MELSEC-Q High Speed Analog-Digital Converter Module FB Library Reference Manual

Applicable module:
Q64ADH

< CONTENTS >

Refere	nce Manual Revision History	2
1.	Overview	3
1.1	Overview of the FB Library	3
1.2	Function of the FB Library	3
1.3	System Configuration Example	4
1.4	Relevant Manuals	4
1.5	Note	4
2.	Details of the FB Library	5
2.1	M+Q64ADH_ReadADVal(Read AD conversion data)	5
2.2	M+Q64ADH_ReadAllADVal(Read all AD conversion data)	S
2.3	M+Q64ADH_ReadOperationVal(Read digital operation value)	13
2.4	M+Q64ADH_ReadAllOperationVal(Read all digital operation values)	17
2.5	M+Q64ADH_SetConvertSpeed(Conversion speed setting)	21
2.6	M+Q64ADH_SetADConversion(Enable/disable AD conversion)	24
2.7	M+Q64ADH_SetAverage(Averaging process setting)	28
2.8	M+Q64ADH_SetScaling(Scaling setting)	32
2.9	M+Q64ADH_SetProcessAlarm(Process alarm setting)	36
2.10	M+Q64ADH_SetInputSignalErr(Input signal error detection setting)	40
2.11	M+Q64ADH_RequestSetting(Operation condition setting request)	44
2.12	M+Q64ADH_SetOffsetVal(Offset setting)	48
2.13	M+Q64ADH_SetGainVal(Gain setting)	52
2.14	M+Q64ADH_SetShift(Shift setting)	56
2.15	M+Q64ADH_ErrorOperation(Error operation)	60
2.16	M+Q64ADH_SetDigitalClip(Digital clipping setting)	64
2.17	M+Q64ADH_SetLoggingPARAM(Logging function parameter setting)	68
2.18	M+Q64ADH_SaveLogging(Logging data save)	73
2.19	M+Q64ADH_SetFlowRatePARAM(Flow amount integration function parameter setting)	79
2.20	M+Q64ADH_MakeFlowRateDailyReport(Flow amount daily report creation)	83
Append	dix 1. FB Library Application examples	88

Reference Manual Revision History

Reference Manual Number	Date	Description
FBM-M086-A	2012/03/26	First edition

1. Overview

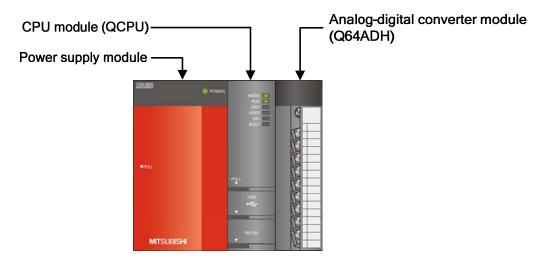
1.1 Overview of the FB Library

This FB library is for using the MELSEC-Q Q64ADH high speed analog-digital converter module.

1.2 Function of the FB Library

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Item	Description	
M+Q64ADH_ReadADVal	Read the AD conversion data of a specified channel.	
M+Q64ADH_ReadAllADVal	Read the AD conversion data of all channels.	
M+Q64ADH_ReadOperationVal	Read the digital operation value of a specified channel.	
M+Q64ADH_ReadAllOperationVal	Read the digital operation values of all channels.	
M+Q64ADH_SetConvertSpeed	Set the conversion speed.	
M+Q64ADH_SetADConversion	Enable or disable AD conversion for a specified channel or all	
	channels.	
M+Q64ADH_SetAverage	Configure averaging processing settings of a specified channel.	
M+Q64ADH_SetScaling	Configure scaling settings of a specified channel.	
M+Q64ADH_SetProcessAlarm	Configure process alarm settings of a specified channel.	
M+Q64ADH_SetInputSignalErr	Configure input signal error detection settings of a specified	
	channel.	
M+Q64ADH_RequestSetting	Apply changes made to each function's settings.	
M+Q64ADH_SetOffsetVal	Set the offset value of a specified channel to the current analog	
	value.	
M+Q64ADH_SetGainVal	Set the gain value of a specified channel to the current analog value.	
M+Q64ADH_SetShift	Perform the shift setting of a specified channel.	
M+Q64ADH_ErrorOperation	Perform monitoring and reset of error codes.	
M+Q64ADH_SetDigitalClip	Enable or disable the digital clipping of a specified channel.	
M+Q64ADH_SetLoggingPARAM	Perform the logging function of a specified channel.	
M+Q64ADH_SaveLogging	Save the logging data of a specified channel in a file.	
M+Q64ADH_SetFlowRatePARAM	Set the flow amount integration function of a specified channel.	
M+Q64ADH_MakeFlowRateDailyReport	Save the flow amount daily report data of all channels in a file.	

