## MELSEC-Q Current Transformer Input Module FB Library Reference Manual

Applicable module: Q68CT

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## Reference Manual Revision History

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

#### 1. Overview

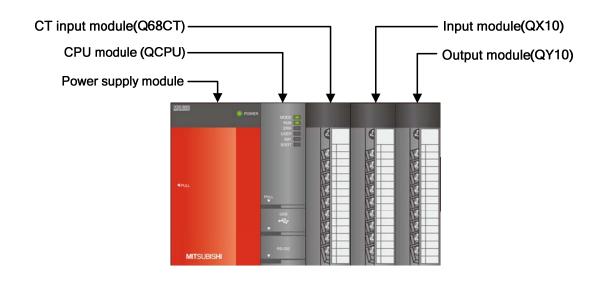
1.1 Overview of the FB Library

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**

Item	Description			
Function Overview	Reads the digital output value and dropout status of a specified channel.			
Symbol	Г	M+Q68CT_ReadDigitalVal		
	Execution command —	3 :FB_EN	FB_ENO: B	—Execution status
	Module start XY address—V	V :i_Start_IO_No	FB_ОК: В -	— Completed without error
	Target CH— V	V:i_CH a	o_Digital_Value:W -	— Digital output ∨alue
		٥_	Dropout_Value : B -	— Dropout status
			FB_ERROR : B	—Error flag
			ERROR_ID : W	— Error code
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series		Model
		MELSEC-Q Series *1	Basic model *2	2
		High performance		nce model *3
			Universal mod	lel
		*1 Not applicable to QCPU	(A mode)	
		*2 The first five digits of the	serial number a	re "04122" or later
		*3 The first five digits of the	serial number a	re "04012" or later
	Engineering software	GX Works2 *1		
		Language	Softwa	are version
		English version	Version1.24A c	or later
		Chinese version	Version1.49B c	or later
		*1 For information on the software versions applicable to the		
		module used, refer to the related manual.		
Programming	Ladder			
language				

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	1) The FB does not include error recovery processing. Program the error recovery		
precautions	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]			
	FB_EN (Execution command)       FB_EN (Execution status)         o.Digital Value (Digital output value)       Refreshing         o.Dropout, Value (Dropout status)       O.Dropout, Value (Dropout status)         FB_EN (Completed without error)       FB_EN (Execution command)         FB_ENC (Completed without error)       FB_ENC (Completed without error)			
	ERROR ID (Error code) 0 ERROR ID (Error code) 0 Error code			
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.	Please try again after confirming the setting.
	The target channel is not within the range	
	of 1 to 8.	

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

#### Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		DIL	OFF	OFF: Execution command OFF
Completed without	FB_OK			When ON, it indicates that the digital output
error		Bit	OFF	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
		ы		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.

#### 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		M+Q68CT_ReadAllDigitalVal		
	Execution command—	B:FB_EN	FB_ENO: B	—Execution status
	Module start XY address—	W : i_Start_IO_No	FB_OK: B	—Completed without error
			o_Digi_ValueCH1:W	—CH1 Digital output value
			o_Digi_ValueCH2:W	— CH2 Digital output value
			o_Digi_ValueCH3:W	— CH3 Digital output value
			o_Digi_ValueCH4:W	— CH4 Digital output value
			o_Digi_ValueCH5:W	—CH5 Digital output value
			o_Digi_ValueCH6:W	—CH6 Digital output value
			o_Digi_ValueCH7:W	—CH7 Digital output value
			o_Digi_ValueCH8:W	—CH8 Digital output value
			o_Drop_ValueCH1: B	—CH1 Dropout status
			o_Drop_ValueCH2: B	—CH2 Dropout status
			o_Drop_ValueCH3: B	— CH3 Dropout status
			o_Drop_ValueCH4: B	— CH4 Dropout status
			o_Drop_ValueCH5: B	— CH5 Dropout status
			o_Drop_ValueCH6: B	— CH6 Dropout status
			o_Drop_ValueCH7: B	—CH7 Dropout status
			o_Drop_ValueCH8: B	— CH8 Dropout status
			FB_ERROR: B	—Error flag
			ERROR_ID: W	—Error code
Applicable hardware and software	CT input module	Q68CT		

Item	Description			
	CPU module			
		Series	Model	
		MELSEC-Q Series *1	Basic model *2	
			High performance model *3	
			Universal model	
		*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	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For information on the software versions applicable to the		
		module used, refer to the related manual.		
Programming	Ladder	Ladder		
language				
Number of steps	324 steps (for MELSEC-	Q series universal model CP	(U'	
			ds on the CPU model that is used and	
	input and output defini	ition.		
Function description			is of all channels by turning ON	
	FB_EN (Execution c	cution command).		
		e 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.			
Compiling method	Macro type			

Item	Description			
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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]			
	FB_EN (Execution command)         FB_ENO (Execution status)         o.Digi ValueCHI (CHI Digital output value)         o.Drop_ValueCHI (CHI Dropout status)         FB_CN (Completed without error)         FB_ERROR (Error flag)         ERROR ID (Error code)			
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	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	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	Initial	Description
		type	value	
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.

#### 2.3 M+Q68CT\_ReadScalingVal (Read scaling value)

#### FB Name

M+Q68CT\_ReadScalingVal

#### **Function Overview**

Item	Description		
Function Overview	Reads the scaling value of a specified channel.		
Symbol	Γ	M+Q68CT_ReadScalin	gVal
	Execution command —	B :FB_EN	FB_ENO : B Execution status
	Module start XY address — \	N :i_Start_IO_No	FB_OK : B Completed without error
	Target CH	N:i_CH	o_Scaling_Val:W Scaling value
			FB_ERROR : B - Error flag
			ERROR_ID : W - Error code
Applicable hardware	CT input module	Q68CT	
and software	CPU module		
		Series	Model
		MELSEC-Q Series *1	Basic model *2
			High performance model *3
			Universal model
		*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
	Engineering software	GX Works2 *1	
		Language	Software version
		English version	Version1.24A or later
		Chinese version	Version1.49B or later
			ftware versions applicable to the
		module used, refer to the	e related manual.
Programming	Ladder		
language			
Number of steps	260 steps (for MELSEC-Q series universal model CPU)		
			Is on the CPU model that is used and
	input and output definition.		

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	1) The FB does not include error recovery processing. Program the error recovery		
precautions	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]		
	FB_EN (Execution command)		
	FB_ENO (Execution status)		
	o_Scaling_Val (Scaling value) Refreshing Refreshing stop value) Refreshing stop value)		
	FB_OK (Completed without error)		
	FB_ERROR (Error flag)		
	ERROR_ID (Error code) 0 Error code 0		

Item	Description	
Relevant manuals	MELSEC-Q Current Transformer Input Module User's Manual	
	CPU 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
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Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not within the range	
	of 1 to 8.	

### Labels

#### Input labels

Name (Comment)	Label name	Data	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	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	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		ы	011	OFF: Execution command OFF
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the scaling value
error		ЫІ		read operation was successful.
Scaling value	o_Scaling_Val	Word	0	Scaling value output
Error flag	FB_ERROR	Bit OF	OFF	When ON, it indicates that an error has
		ЫІ	OFF	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.

#### 2.4 M+Q68CT\_ReadAllScalingVal (Read all scaling values)

#### FB Name

M+Q68CT\_ReadAllScalingVal

#### **Function Overview**

Item	Description			
Function Overview	Reads the scaling values of all channels.			
Symbol		M+Q68CT_ReadAllScalingVal		
	Execution command—	B :FB_EN	-	—Execution status
	Module start XY address—	W : i_Start_IO_No	FB_OK: B	—Completed without error
		0_S	caling_ValCH1:W	—CH1 Scaling value
		0_S	caling_ValCH2:W	—CH2 Scaling value
		0_S	caling_ValCH3:W	—CH3 Scaling value
		0_S	caling_ValCH4:VV	—CH4 Scaling value
		0_S	caling_ValCH5:VV	—CH5 Scaling value
		0_S	caling_ValCH6:VV	—CH6 Scaling value
		0_S	caling_ValCH7:W	—CH7 Scaling value
		0_S	caling_ValCH8:VV	—CH8 Scaling value
			FB_ERROR : B	—Error flag
			ERROR_ID : W	—Error code
Applicable hardware	CT input module	Q68CT		
and software	CPU module		-	
		Series	1	Vodel
		MELSEC-Q Series *1	Basic model *2	2
			High performa	nce model *3
			Universal mod	el
		*1 Not applicable to QCPU	(A mode)	
		*2 The first five digits of the	serial number ar	re "04122" or later
		*3 The first five digits of the	serial number ar	re "04012" or later

Item	Description				
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
		*1 For information on the se	oftware versions applicable to the		
		module used, refer to th	e related manual.		
Programming	Ladder				
language					
Number of steps	239 steps (for MELSEC	-Q series universal model CF	PU)		
	* The number of steps of	f the FB in a program depend	ds on the CPU model that is used and		
	input and output defin	ition.			
Function description	1) Reads the scaling v	alues of all channels when th	e FB_EN (Execution command) is		
	turned ON.				
	2) If the CT input modu	le buffer memory is set to au	ito refresh the scaling values, it is		
	unnecessary to use this FB.				
Compiling method	Macro type				
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery				
precautions	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.				
			cuted once such as a subroutine,		
		c. because it is impossible to			
		registers Z9 and Z8. Please	do not use these index registers in an		
	interrupt program.				
	, , ,	provided a value for proper	•		
	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				
	_	ding to the application.	modulo quitch acting rates to QV		
	For details on how to use the intelligent function module switch setting, refer to GX				
EP operation type	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]			
	FB_EN (Execution command)         FB_ENO (Execution status)         o.Scaling_ValCH_I (CH_I)         Refreshing         FB_OK (Completed without error)         FB_ERROR (Error flag)         ERROR_ID (Error code)			
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	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	mounted. (For example,
				enter H10 for X10.)

