MITSUBISHI ELECTRIC

Programmable Controller

MELSEC iQ-R series

MELSEC iQ-R PROFINET IO Controller Module Function Block Reference

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1 MODULE FUNCTION BLOCK (FB) LIST

This chapter lists the FBs of the MELSEC iQ-R series PROFINET IO controller module.

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M+RJ71PN92_RecordBlockRead_Im	Reads the specified data from the IO device where the PROFINET module setting has not been configured in the RJ71PN92.
M+RJ71PN92_RecordBlockWrite_Ex	Writes the specified data to the IO device where the PROFINET module setting has been configured in the RJ71PN92.
M+RJ71PN92_RecordBlockRead_Ex	Reads the specified data from the IO device where the PROFINET module setting has been configured in the RJ71PN92.
M+RJ71PN92_AlarmRequest	Reads the alarm information of the specific IO device.
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M+RJ71PN92_Read_IO_Device_Information	Reads IO device information from the specific IO device.
M+RJ71PN92_Read_AlarmLog	Reads the alarm log stored in the RJ71PN92.

*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 RJ71PN92 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

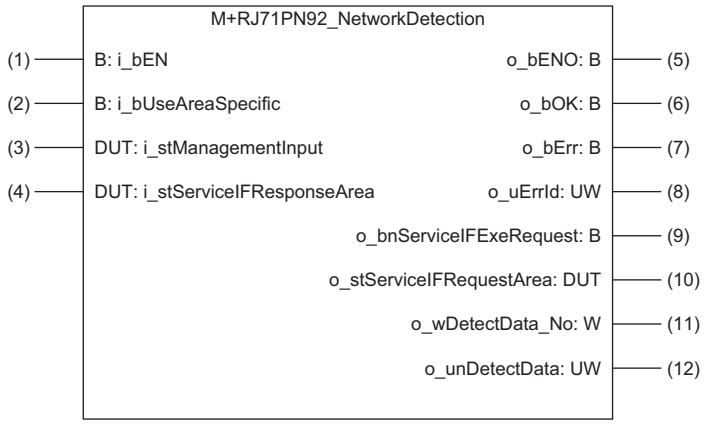
2 PROFINET IO CONTROLLER MODULE FB

2.1 M+RJ71PN92_NetworkDetection

Name

M+RJ71PN92_NetworkDetection

Overview

Item	Description
Functional overview	This FB detects the IO device in the same network as that of the RJ71PN92.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(4)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

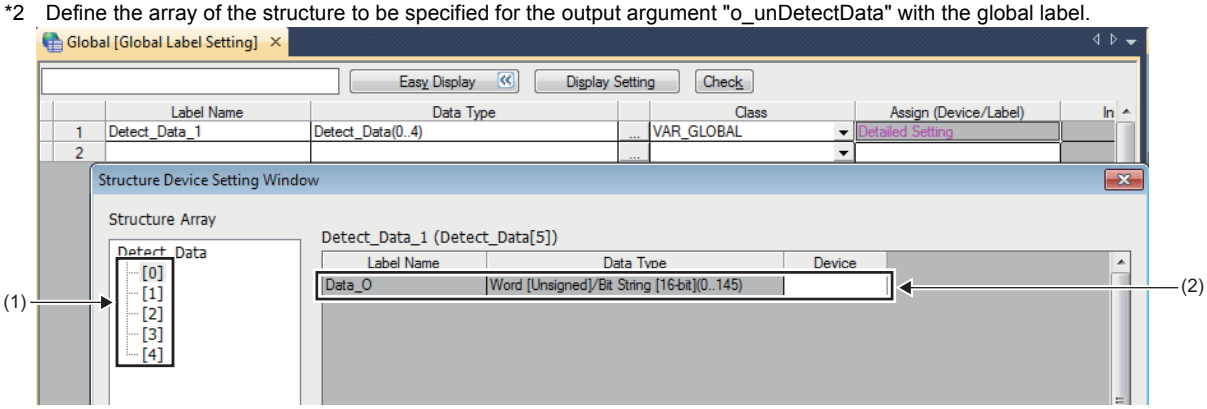
■Output arguments

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

No.	Variable name	Name	Data type	Description	Default value
(8)	o_uErrId	Error completion cause	Word [unsigned] /bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0002H: Not connected to network • 0003H: IO device not detected • 0004H: Incorrect data size • 0005H: Not because of IO device • 0006H: "Network detection" service not called • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*1 • 000BH: Incorrect parameter	0
(9)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(10)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0
(11)	o_wDetectData_No	Detected data storage location No.	Word [signed]	The array number of the structure for storing detected data is stored. 0 to (number of IO devices in the network - 1)	0
(12)	o_unDetectData	Detected data storage location	Word [unsigned] /bit string [16 bits] (0..145)	Specify the structure for storing detected data.*2*3 (Example: Detect_Data_1[<nnn>].Data_0) Specify the output argument "o_wDetectData_No" for <nnn>.	0

*1 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

*2 Define the array of the structure to be specified for the output argument "o_unDetectData" with the global label.



(1) Set the number of array elements equal to the number of IO devices in the network.
(2) Include the member of word [unsigned]/bit string [16 bits] (0..145) in data type.

