as a subroutine program or a FOR ... NEXT program), it will fail to operate normally due to the inability to turn OFF Execution Command (i_bEN). For this reason, be sure to use this FB in a program with the ability to turn OFF Execution Command (i_bEN).</li> <li>(6) This FB executes multiple commands. You can stop this FB by turning OFF Execution Command (i_bEN). You cannot, however, cancel the commands that have been executed before you stop the FB.</li> <li>(7) Configure the global label as instructed in "1.4 Global labels".</li> <li>(8) This FB uses the index registers Z8 and Z9. Do not use Z8 and Z9 in an interrupt program.</li> <li>(9) This FB results in an ignorable "double coil" warning because it uses the index register to operate the remote output (RY).</li> <li>(10) Do not run this FB on any device other than SC-GU3-04.</li> <li>(11) If you are using two or more CC-Link IE Field master/local modules and want to control the SC-GU3-04 connected to each module, create the FBs for use with the second and subsequent modules as instructed in "Appendix 5 How to Use FBs across two or more master/local modules".</li> </ol>
Related manuals	<p>MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)</p> <p>MELSEC iQ-R CC-Link IE Field Network User's Manual (Application)</p> <p>GX Works3 Operating Manual</p> <p>CC-Link IE Field Communication Unit SC-GU3-04 User's Manual</p>



## ■ List of error codes

Error code (hexadecimal)	Description	Meaning
100	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
101	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
200	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
201	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
202	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
203	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
FFFF	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



## ■ Input labels

Name	Variable name	Data type	Valid range	Description
Execution Command	i_bEN	Bit	ON, OFF	Turn ON this label to start the FB. You can exit from the FB by turning it from ON to OFF.
Start I/O No.	i_uStartIONo	Word [Unsigned]	Depends on the range of the number of input/output points of the target CPU module. For more information, refer to the CPU User's Manual.	Specify in hexadecimal the number of the starting I/O where the target CC-Link IE Field master/local module is installed. (For example, specify H0A0 if the starting I/O No. is 00A0.)
Station No.	i_uStationNo	Word [Unsigned]	1 to 120 (decimal)	Specify the station number of the communication unit you want to configure.
Set Eco Mode	i_bEcoModeSet	Bit	ON, OFF	If you turn Reset Flag (i_bReset) from OFF to ON and execute this FB, it sets the Eco mode.
Reset Flag	i_bReset	Bit	ON, OFF	Execute this FB with this label ON to turn off the keylock and Eco mode. Execute this FB with this label OFF to turn on the keylock and set the Eco mode in accordance with the value of Set Eco Mode (i_bEcoModeSet) ,



#### ■ Output labels

Name	Variable name	Data type	Default	Description
Execution Status	o_bENO	Bit	OFF	Stays ON while the FB is running.
Normal Completion	o_bOK	Bit	OFF	Turns ON upon normal completion of the FB.
Error Completion	o_bErr	Bit	OFF	Turns ON upon error completion of the FB.
Error Code	o_uErrId	Word [Unsigned]	0	Stores the error code that occurred in the FB.
Module Error Code	o_u16ModuleErrId[n]	Word [Unsigned]	0	Stores the error code that occurred in the communication unit. 16 arrays exist and each array stores (n+1)th unit's error code.

#### FB Version Upgrade History

Version	Date	Description
00A	2018/04/04	Newly created

#### Precaution

This chapter describes the functions of function blocks (FBs).

Restrictions on the use of units and sequencer CPUs and on their combinations are not included in the scope of this chapter.

Before use, be sure to read the User's Manuals of the products you are going to use.



## Appendix 1. Connection procedure

This appendix describes the steps for constructing the operating environment for FB library use examples introduced in "Appendix 3 FB Library Use Examples".

### Appendix 1.1. Safety Precautions

Before you use the products introduced in this reference manual, carefully read the related manuals mentioned in "1.5 Related manuals". To use those products, take sufficient safety care and handle them correctly.

In particular, power supplies and other hazardous parts should be connected and wired by quantified engineers who have expertise in electrical and mechanical engineering.

These "Safety Precautions" use two safety flags to indicate different levels of danger: "⚠Warning" and "⚠Caution".



Failure to correctly handle the product may result in a dangerous situation where death or serious injury may occur.

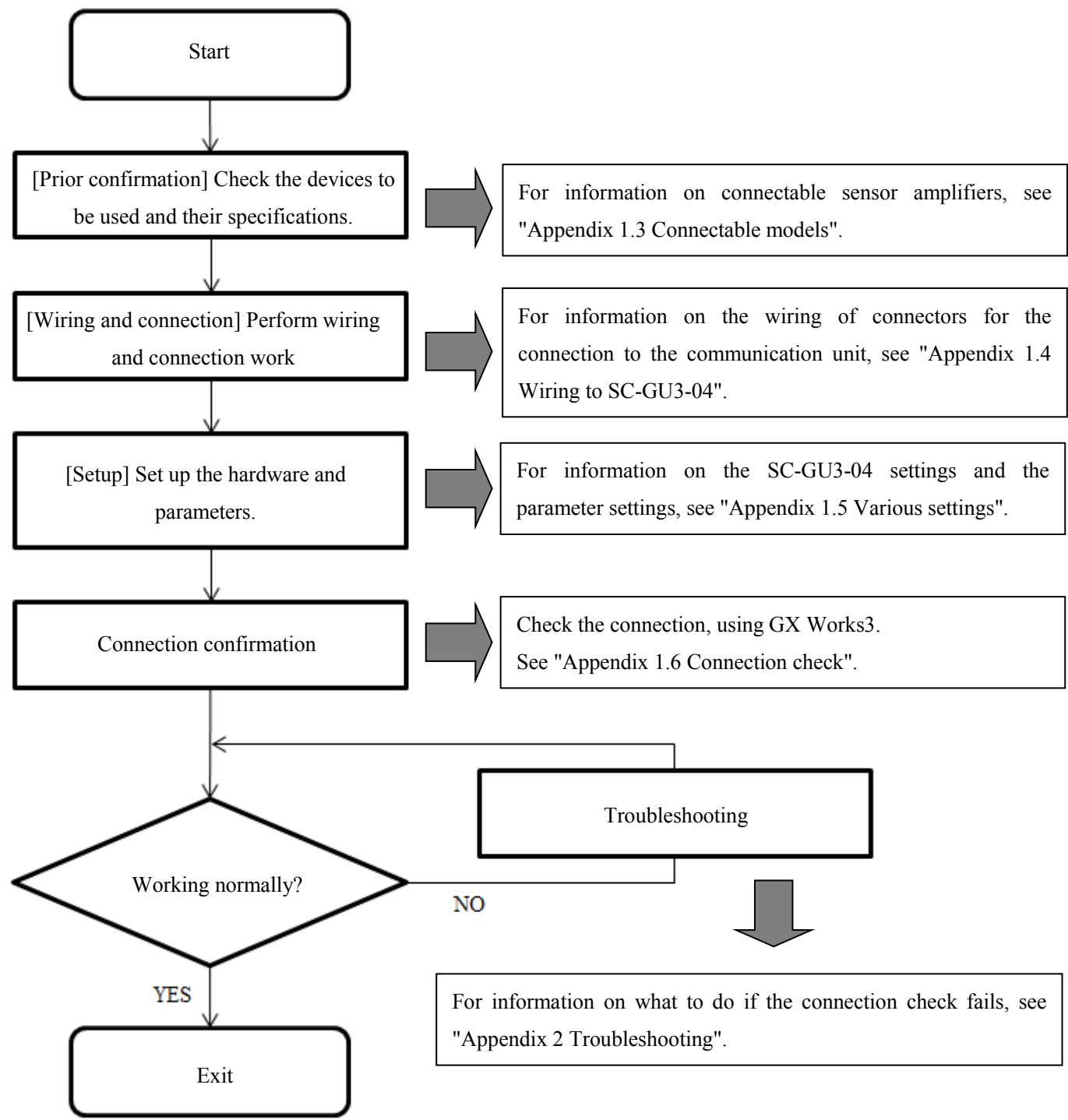


Failure to correctly handle the product may result in a dangerous situation where minor or moderate injury may occur or where only physical damage may occur.



**Appendix 1.2.** Connection procedure workflow

The following diagram shows the procedure workflow until starting up the system.

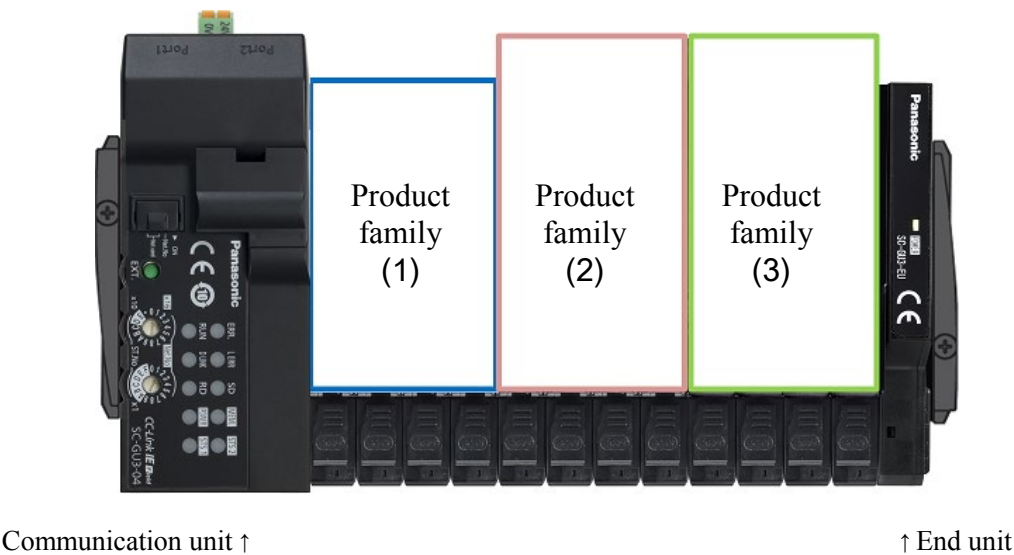


**Appendix 1.3. Connectable models**

This FB library allows you to check and change the settings of the following models when they are installed between communication unit SC-GU3-04 and the end unit SC-GU3-EU.

Model	Model name	Product family
Digital Fiber Sensor	FX-301, FX-305	(1)
	FX-501, FX-502	(2)
Digital Laser Sensor	LS-403, LS-501	(3)
Digital Pressure Sensor	DPS-401, DPS-402	
1ch Connector Input Unit (Analog Communication Unit)	SC-A01, SC-A02	

Arrange the product families in the order of (1) to (3) when viewed from the communication unit side.  
The products in same product family may be arranged in any order.



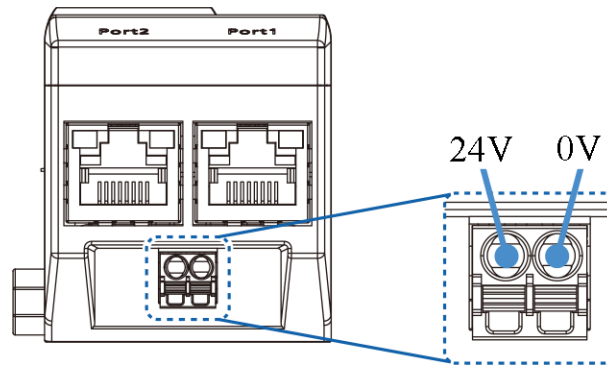
## Appendix 1.4. Wiring to SC-GU3-04



### Warning

Before wiring the devices, turn off the power.

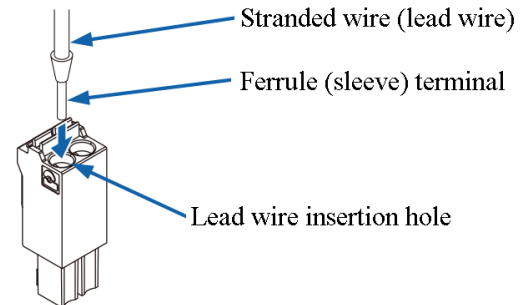
### <Power connector terminal arrangement>



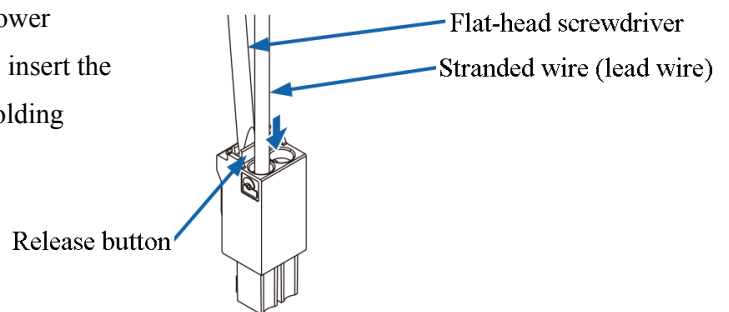
### <How to connect a power supply connector>

Insert a stranded wire (lead wire) with a ferrule (sleeve) terminal attached to it into the power supply connector insertion hole until complete contact.

Correctly inserting the wire locks the wire so that it cannot be pulled out. However, do not forcibly pull the wire because doing so may break the wire.

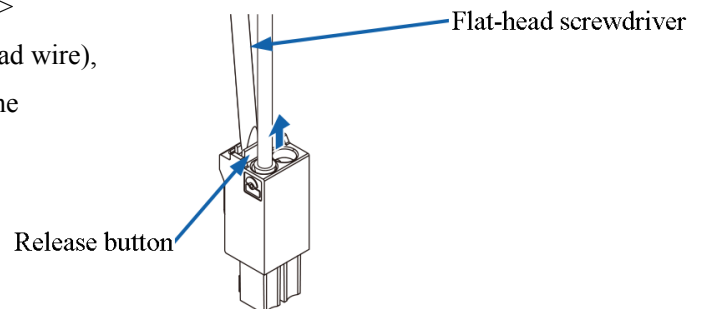


If you want to connect a stranded wire (lead wire) to the power supply connector without using a ferrule (sleeve) terminal, insert the wire into the insertion hole until complete contact while holding down the release button.



### <How to remove the wire from the power supply connector>

To remove the ferrule (sleeve) terminal or stranded wire (lead wire), pull out the stranded wire (lead wire) while holding down the release button.





## Appendix 1.5. Various settings

### Appendix 1.5.1 Communication unit settings

To connect the communication unit to the CC-Link IE Field network, set the station number and the network number.

Ensure that these numbers are the same as configured on the CC-Link IE Field master/local module.

Removing its cover allows you to operate the mode setting switch.



Figure 1.5-1: Hardware settings

#### (1) Set the network number

By factory default, the network number of the communication unit is set to '01'. If you want to operate the product with a different network number, use the following steps to change the network number.

With the communication unit powered OFF, turn ON the operating mode setting switch (SW1) to turn ON the power.

Once you power ON the communication unit, the STS1 indicator (green) flashes to indicate that you are now in network operation setting mode. So operate the rotary switch to set the network number. The network number is configurable within the range of 01 to EF in hexadecimal.

When you are done setting the network number, turn OFF the mode setting switch (SW1) to save the new network number in the communication unit and check that the STS1 indicator (green) stays ON instead of flashing.

With the mode setting switch (SW1) OFF, turn OFF and back ON the power to start the CC-Link IE Field network communication with the specified network number.

\* Before turning back ON the power supply, set the station number by operating the rotary switch.

#### (2) Set the station number

The station number is configurable within the range of 1 to 120 in decimal.

The CC-Link IE Field network communication starts using the station number determined by the rotary switch setting as of the time when the power is turned ON with the mode setting switch (SW1) OFF. Carefully note that if you change the rotary switch setting after power-ON, the ERR.indicator (red) flashes.

## Appendix 1.5.2 Parameter settings

Open GX Works3 to configure these settings.

Use the following steps to create PLC configuration data and then configure the CC-Link IE Field slaves.

### (1) Creating a new project

[Project] → [New]

Enter the series, type, and program language as shown in figure 1.5-2.

Change the model name depending on the actual system configuration.