#### Output labels

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

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the scaling value
error		DIL	OFF	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.

#### 2.5 M+Q68CT\_ReadPeakCurrentData (Read peak current detection data)

#### FB Name

M+Q68CT\_ReadPeakCurrentData

#### **Function Overview**

Item	Description				
Function Overview	Reads the peak current detection data (peak current detection flag and peak current				
	detection count) of a spe	ecified	channel.		
	Also, performs the peak current detection count reset request of a specified channel.			ecified channel.	
Symbol			M+Q68CT_ReadPeak	CurrentData	
	Execution com	mand —	B :FB_EN	FB_ENO: B	—Execution status
	Module start XY ad	dress—	W :i_Start_IO_No	FB_OK: B	—Completed without error
	Targ	et CH—	w:i_ch	o_PeakFlg: B	—Peak current detection flag
	Peak current detection count reset re	quest—	B :i_ResetPeakCount	o_PeakCount:W	—Peak current detection count
				FB_ERROR: B	—Error flag
				ERROR_ID : W	—Error code
Applicable hardware	CT input module	Q68	СТ		
and software	CPU module				
			Series	r I	Vodel
		MELSEC-Q Series *1		Basic model *2	
				High performa	nce model *3
				Universal mod	el
		*1 N	ot applicable to QCPU (	(A mode)	
		*2 TI	he first five digits of the	serial number a	re "04122" or later
		*3 TI	he first five digits of the	serial number a	re "04012" or later
	Engineering software	GX ۱	Norks2 *1		
			Language	Softwa	are version
		Eng	glish version	Version1.24A o	r later
		Chi	nese version	Version1.49B c	or later
		*1 For information on the software versions applicable		applicable to the	
		m	nodule used, refer to the	e related manual	
Programming	Ladder				
language					

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	1) The FB does not include error recovery processing. Program the error recovery		
precautions	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]         FB_EN (Execution command)       FB_ENO (Execution status)         o_PeakFig (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         o_PeakCount (Peak current detection count)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of the status)         Image: Command of the status)       Image: Command of t				
	CH Peak current detection count reset complete (UnWG302'309)       0       1       0				
	FB_ERROR (Error flag)     FB_ERROR (Error flag)       ERROR ID (Error code)     0       ERROR JD (Error code)     0				
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.	Please try again after confirming the setting.
	The target channel is not within the range	
	of 1 to 8.	

Labe	els	
•		

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

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

#### Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		ы	OFF	OFF: Execution command OFF
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the peak current
error		ы	011	data read operation was successful.
Peak current	o_PeakFlg	Bit	OFF	Peak current detection flag output
detection flag		ы	011	
Peak current	o_PeakCount	Word	0	Peak current detection count output
detection count		word	0	
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has
		ы		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.

#### 2.6 M+Q68CT\_SetSamplingPeriod (Sampling cycle setting)

#### FB Name

M+Q68CT\_SetSamplingPeriod

#### **Function Overview**

Item	Description					
Function Overview	Sets the sampling cycle.					
Symbol	M+Q68CT_SetSamplingPeriod					
	Execution command—	B :FB_EN	FB_ENO : B - Execution status			
	Module start XY address —	W:i_Start_IO_No	FB_OK : B Completed without error			
	Sampling cycle setting	W:i_SamplingPeriod	FB_ERROR : B - Error flag			
			ERROR_ID : W Error code			
Applicable hardware	CT input module	Q68CT				
and software	CPU module					
		Series	Model			
		MELSEC-Q Series *1	Basic model *2			
			High performance model *3			
			Universal model			
		*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				
	Engineering software	GX Works2 *1				
		Language	Software version			
		English version	Version1.24A or later			
		Chinese version	Version1.49B or later			
	*1 For information on the software versions applicable to the					
	module used, refer to the related manual.					
Programming	Ladder					
language						
Number of steps	215 steps (for MELSEC-Q series universal model CPU)					
			is on the CPU model that is used and			
	input and output definition.					

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.			
Macro type			
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).			
Pulsed execution (1 scan execution type)			
Refer to "Appendix 1 - FB Library Application Examples".			
[When operation completes without error]			
FB_EN (Execution command)			
FB_ENO (Execution status)			
Sampling cycle setting No processing Writing Processing			
FB_OK (Completed without error)			
FB_ERROR (Error flag)			
ERROR_ID (Error code) 0			
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	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O	Specify the starting XY
address			point range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	mounted. (For example,
				enter H10 for X10.)
Sampling cycle	i_SamplingPeriod		0H:10ms/8CH	Set the sampling cycle.
setting		Word	1H:20ms/8CH	
		word	2H:50ms/8CH	
			3H:100ms/8CH	

#### Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		DIL	OFF	OFF: Execution command OFF
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the sampling
error		DIL		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.

#### 2.7 M+Q68CT\_SetConversion (Enable/disable conversion)

#### FB Name

M+Q68CT\_SetConversion

#### **Function Overview**

Item	Description					
Function Overview	Enables or disables conversion for a specified channel or all channels.					
Symbol	M+Q68CT_SetConversion					
	Execution command	- B : FB_EN	FB_ENO: B — Execution status			
	Module start XY address		FB_OK : B Completed without error			
	Target CH	— w :i_сн	FB_ERROR : B - Error flag			
	Conversion enable/disable setting	— B :i_Enable				
Applicable hardware	CT input module	Q68CT				
and software	CPU module					
		Series	Model			
		MELSEC-Q Series *1	Basic model *2			
			High performance model *3			
			Universal model			
		*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			
	Engineering software	GX Works2 *1				
		Language	Software version			
		English version	Version1.24A or later			
		Chinese version	Version1.49B or later			
		*1 For information on the so	oftware versions applicable to the			
		module used, refer to the related manual.				
Programming	Ladder					
language						
Number of steps	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 defini	tion.				

Item	Description			
Function description	1) Enables or disables conversion for a specified channel or all channels by turning ON			
	FB_EN (Execution command).			
	FB operation is one-shot only, triggered by the FB_EN signal.			
	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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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]			
	FB_EN (Execution command)			
	FB_ENO (Execution status)			
	Conversion enable/disable setting write processing Writing Processing Setting write processing No processing No processing Setting write processing Setting write processing Setting write processing Setting write processing Setting Writing Setting Setting Writing Setting Setting Writing Setting Setting Setting Write Processing Setting Write Proc			
	FB_OK (Completed without error)			
	FB_ERROR (Error flag)			
	ERROR ID (Error code) 0 ERROR ID (Error code) 0 Error code			

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

## Labels

●Input	labels
--------	--------

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

#### Output labels

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

#### 2.8 M+Q68CT\_SetAverage (Averaging process setting)

#### FB Name

M+Q68CT\_SetAverage

#### **Function Overview**

Item	Description			
Function Overview	Performs averaging process for a specified channel.			
Symbol	M+Q68CT_SetAverage			SetAverage
	Execution	command—	B :FB_EN	FB_ENO: B Execution status
	Module start >	<y address—<="" th=""><th>W : i_Start_IO_No</th><th>FB_OK : B Completed without error</th></y>	W : i_Start_IO_No	FB_OK : B Completed without error
		Target CH—	W:i_CH	FB_ERROR : B - Error flag
	Averaging processing t	ype setting—	W :i_Average_Type	
	Time, number of times or time cons	tant setting—	-W:i_Average_Times	
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
			Series	Model
		MELS	EC-Q Series *1	Basic model *2
				High performance model *3
				Universal model
		*1 Not applicable to QCPU (A mode)		(A mode)
	*2 The first five digits of the serial number are "04122" or late			serial number are "04122" or later
		*3 The	first five digits of the	serial number are "04012" or later
	Engineering software	GX Wo	rks2 *1	
			Language	Software version
		Englis	h version	Version1.24A or later
		Chinese version Version1.49B or later		
	*1 For information on the software versions applicable to the			
		mod	ule used, refer to the	e related manual.
Programming	Ladder			
language				
Number of steps	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 defin	ition.		

Item	Description			
Function description	<ol> <li>Performs averaging process for a specified channel by turning ON FB_EN (Execution command).</li> </ol>			
	) 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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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]			
	FB_EN (Execution command)			
	FB_ENO (Execution status)			
	Averaging process setting write processing         No processing         Averaging process setting write processing         No processing			
	FB_OK (Completed without error)			
	FB_ERROR (Error flag)			
	ERROR ID (Error code) 0 ERROR ID (Error code) 0 Error code			

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

## Labels

#### Input labels

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

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

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

# 2.9 M+Q68CT\_SetScaling (Scaling setting)

# FB Name

M+Q68CT\_SetScaling

## **Function Overview**

Item	Description						
Function Overview	Configures scaling setting of a specified channel.						
Symbol		M+Q68CT_SetScaling					
	Execution command—	B : FB_EN FB_ENO : B Execution sta		—Execution status			
	Module start XY address—	W : i_Start_IO_No FB_OK : B Completed		— Completed without error			
	Target CH—	W:i_CH FB_ERROR: B Fror ft:		— Error flag			
	Scaling enable/disable setting—	B :i_Scaling_Enable	ERROR_ID : W	— Error code			
	Scaling upper limit value—	W : i_Scl_U_Lim					
	Scaling lower limit value—	W:i_Scl_L_Lim					
Applicable hardware	CT input module	Q68CT					
and software	CPU module						
		Series Model					
		MELSEC-Q Series *1	Basic model *2	2			
			High performa	nce model *3			
		Universal model					
		*1 Not applicable to QCPU (A mode)					
		*2 The first five digits of the	serial number ar	re "04122" or later			
		*3 The first five digits of the	serial number ar	re "04012" or later			
	Engineering software	GX Works2 *1					
		Language	Softwa	are version			
		English version	Version1.24A o	r later			
		Chinese version	Version1.49B o	r later			
		*1 For information on the so	ftware versions	applicable to the			
		module used, refer to the related manual.					
Programming	Ladder						
language							
Number of steps	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 defini	input and output definition.					

