MELSEC-Q Current Transformer Input Module FB Library Reference Manual

Applicable module:
Q68CT

< CONTENTS >

Reference Manual Revision History

Reference Manual Number	Date	Description
FBM-M085-A	2012/03/31	First edition

1. Overview

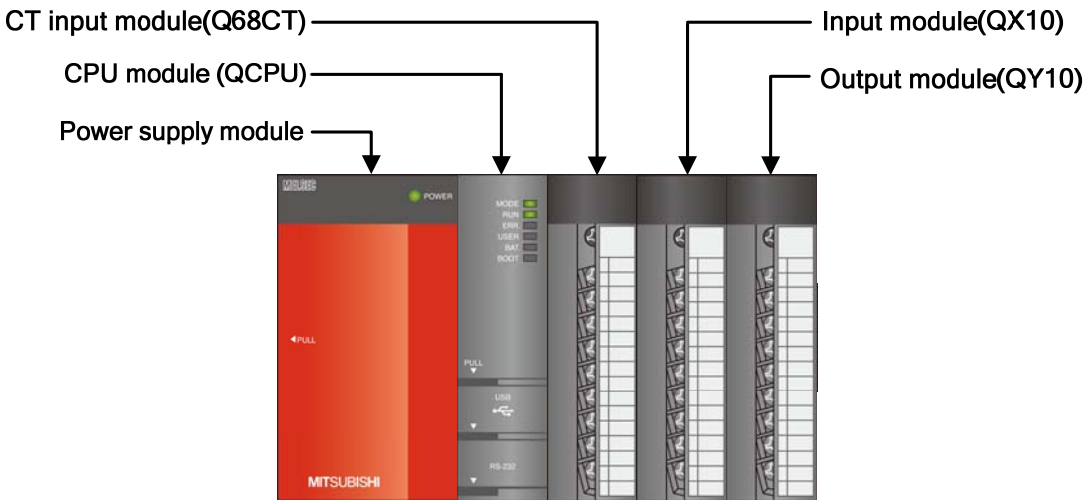
1.1 Overview of the FB Library

This FB library is for using the MELSEC-Q Q68CT CT input module.

1.2 Function of the FB Library

Item	Description
M+Q68CT_ReadDigitalVal	Reads the digital output value and dropout status of a specified channel.
M+Q68CT_ReadAllDigitalVal	Reads the digital output values and dropout status of all specified channels.
M+Q68CT_ReadScalingVal	Reads the scaling value of a specified channel.
M+Q68CT_ReadAllScalingVal	Reads the scaling values of all channels.
M+Q68CT_ReadPeakCurrentData	Reads the peak current detection data (peak current detection flag and peak current detection count) of a specified channel.
M+Q68CT_SetSamplingPeriod	Sets the sampling cycle.
M+Q68CT_SetConversion	Enables or disables conversion for a specified channel or all channels.
M+Q68CT_SetAverage	Performs averaging process for a specified channel.
M+Q68CT_SetScaling	Configures scaling setting of a specified channel.
M+Q68CT_SetProcessAlarm	Configures process alarm setting of a specified channel.
M+Q68CT_SetRateAlarm	Configures rate alarm setting of a specified channel.
M+Q68CT_SetInputSignalErr	Configures input signal error detection setting of a specified channel.
M+Q68CT_SetDropout	Configures dropout setting of a specified cahnnel.
M+Q68CT_SetPeakCurrentData	Configures peak current detection setting of a specified channel.
M+Q68CT_RequestSetting	Applies changes made to each function's settings.
M+Q68CT_SetOffsetVal	Sets the offset value of a specified channel.
M+Q68CT_SetGainVal	Sets the gain value of a specified channel.
M+Q68CT_ErrorOperation	Performs monitoring of error codes and error reset.
M+Q68CT_SetLoggingPARAM	Performs the logging function of a specified channel.
M+Q68CT_SaveLogging	Saves the logging data of a specified channel in a CSV file.

1.3 System Configuration Example



1.4 Relevant Manuals

MELSEC-Q Current Transformer Input Module User's Manual

QCPU User's Manual (Hardware Design, Maintenance and Inspection)

GX Works2 Version1 Operating Manual (Common)

GX Works2 Version1 Operating Manual (Simple Project, Function Block)

1.5 Note

Please make sure to read user's manuals for the corresponding products before using the products.

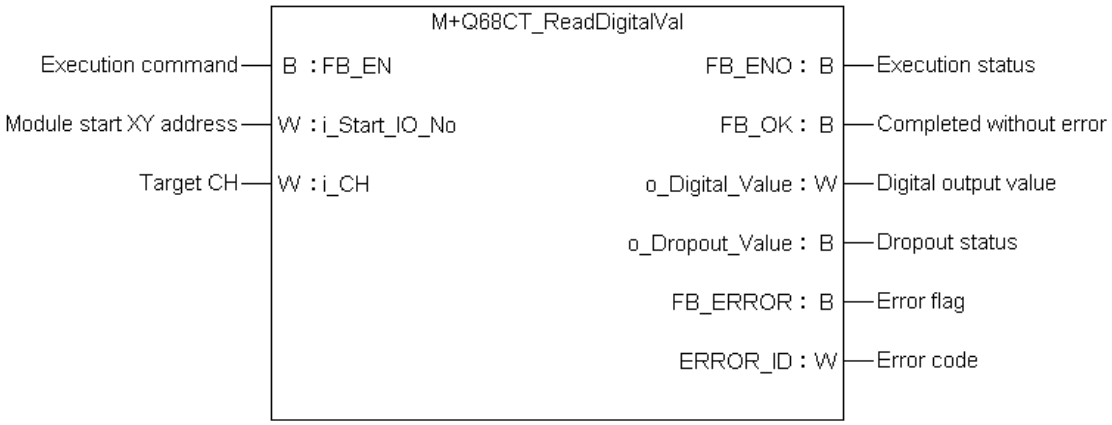
2. Details of the FB Library

2.1 M+Q68CT_ReadDigitalVal (Read digital output value, dropout status)

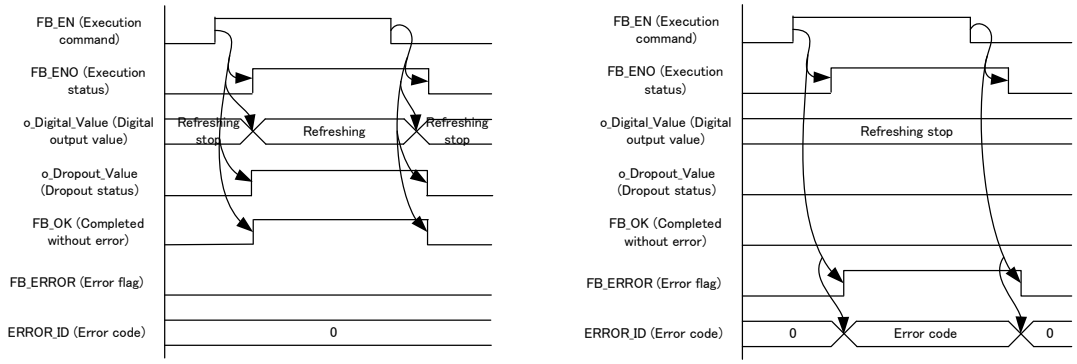
FB Name

M+Q68CT_ReadDigitalVal

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Reads the digital output value and dropout status of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td></td><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
</table>

Item	Description
Number of steps	290 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) Reads the digital output value and dropout status of a specified channel by turning ON FB_EN (Execution command). 2) The resulting digital output value depens on the input range setting. 3) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details. 4) If the CT input module buffer memory is set to auto refresh the digital output value and dropout status, it is unnecessary to use this FB.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the digital output value and dropout status read operation was successful.
Digital output value	o_Digital_Value	Word	0	Digital output value output
Dropout status	o_Dropout_Value	Bit	OFF	Dropout status output
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

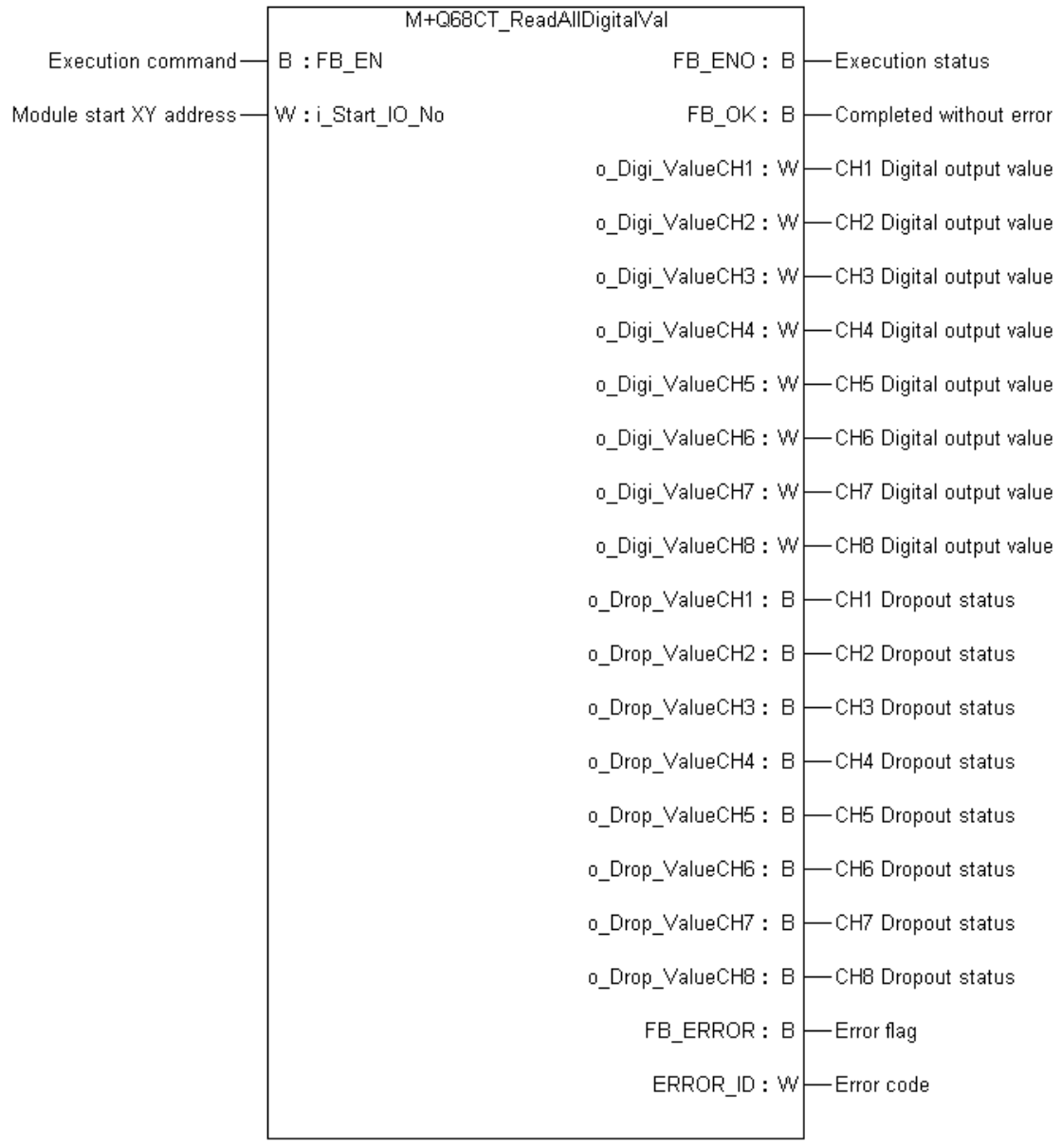
This chapter includes information related to the M+Q68CT_ReadDigitalVal function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.2 M+Q68CT_ReadAllDigitalVal (Read all digital output values, dropout status)

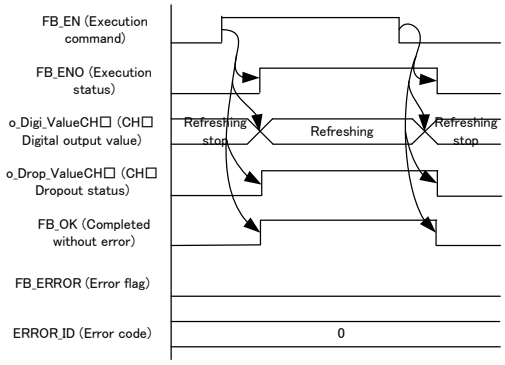
FB Name

M+Q68CT_ReadAllDigitalVal

Function Overview

Item	Description	
Function Overview	Reads the digital output values and dropout status of all specified channels.	
Symbol		
Applicable hardware and software	CT input module	Q68CT

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td rowspan="2"></td><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">324 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
<tr><td>Function description</td><td colspan="2">1) Reads the digital output values and dropout status of all channels by turning ON FB_EN (Execution command).
2) The resulting digital output value depends on the input range setting.
3) If the CT input module buffer memory is set to auto refresh the digital output values and dropout status, it is unnecessary to use this FB.</td></tr>
<tr><td>Compiling method</td><td colspan="2">Macro type</td></tr>
</table>

Item	Description
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) This FB uses index registers Z9 and Z8. Please do not use these index registers in an interrupt program. 5) Every input must be provided a value for proper FB operation. 6) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
None	None	None

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the digital output values and dropout status read operation was successful.
CH1 Digital output value	o_Digi_ValueCH1	Word	0	CH1 Digital output value output
CH2 Digital output value	o_Digi_ValueCH2	Word	0	CH2 Digital output value output
CH3 Digital output value	o_Digi_ValueCH3	Word	0	CH3 Digital output value output
CH4 Digital output value	o_Digi_ValueCH4	Word	0	CH4 Digital output value output
CH5 Digital output value	o_Digi_ValueCH5	Word	0	CH5 Digital output value output
CH6 Digital output value	o_Digi_ValueCH6	Word	0	CH6 Digital output value output
CH7 Digital output value	o_Digi_ValueCH7	Word	0	CH7 Digital output value output
CH8 Digital output value	o_Digi_ValueCH8	Word	0	CH8Digital output value output

Name (Comment)	Label name	Data type	Initial value	Description
CH1 Dropout status	o_Drop_ValueCH1	Bit	OFF	CH1 Dropout status output
CH2 Dropout status	o_Drop_ValueCH2	Bit	OFF	CH2 Dropout status output
CH3 Dropout status	o_Drop_ValueCH3	Bit	OFF	CH3 Dropout status output
CH4 Dropout status	o_Drop_ValueCH4	Bit	OFF	CH4 Dropout status output
CH5 Dropout status	o_Drop_ValueCH5	Bit	OFF	CH5 Dropout status output
CH6 Dropout status	o_Drop_ValueCH6	Bit	OFF	CH6 Dropout status output
CH7 Dropout status	o_Drop_ValueCH7	Bit	OFF	CH7 Dropout status output
CH8 Dropout status	o_Drop_ValueCH8	Bit	OFF	CH8 Dropout status output
Error flag	FB_ERROR	Bit	OFF	Always OFF
Error code	ERROR_ID	Word	0	Always 0

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

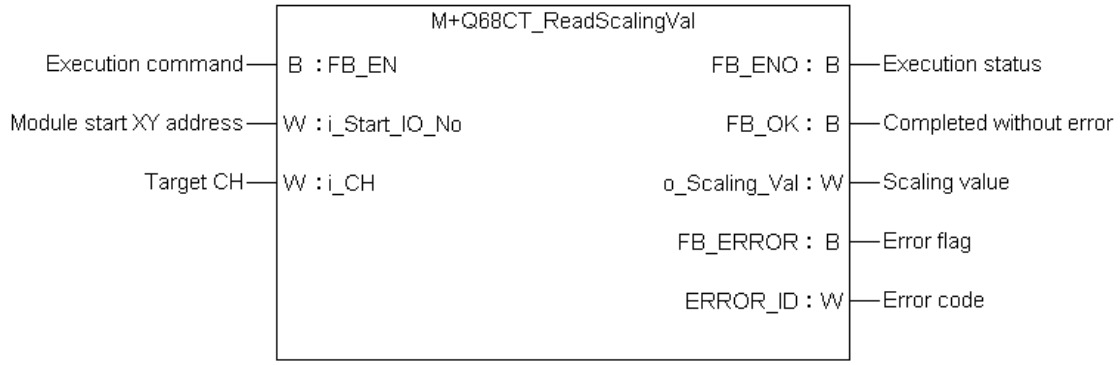
This chapter includes information related to the M+Q68CT_ReadAllDigitalVal function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.3 M+Q68CT_ReadScalingVal (Read scaling value)

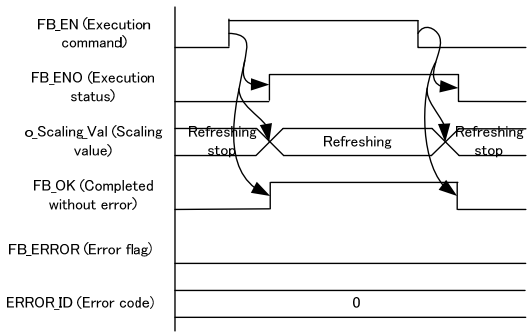
FB Name

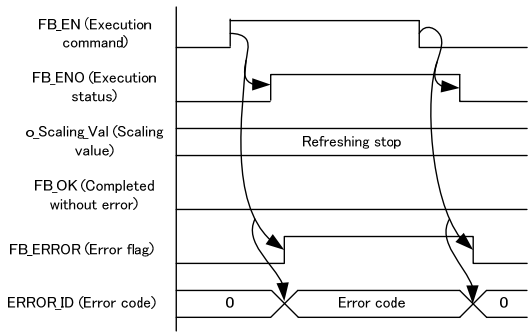
M+Q68CT_ReadScalingVal

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Reads the scaling value of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">260 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Reads the scaling value of a specified channel when the FB_EN (Execution command) is turned ON. 2) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details. 3) If the CT input module buffer memory is set to auto refresh the scaling value, it is unnecessary to use this FB.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]





Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the scaling value read operation was successful.
Scaling value	o_Scaling_Val	Word	0	Scaling value output
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

This chapter includes information related to the M+Q68CT_ReadScalingVal function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

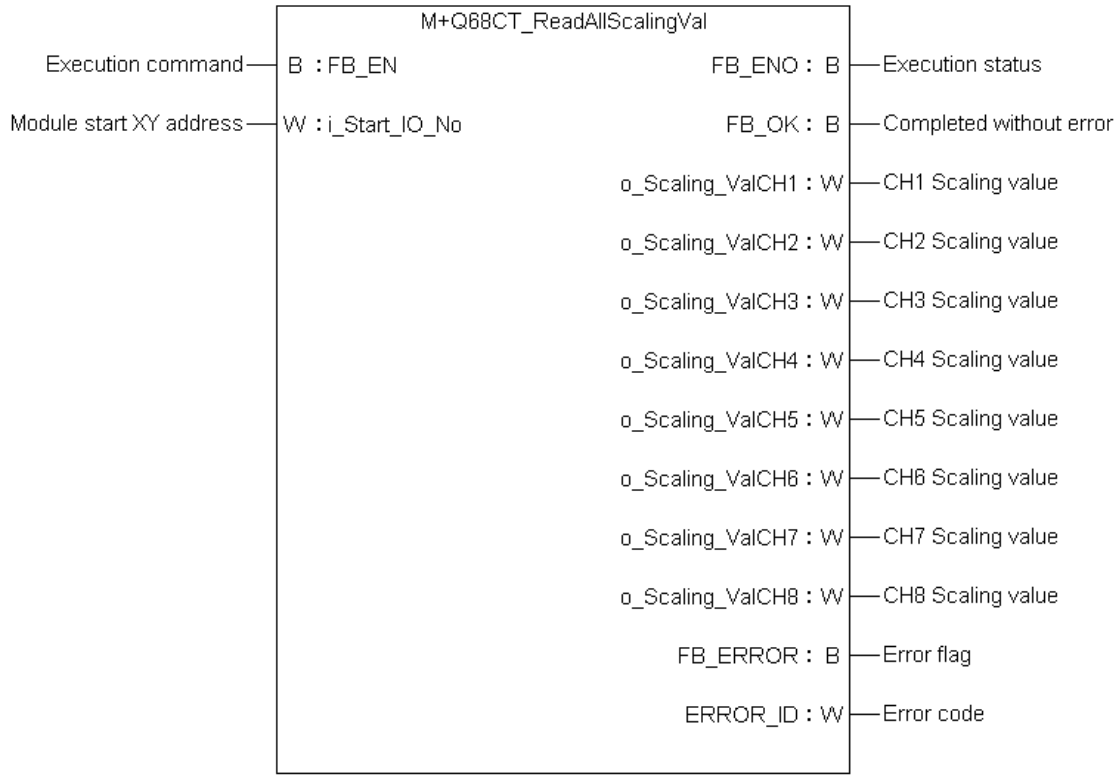
Before using any Mitsubishi products, please read all relevant manuals.