*3 For detail data per detected IO device, refer to the following table.
For details, refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

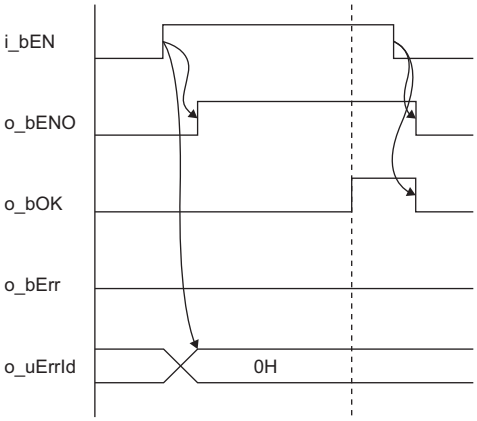
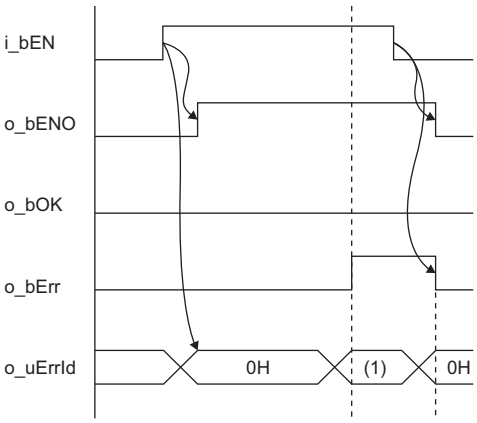
Offset (word)	Item name	Value
0	VendorID	VendorID of IO device (set by the manufacturer)
1	DeviceID	DeviceID of IO device (set by the manufacturer)
2 to 3	IP address	IP address of IO device
4 to 5	Subnet mask	Subnet mask of IO device
6 to 7	Gateway	Gateway IP address of IO device
8 to 10	MAC address	MAC address of IO device
11	SizeName	Number of characters for IO device name (240 bytes maximum)

Offset (word)	Item name	Value
12 to (12+SizeName -1)	DeviceName	IO device name
12+SizeName	SizeType	Size of "Type" field (25 bytes maximum)
(12+SizeName+1) to (12+SizeName+1+ SizeType)	Type	IO device type

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_NetworkDetection.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	1057 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	This FB detects the IO devices in the network. The processing includes two services (network detection and IO device detection). In the network detection, only the number of detected IO devices is returned. Then, the IO device detection is started and the detail data of each detected IO device is stored in the output argument "o_unDetectData".	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	

Item	Description
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0. • Since the IO device is stored in order of response to the DCP identification request, the storage order changes every time this FB is executed.

Error completion cause

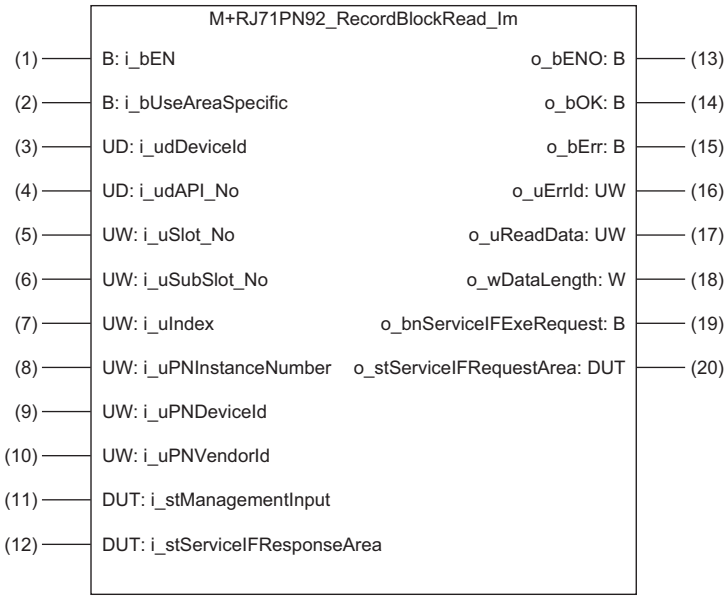
For the error completion cause of M+RJ71PN92_NetworkDetection, refer to Error completion cause in Output arguments.

2.2 M+RJ71PN92_RecordBlockRead_Im

Name

M+RJ71PN92_RecordBlockRead_Im

Overview

Item	Description
Functional overview	This FB reads the specified data from the IO device where the PROFINET module setting has not been configured in the RJ71PN92.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IP address	Double word [unsigned]/bit string [32 bits]	01000000H to DFFFFFFFH	Specify the IP address of the IO device. The IP addresses are stored in the following order. • 1st word lower byte: 4th octet • 1st word upper byte: 3rd octet • 2nd word lower byte: 2nd octet • 2nd word upper byte: 1st octet
(4)	i_udAPI_No	API No.	Double word [unsigned]/bit string [32 bits]	00000000H to FFFFFFFFH	Specify the API No. of the IO device.
(5)	i_uSlot_No	Slot No.	Word [unsigned]/bit string [16 bits]	0000H to 7FFFH	Specify the slot No. of the IO device.
(6)	i_uSubSlot_No	Sub slot No.	Word [unsigned]/bit string [16 bits]	0001H to 9FFFH	Specify the sub slot No. of the IO device.
(7)	i_uIndex	Index	Word [unsigned]/bit string [16 bits]	0000H to FFFFH	Specify the index No. of the IO device.
(8)	i_uPNInstanceNumber	Instance No.	Word [unsigned]/bit string [16 bits]	—	Specify the value stored in ObjectUUID_LocalIndex of the GSDML file.
(9)	i_uPNDeviceId	DeviceID	Word [unsigned]/bit string [16 bits]	—	Specify the DeviceID of the IO device. (DeviceID is an ID set by the manufacturer.)