Item	Description						
Function description	<ol> <li>Configures scaling setting of a specified channel by turning ON FB_EN (Execution command).</li> </ol>						
	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	1) The FB does not include error recovery processing. Program the error recovery						
precautions	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]						
	FB_EN (Execution command)						
	FB_ENO (Execution status)						
	Scaling setting write processing Writing Writing No processing Scaling setting write processing No processing						
	FB_OK (Completed without error)						
	FB_ERROR (Error flag)						
	ERROR JD (Error code) 0 ERROR JD (Error code) 0 Error code						
	ERROR ID (Error code) 0 ERROR ID (Error code) 0 Error code 0						

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

# Labels

#### Input labels

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

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		DIL	UFF	OFF: Execution command OFF
Completed without	FB_OK	Dit	OFF	When ON, it indicates the scaling setting
error		Bit OFF		has been completed.
Error flag	FB_ERROR	Dit	When ON, it indicates that an error	
		Bit	OFF	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.

# 2.10 M+Q68CT\_SetProcessAlarm (Process alarm setting)

### FB Name

M+Q68CT\_SetProcessAlarm

### **Function Overview**

Item	Description					
Function Overview	Configures process alarm setting of a specified channel.					
Symbol	ſ		M+Q68CT_SetProcessAlarm			
	Execution command—		B :FB_EN	FB_ENO: B	—Execution status	
	Module start XY addr	Module start XY address—		FB_OK: B	—Completed without error	
	Target	СН—	W:i_CH	FB_ERROR: B	—Error flag	
	Process alarm set	tting —	B :i_Process_Enable	ERROR_ID : W	—Error code	
	Process alarm upper upper limit va	alue —	W:i_Pro_UU_Lim			
	Process alarm upper lower limit va	alue —	W:i_Pro_UL_Lim			
	Process alarm lower upper limit va	alue —	W : i_Pro_LU_Lim			
	Process alarm lower lower limit va	alue —	W:i_Pro_LL_Lim			
Applicable hardware	CT input module	Q68	3CT			
and software	CPU module					
			Series	Model		
		ME	ELSEC-Q Series *1	Basic model *2		
				High performanc	ce model *3	
				Universal model		
		*1 N	Not applicable to QCPU (	(A mode)		
		*2 T	The first five digits of the	serial number are	"04122" or later	
		*3 T	The first five digits of the	serial number are	"04012" or later	
	Engineering software	GX	Works2 *1			
			Language	Software	e version	
		En	glish version	Version1.24A or	later	
		Ch	ninese version	Version1.49B or	later	
		*1 F	For information on the so	ftware versions ap	oplicable to the	
		r	nodule used, refer to the	related manual.		
Programming	Ladder					
language						

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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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 operatio	n completes without error]	[When an error	occurs]	
	FB_EN (Execution command) FB_ENO (Execution status) Process alarm setting write processing FB_OK (Completed without error) FB_ERROR (Error flag)	No processing	FB_EN (Execution command) FB_ENO (Execution status) Process alarm setting write processing FB_OK (Completed without error) FB_ERROR (Error flag)	No processing	
	ERROR <u>I</u> D (Error code)	0	ERROR <u>I</u> D (Error code)	0 X Error code X 0	
Relevant manuals	MELSEC-Q Cu	rrent Transformer Input Modu	le User's Manual		
	QCPU User's Manual (Hardware Design, Maintenance and Inspection)				
	GX Works2 Version1 Operating Manual (Common)				
	GX Works2 Ver	sion1 Operating Manual (Sim	ple Project, Func	tion Block)	

### •Error code list

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

# Labels

### Input labels

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

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

# 2.11 M+Q68CT\_SetRateAlarm (Rate alarm setting)

### FB Name

M+Q68CT\_SetRateAlarm

### **Function Overview**

Item	Description	Description				
Function Overview	Configures rate alarm setting of a specified channel.					
Symbol	M+Q68CT_SetRateAlarm					
	Execution comman		FB_ENO: B	—Execution status		
	Module start XY addres	ss—W:i_Start_IO_No	FB_OK: B	— Completed without error		
	Target C	H-w:i_CH	FB_ERROR: B	—Error flag		
	Rate alarm settir	ng— B:i_Rate_Enable	ERROR_ID : W	—Error code		
	Rate alarm warning detection perio	od				
	Rate alarm upper limit valu	ue—W :i_Rate_U_Lim				
	Rate alarm lower limit valu	ue-W:i_Rate_L_Lim				
Applicable hardware	CT input module	Q68CT				
and software	CPU module		-			
		Series	М	odel		
		MELSEC-Q Series *1 Basic model *2				
			High performant	ce model *3		
			Universal mode			
		*1 Not applicable to QCPU	(A mode)			
		*2 The first five digits of the	serial number are	e "04122" or later		
		*3 The first five digits of the	serial number are	e "04012" or later		
	Engineering software	GX Works2 *1				
		Language		e version		
		English version	Version1.24A or	later		
		Chinese version Version1.49B or later				
		*1 For information on the software versions applicable to the		pplicable to the		
		module used, refer to the related manual.				
Programming	Ladder					
language						

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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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]				
	FB_EN (Execution command)       FB_ENO (Execution status)         Rate alarm setting write processing       No processing         FB_CN (Completed without error)       No processing         FB_ERROR (Error flag)       0         ERROR ID (Error code)       0				
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 code list

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

# Labels

### Input labels

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

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

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

# 2.12 M+Q68CT\_SetInputSignalErr (Input signal error detection setting)

### FB Name

M+Q68CT\_SetInputSignalErr

# **Function Overview**

Item	Description				
Function Overview	Configures input signal error detection setting of a specified channel.				
Symbol	Execution command-	M+Q68CT_SetInputS B :FB EN	SignalErr FB ENO : B — Execution status		
	Module start XY address-	_	FB_OK : B Completed without error		
			_		
			FB_ERROR : B Error flag		
	Input signal error detection setting-		ERROR_ID : W - Error code		
Applicable hardware		Q68CT			
and software	CPU module				
		Series	Model		
		MELSEC-Q Series *1	Basic model *2		
			High performance model *3		
			Universal model		
		*1 Not applicable to QCPU	. ,		
		-	serial number are "04122" or later		
			serial number are "04012" or later		
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
			ftware versions applicable to the		
		module used, refer to the	e related manual.		
Programming	Ladder				
language					
Number of steps		Q series universal model CP			
			Is on the CPU model that is used and		
	input and output definit	input and output definition.			

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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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.			
	S) 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]			
	FB_EN (Execution command)			
	FB_ENO (Execution status)			
	Input signal error detection setting write processing No processing Writing processing Setting write processing No processing No processing Setting write processing No processing Setting write processing Setting Writing Setting Writing Setting Writing Setting Write processing Setting Write proce			
	FB_OK (Completed without error)			
	FB_ERROR (Error flag)			
	ERROR ID (Error code) 0 Error code 0 Error code			

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

# Labels

#### Input labels

Name (Comment)	Label name	Data	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	mounted. (For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Input signal error	i_SignalErr		ON,OFF	ON: Enable the input signal
detection setting		D.4		error detection.
		Bit		OFF: Disable the input
				signal error detection.

# Output labels

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

# 2.13 M+Q68CT\_SetDropout (Dropout setting)

### FB Name

M+Q68CT\_SetDropout

### **Function Overview**

Item	Description			
Function Overview	Configures dropout setting of a specified cahnnel.			
Symbol	[	M+Q68CT_SetDropout		
	Execution command—	B :FB_EN	FB_ENO: B Execution status	
	Module start XY address—	W :i_Start_IO_No	FB_OK : B Completed without error	
	Target CH—	W:i_CH	FB_ERROR : B - Error flag	
	Dropout detection setting—	B :i_Dropout_Enable	ERROR_ID : W - Error code	
	Dropout value —	VV : i_Dropout_Value		
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series	Model	
		MELSEC-Q Series *1	Basic model *2	
			High performance model *3	
			Universal model	
		*1 Not applicable to QCPU (A mode) *2 The first five digits of the serial number are "04122" or late		
		*3 The first five digits of the	serial number are "04012" or later	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For information on the software versions applicable to the		
		module used, refer to the	e related manual.	
Programming	Ladder			
language				
Number of steps	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 defi	nition.		

Item	Description		
Function description	<ol> <li>Configures dropout setting of a specified cahnnel by turning ON FB_EN (Execution command).</li> </ol>		
	2) FB operation is one-shot only, triggered by the FB_EN signal.		
	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	1) The FB does not include error recovery processing. Program the error recovery		
precautions	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.		
	This FB uses index registers Z9, Z8, and Z7. Please do not use these index registers in		
	an interrupt program.		
	<ul> <li>Every input must be provided a value for proper FB operation.</li> </ul>		
	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]		
	command)		
	FB_ENO (Execution status)		
	Dropout setting write processing Writing Writing Dropout setting write No processing Pro		
	FB_OK (Completed without error)		
	FB_ERROR (Error flag)		
	ERROR JD (Error code) 0 Error code 0 Error code		

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

# Labels

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

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

# 2.14 M+Q68CT\_SetPeakCurrentData (Peak current detection setting)

### FB Name

M+Q68CT\_SetPeakCurrentData

#### **Function Overview**

Item	Description			
Function Overview	Configures peak current detection setting of a specified channel.			
Symbol		M+Q68CT_SetPeakCurrentData		
	Execution command—	B :FB_EN	FB_ENO: B	—Execution status
	Module start XY address—	W : i_Start_IO_No	FB_OK: B	— Completed without error
	Target CH—	W:i_CH	FB_ERROR: B	—Error flag
	Peak current detection setting—	B :i_Peak_Enable	ERROR_ID:W	—Error code
	Peak current detection time—	W : i_Peak_Time		
	Peak current detection value—	W :i_Peak_Value		
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series	N	Model
		MELSEC-Q Series *1	Basic model *2	2
			High performa	nce model *3
			Universal mode	el
		*1 Not applicable to QCPU (A mode)		
		*2 The first five digits of the	The first five digits of the serial number are "04122" or later	
		*3 The first five digits of the	serial number ar	re "04012" or later
	Engineering software	GX Works2 *1		
		Language	Softwa	are version
		English version	Version1.24A or later	
		Chinese version	Version1.49B o	r later
		*1 For information on the software versions applicable to the		
		module used, refer to the	e related manual	
Programming	Ladder			
language				
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 defini	tion.		