1.3 System Configuration Example



1.4 Relevant Manuals

MELSEC-Q High Speed Analog-Digital Converter Module User's Manual

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

GX Works2 Version 1 Operating Manual(Common)

GX Works2 Version 1 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+Q64ADH_ReadADVal(Read AD conversion data)

FB Name

M+Q64ADH_ReadADVal

Item	Description			
Function overview	Read the AD conversion data of a specified channel.			
Symbol		ess—W:i_Start_IO_No CH—W:i_CH	FB_ENO: B — Execution status FB_OK: B — Completed without error o_AD_Value: W — AD conversion data FB_ERROR: B — Error flag ERROR_ID: W — Error code	
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH		
		Series	Model	
		MELSEC-Q Series *1	Basic model	
			High performance model	
			Universal model	
		*1 Not applicable to QCPU(A mode)		
	Engineering software	oftware GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For software versions a "Relevant manuals".	applicable to the modules used, refer to	
Programming	Ladder	<u>'</u>		
language				
Number of steps	209 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	nition.		

Item	Description			
Function description	1) Reads the AD conversion data of a specified channel when the FB_EN(Execution			
	command) is turned ON.			
	2) The resulting AD conversion data depends 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.			
	Refer to the error code explanation section for details.			
	4) If the A/D converter module buffer memory is set to auto refresh the digital output 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 Z7, Z8, and Z9. 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 devices connected to the			
	7) The input range settings must be properly configured to match devices connected to the			
	Q64ADH 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 Version 1 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) (Execution command)			
	(Execution command) FB_ENO (Execution status) (Execution command) (Execution command) (Execution command) (Execution command)			
	o_AD_Value (AD conversion data) Refreshing Refreshing			
	FB.OK (Completed without error) FB.OK (Completed without error)			
	FB_ERROR(Error flag) ERROR_ID(Error code) FB_ERROR_ID(Error code) FB_ERROR_ID(Error code) FB_ERROR_ID(Error code) FB_ERROR_ID(Error code)			
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual			
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)			
	GX Works2 Version 1 Operating Manual(Common)			
	GX Works2 Version 1 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 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	ENO DI		ON: Execution command is ON.
		Bit	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the AD
error		Bit	OFF	conversion value read operation was
				successful.
AD conversion data	o_AD_Value	Word	0	AD conversion data output
Error flag	FB_ERROR Bit	D:t	OFF	When ON, it indicates that an error has
		DIL		occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_ReadADVal function block.

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

2.2 M+Q64ADH_ReadAllADVal(Read all AD conversion data)

FB Name

M+Q64ADH_ReadAllADVal

Item	Description			
Function overview	Read the AD conversion data of all channels.			
Symbol	Execution commar Module start XY addres	M+Q64ADH_ReadAllADVal d—B: FB_EN FB_ENO: B—Execution status S—W: i_Start_IO_No FB_OK: B—Completed without error o_AD_ValueCH1: W—CH1 AD conversion data o_AD_ValueCH2: W—CH2 AD conversion data o_AD_ValueCH3: W—CH3 AD conversion data o_AD_ValueCH4: W—CH4 AD conversion data FB_ERROR: B—Error flag ERROR_ID: W—Error code		
Applicable hardware and software	Analog-Digital converter module	Q64ADH		
	CPU module Engineering software	Series MELSEC-Q Series *1 *1 Not applicable to QCPU GX Works2 *1 Language English version	Model Basic model High performance model Universal model U(A mode) Software version Version1.24A or later	
		Chinese version *1 For software versions a "Relevant manuals".	Version1.49B or later applicable to the modules used, refer to	
Programming language	Ladder			
Number of steps	186 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	1) Reads the AD conversion data of all channels when the FB_EN(Execution command) is		
	turned ON.		
	2) The resulting AD conversion data depends on the input range setting.		
	3) If the A/D converter module buffer memory is set to auto refresh the digital output 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) This FB uses index registers Z8 and Z9. 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 devices connected to the		
	Q64ADH 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 Version 1 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]		
	50.50		
	(Execution command)		
	FB_ENO (Execution status)		
	o_AD_ValueCH□ (CH□ AD conversion data) Refreshing Refreshing stop		
	FB_OK (Completed without error)		
	FB_ERROR(Error flag)		
	ERROR_ID(Error code) 0		
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual		
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)		
	GX Works2 Version 1 Operating Manual(Common)		
	GX Works2 Version 1 Operating Manual(Simple Project, Function Block)		

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)

Output labels

Output labels				
Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Dit OFF		ON: Execution command is ON.
		Bit	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the AD
error		Bit	OFF	conversion value read operation was
				successful.
CH1 AD conversion	o_AD_ValueCH1	Mord	0	CH1 AD conversion data output
data		Word 0		
CH2 AD conversion	o_AD_ValueCH2	Word	0	CH2 AD conversion data output
data		vvoid	U	
CH3 AD conversion	o_AD_ValueCH3	Word	0	CH3 AD conversion data output
data		vvoid	U	
CH4 AD conversion	o_AD_ValueCH4	Word	0	CH4 AD conversion data output
data		vvoid	U	
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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_ReadAllADVal function block.