2.4 M+Q68CT_ReadAllScalingVal (Read all scaling values)

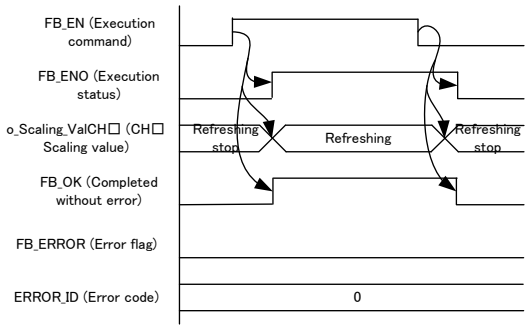
FB Name

M+Q68CT_ReadAllScalingVal

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Reads the scaling values of all channels.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
</table>

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td></td><td>Engineering software</td><td>GX Works2 *1<table><tr><th>Language</th><th>Software version</th></tr><tr><td>English version</td><td>Version1.24A or later</td></tr><tr><td>Chinese version</td><td>Version1.49B or later</td></tr></table>*1 For information on the software versions applicable to the module used, refer to the related manual.</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">239 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
<tr><td>Function description</td><td colspan="2">1) Reads the scaling values of all channels when the FB_EN (Execution command) is turned ON.
2) If the CT input module buffer memory is set to auto refresh the scaling values, it is unnecessary to use this FB.</td></tr>
<tr><td>Compiling method</td><td colspan="2">Macro type</td></tr>
<tr><td>Restrictions and precautions</td><td colspan="2">1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.
2) The FB cannot be used in an interrupt program.
3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.
4) This FB uses index registers Z9 and Z8. Please do not use these index registers in an interrupt program.
5) Every input must be provided a value for proper FB operation.
6) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application.
For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).</td></tr>
<tr><td>FB operation type</td><td colspan="2">Real-time execution</td></tr>
<tr><td>Application example</td><td colspan="2">Refer to "Appendix 1 - FB Library Application Examples".</td></tr>
</table>

Item	Description
Timing chart	[When operation completes without error] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
None	None	None

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF

Name (Comment)	Label name	Data type	Initial value	Description
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the scaling value read operation was successful.
CH1 Scaling value	o_Scaling_ValCH1	Word	0	CH1 Scaling value output
CH2 Scaling value	o_Scaling_ValCH2	Word	0	CH2 Scaling value output
CH3 Scaling value	o_Scaling_ValCH3	Word	0	CH3 Scaling value output
CH4 Scaling value	o_Scaling_ValCH4	Word	0	CH4 Scaling value output
CH5 Scaling value	o_Scaling_ValCH5	Word	0	CH5 Scaling value output
CH6 Scaling value	o_Scaling_ValCH6	Word	0	CH6 Scaling value output
CH7 Scaling value	o_Scaling_ValCH7	Word	0	CH7 Scaling value output
CH8 Scaling value	o_Scaling_ValCH8	Word	0	CH8 Scaling value output
Error flag	FB_ERROR	Bit	OFF	Always OFF
Error code	ERROR_ID	Word	0	Always 0

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

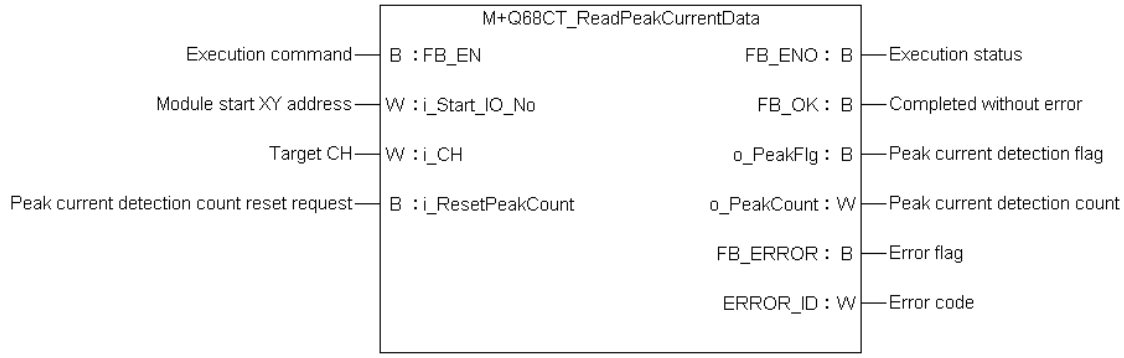
This chapter includes information related to the M+Q68CT_ReadAllScalingVal function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.5 M+Q68CT_ReadPeakCurrentData (Read peak current detection data)

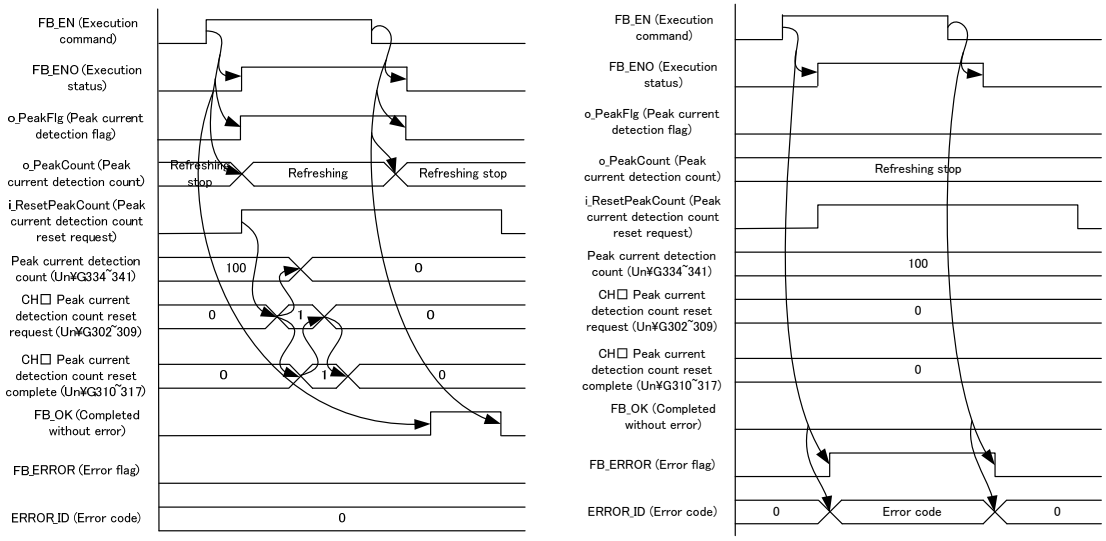
FB Name

M+Q68CT_ReadPeakCurrentData

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Reads the peak current detection data (peak current detection flag and peak current detection count) of a specified channel.
Also, performs the peak current detection count reset request of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td></td><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
</table>

Item	Description
Number of steps	313 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) Reads the peak current detection data (peak current detection flag and peak current detection count) of a specified channel by turning ON FB_EN (Execution command). 2) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details. 3) After turning ON FB_EN (Execution command), by turning ON i_ResetPeakCount (Peak current detection count reset request), the FB will continue to execute until the the Peak current detection count reset complete is set to OFF. 4) If the CT input module buffer memory is set to auto refresh the peak current detection data (peak current detection flag and peak current detection count), it is unnecessary to use this FB.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)

Name (Comment)	Label name	Data type	Setting range	Description
Target CH	i_CH	Word	1~8	Specify the channel number.
Peak current detection count reset request	i_ResetPeakCount	Bit	ON,OFF	ON: Set the peak current detection count reset request to Reset requested. OFF: Set the peak current detection count reset request to Reset not requested.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the peak current data read operation was successful.
Peak current detection flag	o_PeakFlg	Bit	OFF	Peak current detection flag output
Peak current detection count	o_PeakCount	Word	0	Peak current detection count output
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

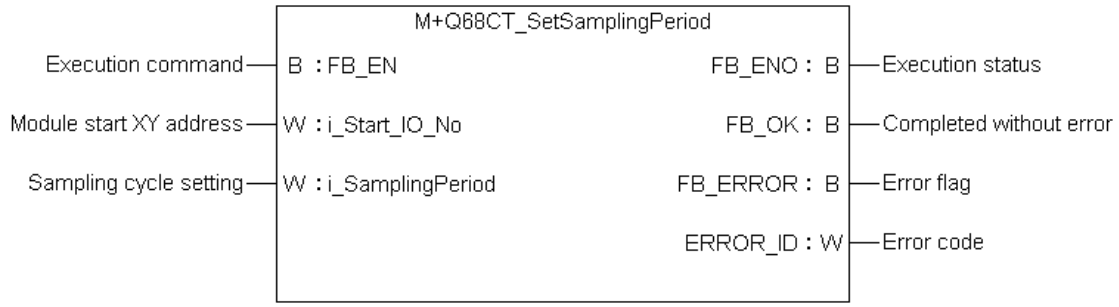
This chapter includes information related to the M+Q68CT_ReadPeakCurrentData function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

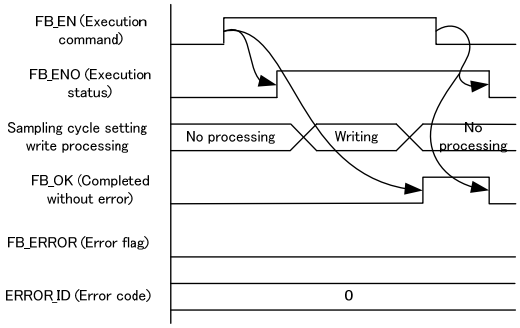
2.6 M+Q68CT_SetSamplingPeriod (Sampling cycle setting)

FB Name

M+Q68CT_SetSamplingPeriod

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Sets the sampling cycle.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">215 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Sets the sampling cycle by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) This FB uses index registers Z9 and Z8. Please do not use these index registers in an interrupt program. 5) Every input must be provided a value for proper FB operation. 6) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
None	None	None

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Sampling cycle setting	i_SamplingPeriod	Word	0H:10ms/8CH 1H:20ms/8CH 2H:50ms/8CH 3H:100ms/8CH	Set the sampling cycle.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the sampling cycle setting has been completed.
Error flag	FB_ERROR	Bit	OFF	Always OFF
Error code	ERROR_ID	Word	0	Always 0

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

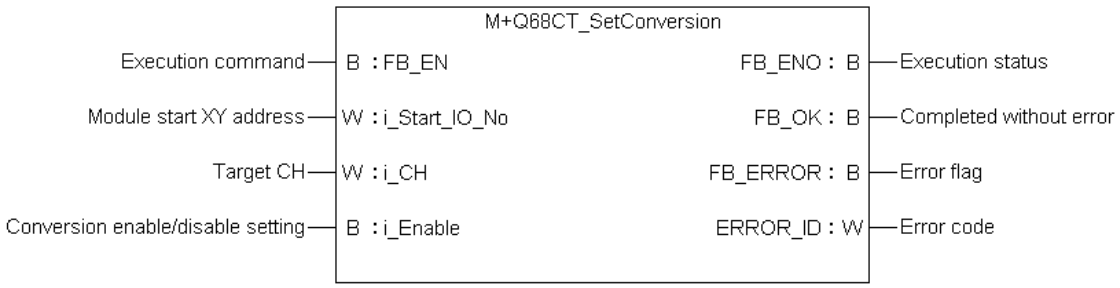
This chapter includes information related to the M+Q68CT_SetSamplingPeriod function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.7 M+Q68CT_SetConversion (Enable/disable conversion)

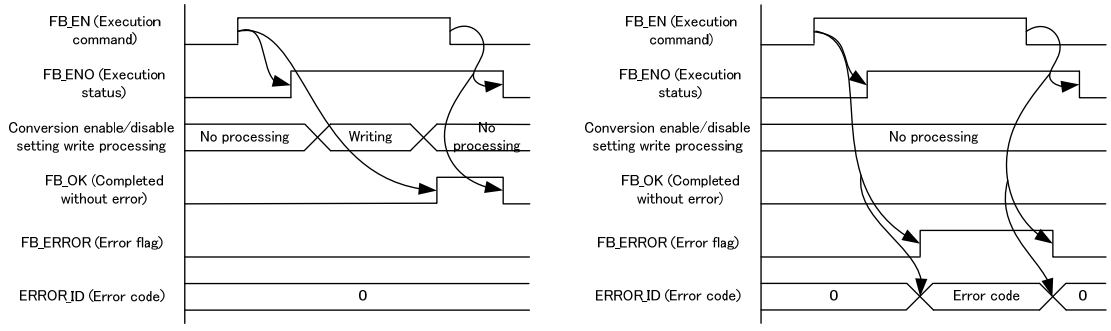
FB Name

M+Q68CT_SetConversion

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Enables or disables conversion for a specified channel or all channels.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">316 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Enables or disables conversion for a specified channel or all channels by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]



Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8 or 15.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8,15	1~8: Specify a channel number. 15: Specify all channels.
Conversion enable/disable setting	i_Enable	Bit	ON,OFF	ON: Enable the digital value output. OFF: Disable the digital value output.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the conversion disable/enable setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

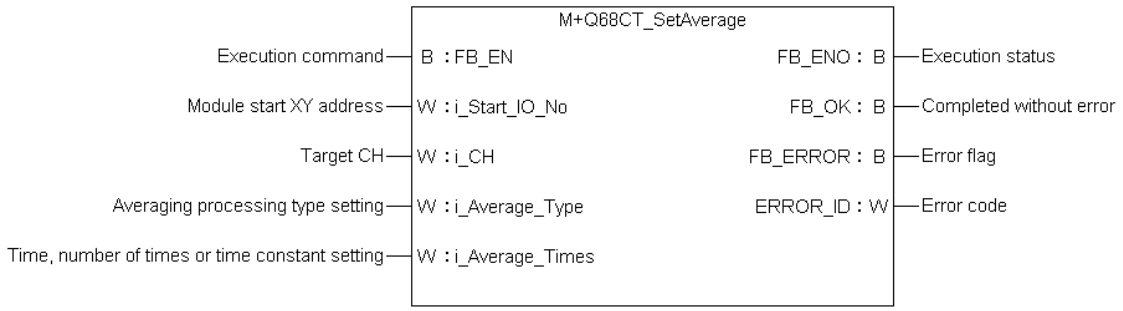
This chapter includes information related to the M+Q68CT_SetConversion function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.8 M+Q68CT_SetAverage (Averaging process setting)

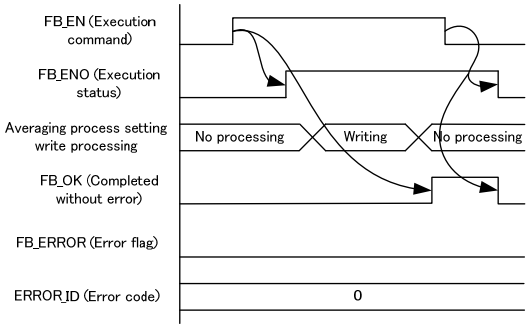
FB Name

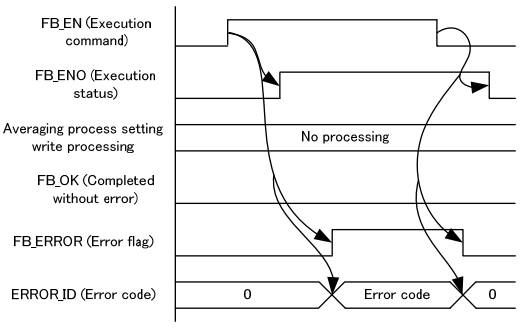
M+Q68CT_SetAverage

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Performs averaging process for a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">435 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Performs averaging process for a specified channel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]





Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Averaging processing type setting	i_Average_Type	Word	0H: Sampling processing 1H: Time average 2H: Count average 3H: Moving average 4H: Primary delay filter	Specify the averaging processing type. If an invalid value is written, the operation is performed under 0H (Sampling processing).

Name (Comment)	Label name	Data type	Setting range	Description
Time, number of times or time constant setting	i_Average_Times	Word	Time average: 40~5,000 (ms) Count average: 4~500 (times) Moving average: 2~1,000 (times) Primary delay filter: 10~10,000 (ms)	Set the time average, count average, moving average and primary delay filter time constant of the specified channel.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the averaging process setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

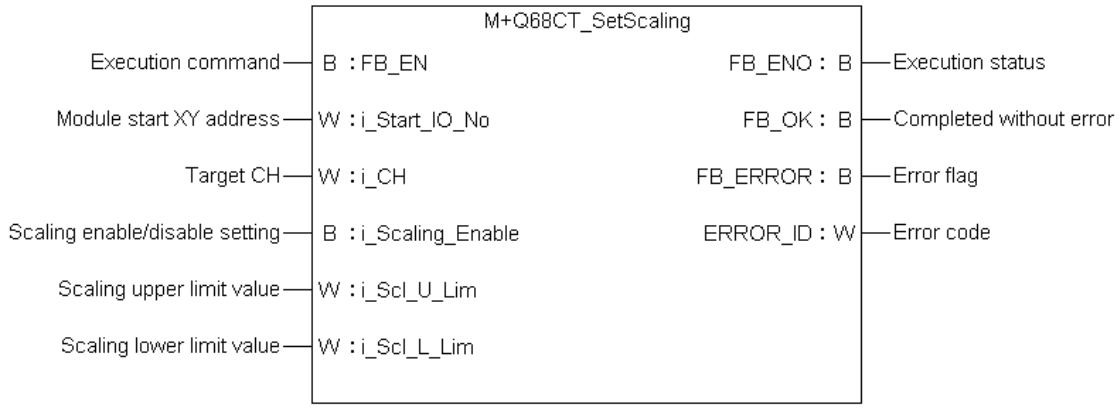
This chapter includes information related to the M+Q68CT_SetAverage function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.9 M+Q68CT_SetScaling (Scaling setting)

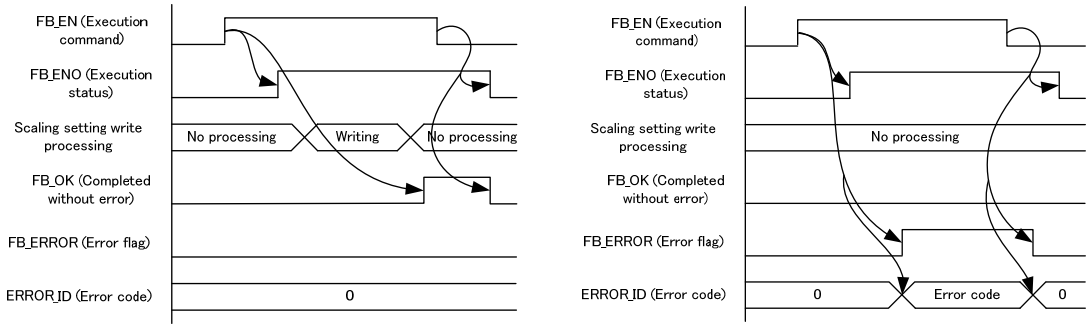
FB Name

M+Q68CT_SetScaling

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Configures scaling setting of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">312 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Configures scaling setting of a specified channel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]



Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Scaling enable/disable setting	i_Scaling_Enable	Bit	ON,OFF	ON: Enable the scaling. OFF: Disable the scaling.
Scaling upper limit value	i_Scl_U_Lim	Word	-32,000~32,000	Specify the scaling upper limit value.
Scaling lower limit value	i_Scl_L_Lim	Word	-32,000~32,000	Specify the scaling lower limit value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates the scaling setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

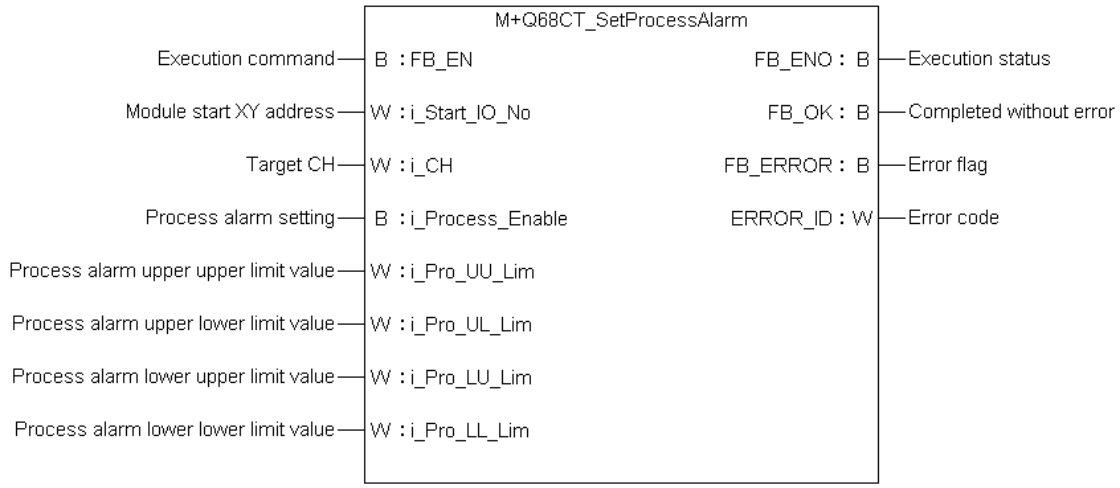
This chapter includes information related to the M+Q68CT_SetScaling function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.10 M+Q68CT_SetProcessAlarm (Process alarm setting)

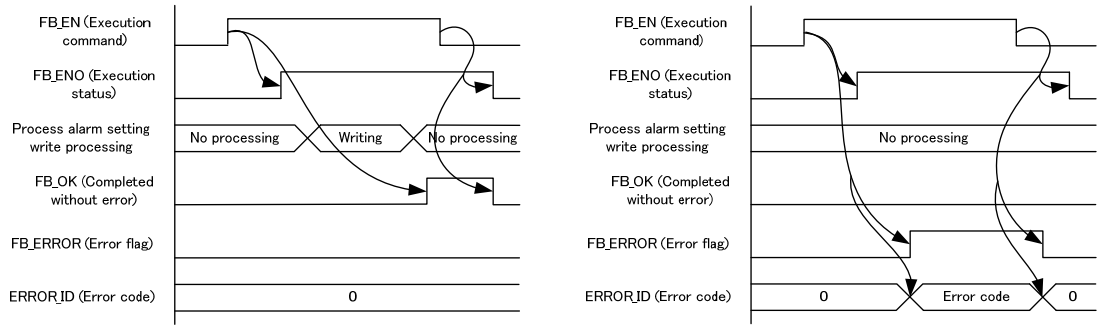
FB Name

M+Q68CT_SetProcessAlarm

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Configures process alarm setting of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
</table>

Item	Description
Number of steps	302 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) Configures process alarm setting of a specified channel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Process alarm setting	i_Process_Enable	Bit	ON,OFF	ON: Enable the warning output of the process alarm. OFF: Disable the warning output of the process alarm.

Name (Comment)	Label name	Data type	Setting range	Description
Process alarm upper upper limit value	i_Pro_UU_Lim	Word	-32,768~32,767	Specify the process alarm upper upper limit value.
Process alarm upper lower limit value	i_Pro_UL_Lim	Word	-32,768~32,767	Specify the process alarm upper lower limit value.
Process alarm lower upper limit value	i_Pro_LU_Lim	Word	-32,768~32,767	Specify the process alarm lower upper limit value.
Process alarm lower lower limit value	i_Pro_LL_Lim	Word	-32,768~32,767	Specify the process alarm lower lower limit value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the process alarm setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

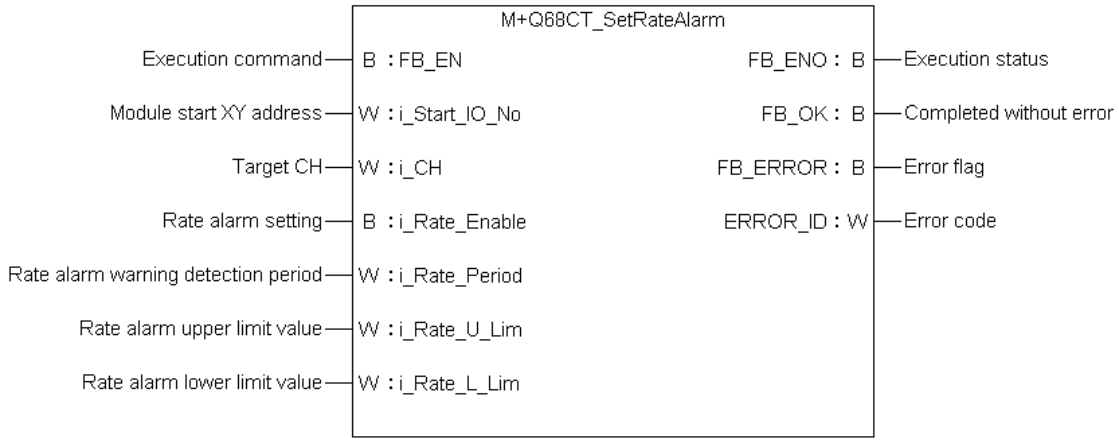
This chapter includes information related to the M+Q68CT_SetProcessAlarm function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.11 M+Q68CT_SetRateAlarm (Rate alarm setting)

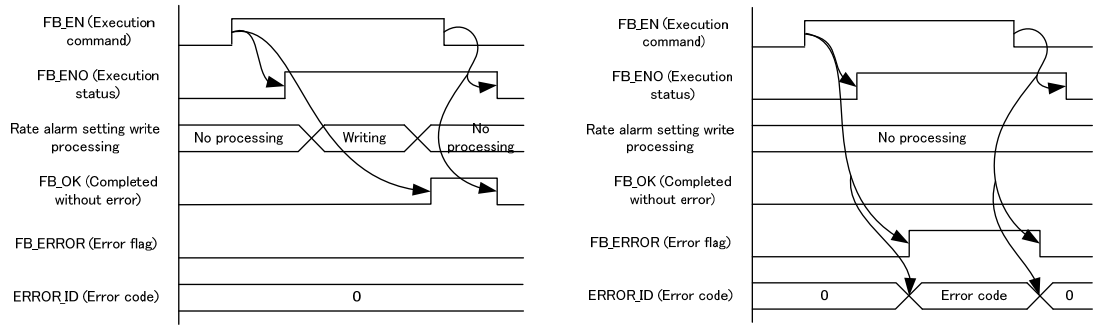
FB Name

M+Q68CT_SetRateAlarm

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Configures rate alarm setting of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td></td><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
</table>

Item	Description
Number of steps	297 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) Configures rate alarm settings of a specified channel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Rate alarm setting	i_Rate_Enable	Bit	ON,OFF	ON: Enable the warning output of the rate alarm. OFF: Disable the warning output of the rate alarm.

