MITSUBISHI ELECTRIC

Programmable Controller

MELSEC iQ-R series

MELSEC iQ-R DeviceNet Master/Slave Module Function Block Reference

CONTENTS

1 MODULE FUNCTION BLOCK (FB) LIST

The following table lists the module FBs of the MELSEC iQ-R DeviceNet master/slave module.

Name*1	Description
M+RJ71DN91_MasterRead	Reads data from master function receive data areas of a specified module while maintaining data consistency.
M+RJ71DN91_MasterWrite	Writes data to master function transmit data areas of a specified module while maintaining data consistency.
M+RJ71DN91_SlaveRead	Reads data from slave function receive data areas of a specified module while maintaining data consistency.
M+RJ71DN91_SlaveWrite	Writes data to slave function transmit data areas of a specified module while maintaining data consistency.
M+RJ71DN91_ReadParam	Reads parameters from buffer memory areas of a specified module.
M+RJ71DN91_WriteParam	Writes parameters to buffer memory areas of a specified module.

*1 An FB name ends in the FB version information such as "_00A"; however, this reference manual leaves out it.

Precautions

- The module FBs of the MELSEC iQ-R DeviceNet master/slave module do not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.
- If upgrading module FB versions updates instructions, adds a new instruction, or adds a new device, please consult your local Mitsubishi representative.

MEMO

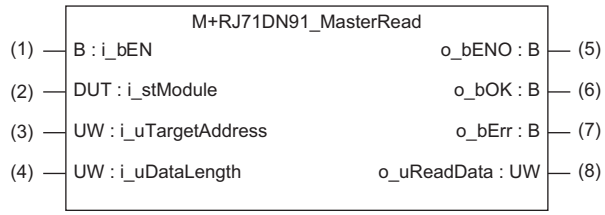
2 DEVICENET MASTER/SLAVE MODULE FB

2.1 M+RJ71DN91_MasterRead

Name

M+RJ71DN91_MasterRead

Overview

Item	Description
Functional overview	Reads data from master function receive data areas of a specified module while maintaining data consistency.
Symbol	

Labels

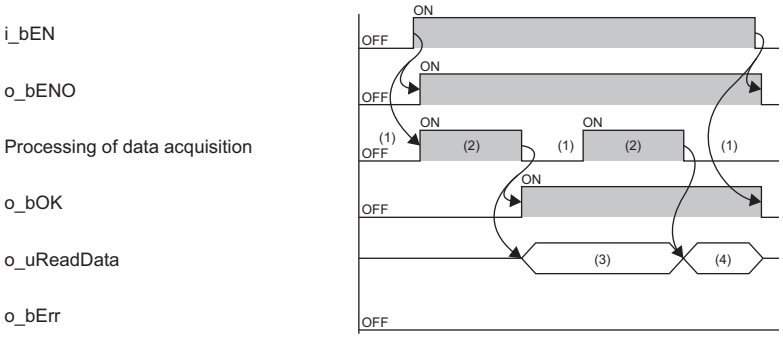
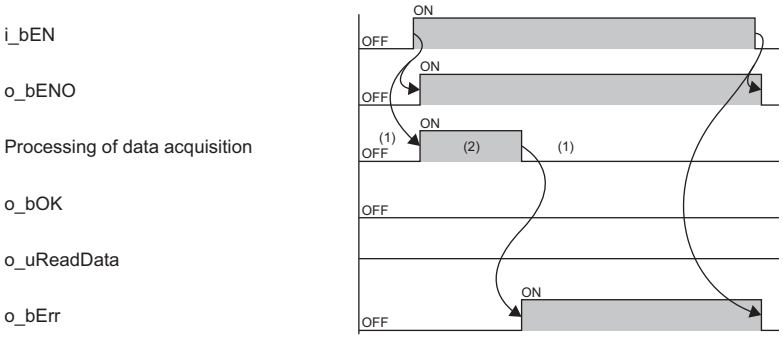
■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	OFF, ON	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specify a module for which the FB is to be executed. Specify the module label of the module.
(3)	i_uTargetAddress	Read data start address	Word [unsigned]/bit string [16 bits]	0700H to 07FFH	Specify the start address of data to be read.
(4)	i_uDataLength	Read data length	Word [unsigned]/bit string [16 bits]	001H to 100H	Specify the number of words to be read.