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

2.3 M+Q64ADH_ReadOperationVal(Read digital operation value)

FB Name

M+Q64ADH_ReadOperationVal

Item	Description		
Function overview	Read the digital operation value of a specified channel.		
Symbol			tionVal FB_ENO: B — Execution status FB_OK: B — Completed without error peration_Val: W — Digital operation value FB_ERROR: B — Error flag ERROR_ID: W — Error code
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH	
		Series	Model
		MELSEC-Q Series *1	Basic model
			High performance model
			Universal model
		*1 Not applicable to QCPL	J(A mode)
	Engineering software	GX Works2 *1	
		Language	Software version
		English version	Version1.24A or later
		Chinese version	Version1.49B or later
		*1 For software versions a "Relevant manuals".	applicable to the modules used, refer to
Programming	Ladder		
language			
Number of steps	213 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	1) Reads the digital operation 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.			
	Refer to the error code explanation section for details.			
	3) If the A/D converter module buffer memory is set to auto refresh the digital operation			
	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 Z7, Z8, and Z9. 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 devices connected to the			
	Q64ADH 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 Version 1 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_Operation_Val (Digital operation value) FB_OK (Completed without error) FB_ERROR(Error flag) ERRORID(Error code) FB_CRORID(Error code)			
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual			
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)			
	GX Works2 Version 1 Operating Manual(Common)			
	GX Works2 Version 1 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 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the digital
error		Bit	OFF	operation value read operation was
				successful.
Digital operation	o_Operation_Val	Word	0	Digital operation value output
value		vvoid	U	
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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_ReadOperationVal function block.

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

2.4 M+Q64ADH_ReadAllOperationVal(Read all digital operation values)

FB Name

M+Q64ADH_ReadAllOperationVal

Item	Description		
Function overview	Read the digital operation values of all channels.		
Symbol	Execution commar	M+Q64ADH_ReadAllOpera ad—B:FB_EN as—W:i_Start_IO_No o_Op o_Op o_Op	ationVal FB_ENO: B — Execution status FB_OK: B — Completed without error DerationCH1: W — CH1 digital operation value DerationCH2: W — CH2 digital operation value DerationCH3: W — CH3 digital operation value DerationCH4: W — CH4 digital operation value DerationCH4: W — CH4 digital operation value DEFB_ERROR: B — Error flag ERROR_ID: W — Error code
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH	
		Series	Model
		MELSEC-Q Series *1	Basic model
			High performance model
			Universal model
		*1 Not applicable to QCPU	J(A mode)
	Engineering software	GX Works2 *1	
		Language	Software version
		English version	Version1.24A or later
		Chinese version	Version1.49B or later
		*1 For software versions approximately "Relevant manuals".	pplicable to the modules used, refer to
Programming language	Ladder		
Number of steps	193 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	1) Reads the digital operation values of all channels when the FB_EN(Execution
	command) is turned ON.
	2) If the A/D converter module buffer memory is set to auto refresh the digital operation
	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) This FB uses index registers Z8 and Z9. 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 devices connected to the
	Q64ADH 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 Version 1 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_OperationCH (CH Digital operation value) FB_OK (Completed without error) FB_ERROR(Error flag) ERRORJD(Error code) 0
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)
	GX Works2 Version 1 Operating Manual(Common)
	GX Works2 Version 1 Operating Manual(Simple Project, Function Block)

Error code list

2.10.0000.101			
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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)

Output labels

Output labels	T			
Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the digital
error		Bit	OFF	operation value read operation was
				successful.
CH1 digital	o_OperationCH1	Word	0	CH1 digital operation value output
operation value		vvoid	U	
CH2 digital	o_OperationCH2	Word	0	CH2 digital operation value output
operation value		vvoid	U	
CH3 digital	o_OperationCH3	Word	0	CH3 digital operation value output
operation value		vvoid	U	
CH4 digital	o_OperationCH4	Word	0	CH4 digital operation value output
operation value		VVOIG	0	
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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_ReadAllOperationVal function block.