No.	Variable name	Name	Data type	Scope	Description
(10)	i_uPNVendorId	VendorID	Word [unsigned]/ bit string [16 bits]	—	Specify the VendorID of the IO device. (VendorID is an ID set by the manufacturer.)
(11)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(12)	i_stServiceIFResponse Area	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

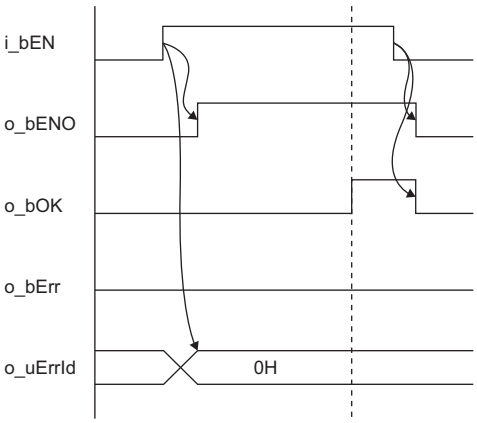
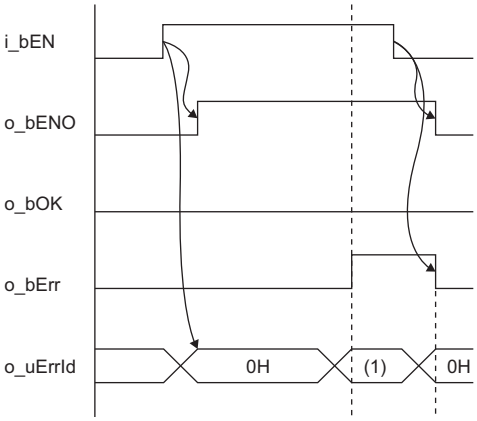
No.	Variable name	Name	Data type	Description	Default value
(13)	o_bENO	Execution status	Bit	The execution status of the module FB is output. On: In execution Off: Not in execution	Off
(14)	o_bOK	Normal completion	Bit	The on state indicates that the module FB processing has been completed successfully.	Off
(15)	o_bErr	Error completion	Bit	The on state indicates that the module FB processing has been completed with an error.	Off
(16)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0002H: Not connected to network • 0003H: IO device not detected • 0004H: Incorrect data size • 0006H: IO device not connected • 0007H: IO device not set • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*1 • 000BH: Incorrect parameter	0
(17)	o_uReadData	Read data storage location	Word [unsigned]/ bit string [16 bits]	Specify the start number of the device for storing the read data.	0
(18)	o_wDataLength	Read data length	Word [signed]	The size of the read data is stored in bytes. 0 to 4116	0
(19)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(20)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

*1 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_RecordBlockRead_Im.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	432 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	As i_bEN (Execution command) is turned on, this FB reads the specified data from the IO device where the PROFINET module setting has not been configured in the RJ71PN92.	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

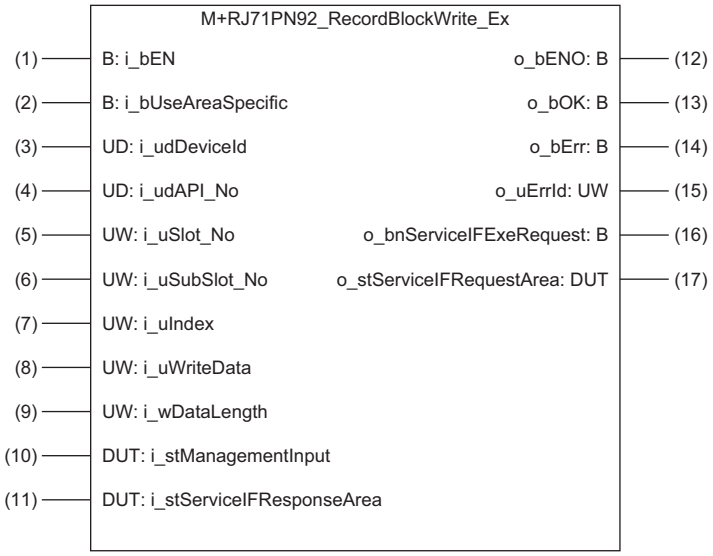
For the error completion cause of M+RJ71PN92_RecordBlockRead_Im, refer to Error completion cause in Output arguments.

2.3 M+RJ71PN92_RecordBlockWrite_Ex

Name

M+RJ71PN92_RecordBlockWrite_Ex

Overview

Item	Description
Functional overview	This FB writes the specified data to the IO device where the PROFINET module setting has been configured in the RJ71PN92.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IO device ID	Double word [unsigned]/ bit string [32 bits]	0 to 127	Specify the IO device ID.
(4)	i_udAPI_No	API No.	Double word [unsigned]/ bit string [32 bits]	00000000H to FFFFFFFFH	Specify the API No. of the IO device.
(5)	i_uSlot_No	Slot No.	Word [unsigned]/ bit string [16 bits]	0000H to 7FFFH	Specify the slot No. of the IO device.
(6)	i_uSubSlot_No	Sub slot No.	Word [unsigned]/ bit string [16 bits]	0001H to 9FFFH	Specify the sub slot No. of the IO device.