Item	Description		
Function description	1) Configures peak current detection setting of a specified channel by turning ON FB_EN		
	(Execution command).		
	FB operation is one-shot only, triggered by the FB_EN signal.		
	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	1) The FB does not include error recovery processing. Program the error recovery		
precautions	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]		
	FB_EN (Execution command)		
	FB_ENO (Execution status)		
	Peak current detection setting write processing Writing Peak current detection setting write processing No processing No processing		
	FB_OK (Completed without error)		
	FB_ERROR (Error flag)		
	ERROR ID (Error code) 0 ERROR ID (Error code) 0 Error code 0		

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

# Labels

### Input labels

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

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

# 2.15 M+Q68CT\_RequestSetting (Operation condition setting request)

### FB Name

M+Q68CT\_RequestSetting

### **Function Overview**

Item	Description			
Function Overview	Applies changes made to each function's settings.			
Symbol	M+Q68CT_RequestSetting			
	Execution command—	B :FB_EN	FB_ENO : B - Execution status	
	Module start XY address	/V:i_Start_IO_No	FB_OK : B Completed without error	
			FB_ERROR : B Error flag	
			ERROR_ID : W - Error code	
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series	Model	
		MELSEC-Q Series *1	Basic model *2	
			High performance model *3	
			Universal model	
		*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 la		
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
	*1 For information on the software versions applicable to the			
		module used, refer to the	e related manual.	
Programming	Ladder			
language				
Number of steps	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.			

Item	Description			
Function description	<ol> <li>Enables settings of all channels by turning ON FB_EN (Execution command).</li> </ol>			
	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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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.			
	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]			
	FB_EN (Execution command)			
	FB_ENO (Execution status)			
	Operation condition			
	setting request (Yn9) Operation condition setting			
	completion flag (Xn9) FB_OK (Completed without error)			
	FB_ERROR (Error flag)			
	ERROR_ID (Error code) 0			

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 code	Description	Action
None	None	None

# Labels

# Input labels

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

# Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Dit	OFF	ON: Execution command ON
				OFF: Execution command OFF
Completed without	FB_OK	Dit		When ON, it indicates that the operating
error		Bit OFF		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.

# 2.16 M+Q68CT\_SetOffsetVal (Offset setting)

### FB Name

M+Q68CT\_SetOffsetVal

## **Function Overview**

Item	Description			
Function Overview	Sets the offset value of a specified channel.			
Symbol		M+Q68CT_SetOffsetVal		
	Execution command—	B :FB_EN	FB_ENO: B — Execution status	
	Module start XY address—	W :i_Start_IO_No	FB_OK : B Completed without error	
	Target CH—	W:i_CH	FB_ERROR : B — Error flag	
	User range write command —	B:i_Write_Offset	ERROR_ID : W — Error code	
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series	Model	
		MELSEC-Q Series *1	Basic model *2	
			High performance model *3	
			Universal model	
		*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	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For information on the sc	oftware versions applicable to the	
		module used, refer to the	e related manual.	
Programming	Ladder			
language				
Number of steps	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 defin	ition.		

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	1) The FB does not include error recovery processing. Program the error recovery
precautions	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 operatio	on completes without error]	[When an error o	occurs]	
	FB_EN (Execution command)		FB_EN (Execution command)		
	FB_ENO (Execution status)		FB_ENO (Execution status)		
	Operation mode	Normal Offset/gain setting mode Normal mode	Operation mode	Normal mode	
	i_Write_Offset (User range write command)	<u> </u>	i_Write_Offset (User range write command)		
	CH□ Offset specification		CH Offset specification		
	Channel change request (YnB)		Channel change request (YnB)		
	User range write request (YnA)		User range write request (YnA)		
	FB_OK (Completed without error)		FB_OK (Completed without error)		
	FB_ERROR (Error flag)		FB_ERROR (Error flag)		
	ERROR <u>I</u> D (Error code)	0	ERROR <u>I</u> D (Error code)	0 Error code 0	
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 Ver	rsion1 Operating Manual (Sim	nple Project, Functi	on Block)	

•Error code list

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

# Labels

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

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

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		ЫІ		OFF: Execution command OFF
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the offset setting
error		ЫІ	OFF	has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has
		DIL	UFF	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.

# 2.17 M+Q68CT\_SetGainVal (Gain setting)

### FB Name

M+Q68CT\_SetGainVal

### **Function Overview**

Item	Description			
Function Overview	Sets the gain value of a specified channel.			
Symbol		M+Q68CT_SetGainVal		
	Execution command—	B :FB_EN	FB_ENO: B Execution status	
	Module start XY address—	W : i_Start_IO_No	FB_OK : B — Completed without error	
	Target CH—	W:i_CH	FB_ERROR : B — Error flag	
	User range write command—	B:i_Write_Gain	ERROR_ID : W Error code	
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series	Model	
		MELSEC-Q Series *1	Basic model *2	
			High performance model *3	
			Universal model	
		*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	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For information on the so	oftware versions applicable to the	
		module used, refer to the	e related manual.	
Programming	Ladder			
language				
Number of steps	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 defin	ition.		

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	1) The FB does not include error recovery processing. Program the error recovery			
precautions	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	on completes without error]	[When an error o	occurs]	
	FB_EN (Execution command)		FB_EN (Execution command)		
	FB_ENO (Execution status)		FB_ENO (Execution		
	Operation mode	Normal mode Offset/gain setting mode Normal	Operation mode	Normal mode	
	i_Write_Gain (User range write command)		i_Write_Gain (User range write command)		
	CH□ Gain specification		CH Gain specification		
	Channel change request (YnB)		Channel change request (YnB)		
	User range write request (YnA)		User range write request (YnA)		
	FB_OK (Completed without error)		FB_OK (Completed without error)		
	FB_ERROR (Error flag)		FB_ERROR (Error flag)		
	ERROR <u>I</u> D (Error code)	0	ERROR_ID (Error code)	0 Error code 0	
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 Ve	rsion1 Operating Manual (Sim	ple Project, Functi	on Block)	

•Error code list

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

# Labels

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

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

#### Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		DIL		OFF: Execution command OFF
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the gain setting
error		DIL		has been completed.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has
		DIL	UFF	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**

Item	Description				
Function Overview	Performs monitoring of error codes and error reset.				
Symbol	٦	M+Q68CT_ErrorOpera	tion		
	Execution command—	B :FB_EN	FB_ENO: B	—Execution status	
	Module start XY address—	W:i_Start_IO_No	FB_OK: B	—Completed without error	
	Error reset request—	B :i_ErrorReset	O_UNIT_ERR : B	—Module error flag	
		o_UNIT	r_err_code : W	—Module error code	
			FB_ERROR : B	—Error flag	
			ERROR_ID : W	—Error code	
Applicable hardware	CT input module	Q68CT			
and software	CPU module				
		Series		Model	
		MELSEC-Q Series *1	Basic model *2	2	
			High performa	nce model *3	
			Universal mod	lel	
		*1 Not applicable to QCPU	(A mode)		
		*2 The first five digits of the	serial number a	re "04122" or later	
		*3 The first five digits of the	serial number a	re "04012" or later	
	Engineering software	GX Works2 *1			
		Language	Softwa	are version	
		English version	Version1.24A c	or later	
		Chinese version	Version1.49B c	or later	
		*1 For information on the software versions applicable to the module used, refer to the related manual.			
Programming	Ladder				
language					

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	1) The FB does not include error recovery processing. Program the error recovery				
precautions	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	FB_EN (Execution completes without error]         FB_EN (Execution status)         i.ErrorReset (Error reset request)         Error clear request (XnF)         o.UNIT_ERR (Module error flag)         o.UNIT_ERR (Module error code)         FB_OK (Completed without error)         0         FB_EROR (Error reade)         0
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	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	mounted. (For example,
				enter H10 for X10.)