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

2.5 M+Q64ADH_SetConvertSpeed(Conversion speed setting)

FB Name

M+Q64ADH_SetConvertSpeed

Item	Description			
Function overview	Set the conversion speed.			
Symbol		rss—W: i_Start_IO_No	FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code	
Applicable hardware	Analog-Digital	Q64ADH		
and software	converter module			
	CPU module			
		Series	Model	
		MELSEC-Q Series *1	Basic model	
			High performance model	
			Universal model	
		*1 Not applicable to QCPU	(A mode)	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For software versions ap	oplicable to the modules used, refer to	
		"Relevant manuals".		
Programming	Ladder			
language				
Number of steps	178 steps(for MELSEC-	Q series universal model CP	טיס)	
	* 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 conversion speed when the FB_EN(Execution command) is turned ON.			
	2) FB operation is one-shot only, triggered by the FB_EN signal.			
	3) The new setting value will not take effect until the 'operation condition setting request'			
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request			
	FB(M+Q64ADH_RequestSetting) is executed.			
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 Z8 and Z9. 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 devices connected to the			
	Q64ADH 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 Version 1 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]			
	FB_ENO (Execution command) FB_ENO (Execution status) Conversion speed setting Write processing FB_OK (Completed without error) FB_ERROR(Error flag) ERROR_ID(Error code) 0			
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual			
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)			
	GX Works2 Version 1 Operating Manual(Common)			
	GX Works2 Version 1 Operating Manual(Simple Project, Function Block)			

Error code list

• End 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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Conversion speed	i_Convert_Speed		0 _H : 20 μs	Specify the conversion
setting		Word	1 _H : 80 μs	speed.
			2 _H : 1 ms	

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the conversion
error		DIL	OFF	speed 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetConvertSpeed function block.

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

FB Name

M+Q64ADH_SetADConversion

Item	Description				
Function overview	Enable or disable AD conversion for a specified channel or all channels.				
Symbol		ss—W:i_Start_IO_No	ersion FB_ENO : B — Execution status FB_OK : B — Completed without error FB_ERROR : B — Error flag ERROR_ID : W — Error code		
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH			
		Series	Model		
		MELSEC-Q Series *1	Basic model		
			High performance model		
			Universal model		
		*1 Not applicable to QCPU	J(A mode)		
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
		*1 For software versions a "Relevant manuals".	pplicable to the modules used, refer to		
Programming	Ladder				
language					
Number of steps	258 steps(for MELSEC-	Q series universal model CF	PU)		
	* The number of steps of the FB in a program depends on the CPU model that is used and				
	input and output defin	IUOTI.			

Item	Description				
Function description	1) Enables or disables AD conversion for a specified channel or all channels by turning ON				
	FB_EN(Execution command).				
	2) FB operation is one-shot only, triggered by the FB_EN signal.				
	3) The new setting value will not take effect until the 'operation condition setting request'				
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request				
	FB(M+Q64ADH_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.				
	Refer to the error code explanation section for details.				
Compiling method	Macro type				
Restrictions and	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 Z7, Z8, and Z9. 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 devices connected to the				
	Q64ADH 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 Version 1 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]				
	FREN FBEN FBEN				
	(Execution command) FB_ENO FB_ENO				
	(Execution status) AD conversion enable/disable setting Writing No processing				
	Write processing FB_OK (Completed without error) (Completed without error)				
	FB_ERROR(Error flag) FB_ERROR(Error flag)				
	ERROR_ID(Error code) 0 ERROR_ID(Error code) 0 0				

Item	Description	
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual	
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)	
	GX Works2 Version 1 Operating Manual(Common)	
	GX Works2 Version 1 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 4 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	Specify the starting XY
address			point range. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH		1~4, 15	1~4: Specify a channel
		Word		number.
				15: Specify all channels.
AD conversion	i_AD_Enable		ON,OFF	ON: Enable the AD
enable/disable		Bit		conversion value output.
setting		DIL		OFF: Disable the AD
				conversion value output.

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the AD
error		Bit	OFF	conversion disable/enable 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetADConversion function block.

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

FB Name

M+Q64ADH_SetAverage

Item	Description				
Function overview	Configure averaging processing settings of a specified channel.				
Symbol		ss-W:i_Start_IO_No CH-W:i_CH ng-W:i_Average_Type	FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code		
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH			
		Series	Model		
		MELSEC-Q Series *1	Basic model		
			High performance model		
			Universal model		
		*1 Not applicable to QCPL	J(A mode)		
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
		*1 For software versions a "Relevant manuals".	pplicable to the modules used, refer to		
Programming	Ladder	idder			
language					
Number of steps	317 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) Performs averaging processing for a specified channel by turning ON FB_EN(Execution					
	command).					
	2) FB operation is one-shot only, triggered by the FB_EN signal.					
	3) The new setting value will not take effect until the 'operation condition setting request'					
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request					
	FB(M+Q64ADH_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.					
	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 Z7, Z8, and Z9. 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 devices connected to the					
	Q64ADH 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 Version 1 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) (Execution command)					
	FB_ENO (Execution status) FB_ENO (Execution status)					
	Averaging process setting Write processing Write processing Write processing Write processing Write processing Write processing					
	FB_OK (Completed without error)					
	FB_ERROR(Error flag) FB_ERROR(Error flag) FB_ERROR(Error flag)					
	ERRORJD(Error code) 0 ERRORJD(Error code) 0 V Error code V 0					

Item	Description	
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual	
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)	
	GX Works2 Version 1 Operating Manual(Common)	
	GX Works2 Version 1 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 4.	

