

Programmable Controller

MELSEC iQ-R
series

MELSEC iQ-R PROFIBUS-DP Module
Function Block Reference

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1 MODULE FUNCTION BLOCK (FB) LIST

This chapter lists the module function blocks used for the MELSEC iQ-R PROFIBUS-DP module.

Name*1	Description
M+RJ71PB91V_ProfibusClass1Read	Executes the READ (Class 1) service to the specified DP-Slave via the acyclic communication.
M+RJ71PB91V_ProfibusClass1Write	Executes the WRITE (Class 1) service to the specified DP-Slave via the acyclic communication.
M+RJ71PB91V_AlarmAcquisition	Acquires up to eight alarm or status information data created in an arbitrary DP-Slave.
M+RJ71PB91V_SlaveExtDiagInfo	Acquires the detailed information of the error that has occurred during data exchange.
M+RJ71PB91V_ProfibusClass2Initiate	Executes the INITIATE (Class 2) service to the specified DP-Slave via the acyclic communication.
M+RJ71PB91V_ProfibusClass2Read	Executes the READ (Class 2) service via the acyclic communication to the DP-Slave connected using the INITIATE (Class 2) service.
M+RJ71PB91V_ProfibusClass2Write	Executes the WRITE (Class 2) service via the acyclic communication to the DP-Slave connected using the INITIATE (Class 2) service.
M+RJ71PB91V_ProfibusClass2Abort	Executes the ABORT (Class 2) service to the specified DP-Slave via the acyclic communication.
M+RJ71PB91V_S_NotifyMstExtDiagInfo	Requests the notification of extended diagnostic information or notification of correction of the relevant error from DP-Slave to DP-Master.

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

2 PROFIBUS-DP MODULE

2.1 M+RJ71PB91V_ProfibusClass1Read

Name

M+RJ71PB91V_ProfibusClass1Read

Overview

Item	Description
Functional overview	This module FB executes the READ (Class 1) service to the specified DP-Slave via the acyclic communication.
Symbol	<p>The diagram shows a central box labeled 'M+RJ71PB91V_ProfibusClass1Read'. On the left side, there are 8 input arguments labeled (1) through (8): B: i_bEN, UW: i_uRequestInstructionNo, UW: i_uFDLAddress, UW: i_uDataLength, UW: i_uSlotNo, UW: i_uIndex, DUT: i_stInputManagement, and DUT: i_stServiceResponseArea. On the right side, there are 8 output arguments labeled (9) through (17): o_bENO: B, o_bOK: B, o_bErr: B, o_uErrID: UW, o_uReadData: UW, o_uDataLength: UW, o_u3DetailedErrorCode: UW, and o_stOutputManagement: DUT. The last output argument (17) is o_stServiceRequestArea: DUT.</p>

Labels

Input arguments

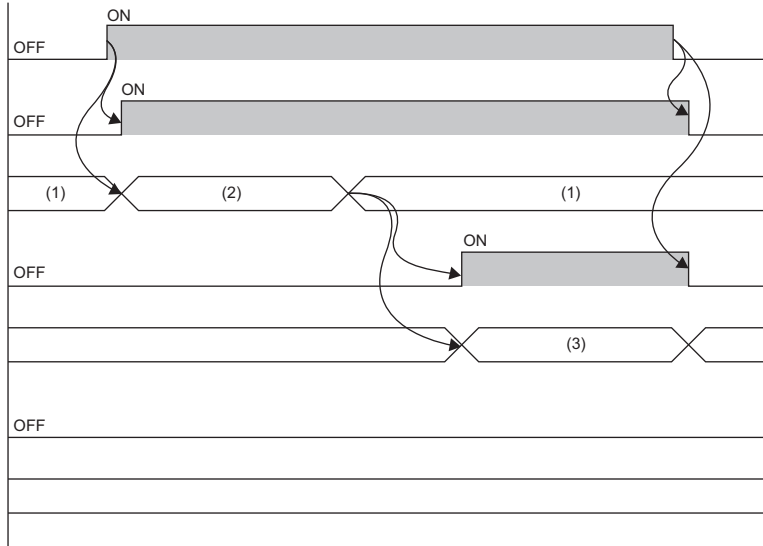
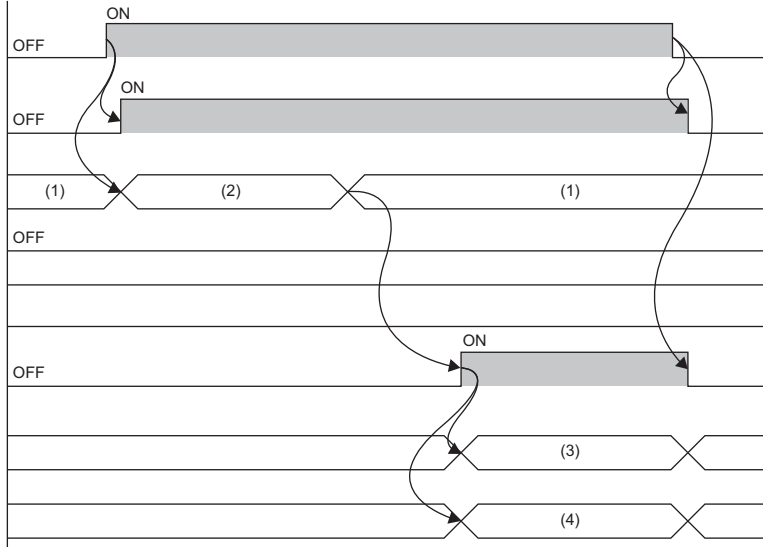
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uRequestInstructionNo	Request instruction number	Word [unsigned]/bit string [16 bits]	1 to 8	Specifies the target request instruction number.
(3)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(4)	i_uDataLength	Read data length	Word [unsigned]/bit string [16 bits]	1 to 240	Specifies the read data length in bytes.
(5)	i_uSlotNo	Slot number	Word [unsigned]/bit string [16 bits]	0 to 254	Specifies the target slot number.
(6)	i_uIndex	Index	Word [unsigned]/bit string [16 bits]	0 to 255	Specifies the target index.
(7)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(8)	i_stServiceResponseArea	Service response area	Structure	—	Specifies the global label for the service response area.

Output arguments

No.	Variable name	Name	Data type	Default value	Description
(9)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(10)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(11)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(12)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the request instruction sent via the acyclic communication is stored.
(13)	o_uReadData	Storage location of read data	Word [unsigned]/bit string [16 bits]	0	The start number of the device where the read data will be saved is stored.
(14)	o_uDataLength	Read data length	Word [unsigned]/bit string [16 bits]	0	The read data length in bytes is stored.
(15)	o_u3DetailedErrorCode	Error details	Word [unsigned]/bit string [16 bits] (0..2)	0	Error details for the request instruction sent via the acyclic communication are stored.
(16)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(17)	o_stServiceRequestArea	Service request area	Structure	0	The global label for the service request area is stored.


FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	785 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB reads the cyclic data of the Class 1 service from the DP-Slave using one request instruction out of eight usable request instructions. When i_bEN (execution command) is turned on, it executes the READ service request/response processing using the request instruction specified with i_uRequestInstructionNo (request instruction number) to the DP-Slave specified with i_uFDLAddress (FDL address). Upon receipt of a response from the DP-Slave, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on, and o_uErrID (error ID) and o_u3DetailedErrorCode (error details) are stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	

Item	Description
Timing chart of I/O signals	<p> ■When the operation is completed successfully </p>  <p> (1) Unexecuted (2) Executed (3) Read data </p> <p> ■When the operation is completed with an error </p>  <p> (1) Unexecuted (2) Executed (3) Error ID (4) Error details </p>
Precautions	<ul style="list-style-type: none"> • Before using this module FB in the program, update the PROFIBUS labels. (MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)) • This module 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, and o_uErrID (error ID) is cleared to 0. • Use eight request instructions separately.

Error ID and error details

For o_uErrID (error ID) and o_u3DetailedErrorCode (error details), refer to the following.