■Output arguments

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	OFF	On: In execution Off: Not in execution
(6)	o_bOK	Normal completion	Bit	OFF	The on state indicates that the module FB processing has been completed successfully.
(7)	o_bErr	Error completion	Bit	OFF	The on state indicates that the module FB processing has been completed with an error.
(8)	o_uReadData	Read data storage device	Word [unsigned]/bit string [16 bits]	—	Specify the start number of the device for storing the read data.

FB details

Item	Description	
Available device	Target module	RJ71DN91
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	When i_bEN (Execution command) is turned on, this FB reads data from master function receive data areas of a specified module while maintaining data consistency.	
FB compilation method	Macro type	
FB operation	Any-time execution type	
Input condition for FB_EN	None	
Timing chart of I/O signals	• When the operation is completed successfully  • When the operation is completed with an error (same as for the case of a module error)  (1) Processing not performed (2) Processing being performed (3) Obtained value 1 (4) Obtained value 2	
Precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB uses the G.DNTMRD instruction. • Turn off i_bEN (Execution command) after o_bOK (Normal completion) or o_bErr (Error completion) turns on. By turning off i_bEN (Execution command), o_bOK (Normal completion) and o_bErr (Error completion) are turned off. • The FB cannot be used in an interrupt program. • If more than one of this FB is used, simultaneous execution is not possible.	

Operation parameters

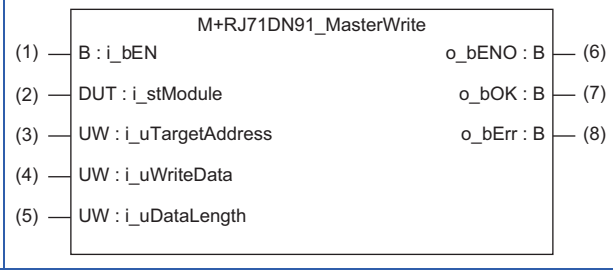
There is no operation parameter applicable to M+RJ71DN91_MasterRead.

2.2 M+RJ71DN91_MasterWrite

Name

M+RJ71DN91_MasterWrite

Overview

Item	Description
Functional overview	Writes data to master function transmit data areas of a specified module while maintaining data consistency.
Symbol	

Labels

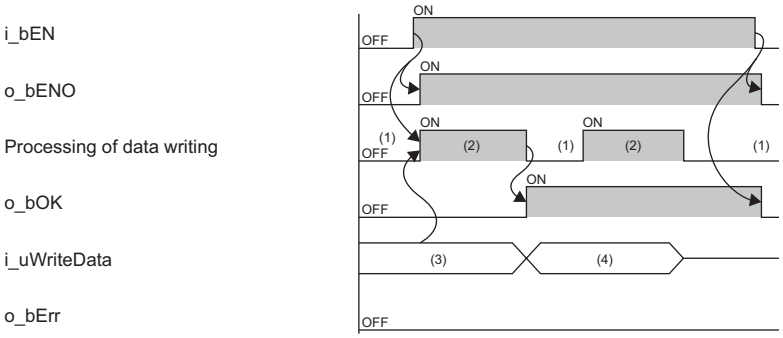
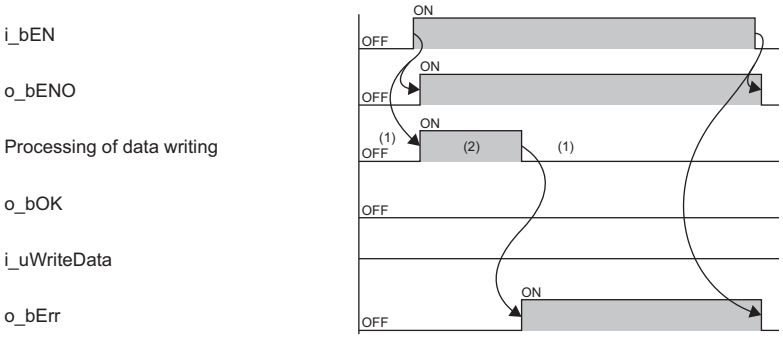
■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	OFF, ON	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specify a module for which the FB is to be executed. Specify the module label of the module.
(3)	i_uTargetAddress	Write destination start address	Word [unsigned]/bit string [16 bits]	0900H to 09FFH	Specify the start address where data is to be written.
(4)	i_uWriteData	Write data storage device	Word [unsigned]/bit string [16 bits]	—	Specify the start number of the device where write data is stored.
(5)	i_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	001H to 100H	Specify the number of words to be written.