No.	Variable name	Name	Data type	Scope	Description
(7)	i_uIndex	Index	Word [unsigned]/ bit string [16 bits]	0000H to FFFFH	Specify the index No. of the IO device.
(8)	i_uWriteData	Write data storage location	Word [unsigned]/ bit string [16 bits]	—	Specify the start number of the device where the data to be written is stored.
(9)	i_wDataLength	Write data length	Word [signed]	0 to 4116	Store the size of the data to be written in bytes.
(10)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(11)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

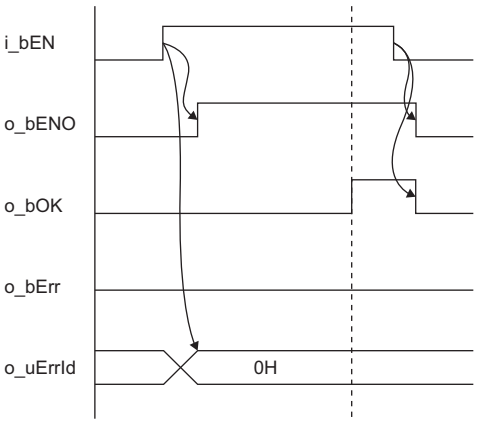
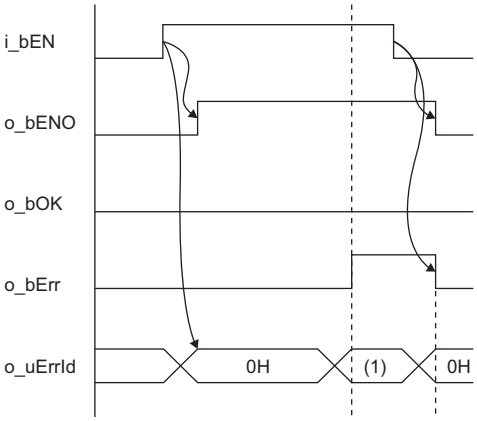
No.	Variable name	Name	Data type	Description	Default value
(12)	o_bENO	Execution status	Bit	The execution status of the module FB is output. On: In execution Off: Not in execution	Off
(13)	o_bOK	Normal completion	Bit	The on state indicates that the module FB processing has been completed successfully.	Off
(14)	o_bErr	Error completion	Bit	The on state indicates that the module FB processing has been completed with an error.	Off
(15)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0002H: Not connected to network • 0003H: IO device not detected • 0004H: Incorrect data size • 0006H: IO device not connected • 0007H: IO device not set • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*1 • 000BH: Incorrect parameter	0
(16)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(17)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

*1 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_RecordBlockWrite_Ex.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	383 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	As i_bEN (Execution command) turns on, this FB writes the specified data to the IO device where the PROFINET module setting has been configured in the RJ71PN92.	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

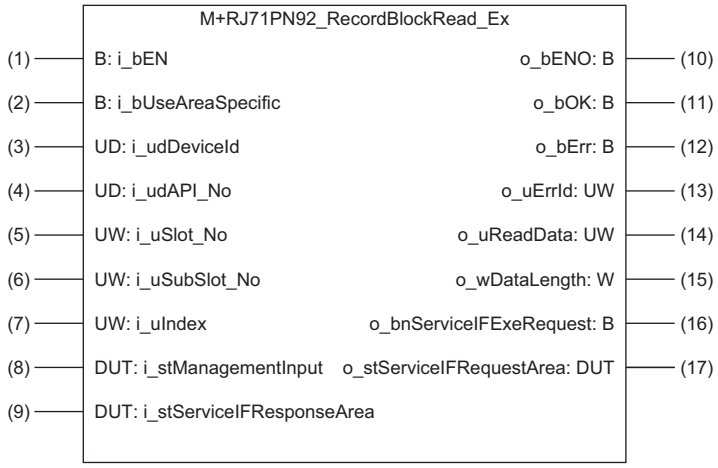
For the error completion cause of M+RJ71PN92_RecordBlockWrite_Ex, refer to Error completion cause in Output arguments.

2.4 M+RJ71PN92_RecordBlockRead_Ex

Name

M+RJ71PN92_RecordBlockRead_Ex

Overview

Item	Description
Functional overview	This FB reads the specified data from the IO device where the PROFINET module setting has been configured in the RJ71PN92.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IO device ID	Double word [unsigned]/ bit string [32 bits]	0 to 127	Specify the IO device ID.
(4)	i_udAPI_No	API No.	Double word [unsigned]/ bit string [32 bits]	00000000H to FFFFFFFFH	Specify the API No. of the IO device.
(5)	i_uSlot_No	Slot No.	Word [unsigned]/ bit string [16 bits]	0000H to 7FFFH	Specify the slot No. of the IO device.
(6)	i_uSubSlot_No	Sub slot No.	Word [unsigned]/ bit string [16 bits]	0001H to 9FFFH	Specify the sub slot No. of the IO device.
(7)	i_uIndex	Index	Word [unsigned]/ bit string [16 bits]	0000H to FFFFH	Specify the index No. of the IO device.
(8)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)

No.	Variable name	Name	Data type	Scope	Description
(9)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