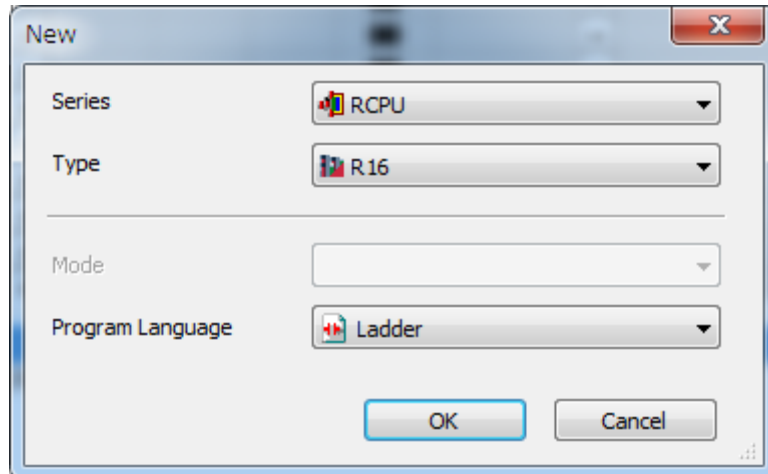


Figure 1.5-2: Parameter settings ([New])



## (2) Creating module configuration

If a Windows® PC where the target CPU module and GX Works3 are already installed is connected via USB, you can load the CPU module configuration.

Once the setup is complete, the Start XY of the CC-Link IE Field master/local module becomes the Start I/O No. (i\_uStartIONo) of the FB common input for this FB library. In the settings shown below (Figure 1.5-4), "H0000" becomes the input value.

Navigation window → [Parameter] → [System Parameter]

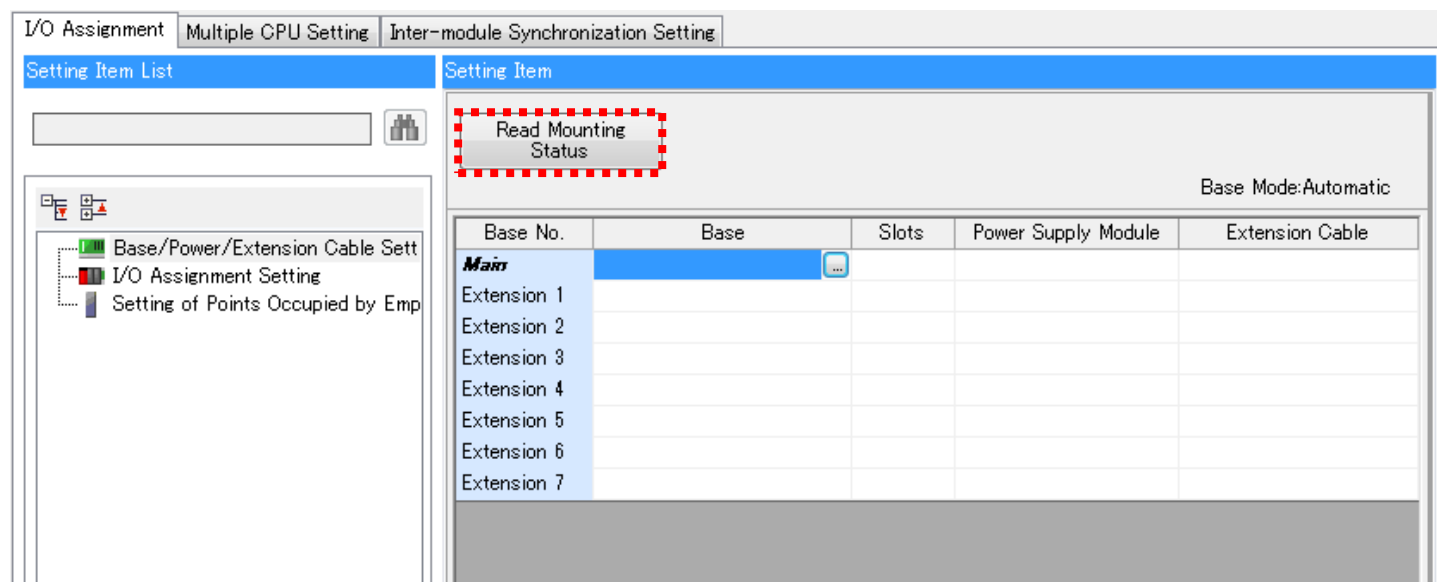


Figure 1.5-3: System parameters

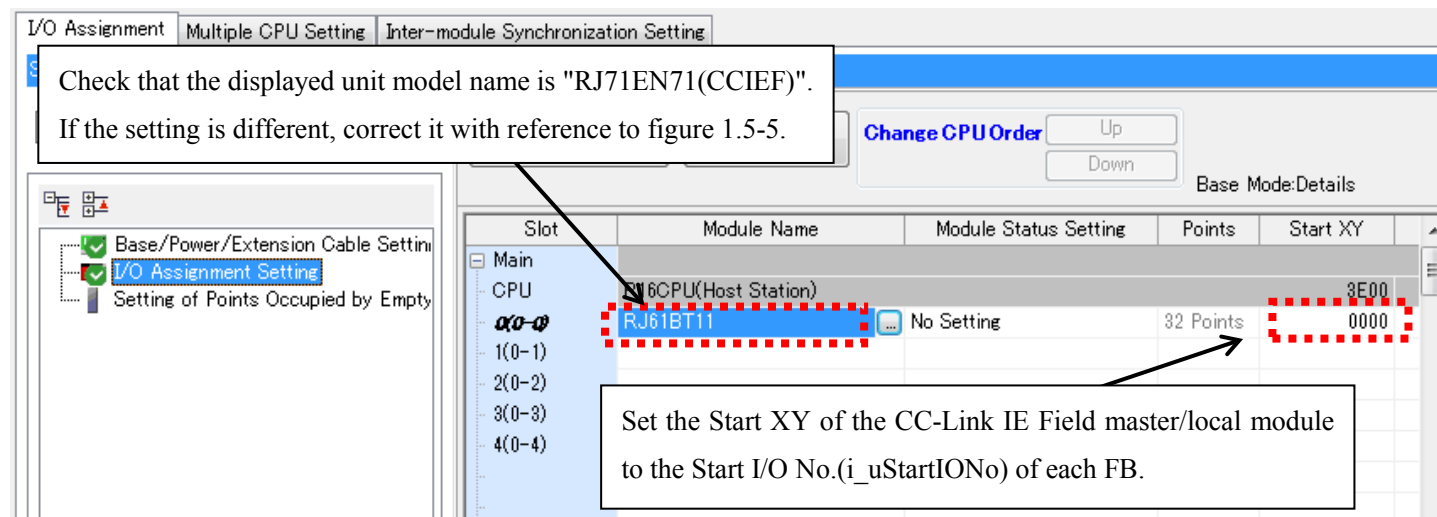


Figure 1.5-4: System parameters (after reading the mounting state)

If a Windows® PC where the target CPU module and GX Works3 are already installed is NOT connected via USB, you must select I/O Assignment and set various configuration information.

Carefully note that if the settings you entered here differ from the actual system configuration, an error occurs.

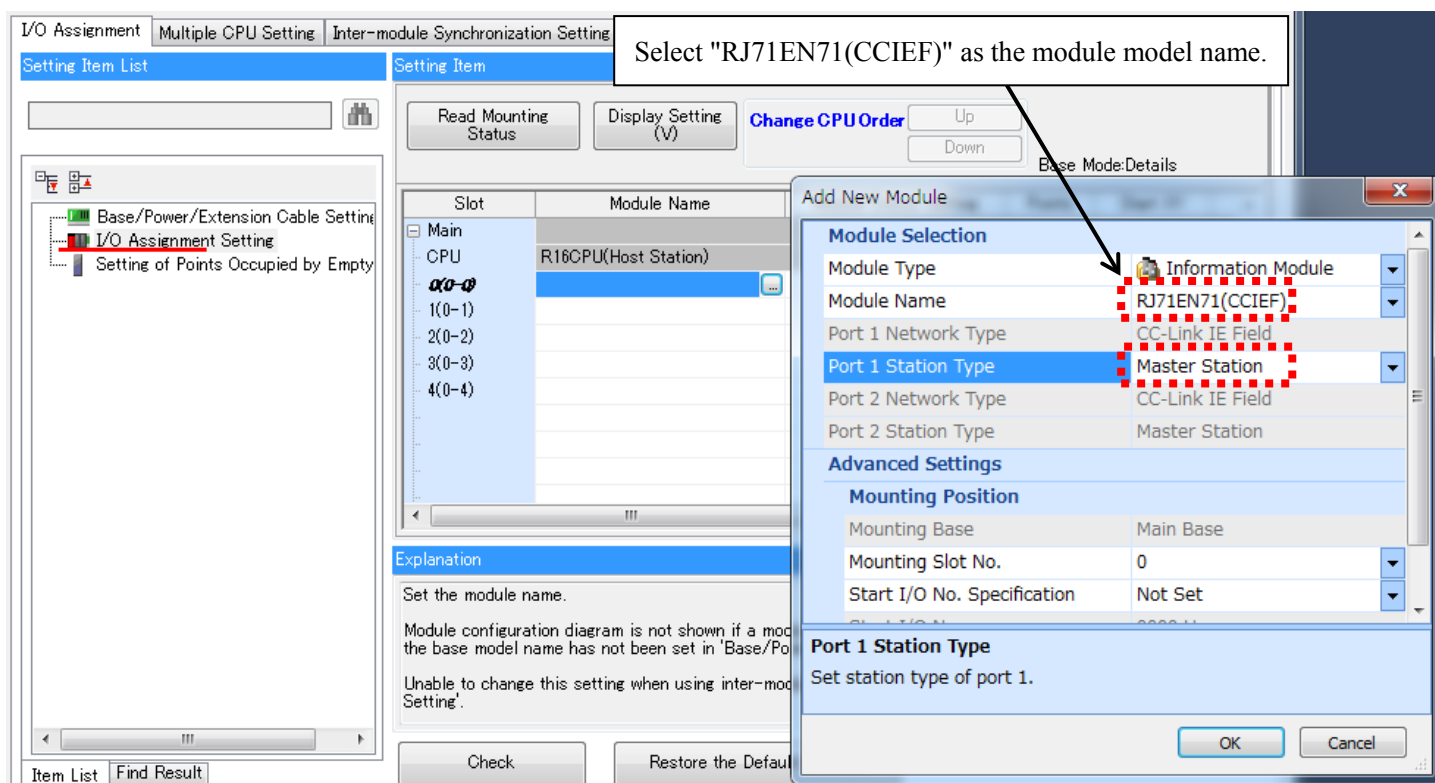


Figure 1.5-5: System parameters (manual setting)

### (3) Setting module parameters

Next, configure the module parameters.

Under [Required Settings], set [Network No.].

Under [Basic Settings], set [Network Configuration Settings] and [Link Refresh Settings].

Navigation window → Parameter → Module information → (Start XY): RJ71EN71 → Module parameter

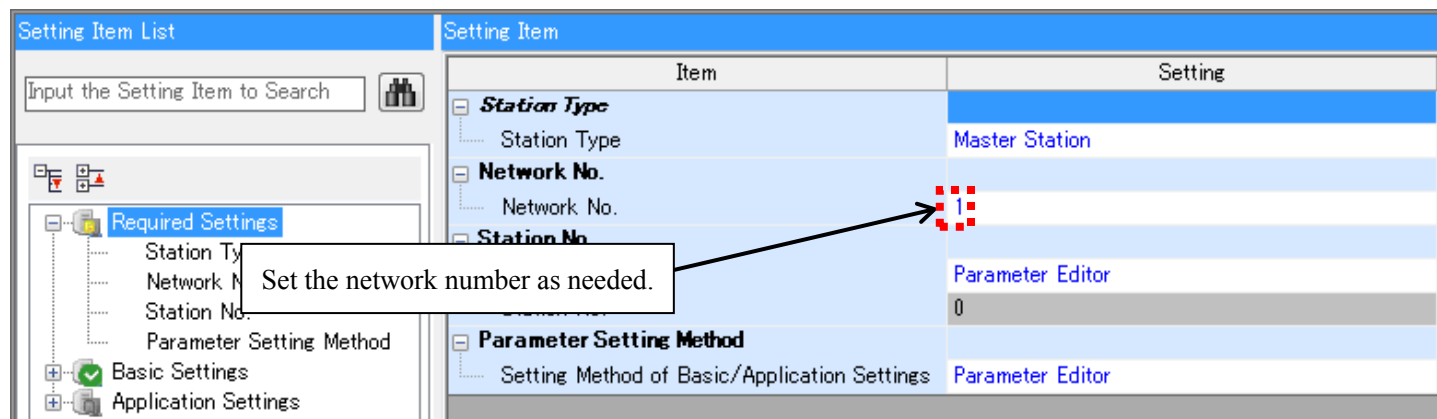


Figure 1.5-6: Module parameters (required settings)

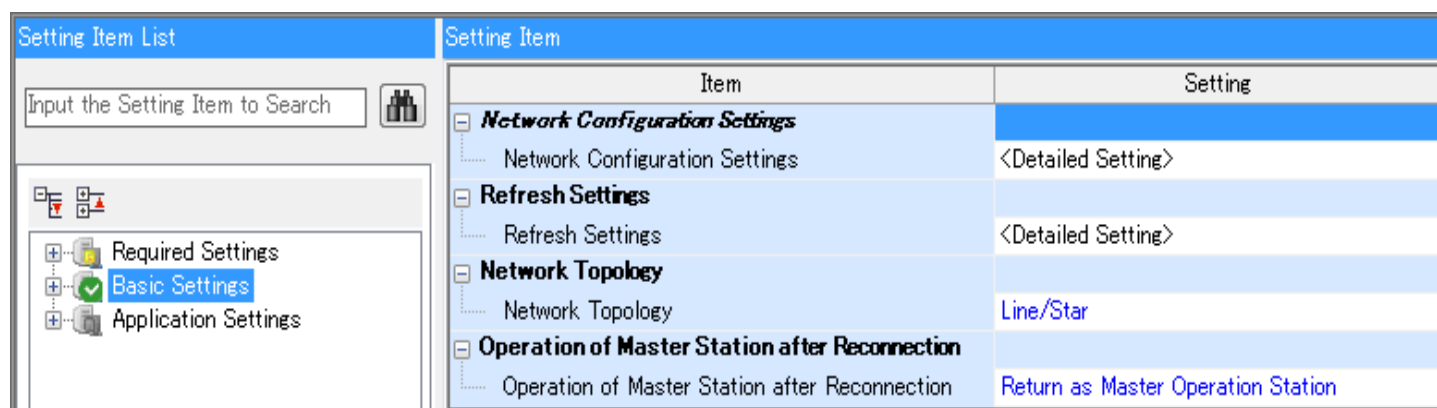


Figure 1.5-7: Module parameters (basic settings)

Under [Network Configuration Settings], set the communication unit to be connected.

You can also drag a " General Remote Device Station " from the unit list at the right and down it onto the configuration below.

Next, configure the station number and the RX/Ry and RWw/RWr settings.

Set the station number (enclosed in a red frame) to the station number used by the communication unit.

Set the RX/Ry and RWw/RWr settings (enclosed in a blue frame) so that the number of points for the RX/Ry settings are 128 and the number of points for the RWw/RWr settings 64.

Using SC-GU3-04's CSP+ at this time ensures that the number of points for the RX/Ry and RWw/RWr settings are entered.

If you want to connect to multiple slave stations, configure them so that their ranges from the start to the end do not overlap with each other.