Labels

Input labels

Name(comment)	Label name	Data type	Setting range	Description
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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Averaging	i_Average_Type		0 _H : Sampling processing	Specify the averaging
processing type		Word	1 _H : Time average	processing type.
setting		VVOIG	2 _H : Count average	
			3 _H : Moving average	
Time or number of	i_Average_Times		Time average:	Set the time average, count
times setting			2~5,000(ms)	average and moving
		Word	Count average:	average of the specified
		VVOIG	4~62,500(times)	channel.
			Moving average:	
			2~1,000(times)	

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the averaging
error		DIL	OFF	processing settings have been completed.
Error flag	FB_ERROR	Di4	OFF	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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetAverage function block.

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

FB Name

M+Q64ADH_SetScaling

Item	Description				
Function overview	Configure scaling settings of a specified channel.				
Symbol	Target C Scaling enable/disab Scaling upper limit valu	ss—W:i_Start_IO_No CH—W:i_CH F	FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code		
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH			
		Series	Model		
		MELSEC-Q Series *1	Basic model		
			High performance model		
			Universal model		
		*1 Not applicable to QCPU(A mode)			
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
			pplicable to the modules used, refer to		
		"Relevant manuals".			
Programming	Ladder				
language					
Number of steps	253 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	Configure scaling 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 'operation condition setting request'					
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request					
	FB(M+Q64ADH_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.					
	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 Z7, Z8, and Z9. 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 devices connected to the					
	Q64ADH 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 Version 1 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) (Execution command)					
	FB_ENO (Execution status)					
	Scaling setting Write processing Write processing Writing No processing Writing No processing No processing No processing No processing					
	FB_OK (Completed without error)					
	FB_ERROR(Error flag)					
	ERRORJD(Error code) 0 ERRORJD(Error code) 0 V Error code V 0					

Item	Description		
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual		
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)		
	GX Works2 Version 1 Operating Manual(Common)		
	GX Works2 Version 1 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 4.		

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Scaling	i_Scaling_Enable	Dit	ON,OFF	ON: Enable the scaling.
enable/disable		Bit		OFF: Disable the scaling.
Scaling upper limit	i_Scl_U_Lim	Word	-32,000~32,000	Specify the scaling upper
value		vvoid		limit value.
Scaling lower limit	i_Scl_L_Lim	Word	-32,000~32,000	Specify the scaling lower
value		vvoid		limit value.

Output labels

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

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetScaling function block.

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

2.9 M+Q64ADH_SetProcessAlarm(Process alarm setting)

FB Name

M+Q64ADH_SetProcessAlarm

Function Overview

Item	Description				
Function overview	Configure process alarm settings of a specified channel.				
Symbol					
	Execution commar	M+Q64ADH_SetProcessAlarm nd—B:FB_EN FB_ENO:B—Execution status			
		rss—W: i_Start_IO_No FB_OK: B—Completed without error			
			- Error flag		
	_	ble—B: i_Process_Enable			
	Process alarm upper upper lim valu	nit W · i Pro IIII lim			
	Process alarm upper lower limit valu				
	Process alarm lower upper limit valu	ıe—W:i_Pro_LU_Lim			
	Process alarm lower lower limit valu	ue—W:i_Pro_LL_Lim			
Applicable hardware	Analog-Digital	Q64ADH			
and software	converter module	QOANDII			
and software	CPU module				
	Ci o module	Sorios		Model	
		Series Model			
		MELSEC-Q Series *1 Basic model High performance model			
			Universal	model	
		*1 Not applicable to QCPL	J(A mode)		
	Engineering software	GX Works2 *1			
		Language	S	Software version	
		English version	Version1.2	24A or later	
		Chinese version	Version1.4	19B or later	
		*1 For software versions applicable to the modules used, refer to			
		"Relevant manuals".			
Programming	Ladder				
language					
Number of steps	248 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.				
	· ·				

MELSEC-Q High Speed Analog-Digital Converter Module FB Library Reference Manual FBM-M086-A

Item	Description						
Function description	1) Configures process 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 'operation condition setting request'						
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request						
	FB(M+Q64ADH_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.						
	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 Z7, Z8, and Z9. 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 devices connected to the						
	Q64ADH 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 Version 1 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) (Execution command)						
	FB_ENO (Execution status)						
	Process alarm setting Write processing Write processing Write processing Write processing Write processing Write processing						
	FB_OK (Completed without error) FB_OK (Completed without error)						
	FB_ERROR(Error flag) FB_ERROR(Error flag) FB_ERROR(Error flag)						
	ERROR_ID(Error code) 0 ERROR_ID(Error code) 0 V Error code V 0						

