

Programmable Controller

MELSEC iQ-R

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

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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.

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	M+RJ71DN91_MasterRead (1) — B: i_bEN							

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 Target module RJ71DN91 Available device **RCPU** CPU module Engineering tool GX Works3 Language Ladder diagram Number of basic The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options steps 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 Macro type method FB operation Any-time execution type Input condition for None FB_EN Timing chart of I/O · When the operation is completed successfully signals i_bEN o_bENO Processing of data acquisition o_bOK o_uReadData (3) o_bErr OFF • When the operation is completed with an error (same as for the case of a module error) i_bEN o_bENO Processing of data acquisition o_bOK o uReadData o bErr (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	M+RJ71DN91_MasterWrite (1) — B: i_bEN							

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 Target module RJ71DN91 Available device **RCPU** CPU module Engineering tool GX Works3 Language Ladder diagram Number of basic The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options steps 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 Macro type method FB operation Any-time execution type Input condition for None FB_EN Timing chart of I/O · When the operation is completed successfully signals i bEN o_bENO (1) Processing of data writing o_bOK i_uWriteData (3) (4) o_bErr OFF • When the operation is completed with an error (same as for the case of a module error) i_bEN o_bENO Processing of data writing o_bOK i uWriteData o bErr (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	M+RJ71DN91_SlaveRead (1) — B : i_bEN						

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.

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. Fage 4 M+RJ71DN91_MasterRead					
Precautions	the error recovery processing separately in accordance with the letion) or o_bErr (Error completion) turns on. By turning off i_bEN Error completion) are turned off.					

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	M+RJ71DN91_SlaveWrite (1) — B: i_bEN						

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.

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 setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operations				
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. Fage 6 M+RJ71DN91_MasterWrite				
Precautions • This FB does not include the error recovery processing. Program the error recovery processing separately in according 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 (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	(1) —	M+RJ71DN91_ReadParam				
	(2) —	DUT : i_stModule				
		o_bErr : B		— (5)		
			o_uReadDataLength : UW	— (6)		
			o_uReadData : UW	— (<i>1</i>)		

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_uReadDataLengt h	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 ON ON ON ON ON ON ON ON ON O
	i_bEN o_bENO
	o_bOK
	o_bErr
	When the operation is completed with an error (same as for the case of a module error) ON
	i_bEN OFF ON
	o_bENO OFF
	o_bOK OFF
	o_bErr
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	M+RJ71DN91_WriteParam (1) — B: i_bEN						

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	of basic The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option 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 ON ON ON ON ON ON ON ON ON O			
	i_bEN o_bENO			
	o_bOK			
	o_bErr			
	When the operation is completed with an error (same as for the case of a module error) ON			
	i_bEN ON ON			
	o_bENO OFF			
	o_bOK OFF			
	o_bErr			
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_bE (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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REVISIONS

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