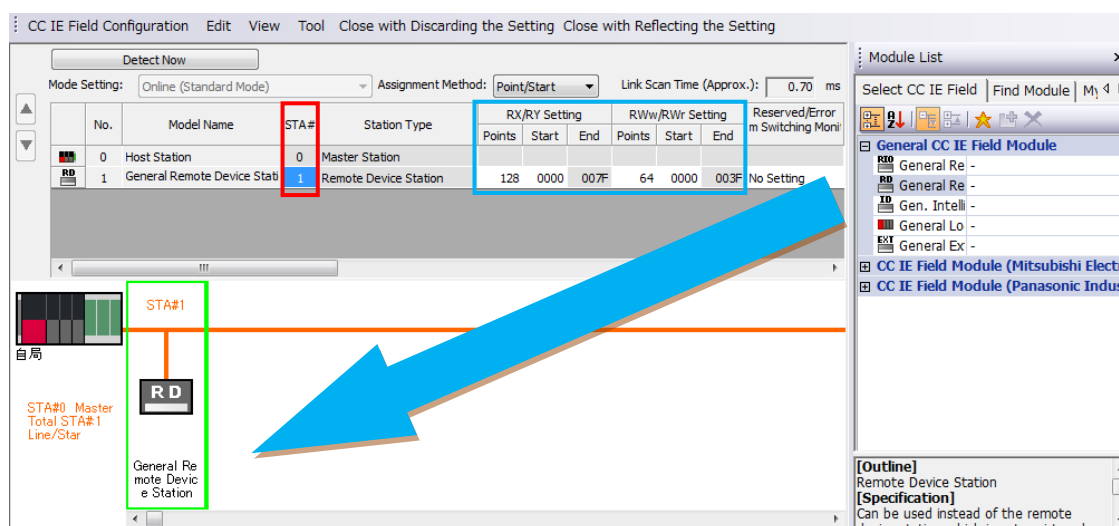


Figure 1.5-8: Network configuration settings

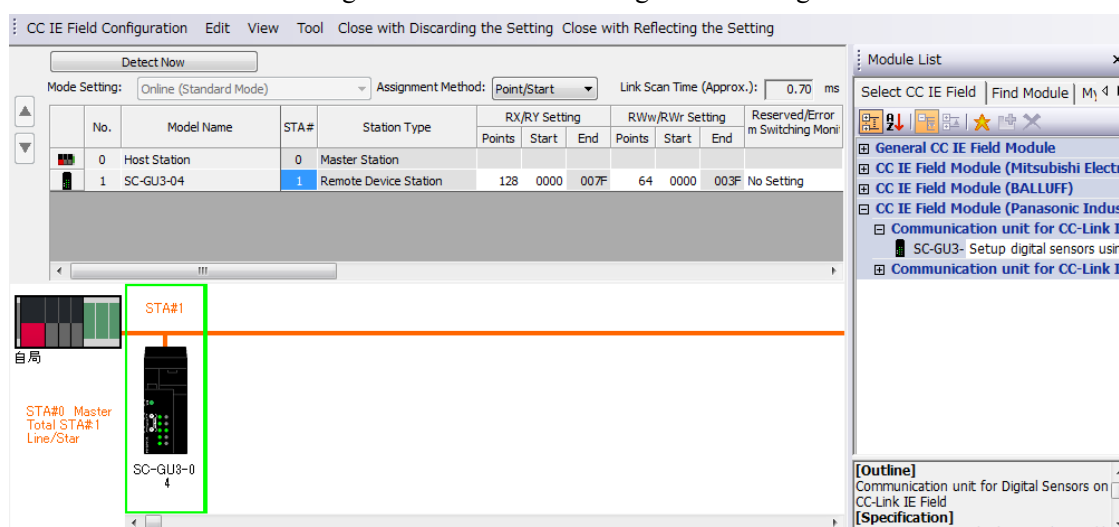


Figure 1.5-9: Network configuration settings (when using CSP+)

Under "link refresh settings", you must check and set the information of all the slave stations connected to the CC-Link IE Field master/local module.

For more information, refer to "MELSEC iQ-R CC-Link IE Field Master/Local Module User's Manual (Application)".

In the following example, this is set by changing [Device Assignment Method] to [Points/Start].

## Link side settings

The number of link points must be set so that it matches all the slave station information.

The following table show the number of link points for SC-GU3-04. Check the number of link points as needed.

Figure 1.5-10 shows an example where only one unit of SC-GU3-04 is connected and used.

	RX / RY	RW <sub>r</sub> / RW <sub>w</sub>
Number of link points	128	64

The first character on the link side should be 0.

## CPU side settings

Specify the bit and word devices for the refresh target device name.

Also, the start may be arbitrarily set. When specifying the same device, take care to avoid overlapping from the start to end.

The "device names" and "start" you specify here relate to the global label configuration. For more information, see "1.4.3Identifying the starting device".

The screenshot displays the 'Setting Item List' on the left, with 'Refresh Setting' selected. The 'Setting Item' table in the center shows the following data:

No.	Link Side				Target	CPU Side			
	Device Name	Points	Start	End		Device Name	Points	Start	End
-	SB								
-	SW								
1	RX	128	00000	0007F	Specify Device	X	128	01000	0107F
2	RY	128	00000	0007F	Specify Device	Y	128	01000	0107F
3	RW <sub>r</sub>	16	00000	0000F	Specify Device	W	16	00000	0000F
4	RW <sub>w</sub>	16	00000	0000F	Specify Device	W	16	01000	0100F

The 'Device Assignment Method' dropdown menu is open, showing the following options:

- Device Assignment Method
- Word Device Setting Value Input Format
- IP Address Input Format

The 'Device Assignment Method' is currently set to 'Points/Start'.

Figure 1.5-10: Link refresh settings



Appendix 1.6.Connection check

Upon completion of various settings, write the parameters to the CPU module and restart the PC to check the communication.

[Online] → [Monitor] → [Device/Buffer Memory Batch Monitor]

Once you enter the device in the device name box, you can determine the information from input device.

To check the connection to station number 1 (SC-GU3-04) for these examples (the settings in Figure 1.5-9 and Figure 1.5-10), enter the RX specified device X1000 in the device name box.

Check the Remote READY flag (X107B) to see whether or not SC-GU3-04 communication is possible.

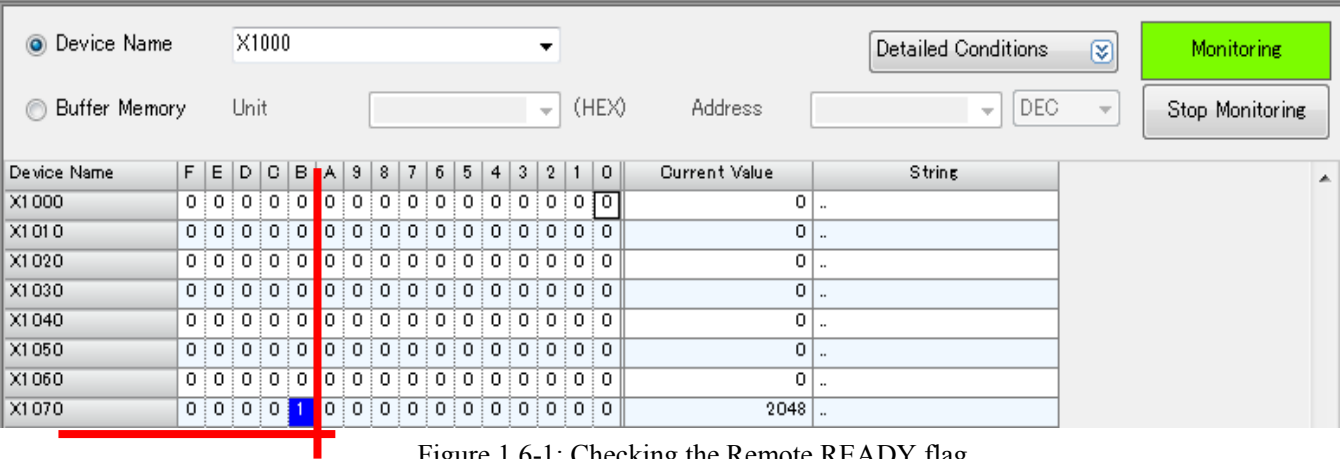


Figure 1.6-1: Checking the Remote READY flag

RX	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
	Mode change response								MEMORY function response				SW in-	Command response		
+00	Not used	Error code	Not used	Command	Not used	Setting mode function 2	Setting mode function 1	Get all detected values	Setting mismatch	Setting change done	MEMORY OFF done	MEMORY ON status	validate setting done	Continuous setting done	Not used	Send done
+10	Status		EXT. key function change response			Not used										
	EU not connected	ERROR	Ltc+	Ltc-	PctL Auto											
+20	Sensor amplifier output 1 (OUT1)															
	16th unit	15th unit	14th unit	13th unit	12th unit	11th unit	10th unit	9th unit	8th unit	7th unit	6th unit	5th unit	4th unit	3rd unit	2nd unit	1st unit
+30	Sensor output 1 (OUT1) when command "H'E7, H'E9" is used															
	16th unit	15th unit	14th unit	13th unit	12th unit	11th unit	10th unit	9th unit	8th unit	7th unit	6th unit	5th unit	4th unit	3rd unit	2nd unit	1st unit
+40	Sensor output 2 (OUT2) when command "H'E7, H'E9" is used															
	16th unit	15th unit	14th unit	13th unit	12th unit	11th unit	10th unit	9th unit	8th unit	7th unit	6th unit	5th unit	4th unit	3rd unit	2nd unit	1st unit
+50	Not used															
+60	Not used															
+70	System area															
	Not used				Remote ready	Error state	Setting initialization done	Not used								

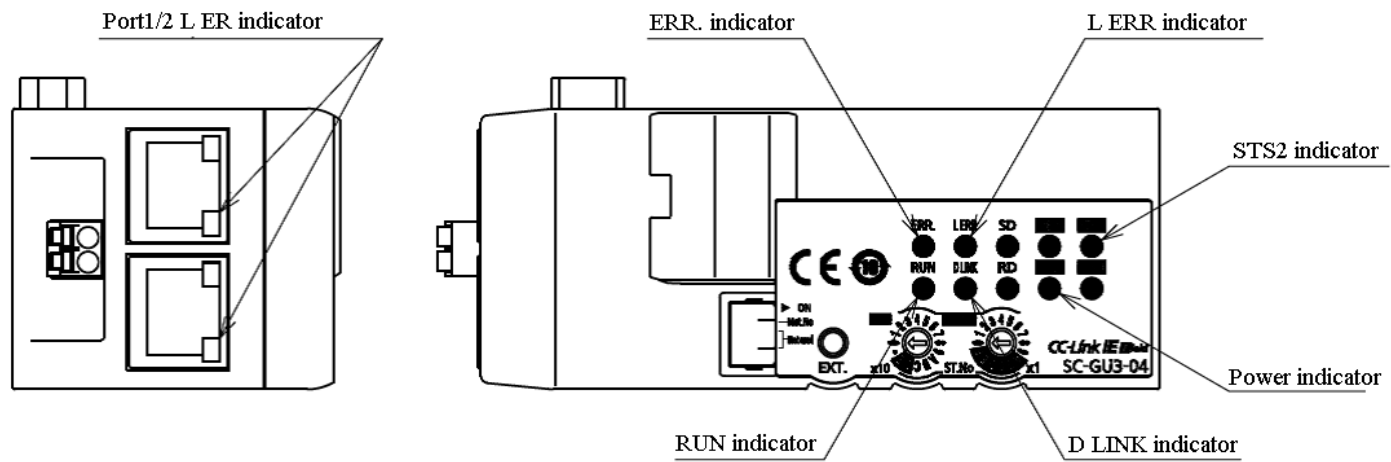
Figure 1.6-2: SC-GU3-04 remote input (RX) memory map



Appendix 2. Troubleshooting

Appendix 2.1. Connection error

If the communication with the CC-Link IE Field master/local module fails or a module error occurs, you can check the error with the indicators of SC-GU3-04.



■ Common to both normal mode and network number setting mode

Indicator	Status	Description of error	Meaning
Power indicator (green)	OFF	Power supply error	<ul style="list-style-type: none"><li>• Check the power supply wiring.</li><li>• Check whether or not the power (24V) is supplied to the communication unit.</li><li>• The power supply capacity varies depending on the sensor amplifier type and the number of connected amplifiers. Confirm the specifications of the connected sensor amplifiers.</li></ul>
STS2 indicator (red)	ON	Mode selection error	<ul style="list-style-type: none"><li>• Check if the mode setting switch is correctly set.</li></ul>

■ At the time of setting the network number

Indicator	Status	Description of error	Meaning
STS2 indicator (red)	ON	Network number setting error	<ul style="list-style-type: none"><li>• Check whether or not the network number setting is outside the valid range.</li></ul>

■ When in normal mode

Indicator	Status	Description of error	Meaning
RUN indicator (green)	OFF	Station number setting error	<ul style="list-style-type: none"> <li>Check whether or not the station number is outside the valid range.</li> </ul>
D LINK indicator (green)	Flashes	Communication setting error	<p>The CC-Link IE Field network may be incorrectly configured. Check the following settings.</p> <p>&lt;Network number setting&gt;</p> <ul style="list-style-type: none"> <li>Check if the network number of the communication unit is the same as that of the master station.</li> </ul> <p>&lt;Station number setting&gt;</p> <ul style="list-style-type: none"> <li>Check if the station number of the communication unit is set to the station number assigned from the master station.</li> <li>Check if the station number configured on the communication unit is unique among the slave stations.</li> </ul> <p>&lt;Other&gt;</p> <ul style="list-style-type: none"> <li>Set the communication unit station type on the remote device station.</li> <li>The network status of the master station or communication unit is set to "link stopped" and the link stop period is ongoing.</li> </ul>
ERR. indicator (red)	ON	Transmission path error	<p>A failure related to network transmission paths may have occurred.</p> <ul style="list-style-type: none"> <li>Check the communication cable for breaks and imperfect connection.</li> <li>If the communication cable is not an Ethernet cable compliant with the 1000BASE-T standards, communication may fail.</li> <li>Check that the cable length between stations is not in excess of 100 m.</li> <li>Check if the other stations and network devices (such as switching hubs) connected to the communication unit are powered ON.</li> <li>If the loopback function is configured on the master station, check if the ring connection is implemented.</li> <li>Check the noise environment around the communication unit and the communication cable.</li> </ul>
	Flashes	Setting change error	<p>This error is displayed as an alarm if the station number is changed during operation after power-ON.</p> <ul style="list-style-type: none"> <li>The alarmed station number does not take effect. Revert to the original station number or turn OFF and back ON the power for the change to take effect.</li> </ul>
Port1/2 LER indicator (yellow)	ON	Transmission path error	<ul style="list-style-type: none"> <li>If the loopback function is configured on the master station, check if the ring connection is implemented.</li> </ul>



Indicator	Status	Description of error	Meaning
L ERR. indicator (red)	ON	Receive data error	<p>A failure related to network transmission paths may have occurred.</p> <ul style="list-style-type: none"> <li>• Check the communication cable for breaks and imperfect connection.</li> <li>• If the communication cable is not an Ethernet cable compliant with the 1000BASE-T standards, communication may fail.</li> <li>• Check that the cable length between stations is not in excess of 100 m.</li> <li>• Check if the other stations and network devices (such as switching hubs) connected to the communication unit are powered ON.</li> <li>• If the loopback function is configured on the master station, check if the ring connection is implemented.</li> <li>• Check the noise environment around the communication unit and the communication cable.</li> </ul>
STS2 indicator (red)	ON	Communication unit error	<ul style="list-style-type: none"> <li>• Check whether or not the station number setting is outside the valid range.</li> <li>• Check if the sensor amplifiers are correctly connected.</li> <li>• Check if the settings for sending commands to the sensor amplifiers are correctly configured. Sending commands to the sensor amplifiers requires you to correctly configure the send commands, send data, and destination sensor amplifiers.</li> </ul>



## Appendix 2.2.FB error code (o\_uErrId) list

The following is a list of error codes output by the FBs in this FB library to Error Code (o\_uErrId).