Name (Comment)	Label name	Data type	Setting range	Description
Rate alarm warning detection period	i_Rate_Period	Word	10~5,000 (ms)	Set the rate alarm warning detection period. Although a setting is possible per 1 ms unit, the first digit is rounded off and processing is performed per 10 ms unit.
Rate alarm upper limit value	i_Rate_U_Lim	Word	-32,768~32,767 (-3276.8~3276.7%)	Specify the rate alarm upper limit value.
Rate alarm lower limit value	i_Rate_L_Lim	Word	-32,768~32,767 (-3276.8~3276.7%)	Specify the rate alarm lower limit value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the rate alarm setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

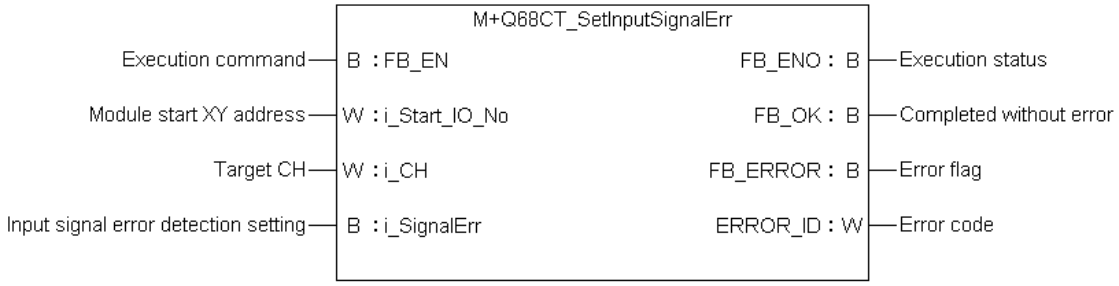
This chapter includes information related to the M+Q68CT_SetRateAlarm function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

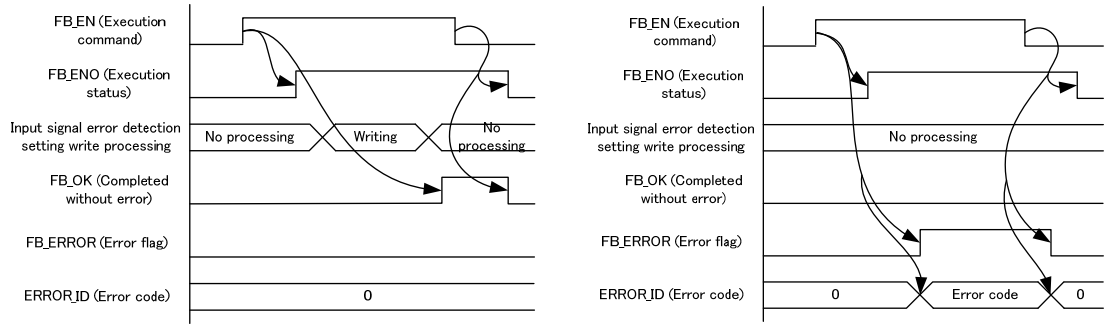
2.12 M+Q68CT_SetInputSignalErr (Input signal error detection setting)

FB Name

M+Q68CT_SetInputSignalErr

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Configures input signal error detection setting of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">274 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Configures input signal error detection setting of a specified channel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs] 

Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Input signal error detection setting	i_SignalErr	Bit	ON,OFF	ON: Enable the input signal error detection. OFF: Disable the input signal error detection.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the input signal error detection setting has been completed.

Name (Comment)	Label name	Data type	Initial value	Description
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

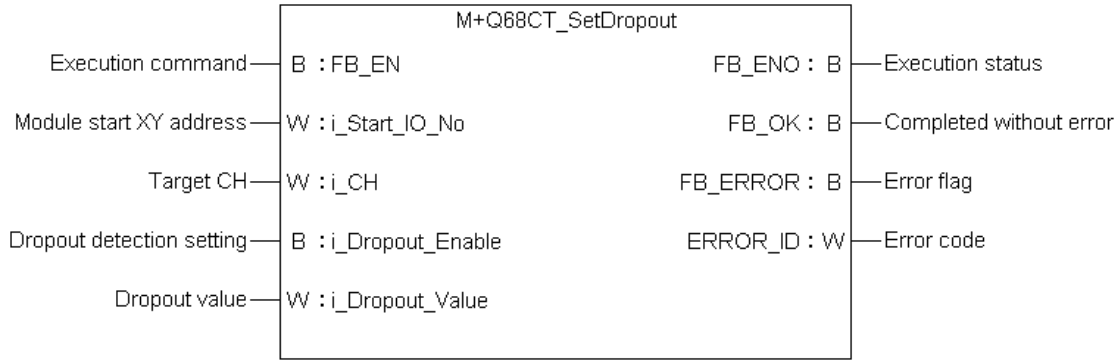
This chapter includes information related to the M+Q68CT_SetInputSignalErr function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.13 M+Q68CT_SetDropout (Dropout setting)

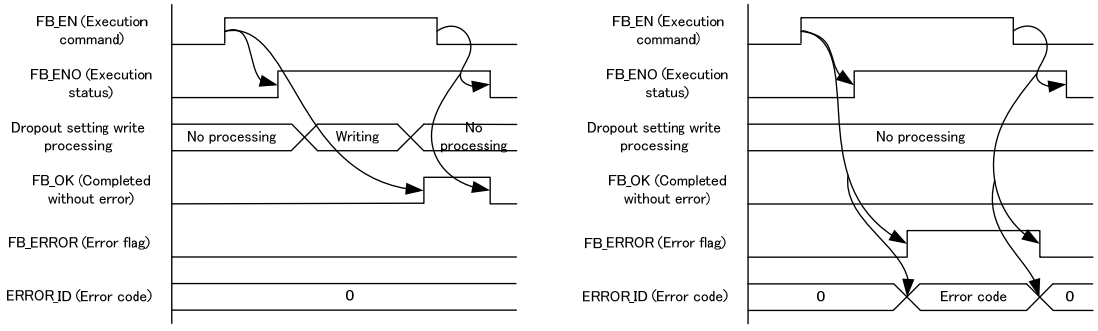
FB Name

M+Q68CT_SetDropout

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Configures dropout setting of a specified cahnnel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">280 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Configures dropout setting of a specified cahnnel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]



Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Dropout detection setting	i_Dropout_Enable	Bit	ON,OFF	ON: Enable the dropout detection. OFF: Disable the dropout detection.
Dropout value	i_Dropout_Value	Word	1~10,000	Specify the dropout value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the dropout setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

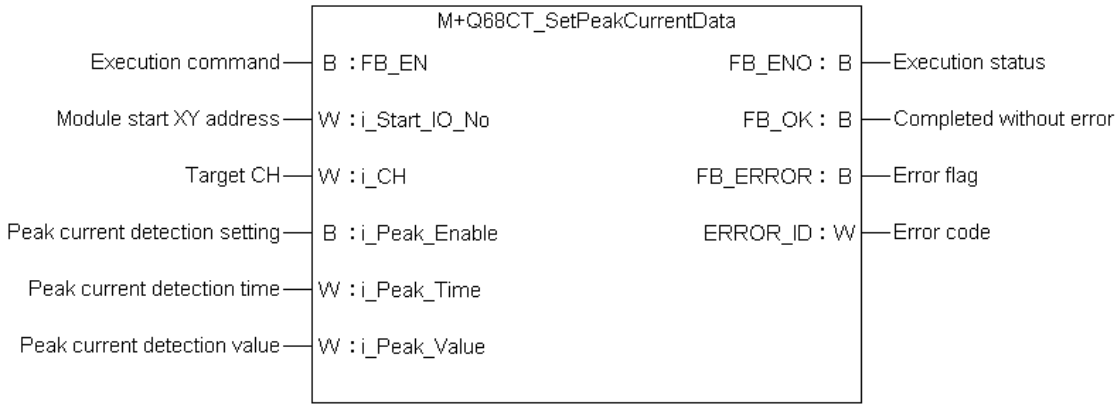
This chapter includes information related to the M+Q68CT_SetDropout function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.14 M+Q68CT_SetPeakCurrentData (Peak current detection setting)

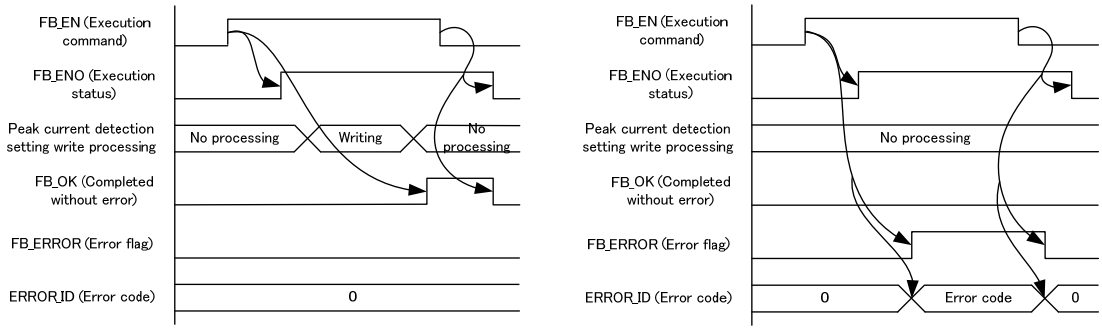
FB Name

M+Q68CT_SetPeakCurrentData

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Configures peak current detection setting of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later</td></tr>
<tr><td></td><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">297 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Configures peak current detection setting of a specified channel by turning ON FB_EN (Execution command). 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]



Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Peak current detection setting	i_Peak_Enable	Bit	ON,OFF	ON: Enable the peak current detection. OFF: Disable the peak current detection.
Peak current detection time	i_Peak_Time	Word	10~10,000 (ms)	Specify the peak current detection time.
Peak current detection value	i_Peak_Value	Word	0~11,999	Specify the peak current detection value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the peak current detection setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

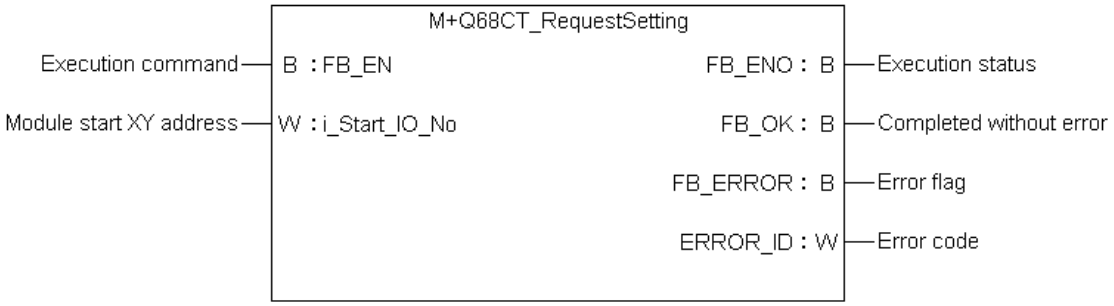
This chapter includes information related to the M+Q68CT_SetPeakCurrentData function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

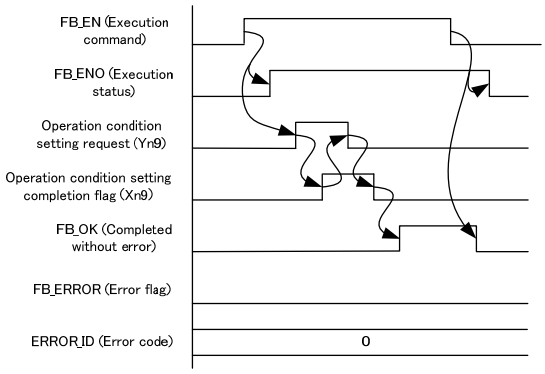
2.15 M+Q68CT_RequestSetting (Operation condition setting request)

FB Name

M+Q68CT_RequestSetting

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Applies changes made to each function's settings.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">215 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Enables settings of all channels by turning ON FB_EN (Execution command). For information on the settings that are enabled, refer to the MELSEC-Q Current Transformer Input Module User's Manual. 2) When FB_EN is turned ON, the FB will continue to execute until the settings for each function are completed.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 3) The FB cannot be used in an interrupt program. 4) This FB uses index register Z9. Please do not use this index register in an interrupt program. 5) Every input must be provided a value for proper FB operation. 6) When this FB is executed, conversion processing stops. After turning ON FB_OK, the conversion processing resumes. 7) When this FB is used in two or more places, a duplicated coil warning will occur during compile operation due to the Y signal being operated by index modification. However this is not a problem and the FB will operate without error. 8) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulse execution type (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] 

Item	Description
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
None	None	None

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the operating condition setting has been completed.
Error flag	FB_ERROR	Bit	OFF	Always OFF
Error code	ERROR_ID	Word	0	Always 0

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

This chapter includes information related to the M+Q68CT_RequestSetting function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

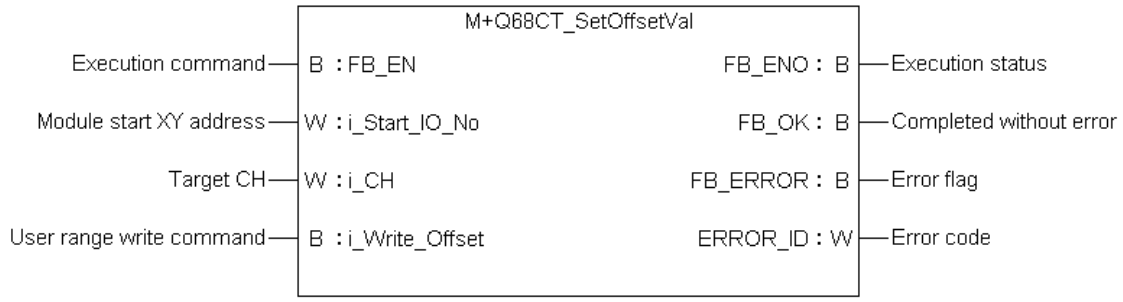
Before using any Mitsubishi products, please read all relevant manuals.

2.16 M+Q68CT_SetOffsetVal (Offset setting)

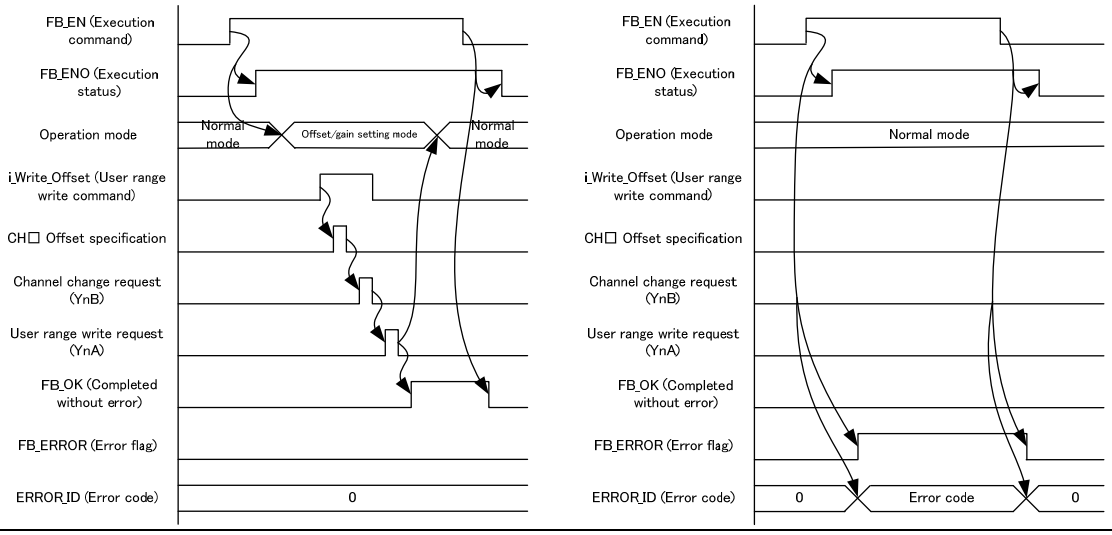
FB Name

M+Q68CT_SetOffsetVal

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Sets the offset value of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">411 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Sets the offset value of a specified channel by turning ON FB_EN (Execution command). 2) To write the offset value, both FB_EN and the User range write command must be ON. 3) If the User range write command is ON when FB_EN is turned ON, the FB will continue to execute until the offset value of the specified channel is written. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) When this FB is used in two or more places, a duplicated coil warning will occur during compile operation due to the Y signal being operated by index modification. However this is not a problem and the FB will operate without error. 8) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulse execution type (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.

Name (Comment)	Label name	Data type	Setting range	Description
User range write command	i_Write_Offset	Bit	ON,OFF	ON: Perform the user range write operation. OFF: Do not perform the user range write operation.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the offset setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

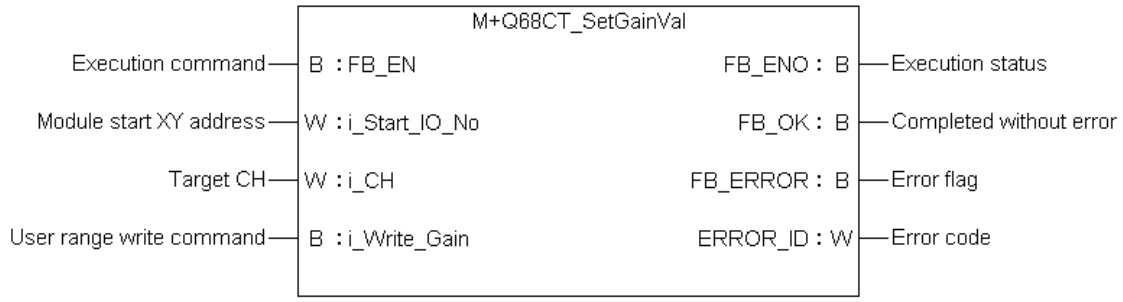
This chapter includes information related to the M+Q68CT_SetOffsetVal function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.17 M+Q68CT_SetGainVal (Gain setting)

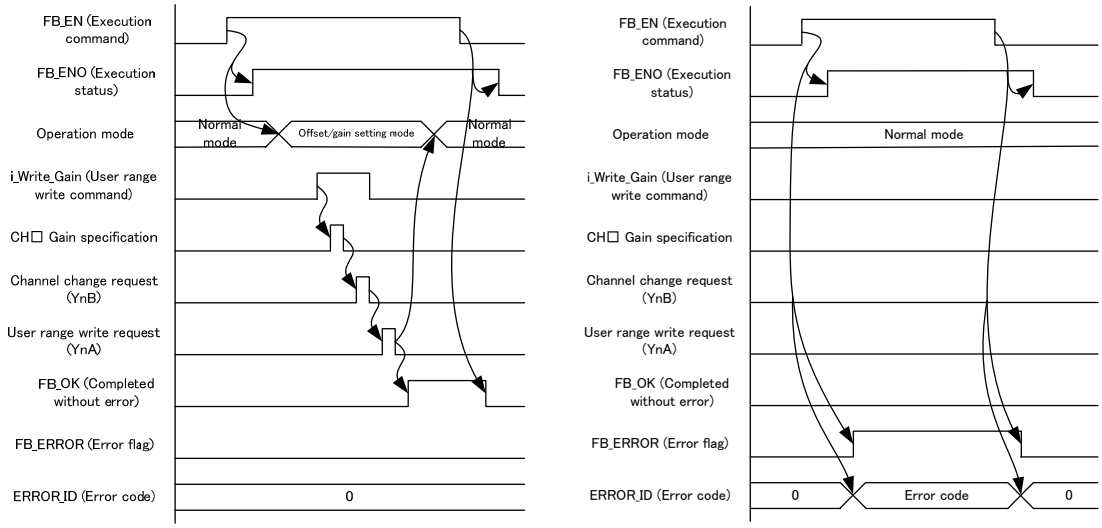
FB Name

M+Q68CT_SetGainVal

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Sets the gain value of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">398 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
</table>

Item	Description
Function description	1) Sets the gain value of a specified channel by turning ON FB_EN (Execution command). 2) To write the gain value, both FB_EN and the User range write command must be ON. 3) If the User range write command is ON when FB_EN is turned ON, the FB will continue to execute until the gain value of the specified channel is written. 4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel. 5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program. 6) Every input must be provided a value for proper FB operation. 7) When this FB is used in two or more places, a duplicated coil warning will occur during compile operation due to the Y signal being operated by index modification. However this is not a problem and the FB will operate without error. 8) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulse execution type (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.

Name (Comment)	Label name	Data type	Setting range	Description
User range write command	i_Write_Gain	Bit	ON,OFF	ON: Perform the user range write operation. OFF: Do not perform the user range write operation.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the gain setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

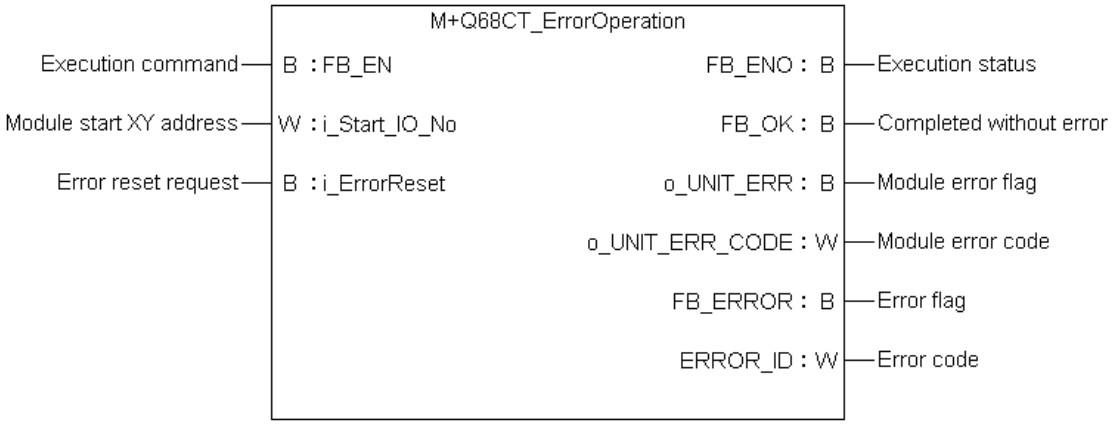
This chapter includes information related to the M+Q68CT_SetGainVal function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.18 M+Q68CT_ErrorOperation (Error operation)

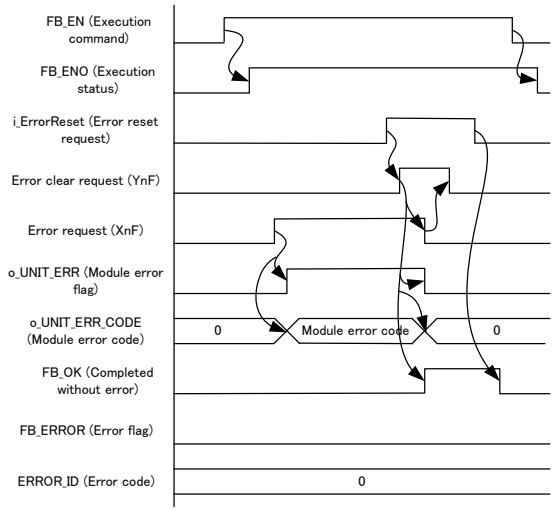
FB Name

M+Q68CT_ErrorOperation

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Performs monitoring of error codes and error reset.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
</table>

Item	Description
Number of steps	249 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) By turning ON FB_EN (Execution command), the current error code in the target module is output. 2) After turning ON FB_EN, the error is reset by turning ON i_ErrorReset (Error reset request) during the error occurrence.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) This FB uses index registers Z9 and Z8. Please do not use these index registers in an interrupt program. 5) Every input must be provided a value for proper FB operation. 6) When this FB is used in two or more places, a duplicated coil warning will occur during compile operation due to the Y signal being operated by index modification. However this is not a problem and the FB will operate without error. 7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".