Stored value	Description	Action
0100H	The request instruction number is out of the setting range.	Check whether the specified request instruction number is correct or not, then execute it again.
Other than 0100H	The status code of RJ71PB91V	 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)

Operation parameters

M+RJ71PB91V_ProfibusClass1Read has no operation parameters.

2.2 M+RJ71PB91V_ProfibusClass1Write

Name

M+RJ71PB91V_ProfibusClass1Write

Overview

Item	Description																																													
Functional overview	This module FB executes the WRITE (Class 1) service to the specified DP-Slave via the acyclic communication.																																													
Symbol	<div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">M+RJ71PB91V_ProfibusClass1Write</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: right;">(1) —</td> <td style="width: 60%;">B: i_bEN</td> <td style="width: 15%;"></td> <td style="width: 20%; text-align: left;">o_bENO: B</td> <td style="width: 5%; text-align: right;">(10)</td> </tr> <tr> <td style="text-align: right;">(2) —</td> <td>UW: i_uRequestInstructionNo</td> <td></td> <td style="text-align: left;">o_bOK: B</td> <td style="text-align: right;">(11)</td> </tr> <tr> <td style="text-align: right;">(3) —</td> <td>UW: i_uFDLAddress</td> <td></td> <td style="text-align: left;">o_bErr: B</td> <td style="text-align: right;">(12)</td> </tr> <tr> <td style="text-align: right;">(4) —</td> <td>UW: i_uDataLength</td> <td></td> <td style="text-align: left;">o_uErrID: UW</td> <td style="text-align: right;">(13)</td> </tr> <tr> <td style="text-align: right;">(5) —</td> <td>UW: i_uSlotNo</td> <td></td> <td style="text-align: left;">o_uDataLength: UW</td> <td style="text-align: right;">(14)</td> </tr> <tr> <td style="text-align: right;">(6) —</td> <td>UW: i_uIndex</td> <td></td> <td style="text-align: left;">o_u3DetailedErrorCode: UW</td> <td style="text-align: right;">(15)</td> </tr> <tr> <td style="text-align: right;">(7) —</td> <td>UW: i_uWriteData</td> <td></td> <td style="text-align: left;">o_stOutputManagement: DUT</td> <td style="text-align: right;">(16)</td> </tr> <tr> <td style="text-align: right;">(8) —</td> <td>DUT: i_stInputManagement</td> <td></td> <td style="text-align: left;">o_stServiceRequestArea: DUT</td> <td style="text-align: right;">(17)</td> </tr> <tr> <td style="text-align: right;">(9) —</td> <td>DUT: i_stServiceResponseArea</td> <td></td> <td></td> <td></td> </tr> </table> </div>	(1) —	B: i_bEN		o_bENO: B	(10)	(2) —	UW: i_uRequestInstructionNo		o_bOK: B	(11)	(3) —	UW: i_uFDLAddress		o_bErr: B	(12)	(4) —	UW: i_uDataLength		o_uErrID: UW	(13)	(5) —	UW: i_uSlotNo		o_uDataLength: UW	(14)	(6) —	UW: i_uIndex		o_u3DetailedErrorCode: UW	(15)	(7) —	UW: i_uWriteData		o_stOutputManagement: DUT	(16)	(8) —	DUT: i_stInputManagement		o_stServiceRequestArea: DUT	(17)	(9) —	DUT: i_stServiceResponseArea			
(1) —	B: i_bEN		o_bENO: B	(10)																																										
(2) —	UW: i_uRequestInstructionNo		o_bOK: B	(11)																																										
(3) —	UW: i_uFDLAddress		o_bErr: B	(12)																																										
(4) —	UW: i_uDataLength		o_uErrID: UW	(13)																																										
(5) —	UW: i_uSlotNo		o_uDataLength: UW	(14)																																										
(6) —	UW: i_uIndex		o_u3DetailedErrorCode: UW	(15)																																										
(7) —	UW: i_uWriteData		o_stOutputManagement: DUT	(16)																																										
(8) —	DUT: i_stInputManagement		o_stServiceRequestArea: DUT	(17)																																										
(9) —	DUT: i_stServiceResponseArea																																													

Labels

Input arguments

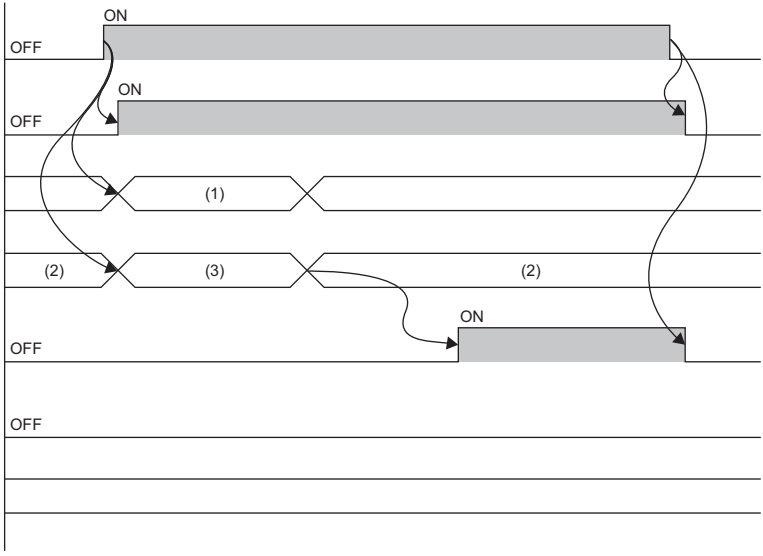
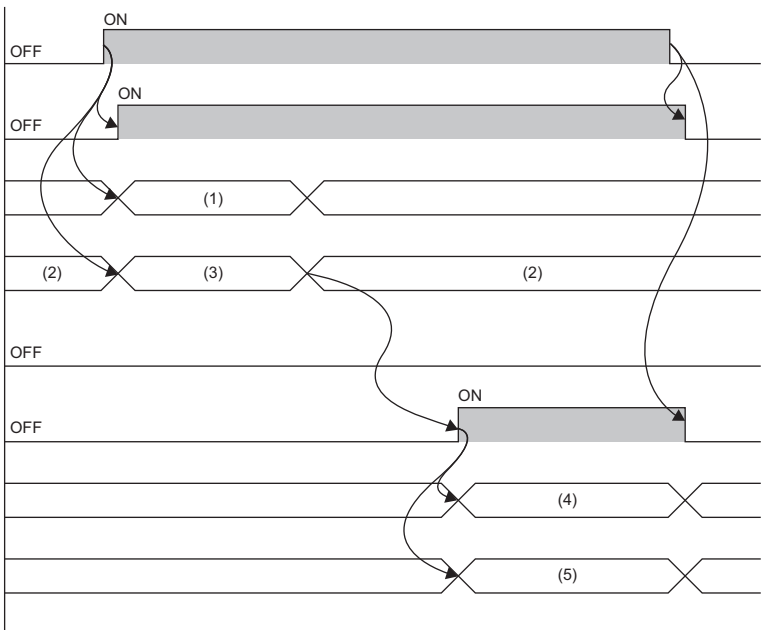
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uRequestInstructionNo	Request instruction number	Word [unsigned]/bit string [16 bits]	1 to 8	Specifies the target request instruction number.
(3)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(4)	i_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	1 to 240	Specifies the write data length in bytes.
(5)	i_uSlotNo	Slot number	Word [unsigned]/bit string [16 bits]	0 to 254	Specifies the target slot number.
(6)	i_uIndex	Index	Word [unsigned]/bit string [16 bits]	0 to 255	Specifies the target index.
(7)	i_uWriteData	Storage location of the write data	Word [unsigned]/bit string [16 bits]	—	Specifies the start number of the device where the write data are saved.
(8)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(9)	i_stServiceResponseArea	Service response area	Structure	—	Specifies the global label for the service response area.