Error Code Hexadecimal (Decimal)		Description	Meaning
Input value error related error codes	100 (256)	The Station No. (i_uStationNo) is outside the valid range	Set the Station No. (i_uStationNo) to a value from 1 to 120.
	101 (257)	The information derived from the input Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) is not SC-GU3-04.	Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
	102 (258)	Set Controller (i_uSetController) is zero	Make the value of Set Controller (i_uSetController) greater than 0 or turn ON All Controller Set Request (i_bAllSettingFlag).
	103 (259)	Set to a sensor amplifier where Set Controller (i_uSetController) does not exist	Check whether or not it is set to a sensor amplifier to which the blank unit setting is applied or more sensor amplifiers than the number of connected units.
	104 (260)	Input Command (i_uCommand) is outside the valid range	Enter the correct command.
	105 (261)	Timer Mode (i_uTimerMode) is outside the valid range	Set Timer Mode (i_uTimerMode) to a value not greater than 5.
	106 (262)	Timer Range (i_uTimerRange) is outside the valid range	Set Timer Range (i_uTimerRange) to a value not greater than 2.
	107 (263)	Timer Span (i_uTimerSpan1/i_uTimerSpan2) is outside the valid range	Set Timer Span (i_uTimerSpan1/i_uTimerSpan2) to a value not greater than 9999.
	108 (264)	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	Set it to a sensor amplifier other than DPS-401, DPS-402, SC-A01, and SC-A02.
	109 (265)	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set	Setting Timer Mode (i_uTimerMode) to 3 or 5 requires you to select sensor amplifier other than FX-301 and LS-403.
	10A (266)	Set to unconfigurable range	Setting Timer Range (i_uTimerRange) to other than 1 requires you to select sensor amplifier other than FX-301, FX-305, and LS-403.
	10B (267)	Teaching Mode (i_uTeachMode) is outside the valid range	Set Teaching Mode (i_uTeachMode) to a value not greater than 2.
	10C (268)	Teaching Steps (i_uTeachStep) is outside the valid range	Set Teaching Steps (i_uTeachStep) to a value not greater than 3.



Error Code Hexadecimal (Decimal)	Description	Meaning
Input value error related error codes	10D (269)	"1-point teaching (limit teaching)" is selected and Shift Amount (i_wShiftAmount) is set to 0
	10E (270)	Input Signal (i_bInputSignal) is ON and Execution Command (i_bEN) is ON
	10F (271)	Teaching Steps (i_uTeachStep) not configurable with the specify Teaching Mode (i_uTeachMode) If Teaching Mode (i_uTeachMode) is zero, set Teaching Steps (i_uTeachStep) to a value other than 2. If Teaching Mode (i_uTeachMode) is 1 or 2, set Teaching Steps (i_uTeachStep) to a value other than 3.
	110 (272)	Teaching Mode (i_uTeachMode) not configurable when FX-301 is included
	111 (273)	Teaching Mode (i_uTeachMode) not configurable when FX-305 is included
	112 (274)	The Speed Mode (i_uSpeedMode) is outside the valid range
	113 (275)	Output Mode (i_uOutputMode) is outside the valid range
	114 (276)	Write Threshold (i_wThreshold) is outside the valid range
	115 (277)	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set
	116 (278)	Data Bank No. (i_uDataBankNo) is outside the valid range
	117 (279)	Set Gain (i_uGainSet) is outside the valid range
	118 (280)	Emitter Power Setting (i_uEmitterPwSetting) is outside the valid range
	119 (281)	Set to a sensor amplifier where Set Controller (i_uSetController) cannot be set The specified sensor amplifier is not an FX series sensor amplifier. Specify an FX series sensor amplifier.



Error Code Hexadecimal (Decimal)		Description	Meaning
FB behavior related error codes	200 (512)	Remote READY flag OFF	Check whether or not an error has occurred in the communication unit. Check if the Start I/O No.(i_uStartIONo) and the Station No. (i_uStationNo) settings correctly indicate the target communication unit.
	201 (513)	End unit is not connected	End unit is not recognized. Check the installation status. You may be able to fix the problem by requesting an initialization.
	202 (514)	Execution Command (i_bEN) turned OFF before normal or error completion	Check that Normal Completion (o_bOK) or Error Completion (o_bErr) has turned ON and then turn OFF Execution Command (i_bEN). This error code is output also when Execution Command (i_bEN) is intentionally turned OFF before completion.
	203 (515)	Execution Command (i_bEN) was turned from ON to OFF and then turned from OFF to ON while Execution Status (o_bENO) was ON	Check that execution status (o_bENO) turned OFF and then turn ON Execution Command (i_bEN).
	204 (516)	Input Signal (i_bInputSignal) is turned from OFF to ON with Waiting Signal (o_bSignalWait) OFF	Check that Waiting Signal (o_bSignalWait) is ON and then turn ON Input Signal (i_bInputSignal). Teaching is not executed but the output mode has been changed. Check for any problem.
	205 (517)	After the teaching for the 1st point, Input Signal (i_bInputSignal) is turned from OFF to ON with Waiting Signal (o_bSignalWait) OFF	Input Signal (i_bInputSignal) was turned ON before the teaching for the 2nd or 3rd point became acceptable. Check that Waiting Signal (o_bSignalWait) is ON and then turn ON the input signal. This FB will forcibly terminate the teaching. Check the threshold.



Error Code Hexadecimal (Decimal)		Description	Meaning
FB behavior related error codes	206 (518)	Execution Command (i_bEN) turns OFF after the teaching for the 1st point	Execution Command (i_bEN) was turned OFF before the teaching for the 2nd or 3rd point was successfully executed. This FB will forcibly terminate the teaching. Check the threshold.
	207 (519)	Execution Command (i_bEN) turned OFF before the completion of the final processing for teaching execution	Teaching was completed but Execution Command (i_bEN) turned OFF before Normal Completion (o_bOK) turned ON. Check that Normal Completion (o_bOK) is turned ON and then turn OFF Execution Command (i_bEN).
	FFFF (65535)	Module error occurs	Check the Module Error Code (o_u16ModuleErrId). For information on module error codes, see "Appendix 2.3 Module Error Code (o_u16ModuleErrId) list".



### Appendix 2.3. Module Error Code (o\_u16ModuleErrId) list

Some FBs in this FB library return an error code to Module Error Code (o\_u16ModuleErrId) when a module error occurs (with o\_uErrId being a hexadecimal value of "FFFF").

The output error code has specific information in its lower 8 bits. Interpret the information by referring to the ON bits in the following table. The higher 8 bits are always '1110 0000' in binary ("E0" in hexadecimal).

Error bit	Description of error	Meaning
7	Error in using the MEMORY function	Check if SC-GU3-04 is correctly connected to the sensor amplifier and end unit. Check that the sensor amplifier combination configuration is unchanged.
6	Send data error	Check if the data to be sent is compatible with the destination sensor amplifier.
5	Receive error	Check if SC-GU3-04 is correctly connected to the sensor amplifier and end unit. Check if the copy lock is turned ON.
4	Timeout error	Check if SC-GU3-04 is correctly connected to the sensor amplifier and end unit.
3	Link error	Check if SC-GU3-04 is correctly connected to the sensor amplifier and end unit.
2	Model setting error	Check if the destination sensor amplifier is correctly configured.
1	Unit selection error	Check if the destination sensor amplifier is correctly configured.
0	Communication command error	Check if the destination sensor amplifier is correctly configured. Check if the command to be sent is compatible with the destination sensor amplifier.





### Appendix 3. FB Library Use Examples

#### (1) System configuration

For information on the system configuration, see "1.3 System configuration example".

The following examples assume that eight sensor amplifiers, FX-301, FX-305, FX-501, FX-502, LS-501, LS-403, DPS-402, and SC-A01, are connected in this order.

#### (2) List of devices in use

##### ■ Common external input

Device	FB name		Purpose (what occurs when FB is ON)
M0	(a)	P+SUNX-SC-GU3-04_InitializeUnit_R	Execution Command ON
	(b)	P+SUNX-SC-GU3-04_ClearError_R	
	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	
	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(k)	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	
	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	
	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	
	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	
M2	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	Read Flag ON
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	



Device	FB name		Purpose (what occurs when FB is ON)
D0	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	Set Controller
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	

■ External input

Device	FB name		Purpose (what occurs when FB is ON)
D1	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	Set Blank Unit Controller
M1	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	All Controller Set Request ON
D2			Input Command
D3			Command Data
D4	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	Timer Mode
D5			Timer Range
D6			Timer Span 1
D7			Timer Span 2
M3	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	Input Signal ON
D8			Teaching Mode
D9			Teaching Steps
D10			Shift Amount
D11	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	Speed Mode
D12	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	Output Mode
D13	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	Write Threshold
M4	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	Load Flag ON
D14			Data Bank No.
D15	(o)	P+SUNX-SC-GU3-04_SetGain_R	Set Gain
D16	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	Emitter Power Setting
M5	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	Set Eco Mode ON
M6			Reset Flag ON



■ Common external output

Device	FB name		Purpose
M100	(a)	P+SUNX-SC-GU3-04_InitializeUnit_R	FB execution status
	(b)	P+SUNX-SC-GU3-04_ClearError_R	
	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	
	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(k)	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	
	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	
	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	
	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	
M101	(a)	P+SUNX-SC-GU3-04_InitializeUnit_R	Normal completion of FB
	(b)	P+SUNX-SC-GU3-04_ClearError_R	
	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	
	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(k)	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	
	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	
	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	
	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	



Device	FB name		Purpose
M102	(a)	P+SUNX-SC-GU3-04_InitializeUnit_R	Error completion of FB
	(b)	P+SUNX-SC-GU3-04_ClearError_R	
	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	
	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(k)	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	
	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	
	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	
	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	
D100	(a)	P+SUNX-SC-GU3-04_InitializeUnit_R	FB error code
	(b)	P+SUNX-SC-GU3-04_ClearError_R	
	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	
	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(k)	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	
	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	
	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	
	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	



Device	FB name		Purpose
D110 to D125	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	Module Error Code
	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	
	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	
	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	
	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	
	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	
	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	
	(k)	P+SUNX-SC-GU3-04_ExecuteZeroAdjust_R	
	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	
	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	
	(n)	P+SUNX-SC-GU3-04_SetDataBank_R	
	(o)	P+SUNX-SC-GU3-04_SetGain_R	
	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	
	(q)	P+SUNX-SC-GU3-04_ExecuteKeyLock_R	

■ External output

Device	FB name		Purpose
D101	(c)	P+SUNX-SC-GU3-04_SetBlankUnit_R	Set Controller Reflected Blank Unit
D102	(d)	P+SUNX-SC-GU3-04_CheckOutData_R	Sensor Output
D130 to D145			Detected Value
D150 to D165	(e)	P+SUNX-SC-GU3-04_ExecuteCommand_R	Read Command Response
D170 to D185	(f)	P+SUNX-SC-GU3-04_SetOutTimer_R	Read Timer Mode
M103	(g)	P+SUNX-SC-GU3-04_ExecuteTeaching_R	Waiting Signal
D190 to D205	(h)	P+SUNX-SC-GU3-04_SetSpeedMode_R	Read Speed Mode
D210 to D225	(i)	P+SUNX-SC-GU3-04_SetOutputMode_R	Read Output Mode
D230 to D245	(j)	P+SUNX-SC-GU3-04_SetThreshold_R	Read Threshold
D103	(l)	P+SUNX-SC-GU3-04_CheckUnitNumber_R	Number of Connecting Units
D250 to D265	(m)	P+SUNX-SC-GU3-04_CheckModelInfo_R	Model Information
D270 to D285	(o)	P+SUNX-SC-GU3-04_SetGain_R	Read Gain Setting
D290 to D305	(p)	P+SUNX-SC-GU3-04_SetEmitterPw_R	Read Emitter Power Setting



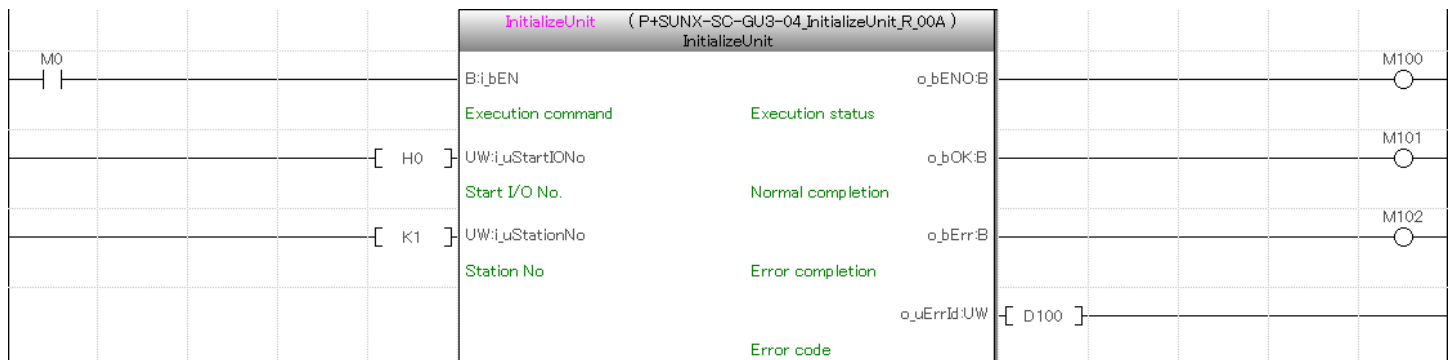
### (3) Program

#### ■ Common settings

Label name	Setting values	Description
Start I/O No.	H0	Specify the Start XY address of the RJ71EN71 to communicate with.
Station No.	K1	Specify the station number of the communication unit you want to operate.

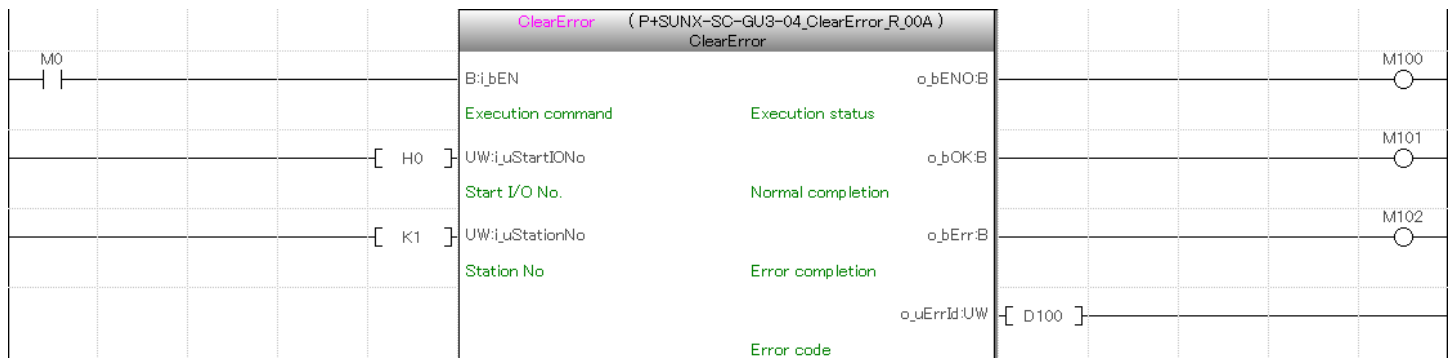
#### (a) P+SUNX-SC-GU3-04\_InitializeUnit\_R (initialization)

When M0 is turned ON, this FB initializes the SC-GU3-04 with its station number set to 1.