Item	Description
Timing chart	[When operation completes without error] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
None	None	None

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)

Name (Comment)	Label name	Data type	Setting range	Description
Error reset request	i_ErrorReset	Bit	ON,OFF	Turn ON to perform error reset. After error reset is completed, turn this OFF.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the error reset is completed.
Module error flag	o_UNIT_ERR	Bit	OFF	When ON, it indicates the presence of a module error.
Module error code	o_UNIT_ERR_CODE	Word	0	Specified module error code output
Error flag	FB_ERROR	Bit	OFF	Always OFF
Error code	ERROR_ID	Word	0	Always 0

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

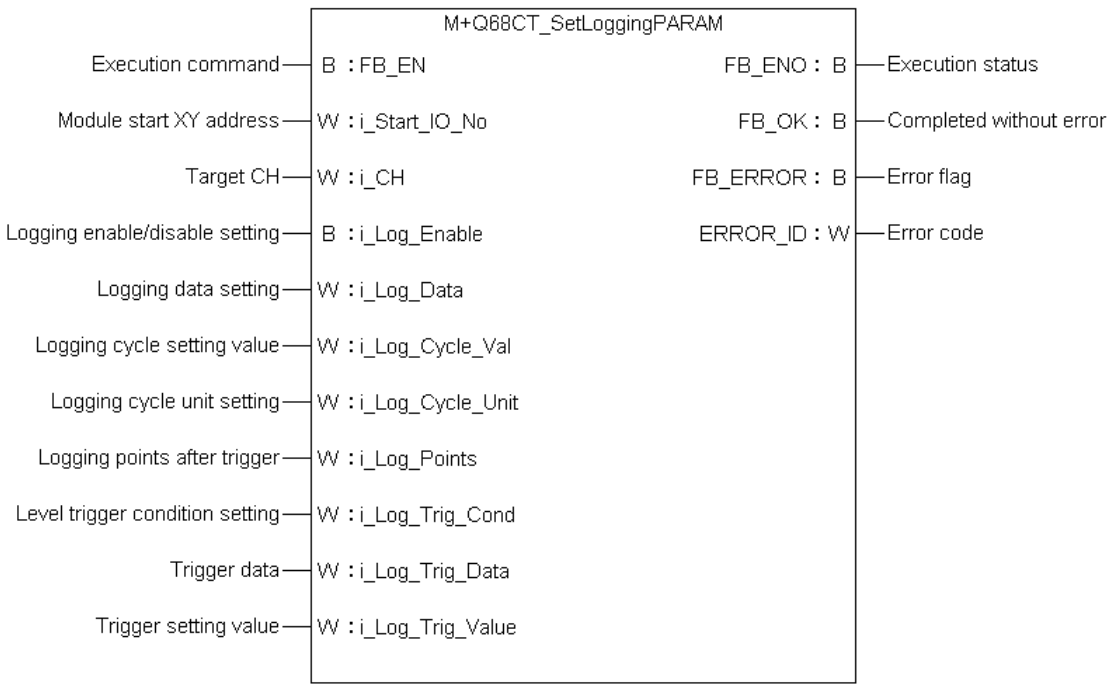
This chapter includes information related to the M+Q68CT_ErrorOperation function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.19 M+Q68CT_SetLoggingPARAM (Logging function parameter setting)

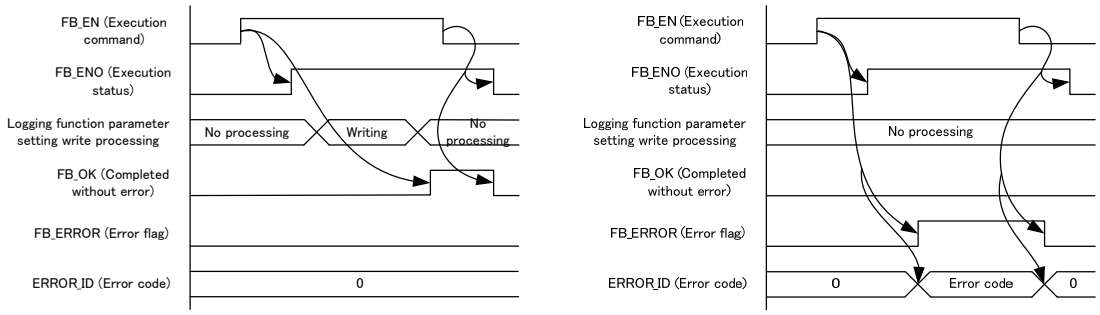
FB Name

M+Q68CT_SetLoggingPARAM

Function Overview

<table>
<tr><th>Item</th><th colspan="2">Description</th></tr>
<tr><td>Function Overview</td><td colspan="2">Performs the logging function of a specified channel.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="3">MELSEC-Q Series *1</td><td>Basic model *2</td></tr>
<tr><td>High performance model *3</td></tr>
<tr><td>Universal model</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04122" or later
*3 The first five digits of the serial number are "04012" or later
</td></tr>
</table>

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td></td><td>Engineering software</td><td>GX Works2 *1<table><tr><th>Language</th><th>Software version</th></tr><tr><td>English version</td><td>Version1.24A or later</td></tr><tr><td>Chinese version</td><td>Version1.49B or later</td></tr></table>*1 For information on the software versions applicable to the module used, refer to the related manual.</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
<tr><td>Number of steps</td><td colspan="2">315 steps (for MELSEC-Q series universal model CPU)
* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.</td></tr>
<tr><td>Function description</td><td colspan="2">1) Performs the logging function of a specified channel when the FB_EN (Execution command) is turned ON.
2) FB operation is one-shot only, triggered by the FB_EN signal.
3) The new setting value will not take effect until the 'operating condition setting request' signal (Yn9) is turned OFF->ON->OFF or the Operating condition setting request FB (M+Q68CT_RequestSetting) is executed.
4) When the target channel setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</td></tr>
<tr><td>Compiling method</td><td colspan="2">Macro type</td></tr>
<tr><td>Restrictions and precautions</td><td colspan="2">1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.
2) The FB cannot be used in an interrupt program.
3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF.
4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.
5) This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in an interrupt program.
6) Every input must be provided a value for proper FB operation.
7) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2 switch setting according to the application.
For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).</td></tr>
</table>

Item	Description
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.

Name (Comment)	Label name	Data type	Setting range	Description
Logging enable/disable setting	i_Log_Enable	Bit	ON,OFF	ON: Enable the logging function. OFF: Disable the logging function.
Logging data setting	i_Log_Data	Word	0: Digital output value 1: Scaling value	Set the data to be logged.
Logging cycle setting value	i_Log_Cycle_Val	Word	1) Logging cycle unit setting = 0:10~32,767 2) Logging cycle unit setting=1:10~32,767 3) Logging cycle unit setting=2:1~3,600	Set the cycle to store data.
Logging cycle unit setting	i_Log_Cycle_Unit	Word	0: Update cycle 1: ms 2: s	Specify the cycle unit to store data.
Logging points after trigger	i_Log_Points	Word	1~5,000	Specify the number of data to be logged after the hold trigger occurs.
Level trigger condition setting	i_Log_Trig_Cond	Word	0: Disable 1: Above 2: Below 3: Pass through	Set whether to use the level trigger or not. If used, set the condition.
Trigger data	i_Log_Trig_Data	Word	0~4,999	Set the buffer memory address monitored for the level trigger.
Trigger setting value	i_Log_Trig_Value	Word	-32,768~32,767	Set the level at which the level trigger occurs.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF

Name (Comment)	Label name	Data type	Initial value	Description
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the logging function parameter setting has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

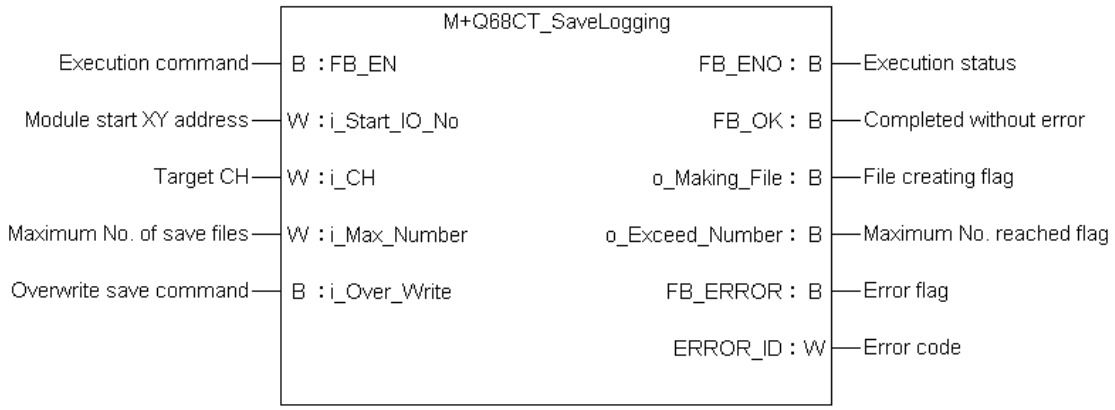
This chapter includes information related to the M+Q68CT_SetLoggingPARAM function block.
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.
Before using any Mitsubishi products, please read all relevant manuals.

2.20 M+Q68CT_SaveLogging (Logging data save)

FB Name

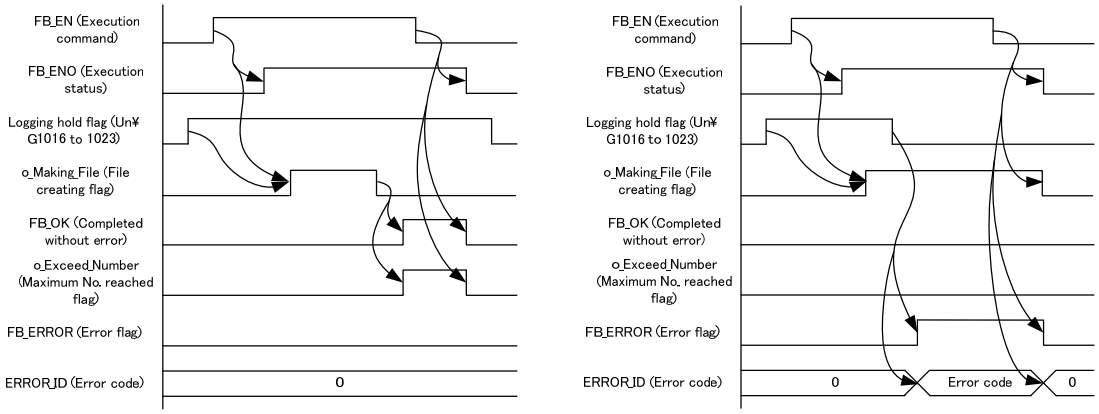
M+Q68CT_SaveLogging

Function Overview

<table>
<tr><td>Item</td><td colspan="2">Description</td></tr>
<tr><td>Function Overview</td><td colspan="2">Saves the logging data of a specified channel in a CSV file.</td></tr>
<tr><td>Symbol</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="3">Applicable hardware and software</td><td>CT input module</td><td>Q68CT</td></tr>
<tr><td>CPU module</td><td>
<table>
<tr><th>Series</th><th>Model</th></tr>
<tr><td rowspan="2">MELSEC-Q Series *1</td><td>High performance model *2</td></tr>
<tr><td>Universal model *3</td></tr>
</table>
*1 Not applicable to QCPU (A mode)
*2 The first five digits of the serial number are "04112" or later
*3 Not applicable to Q00UJCPU, Q00UCPU, or Q01UCPU because memory cards cannot be mounted on them.
</td></tr>
<tr><td>Engineering software</td><td>GX Works2 *1
<table>
<tr><th>Language</th><th>Software version</th></tr>
<tr><td>English version</td><td>Version1.24A or later</td></tr>
<tr><td>Chinese version</td><td>Version1.49B or later</td></tr>
</table>
*1 For information on the software versions applicable to the module used, refer to the related manual.
</td></tr>
<tr><td>Programming language</td><td colspan="2">Ladder</td></tr>
</table>

Item	Description
Number of steps	1765 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) When FB_EN (Execution command) and the logging hold flag are turned ON, the logging data from the start pointer for the number of the logging data are sorted chronologically. Then, the logging data and the trigger occurrence information are saved in CSV format in the ATA card mounted on the CPU. 2) When FB_EN is ON, the FB starts the save processing of the logging data each time the logging hold flag is turned ON. 3) It requires multiple scans to complete the save processing of the logging data. To check whether it is completed, check FB_OK (Completed without error). 4) The format for the file name that the FB saves in an ATA card is "CT" + "second and third digits of the module starting XY address that is expressed in 4 digits" + "Target channel" + "serial number" + " .CSV". The maximum serial number depends on i_Max_Number (Maximum No. of save files). If FB_EN is turned OFF, the serial number is reset and the serial number starts from 1 again. [File name example] The file name is "CT453006.CSV" in the following case. The module starting XY address is H0450, the target channel is 3, i_Max_Number (Maximum No. of save files) is 30, and the number of files this FB created is 6. 5) When the FB creates a CSV file in an ATA card, if the same file name is already in the memory card, the existing file is replaced with a new file. 6) If i_Over_Write (Overwrite save command) is turned ON and the number of files the FB saved in an ATA card has exceeded i_Max_Number, the serial number returns to 1 and the FB continues to perform the save processing of the logging data. 7) If i_Over_Write is turned OFF and the number of files saved in an ATA card has reached i_Max_Number, the FB stops the save processing of the logging data. 8) If the number of files the FB saved in an ATA card has reached i_Max_Number, o_Exceed_Number (Maximum No. reached flag) is turned ON regardless of whether i_Over_Write is ON or OFF. 9) If there is an incorrect input in i_CH (Target CH) or i_Max_Number, FB_ERROR (Error flag) is turned ON and the FB processing is aborted. Then an error code is stored in ERROR_ID (error code). 10) If the FB is executed without mounting an ATA card on the CPU, if the mounted ATA card does not have sufficient space, or if the number of files that can be saved *1 is

Item	Description
	exceeded, a CPU error *2 occurs. When an error causes a stop error in the CPU module, FB_ERROR or ERROR_ID is not updated. When an error causes a continuation error in the CPU module, FB_ERROR is turned ON, processing is interrupted, and the error code is stored in ERROR_ID. 11) For information on the CSV file format created by this FB, refer to the MELSEC-Q Current Transformer Input Module User's Manual. *1 For information on the size of ATA card and the number of files that can be saved, refer to the QCPU User's Manual (Hardware Design, Maintenance and Inspection). *2 The parameter can be used to set the CPU operation state (continue/stop) for when an access error to ATA card occurs.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) This FB uses index registers Z9, Z8, Z7, and Z6. Please do not use these index registers in an interrupt program. 5) This FB can save logging data in ATA card only. 6) This FB uses a SP.FWRITE instruction. Therefore, if an error occurs during execution of the SP.FWRITE instruction, a CPU error occurs. 7) When two or more of these FBs are used, implement an interlock to prevent them from being executed simultaneously. [Interlock example] When the target channels are set to channels 1 and 2 and their logging data are saved, confirm that FB_OK for channel 1 is turned ON before turning ON EB_EN for channel 2. 8) Every input must be provided a value for proper FB operation. 9) Pay attention to the size of the ATA card and the number of files that can be saved when determining i_Max_Number (Maximum No. of save files). If the size of the ATA card or the number of files that can be saved is exceeded when this FB is executed, a CPU error occurs. For information on the size of ATA card and the number of files that can be saved, refer to the QCPU User's Manual (Hardware Design, Maintenance and Inspection). 10) The input range settings must be properly configured to match the system and devices connected to the Q68CT module. Configure these settings by making the GX Works2

Item	Description
	switch setting according to the application. For details on how to use the intelligent function module switch setting, refer to GX Works2 Version1 Operating Manual (Common).
FB operation type	Pulse execution type (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs] 
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

Error Codes

●Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid. The target channel is not within the range of 1 to 8.	Please try again after confirming the setting.
11 (Decimal)	The maximum number of save files is not valid. The maximum number of save files is not within the range of 1 to 511.	Please try again after confirming the setting.
20 (Decimal)	The processing is aborted because the logging hold flag is turned OFF while the logging data is being saved. A CSV file containing incomplete data is saved in the ATA card.	-
4-digit error code	CPU error code	For details on the error codes, refer to Appendix 1 Error Code List in the QCPU User's Manual (Hardware Design, Maintenance and Inspection).

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the Q68CT module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Maximum No. of save files	i_Max_Number	Word	1~511	Specify the maximum number of CSV files the FB saves.

Name (Comment)	Label name	Data type	Setting range	Description
Overwrite save command	i_Over_Write	Bit	ON,OFF	Set whether to overwrite a CSV file with the youngest serial number when the number of CSV files saved by this FB exceeds the maximum number of save files. (When OFF, the save processing of logging data stops.)

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON OFF: Execution command OFF
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the file saving has been completed. Turned OFF when the logging resumes.
File creating flag	o_Making_File	Bit	OFF	When ON, it indicates that a file is being created.
Maximum No. reached flag	o_Exceed_Number	Bit	OFF	When ON, it indicates that the number of CSV files saved by this FB has reached the maximum number of save files.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/31	First edition

Note

This chapter includes information related to the M+Q68CT_SaveLogging function block.

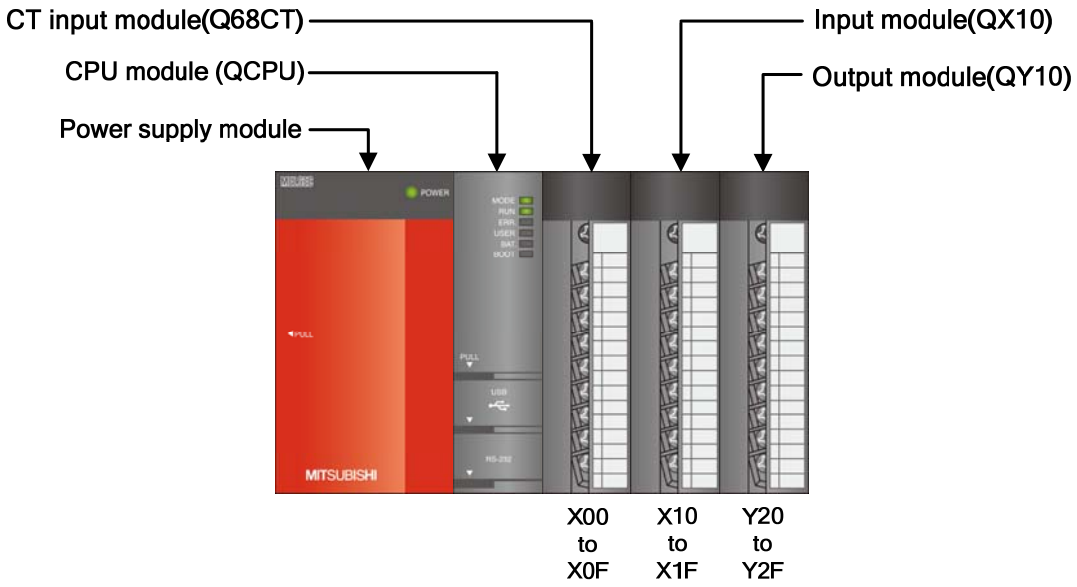
It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all relevant manuals.

Appendix 1. FB Library Application Examples

Q68CT FB application examples are as follows.

1) System configuration



Reminder

- •Every input must be provided with a value for proper FB operation.
  If not set, the values will be unspecified.
- •Abbreviations may be used in the label comments due to the limitation on the number of the characters to display in GX Works2.