Item	Description			
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual			
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)			
	GX Works2 Version 1 Operating Manual(Common)			
	GX Works2 Version 1 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 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Process alarm	i_Process_Enable		ON,OFF	ON: Enable the warning
enable/disable		Dit		output of the process alarm.
		Bit		OFF: Disable the warning
				output of the process alarm.
Process alarm upper	i_Pro_UU_Lim	Word	-32,768~32,767	Specify the process alarm
upper limit value		vvoid		upper upper limit value.
Process alarm upper	i_Pro_UL_Lim	Word	-32,768~32,767	Specify the process alarm
lower limit value		vvoid		upper lower limit value.
Process alarm lower	i_Pro_LU_Lim	Word	-32,768~32,767	Specify the process alarm
upper limit value		vvoiu		lower upper limit value.
Process alarm lower	i_Pro_LL_Lim	Word	-32,768~32,767	Specify the process alarm
lower limit value		vvoiu		lower lower limit value.

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	Bit OFF		When ON, it indicates that the process
error		DIL	OFF	alarm settings have 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetProcessAlarm function block.

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

FB Name

M+Q64ADH_SetInputSignalErr

Item	Description				
Function overview	Configure input signal error detection settings of a specified channel.				
Symbol		SSS—W: i_Start_IO_No CH—W: i_CH ng—W: i_SigErr	rinalErr FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code		
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH			
		Series	Model		
		MELSEC-Q Series *1	Basic model		
			High performance model		
			Universal model		
		*1 Not applicable to QCPL	J(A mode)		
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
		*1 For software versions a "Relevant manuals".	pplicable to the modules used, refer to		
Programming	Ladder				
language					
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 defin	ition.			

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 'operation condition setting request'						
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request						
	FB(M+Q64ADH_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.						
	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, Z6 Z7, Z8, and Z9. 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 devices connected to the						
	Q64ADH 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 Version 1 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) (Execution command)						
	FB.ENO (Execution status) FB.ENO (Execution status)						
	Input signal error detection setting Write processing No processing Writing No processing No processing Write processing						
	FB_OK (Completed without error) (Completed without error)						
	FB_ERROR(Error flag) ERROR[D(Error code) 0 ERROR [D(Error code) 0 Error code) 0						
	ERRORIDŒrror code) 0 ERRORIDŒrror code) 0 € Error code						

Item	Description			
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual			
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)			
	GX Works2 Version 1 Operating Manual(Common)			
	GX Works2 Version 1 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 4.	
11(Decimal)	The input signal error detection extension	Please try again after confirming the setting.
	setting is not valid. The input signal error	
	detection extension setting is not within	
	the range of 0 to 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Input signal error	i_SigErr		0 _H : Disable	Specify the input signal error
detection setting			1 _H : Upper and lower	detection method.
			detection	
		Word	2 _H : Lower detection	
			3 _H : Upper detection	
			4 _H : Disconnection	
			detection	

Name(comment)	Label name	Data	Setting range	Description
		type		
Input signal error	i_SigErrLevel		0~250	Specify the input signal error
detection setting		Word	(Unit: 0.1%)	detection setting value.
value				

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	ENO DE OFF	ON: Execution command is ON.	
		Bit	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the input signal
error		Bit		error detection settings have been
				completed.
Error flag	FB_ERROR	Dit	OFF	When ON, it indicates that an error has
		Bit OFF o	occurred.	
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetInputSignalErr function block.

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

FB Name

M+Q64ADH_RequestSetting

Item	Description		
Function overview	Apply changes made to each function's settings.		
Symbol			FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code
Applicable hardware	Analog-Digital	Q64ADH	
and software	converter module		
	CPU module		
		Series	Model
		MELSEC-Q Series *1	Basic model
			High performance model
			Universal model
		*1 Not applicable to QCPU	J(A mode)
	Engineering software	software GX Works2 *1	
		Language	Software version
		English version	Version1.24A or later
		Chinese version	Version1.49B or later
		*1 For software versions a	pplicable to the modules used, refer to
		"Relevant manuals".	
Programming	Ladder		
language			
Number of steps	170 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	nition.	