#### (b) P+SUNX-SC-GU3-04\_ClearError\_R (error clear)

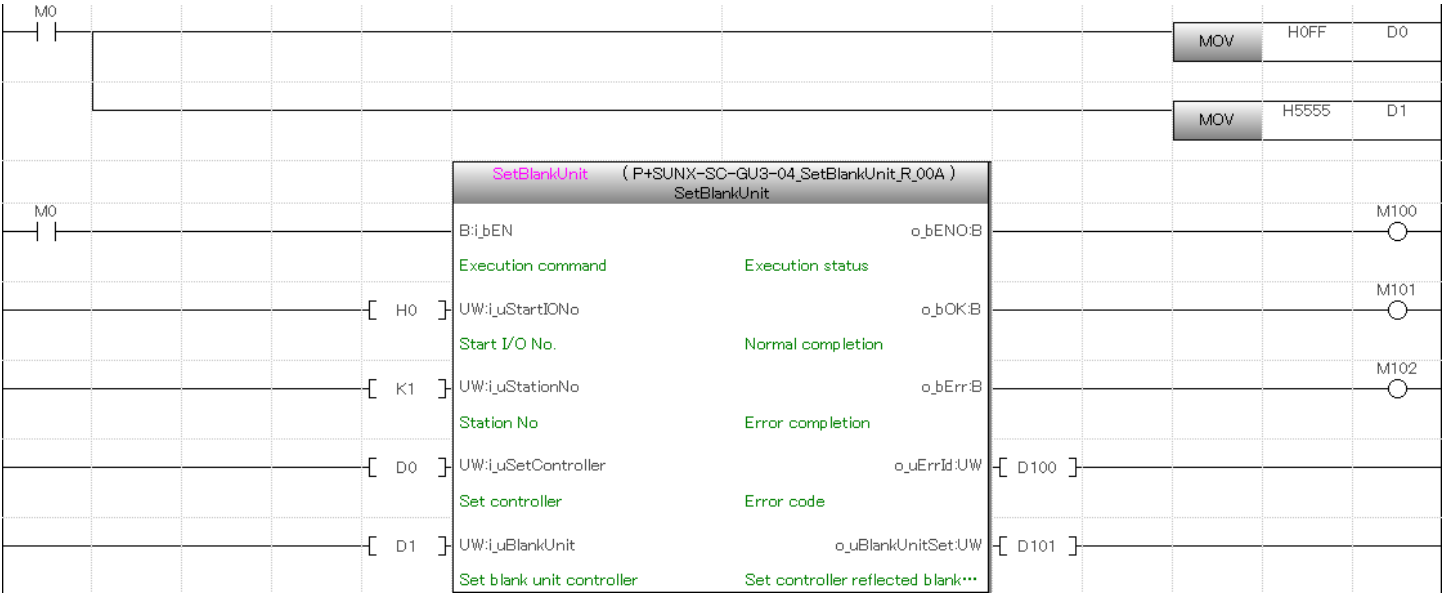
When M0 is turned ON, this FB clears the error of the SC-GU3-04 with its station number set to 1.



(c) P+SUNX-SC-GU3-04\_SetBlankUnit\_R (blank unit setting)

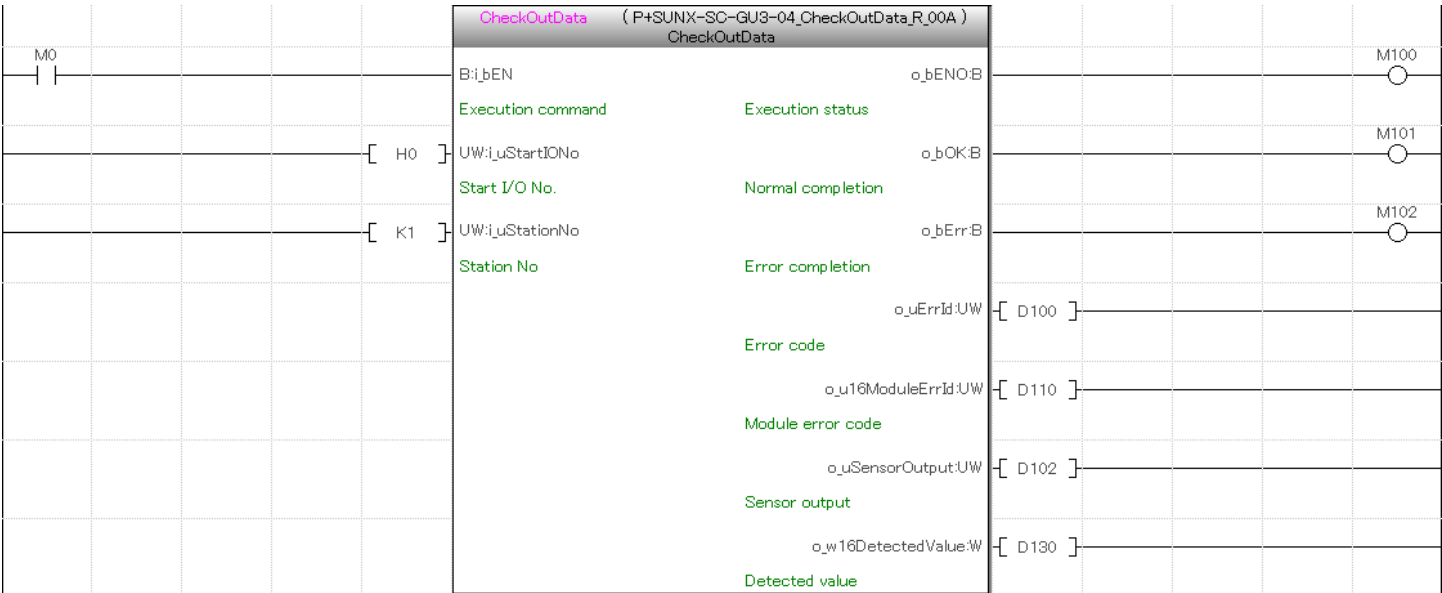
When M0 is turned ON, this FB performs blank unit setting on the SC-GU3-04 with its station number set to 1 in accordance with the setting input to D1. In the following example, D0 is set to "FF" in hexadecimal (meaning "8 units connected"; "0000 0000 1111 1111" in binary) and D1 is set to "5555" in hexadecimal ("0101 0101 0101 0101" in binary). Executing this FB outputs "AAAA" in hexadecimal ("1010 1010 1010 1010" in binary) to D101.

Setting another FB's D0 to this output D101 allows you to use FBs without having to be aware of blank units.

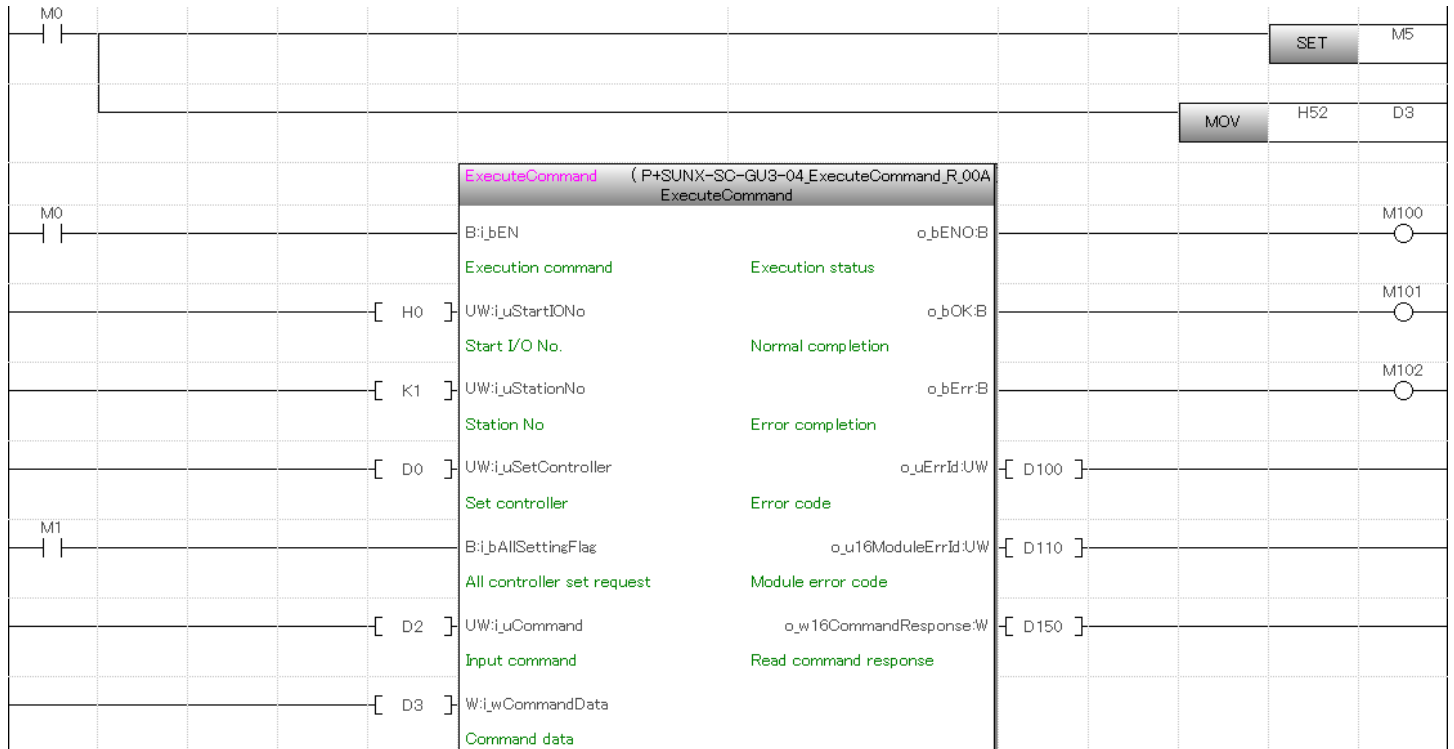


(d) P+SUNX-SC-GU3-04\_CheckOutData\_R (sensor output read)

When M0 is turned ON, this FB outputs the output of the sensor amplifiers connected to the SC-GU3-04 with its station number set to 1 to D102 and their detected values to the 16-word devices from D130 to D145, respectively.



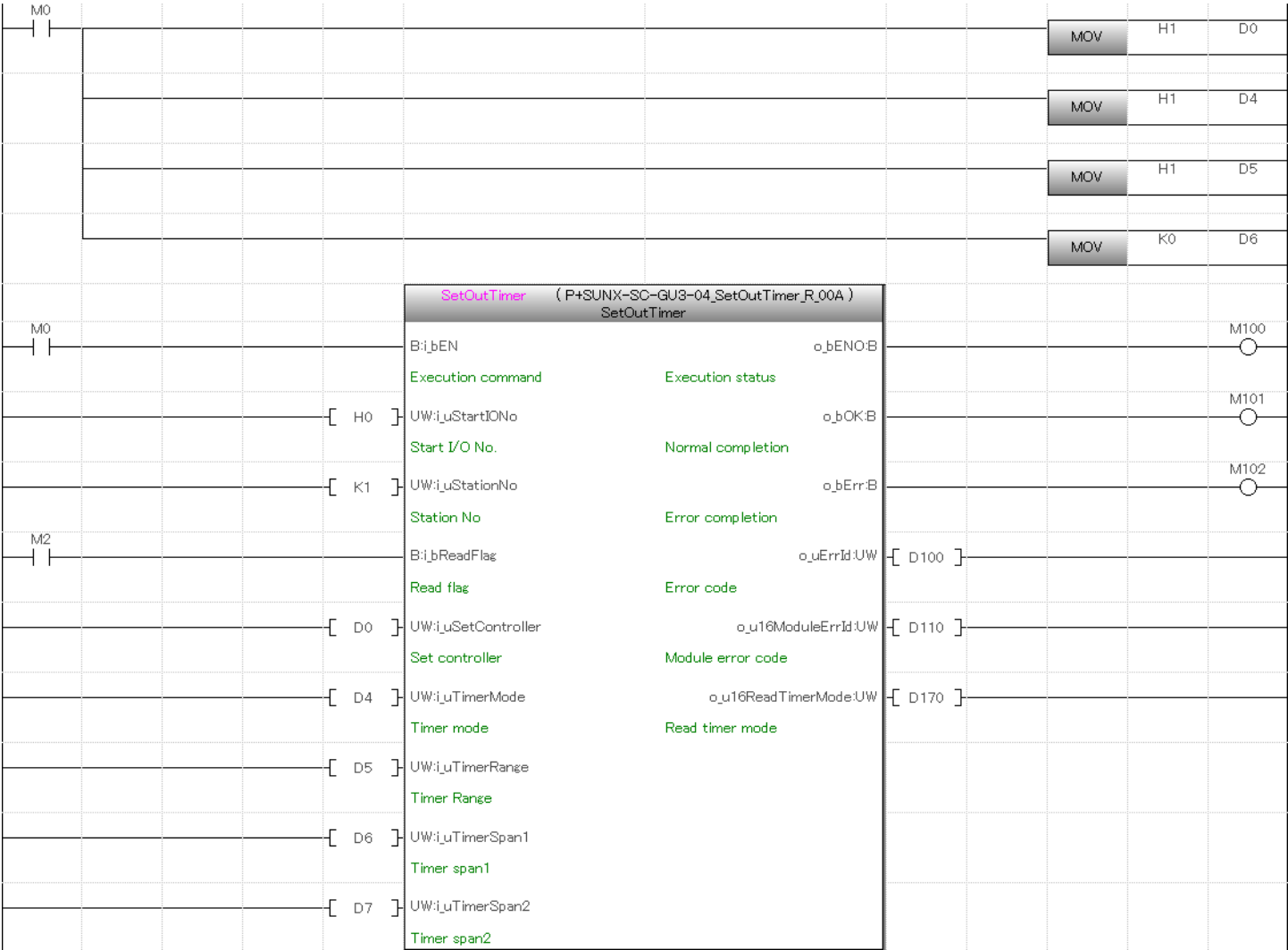
You do not have to enter the value of D0 because it is disabled when M1 is turned ON. Also, "H52" input to D2 is a command that does not require the input of command data (configuration parameter), and therefore you do not have to input a value to D3. For more information on the commands, refer to "CC-Link IE Field Communication Unit SC-GU3-04 User's Manual".





(f) P+SUNX-SC-GU3-04\_SetOutTimer\_R (output operation setting)

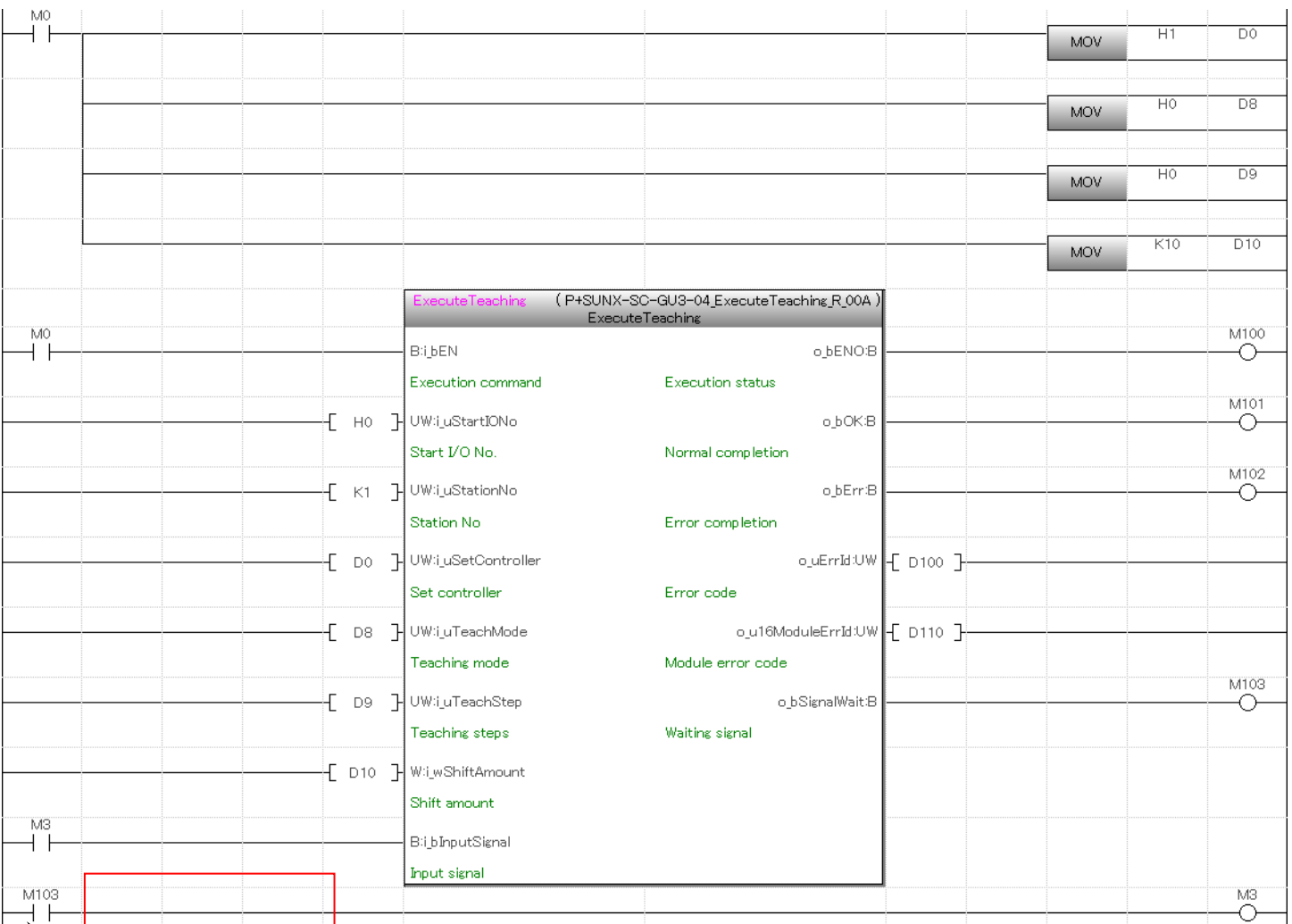
When M0 is turned ON, this FB sets an OFF delay of 0.5 ms on the first sensor amplifier connected to the SC-GU3-04 with its station number set to 1.