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

#### Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		DIL		OFF: Execution command OFF
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the error reset is
error		DIL	OFF	completed.
Module error flag	o_UNIT_ERR	Bit	OFF	When ON, it indicates the presence of a
		DIL	OFF	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**

Item	Description				
Function Overview	Performs the logging function of a specified channel.				
Symbol		M+Q68CT_SetLoggingPARAM			
	Execution command—	B :FB_EN	FB_ENO: B	—Execution status	
	Module start XY address—	W:i_Start_IO_No FB_OK:B		— Completed without error	
	Target CH—	-w:i_ch	FB_ERROR : B	—Error flag	
	Logging enable/disable setting—	B :i_Log_Enable	ERROR_ID : W	—Error code	
	Logging data setting—	W : i_Log_Data			
	Logging cycle setting value—	W : i_Log_Cycle_Val			
	Logging cycle unit setting—	W:i_Log_Cycle_Unit			
	Logging points after trigger—	W:i_Log_Points			
	Level trigger condition setting—	W : i_Log_Trig_Cond			
	Trigger data—	- W : i_Log_Trig_Data			
	Trigger setting ∨alue <i>—</i>	W : i_Log_Trig_Value			
Applicable hardware	CT input module	Q68CT			
and software	CPU module				
		Series	N	lodel	
		MELSEC-Q Series *1	Basic model *2		
			High performan	ice model *3	
			Universal mode	91	
		*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	e "04012" or later	

Item	Description	Pescription		
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For information on the s	oftware versions applicable to the	
		module used, refer to th	e related manual.	
Programming	Ladder			
language				
Number of steps	315 steps (for MELSEC-	Q series universal model CF	PU)	
	* The number of steps of	f the FB in a program depen	ds on the CPU model that is used and	
	input and output defini	ition.		
Function description			nnel when the FB_EN (Execution	
	command) is turned			
	, .	shot only, triggered by the F	•	
			e 'operating condition setting request'	
			perating condition setting request FB	
		tSetting) 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).			
Compiling mothod	Refer to the error code explanation section for details.			
Compiling method Restrictions and	Macro type	ludo orror rocovoru procosi	ng Program the error receivery	
precautions	<ol> <li>The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> </ol>			
precautions				
	,		of being turned OFF by the program.	
		<b>C</b> 1	ecuted once such as a subroutine,	
		. because it is impossible to		
		•	ution must be taken to avoid repetition	
	of the target channel	-		
			ase do not use these index registers in	
	an interrupt program	-	Ŭ	
	<ul><li>6) Every input must be provided a value for proper FB operation.</li></ul>			
	7) The input range settings must be properly configured to match the system and devices			
			se settings by making the GX Works2	
	switch setting accord	ding to the application.		
	For details on how to	o use the intelligent function	module switch setting, refer to GX	
	Works2 Version1 Op	perating Manual (Common).		

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]		
	FB_EN (Execution command)       FB_ENO (Execution status)         Logging function parameter setting write processing       No processing         FB_ENC (Completed without error)       No processing         FB_ERROR (Error flag)       0         ERROR JD (Error code)       0		
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.	Please try again after confirming the setting.
	The target channel is not within the range	
	of 1 to 8.	

### Labels

# Input labels

Name (Comment)	Label name	Data	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	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	i_Log_Enable	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ON,OFF	ON: Enable the logging
enable/disable	_ 0_			function.
setting		Bit		OFF: Disable the logging
				function.
Logging data setting	i_Log_Data		0: Digital output value	Set the data to be logged.
		Word	1: Scaling value	
Logging cycle setting	i_Log_Cycle_Val		1) Logging cycle unit	Set the cycle to store data.
value			setting = 0:10~32,767	
		Word	2) Logging cycle unit	
		vvord	setting=1:10~32,767	
			3) Logging cycle unit	
			setting=2:1~3,600	
Logging cycle unit	i_Log_Cycle_Unit		0: Update cycle	Specify the cycle unit to
setting		Word	1: ms	store data.
			2: s	
Logging points after	i_Log_Points		1~5,000	Specify the number of data
trigger		Word		to be logged after the hold
				trigger occurs.
Level trigger	i_Log_Trig_Cond		0: Disable	Set whether to use the level
condition setting		Word	1: Above	trigger or not. If used, set the
		vvoru	2: Below	condition.
			3: Pass through	
Trigger data	i_Log_Trig_Data		0~4,999	Set the buffer memory
		Word		address monitored for the
				level trigger.
Trigger setting value	i_Log_Trig_Value	Word	-32,768~32,767	Set the level at which the
		word		level trigger occurs.

## Output labels

Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit OFF		ON: Execution command ON
		ы	011	OFF: Execution command OFF

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

Item	Description	Description		
Function Overview	Saves the logging data of a specified channel in a CSV file.			
Symbol	Γ	M+Q68CT_SaveLogging		
	Execution command—	B :FB_EN	FB_ENO: B	—Execution status
	Module start XY address —	W : i_Start_IO_No	FB_OK : B	— Completed without error
	Target CH—	W:i_CH	o_Making_File: B -	—File creating flag
	Maximum No. of save files—	VV:i_Max_Number o_Ex	ceed_Number:B -	—Maximum No. reached flag
	Overwrite save command—	B:i_Over_Write	FB_ERROR : B	—Error flag
			ERROR_ID : W	—Error code
Applicable hardware	CT input module	Q68CT		
and software	CPU module			
		Series		Model
		MELSEC-Q Series *1	MELSEC-Q Series *1 High performa	
			Universal mo	del *3
		*1 Not applicable to QCPU (A mode)		
		*2 The first five digits of the	serial number a	are "04112" or later
		*3 Not applicable to Q00UJ	CPU, Q00UCP	U, or Q01UCPU
		because memory cards of	cannot be mou	nted on them.
	Engineering software	GX Works2 *1		
		Language	Softv	vare version
		English version	Version1.24A	or later
	Chinese version Version1.49B o		9B or later	
		*1 For information on the so	oftware versions	s applicable to the
		module used, refer to the	e related manua	al.
Programming	Ladder			
language				

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	1) The FB does not include error recovery processing. Program the error recovery	
precautions	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]			
	FB_EN (Execution command)         FB_EN0 (Execution status)         Logging hold flag (Un¥ G1016 to 1023)         o_Making File (File creating flag)         FB_ENC (Excould)         FB_ENC (Error flag)         FB_EROR (Error code)         0			
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.		Please try again after confirming the setting.
	The target channel is not within the range	
	of 1 to 8.	
11 (Decimal)	The maximum number of save files is not	Please try again after confirming the setting.
	valid. The maximum number of save files	
	is not within the range of 1 to 511.	
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	Setting range	Description
		type		
Execution command	FB_EN		ON,OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range.	address (in hexadecimal)
		Word	For details, refer to the	where the Q68CT module is
			CPU user's manual.	mounted. (For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~8	Specify the channel number.
Maximum No. of	i_Max_Number		1~511	Specify the maximum
save files		Word		number of CSV files the FB
				saves.

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

#### Output labels

Name (Commont)	Lobol nome	Dete	Initial	Description
Name (Comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command ON
		Dit		OFF: Execution command OFF
Completed without	FB_OK			When ON, it indicates that the file saving
error		Bit	OFF	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.	o_Exceed_Number			When ON, it indicates that the number of
reached flag		Bit	OFF	CSV files saved by this FB has reached the
				maximum number of save files.
Error flag	flag FB_ERROR	Bit	OFF	When ON, it indicates that an error has
		DIL	UFF	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

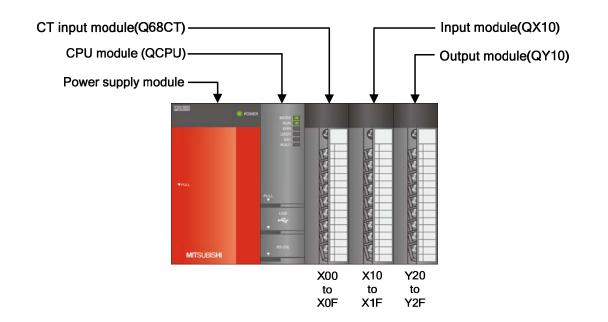
This chapter includes information related to the M+Q68CT\_SaveLogging function block.

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)
MO	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

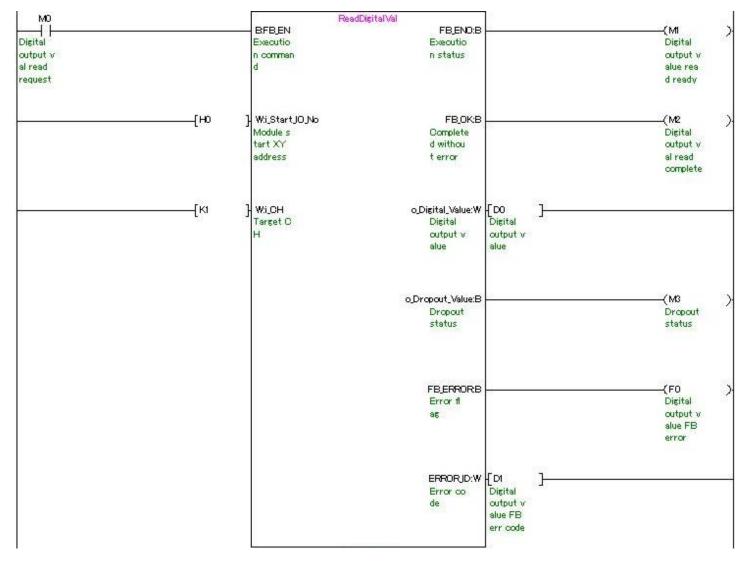
### 4) Program

M+Q68CT\_ReadDigitalVal (Read digital output value, dropout status)

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

A program example using the following conditions is shown below.

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

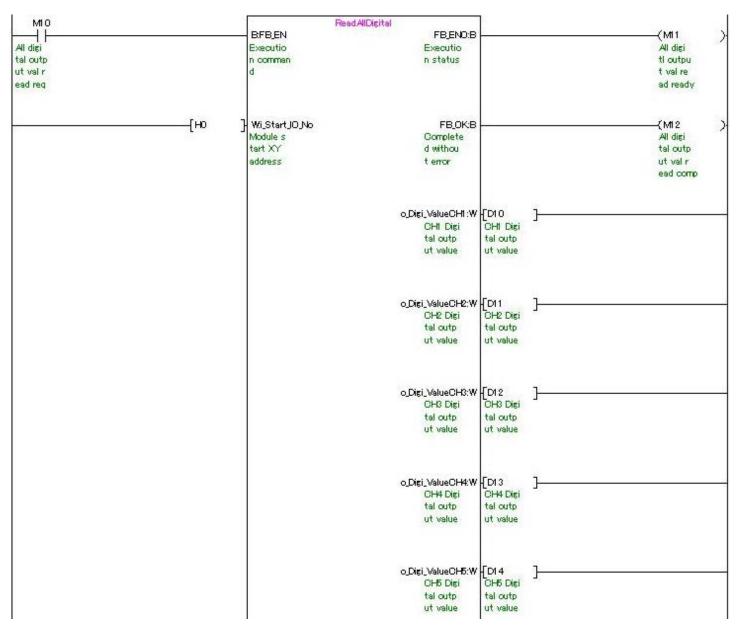


#### M+Q68CT\_ReadAllDigitalVal (Read all digital output values, dropout status)

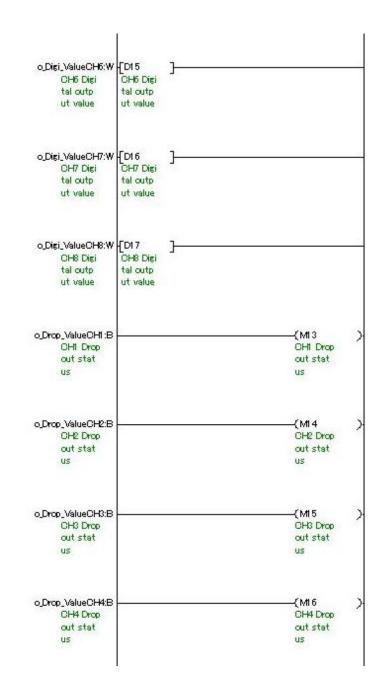
Label name	Setting value	Description
i_Start_IO_No	HO	Set the starting XY address where the Q68CT module is mounted to 0H.