■Output arguments

No.	Variable name	Name	Data type	Default value	Description
(6)	o_bENO	Execution status	Bit	OFF	On: In execution Off: Not in execution
(7)	o_bOK	Normal completion	Bit	OFF	The on state indicates that the module FB processing has been completed successfully.
(8)	o_bErr	Error completion	Bit	OFF	The on state indicates that the module FB processing has been completed with an error.

FB details

Item	Description	
Available device	Target module	RJ71DN91
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	When i_bEN (Execution command) is turned on, this FB writes data to master function transmit data areas of a specified module while maintaining data consistency.	
FB compilation method	Macro type	
FB operation	Any-time execution type	
Input condition for FB_EN	None	
Timing chart of I/O signals	• When the operation is completed successfully  • When the operation is completed with an error (same as for the case of a module error)  (1) Processing not performed (2) Processing being performed (3) Write value 1 (4) Write value 2	
Precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB uses the G.DNTMWR instruction. • Turn off i_bEN (Execution command) after o_bOK (Normal completion) or o_bErr (Error completion) turns on. By turning off i_bEN (Execution command), o_bOK (Normal completion) and o_bErr (Error completion) are turned off. • The FB cannot be used in an interrupt program. • If more than one of this FB is used, simultaneous execution is not possible.	

Operation parameters

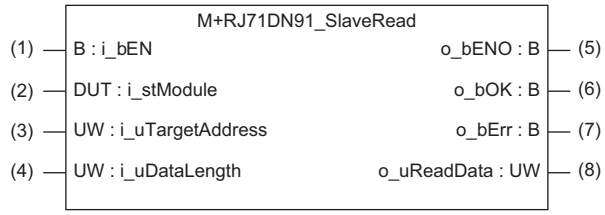
There is no operation parameter applicable to M+RJ71DN91_MasterWrite.

2.3 M+RJ71DN91_SlaveRead

Name

M+RJ71DN91_SlaveRead

Overview

Item	Description
Functional overview	Reads data from slave function receive data areas of a specified module while maintaining data consistency.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	OFF, ON	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specify a module for which the FB is to be executed. Specify the module label of the module.
(3)	i_uTargetAddress	Read data start address	Word [unsigned]/bit string [16 bits]	0B00H to 0B3FH	Specify the start address of data to be read.
(4)	i_uDataLength	Read data length	Word [unsigned]/bit string [16 bits]	001H to 40H	Specify the number of words to be read.

■Output arguments

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	OFF	On: In execution Off: Not in execution
(6)	o_bOK	Normal completion	Bit	OFF	The on state indicates that the module FB processing has been completed successfully.
(7)	o_bErr	Error completion	Bit	OFF	The on state indicates that the module FB processing has been completed with an error.
(8)	o_uReadData	Read data storage device	Word [unsigned]/bit string [16 bits]	—	Specify the start number of the device for storing the read data.