(g) P+SUNX-SC-GU3-04\_ExecuteTeaching\_R (execute teaching)

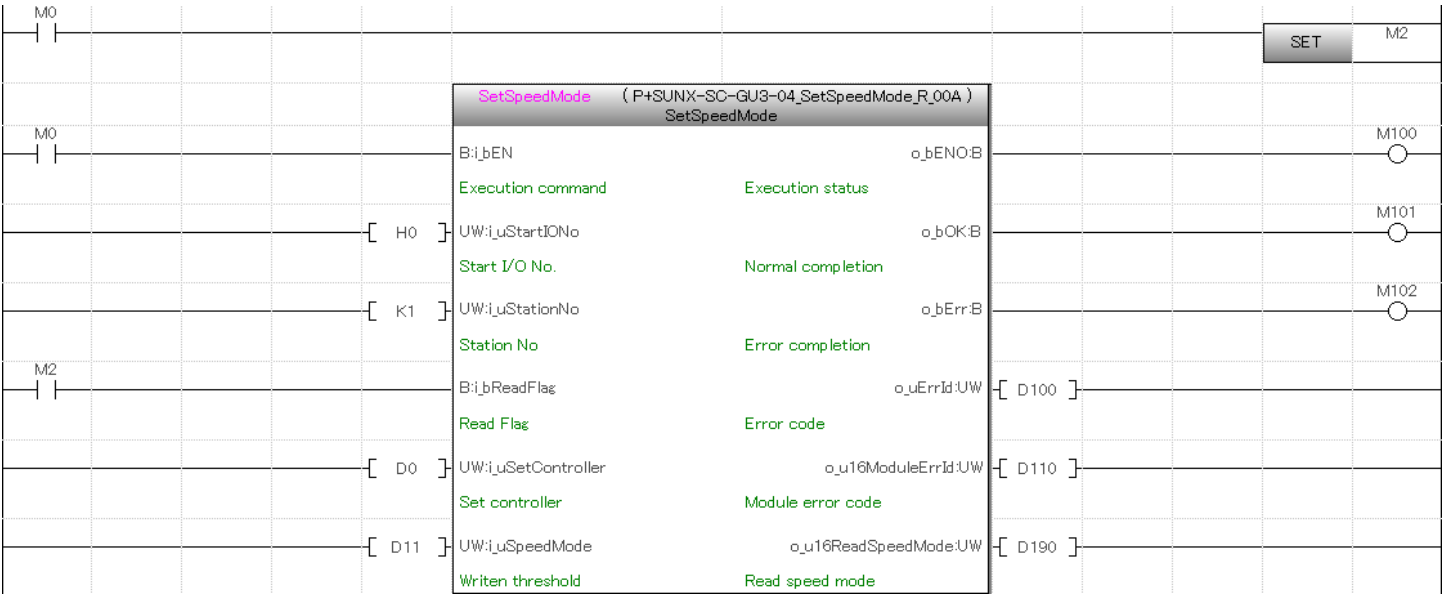
When M0 is turned ON, this FB sets a normal output operation and executes +10% limit teaching on the first sensor amplifier connected to the SC-GU3-04 with its station number set to 1.

In the following example, M3 is turned ON when M103 is turned ON; you can, however, execute teaching at any time by adding a contact for external input or ladder operation behind the M103 contact.



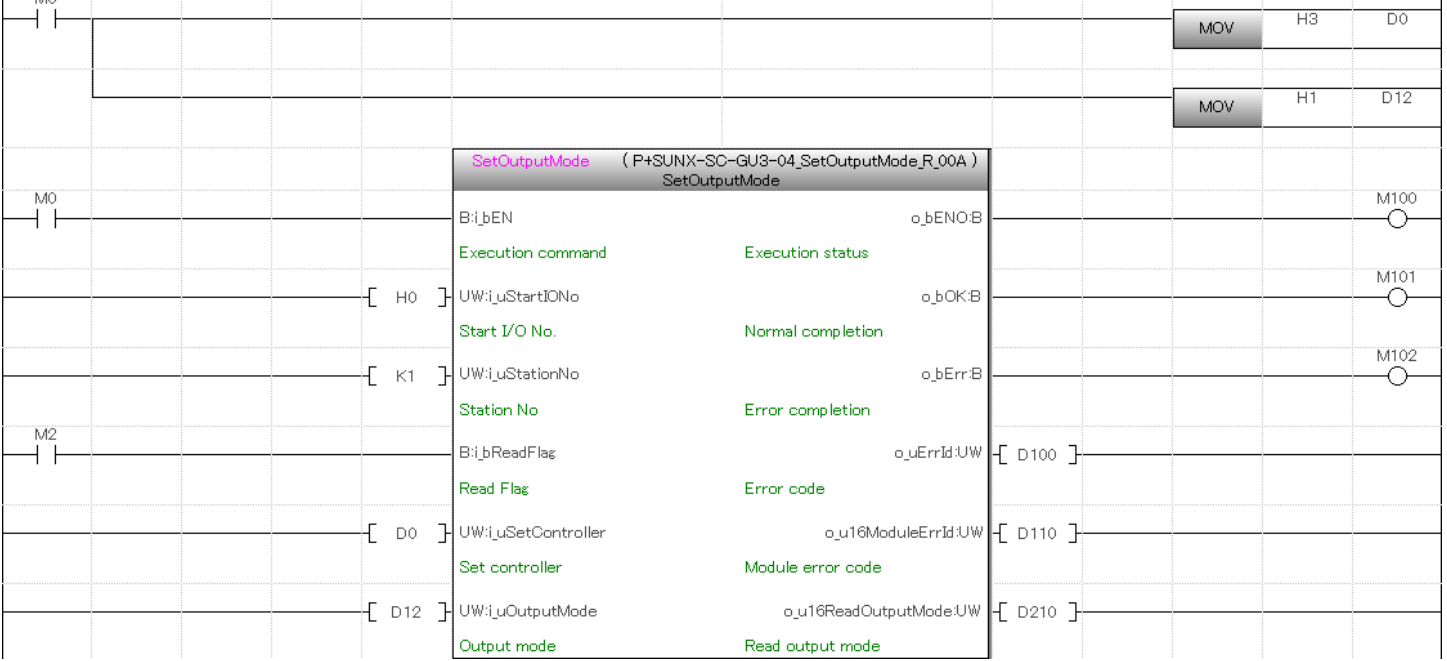
(h) P+SUNX-SC-GU3-04\_SetSpeedMode\_R (response speed setting)

When M0 is turned ON, this FB outputs the speed mode information for all the sensor amplifiers connected to the SC-GU3-04 with its station number set to 1 to the 16-word devices from D190 to D205, respectively.



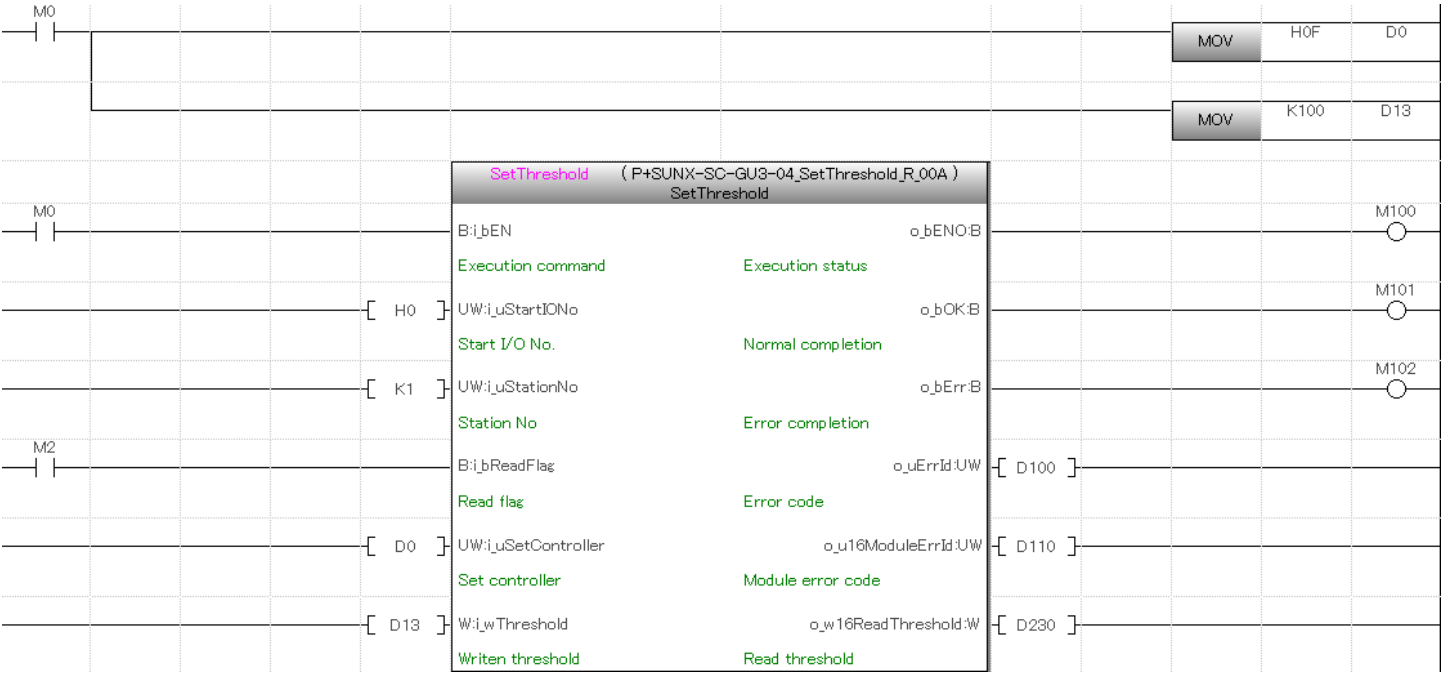
(i) P+SUNX-SC-GU3-04\_SetOutputMode\_R (output logic settings)

When M0 is turned ON, this FB outputs the output logic information for all the sensor amplifiers connected to the SC-GU3-04 with its station number set to 1 to the 16-word devices from D210 to D225, respectively.



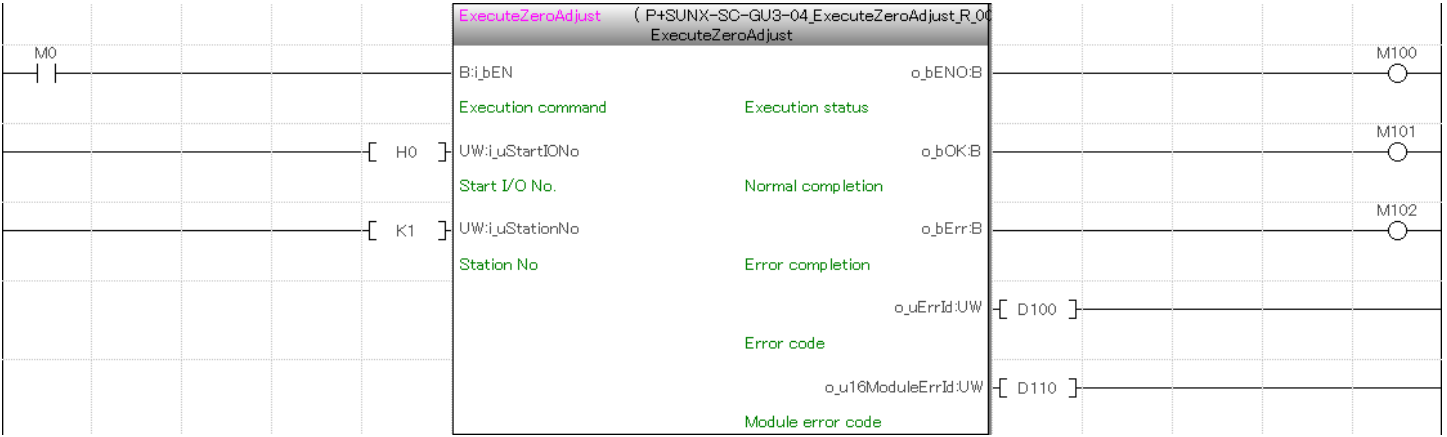
(j) P+SUNX-SC-GU3-04\_SetThreshold\_R (threshold settings)

When M0 is turned ON, this FB sets to 100 the thresholds of the first to fourth sensor amplifiers connected to the SC-GU3-04 with its station number set to 1.



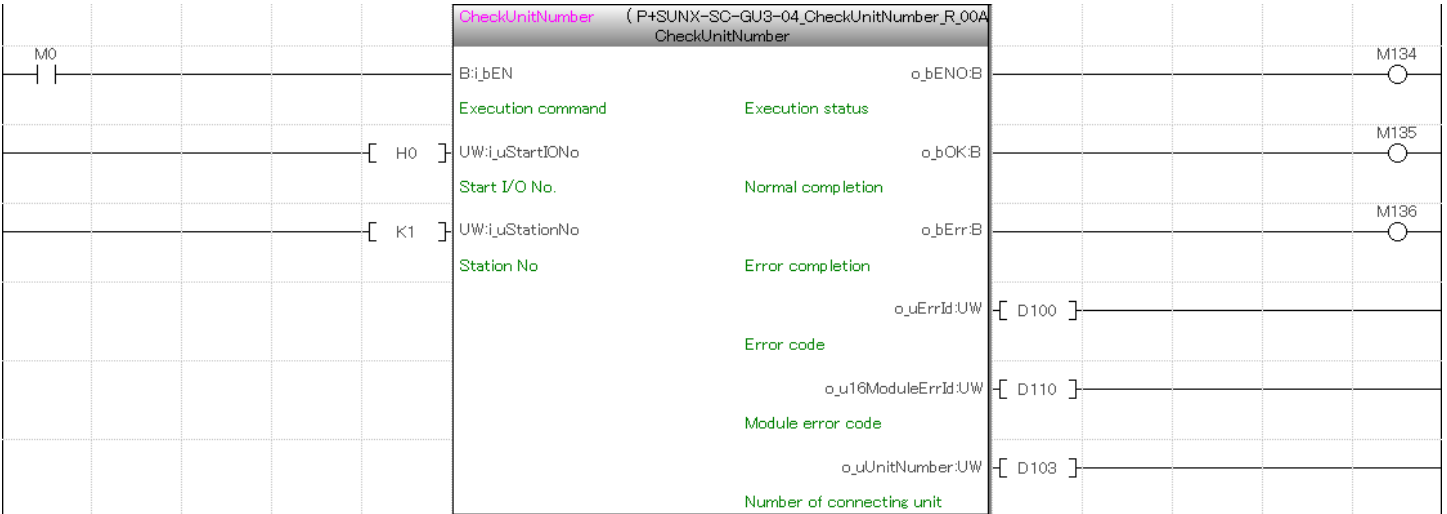
(k) P+SUNX-SC-GU3-04\_ExecuteZeroAdjust\_R (execute zero shift)

When M0 is turned ON, this FB executes zero shift on the DPS-402 connected to the SC-GU3-04 with its station number set to 1.