A program example using the following conditions is shown below.

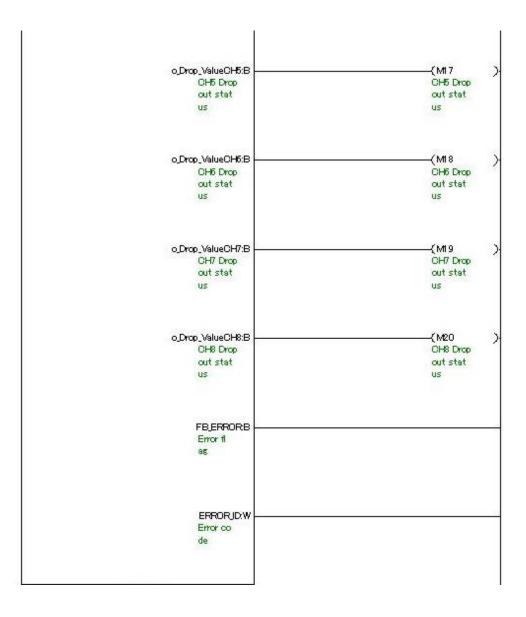
By turning ON M10, digital output vaues and dropout status of all channels are read.



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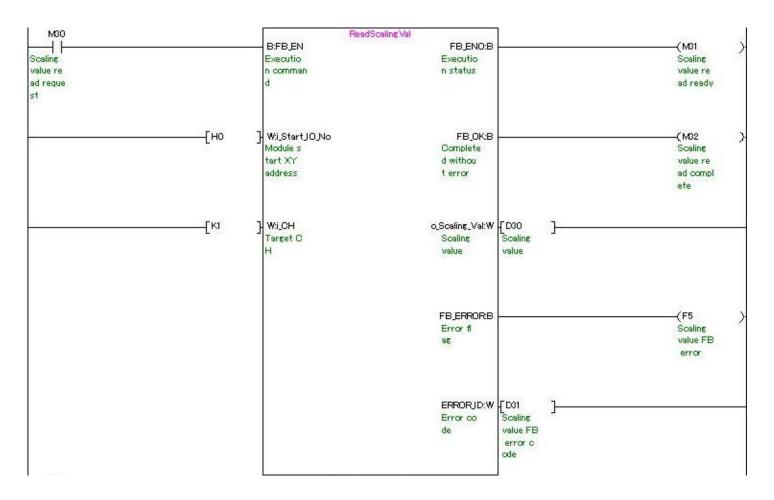


#### M+Q68CT\_ReadScalingVal (Read scaling value)

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

A program example using the following conditions is shown below.

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

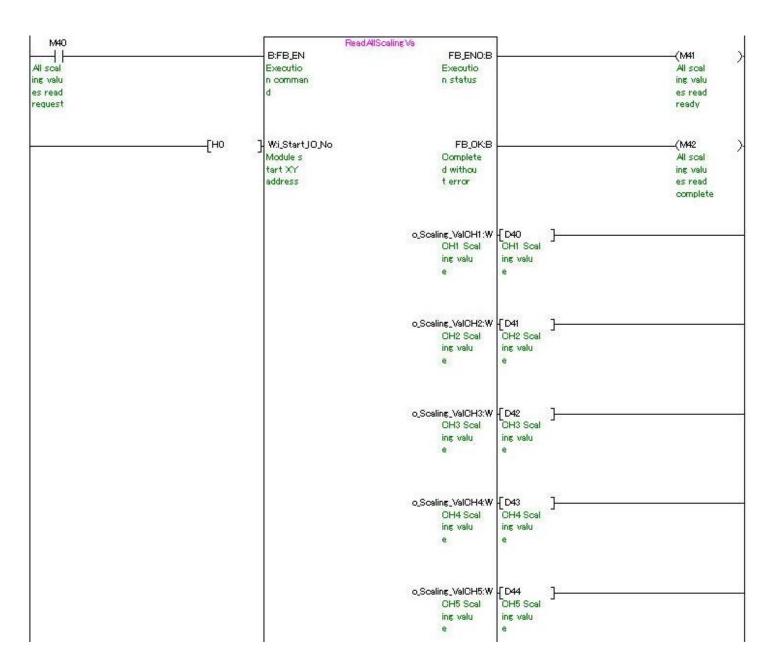


#### M+Q68CT\_ReadAllScalingVal (Read all scaling values)

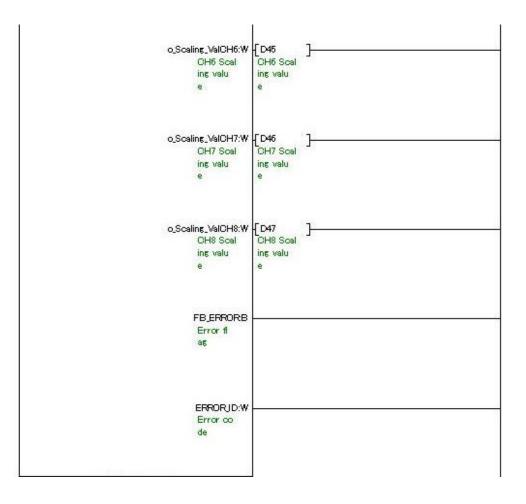
Label name	Setting value	Description
i_Start_IO_No	HO	Set the starting XY address where the Q68CT module is mounted to 0H.

A program example using the following conditions is shown below.

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



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### M+Q68CT\_ReadPeakCurrentData (Read peak current detection data)

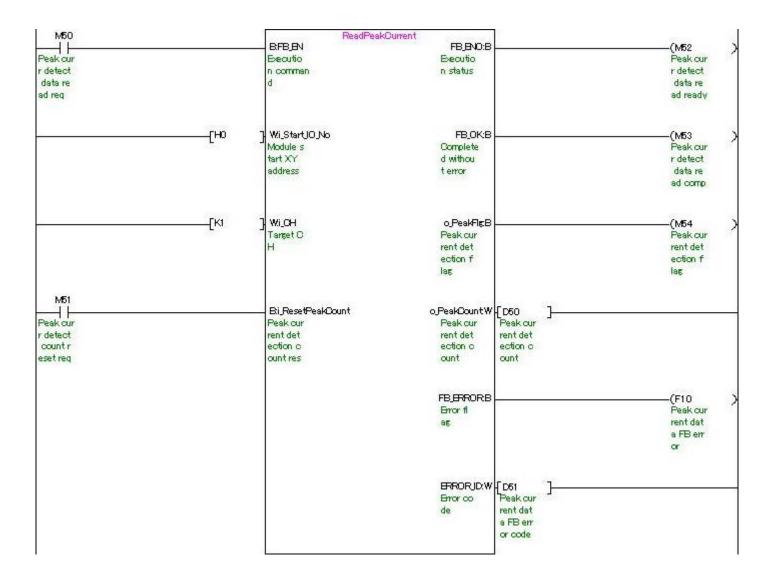
Label name	Setting	Description
	value	
i_Start_IO_No	HO	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_ResetPeakCount	ON/OFF	Turn ON to set the peak current detection count reset request to "Reset
		requested".
		Turn OFF to set the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

A program example using the following conditions is shown below.

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.

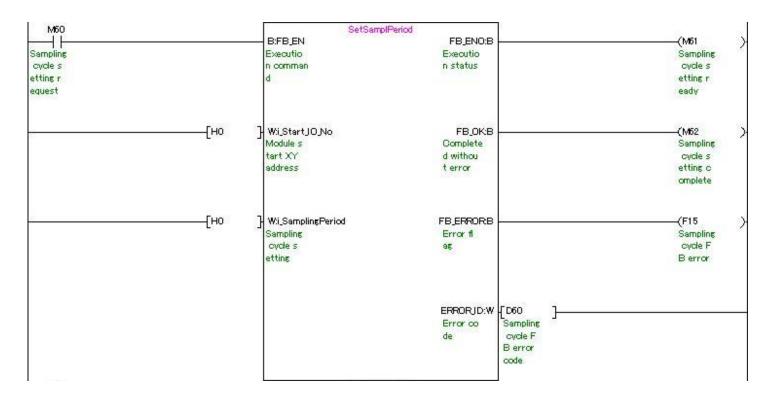


#### M+Q68CT\_SetSamplingPeriod (Sampling cycle setting)

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

A program example using the following conditions is shown below.