FB details

Item	Description	
Available device	Target module	RJ71DN91
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	When i_bEN (Execution command) is turned on, this FB reads data from slave function receive data areas of a specified module while maintaining data consistency.	
FB compilation method	Macro type	
FB operation	Any-time execution type	
Input condition for FB_EN	None	
Timing chart of I/O signals	For details, refer to the following. ☞ Page 4 M+RJ71DN91_MasterRead	
Precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB uses the G.DNTSRD instruction. • Turn off i_bEN (Execution command) after o_bOK (Normal completion) or o_bErr (Error completion) turns on. By turning off i_bEN (Execution command), o_bOK (Normal completion) and o_bErr (Error completion) are turned off. • The FB cannot be used in an interrupt program. • If more than one of this FB is used, simultaneous execution is not possible.	

Operation parameters

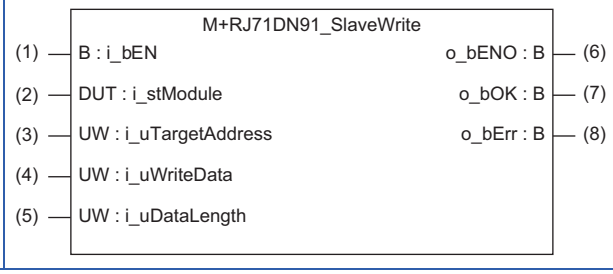
There is no operation parameter applicable to M+RJ71DN91_SlaveRead.

2.4 M+RJ71DN91_SlaveWrite

Name

M+RJ71DN91_SlaveWrite

Overview

Item	Description
Functional overview	Writes data to slave function transmit data areas of a specified module while maintaining data consistency.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	OFF, ON	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specify a module for which the FB is to be executed. Specify the module label of the module.
(3)	i_uTargetAddress	Write destination start address	Word [unsigned]/bit string [16 bits]	0C00H to 0C3FH	Specify the start address where data is to be written.
(4)	i_uWriteData	Write data storage device	Word [unsigned]/bit string [16 bits]	—	Specify the start number of the device where write data is stored.
(5)	i_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	001H to 40H	Specify the number of words to be written.

■Output arguments

No.	Variable name	Name	Data type	Default value	Description
(6)	o_bENO	Execution status	Bit	OFF	On: In execution Off: Not in execution
(7)	o_bOK	Normal completion	Bit	OFF	The on state indicates that the module FB processing has been completed successfully.
(8)	o_bErr	Error completion	Bit	OFF	The on state indicates that the module FB processing has been completed with an error.

FB details

Item	Description	
Available device	Target module	RJ71DN91
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	When i_bEN (Execution command) is turned on, this FB writes data to slave function transmit data areas of a specified module while maintaining data consistency.	
FB compilation method	Macro type	
FB operation	Any-time execution type	
Input condition for FB_EN	None	
Timing chart of I/O signals	For details, refer to the following. ☞ Page 6 M+RJ71DN91_MasterWrite	
Precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB uses the G.DNTSWR instruction. • Turn off i_bEN (Execution command) after o_bOK (Normal completion) or o_bErr (Error completion) turns on. By turning off i_bEN (Execution command), o_bOK (Normal completion) and o_bErr (Error completion) are turned off. • The FB cannot be used in an interrupt program. • If more than one of this FB is used, simultaneous execution is not possible.	

Operation parameters

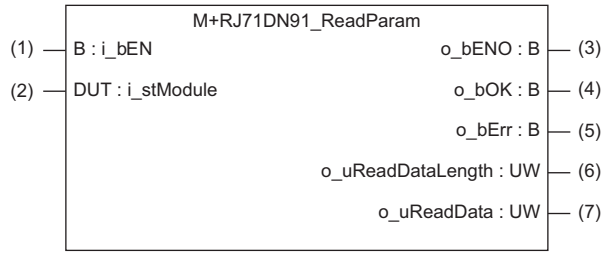
There is no operation parameter applicable to M+RJ71DN91_SlaveWrite.