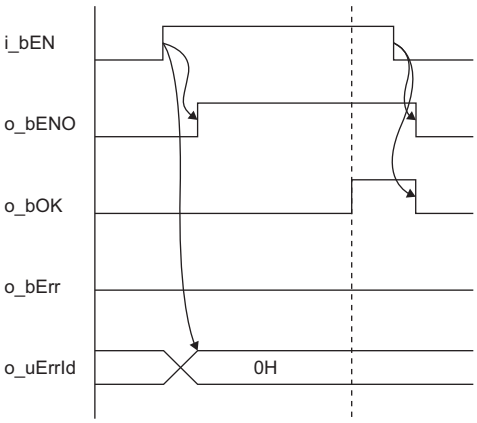
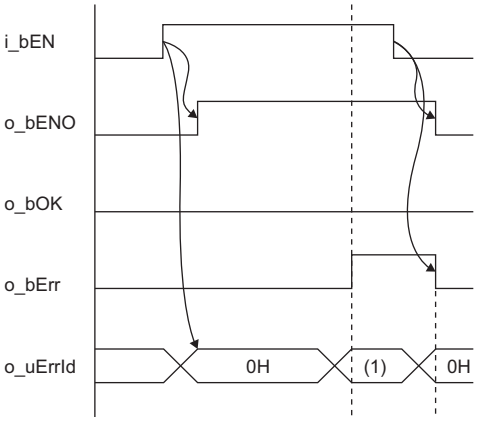
No.	Variable name	Name	Data type	Description	Default value
(10)	o_bENO	Execution status	Bit	The execution status of the module FB is output. On: In execution Off: Not in execution	Off
(11)	o_bOK	Normal completion	Bit	The on state indicates that the module FB processing has been completed successfully.	Off
(12)	o_bErr	Error completion	Bit	The on state indicates that the module FB processing has been completed with an error.	Off
(13)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0002H: Not connected to network • 0003H: IO device not detected • 0004H: Incorrect data size • 0007H: IO device not set • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*1 • 000BH: Incorrect parameter	0
(14)	o_uReadData	Read data storage location	Word [unsigned]/ bit string [16 bits]	Specify the start number of the device for storing the read data.	0
(15)	o_wDataLength	Read data length	Word [signed]	The size of the read data is stored in bytes. 0 to 4116	0
(16)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(17)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

*1 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_RecordBlockRead_Ex.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	411 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	As i_bEN (Execution command) turns on, this FB reads the specified data from the IO device where the PROFINET module setting has been configured in the RJ71PN92.	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

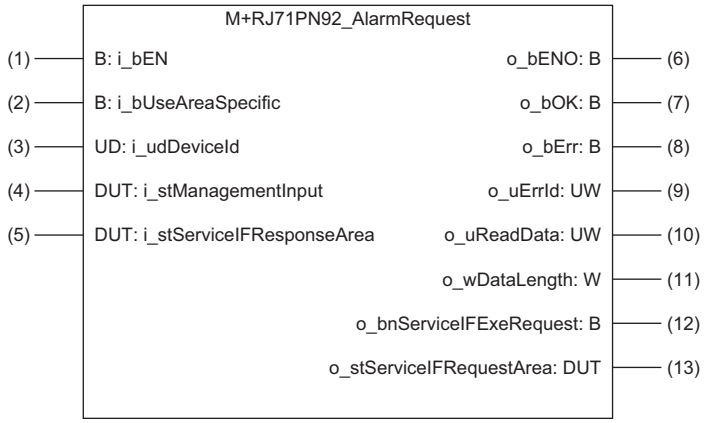
For the error completion cause of M+RJ71PN92_RecordBlockRead_Ex, refer to Error completion cause in Output arguments.

2.5 M+RJ71PN92_AlarmRequest

Name

M+RJ71PN92_AlarmRequest

Overview

Item	Description
Functional overview	This FB reads the alarm information of the specific IO device.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IO device ID	Double word [unsigned]/ bit string [32 bits]	0 to 127	Specify the IO device ID.
(4)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(5)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

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

No.	Variable name	Name	Data type	Description	Default value
(9)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0007H: IO device not set • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*2 • 0009H: No alarm occurred in the target IO device • 000BH: Incorrect parameter	0
(10)	o_uReadData	Read data storage location	Word [unsigned]/ bit string [16 bits]	Specify the start number of the device for storing the read alarm data. The details of alarm data are as follows. • 1st and 2nd words: API No. • 3rd word: Alarm priority*1 • 4th word: Alarm type*1 • 5th word: Target slot No. • 6th word: Target sub slot No. • 7th word: Alarm specifier*1 • 8th and 9th words: Module ID • 10th and 11th words: Sub module ID • 12th word: Data length (byte) • 13th to 728th words: Data (1432 bytes maximum)	0
(11)	o_wDataLength	Read data length	Word [signed]	The data size of the read alarm is stored in bytes. 0 to 1456	0
(12)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(13)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

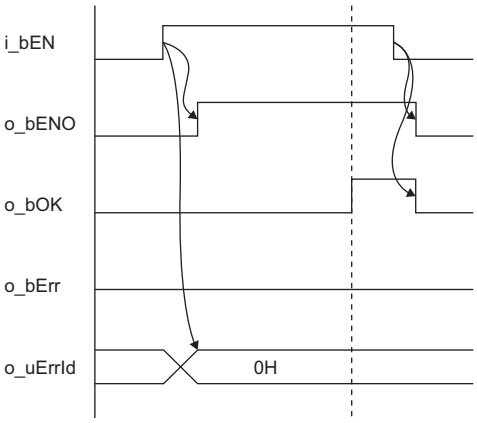
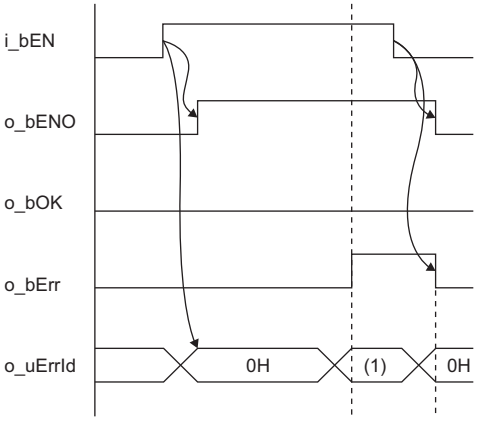
*1 For the alarm priority, alarm type, and alarm specifier, refer to the alarm request of the service interface function in the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