2) List of devices

a) External input (Command)

Device	FB name	Application (ON details)
M0	M+Q68CT_ReadDigitalVal	Digital output value read request
M10	M+Q68CT_ReadAllDigitalVal	All digital output values read request
M30	M+Q68CT_ReadScalingVal	Scaling value read request
M40	M+Q68CT_ReadAllScalingVal	All scaling values read request
M50	M+Q68CT_ReadPeakCurrentData	Peak current detection data read request
M51		Peak current detection count reset request
M60	M+Q68CT_SetSamplingPeriod	Sampling cycle setting request
M70	M+Q68CT_SetConversion	Conversion enable/disable setting request
M71		Conversion enable/disable setting
M80	M+Q68CT_SetAverage	Averaging process setting request
M90	M+Q68CT_SetScaling	Scaling setting request
M91		Scaling enable/disable setting
M100	M+Q68CT_SetProcessAlarm	Process alarm setting request
M101		Process alarm setting
M110	M+Q68CT_SetRateAlarm	Rate alarm setting request
M111		Rate alarm setting
M120	M+Q68CT_SetInputSignalErr	Input signal error detection setting request
M121		Input signal error detection setting
M130	M+Q68CT_SetDropout	Dropout setting request
M131		Dropout detection setting
M140	M+Q68CT_SetPeakCurrentData	Peak current detection setting request
M141		Peak current detection setting
M150	M+Q68CT_RequestSetting	Operation condition setting request
M160	M+Q68CT_SetOffsetVal	Offset setting request
M161		Offset value write request
M170	M+Q68CT_SetGainVal	Gain setting request
M171		Gain value write request
M180	M+Q68CT_ErrorOperation	Error operation request
M181		Error reset request
M190	M+Q68CT_SetLoggingPARAM	Logging setting request
M191		Logging enable/disable setting

Device	FB name	Application (ON details)
M200	M+Q68CT_SaveLogging	Logging data save request
M201		Overwrite save command request

b) External output (checks)

Device	FB name	Application (ON details)
M1	M+Q68CT_ReadDigitalVal	Digital output value read ready
M2		Digital output value read complete
D0		Digital output value
M3		Dropout status
F0		Digital output value FB error
D1		Digital output value FB error code
M11	M+Q68CT_ReadAllDigitalVal	All digital output values read ready
M12		All digital output values read complete
D10		CH1 Digital output value
D11		CH2 Digital output value
D12		CH3 Digital output value
D13		CH4 Digital output value
D14		CH5 Digital output value
D15		CH6 Digital output value
D16		CH7 Digital output value
D17		CH8 Digital output value
M13		CH1 Dropout status
M14		CH2 Dropout status
M15		CH3 Dropout status
M16		CH4 Dropout status
M17		CH5 Dropout status
M18		CH6 Dropout status
M19		CH7 Dropout status
M20		CH8 Dropout status
M31	M+Q68CT_ReadScalingVal	Scaling value read ready
M32		Scaling value read complete
D30		Scaling value
F5		Scaling value FB error
D31		Scaling value FB error code

Device	FB name	Application (ON details)
M41	M+Q68CT_ReadAllScalingVal	All scaling values read ready
M42		All scaling values read complete
D40		CH1 Scaling value
D41		CH2 Scaling value
D42		CH3 Scaling value
D43		CH4 Scaling value
D44		CH5 Scaling value
D45		CH6 Scaling value
D46		CH7 Scaling value
D47		CH8 Scaling value
M52	M+Q68CT_ReadPeakCurrentData	Peak current detection data read ready
M53		Peak current detection data read complete
M54		Peak current detection flag
D50		Peak current detection count
F10		Peak current data FB error
D51		Peak current data FB error code
M61	M+Q68CT_SetSamplingPeriod	Sampling cycle setting ready
M62		Sampling cycle setting complete
F15		Sampling cycle FB error
D60		Sampling cycle FB error code
M72	M+Q68CT_SetConversion	Conversion enable/disable setting ready
M73		Conversion enable/disable setting complete
F20		Conversion enable/disable FB error
D70		Conversion enable/disable FB error code
M81	M+Q68CT_SetAverage	Averaging process setting ready
M82		Averaging process setting complete
F25		Averaging process setting FB error
D80		Averaging process setting FB error code
M92	M+Q68CT_SetScaling	Scaling setting ready
M93		Scaling setting complete
F30		Scaling setting FB error
D90		Scaling setting FB error code

Device	FB name	Application (ON details)
M102	M+Q68CT_SetProcessAlarm	Process alarm setting ready
M103		Process alarm setting complete
F35		Process alarm FB error
D100		Process alarm FB error code
M112	M+Q68CT_SetRateAlarm	Rate alarm setting ready
M113		Rate alarm setting complete
F40		Rate alarm setting FB error
D110		Rate alarm setting FB error code
M122	M+Q68CT_SetInputSignalErr	Input signal error detection setting ready
M123		Input signal error detection setting complete
F45		Input signal error detection FB error
D120		Input signal error detection FB error code
M132	M+Q68CT_SetDropout	Dropout setting ready
M133		Dropout setting complete
F50		Dropout setting FB error
D130		Dropout setting FB error code
M142	M+Q68CT_SetPeakCurrentData	Peak current detection setting ready
M143		Peak current detection setting complete
F55		Peak current detection setting FB error
D140		Peak current detection setting FB error code
M151	M+Q68CT_RequestSetting	Operation condition setting request ready
M152		Operation condition setting request complete
F60		Operation condition setting request FB error
D150		Operation condition setting request FB error code
M162	M+Q68CT_SetOffsetVal	Offset setting ready
M163		Offset setting complete
F65		Offset setting FB error
D160		Offset setting FB error code

Device	FB name	Application (ON details)
M172	M+Q68CT_SetGainVal	Gain setting ready
M173		Gain setting complete
F70		Gain setting FB error
D170		Gain setting FB error code
M182	M+Q68CT_ErrorOperation	Error operation ready
M183		Error operation complete
M184		Module error flag
D180		Module error code
M192	M+Q68CT_SetLoggingPARAM	Logging setting ready
M193		Logging setting complete
F75		Logging setting FB error
D190		Logging setting FB error code
M202	M+Q68CT_SaveLogging	Logging data save ready
M203		Logging data save complete
M204		File creating flag
M205		Maximum No. reached flag
F80		Logging data save FB error
D200		Logging data save FB error code

3) Global label setting

None

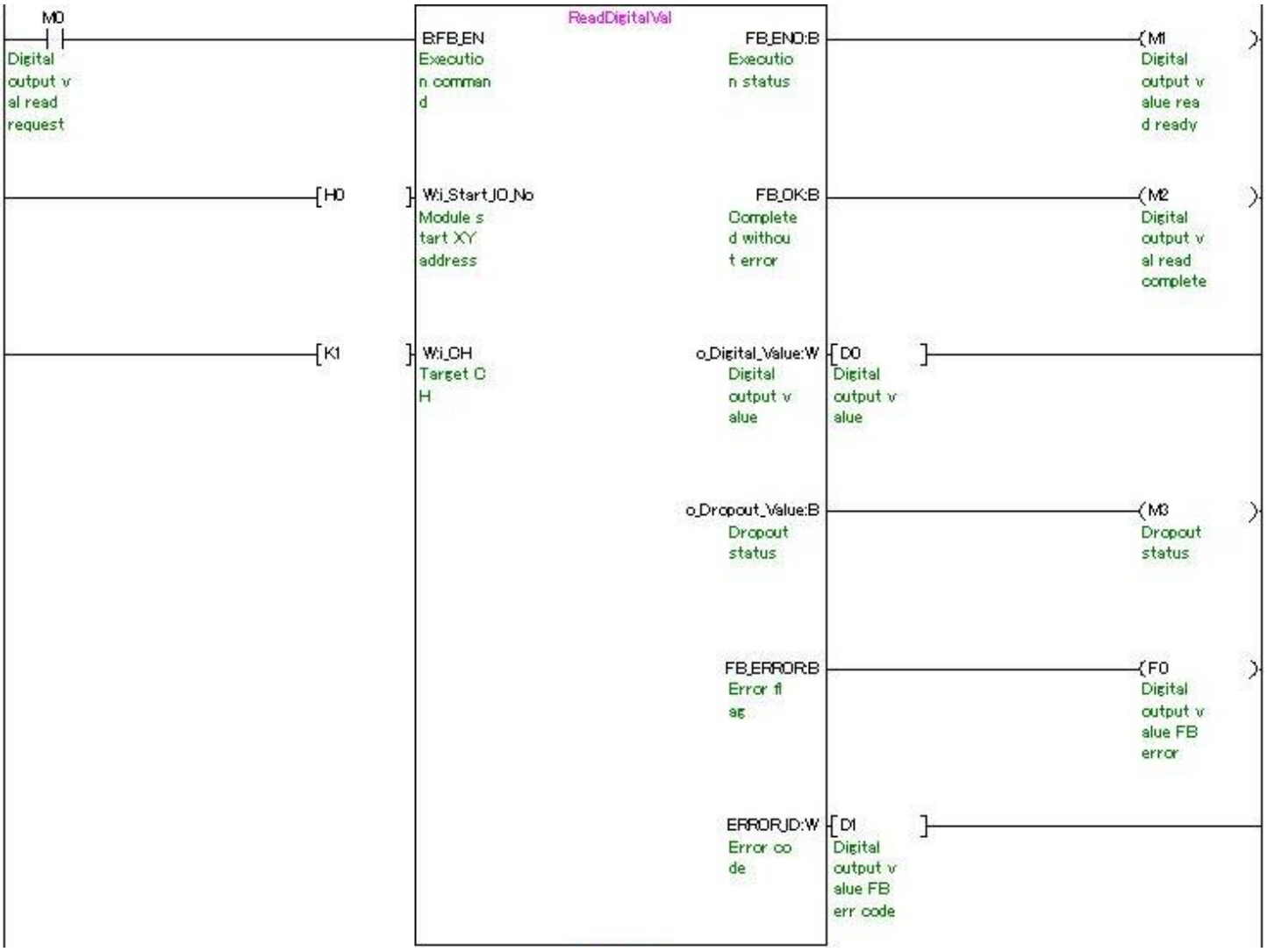
4) Program

M+Q68CT_ReadDigitalVal (Read digital output value, dropout status)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.

By turning ON M0, the digital output value and dropout status of channel 1 are read.

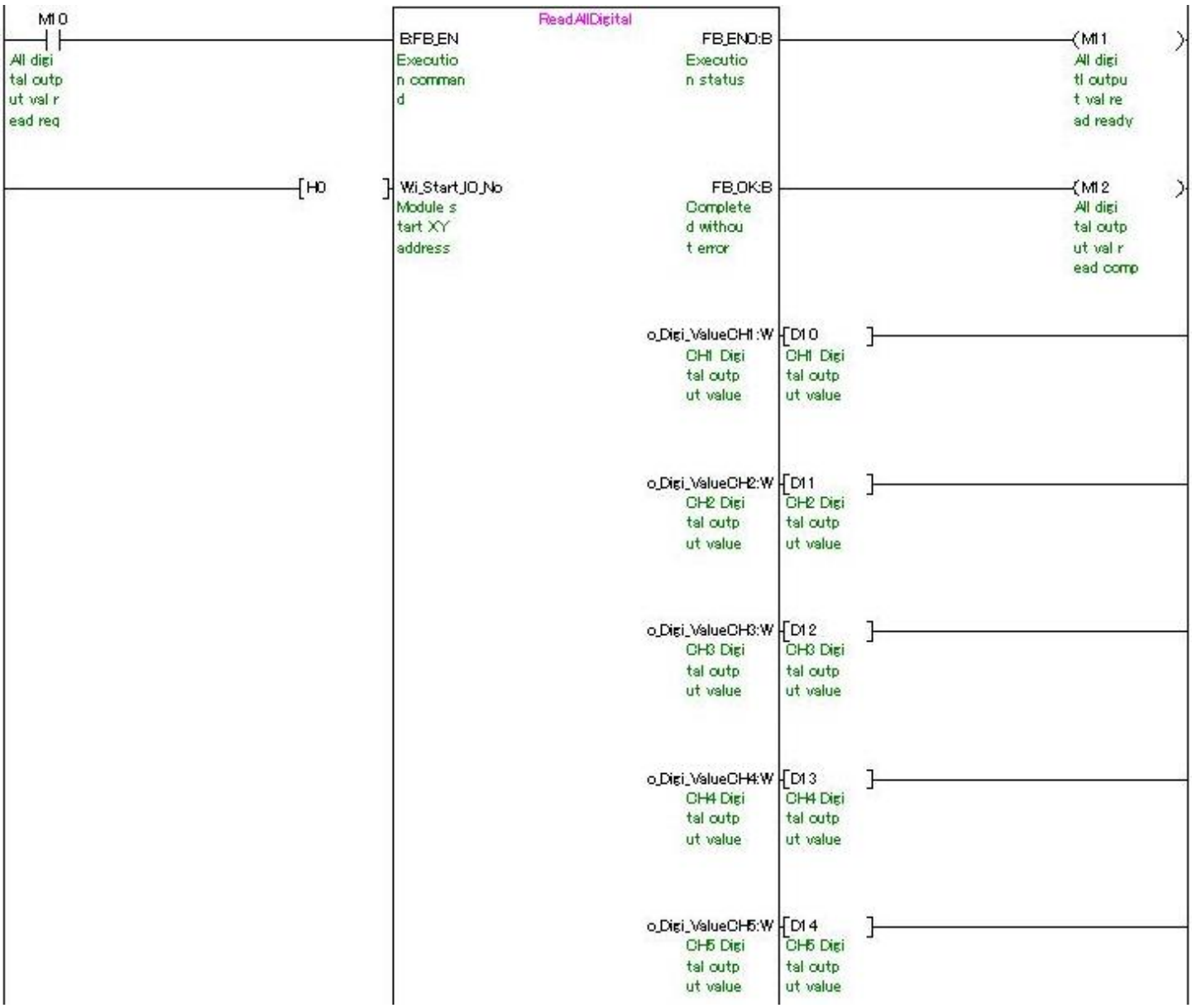


M+Q68CT_ReadAllDigitalVal (Read all digital output values, dropout status)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.

By turning ON M10, digital output vaues and dropout status of all channels are read.



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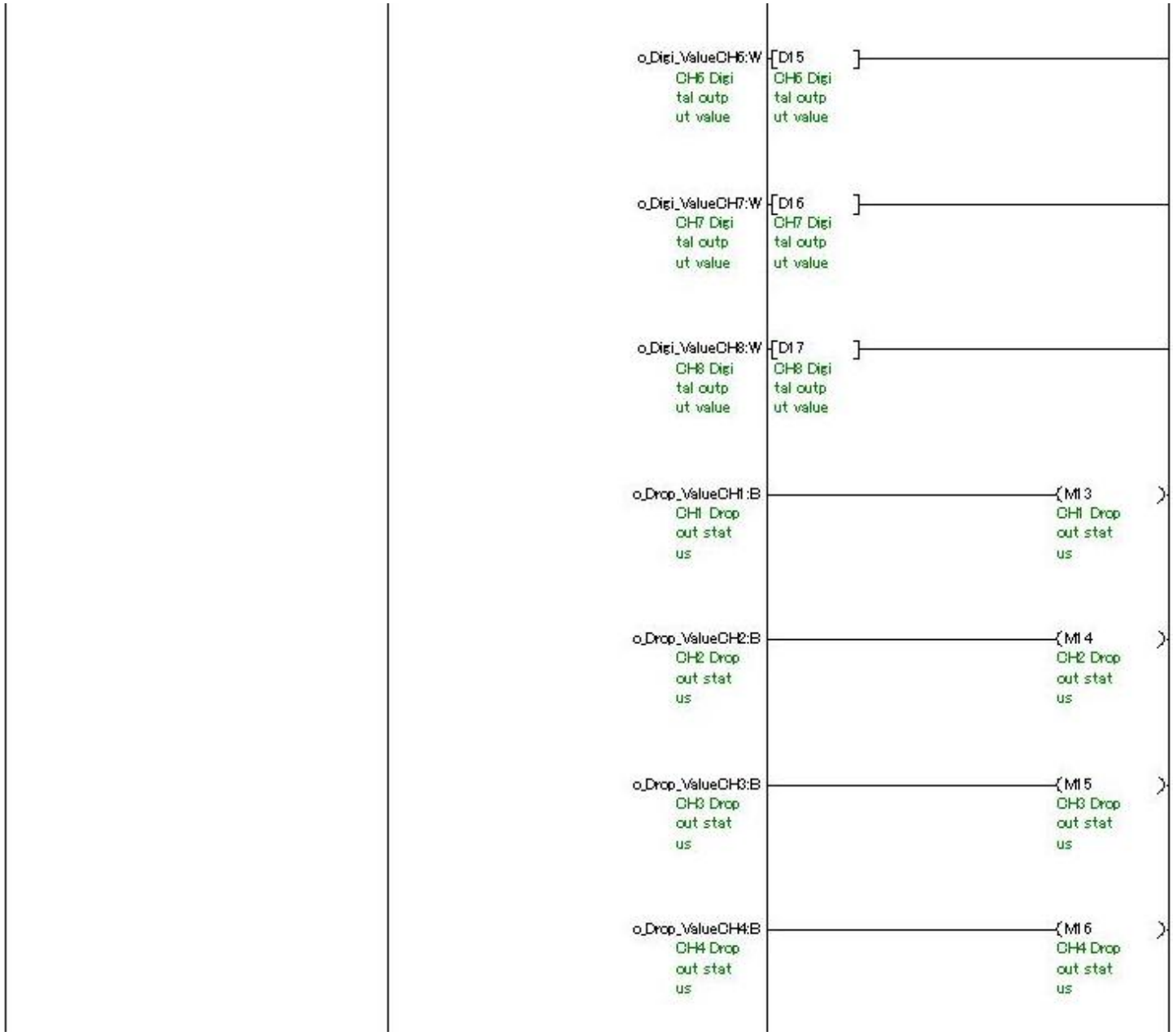
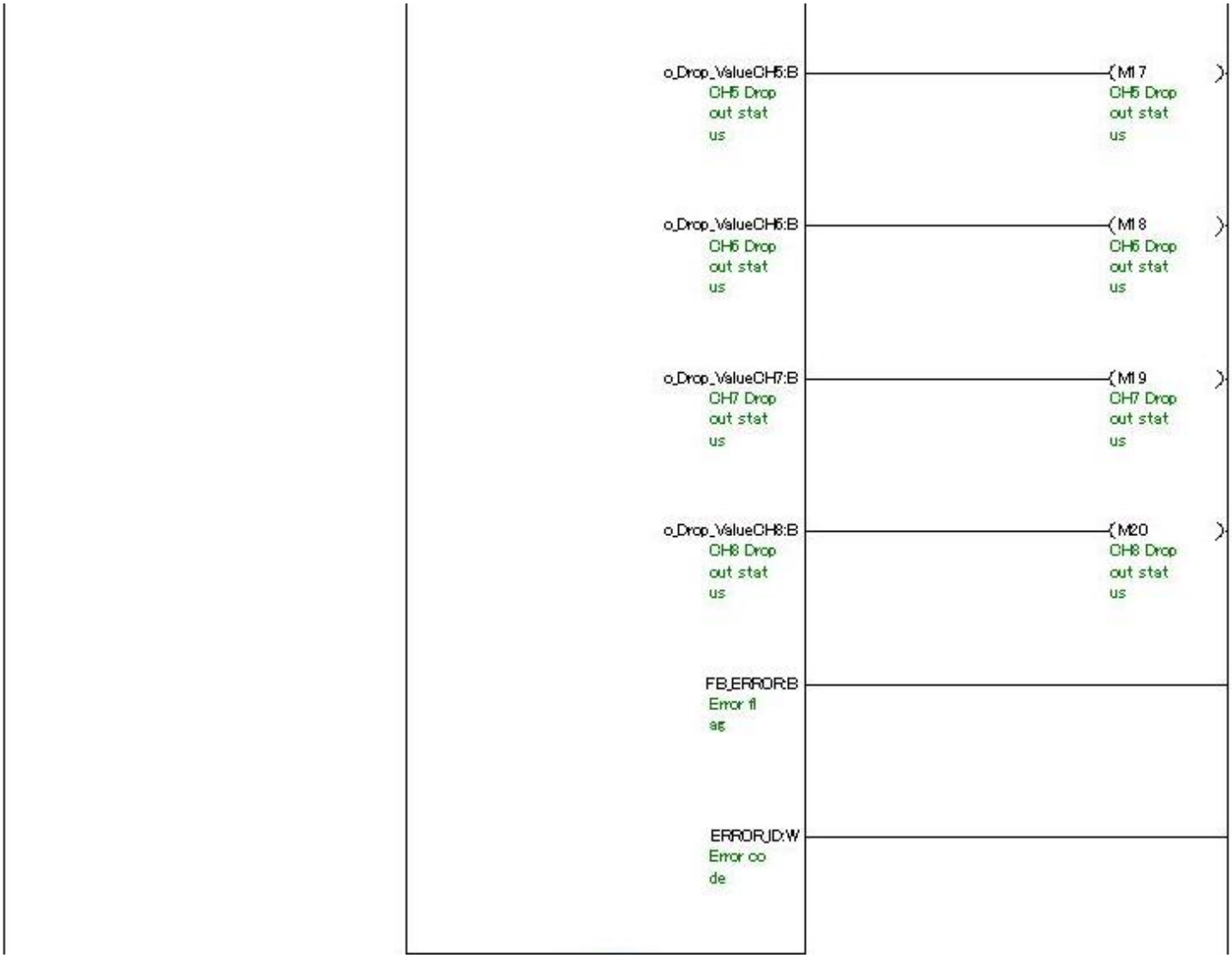


(Continues on next page.)

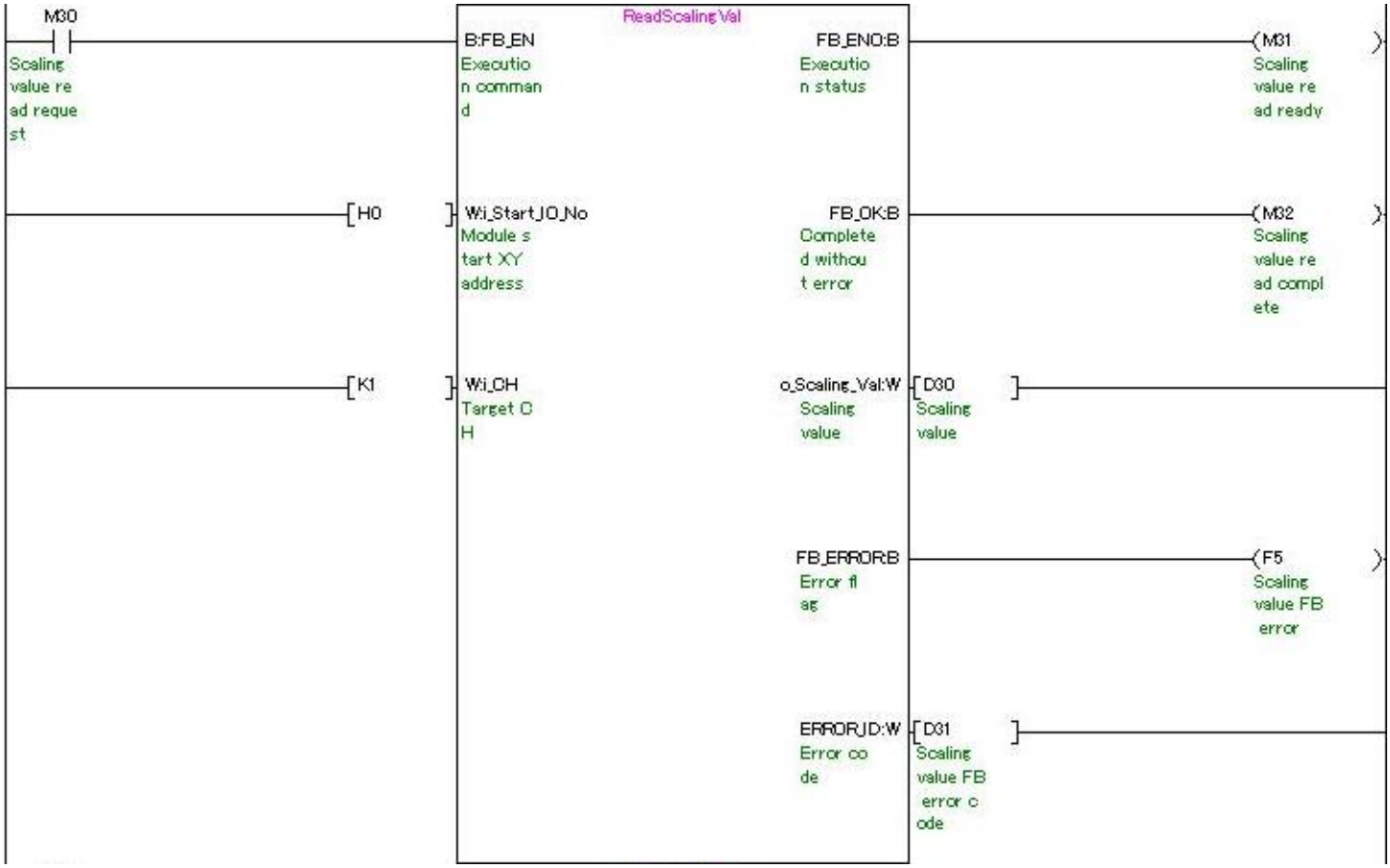

o_Drop_ValueCH5:B
CH5 Drop out status
M17
CH5 Drop out status
o_Drop_ValueCH6:B
CH6 Drop out status
M18
CH6 Drop out status
o_Drop_ValueCH7:B
CH7 Drop out status
M19
CH7 Drop out status
o_Drop_ValueCH8:B
CH8 Drop out status
M20
CH8 Drop out status
FB_ERROR:B
Error flag
ERRORJD:W
Error code

M+Q68CT_ReadScalingVal (Read scaling value)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.

By turning ON M30, the scaling value of channel 1 is read.