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



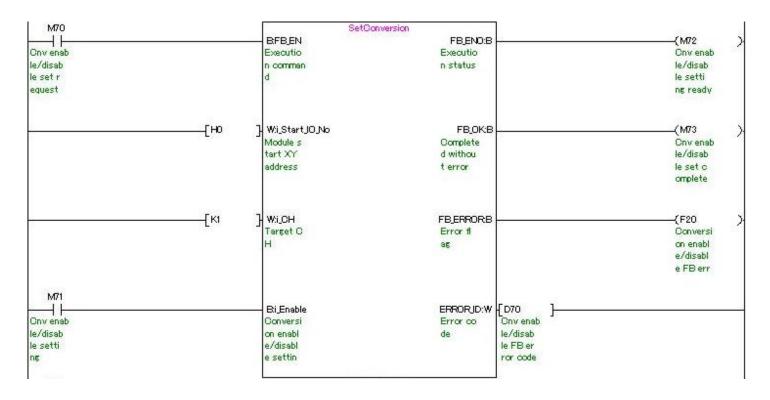
#### M+Q68CT\_SetConversion (Enable/disable conversion)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	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.

A program example using the following conditions is shown below.

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.

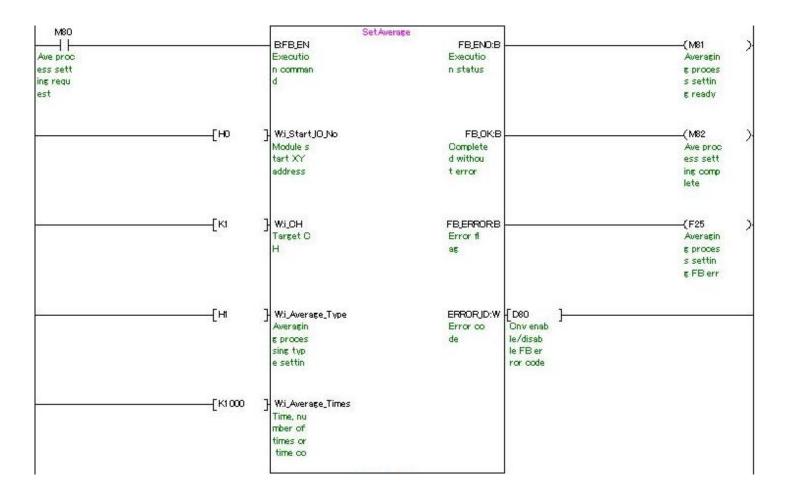


#### M+Q68CT\_SetAverage (Averaging process setting)

Label name	Setting	Description
	value	
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.

A program example using the following conditions is shown below.

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.

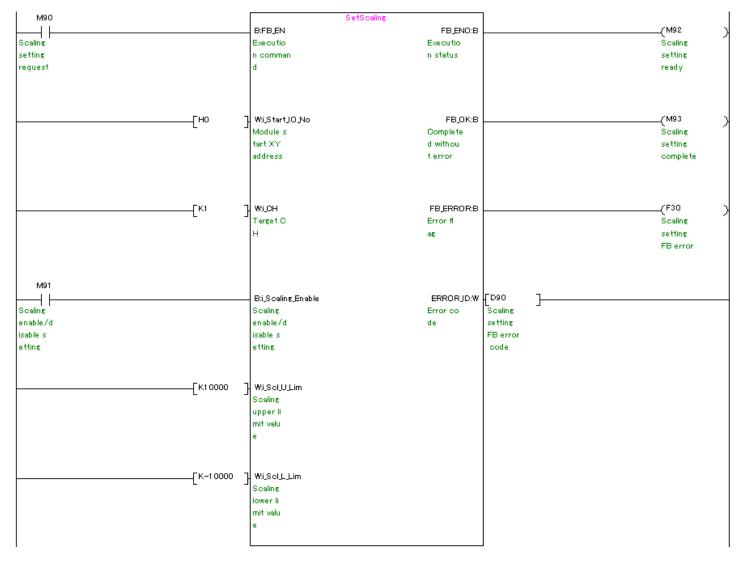


#### M+Q68CT\_SetScaling (Scaling setting)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	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.

A program example using the following conditions is shown below.

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.

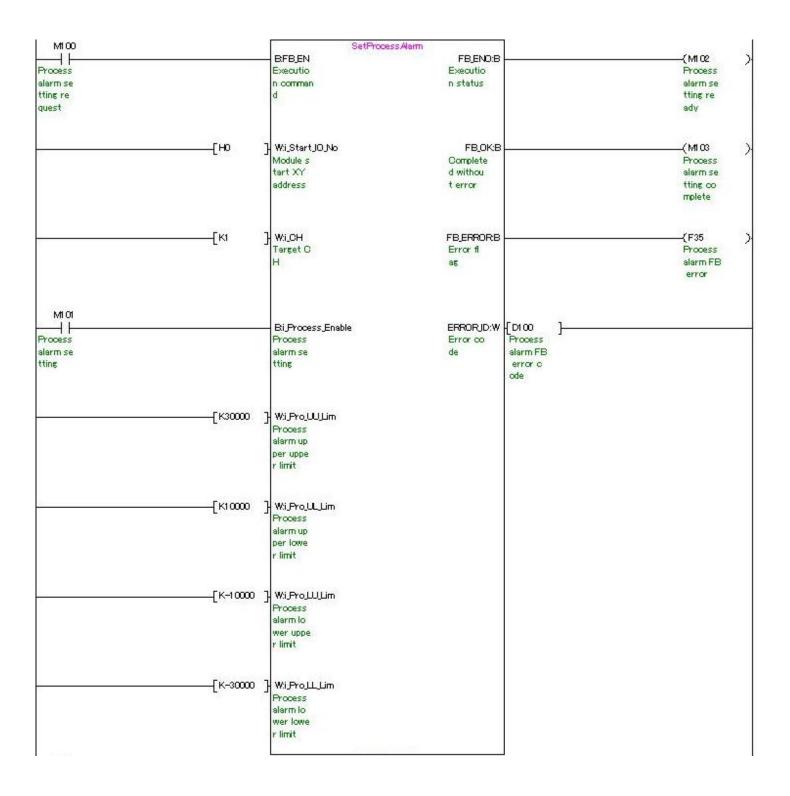


#### M+Q68CT\_SetProcessAlarm (Process alarm setting)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	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.

A program example using the following conditions is shown below.

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.

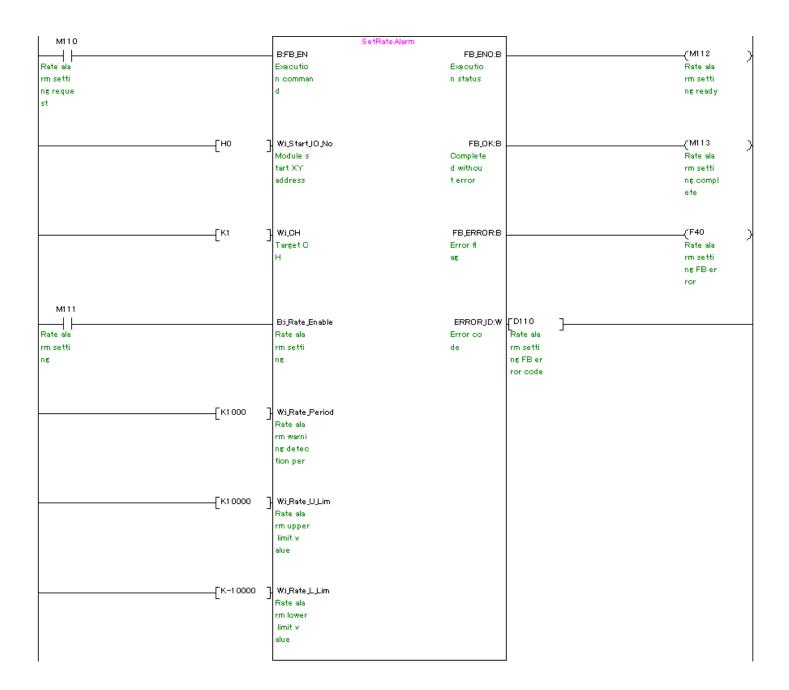


#### M+Q68CT\_SetRateAlarm (Rate alarm setting)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	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%).

A program example using the following conditions is shown below.

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.

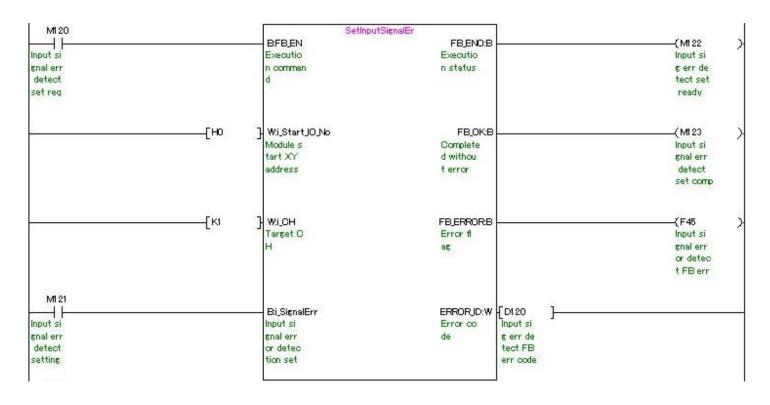


M+Q68CT\_SetInputSignalErr (Input signal error detection setting)

Label name	Setting	Description
	value	
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.

A program example using the following conditions is shown below.

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

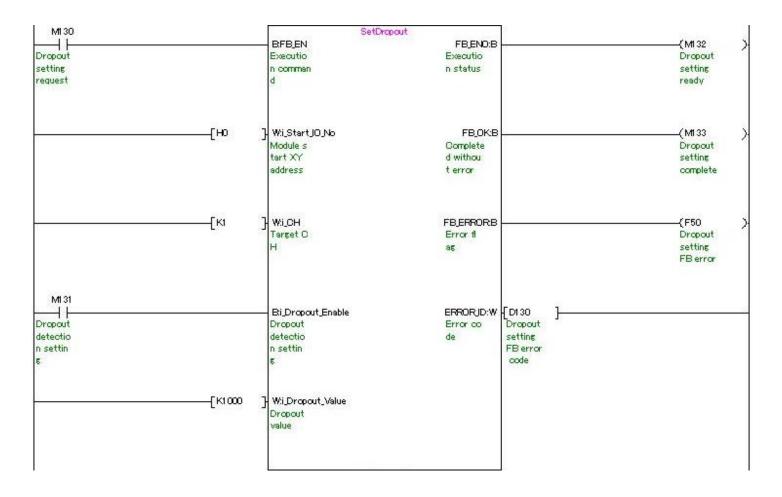


### M+Q68CT\_SetDropout (Dropout setting)

Label name	Setting	Description
	value	
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.

