



Programmable Controller

MELSEC iQ-R
series

MELSEC iQ-R I/O Module Function Block Reference

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1 FUNCTION BLOCK (FB) LIST

This chapter lists the FBs for the MELSEC iQ-R series I/O module.

Name ^{*1}	Description
M+model_ReadOutputOnTimes	Reads the number of the relay ON times of the specified module and relay device number.
M+model_CompareRelayOnTimes	Reads the number of relay ON times, compares the value with the setting value, and turns on a device according to the comparison result.
M+RX40NC6B_SaveEventTime ^{*2}	Collects event time stamp data and stores the data in CSV files.

*1 Note that this reference does not describe the FB version information which is displayed such as "_00A" at the end of FB name

*2 When using this FB, set "Target" to "Module Label" in the refresh setting.

2 I/O MODULE FB

2.1 M+model_ReadOutputOnTimes

Name

■RY10R2

M+RY10R2_ReadOutputOnTimes

■RY10R2-TS

M+RY10R2_TS_ReadOutputOnTimes

■RY18R2A

M+RY18R2A_ReadOutputOnTimes

Overview

Item	Description
Functional overview	Reads the number of the relay ON times of the specified module and relay device number.
Symbol	

Labels

■Input labels

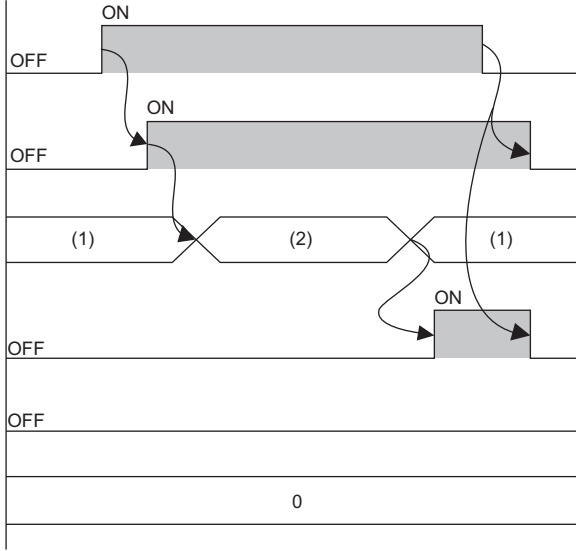
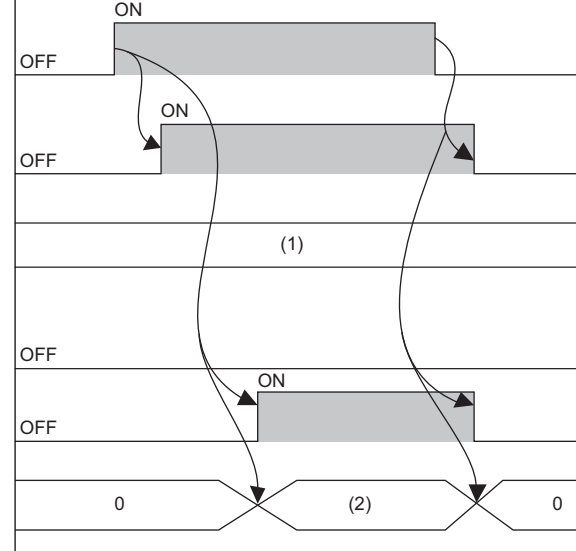
No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the contact output module.
(3)	i_uRaNo	Target relay device number	Word [Unsigned]	0H to FH	Specify the relay device number to read the number of ON times. (For example, when output Y*0 is read, specify 0H.)

■Output labels

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(5)	o_udOutputOnTotal	Integration value of No. of relay ON times	Double Word [Unsigned]	0	The integration value of the number of relay ON times of the specified target module and relay device number is read.
(6)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that reading the number of relay ON times has been completed successfully.
(7)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(8)	o_uErrId	Error code	Word [Unsigned]	0	The error code of an error that occurred in the FB is stored.