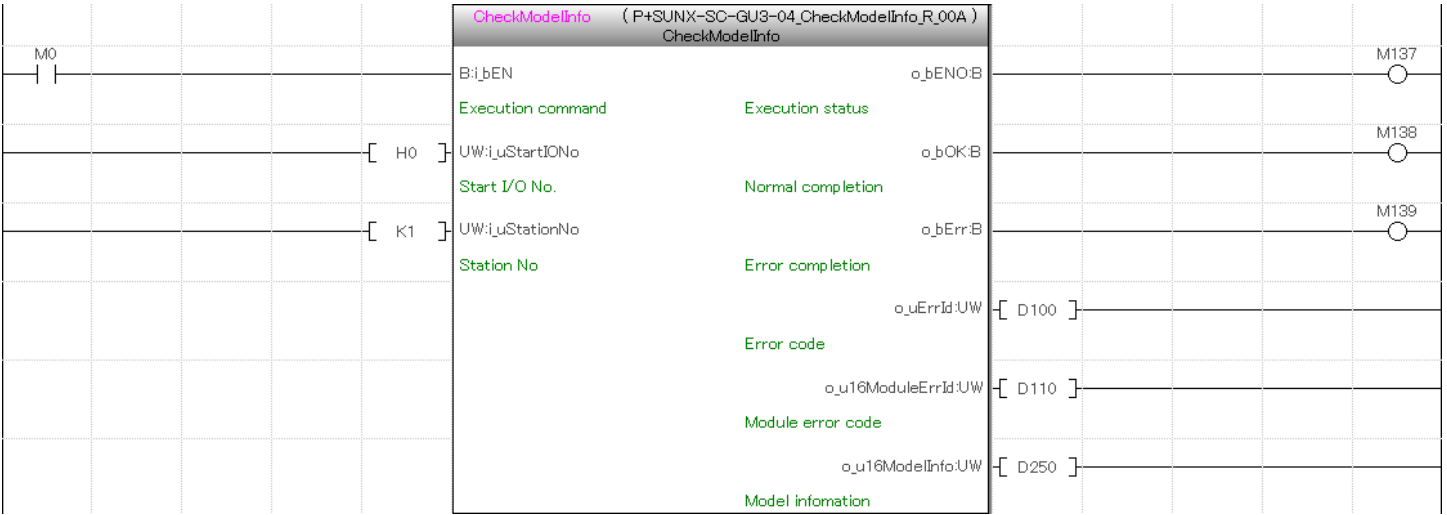
(l) P+SUNX-SC-GU3-04\_CheckUnitNumber\_R (check number of connected units)

When M0 is turned ON, this FB outputs the number of sensor amplifiers connected to the SC-GU3-04 with its station number set to 1 to D103.



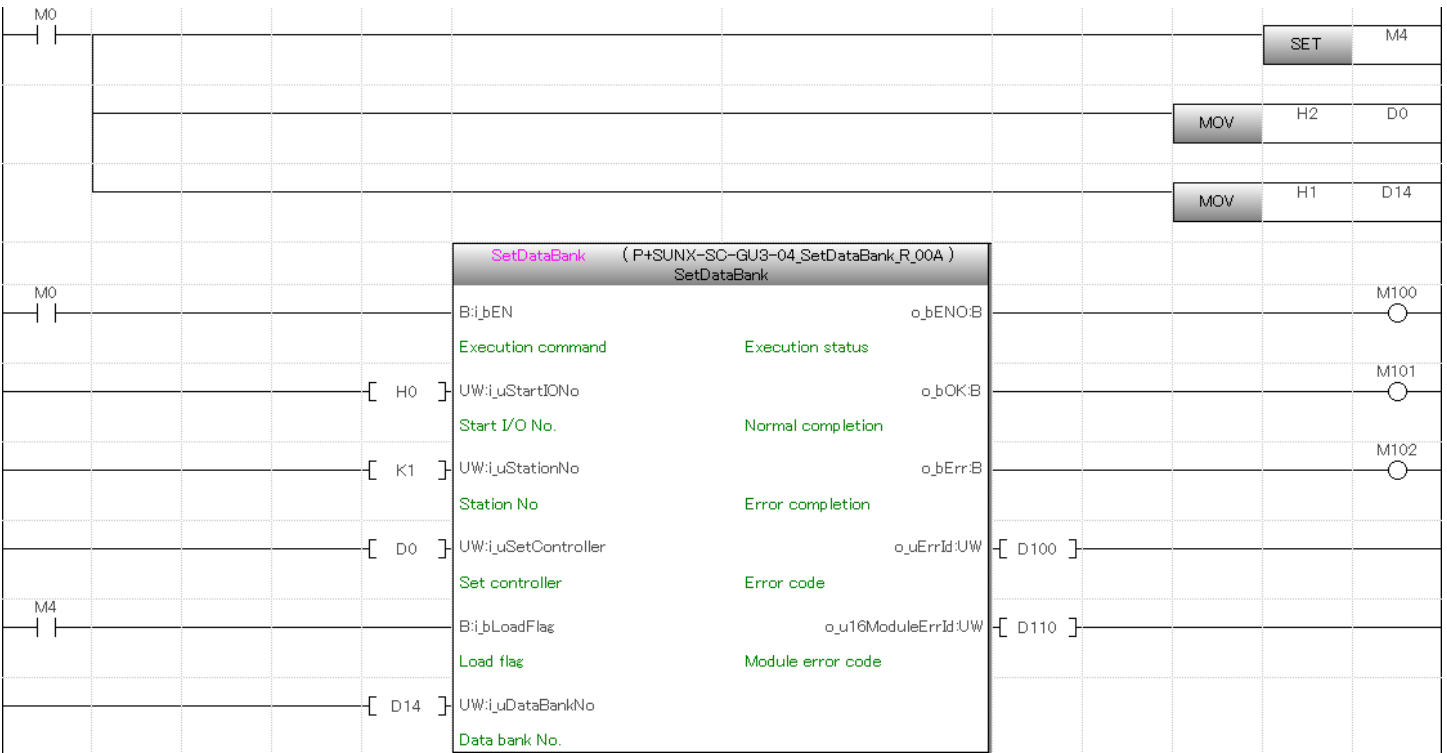
(m) P+SUNX-SC-GU3-04\_CheckModelInfo\_R (check model information)

When M0 is turned ON, this FB outputs the model information for all the sensor amplifiers connected to the SC-GU3-04 with its station number set to 1 to the 16-word devices from D250 to D265, respectively.



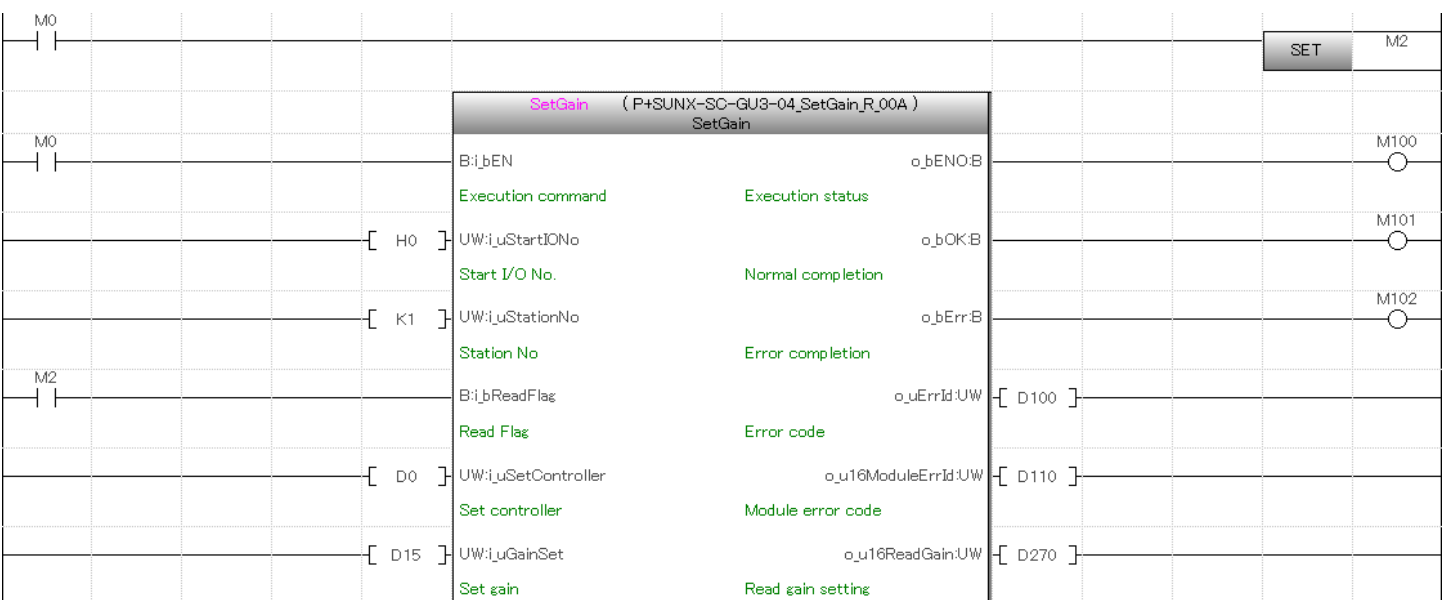
(n) P+SUNX-SC-GU3-04\_SetDataBank\_R (save or load data bank)

When M0 is turned ON, this FB loads the content saved in data bank No.1 on the second sensor amplifier connected to the SC-GU3-04 with its station number set to 1.



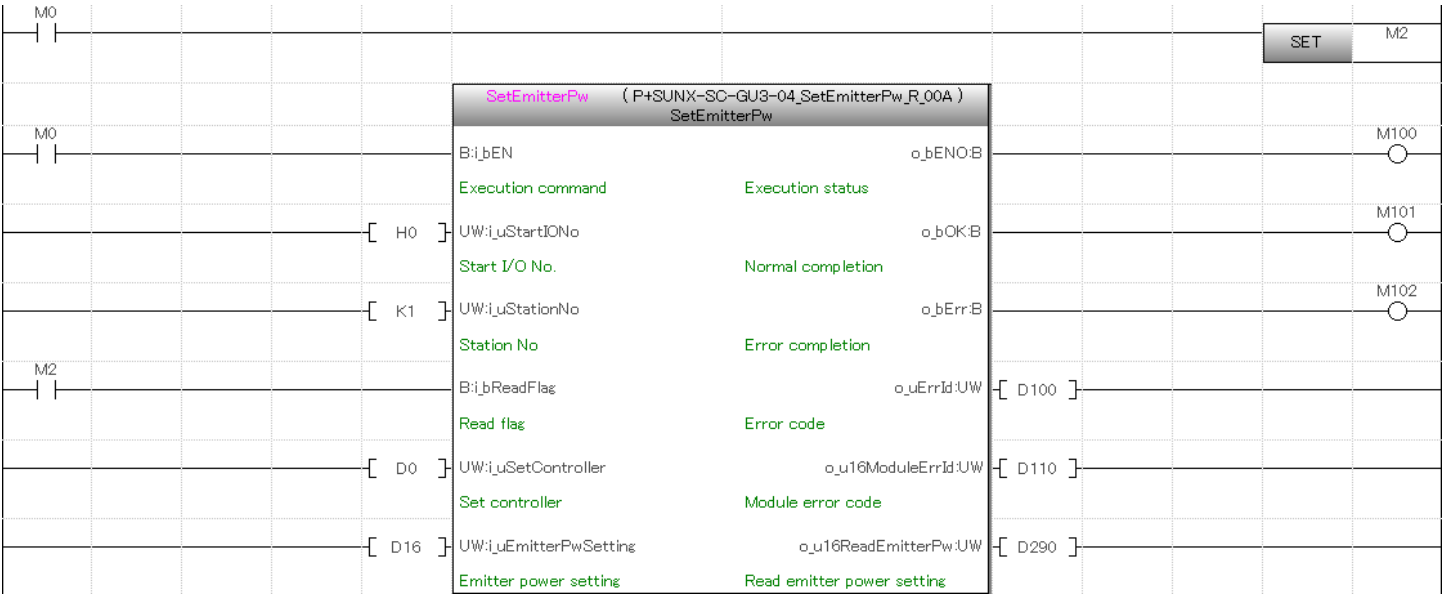
(o) P+SUNX-SC-GU3-04\_SetGain\_R (received light sensitivity setting)

When M0 is turned ON, this FB outputs the received light sensitivity settings for the LS-403 and LS-501 connected to the SC-GU3-04 with its station number set to 1 to the 16-word devices from D270 to D285, respectively.



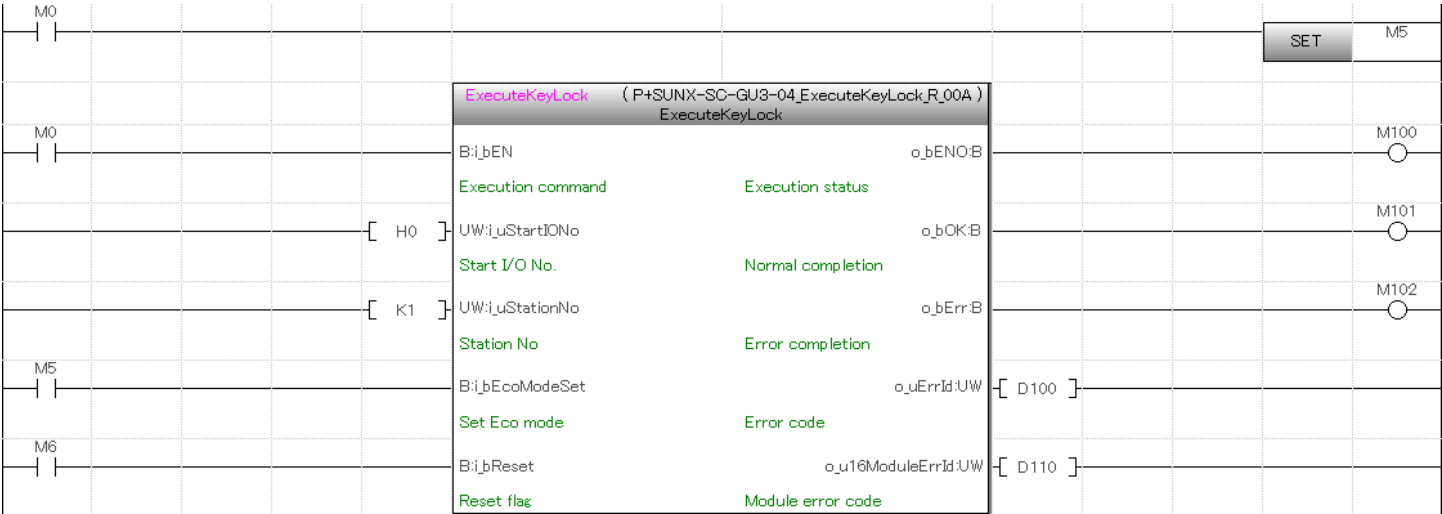
(p) P+SUNX-SC-GU3-04\_SetEmitterPw\_R (emission adjustment)

When M0 is turned ON, this FB outputs the emitted light amount settings for all the FX-series sensor amplifiers connected to the SC-GU3-04 with its station number set to 1 to the 16-word devices from D290 to D305, respectively.



(q) P+SUNX-SC-GU3-04\_ExecuteKeyLock\_R (turn on or off the keylock)

When M0 is turned ON, this FB sets the keylock and Eco mode on the sensor amplifiers connected to the SC-GU3-04 with its station number set to 1.



**Appendix 4.** Password-based read/write protection of a ladder program

You can configure a password for a ladder program for read/write protection.

This feature is useful to prevent the leakage of confidential data contained in a ladder program.

[Project] → [Security] → [File Password Setting]

Select the data to protect with a password and press [Register].