Output arguments

No.	Variable name	Name	Data type	Default value	Description
(10)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(11)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(12)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(13)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the request instruction sent via the acyclic communication is stored.
(14)	o_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	0	The write data length in bytes is stored.
(15)	o_u3DetailedErrorCode	Error details	Word [unsigned]/bit string [16 bits] (0..2)	0	Error details for the request instruction sent via the acyclic communication are stored.
(16)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(17)	o_stServiceRequestArea	Service request area	Structure	0	The global label for the service request area is stored.


FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	785 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB writes the cyclic data of the Class 1 service to the DP-Slave using one request instruction out of eight usable request instructions. When i_bEN (execution command) is turned on, it executes the WRITE service request/response processing using the request instruction specified with i_uRequestInstructionNo (request instruction number) to the DP-Slave specified with i_uFDLAddress (FDL address). Set the data length with i_uDataLength (write data length). Upon receipt of a response from the DP-Slave, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on, and o_uErrID (error ID) and o_u3DetailedErrorCode (error details) are stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	

Item	Description
Timing chart of I/O signals	<p> ■When the operation is completed successfully </p>  <p> (1) Write data (2) Unexecuted (3) Executed </p> <p> ■When the operation is completed with an error </p>  <p> (1) Write data (2) Unexecuted (3) Executed (4) Error ID (5) Error details </p>
Precautions	<ul style="list-style-type: none"> • Before using this module FB in the program, update the PROFIBUS labels. (□ MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)) • This module 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, and o_uErrID (error ID) is cleared to 0. • Use eight request instructions separately.

Error ID and error details

For o_uErrID (error ID) and o_u3DetailedErrorCode (error details), refer to the following.

Stored value	Description	Action
0100H	The request instruction number is out of the setting range.	Check whether the specified request instruction number is correct or not, then execute it again.
Other than 0100H	The status code of RJ71PB91V	 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)

Operation parameters

M+RJ71PB91V_ProfibusClass1Write has no operation parameters.

2.3 M+RJ71PB91V_AlarmAcquisition

Name

M+RJ71PB91V_AlarmAcquisition

Overview

Item	Description																								
Functional overview	This module FB acquires up to eight alarm or status information data created in an arbitrary DP-Slave.																								
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">M+RJ71PB91V_AlarmAcquisition</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: right;">(1) —</td> <td style="width: 45%;">B: i_bEN</td> <td style="width: 15%;"></td> <td style="width: 25%; text-align: left;">o_bENO: B — (7)</td> </tr> <tr> <td style="text-align: right;">(2) —</td> <td>UW: i_uFDLAddress</td> <td></td> <td style="text-align: left;">o_bOK: B — (8)</td> </tr> <tr> <td style="text-align: right;">(3) —</td> <td>UW: i_uRequestCode</td> <td></td> <td style="text-align: left;">o_bErr: B — (9)</td> </tr> <tr> <td style="text-align: right;">(4) —</td> <td>UW: i_b8ReturnAckAlarmDataNo</td> <td></td> <td style="text-align: left;">o_uErrID: UW — (10)</td> </tr> <tr> <td style="text-align: right;">(5) —</td> <td>DUT: i_stInputManagement</td> <td style="text-align: center;">o_stOutputManagement: DUT</td> <td style="text-align: left;">— (11)</td> </tr> <tr> <td style="text-align: right;">(6) —</td> <td>DUT: i_stAlarmResultArea</td> <td style="text-align: center;">o_stAlarmRequestArea: DUT</td> <td style="text-align: left;">— (12)</td> </tr> </table> </div>	(1) —	B: i_bEN		o_bENO: B — (7)	(2) —	UW: i_uFDLAddress		o_bOK: B — (8)	(3) —	UW: i_uRequestCode		o_bErr: B — (9)	(4) —	UW: i_b8ReturnAckAlarmDataNo		o_uErrID: UW — (10)	(5) —	DUT: i_stInputManagement	o_stOutputManagement: DUT	— (11)	(6) —	DUT: i_stAlarmResultArea	o_stAlarmRequestArea: DUT	— (12)
(1) —	B: i_bEN		o_bENO: B — (7)																						
(2) —	UW: i_uFDLAddress		o_bOK: B — (8)																						
(3) —	UW: i_uRequestCode		o_bErr: B — (9)																						
(4) —	UW: i_b8ReturnAckAlarmDataNo		o_uErrID: UW — (10)																						
(5) —	DUT: i_stInputManagement	o_stOutputManagement: DUT	— (11)																						
(6) —	DUT: i_stAlarmResultArea	o_stAlarmRequestArea: DUT	— (12)																						

Labels

Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(3)	i_uRequestCode	Request code	Word [unsigned]/bit string [16 bits]	1500H to 1502H	Specifies the request code from the following options. 1500H: Alarm read request with no ACK 1501H: Alarm ACK request 1502H: Alarm read request with ACK
(4)	i_b8ReturnAckAlarmDataNo	ACK data number	Bit (0..7)	Only when the request code is 1501H (alarm ACK request)	Specifies the number of the acquired alarm data to which the ACK is returned.
(5)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(6)	i_stAlarmResultArea	Alarm response area	Structure	—	Specifies the global label for the alarm response area.

Output arguments

No.	Variable name	Name	Data type	Default value	Description
(7)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(8)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(9)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(10)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the alarm read request instruction is stored.
(11)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(12)	o_stAlarmRequestArea	Alarm request area	Structure	0	The global label for the alarm request area is stored.

FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	792 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB sends the alarm acquisition request to an arbitrarily DP-Master in the network and acquires up to eight created alarm or status information data. When i_bEN (execution command) is turned on, it executes the alarm acquisition processing to the DP-Slave specified with i_uFDLAddress (FDL address). Upon receipt of a response from the DP-Slave, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on and o_uErrID (error ID) is stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	
Timing chart of I/O signals	<p>■When the operation is completed successfully</p> <p>(1) Unexecuted (2) Executed (3) Alarm data</p> <p>■When the operation is completed with an error</p> <p>(1) Unexecuted (2) Executed</p>	

Item	Description
Precautions	<ul style="list-style-type: none">• Before using this module FB in the program, update the PROFIBUS labels. (📖 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application))• This module FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.

Error ID

The status code of RJ71PB91V is stored in o_uErrID (error ID). (📖 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application))

Operation parameters

M+RJ71PB91V_AlarmAcquisition has no operation parameters.

2.4 M+RJ71PB91V_SlaveExtDiagInfo

Name

M+RJ71PB91V_SlaveExtDiagInfo

Overview

Item	Description
Functional overview	The detailed information of the error that has occurred during data exchange is acquired.
Symbol	<p>The diagram shows a central box labeled 'M+RJ71PB91V_SlaveExtDiagInfo'. On the left side, there are four input variables: (1) B: i_bEN, (2) UW: i_uFDLAddress, (3) DUT: i_stInputManagement, and (4) DUT: i_stExtDiagnosticsResultArea. On the right side, there are six output variables: (5) o_bENO: B, (6) o_bOK: B, (7) o_bErr: B, (8) o_uErrID: UW, (9) o_stOutputManagement: DUT, and (10) o_stExtDiagnosticsRequestArea: DUT.</p>

Labels

Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(3)	i_stInputManagement	PROFIBUS input management area	Structure	0	Specifies the global label for the PROFIBUS input management area.
(4)	i_stExtDiagnosticsResultArea	Extended diagnostic information read response area	Structure	0	Specifies the global label for the extended diagnostic information read response area.

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_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the extended diagnostic information read request instruction is stored.
(9)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(10)	o_stExtDiagnosticsRequestArea	Extended diagnostic information read request area	Structure	0	The global label for the extended diagnostic information read request area is stored.

FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	621 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB sends the extended diagnostic error information acquisition request to the specified DP-Slave to acquire the detailed information of the error that has occurred during data exchange. When i_bEN (execution command) is turned on, it executes the extended diagnostic information acquisition request processing to the DP-Slave specified with i_uFDLAddress (FDL address). Upon receipt of a response from the DP-Slave, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on and o_uErrID (error ID) is stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	
Timing chart of I/O signals	<p>■When the operation is completed successfully</p> <p>(1) Unexecuted (2) Executed (3) Extended diagnostic information data</p> <p>■When the operation is completed with an error</p> <p>(1) Unexecuted (2) Executed</p>	

Item	Description
Precautions	<ul style="list-style-type: none">• Before using this module FB in the program, update the PROFIBUS labels. (📖 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application))• This module FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.