*2 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_AlarmRequest.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	394 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	As i_bEN (Execution command) turns on, this FB requests to receive the alarm from the IO device with the IO device ID specified by the input argument. This FB needs to be used with the alarm register in 'IO device alarm management area' (Un\G17025 to Un\G17032) and 'IO device alarm indication area' (Un\G17145 to Un\G17152).	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

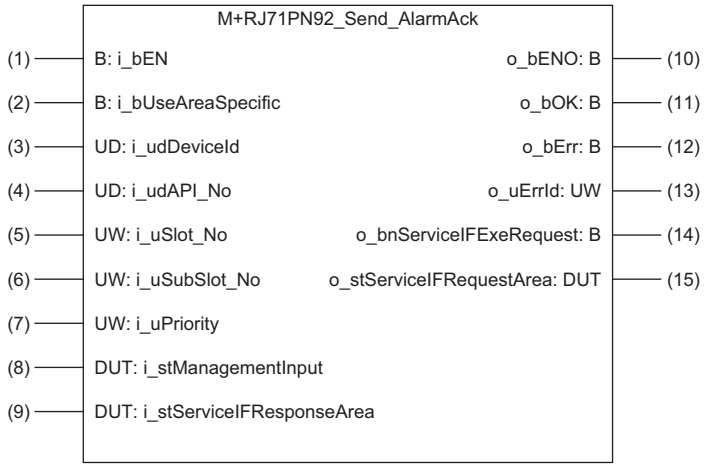
For the error completion cause of M+RJ71PN92_AlarmRequest, refer to Error completion cause in Output arguments.

2.6 M+RJ71PN92_Send_AlarmAck

Name

M+RJ71PN92_Send_AlarmAck

Overview

Item	Description
Functional overview	This FB sends an alarm ACK to the specific IO device.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IO device ID	Double word [unsigned]/ bit string [32 bits]	0 to 127	Specify the IO device ID.
(4)	i_udAPI_No	API No.	Double word [unsigned]/ bit string [32 bits]	00000000H to FFFFFFFFH	Specify the API No. of the IO device.
(5)	i_uSlot_No	Slot No.	Word [unsigned]/ bit string [16 bits]	0000H to 7FFFH	Specify the slot No. of the IO device.
(6)	i_uSubSlot_No	Sub slot No.	Word [unsigned]/ bit string [16 bits]	0001H to 9FFFH	Specify the sub slot No. of the IO device.
(7)	i_uPriority	Alarm priority	Word [unsigned]/ bit string [16 bits]	0005H 0006H	Specify the alarm priority. 0005H: Low-priority alarm 0006H: High-priority alarm

No.	Variable name	Name	Data type	Scope	Description
(8)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(9)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

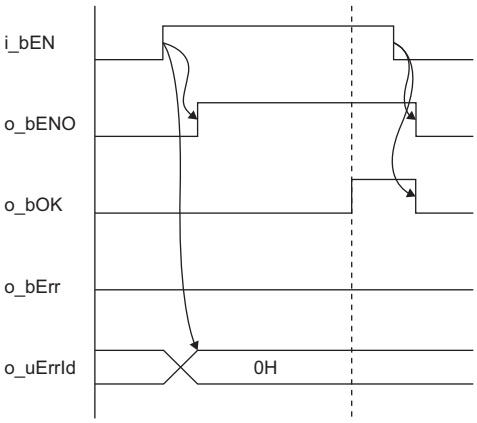
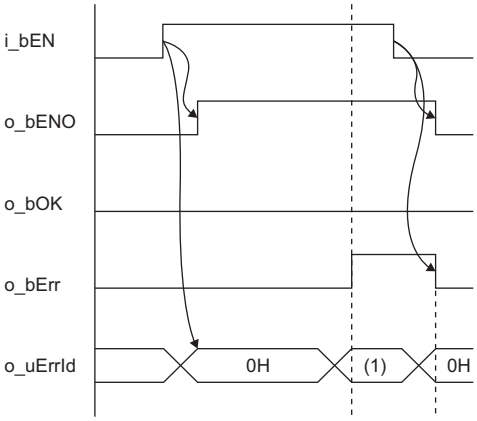
No.	Variable name	Name	Data type	Description	Default value
(10)	o_bENO	Execution status	Bit	The execution status of the module FB is output. On: In execution Off: Not in execution	Off
(11)	o_bOK	Normal completion	Bit	The on state indicates that the module FB processing has been completed successfully.	Off
(12)	o_bErr	Error completion	Bit	The on state indicates that the module FB processing has been completed with an error.	Off
(13)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0007H: IO device not set • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*1 • 0009H: No alarm occurred in the target IO device • 000BH: Incorrect parameter	0
(14)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(15)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

*1 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_Send_AlarmAck.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	344 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	As i_bEN (Execution command) turns on, this FB sends an alarm ACK flame to the IO device. This FB needs to be used with the alarm register in 'IO device alarm management area' (Un\G17025 to Un\G17032) and 'IO device alarm indication area' (Un\G17145 to Un\G17152).	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

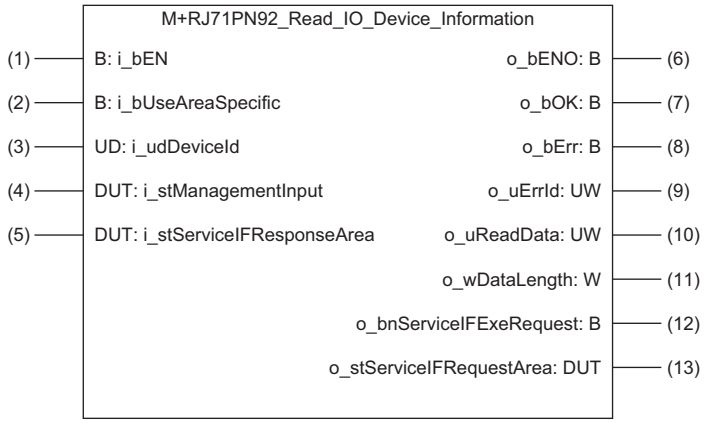
For the error completion cause of M+RJ71PN92_Send_AlarmAck, refer to Error completion cause in Output arguments.