FB details

Item	Description
Available devices	Target module RY10R2, RY18R2A
	CPU modules MELSEC iQ-R series CPU modules
	Engineering tool GX Works3
Language	Ladder diagram
Number of basic steps	53 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	<ul style="list-style-type: none"> The integration value of the number of relay ON times specified with <code>i_uRaNo</code> (Target relay device number) of the module specified with <code>i_stModule</code> (Module label) is output to <code>o_udOutputONTotal</code> (Integration value of the number of relay ON times). The operation of this FB is one-shot, triggered by <code>i_bEN</code> (Execution command). If the FB has completed successfully, <code>o_bOK</code> (Normal completion) turns on. If the setting value of <code>i_uRaNo</code> (Target relay device number) is out of the setting range, <code>o_bErr</code> (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in <code>o_uErrId</code> (Error code). For the error code, refer to the list of error codes.
FB compilation method	Macro type
FB operation	Pulsed execution (single scan execution type)

Item	Description
Timing chart of I/O signals	<p>When the operation is completed successfully</p>  <p>(1): Unexecuted (2): Read → : Executed by the FB.</p> <p>When the operation is completed with an error</p>  <p>(1): Unexecuted (2): Error code → : Executed by the FB.</p>
Restrictions or precautions	<ul style="list-style-type: none"> • This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the relay device number. • The FB requires the configuration of the ladder for every input label.

Error code

Error code	Description	Action
101H	The set value of i_uRaNo is out of the range. The relay device number is not within the range of 0H to FH.	Execute the FB again after checking the setting.

2.2 M+model_CompareRelayOnTimes

Name

■RY10R2

M+RY10R2_CompareRelayOnTimes

■RY10R2-TS

M+RY10R2_TS_CompareRelayOnTimes

■RY18R2A

M+RY18R2A_CompareRelayOnTimes

Overview

Item	Description
Functional overview	Reads the number of the relay ON times of the specified module and relay device number, compares the value with the set value, and outputs the comparison result.
Symbol	<p>The diagram shows a rectangular block with four input lines on the left and six output lines on the right. The inputs are labeled (1) B:i_bEN, (2) DUT:i_stModule, (3) UW:i_uRaNo, and (4) UD:i_udCompareCount. The outputs are labeled (5) o_bENO:B, (6) o_udOutputOnTotal:UD, (7) o_bOK:B, (8) o_bErr:B, (9) o_uErrId:UW, and (10) o_bFbResult:B.</p>

Labels

■Input labels

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the contact output module.
(3)	i_uRaNo	Target relay device number	Word [Unsigned]	0H to FH	Specify the relay device number to read the number of ON times. (For example, when output Y*0 is read, specify 0H.)
(4)	i_udCompareCount	Number of comparisons	Double Word [Unsigned]	0 to 4294967295*1	Specify the number of times for comparing with the relay ON times.

*1 For the number of comparisons, refer to "Precautions when using the contact output module" in the following manual and specify a contact switching life suitable for the use environment including a switching current.

MELSEC iQ-R I/O Module User's Manual

■ Output labels

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	o_udOutputOnTotal	Integration value of No. of relay ON times	Double Word [Unsigned]	0 ^{*1}	The integration value of the number of relay ON times of the specified target module and relay device number is read.
(7)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that reading the number of relay ON times has been completed successfully.
(8)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(9)	o_uErrId	Error code	Word [Unsigned]	0	The error code of an error that occurred in the FB is stored.
(10)	o_bFbResult	Comparison operation result	Bit	Off ^{*1}	This label turns on when the number of relay ON times is greater than the number of comparisons.

*1 o_udOutputOnTotal (Number of relay ON times) is the ring counter. Note that if an integration value exceeds 4294967295, the integration value returns to 0, and o_bFbResult (Comparison operation result) turns off from on.

FB details

Item	Description	
Available devices	Target module	RY10R2, RY18R2A
	CPU modules	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	60 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	<ul style="list-style-type: none"> The integration value of the number of relay ON times specified with i_uRaNo (Target relay device number) of the module specified with i_stModule (Module label) is output to o_udOutputONTotal (Integration value of the number of relay ON times). By turning on i_bEN (Execution command), the integration value of the number of relay ON times and the numbers specified with i_udCompareCount are compared. When o_udOutputONTotal is greater than i_udCompareCount, o_bFbResult is turned on. The operation of this FB is one-shot, triggered by i_bEN (Execution command). If the FB has completed successfully, o_bOK (Normal completion) turns on. If the setting value of i_uRaNo (Target relay device number) is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. 	
FB compilation method	Macro type	
FB operation	Pulsed execution (single scan execution type)	

Item	Description
Timing chart of I/O signals	<p>When the operation is completed successfully</p> <p>(1): Unexecuted (2): Read (3): Comparison operation → : Executed by the FB.</p> <p>When the operation is completed with an error</p> <p>(1): Unexecuted (2): Error code → : Executed by the FB.</p>
Restrictions or precautions	<ul style="list-style-type: none"> • This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the relay device number. • The FB requires the configuration of the ladder for every input label.