Error ID

The status code of RJ71PB91V is stored in o_uErrID (error ID). (📖 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application))

Operation parameters

M+RJ71PB91V_SlaveExtDiagInfo has no operation parameters.

2.5 M+RJ71PB91V_ProfibusClass2Initiate

Name

M+RJ71PB91V_ProfibusClass2Initiate

Overview

Item	Description																																																																																																
Functional overview	This module FB executes the INITIATE (Class 2) service to the specified DP-Slave via the acyclic communication.																																																																																																
Symbol	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">M+RJ71PB91V_ProfibusClass2Initiate</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: right;">(1) —</td> <td style="width: 60%;">B: i_bEN</td> <td style="width: 15%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: left;">o_bENO: B</td> <td style="width: 5%; text-align: right;">(13)</td> </tr> <tr> <td style="text-align: right;">(2) —</td> <td>UW: i_uRequestInstructionNo</td> <td></td> <td></td> <td style="text-align: left;">o_bOK: B</td> <td style="text-align: right;">(14)</td> </tr> <tr> <td style="text-align: right;">(3) —</td> <td>UW: i_uFDLAddress</td> <td></td> <td></td> <td style="text-align: left;">o_bErr: B</td> <td style="text-align: right;">(15)</td> </tr> <tr> <td style="text-align: right;">(4) —</td> <td>UW: i_uTimeoutTransmission</td> <td></td> <td></td> <td style="text-align: left;">o_uErrID: UW</td> <td style="text-align: right;">(16)</td> </tr> <tr> <td style="text-align: right;">(5) —</td> <td>UW: i_uAlignment</td> <td></td> <td></td> <td style="text-align: left;">o_uCommRefNo: UW</td> <td style="text-align: right;">(17)</td> </tr> <tr> <td style="text-align: right;">(6) —</td> <td>UW: i_uFeaturesSupported</td> <td></td> <td></td> <td style="text-align: left;">o_uMaxLenDataUnit: UW</td> <td style="text-align: right;">(18)</td> </tr> <tr> <td style="text-align: right;">(7) —</td> <td>UW: i_uProfileFeaturesSupported</td> <td></td> <td></td> <td style="text-align: left;">o_uFeaturesSupported: UW</td> <td style="text-align: right;">(19)</td> </tr> <tr> <td style="text-align: right;">(8) —</td> <td>UW: i_uProfileIdentNumber</td> <td style="text-align: left;">o_uProfileFeaturesSupported: UW</td> <td></td> <td></td> <td style="text-align: right;">(20)</td> </tr> <tr> <td style="text-align: right;">(9) —</td> <td>UW: i_uS_LenType</td> <td></td> <td></td> <td style="text-align: left;">o_uProfileIdentNo: UW</td> <td style="text-align: right;">(21)</td> </tr> <tr> <td style="text-align: right;">(10) —</td> <td>UW: i_uD_LenType</td> <td></td> <td></td> <td style="text-align: left;">o_uS_Type: UW</td> <td style="text-align: right;">(22)</td> </tr> <tr> <td style="text-align: right;">(11) —</td> <td>DUT: i_stInputManagement</td> <td></td> <td></td> <td style="text-align: left;">o_uS_Len: UW</td> <td style="text-align: right;">(23)</td> </tr> <tr> <td style="text-align: right;">(12) —</td> <td>DUT: i_stServiceResponseArea</td> <td></td> <td></td> <td style="text-align: left;">o_uD_Type: UW</td> <td style="text-align: right;">(24)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td style="text-align: left;">o_uD_Len: UW</td> <td style="text-align: right;">(25)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td style="text-align: left;">o_u3DetailedErrorCode: UW</td> <td style="text-align: right;">(26)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td style="text-align: left;">o_stOutputManagement: DUT</td> <td style="text-align: right;">(27)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td style="text-align: left;">o_stServiceRequestArea: DUT</td> <td style="text-align: right;">(28)</td> </tr> </table> </div>	(1) —	B: i_bEN			o_bENO: B	(13)	(2) —	UW: i_uRequestInstructionNo			o_bOK: B	(14)	(3) —	UW: i_uFDLAddress			o_bErr: B	(15)	(4) —	UW: i_uTimeoutTransmission			o_uErrID: UW	(16)	(5) —	UW: i_uAlignment			o_uCommRefNo: UW	(17)	(6) —	UW: i_uFeaturesSupported			o_uMaxLenDataUnit: UW	(18)	(7) —	UW: i_uProfileFeaturesSupported			o_uFeaturesSupported: UW	(19)	(8) —	UW: i_uProfileIdentNumber	o_uProfileFeaturesSupported: UW			(20)	(9) —	UW: i_uS_LenType			o_uProfileIdentNo: UW	(21)	(10) —	UW: i_uD_LenType			o_uS_Type: UW	(22)	(11) —	DUT: i_stInputManagement			o_uS_Len: UW	(23)	(12) —	DUT: i_stServiceResponseArea			o_uD_Type: UW	(24)					o_uD_Len: UW	(25)					o_u3DetailedErrorCode: UW	(26)					o_stOutputManagement: DUT	(27)					o_stServiceRequestArea: DUT	(28)
(1) —	B: i_bEN			o_bENO: B	(13)																																																																																												
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				o_stOutputManagement: DUT	(27)																																																																																												
				o_stServiceRequestArea: DUT	(28)																																																																																												

Labels

■ Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uRequestInstructionNo	Request instruction number	Word [unsigned]/bit string [16 bits]	1 to 8	Specifies the target request instruction number.
(3)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(4)	i_uTimeoutTransmission	Transmission timeout value	Word [unsigned]/bit string [16 bits]	0 to 65535 ^{*1}	Specifies the transmission timeout value.
(5)	i_uAlignment	Alignment	Word [unsigned]/bit string [16 bits]	0 to 65535 ^{*1}	Specifies the Alignment.
(6)	i_uFeaturesSupported	Features Supported	Word [unsigned]/bit string [16 bits]	0 to 65535 ^{*1}	Specifies the Features Supported.
(7)	i_uProfileFeaturesSupported	Profile Features Supported	Word [unsigned]/bit string [16 bits]	0 to 65535 ^{*1}	Specifies the Profile Features Supported.

No.	Variable name	Name	Data type	Scope	Description
(8)	i_uProfileIdentNumber	Profile Ident Number	Word [unsigned]/bit string [16 bits]	0 to 65535 ^{*1}	Specifies the Profile Ident Number.
(9)	i_uS_LenType	Send source type and size	Word [unsigned]/bit string [16 bits]	Higher order: 0 to 255 ^{*1} Lower order: 0 to 255 ^{*1}	Higher order: Specifies the send source type. Lower order: Specifies the send source size.
(10)	i_uD_LenType	Destination type and size	Word [unsigned]/bit string [16 bits]	Higher order: 0 to 255 ^{*1} Lower order: 0 to 255 ^{*1}	Higher order: Specifies the destination type. Lower order: Specifies the destination size.
(11)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(12)	i_stServiceResponseArea	Service response area	Structure	—	Specifies the global label for the service response area.

*1 The setting range varies depending on the specifications of the DP-Slave.