2.5 M+RJ71DN91_ReadParam

Name

M+RJ71DN91_ReadParam

Overview

Item	Description
Functional overview	Reads parameters from buffer memory areas of a specified module.
Symbol	

Labels

■Input arguments

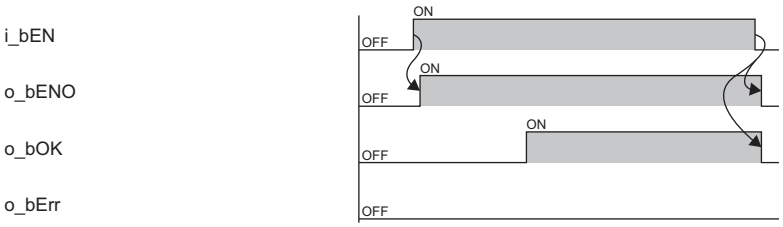
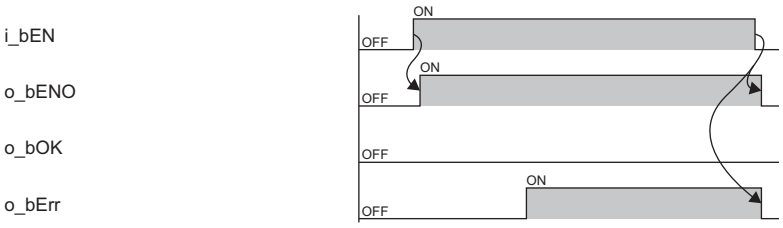
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	OFF, ON	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specify a module for which the FB is to be executed. Specify the module label of the module.

■Output arguments

No.	Variable name	Name	Data type	Default value	Description
(3)	o_bENO	Execution status	Bit	OFF	On: In execution Off: Not in execution
(4)	o_bOK	Normal completion	Bit	OFF	The on state indicates that the module FB processing has been completed successfully.
(5)	o_bErr	Error completion	Bit	OFF	The on state indicates that the module FB processing has been completed with an error.
(6)	o_uReadDataLength	Read data length	Word [unsigned]/bit string [16 bits]	0	The data length of the read data is stored.
(7)	o_uReadData	Read data storage device	Word [unsigned]/bit string [16 bits]	—	Specify the start number of the device for storing the read data.

FB details

Item	Description	
Available device	Target module	RJ71DN91
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	

Item	Description
Processing	When i_bEN (Execution command) is turned on, this FB reads parameters from buffer memory areas of a specified module. The following shows the read-target areas of parameters, which are to be stored in the flash ROM. • Parameter for master function • Setting for the number of slave function receive bytes • Setting for the number of slave function transmit bytes • Auto communication start setting • Operation setting for bus off error • Setting for data consistency
FB compilation method	Macro type
FB operation	Pulse type (single-scan execution type)
Input condition for FB_EN	None
Timing chart of I/O signals	• When the operation is completed successfully  • When the operation is completed with an error (same as for the case of a module error) 
Precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • Turn off i_bEN (Execution command) after o_bOK (Normal completion) or o_bErr (Error completion) turns on. By turning off i_bEN (Execution command), o_bOK (Normal completion) and o_bErr (Error completion) are turned off. • Parameters cannot be read partially. The read-target parameters of the total size are always read.

Operation parameters

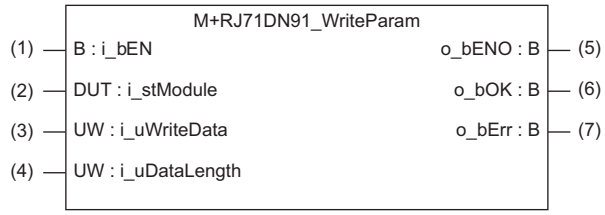
There is no operation parameter applicable to M+RJ71DN91_ReadParam.