Error code

Error code	Description	Action
101H	The set value of i_uRaNo is out of the range. The relay device number is not within the range of 0H to FH.	Execute the FB again after checking the setting.

2.3 M+RX40NC6B_SaveEventTime

Name

M+RX40NC6B_SaveEventTime

Overview

Item	Description
Functional overview	Collects event time stamp data and stores the data in CSV files.
Symbol	

Labels

Input labels

No.	Variable name	Name	Data type	Range	Description											
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.											
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the input module with diagnostic functions.											
(3)	i_uEventTimeStampFunctionEnable_Disable	Event time stamp function enable/disable	Word [Unsigned]	0001H to FFFFH	For X00 to X0F, set whether to enable or disable the event time stamp function. 0: Disable, 1: Enable <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15</td> <td style="text-align: center;">b3</td> <td style="text-align: center;">b2</td> <td style="text-align: center;">b1</td> <td style="text-align: center;">b0</td> </tr> <tr> <td style="text-align: center;">X0F</td> <td style="text-align: center;">...</td> <td style="text-align: center;">X03</td> <td style="text-align: center;">X02</td> <td style="text-align: center;">X01</td> <td style="text-align: center;">X00</td> </tr> </table>	b15	b3	b2	b1	b0	X0F	...	X03	X02	X01	X00
b15	b3	b2	b1	b0												
X0F	...	X03	X02	X01	X00											
(4)	i_u16ConditionEventTimeStampSetting	Event time stamp condition setting	Word [Unsigned]	0 to 2	0: Rise 1: Fall 2: Rise + Fall											
(5)	i_bRefreshDataSetting	Setting for not-refreshed data	Bit	On or off	On: When 128 or more event time stamp data sets exist, the old data is overwritten with newly generated data. Off: When 128 or more event time stamp data sets exist, the old data is not overwritten with newly generated data.											
(6)	i_bStartSaveEventTime	Event time stamp start/stop	Bit	On or off	On: Collecting event time stamps is started. Off: Collecting event time stamps is stopped.											

No.	Variable name	Name	Data type	Range	Description
(7)	i_udStartingAddressSaveEventTimeData	Start address of event time stamp data storage device	Double Word [Unsigned]	Valid device range	Specify a start address of the device (ZR) where event time stamp data is stored.
(8)	i_bMakeCSV	CSV file creation enable/disable	Bit	On or off	On: Event time stamp data is stored in CSV files. Off: Event time stamp data is not stored in CSV files.
(9)	i_uMaxFileCount	Maximum number of CSV files	Word [Unsigned]	1 to 100	Specify a maximum number of CSV files that this FB saves.
(10)	i_bOverWrite	CSV file overwrite command	Bit	On or off	Specify whether or not to overwrite the CSV files having smaller consecutive numbers when the number of CSV files that this FB has saved reaches the maximum number of CSV files. (When this label is off, storing data in the file register and outputting data to the CSV file are stopped.)
(11)	i_bResetStartingPosition	Start position clear of CSV file save	Bit	On or off	On: Data is stored from the beginning of the CSV file. Off: Data is stored following the previously stored data. (If previous data does not exist, data is stored from the beginning of the CSV file.)

■Output labels

No.	Variable name	Name	Data type	Default value	Description
(12)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(13)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that the execution of this FB has been completed. If a module error has occurred at the execution start, this label does not turn on.
(14)	o_bOutputStatus	Event time stamp data save in progress	Bit	Off	When this label is on, it indicates that a CSV file is being created.
(15)	o_bExceedNumber	Maximum number reach flag of event time stamp data	Bit	Off	When this label is on, it indicates that the number of CSV files that this FB has saved has reached the maximum number of CSV files.
(16)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(17)	o_uErrId	Error code	Word [Unsigned]	0	The error code of an error that occurred in the FB is stored.