2.7 M+RJ71PN92_Read_IO_Device_Information

Name

M+RJ71PN92_Read_IO_Device_Information

Overview

Item	Description
Functional overview	This FB reads the IO device information from the specific IO device.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IO device ID	Double word [unsigned]/ bit string [32 bits]	0 to 127	Specify the IO device ID.
(4)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(5)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

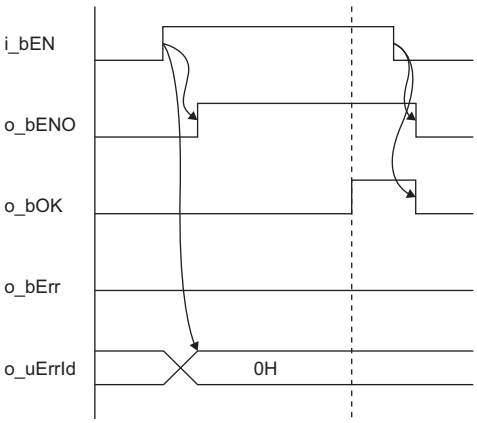
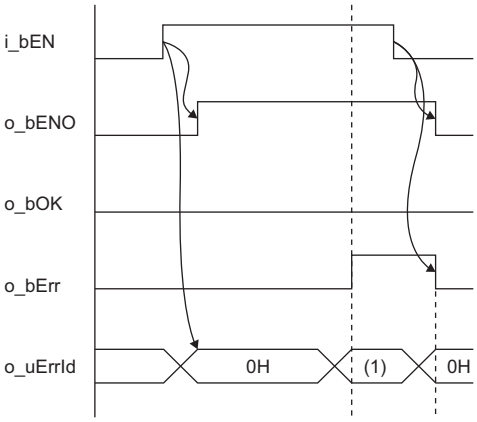
No.	Variable name	Name	Data type	Description	Default value
(6)	o_bENO	Execution status	Bit	The execution status of the module FB is output. On: In execution Off: Not in execution	Off
(7)	o_bOK	Normal completion	Bit	The on state indicates that the module FB processing has been completed successfully.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

No.	Variable name	Name	Data type	Description	Default value
(9)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0007H: IO device not set • 000BH: Incorrect parameter	0
(10)	o_uReadData	Read data storage location	Word [unsigned]/ bit string [16 bits]	Specify the start number of the device for storing the read IO device information. The details of the IO device information are as follows. • 1st to 3rd words: MAC address • 4th and 5th words: IP address • 6th and 7th words: Address of the input data area for data exchange • 8th and 9th words: Address of the output data area for data exchange • 10th word: Input data length for data exchange • 11th word: Output data length for data exchange • 12th word: Refresh interval (Value range: 1, 2, 4, 8, 16, ··· , 512 (power of 2)) • 13th word: Number of established connection • 14th word: Number of disconnected connection • 15th word: Connection status (connected: 1/not connected: 0) • 16th word: Method for starting data exchange (manual startup: 1/ automatic startup: 0) • 17th and 18th words: Current PROFINET status (depending on the PROFINET specifications)	0
(11)	o_wDataLength	Read data length	Word [signed]	The size of the read IO device information is stored in bytes. 0 to 36	0
(12)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(13)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_Read_IO_Device_Information.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	387 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	As i_bEN (Execution command) turns on, this FB reads the IO device information from the specific IO device.	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

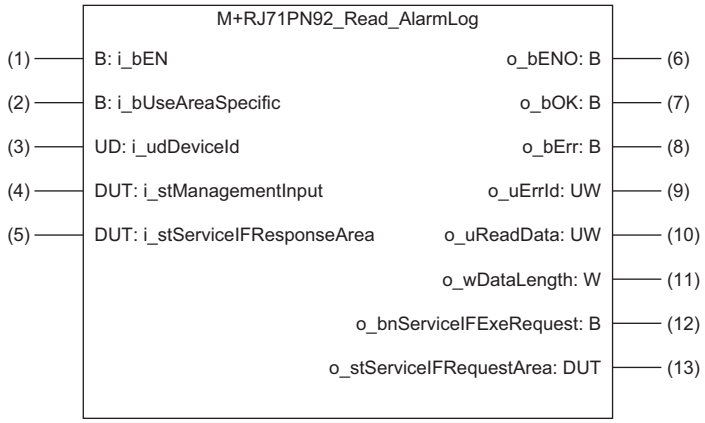
For the error completion cause of M+RJ71PN92_Read_IO_Device_Information, refer to Error completion cause in Output arguments.