Item	Description		
Function description	1) Enables settings of all channels by turning on FB_EN(Execution command).		
	For information on the settings that are enabled, refer to the MELSEC-Q Analog-Digital		
	Converter 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, AD conversion processing is stopped. After turning ON		
	FB_OK, the conversion processing resumes.		
	7) When this FB is used in two or more places, a duplicated coil warning will occur during		
	compile operation due to the Y signal being operated by index modification. However		
	this is not a problem and the FB will operate without error.		
	8) The input range settings must be properly configured to match devices connected to the		
	Q64ADH 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 Version 1 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 requestryn9) Operation condition setting completed flag(Xn9) FB_OK (Completed without error) FB_ERROR(Error flag) ERRORJD(Error code) 0		

Item	Description	
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual	
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)	
	GX Works2 Version 1 Operating Manual(Common)	
	GX Works2 Version 1 Operating Manual(Simple Project, Function Block)	

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	Bit	ON,OFF	ON: The FB is activated.
		DIL		OFF: The FB is not activated.
Module start XY	i_Start_IO_No		Depends on the	Specify the starting XY address(in
address			I/O point range.	hexadecimal) where the Q64ADH
		Word	For details, refer	module is mounted.(For example,
			to the CPU user's	enter H10 for X10.)
			manual.	

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		BIT	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF When ON, it indicates that the open	When ON, it indicates that the operational
error			OFF	condition settings have 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_RequestSetting function block.

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

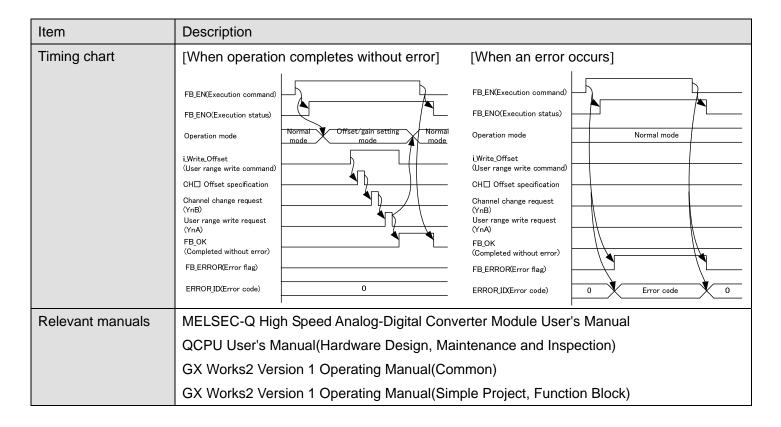
2.12 M+Q64ADH_SetOffsetVal(Offset setting)

FB Name

M+Q64ADH_SetOffsetVal

Item	Description			
Function overview	Set the offset value of a specified channel to the current analog value.			
Symbol		s	FB_ENO: B — Execution status FB_OK: B — Completed without error B_ERROR: B — Error flag ERROR_ID: W — Error code	
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH		
		Series	Model	
		MELSEC-Q Series *1	Basic model	
			High performance model	
			Universal model	
		*1 Not applicable to QCPU	(A mode)	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For software versions ap	oplicable to the modules used, refer to	
Programming	Ladder			
language				
Number of steps	369 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 to the current analog value 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.
	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 Z7, Z8, and Z9. 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 devices connected to the
	Q64ADH 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 Version 1 Operating Manual(Common).
FB operation type	Pulse execution type [multiple scan execution type]
Application example	Refer to "Appendix 1 - FB Library Application examples".



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 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	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		D:4		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	Dit	OFF	ON: Execution command is ON.
		Bit OFF		OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the offset settings
error		DIL	OFF	have 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetOffsetVal function block.

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

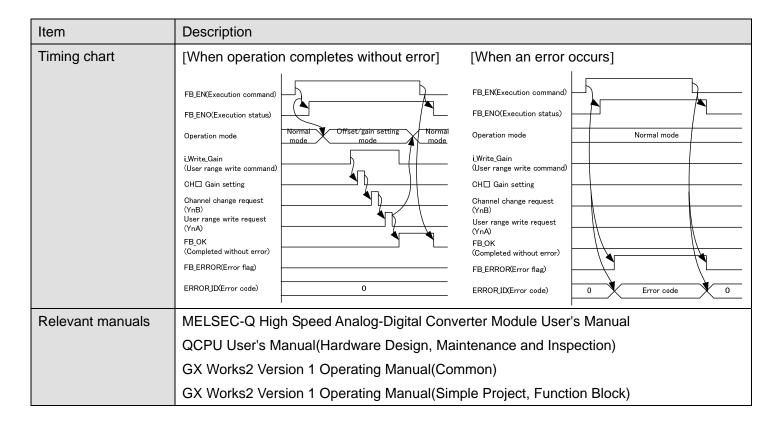
2.13 M+Q64ADH_SetGainVal(Gain setting)

FB Name

M+Q64ADH_SetGainVal

Item	Description					
Function overview	Set the gain value of a specified channel to the current analog value.					
Symbol		s	FB_ENO: B — Execution status FB_OK: B — Completed without error B_ERROR: B — Error flag ERROR_ID: W — Error code			
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH				
		Series	Model			
		MELSEC-Q Series *1	Basic model			
			High performance model			
			Universal model			
		*1 Not applicable to QCPU	(A mode)			
	Engineering software	GX Works2 *1				
		Language	Software version			
		English version	Version1.24A or later			
		Chinese version	Version1.49B or later			
		*1 For software versions applicable to the modules used, refer to "Relevant manuals".				
Programming	Ladder					
language						
Number of steps	356 steps(for MELSEC-	Q series universal model CP	PU)			
	* The number of steps of the FB in a program depends on the CPU model that is used and					
	input and output defin	IUON.				