FB details

Item	Description	
Available devices	Target module	RX40NC6B
	CPU modules	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	1738 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	<ul style="list-style-type: none"> This FB starts/stops collecting event time stamps according to the on or off state of <code>i_bStartSaveEventTime</code> (Event time stamp start/stop) after <code>i_bEN</code> (Execution command) is turned on. This FB stores the data, which is stored in the event time stamp data for refresh in the CPU module, in the file register and CSV files. This FB stores the same data as the event time stamp data of the input module with diagnostic functions in the file register of the CPU module. If the number of data sets reaches the maximum number per CSV file (90000), this FB closes the CSV file where data is being saved and opens the next CSV file to continue to save data. If the set values of the event time stamp condition setting, start address of event time stamp data storage device, and maximum number of CSV files are out of the setting range, <code>o_bErr</code> (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in <code>o_uErrId</code> (Error code). For the error code, refer to the list of error codes. (☞ Page 18 Error code) If <code>i_bOverWrite</code> (CSV file overwrite command) is on and the number of files that this FB has saved in an SD memory card exceeds <code>i_uMaxFileCount</code> (Maximum number of CSV files), the consecutive number returns back to 1 and the save processing of event time stamp data continues. If <code>i_bOverWrite</code> (CSV file overwrite command) is off and the number of files that this FB has saved in an SD memory card reaches <code>i_uMaxFileCount</code> (Maximum number of CSV files), the processing to store event time stamp data in the file register and CSV files stops. If the number of data sets exceeds 90000, the 90001th data set and later are not stored. If the number of files that this FB has saved in an SD memory card reaches <code>i_uMaxFileCount</code> (Maximum number of CSV files), <code>o_bExceedNumber</code> (Maximum number reach flag of event time stamp data) turns on regardless of the on or off state of <code>i_bOverWrite</code> (CSV file overwrite command). A CPU error occurs in the following cases: when this FB has been executed with no SD memory card inserted into the CPU module; when the inserted SD memory card has no sufficient free space; or when the number of files stored exceeds the limit. In the event of an error, if the CPU module is in a stop error state, <code>o_bErr</code> (Error completion) and <code>o_uErrId</code> (Error code) are not updated. In the event of an error, if the CPU module is in a continuation error state, <code>o_bErr</code> (Error completion) turns on and the error code is stored in <code>o_uErrId</code> (Error code). For the error code, refer to the list of error codes. (☞ Page 18 Error code) When <code>i_bMakeCSV</code> (CSV file creation enable/disable) is off, the set values of <code>i_uMaxFileCount</code> (Maximum number of CSV files) and <code>i_bOverWrite</code> (CSV file overwrite command) are disabled. The set values at FB operation start are valid for <code>i_uEventTimeStampFunctionEnable_Disable</code> (Event time stamp function enable/disable), <code>i_u16ConditionEventTimeStampSetting</code> (Event time stamp condition setting), <code>i_bRefreshDataSeting</code> (Setting for not-refreshed data), and <code>i_bMakeCSV</code> (CSV file creation enable/disable). Even if the values are changed during the execution of this FB, the changed values are invalid. Set the module label as the refresh target in the refresh setting of the module parameter. For the setting method, refer to the MELSEC iQ-R I/O Module (With Diagnostic Functions) User's Manual (Application). For the format of CSV files that this FB creates, refer to CSV File Output Format of the FB for Event Time Stamp Data Collection/Save Function. (☞ Page 19 CSV File Output Format of the FB for Event Time Stamp Data Collection/Save Function) When this FB saves data in an SD memory card, the CSV file name is given as follows: "RX" + "Middle two digits of the four digits representing the start I/O number" + "Consecutive number" + ".CSV". The maximum number of consecutive number varies with <code>i_uMaxFileCount</code> (Maximum number of CSV files). Turning off <code>i_bEN</code> (Execution command) results in the consecutive number being reset, and thereafter a consecutive number is given from 1 again. Suppose that the start I/O number of the input module with diagnostic functions is H0450, <code>i_uMaxFileCount</code> (Maximum number of CSV files) is 30, and the number of file creation by this FB is 6th. The file name is "RX45006.CSV". Turning on or off <code>i_bResetStartingPosition</code> (Start position clear of CSV file save) selects a data storage position. When <code>i_uEventTimeStampFunctionEnable_Disable</code> (Event time stamp function enable/disable) of this FB is set to 0000H and <code>i_bEN</code> (Execution command) is turned on, the error code is stored in <code>o_uErrId</code> (Error code). For the error code, refer to the list of error codes. (☞ Page 18 Error code) When disabling all the bits of the event time stamp function enable/disable of the input module with diagnostic functions, turn off <code>i_bStartSaveEventTime</code> (Event time stamp start/stop). When ending the execution of this FB with all the bits of the event time stamp function enable/disable of the input module with diagnostic functions disabled, turn off <code>i_bStartSaveEventTime</code> (Event time stamp start/stop) and <code>i_bEN</code> (Execution command). 	
FB compilation method	Macro type	
FB operation	Arbitrary execution type	