2.8 M+RJ71PN92_Read_AlarmLog

Name

M+RJ71PN92_Read_AlarmLog

Overview

Item	Description
Functional overview	This FB reads one alarm log stored in the RJ71PN92.
Symbol	

Labels

■Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_bUseAreaSpecific	Buffer specification	Bit	On or off	Specify the area to be used. On: The service request area 2 is used. Off: The service request area 1 is used.
(3)	i_udDeviceId	IO device ID	Double word [unsigned]/ bit string [32 bits]	0 to 127	Specify the IO device ID.
(4)	i_stManagementInput	PROFINET management input area	Structure	—	Specify the global label of the PROFINET management input area. (Example: glRJ71PN92_1.stMgmtInputs)
(5)	i_stServiceIFResponseArea	Service response area	Structure	—	Specify the global label of the service response area. ■When buffer specification is off Specify the global label of the service response area 1. (Example: glRJ71PN92_1.stServiceIFResponseArea1_D) ■When buffer specification is on Specify the global label of the service response area 2. (Example: glRJ71PN92_1.stServiceIFResponseArea2_D)

■Output arguments

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

No.	Variable name	Name	Data type	Description	Default value
(9)	o_uErrId	Error completion cause	Word [unsigned]/ bit string [16 bits]	An error completion cause is stored at error completion. The values are as follows. • 0000H: Request succeeded • 0001H: Module not started • 0002H: Not connected to network • 0007H: IO device not set • 0008H: PROFINET error. Check ErrorDecode, ErrorCode1, and ErrorCode2.*2 • 0009H: No alarm occurred in the target IO device • 000BH: Incorrect parameter	0
(10)	o_uReadData	Read data storage location	Word [unsigned]/ bit string [16 bits]	Specify the start number of the device for storing the read alarm log data. The details of alarm log data are as follows. • 1st and 2nd words: Alarm acquisition date*3*5 • 3rd and 4th words: Alarm acquisition time*4*5 • 5th word: Alarm type*1 • 6th and 7th words: API No. of IO device • 8th word: Alarm priority*1 • 9th and 10th words: Module ID • 11th and 12th words: Sub module ID • 13th word: Slot No. of IO device • 14th word: Sub slot No. of IO device • 15th word: Alarm specifier*1	0
(11)	o_wDataLength	Read data length	Word [signed]	The data size of the read alarm log is stored in bytes. 0 to 30	0
(12)	o_bnServiceIFExeRequest	Service execution request	Bit (0..1)	The service execution request is output. On: Execution is requested. Off: Execution is not requested. Specify the global label of the service execution request. (Example: glRJ71PN92_1.stMgmtOutputs.bnReq_ServiceIFExecutionRequest)	Off
(13)	o_stServiceIFRequestArea	Service request area	Structure	Specify the global label of the service request area for storing the service request data. ■When buffer specification is off Specify the global label of the service request area 1. (Example: glRJ71PN92_1.stServiceIFRequestArea1_D) ■When buffer specification is on Specify the global label of the service request area 2. (Example: glRJ71PN92_1.stServiceIFRequestArea2_D)	0

*1 For the alarm type, alarm priority, and alarm specifier, refer to the alarm log acquisition of the service interface function in the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

*2 ErrorDecode, ErrorCode1, and ErrorCode2 are stored in the response format of the service interface function. For buffer memory addresses (ErrorDecode, ErrorCode1, and ErrorCode2), refer to the following.
MELSEC iQ-R PROFINET IO Controller Module User's Manual (Application)

*3 The number of days elapsed from January 1st, 1970 (UTC) is stored in units of seconds for the alarm acquisition date.

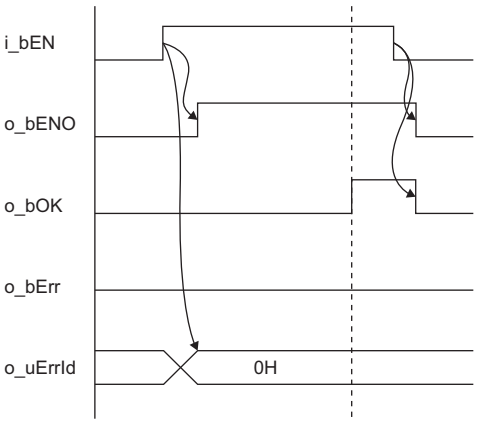
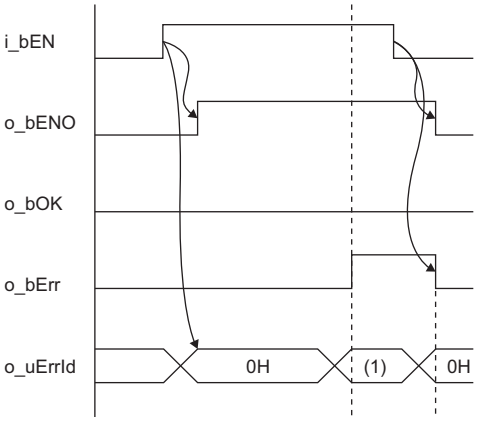
*4 The time elapsed from 0:00:00 (UTC) is stored in units of seconds for the alarm acquisition time.

*5 Adding Date area and Time area to the time can treat it as UNIX time and calculate the alarm acquisition date and time.

■Operation parameters

There is no operation parameter applicable to M+RJ71PN92_Read_AlarmLog.

FB details

Item	Description	
Available device	Target module	RJ71PN92
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD/LD	
Number of basic steps	392 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	As i_bEN (Execution command) turns on, this FB reads one alarm log stored in the RJ71PN92. Execute this FB for multiple times to acquire some alarm logs. The old alarm is returned first.	
FB compilation method	Macro type	
FB operation	Pulse type (multiple 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)  (1) Error completion cause	
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) or o_bErr (Error completion) is turned off and o_uErrId (Error completion cause) is cleared to 0.	

Error completion cause

For the error completion cause of M+RJ71PN92_Read_AlarmLog, refer to Error completion cause in Output arguments.

INSTRUCTION INDEX

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MEMO

REVISIONS

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

Revision date	*Manual number	Description
May 2017	BCN-P5999-0740-A	First edition

Japanese manual number: BCN-P5999-0739-A

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BCN-P5999-0740-A(1705)

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