2.6 M+RJ71DN91_WriteParam

Name

M+RJ71DN91_WriteParam

Overview

Item	Description
Functional overview	Writes parameters to buffer memory areas of a specified module.
Symbol	

Labels

■Input arguments

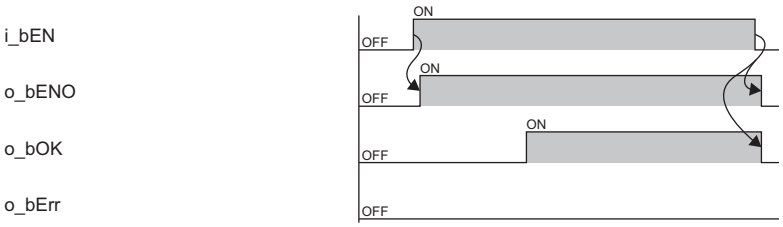
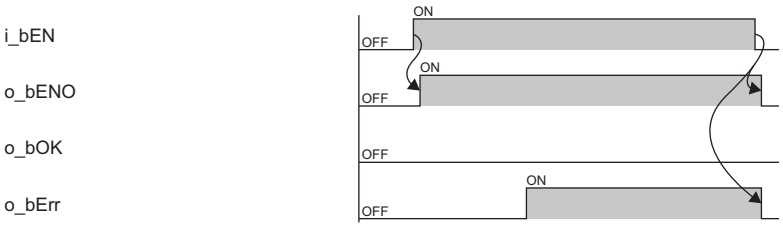
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	OFF, ON	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specify a module for which the FB is to be executed. Specify the module label of the module.
(3)	i_uWriteData	Write data storage device	Word [unsigned]/bit string [16 bits]	—	Specify the start number of the device where write data is stored.
(4)	i_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	—	Specify the size (the number of words) of the write data. Specify the value obtained by using the output argument o_uReadDataLength of M+RJ71DN91_ReadParam. When the specified value does not match the total size of write-target parameters, the processing is completed with an error.

■Output arguments

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	OFF	On: In execution Off: Not in execution
(6)	o_bOK	Normal completion	Bit	OFF	The on state indicates that the module FB processing has been completed successfully.
(7)	o_bErr	Error completion	Bit	OFF	The on state indicates that the module FB processing has been completed with an error.

FB details

Item	Description	
Available device	Target module	RJ71DN91
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	

Item	Description
Processing	When i_bEN (Execution command) is turned on, this FB writes parameters to buffer memory areas of a specified module. The following shows the write-target areas of parameters, which are to be stored in the flash ROM. • Parameter for master function • Setting for the number of slave function receive bytes • Setting for the number of slave function transmit bytes • Auto communication start setting • Operation setting for bus off error • Setting for data consistency
FB compilation method	Macro type
FB operation	Pulse type (single-scan execution type)
Input condition for FB_EN	None
Timing chart of I/O signals	• When the operation is completed successfully  • When the operation is completed with an error (same as for the case of a module error) 
Precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • Turn off i_bEN (Execution command) after o_bOK (Normal completion) or o_bErr (Error completion) turns on. By turning off i_bEN (Execution command), o_bOK (Normal completion) and o_bErr (Error completion) are turned off. • Parameters cannot be written partially. The write-target parameters of the total size are always written.

Operation parameters

There is no operation parameter applicable to M+RJ71DN91_WriteParam.

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INSTRUCTION INDEX

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REVISIONS

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

Revision date	*Manual number	Description
April 2017	BCN-P5999-0842-A	First edition

Japanese manual number: BCN-P5999-0841-A

TRADEMARKS

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BCN-P5999-0842-A(1704)
MODEL: RJ71DN91-FBR-E

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