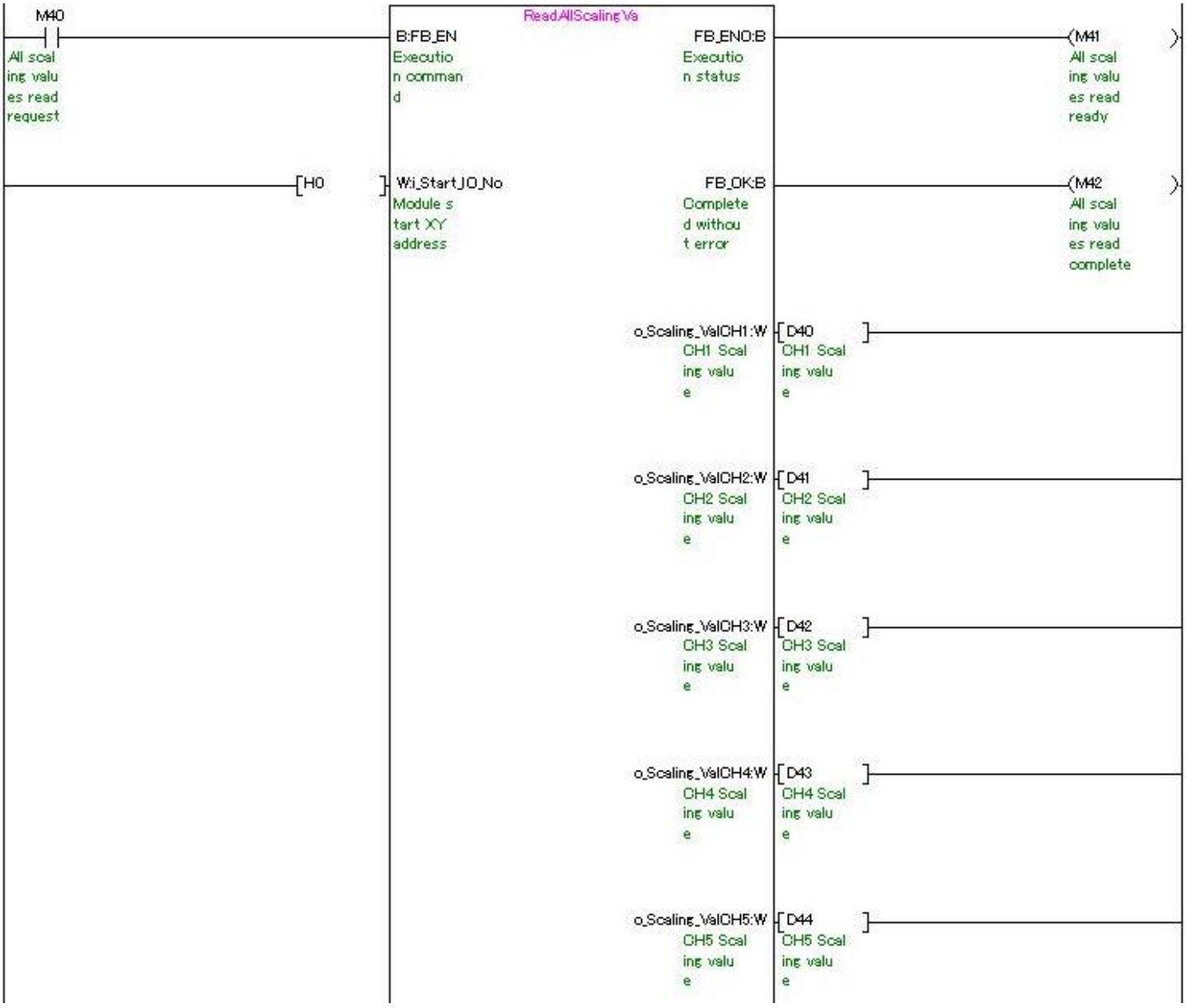


M+Q68CT_ReadAllScalingVal (Read all scaling values)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.

By turning ON M40, the scaling values of all channels are read.



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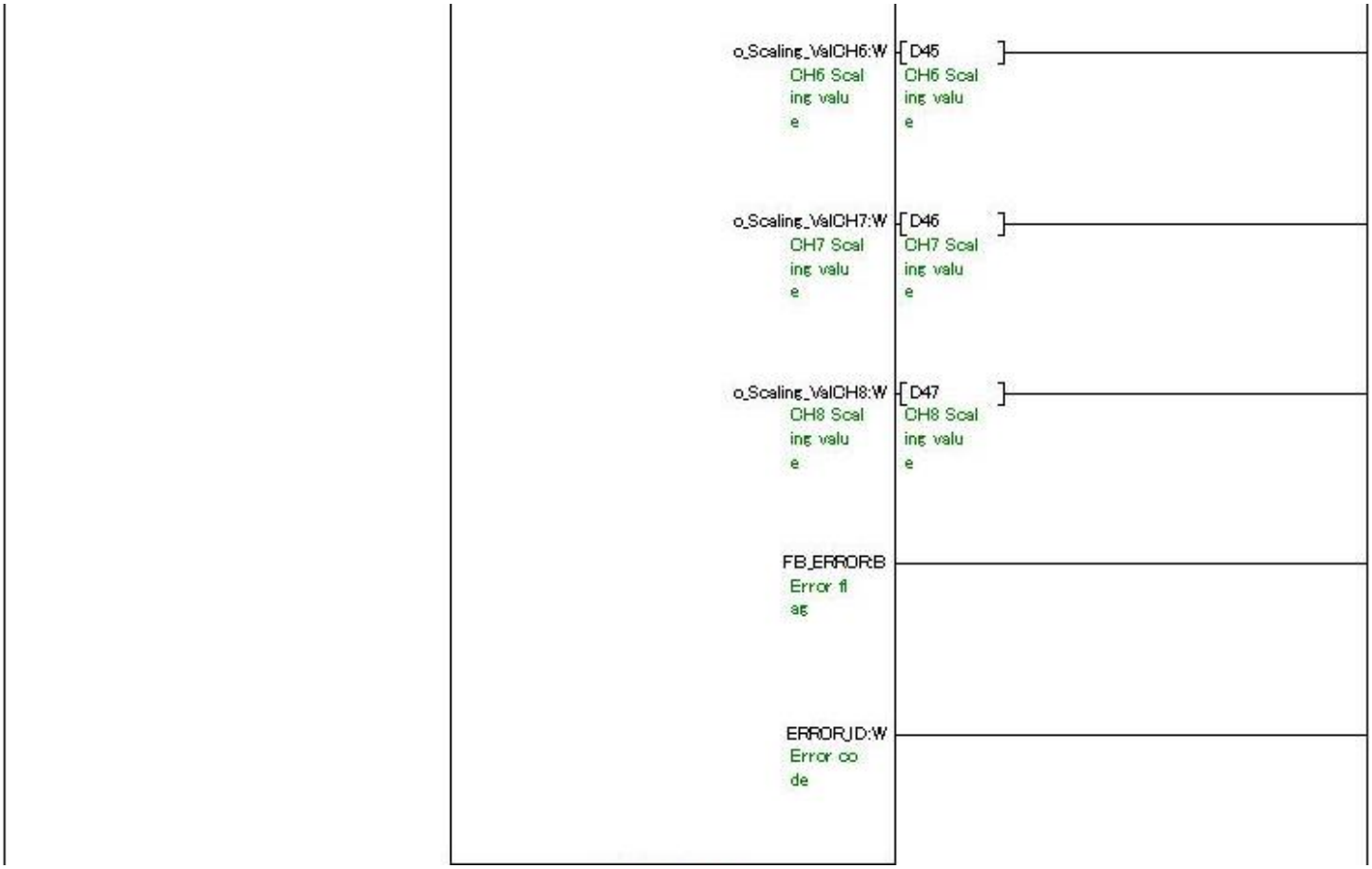
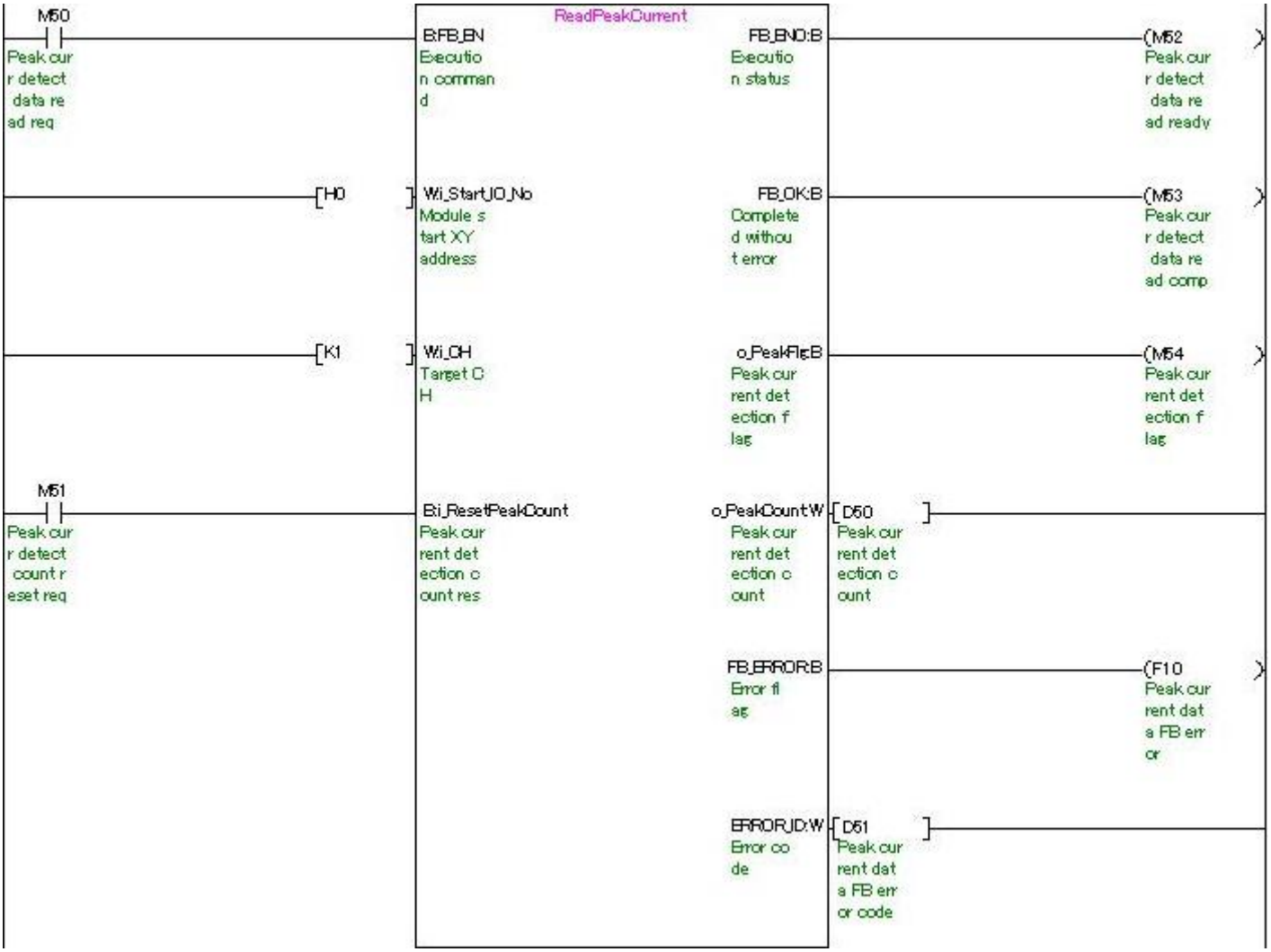

o_Scaling_ValCH6:W
CH6 Scal
ing valu
e
D45
CH6 Scal
ing valu
e
o_Scaling_ValCH7:W
CH7 Scal
ing valu
e
D46
CH7 Scal
ing valu
e
o_Scaling_ValCH8:W
CH8 Scal
ing valu
e
D47
CH8 Scal
ing valu
e
FB_ERRORB
Error fl
ag
ERRORJD:W
Error co
de

M+Q68CT_ReadPeakCurrentData (Read peak current detection data)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_ResetPeakCount	ON/OFF	Turn ON to set the peak current detection count reset request to "Reset requested". Turn OFF to set the peak current detection count reset request to "Reset not requested".

By turning ON M50, the peak current detection data (peak current detection flag and peak current detection count) of channel 1 are read.
After turning ON M50, by turning ON M51, the value of reset requested is written to the buffer memory of the peak current detection count reset request of channel 1.
After turning ON M50, by turning OFF M51, the value of reset not requested is written to the buffer memory of the peak current detection count reset request of channel 1.

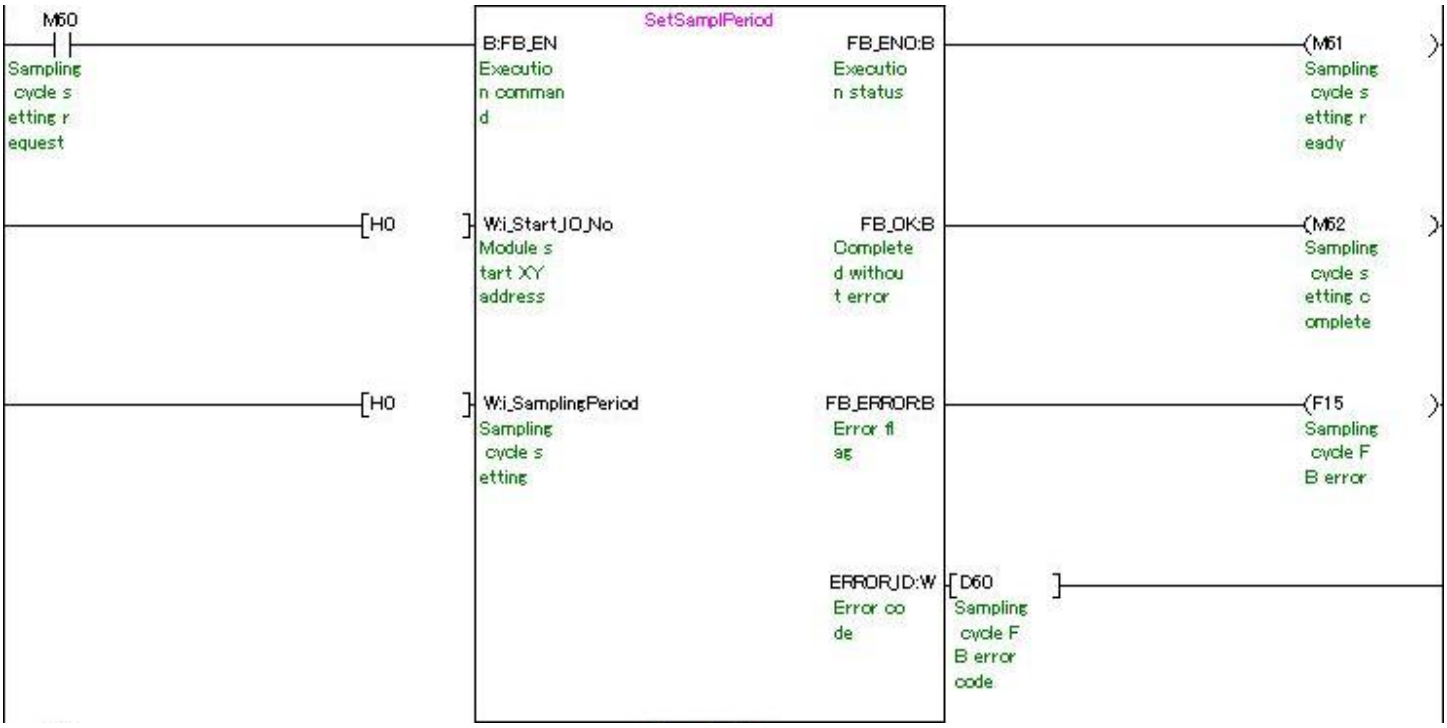

M50
Peak cur r detect data re ad req
ReadPeakCurrent
B:FB_EN
Executio n comman d
FB_END:B
Executio n status
(M52
Peak cur r detect data re ad ready
[H0
Wi_StartIO_No
Module s tart XY address
FB_OK:B
Complete d withou t error
(M53
Peak cur r detect data re ad comp
[K1
Wi_CH
Target C H
o_PeakFlg:B
Peak cur rent det ection f lag
(M54
Peak cur rent det ection f lag
M51
Peak cur r detect count r eset req
Bi_ResetPeakCount
Peak cur rent det ection c ount res
o_PeakCount:W
Peak cur rent det ection c ount
[D50
Peak cur rent det ection c ount
FB_ERROR:B
Error fl ag
(F10
Peak cur rent dat a FB err or
ERROR_ID:W
Error co de
[D51
Peak cur rent dat a FB err or code

M+Q68CT_SetSamplingPeriod (Sampling cycle setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_SamplingPeriod	H0	Set the sampling cycle to 10ms/CH8.

By turning ON M60, the sampling cycle setting value is written to the buffer memory.

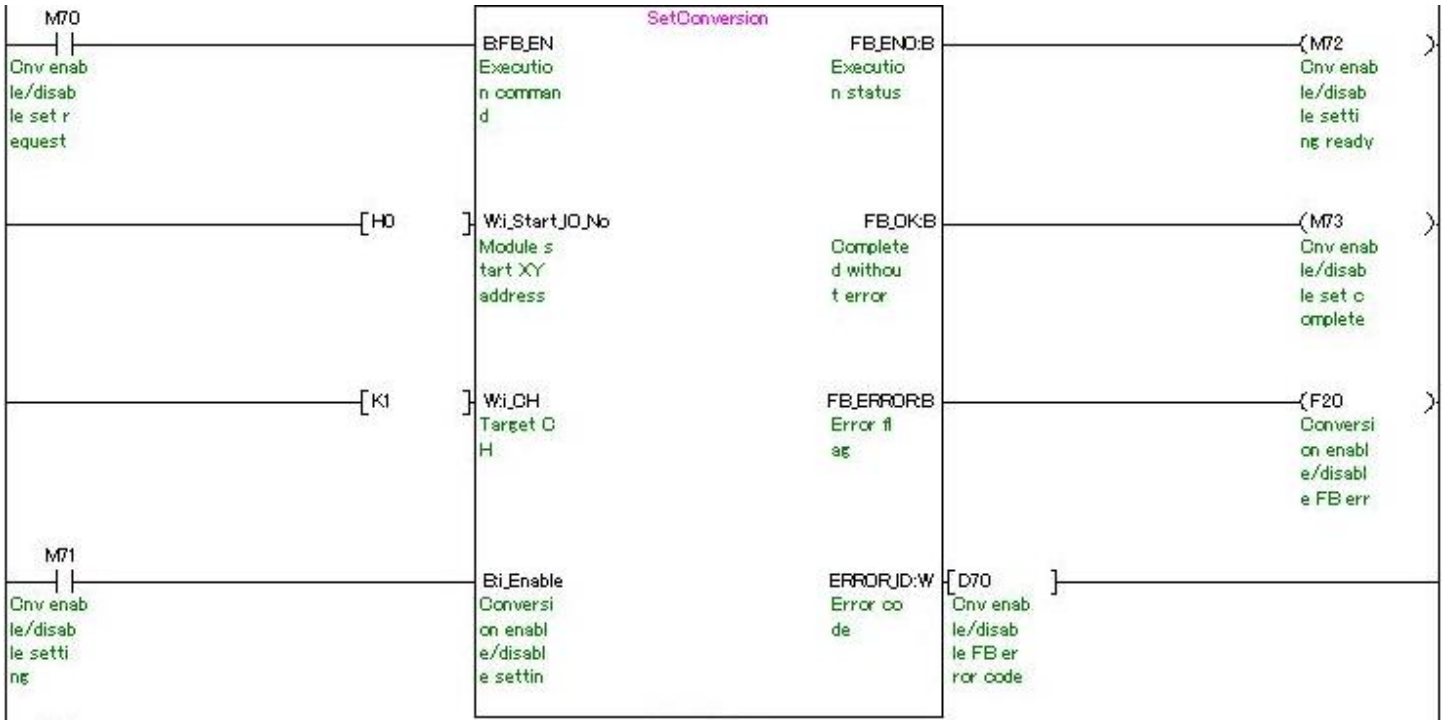


M+Q68CT_SetConversion (Enable/disable conversion)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Enable	ON/OFF	Turn ON to enable the conversion enable/disable setting of the target channel. Turn OFF to disable the conversion enable/disable setting of the target channel.

After turning ON M70, by turning ON M71, the value of enable setting is written to the buffer memory of the conversion enable/disable setting of channel 1.
After turning ON M70, by turning OFF M71, the value of disable setting is written to the buffer memory of the conversion enable/disable setting of channel 1.



M+Q68CT_SetAverage (Averaging process setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Average_Type	H1	Set the averaging processing type to "Time average".
i_Average_Times	K1000	Set the time, number of times or time constant setting to 1,000.

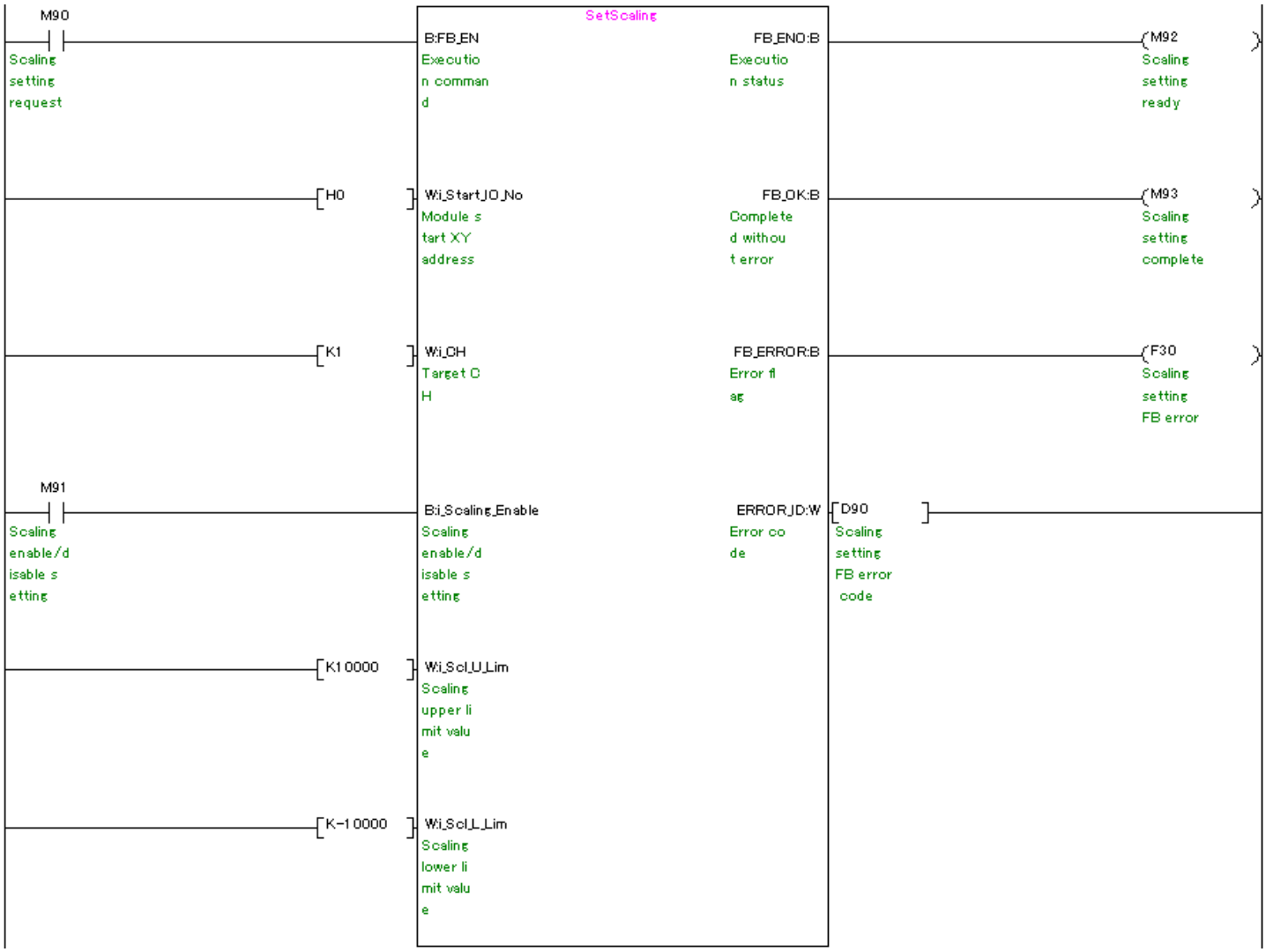
By turning ON M80, the value of the time, number of times or time constant setting of channel 1 is written to the buffer memory.