■ Output arguments

No.	Variable name	Name	Data type	Default value	Description
(13)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(14)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(15)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(16)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the request instruction sent via the acyclic communication is stored.
(17)	o_uCommRefNo	CommRef number	Word [unsigned]/bit string [16 bits]	0	The communication reference number that is included in the response format of the INITIATE (Class 2) service is stored.
(18)	o_uMaxLenDataUnit	Maximum data unit length	Word [unsigned]/bit string [16 bits]	0	The maximum data unit length is stored.
(19)	o_uFeaturessSupported	Supported functions	Word [unsigned]/bit string [16 bits]	0	The supported functions are stored.
(20)	o_uProfileFeaturesSupported	Supported profiles	Word [unsigned]/bit string [16 bits]	0	The supported profile functions are stored.
(21)	o_uProfileIdentNo	Profile ID	Word [unsigned]/bit string [16 bits]	0	The supported profile ID is stored.
(22)	o_uS_Type	Send source address parameter type	Word [unsigned]/bit string [16 bits]	0	The send source address parameter type is stored.
(23)	o_uS_Len	Send source address parameter size	Word [unsigned]/bit string [16 bits]	0	The send source address parameter size is stored.
(24)	o_uD_Type	Destination address parameter type	Word [unsigned]/bit string [16 bits]	0	Stores the destination address parameter type.
(25)	o_uD_Len	Destination address parameter size	Word [unsigned]/bit string [16 bits]	0	The destination address parameter size is stored.
(26)	o_u3DetailedErrorCode	Error details	Word [unsigned]/bit string [16 bits] (0..2)	0	Error details for the request instruction sent via the acyclic communication are stored.
(27)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(28)	o_stServiceRequestArea	Service request area	Structure	0	The global label for the service request area is stored.

FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	844 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB establishes the line connection to the specified DP-Slave using one request instruction out of eight request instructions usable in the acyclic communication. When i_bEN (execution command) is turned on, it executes the INITIATE service request/response processing using the request instruction specified with i_uRequestInstructionNo (request instruction number) to the DP-Slave specified with i_uFDLAddress (FDL address). When the communication with the DP-Slave is successfully established, o_bOK (normal completion) is turned on and the CommRef number is stored in o_uCommRefNo (CommRef number). In the event of a response error, o_bErr (error completion) is turned on, and o_uErrID (error ID) and o_u3DetailedErrorCode (error details) are stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	
Timing chart of I/O signals	<p>■When the operation is completed successfully</p> <p>(1) Unexecuted (2) Executed (3) Response data</p>	

Item	Description
Timing chart of I/O signals	<p>■When the operation is completed with an error</p> <p>(1) Unexecuted (2) Executed (3) Error ID (4) Error details</p>
Precautions	<ul style="list-style-type: none"> • Before using this module FB in the program, update the PROFIBUS labels. (MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)) • This module 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, and o_uErrID (error ID) is cleared to 0. • Acyclic communication has eight request instructions. Data of each channel can be read/written from/to the DP-Slave at a specified timing independently of data exchange.

Error ID and error details

For o_uErrID (error ID) and o_u3DetailedErrorCode (error details), refer to the following.

Stored value	Description	Action
0100H	The request instruction number is out of the setting range.	Check whether the specified request instruction number is correct or not, then execute it again.
Other than 0100H	The status code of RJ71PB91V	MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)

Operation parameters

M+RJ71PB91V_ProfibusClass2Initiate has no operation parameters.

2.6 M+RJ71PB91V_ProfibusClass2Read

Name

M+RJ71PB91V_ProfibusClass2Read

Overview

Item	Description																																													
Functional overview	This module FB executes the READ (Class 2) service via the acyclic communication to the DP-Slave connected using the INITIATE (Class 2) service.																																													
Symbol	<div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">M+RJ71PB91V_ProfibusClass2Read</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: right;">(1) —</td> <td style="width: 50%;">B: i_bEN</td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: left;">o_bENO: B</td> <td style="width: 10%; text-align: right;">(10)</td> </tr> <tr> <td style="text-align: right;">(2) —</td> <td>UW: i_uRequestInstructionNo</td> <td></td> <td style="text-align: left;">o_bOK: B</td> <td style="text-align: right;">(11)</td> </tr> <tr> <td style="text-align: right;">(3) —</td> <td>UW: i_uFDLAddress</td> <td></td> <td style="text-align: left;">o_bErr: B</td> <td style="text-align: right;">(12)</td> </tr> <tr> <td style="text-align: right;">(4) —</td> <td>UW: i_uCommRefNo</td> <td></td> <td style="text-align: left;">o_uErrID: UW</td> <td style="text-align: right;">(13)</td> </tr> <tr> <td style="text-align: right;">(5) —</td> <td>UW: i_uDataLength</td> <td></td> <td style="text-align: left;">o_uReadData: UW</td> <td style="text-align: right;">(14)</td> </tr> <tr> <td style="text-align: right;">(6) —</td> <td>UW: i_uSlotNo</td> <td></td> <td style="text-align: left;">o_uDataLength: UW</td> <td style="text-align: right;">(15)</td> </tr> <tr> <td style="text-align: right;">(7) —</td> <td>UW: i_uIndex</td> <td></td> <td style="text-align: left;">o_u3DetailedErrorCode: UW</td> <td style="text-align: right;">(16)</td> </tr> <tr> <td style="text-align: right;">(8) —</td> <td>DUT: i_stInputManagement</td> <td></td> <td style="text-align: left;">o_stOutputManagement: DUT</td> <td style="text-align: right;">(17)</td> </tr> <tr> <td style="text-align: right;">(9) —</td> <td>DUT: i_stServiceResponseArea</td> <td></td> <td style="text-align: left;">o_stServiceRequestArea: DUT</td> <td style="text-align: right;">(18)</td> </tr> </table> </div>	(1) —	B: i_bEN		o_bENO: B	(10)	(2) —	UW: i_uRequestInstructionNo		o_bOK: B	(11)	(3) —	UW: i_uFDLAddress		o_bErr: B	(12)	(4) —	UW: i_uCommRefNo		o_uErrID: UW	(13)	(5) —	UW: i_uDataLength		o_uReadData: UW	(14)	(6) —	UW: i_uSlotNo		o_uDataLength: UW	(15)	(7) —	UW: i_uIndex		o_u3DetailedErrorCode: UW	(16)	(8) —	DUT: i_stInputManagement		o_stOutputManagement: DUT	(17)	(9) —	DUT: i_stServiceResponseArea		o_stServiceRequestArea: DUT	(18)
(1) —	B: i_bEN		o_bENO: B	(10)																																										
(2) —	UW: i_uRequestInstructionNo		o_bOK: B	(11)																																										
(3) —	UW: i_uFDLAddress		o_bErr: B	(12)																																										
(4) —	UW: i_uCommRefNo		o_uErrID: UW	(13)																																										
(5) —	UW: i_uDataLength		o_uReadData: UW	(14)																																										
(6) —	UW: i_uSlotNo		o_uDataLength: UW	(15)																																										
(7) —	UW: i_uIndex		o_u3DetailedErrorCode: UW	(16)																																										
(8) —	DUT: i_stInputManagement		o_stOutputManagement: DUT	(17)																																										
(9) —	DUT: i_stServiceResponseArea		o_stServiceRequestArea: DUT	(18)																																										