Item	Description
Timing chart of I/O signals	<p>When the operation is completed successfully</p> <ul style="list-style-type: none"> Data is output to CSV files. <p>The timing chart illustrates the sequence of events for the 'SaveEventTime' function. It shows the following signals and their states:</p> <ul style="list-style-type: none"> i_bEN: Input enable signal, transitions from OFF to ON. o_bENO: Output enable signal, transitions from OFF to ON. i_bStartSaveEventTime: Input signal, transitions from OFF to ON. i_bMakeCSV: Input signal, transitions from OFF to ON. 'Event time stamp function enable/disable' (Un\G1248): Signal (1) transitions from OFF to ON. 'Event time stamp condition setting X00 to X0F' (Un\G1252 to Un\G1267): Signal (1) transitions from OFF to ON. 'Setting for not-refreshed data' (Un\G1280): Signal (1) transitions from OFF to ON. Operating condition setting request (Y signal): Signal (1) transitions from OFF to ON. Operating condition setting completed flag (X signal): Signal (1) transitions from ON to OFF. i_bOverWrite: Input signal, transitions from OFF to ON. o_bExceedNumber: Output signal, transitions from OFF to ON. Event occurrence: Signal (2) transitions from OFF to ON. Storage of data to the file register: Signal (2) transitions from OFF to ON. Storage of data to CSV files: Signal (3) transitions from OFF to ON. o_bOutputStatus: Output signal, transitions from OFF to ON. o_bOK: Output signal, transitions from OFF to ON. o_bErr: Output signal, remains OFF. o_uErrId: Output signal, remains at 0. <p>Legend:</p> <ul style="list-style-type: none"> (1): Setting (2): Storing (3): Saving —▶ : Executed by the FB. - - -▶ : Executed by the module.

Item	Description
Timing chart of I/O signals	<p>• Data is not output to CSV files.</p> <p>(1): Setting (2): Storing (3): Not saved</p> <p>—————▶ : Executed by the FB. - - - - -▶ : Executed by the module.</p>

Item	Description
Timing chart of I/O signals	<p>When the operation is completed with an error</p> <p>(1): Setting (2): Storing (3): Saving (4): Error code</p> <p>—▶ : Executed by the FB. - - - - -▶ : Executed by the module.</p>

Item	Description
Restrictions or precautions	<ul style="list-style-type: none"> • This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • When a module error has occurred during the execution of this FB, refer to the MELSEC iQ-R I/O Module (With Diagnostic Functions) User's Manual (Application) to check the error description and take corrective action, and then execute the FB again. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • This FB makes use of the SP.FWRITE instruction, and thus if an error occurs in the execution of the SP.FWRITE instruction, a CPU error occurs. • If SM606 (SD memory card forced disable instruction) is on at the time of saving event time stamp data, the SP.FWRITE instruction is not processed, resulting in the event time stamp data not being saved. In this case, o_bErr (Error completion) turns on and the error code is stored in o_uErrId (Error code). • The FB requires the configuration of the ladder for every input label. • If no applicable device area exists at the address set in i_udStartingAddressSaveEventTimeData (Start address of event time stamp data storage device), a CPU error occurs. Set an applicable storage device area. • The areas of 768 words starting from the address set in i_udStartingAddressSaveEventTimeData (Start address of event time stamp data storage device) are the output areas of this FB. Do not use these areas in other programs. • This FB uses the file register as the event time stamp data storage device. Configure a proper file setting in the CPU parameter setting of GX Works3. • Set i_uMaxFileCount (Maximum number of CSV files) with consideration for the capacity of the SD memory card and the number of files stored. If the capacity of the SD memory card or the number of files stored is exceeded as a result of execution of this FB, a CPU error occurs. For the capacity of SD memory cards and the number of files stored, refer to the MELSEC iQ-R Module Configuration Manual. The CSV files saved in the SD memory card of this FB are overwritten when the module is powered off and on and the FB is executed. Save the CSV files before powering off and on the module and executing the FB. • When storing the data following the previously stored data in the CSV file with this FB, do not change the value of i_uMaxFileCount (Maximum number of CSV files). If the value is changed, the data is stored from the beginning of the CSV file. • Since this FB uses latch labels, when the latch label area capacity is insufficient for a program, a message is displayed on GX Works3 at program conversion. Set a proper latch label area capacity in the CPU parameter setting of GX Works3 according to the message. • When storing the data following the previously stored data in the CSV file with this FB, do not delete the CSV files saved in the SD memory card. If the files are deleted, a header row is not written in the CSV file. In addition, the data cannot be stored for the maximum number (90000).