M+Q68CT_SetScaling (Scaling setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Scaling_Enable	ON/OFF	Turn ON to enable the scaling enable/disable setting. Turn OFF to disable the scaling enable/disable setting.
i_Scl_U_Lim	K10000	Set the scaling upper limit value to 10,000.
i_Scl_L_Lim	K-10000	Set the scaling lower limit value to -10,000.

By turning ON M90, the values of scaling enable/disable setting and scaling upper/lower values of channel 1 are written to the buffer memory.

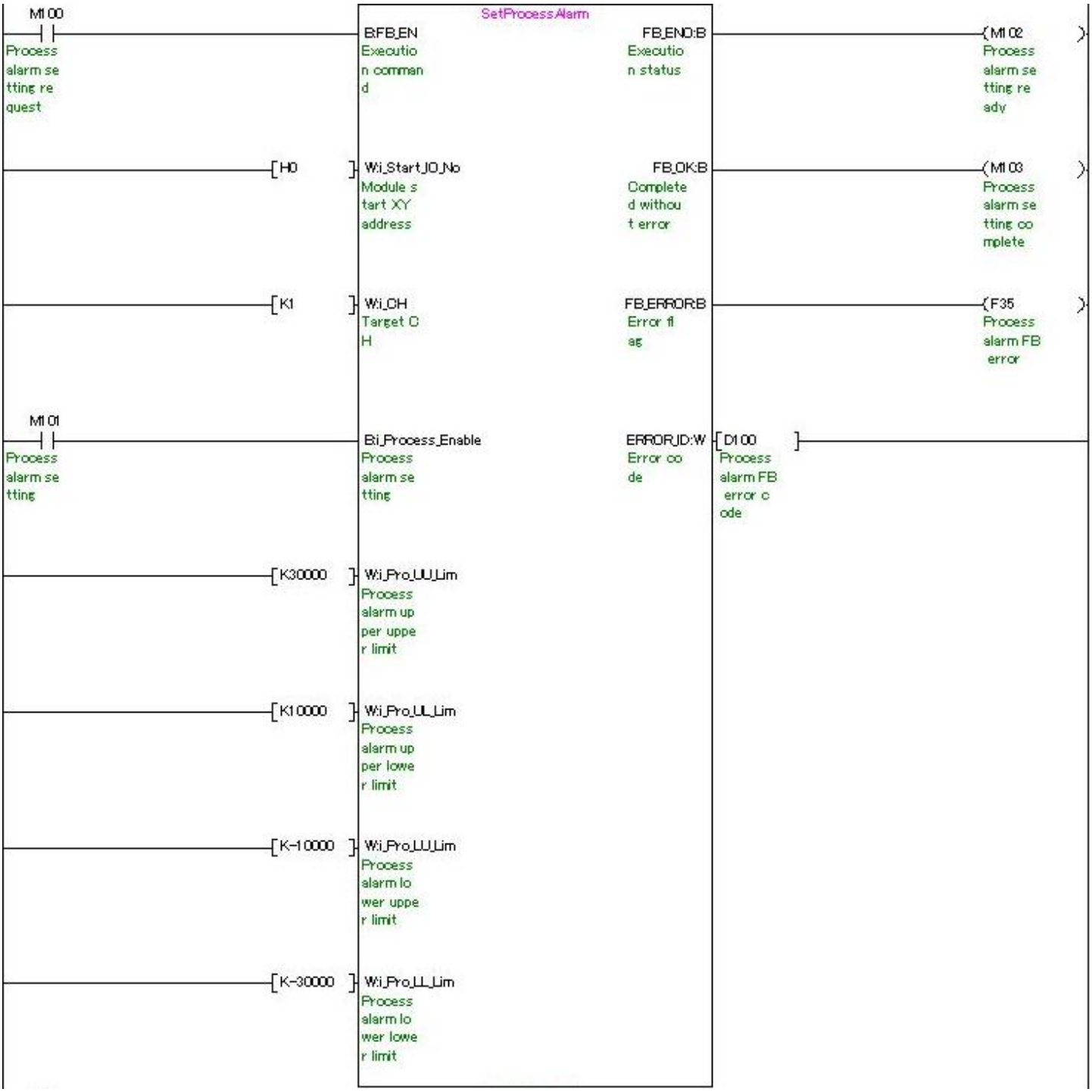


M+Q68CT_SetProcessAlarm (Process alarm setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Process_Enable	ON/OFF	Turn ON to enable the process alarm setting of the warning output setting. Turn OFF to disable the process alarm setting of the warning output setting.
i_Pro_UU_Lim	K30000	Set the process alarm upper upper limit value to 30,000.
i_Pro_UL_Lim	K10000	Set the process alarm upper lower limit value to 10,000.
i_Pro_LU_Lim	K-10000	Set the process alarm lower upper limit value to -10,000.
i_Pro_LL_Lim	K-30000	Set the process alarm lower lower limit value to -30,000.

By turning ON M100, the values of the warning output setting (process alarm setting) and process alarm upper/lower limit value of channel 1 are written to the buffer memory.

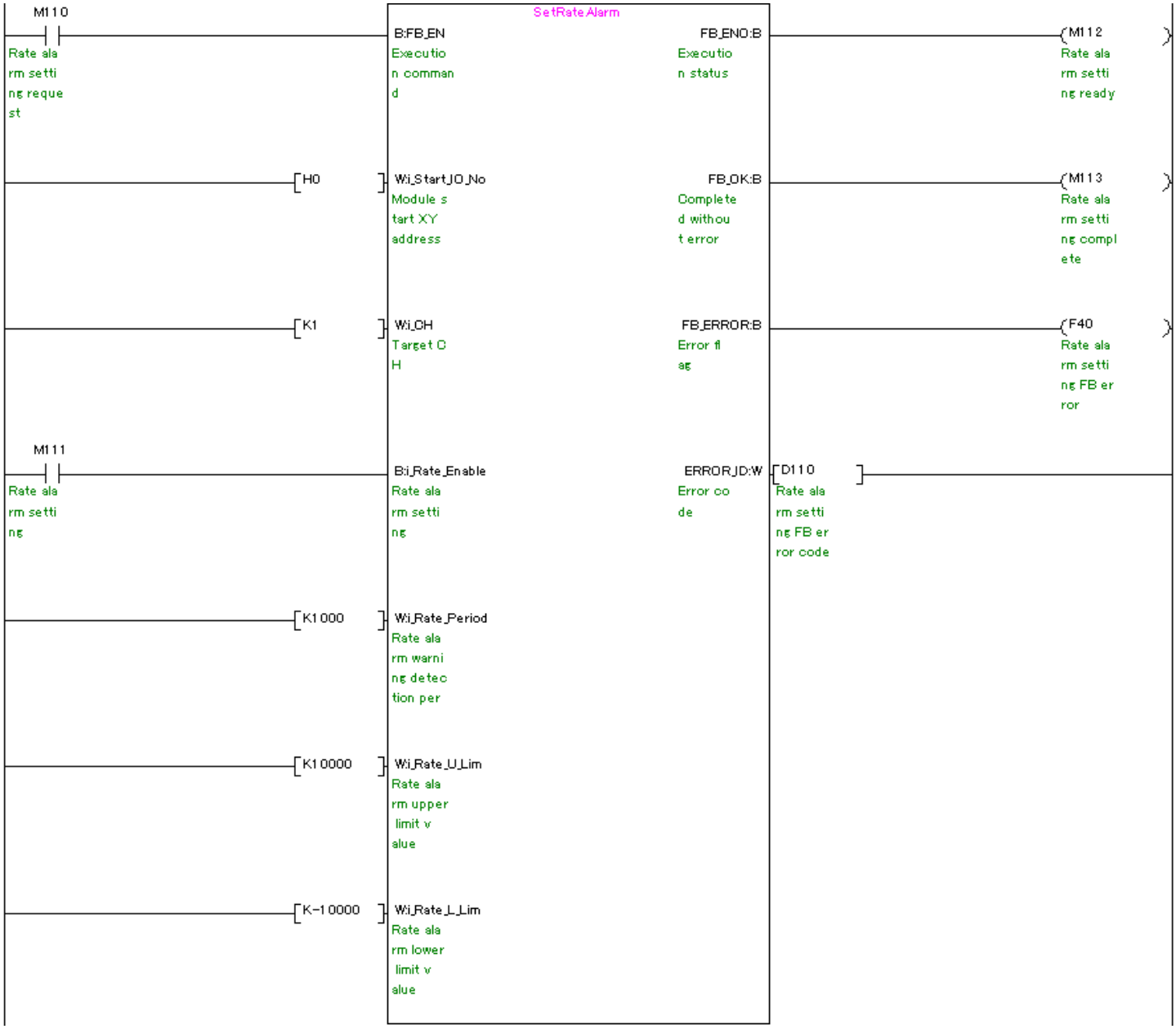

M100
Process alarm setting request
SetProcessAlarm
B:FB_EN
Execution command
FB_END:B
Execution status
M102
Process alarm setting ready
H0
W:i_Start_IO_No
Module start XY address
FB_OK:B
Completed without error
M103
Process alarm setting complete
K1
W:i_CH
Target CH
FB_ERROR:B
Error flag
F35
Process alarm FB error
M101
Process alarm setting
Bi_Process_Enable
Process alarm setting
ERROR_ID:W
Error code
D100
Process alarm FB error code
K30000
W:i_Pro_UU_Lim
Process alarm upper upper limit
K10000
W:i_Pro_UL_Lim
Process alarm upper lower limit
K-10000
W:i_Pro_LU_Lim
Process alarm lower upper limit
K-30000
W:i_Pro_LL_Lim
Process alarm lower lower limit

M+Q68CT_SetRateAlarm (Rate alarm setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Rate_Enable	ON/OFF	Turn ON to enable the rate alarm setting of the warning output setting. Turn OFF to disable the rate alarm setting of the warning output setting.
i_Rate_Period	K1000	Set the rate alarm warning detection period to 1,000.
i_Rate_U_Lim	K10000	Set the rate alarm upper limit value to 10,000 (1,000.0%).
i_Rate_L_Lim	K-10000	Set the rate alarm lower limit value to -10,000 (-1,000.0%).

By turning ON M110, the values of the warning output setting (rate alarm setting), rate alarm warning detection period and rate alarm upper/lower values of channel 1 are written to the buffer memory.

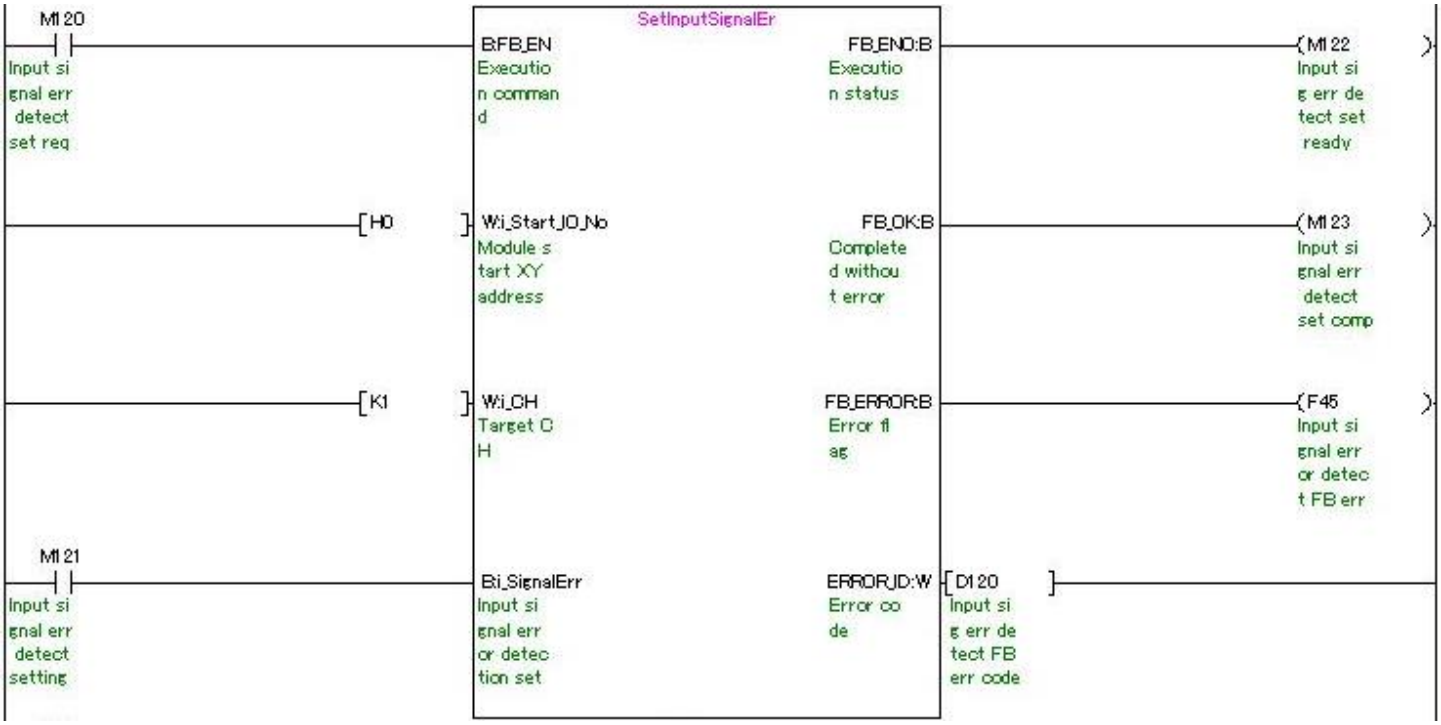

M110
Rate alarm setting request
SetRateAlarm
B:FB_EN
Execution command
FB_ENO:B
Execution status
M112
Rate alarm setting ready
H0
Wi_Start_IO_No
Module start XY address
FB_OK:B
Completed without error
M113
Rate alarm setting complete
K1
Wi_CH
Target CH
FB_ERROR:B
Error flag
F40
Rate alarm setting FB error
M111
Rate alarm setting
Bi_Rate_Enable
Rate alarm setting
ERROR_ID:W
Error code
D110
Rate alarm setting FB error code
K1000
Wi_Rate_Period
Rate alarm warning detection period
K10000
Wi_Rate_U_Lim
Rate alarm upper limit value
K-10000
Wi_Rate_L_Lim
Rate alarm lower limit value

M+Q68CT_SetInputSignalErr (Input signal error detection setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_SignalErr	ON/OFF	Turn ON to enable the input signal error detection setting. Turn OFF to disable the input signal error detection setting.

By turning ON M120, the input signal error detection setting value of channel 1 is written to the buffer memory.

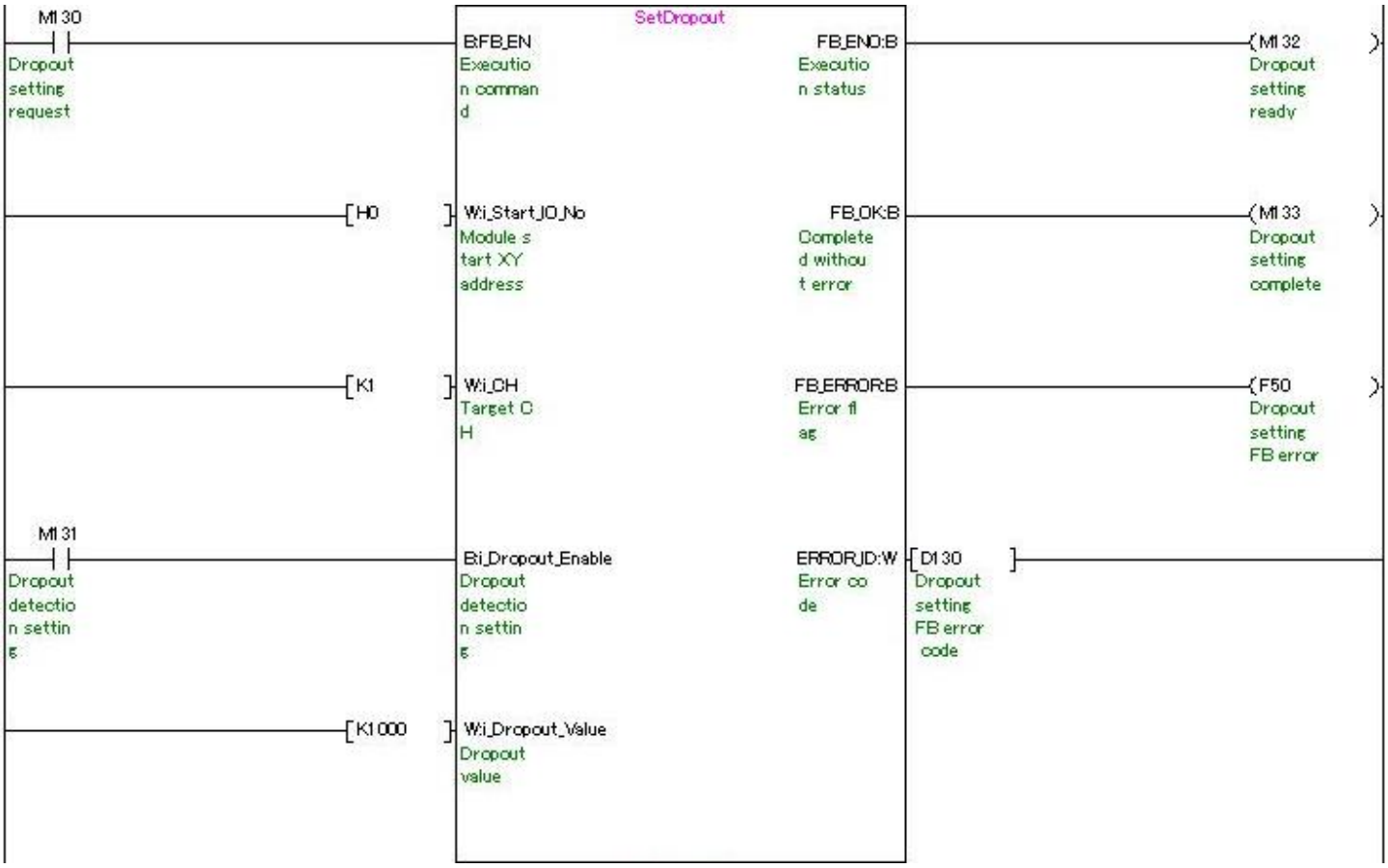


M+Q68CT_SetDropout (Dropout setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Dropout_Enable	ON/OFF	Turn ON to enable the dropout detection setting. Turn OFF to disable the dropout detection setting.
i_Dropout_Value	K1000	Set the dropout value to 1,000.

By turning ON M130, the values of the dropout detection setting and dropout value of channel 1 are written to the buffer memory.

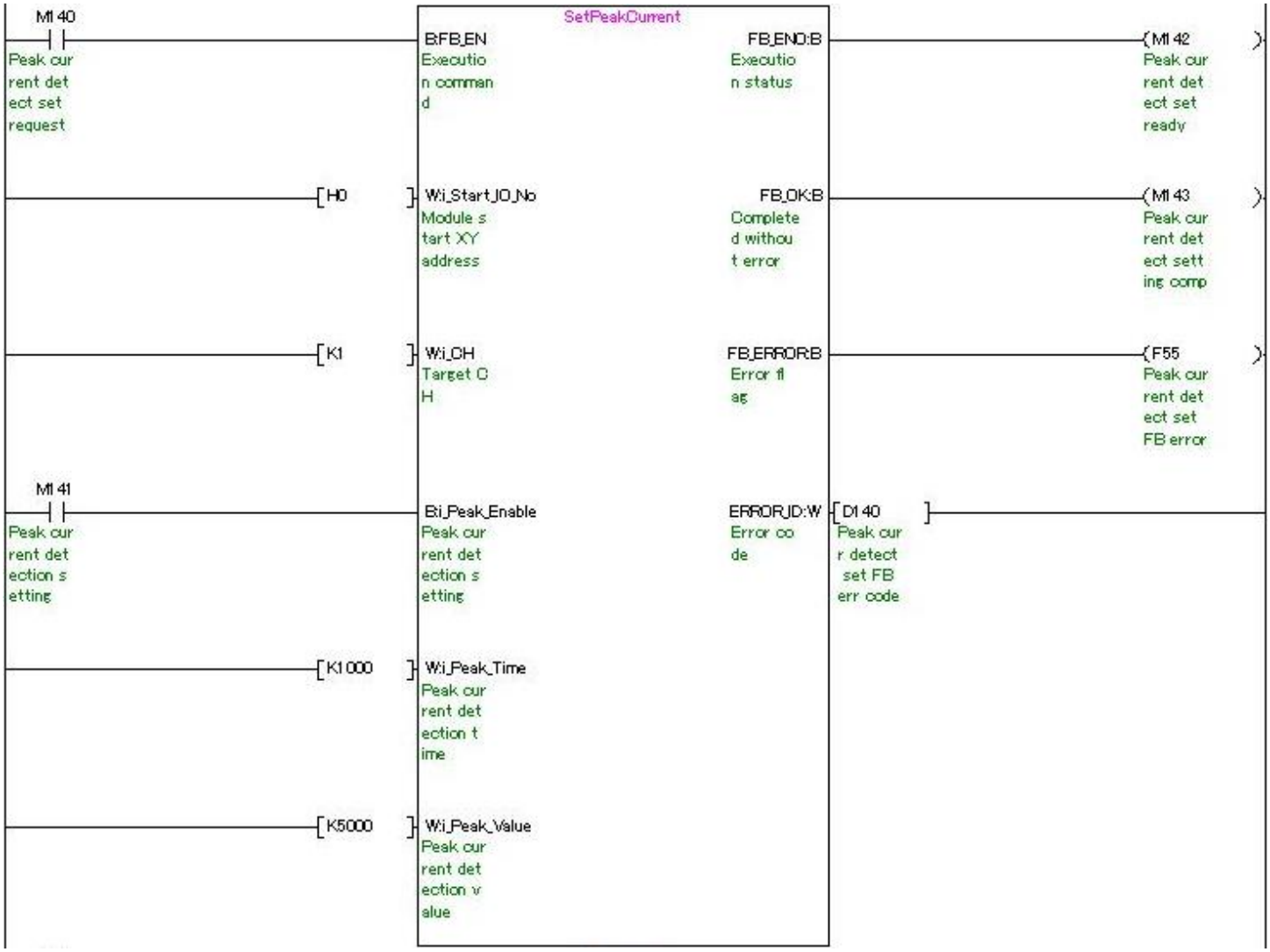


M+Q68CT_SetPeakCurrentData (Peak current detection setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Peak_Enable	ON/OFF	Turn ON to enable the peak current detection setting. Turn OFF to disable the peak current detection setting.
i_Peak_Time	K1000	Set the peak current detection time to 1,000.
i_Peak_Value	K5000	Set the peak current detection value to 5,000.

By turning ON M140, the values of peak current detection setting, peak currnet detection time and peak current detection value of channel 1 are written to the buffer memory.