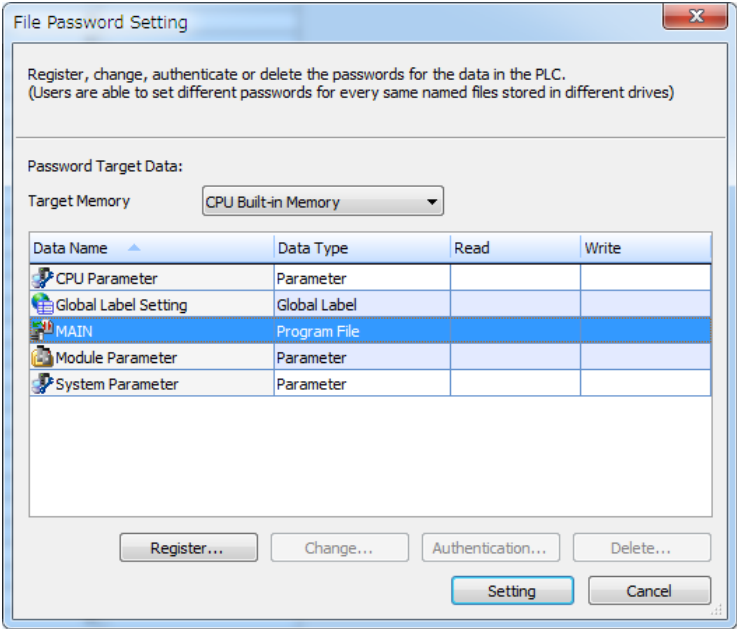


Figure 4-1: Selecting the file to protect with a password

Select [Read/Write Protection] in the [Target Password] box, set the password, then press the [Completed] button.

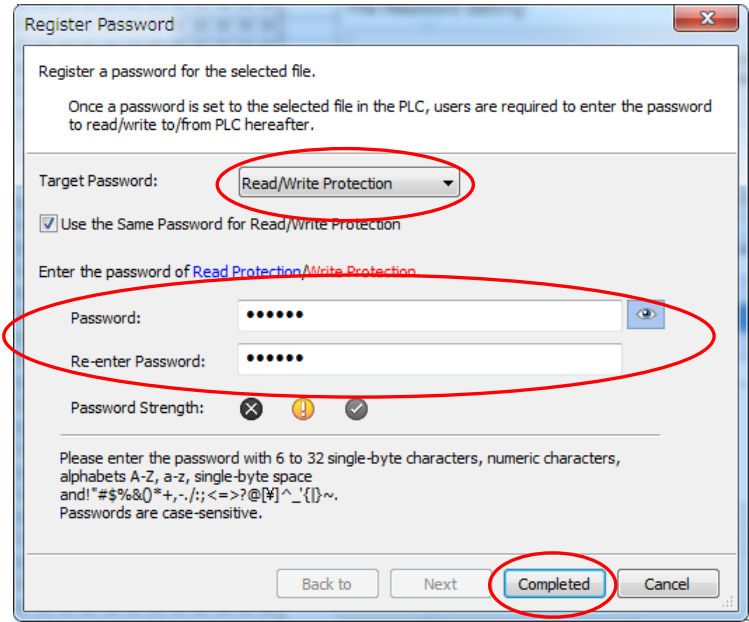


Figure 4-2: Setting the password



Check that [Password Registration] is [Authenticated] and then press the [Setting] button.

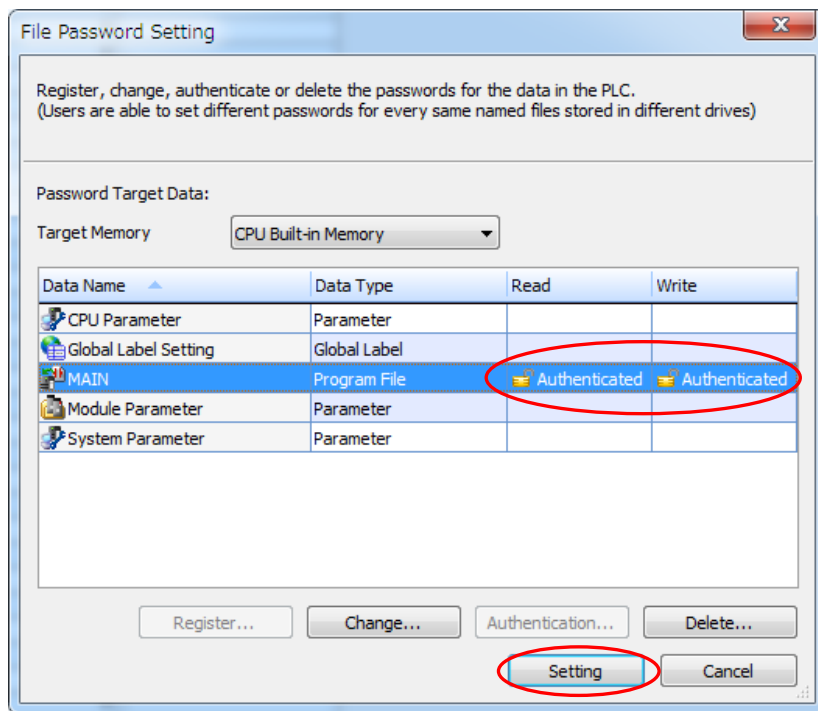


Figure 4-3: Setting the file password

If after password registration, the project data you "load from the PC" is different than that for which you registered a password, the [File Password Setting] dialog prompts you for password authentication, so you can determine whether or not a password has been set.

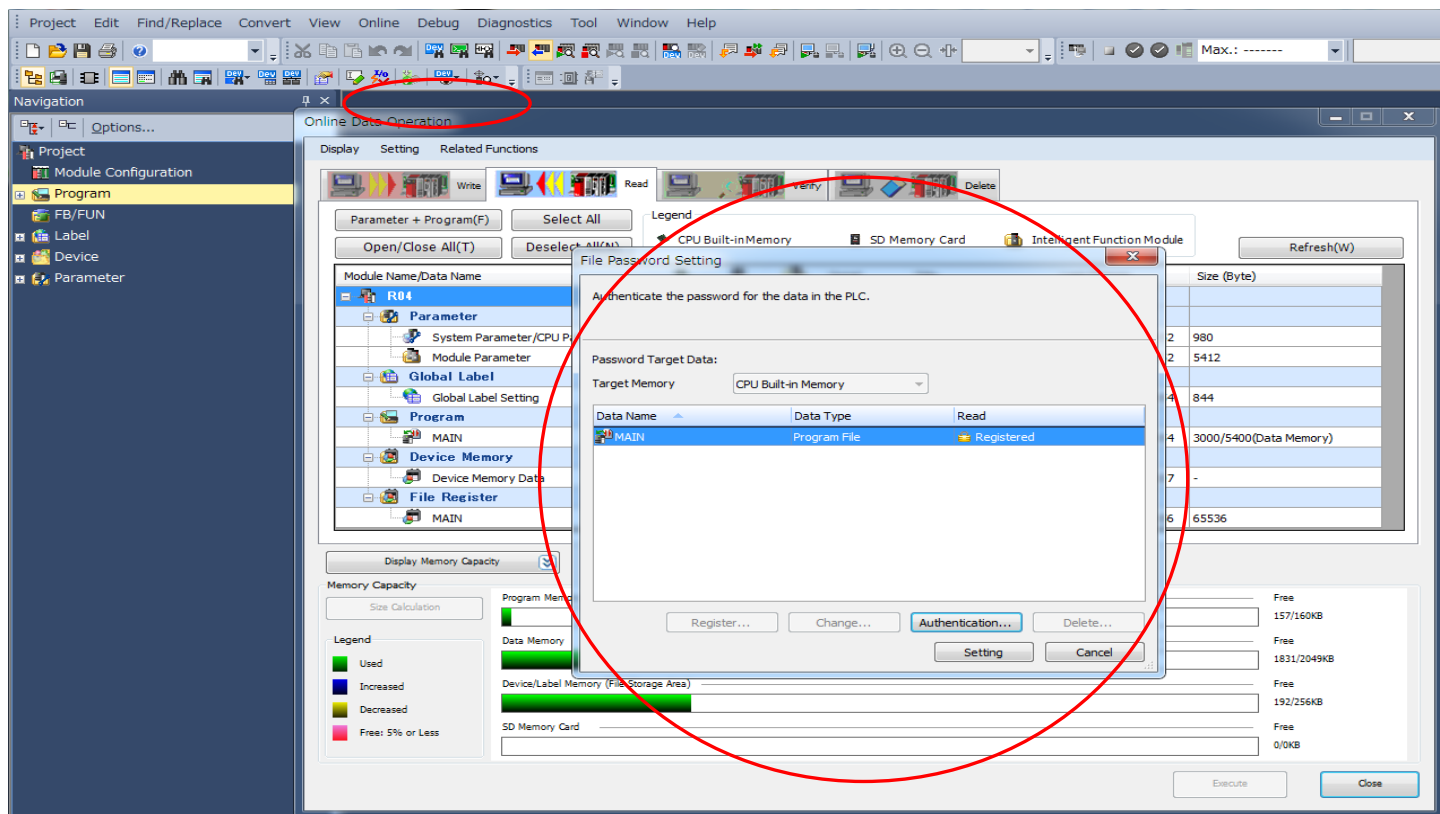


Figure 4-4: Checking the file password settings

**Appendix 5.**
How to Use FBs across two or more master/local modules

When you are using two or more CC-Link IE Field master/local modules and want to use the FBs in this FB library on each CC-Link IE Field master/local module, you have to create the FBs for the second and subsequent CC-Link IE Field master/local module using the steps in "Appendix 5.1" to "Appendix 5.3".

**Appendix 5.1.**
Configuring the global labels for the second and subsequent CC-Link IE Field master/local modules

Assign the "Label Name" and "Assign (Device/Label)" of the global labels so that they are different from those for the 1st master/local modules.

The starting device for "Assign (Device/Label)" should be specified by append the starting device specified for each of the second and subsequent CC-Link IE Field master/local modules with an index register. You do not have to separate the index registers "Z8" and "Z9" from those for the first master/local module.

	Label Name	Data Type		Class	Assign (Device/Label)
1	G_bRX	Bit	...	VAR_GLOBAL	X1 000Z9
2	G_bRY	Bit	...	VAR_GLOBAL	Y1 000Z9
3	G_WRW	Word [Signed]	...	VAR_GLOBAL	W0Z8
4	G_WRWw	Word [Signed]	...	VAR_GLOBAL	W1 000Z8
5	G_bRX2	Bit	...	VAR_GLOBAL	X2000Z9
6	G_bRY2	Bit	...	VAR_GLOBAL	Y2000Z9
7	G_WRW2	Word [Signed]	...	VAR_GLOBAL	W500Z8
8	G_WRWw2	Word [Signed]	...	VAR_GLOBAL	W1 500Z8

Figure 5.1-1: Examples of configuring global labels

**Appendix 5.2.**
Copying and pasting the FBs for the second and subsequent master/local modules

- Navigation window → FB/FUN → FBFILE
- Right-click the FB you want to use also for the second master/local modules and copy the data. (Figure 5.2-1)
- Select and right-click FBFILE and paste the data. (Figure 5.2-2)
- Select the pasted FB and press "F2" on the keyboard to rename the FB. (Figure 5.2-3)
- When you rename the pasted FB, carefully note that you cannot enter "+" or "-" (hyphen).

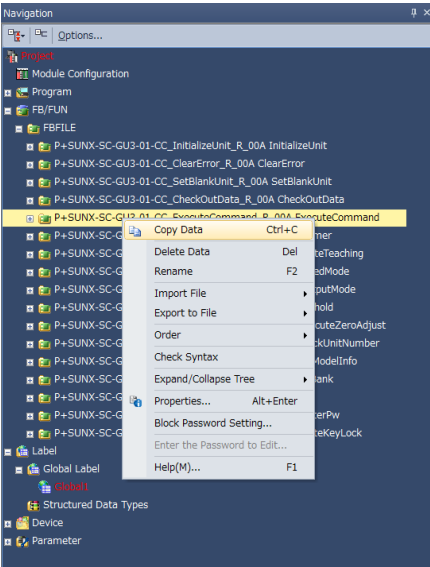


Figure 5.2-1 FB: Copying a FB

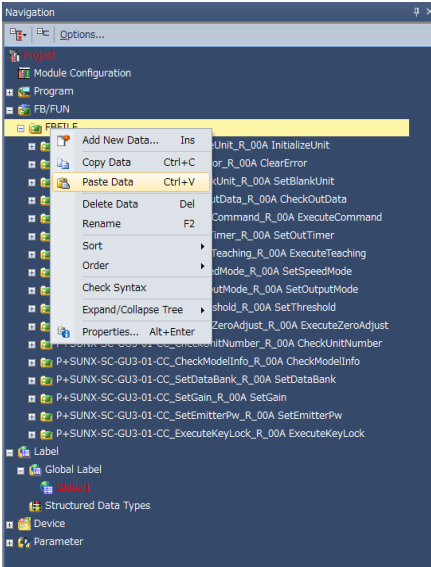


Figure 5.2-2: Pasting the FB

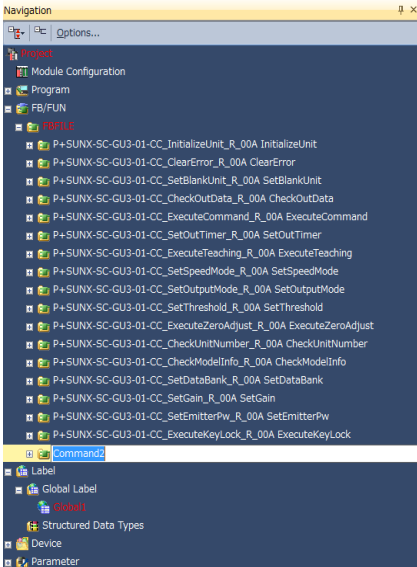


Figure 5.2-3 Renaming the FB

### Appendix 5.3. Replacing the global labels of the FBs for the second and subsequent master/local modules

Because the FB global labels you created in "Appendix 5.2 Copying and pasting the FBs for the second and subsequent master/local modules" are identical to the original FB global labels, you have to replace them with the global labels you configured in "Appendix 5.1 Configuring the global labels for the second and subsequent CC-Link IE Field master/local modules".

Open the program body where you pasted the FBs by double-clicking it.

[Find and Replace] → [Replace Device /Label]

Open the [Find and Replace] window, select the current window from the tab list. Enter the original global label in the Find Device/Label, and the global label created in "Appendix 5.1 Configuring the global labels for the second and subsequent CC-Link IE Field master/local modules" in the Replace Device/Label. (Figure 5.3-1)

Complete the replacement by pressing [Replace All]. Similarly, replace the global labels "G\_bRY", "G\_wRWr", and "G\_wRWw" with new global labels.

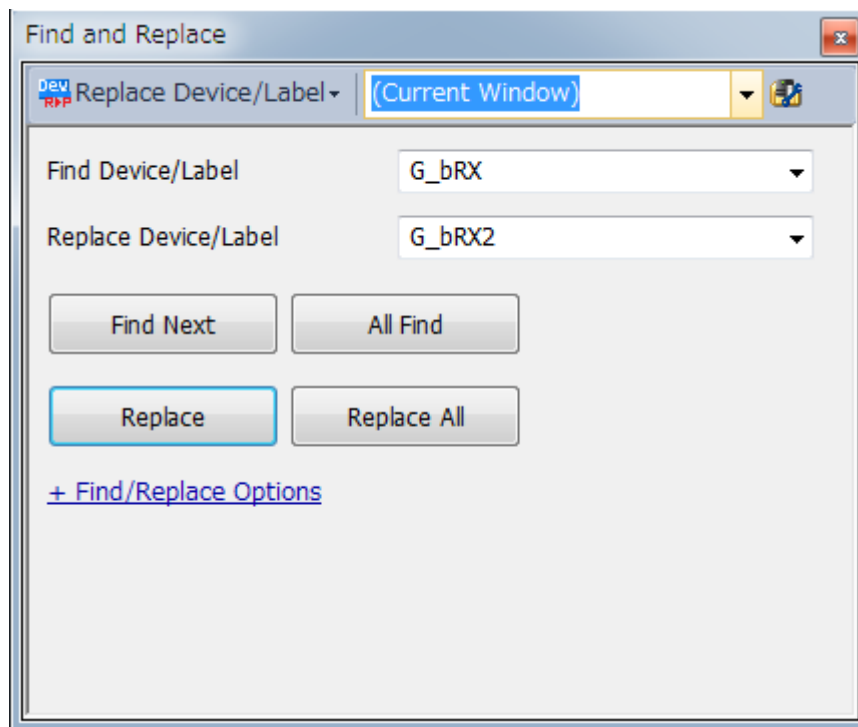


Figure 5.3-1: Replacing "G\_bRX"



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