Error code

Error code	Description	Action
100H	The set value is out of the range of i_u16ConditionEventTimeStampSetting (Event time stamp condition setting).	Execute the FB again after checking the setting.
101H	The set value is out of the range of i_uMaxFileCount (Maximum number of CSV files).	Execute the FB again after checking the setting.
102H	The set value is out of the range of i_uEventTimeStampFunctionEnable_Disable (Event time stamp function enable/disable).	Execute the FB again after checking the setting.
201H	An access to the SD memory card has failed because SM606 (SD memory card forced disable instruction) is turned on. While event time stamp data is being saved, turning on SM606 (SD memory card forced disable instruction) results in the partially created CSV file being saved in the SD memory card.	Turn off SM606 (SD memory card forced disable instruction) and check that SM607 (SD memory card forced disable state flag) has turned off, then execute the FB again.
202H	Execution of this FB has been attempted without inserting an SD memory card into the CPU module.	Insert an SD memory card for saving the target CSV files into the CPU module, and then execute the FB again.
203H	An access to the SD memory card has failed because SM600 (Memory card enabled/disabled flag) is off (disabled).	Make the SD memory card enabled, and then execute the FB again.
204H	The SD memory card is frequently accessed from programs in addition to this FB, and a timeout has occurred in the event time stamp data write processing.	Reduce the frequency of the access to the SD memory card.
205H	Because SM601 (Memory card protect flag) is on (write inhibited), data cannot be written to the SD memory card.	Turn off the protect switch on the SD memory card (enabling write), check that SM601 (Memory card protect flag) has turned off, and execute the FB again.
Error codes other than the above	Error codes related to the SP.FWRITE instruction that is executed to write event time stamp data to an SD memory card.	For details on the error code that has occurred, refer to the description of the SP.FWRITE instruction. (MELSEC iQ-R Programming Manual (CPU Module Instructions, Standard Functions/Function Blocks))

APPENDIX

Appendix 1 CSV File Output Format of the FB for Event Time Stamp Data Collection/Save Function

This section describes the format specifications of CSV files that M+RX40NC6B_SaveEventTime (Event time stamp data collection/save function) outputs.

Item	Description
Delimiter	Comma (,)
Line feed code	CRLF (0DH, 0AH)
Character code	ASCII
File size	3690048 bytes at maximum*1

*1 When the number of event time stamp data is 90000, the file size reaches the maximum.

The following figure shows an example of how output contents are arranged in the rows and columns after a write to a CSV file.

(1)	I/O:0010	Event type	Input terminal	Store State
(2)	DATE:2015/06/30 10:10:30.123	1	X01	0
	DATE:2015/06/30 10:20:30.456	0	X0F	0
	DATE:2015/06/30 11:15:30.789	1	X02	0
	DATE:2015/07/01 14:15:30.012	0	X1C	0
	DATE:2015/07/02 16:15:30.345	1	X03	0

(3)

- (1) Header row
- (2) Data row
- (3) Data column

Header row

Data is written in the order shown in the following table. (The file size of the header row is fixed to 48 bytes.)

Column No.	Item	Output content	Size
Column 1	Start I/O number	I/O:△*1	8 bytes
Column 2	Event type	Event type	10 bytes
Column 3	I/O terminal	Input terminal	14 bytes
Column 4	Event time stamp storage status	Store state	11 bytes

*1 △ indicates a start I/O number.

Data row

Data is written in the order shown in the following table.

Column No.	Column name	Output content	Size
Column 1	Date and time of event time stamp occurrence	Time information in the event time stamp data stored in the buffer memory of the input module with diagnostic functions	31 bytes
Column 2	Event type	Event type information in the event time stamp data stored in the buffer memory of the input module with diagnostic functions	1 byte
Column 3	I/O terminal	I/O terminal information in the event time stamp data stored in the buffer memory of the input module with diagnostic functions	3 bytes
Column 4	Event time stamp storage status	Event time stamp storage status information in the event time stamp data stored in the buffer memory of the input module with diagnostic functions	1 byte

MEMO

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REVISIONS

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

Revision date	*Manual number	Description
June 2014	BCN-P5999-0376-A	First edition
May 2016	BCN-P5999-0376-B	■Added or modified parts Chapter 1, 2, Appendix
March 2017	BCN-P5999-0376-C	■Added or modified parts Chapter 1, 2
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