Labels

Input arguments

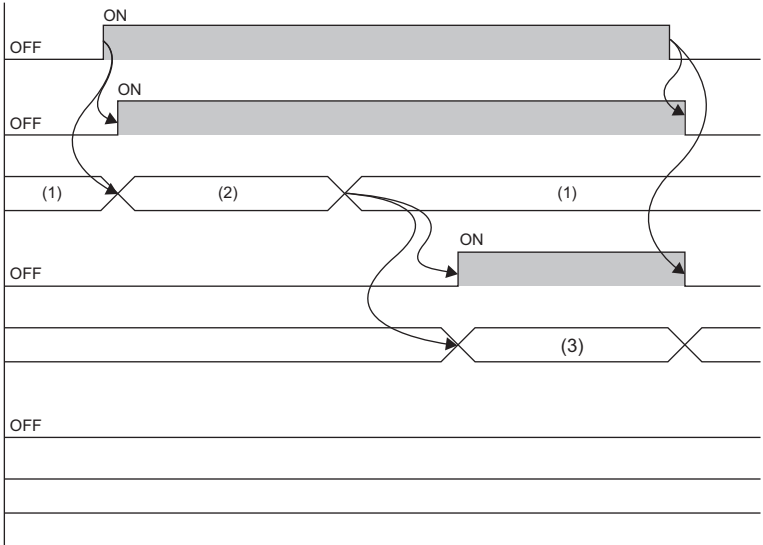
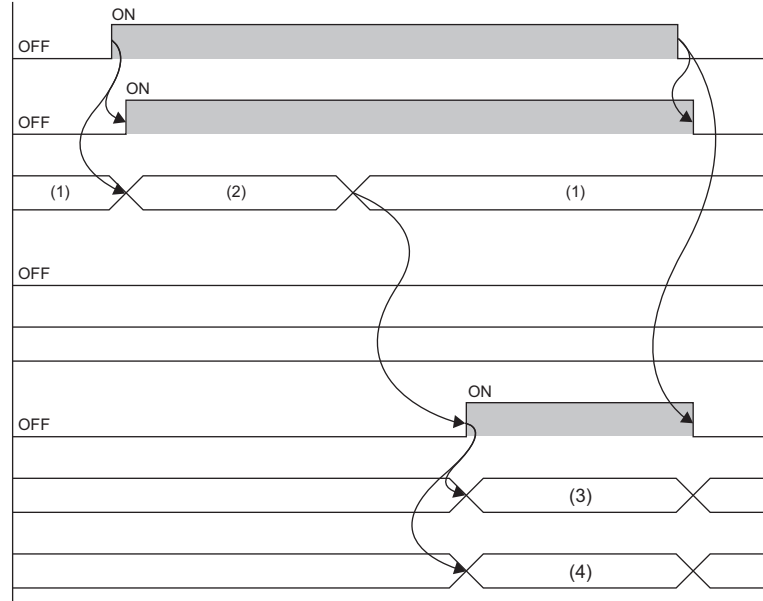
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uRequestInstructionNo	Request instruction number	Word [unsigned]/bit string [16 bits]	1 to 8	Specifies the target request instruction number.
(3)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(4)	i_uCommRefNo	CommRef number	Word [unsigned]/bit string [16 bits]	0 to 126	Stores the CommRef number that is included in the response format of the INITIATE (Class 2) service.
(5)	i_uDataLength	Read data length	Word [unsigned]/bit string [16 bits]	1 to 240	Specifies the read data length in bytes.
(6)	i_uSlotNo	Slot number	Word [unsigned]/bit string [16 bits]	0 to 254	Specifies the target slot number.
(7)	i_uIndex	Index	Word [unsigned]/bit string [16 bits]	0 to 255	Specifies the target index.
(8)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(9)	i_stServiceResponseArea	Service response area	Structure	—	Specifies the global label for the service response area.

■ Output arguments

No.	Variable name	Name	Data type	Default value	Description
(10)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(11)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(12)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(13)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the request instruction sent via the acyclic communication is stored.
(14)	o_uReadData	Storage location of read data	Word [unsigned]/bit string [16 bits]	0	The start number of the device where the read data will be saved is stored.
(15)	o_uDataLength	Read data length	Word [unsigned]/bit string [16 bits]	0	The read data length in bytes is stored.
(16)	o_u3DetailedErrorCode	Error details	Word [unsigned]/bit string [16 bits] (0..2)	0	Error details for the request instruction sent via the acyclic communication are stored.
(17)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(18)	o_stServiceRequestArea	Service request area	Structure	0	The global label for the service request area is stored.


FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	817 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	Using one request instruction out of eight request instructions usable in the acyclic communication, this module FB reads the data from the DP-Slave connected using the INITIATE (Class 2) service. When i_bEN (execution command) is turned on, it executes the READ service request/response processing using the request instruction specified with i_uRequestInstructionNo (request instruction number) to the DP-Slave specified with i_uFDLAddress (FDL address). When the communication with the DP-Slave is successfully established, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on, and o_uErrID (error ID) and o_u3DetailedErrorCode (error details) are stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	

Item	Description
Timing chart of I/O signals	<p>■When the operation is completed successfully</p>  <p>(1) Unexecuted (2) Executed (3) Read data</p>
Timing chart of I/O signals	<p>■When the operation is completed with an error</p>  <p>(1) Unexecuted (2) Executed (3) Error ID (4) Error details</p>
Precautions	<ul style="list-style-type: none"> • Before using this module FB in the program, update the PROFIBUS labels. (MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)) • This module 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, and o_uErrID (error ID) is cleared to 0. • Acyclic communication has eight request instructions. Data of each request instruction can be read/written from/to the DP-Slave at a specified timing independently of data exchange. • This READ (Class 2) service can be executed only to the DP-Slaves connected using the INITIATE (Class 2) service.

Error ID and error details

For o_uErrID (error ID) and o_u3DetailedErrorCode (error details), refer to the following.

Stored value	Description	Action
0100H	The request instruction number is out of the setting range.	Check whether the specified request instruction number is correct or not, then execute it again.
Other than 0100H	The status code of RJ71PB91V	 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)

Operation parameters

M+RJ71PB91V_ProfibusClass2Read has no operation parameters.

2.7 M+RJ71PB91V_ProfibusClass2Write

Name

M+RJ71PB91V_ProfibusClass2Write

Overview

Item	Description																																																		
Functional overview	This module FB executes the WRITE (Class 2) service via the acyclic communication to the DP-Slave connected using the INITIATE (Class 2) service.																																																		
Symbol	<div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">M+RJ71PB91V_ProfibusClass2Write</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: right;">(1) —</td> <td style="width: 60%;">B: i_bEN</td> <td style="width: 15%;"></td> <td style="width: 20%; text-align: left;">o_bENO: B</td> <td style="width: 5%; text-align: right;">(11)</td> </tr> <tr> <td style="text-align: right;">(2) —</td> <td>UW: i_uRequestInstructionNo</td> <td></td> <td style="text-align: left;">o_bOK: B</td> <td style="text-align: right;">(12)</td> </tr> <tr> <td style="text-align: right;">(3) —</td> <td>UW: i_uFDLAddress</td> <td></td> <td style="text-align: left;">o_bErr: B</td> <td style="text-align: right;">(13)</td> </tr> <tr> <td style="text-align: right;">(4) —</td> <td>UW: i_uCommRefNo</td> <td></td> <td style="text-align: left;">o_uErrID: UW</td> <td style="text-align: right;">(14)</td> </tr> <tr> <td style="text-align: right;">(5) —</td> <td>UW: i_uDataLength</td> <td></td> <td style="text-align: left;">o_uDataLength: UW</td> <td style="text-align: right;">(15)</td> </tr> <tr> <td style="text-align: right;">(6) —</td> <td>UW: i_uSlotNo</td> <td></td> <td style="text-align: left;">o_u3DetailedErrorCode: UW</td> <td style="text-align: right;">(16)</td> </tr> <tr> <td style="text-align: right;">(7) —</td> <td>UW: i_uIndex</td> <td></td> <td style="text-align: left;">o_stOutputManagement: DUT</td> <td style="text-align: right;">(17)</td> </tr> <tr> <td style="text-align: right;">(8) —</td> <td>UW: i_uWriteData</td> <td></td> <td style="text-align: left;">o_stServiceRequestArea: DUT</td> <td style="text-align: right;">(18)</td> </tr> <tr> <td style="text-align: right;">(9) —</td> <td>DUT: i_stInputManagement</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">(10) —</td> <td>DUT: i_stServiceResponseArea</td> <td></td> <td></td> <td></td> </tr> </table> </div>	(1) —	B: i_bEN		o_bENO: B	(11)	(2) —	UW: i_uRequestInstructionNo		o_bOK: B	(12)	(3) —	UW: i_uFDLAddress		o_bErr: B	(13)	(4) —	UW: i_uCommRefNo		o_uErrID: UW	(14)	(5) —	UW: i_uDataLength		o_uDataLength: UW	(15)	(6) —	UW: i_uSlotNo		o_u3DetailedErrorCode: UW	(16)	(7) —	UW: i_uIndex		o_stOutputManagement: DUT	(17)	(8) —	UW: i_uWriteData		o_stServiceRequestArea: DUT	(18)	(9) —	DUT: i_stInputManagement				(10) —	DUT: i_stServiceResponseArea			
(1) —	B: i_bEN		o_bENO: B	(11)																																															
(2) —	UW: i_uRequestInstructionNo		o_bOK: B	(12)																																															
(3) —	UW: i_uFDLAddress		o_bErr: B	(13)																																															
(4) —	UW: i_uCommRefNo		o_uErrID: UW	(14)																																															
(5) —	UW: i_uDataLength		o_uDataLength: UW	(15)																																															
(6) —	UW: i_uSlotNo		o_u3DetailedErrorCode: UW	(16)																																															
(7) —	UW: i_uIndex		o_stOutputManagement: DUT	(17)																																															
(8) —	UW: i_uWriteData		o_stServiceRequestArea: DUT	(18)																																															
(9) —	DUT: i_stInputManagement																																																		
(10) —	DUT: i_stServiceResponseArea																																																		