A program example using the following conditions is shown below.

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

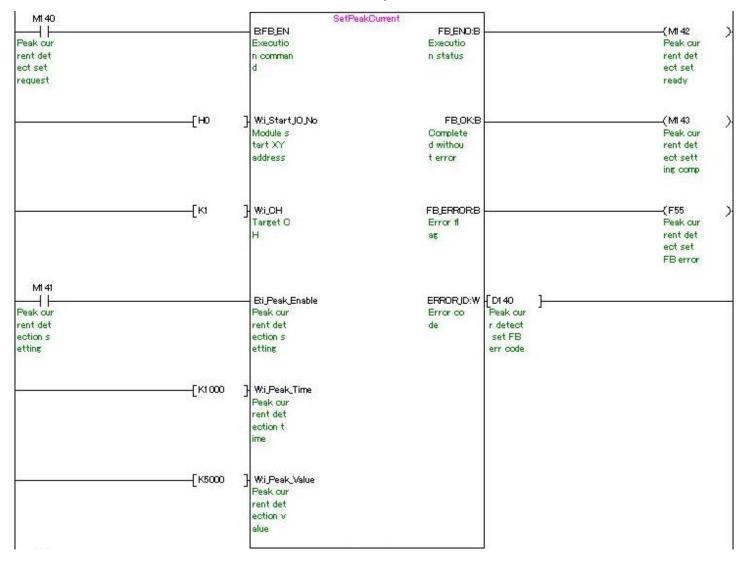


M+Q68CT\_SetPeakCurrentData (Peak current detection setting)

Label name	Setting	Description
	value	
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.

A program example using the following conditions is shown below.

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



# M+Q68CT\_RequestSetting (Operation condition setting request)

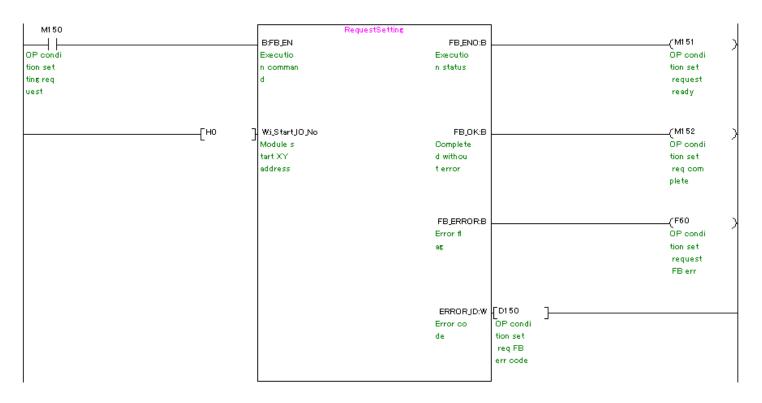
Label name	Setting value	Description
i_Start_IO_No	HO	Set the starting XY address where the Q68CT module is mounted to 0H.

#### A program example using the following conditions is shown below.

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

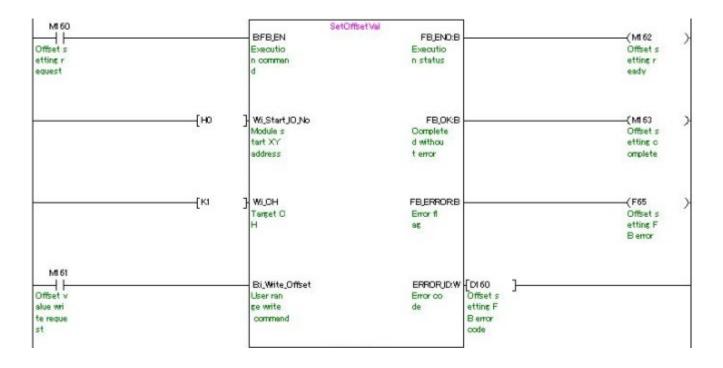


### M+Q68CT\_SetOffsetVal (Offset setting)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	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.

A program example using the following conditions is shown below.

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

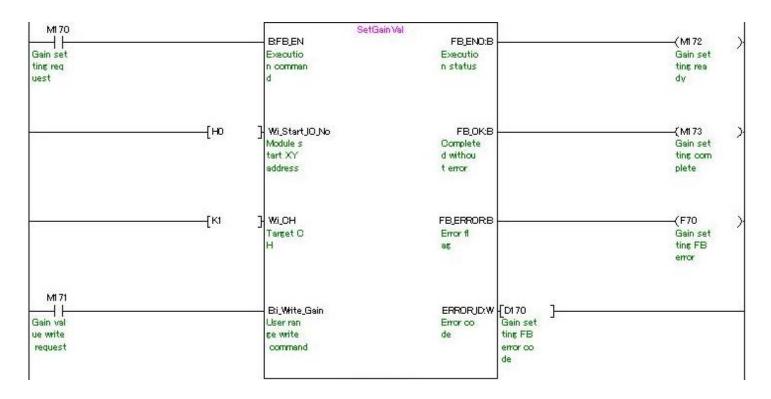


### M+Q68CT\_SetGainVal (Gain setting)

Label name	Setting value	Description
i_Start_IO_No	HO	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.

A program example using the following conditions is shown below.

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



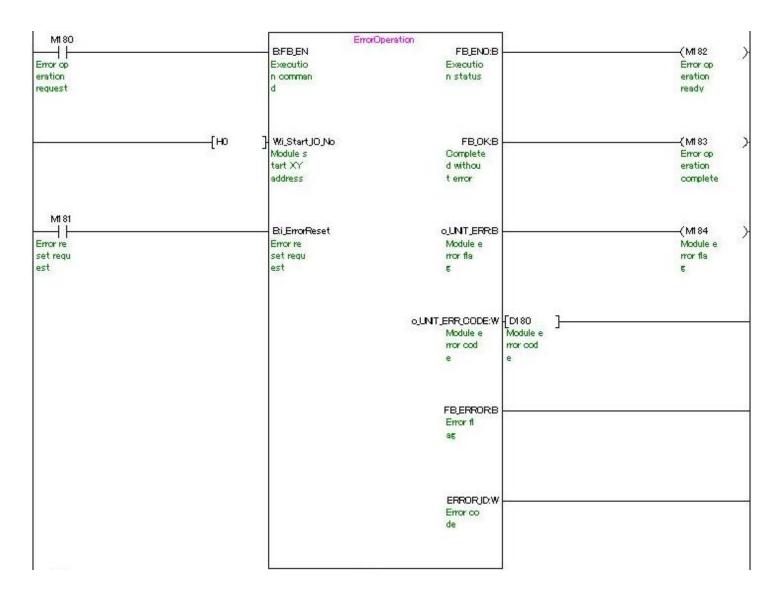
### M+Q68CT\_ErrorOperation (Error operation)

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

A program example using the following conditions is shown below.

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.

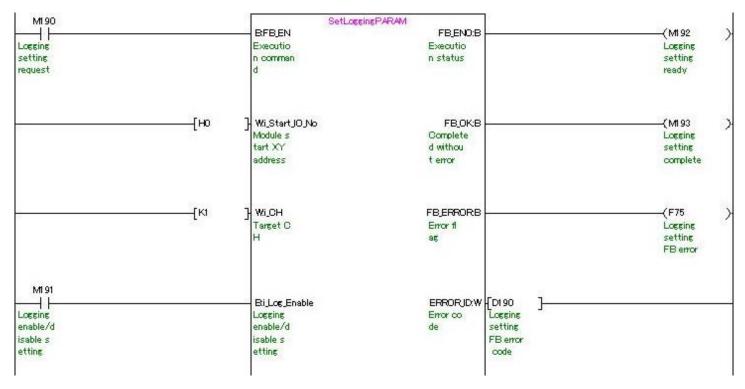


M+Q68CT\_SetLoggingPARAM (Logging function parameter setting)

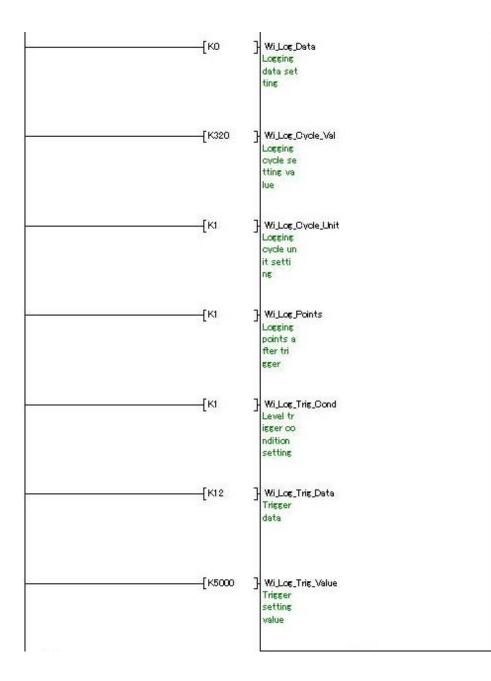
Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q68CT module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Log_Enable	ON/OFF	Turn ON to enable the logging enable/disable setting.
		Turn OFF to disable the logging enable/disable setting.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

A program example using the following conditions is shown below.

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



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## M+Q68CT\_SaveLogging (Logging data save)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	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.

A program example using the following conditions is shown below.

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.