M+Q68CT_RequestSetting (Operation condition setting request)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.

By turning ON M150, the following settings take effect.

•Conversion enable/disable setting

•Averaging processing type setting, time, number of times or time constant setting

•Sampling cycle setting

•Input signal error detection setting

•Warning output settings (Process alarm setting, rate alarm setting), process alarm upper/lower limit values, rate alarm upper/lower values

•Scaling enable/disable setting, scaling upper/lower limit values

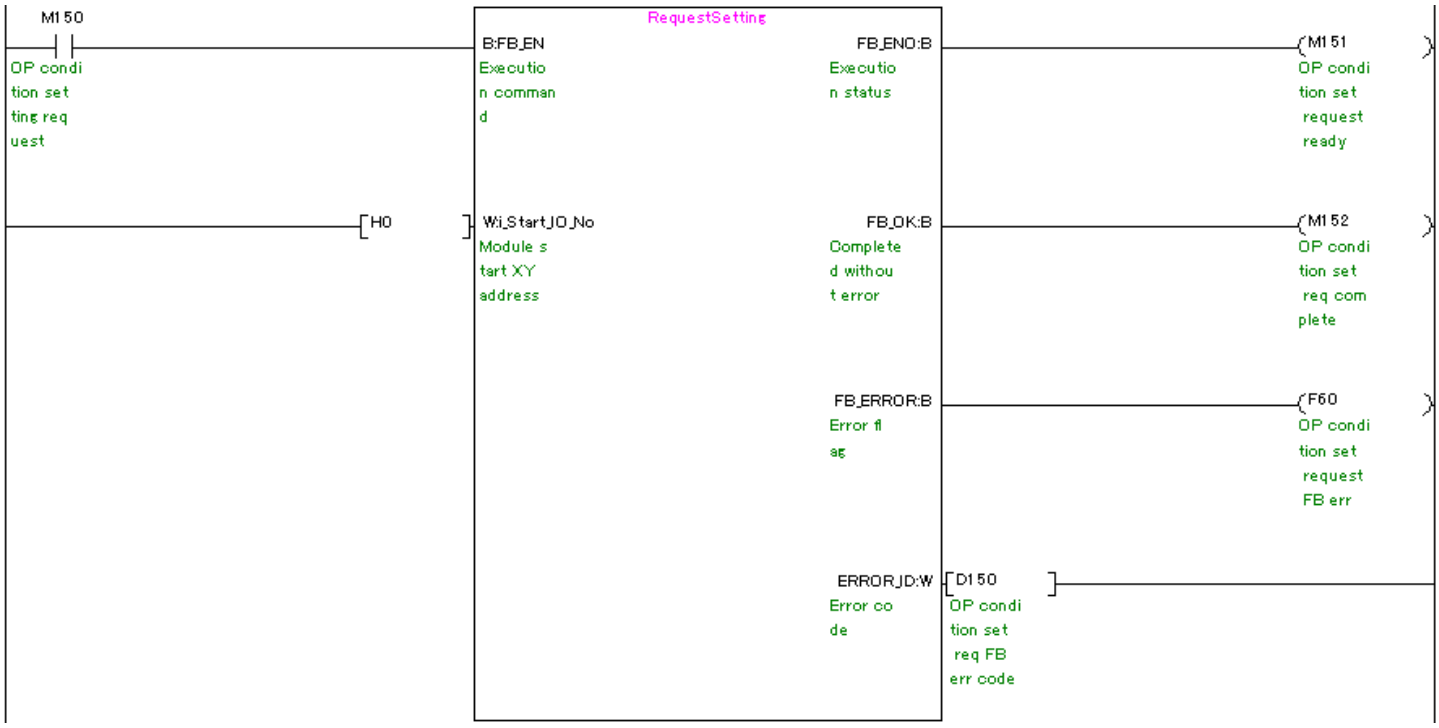
•Input range setting

•Mode switching setting

•Dropout detection setting, dropout value

•Peak current detection setting, peak current detection time, peak current detection value

•Logging enable/disable setting, logging data setting, logging cycle setting value, logging cycle unit setting, logging points after trigger, level trigger condition setting, trigger data, trigger setting value

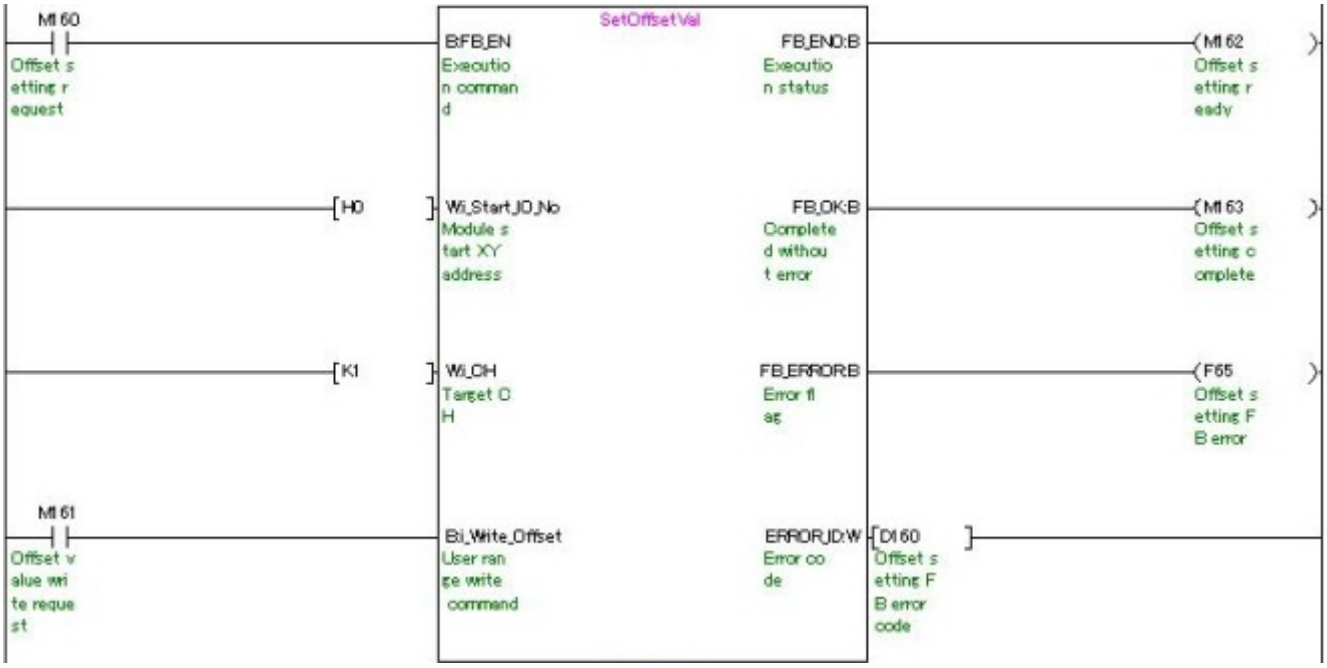


M+Q68CT_SetOffsetVal (Offset setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Write_Offset	ON/OFF	Turn ON to set "Perform the user range write operation" for channel 1.

After turning ON M160, by turning ON M161, the offset value of channel 1 is written.

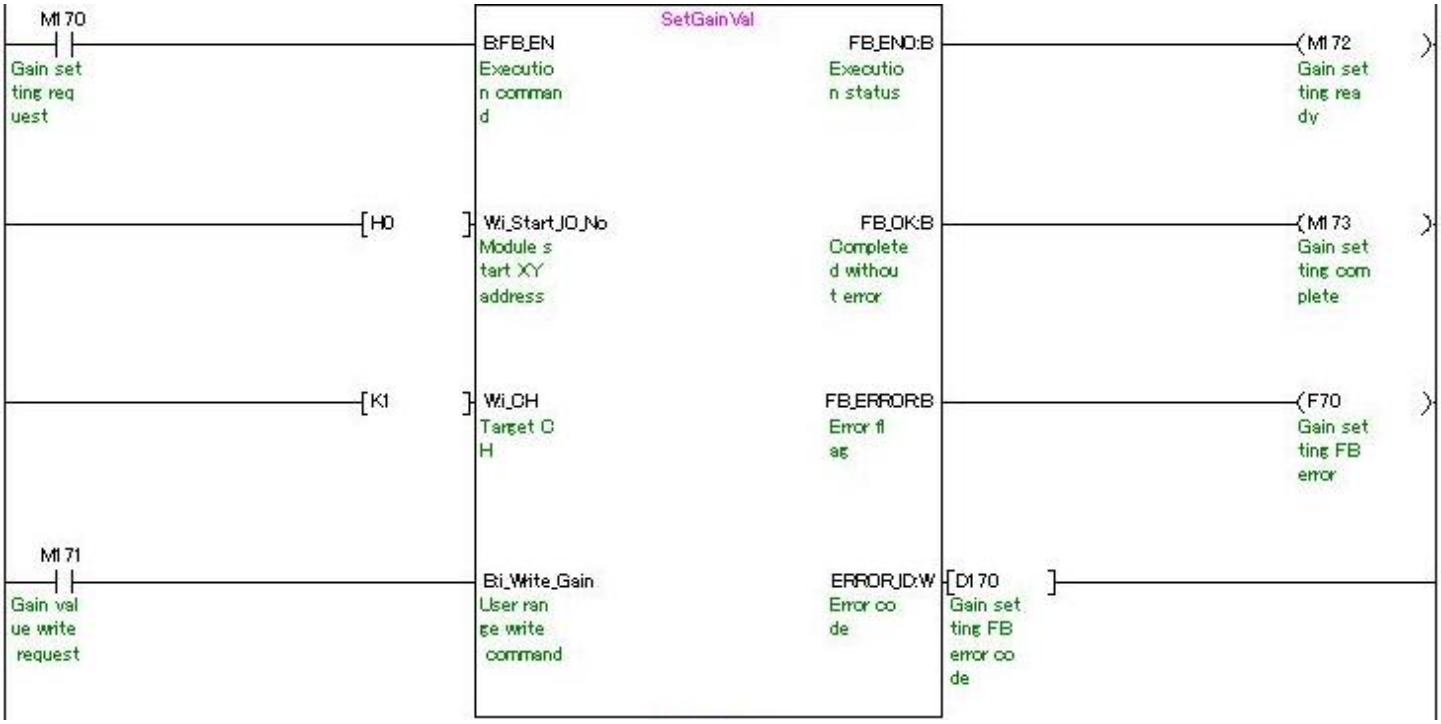


M+Q68CT_SetGainVal (Gain setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Write_Gain	ON/OFF	Turn ON to perform the user range write operation for channel 1.

After turning ON M170, by turning ON M171, the gain value of channel 1 is written.



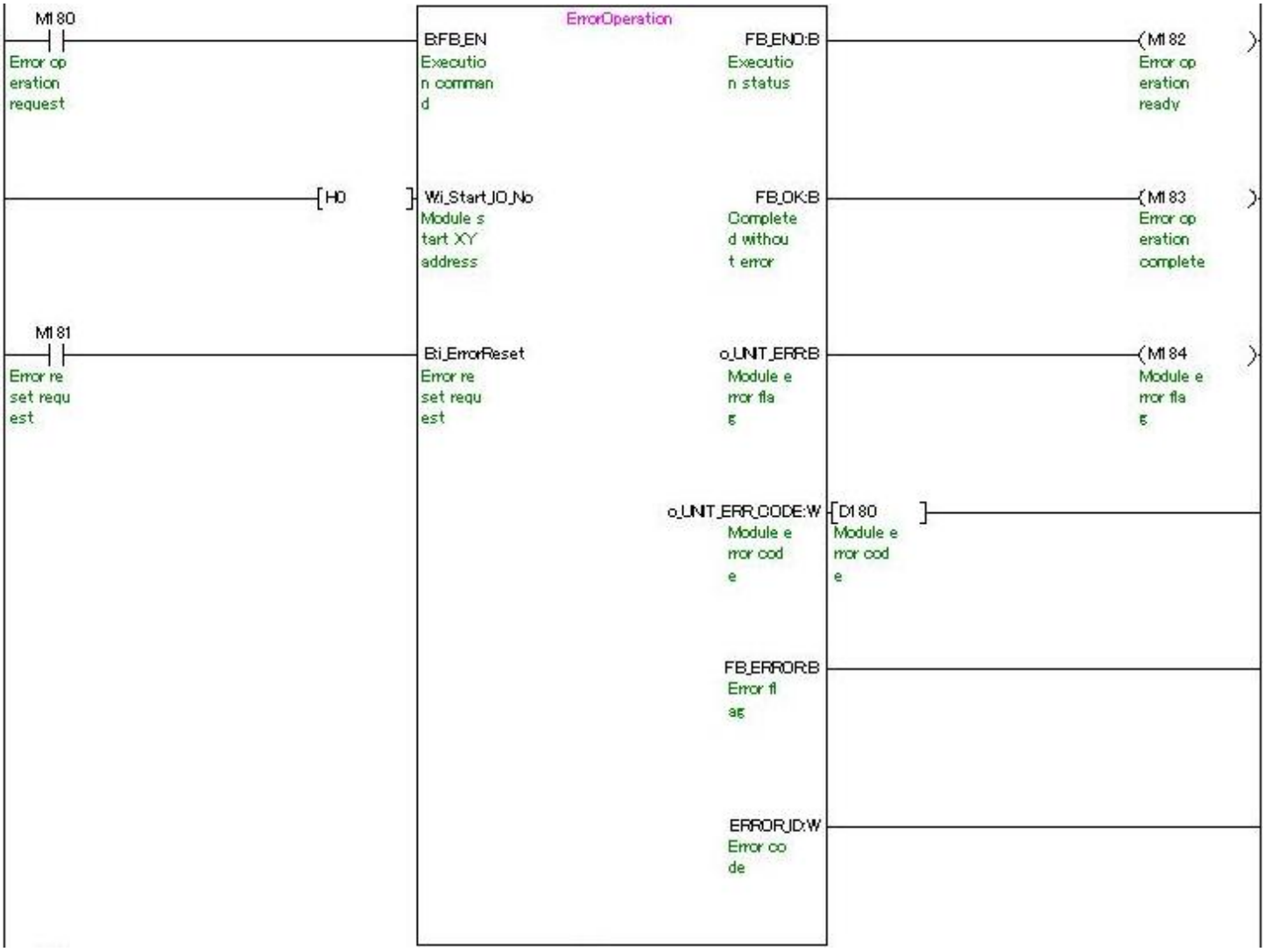
M+Q68CT_ErrorOperation (Error operation)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_ErrorReset	ON/OFF	Turn ON to reset errors.

By turning ON M180, an error code is output if an error occurs.

After turning ON M180, the error is reset by turning ON M181.

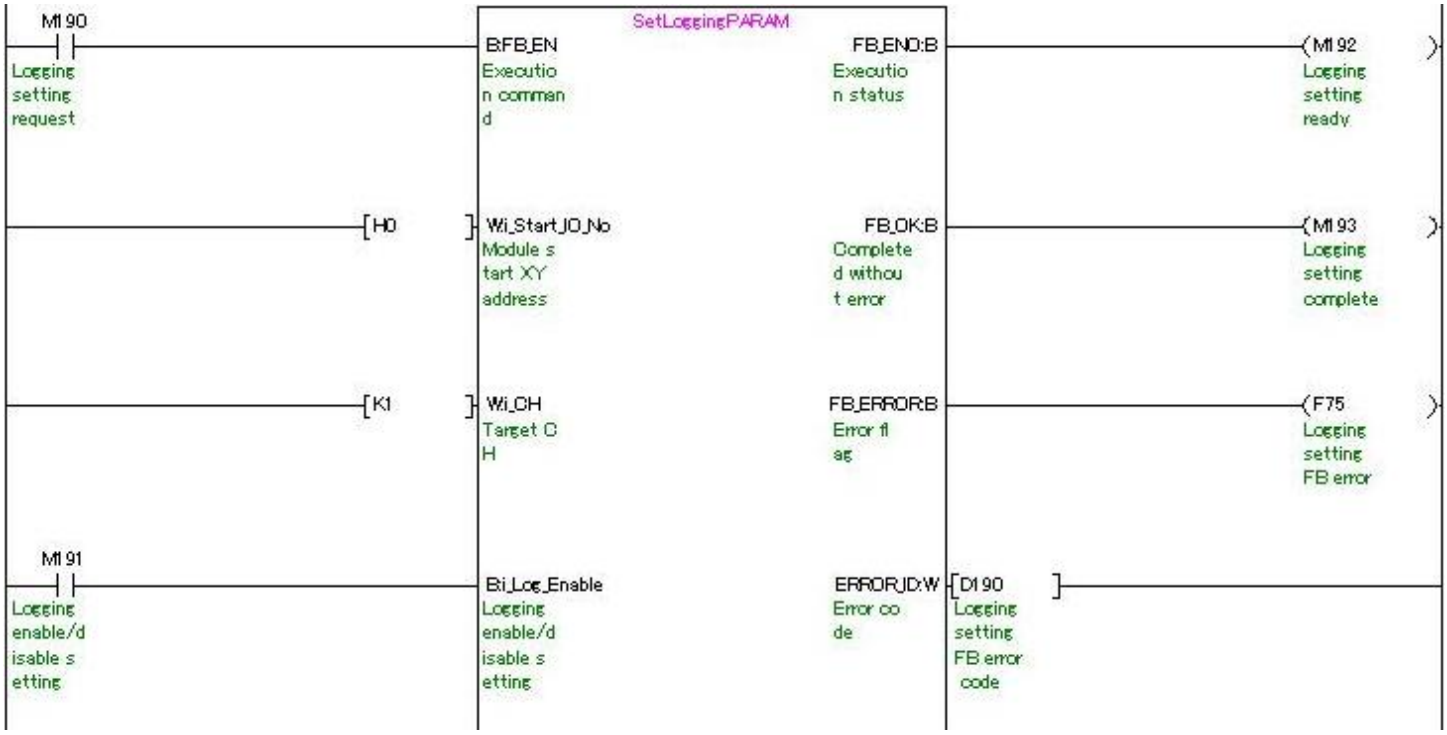


M+Q68CT_SetLoggingPARAM (Logging function parameter setting)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Log_Enable	ON/OFF	Turn ON to enable the logging enable/disable setting. Turn OFF to disable the logging enable/disable setting.
i_Log_Data	K0	Set the logging data setting to "Digital output value".
i_Log_Cycle_Val	K320	Set the cycle to save the logging data to 320.
i_Log_Cycle_Unit	K1	Set the time unit of the logging cycle to "ms".
i_Log_Points	K1	Set the data points to log from when the hold trigger occurs to 1.
i_Log_Trig_Cond	K1	Set the level trigger condition setting to "Above".
i_Log_Trig_Data	K12	Set a buffer memory address monitored for the occurrence condition of level trigger to 12.
i_Log_Trig_Value	K5000	Set the level at which the level trigger occurs to 5,000.

By turning ON M190, the logging setting value of channel 1 is written to the buffer memory.



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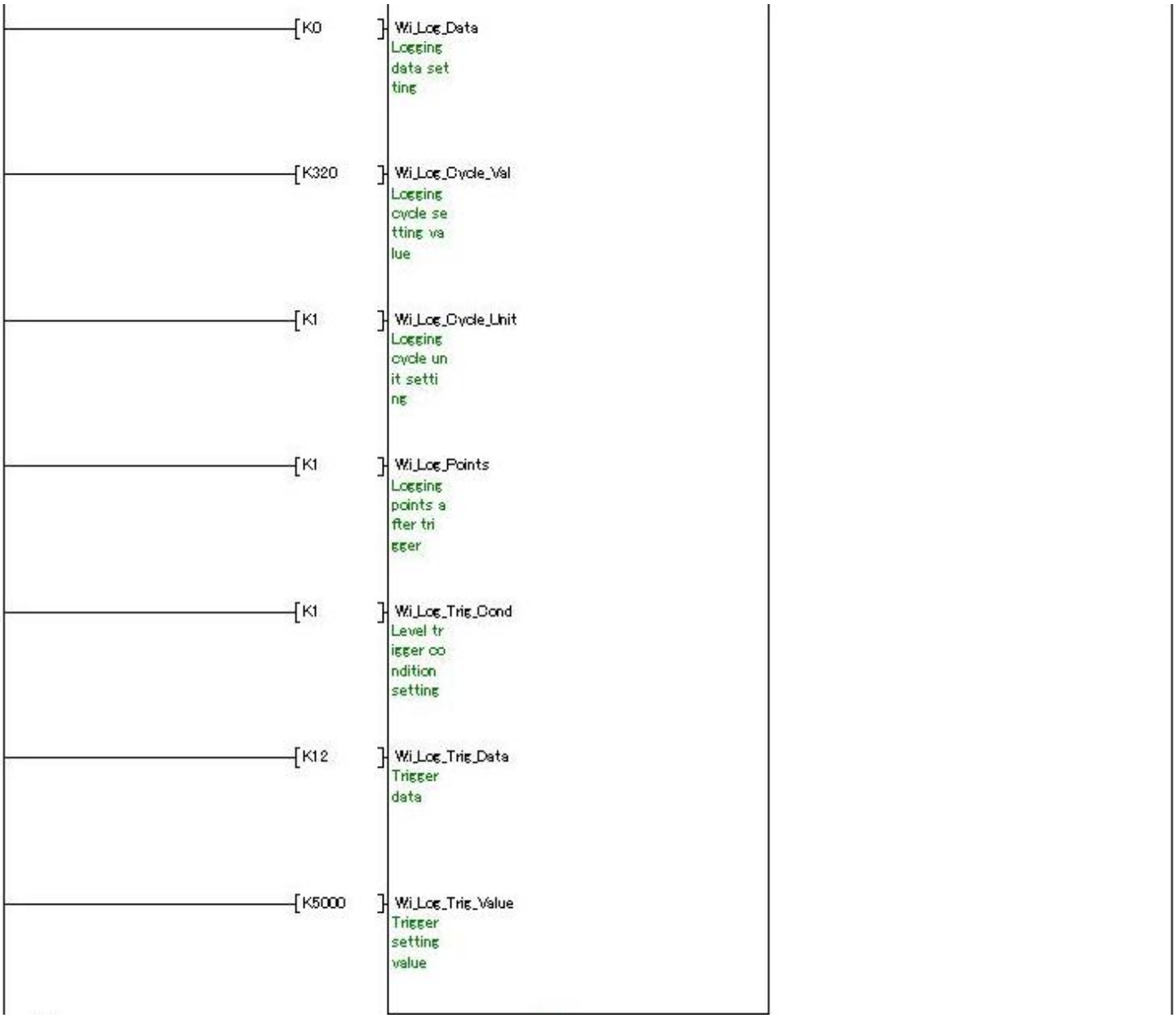
K0
Wi_Log_Data
Logging
data set
ting
K320
Wi_Log_Cycle_Val
Logging
cycle se
tting va
lue
K1
Wi_Log_Cycle_Unit
Logging
cycle un
it setti
ng
K1
Wi_Log_Points
Logging
points a
fter tri
gger
K1
Wi_Log_Trig_Cond
Level tr
igger co
ndition
setting
K12
Wi_Log_Trig_Data
Trigger
data
K5000
Wi_Log_Trig_Value
Trigger
setting
value

M+Q68CT_SaveLogging (Logging data save)

A program example using the following conditions is shown below.

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Max_Number	K100	Set the number of files to be saved to 100.

By turning ON M200, the logging data of channel 1 is saved in a CSV file.

By turning ON M201, if there is already an exisiting CSV file, it is overwritten.