Labels

Input arguments

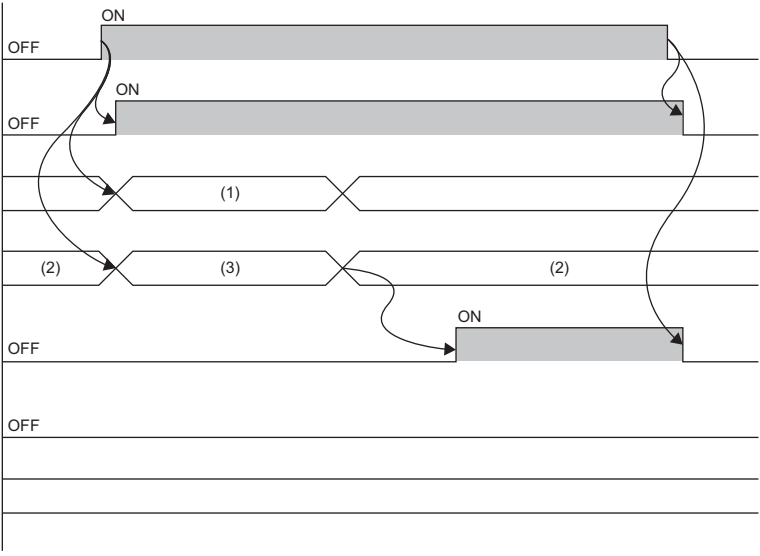
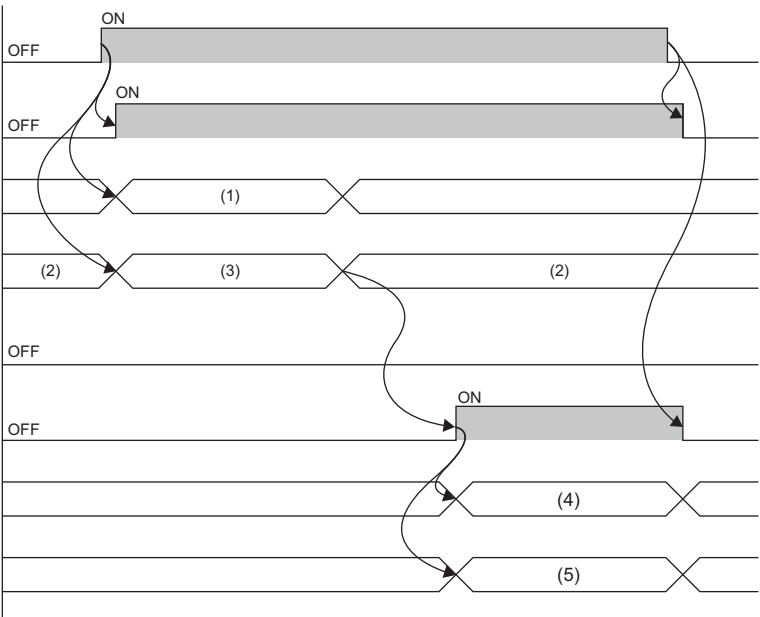
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uRequestInstructionNo	Request instruction number	Word [unsigned]/bit string [16 bits]	1 to 8	Specifies the target request instruction number.
(3)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(4)	i_uCommRefNo	CommRef number	Word [unsigned]/bit string [16 bits]	0 to 126	Stores the CommRef number that is included in the response format of the INITIATE (Class 2) service.
(5)	i_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	1 to 240	Specifies the write data length in bytes.
(6)	i_uSlotNo	Slot number	Word [unsigned]/bit string [16 bits]	0 to 254	Specifies the target slot number.
(7)	i_uIndex	Index	Word [unsigned]/bit string [16 bits]	0 to 255	Specifies the target index.
(8)	i_uWriteData	Storage location of the write data	Word [unsigned]/bit string [16 bits]	—	Specifies the start number of the device where the write data are saved.
(9)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(10)	i_stServiceResponseArea	Service response area	Structure	—	Specifies the global label for the service response area.

■ Output arguments

No.	Variable name	Name	Data type	Default value	Description
(11)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(12)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(13)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(14)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the request instruction sent via the acyclic communication is stored.
(15)	o_uDataLength	Write data length	Word [unsigned]/bit string [16 bits]	0	The write data length in bytes is stored.
(16)	o_u3DetailedErrorCode	Error details	Word [unsigned]/bit string [16 bits] (0..2)	0	Error details for the request instruction sent via the acyclic communication are stored.
(17)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(18)	o_stServiceRequestArea	Service request area	Structure	0	The global label for the service request area is stored.


FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	817 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	Using one request instruction out of eight request instructions usable in the acyclic communication, this module FB writes the data of the DP-Slave connected using the INITIATE (Class 2) service. When i_bEN (execution command) is turned on, it executes the WRITE service request/response processing using the request instruction specified with i_uRequestInstructionNo (request instruction number) to the DP-Slave specified with i_uFDLAddress (FDL address). When the communication with the DP-Slave is successfully established, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on, and o_uErrID (error ID) and o_u3DetailedErrorCode (error details) are stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	

Item	Description
Timing chart of I/O signals	<p>■When the operation is completed successfully</p>  <p>(1) Write data (2) Unexecuted (3) Executed</p>
Timing chart of I/O signals	<p>■When the operation is completed with an error</p>  <p>(1) Write data (2) Unexecuted (3) Executed (4) Error ID (5) Error details</p>
Precautions	<ul style="list-style-type: none"> • Before using this module FB in the program, update the PROFIBUS labels. (MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)) • 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, and o_uErrID (error ID) is cleared to 0. • Acyclic communication has eight request instructions. Data of each channel can be read/written from/to the DP-Slave at a specified timing independently of data exchange. • The WRITE (Class 2) service of this module FB can be executed only to the DP-Slaves connected using the INITIATE (Class 2) service.

Error ID and error details

For o_uErrID (error ID) and o_u3DetailedErrorCode (error details), refer to the following.

Stored value	Description	Action
0100H	The request instruction number is out of the setting range.	Check whether the specified request instruction number is correct or not, then execute it again.
Other than 0100H	The status code of RJ71PB91V	 MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)

Operation parameters

M+RJ71PB91V_ProfibusClass2Write has no operation parameters.

2.8 M+RJ71PB91V_ProfibusClass2Abort

Name

M+RJ71PB91V_ProfibusClass2Abort

Overview

Item	Description																								
Functional overview	This module FB executes the ABORT (Class 2) service to the specified DP-Slave via the acyclic communication.																								
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">M+RJ71PB91V_ProfibusClass2Abort</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">(1) —</td> <td style="width: 45%;">B: i_bEN</td> <td style="width: 15%;"></td> <td style="width: 25%;">o_bENO: B — (7)</td> </tr> <tr> <td>(2) —</td> <td>UW: i_uRequestInstructionNo</td> <td></td> <td>o_bOK: B — (8)</td> </tr> <tr> <td>(3) —</td> <td>UW: i_uFDLAddress</td> <td></td> <td>o_bErr: B — (9)</td> </tr> <tr> <td>(4) —</td> <td>UW: i_uCommRefNo</td> <td></td> <td>o_uErrID: UW — (10)</td> </tr> <tr> <td>(5) —</td> <td>DUT: i_stInputManagement</td> <td>o_stOutputManagement: DUT</td> <td>— (11)</td> </tr> <tr> <td>(6) —</td> <td>DUT: i_stServiceResponseArea</td> <td>o_stServiceRequestArea: DUT</td> <td>— (12)</td> </tr> </table> </div>	(1) —	B: i_bEN		o_bENO: B — (7)	(2) —	UW: i_uRequestInstructionNo		o_bOK: B — (8)	(3) —	UW: i_uFDLAddress		o_bErr: B — (9)	(4) —	UW: i_uCommRefNo		o_uErrID: UW — (10)	(5) —	DUT: i_stInputManagement	o_stOutputManagement: DUT	— (11)	(6) —	DUT: i_stServiceResponseArea	o_stServiceRequestArea: DUT	— (12)
(1) —	B: i_bEN		o_bENO: B — (7)																						
(2) —	UW: i_uRequestInstructionNo		o_bOK: B — (8)																						
(3) —	UW: i_uFDLAddress		o_bErr: B — (9)																						
(4) —	UW: i_uCommRefNo		o_uErrID: UW — (10)																						
(5) —	DUT: i_stInputManagement	o_stOutputManagement: DUT	— (11)																						
(6) —	DUT: i_stServiceResponseArea	o_stServiceRequestArea: DUT	— (12)																						

Labels

Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_uRequestInstructionNo	Request instruction number	Word [unsigned]/bit string [16 bits]	1 to 8	Specifies the target request instruction number.
(3)	i_uFDLAddress	FDL address	Word [unsigned]/bit string [16 bits]	0 to 125 (00H to 7DH)	Specifies the target FDL address.
(4)	i_uCommRefNo	CommRef number	Word [unsigned]/bit string [16 bits]	0 to 126	Stores the CommRef number that is included in the response format of the INITIATE (Class 2) service.
(5)	i_stInputManagement	PROFIBUS input management area	Structure	—	Specifies the global label for the PROFIBUS input management area.
(6)	i_stServiceResponseArea	Service response area	Structure	—	Specifies the global label for the service response area.

Output arguments

No.	Variable name	Name	Data type	Default value	Description
(7)	o_bENO	Execution status	Bit	Off	On: In execution Off: Not in execution
(8)	o_bOK	Normal completion	Bit	Off	The on state indicates that the module FB processing has been completed successfully.
(9)	o_bErr	Error completion	Bit	Off	The on state indicates that the module FB processing has been completed with an error.
(10)	o_uErrID	Error ID	Word [unsigned]/bit string [16 bits]	0	The error ID for the request instruction sent via the acyclic communication is stored.
(11)	o_stOutputManagement	PROFIBUS output management area	Structure	0	The global label for the PROFIBUS output management area is stored.
(12)	o_stServiceRequestArea	Service request area	Structure	0	The global label for the service request area is stored.

FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	FBD	
Number of basic steps	755 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB disconnects the line connection to the specified DP-Slave using one request instruction out of eight request instructions usable in the acyclic communication. When i_bEN (execution command) is turned on, it executes the ABORT service request/response processing using the request instruction specified with i_uRequestInstructionNo (request instruction number) to the DP-Slave specified with i_uFDLAddress (FDL address). When the communication with the DP-Slave is successfully established, o_bOK (normal completion) is turned on. In the event of a response error, o_bErr (error completion) is turned on and o_uErrID (error ID) is stored.	
FB compilation method	Macro type	
FB operation	Executes when FB is turned on	
Input condition for FB_EN	None	
Timing chart of I/O signals	<p>■When the operation is completed successfully</p> <p>(1) Unexecuted (2) Executed</p>	

Item	Description
Timing chart of I/O signals	<p>■When the operation is completed with an error</p> <p>(1) Unexecuted (2) Executed (3) Error ID</p>
Precautions	<ul style="list-style-type: none"> • Before using this module FB in the program, update the PROFIBUS labels. (MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application)) • This module 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, and o_uErrID (error ID) is cleared to 0. • Acyclic communication has eight request instructions. Data of each channel can be read/written from/to the DP-Slave at a specified timing independently of data exchange.

Error ID

The status code of RJ71PB91V is stored in o_uErrID (error ID). (MELSEC iQ-R PROFIBUS-DP Module User's Manual (Application))

Operation parameters

M+RJ71PB91V_ProfibusClass2Abort has no operation parameters.

2.9 M+RJ71PB91V_S_NotifyMstExtDiagInfo

Name

M+RJ71PB91V_S_NotifyMstExtDiagInfo

Overview

Item	Description
Functional overview	This module FB requests the notification of extended diagnostic information or notification of correction of the relevant error from DP-Slave to DP-Master.
Symbol	<p>The symbol diagram shows a rectangular box labeled 'M+RJ71PB91V_S_NotifyMstExtDiagInfo'. On the left side, there are four input connections labeled (1) through (4): (1) B: i_bEN, (2) DUT: i_stModule, (3) UW: i_uDataLength, and (4) UW: i_uSendData. On the right side, there are four output connections labeled (5) through (8): (5) o_bENO: B, (6) o_bOK: B, (7) o_bErr: B, and (8) o_uModuleErrId: UW.</p>

Labels

Input arguments

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	—	On: The module FB is activated. Off: The module FB is not activated.
(2)	i_stModule	Module label	Structure	—	Specifies the target module to which the module FB is executed. Specify the module label of the target module.
(3)	i_uDataLength	Data length of extended diagnostic information	Word [unsigned]/bit string [16 bits]	0 to 24	0: Notification of correction of the relevant error 1 to 24: Data length of extended diagnostic information
(4)	i_uSendData	Storage location for extended diagnostic information	Word [unsigned]/bit string [16 bits]	—	Specifies the start address of the device where extended diagnostic information is saved.

■ 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_uModuleErrId	Error code	Word [unsigned]/bit string [16 bits]	0	The error code is stored.

FB details

Item	Description	
Available device	Module	RJ71PB91V
	CPU module	RCPU
	Engineering tool	GX Works3
Language	Ladder	
Number of basic steps	76 steps The number of steps of the module FB embedded in a program depends on the CPU module used, the input/output definitions, and the option setting of GX Works3. For the option setting of GX Works3, refer to the GX Works3 Operating Manual.	
Processing	This module FB provides the DP-Master with notification of extended diagnostic information or notification of correction of the relevant error that has occurred during data exchange. Notification of extended diagnostic information or notification of correction of the relevant error is requested when i_bEN (execution command) is turned on. <ul style="list-style-type: none"> When the data length of extended diagnostic information is set to other than 0, extended diagnostic information is notified. When the data length of extended diagnostic information is set to 0, correction of the relevant error is notified. When the processing is completed successfully, o_bOK (normal completion) is turned on. When the processing is completed with an error, o_bErr (error completion) is turned on, and an error code is stored in o_uModuleErrId (error code). Processing is stopped when i_bEN (execution command) is turned off before the sending of the module FB is completed. However, notification of extended diagnostic information may be completed depending on the timing of the stoppage.	
FB compilation method	Macro type	
FB operation	Pulse type (execution of multiple scans)	
Input condition for FB_EN	None	

Item	Description
Timing chart of I/O signals	<p>■When the operation is completed successfully</p> <p>(1) Unexecuted (2) Executing (3) Extended diagnostic information data (update)</p> <p>■When the operation is completed with an error</p> <p>(1) Unexecuted (2) Executing (3) Error code</p>
Precautions	<ul style="list-style-type: none"> This module FB does not include the error 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 (completed with an error) is turned on. By turning off i_bEN (execution command), o_bOK (normal completion) and o_bErr (error completion) are turned off, and o_uModuleErrId (error code) is cleared to 0. This module FB can be executed only while 'During data exchange signal' (X1) is turned on. Set the interlock so that i_bEN (execution command) is executed while 'During data exchange signal' (X1) is turned on.

Error code

Stored value	Description	Action
4001H	Data length of extended diagnostic information is out of the setting range.	Check the data length of extended diagnostic information.

Operation parameters

M+RJ71PB91V_S_NotifyMstExtDiagInfo has no operation parameters.

INSTRUCTION INDEX

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MEMO

REVISIONS

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

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