Item	Description
Function description	1) Sets the gain value of a specified channel to the current analog value 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.
	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 Z7, Z8, and Z9. 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 devices connected to the
	Q64ADH 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
FD	switch setting, refer to GX Works2 Version 1 Operating Manual(Common).
FB operation type	Pulse execution type [multiple scan execution type]
Application example	Refer to "Appendix 1 - FB Library Application examples".



Error code list

<u> </u>		
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 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	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		D:4		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	Dit	OFF	ON: Execution command is ON.
		Bit OFF		OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the gain settings
error		DIL	OFF	have 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetGainVal function block.

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

2.14 M+Q64ADH_SetShift(Shift setting)

FB Name

M+Q64ADH_SetShift

Item	Description						
Function overview	Perform the shift setting of a specified channel.						
Symbol	Execution comman	M+Q64ADH_SetShif id—B:FB_EN is—W:i_Start_IO_No H—W:i_CH F	t FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code				
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH					
		Series	Model				
		MELSEC-Q Series *1	Basic model				
			High performance model				
			Universal model				
		*1 Not applicable to QCPU	(A mode)				
	Engineering software	GX Works2 *1					
		Language	Software version				
		English version	Version1.24A or later				
		Chinese version	Version1.49B or later				
		*1 For software versions applicable to the modules used, refer to "Relevant manuals".					
Programming	Ladder						
language							
Number of steps	198 steps(for MELSEC-0	Q series universal model CF	PU)				
	* 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	1) Performs the shift setting of a specified channel when the FB_EN(Execution command)					
	is turned ON.					
	2) FB operation is one-shot only, triggered by the FB_EN signal.					
	3) 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.					
	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 Z7, Z8, and Z9. 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 devices connected to the					
	Q64ADH 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 Version 1 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_EN(Execution command)					
	FB_ENCXExecution status) FB_ENCXExecution status)					
	Shift setting write processing No processing					
	FB_OK(Completed without error) FB_OK(Completed without error)					
	FB_ERROR(Error flag) FB_ERROR(Error flag)					
Delevent menuals	ERROR_ID(Error code) 0 ERROR_ID(Error code) 0 V Error code V 0					
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual					
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)					
	GX Works2 Version 1 Operating Manual(Common) GX Works2 Version 1 Operating Manual(Simple Broiset Eugetian Block)					
	GX Works2 Version 1 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 4.	

Labels

Input labels

Name(comment)	Label name	Data	Setting range	Description
		type		
Execution	FB_EN		ON,OFF	ON: The FB is activated.
command		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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Shifting amount to	i_ShiftValue	Word	-32,768~32,767	Specify the shifting amount
conversion value		vvoid		to conversion value.

Output labels

Name(comment)	Label name	Data	Initial	Description
Tramo(oommont)	Labornamo			Besonption
		type	value	
Execution status	FB_ENO	Dit	OFF	ON: Execution command is ON.
		Bit OFF		OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the shift setting
error		DIL	OFF	has been completed.
Error flag	FB_ERROR	Dit OFF		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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetShift function block.

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

2.15 M+Q64ADH_ErrorOperation(Error operation)

FB Name

M+Q64ADH_ErrorOperation

Item	Description				
Function overview	Perform monitoring and reset of error codes.				
Symbol	Execution command Module start XY address Error reset command	s—W:i_Start_IO_No d—B:i_ErrorReset o_U o_UNIT_EI	tion FB_ENO: B — Execution status FB_OK: B — Completed without error UNIT_ERR: B — Module error flag RR_CODE: W — Module error code B_ERROR: B — Error flag ERROR_ID: W — Error code		
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH			
		Series Model			
		MELSEC-Q Series *1	Basic model		
			High performance model		
		Universal model			
		*1 Not applicable to QCPU(A mode)			
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
		*1 For software versions ap "Relevant manuals".	oplicable to the modules used, refer to		
Programming language	Ladder				
Number of steps	224 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 definit	tion.			

Item	Description						
Function description	1) By turning on FB_EN(Execution command), the current error code in the target						
	intelligent function module is output.						
	2) After turning ON FB_EN, the error may be reset by turning ON i_ErrorReset(Error reset						
	command) 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 Z8 and Z9. 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 devices connected to the						
	Q64ADH 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 Version 1 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)						
	i ErrorReset (Error reset request)						
	Error clear request(YnF)						
	Error flag(XnF)						
	o_UNIT_ERR (Module error flag)						
	O_UNIT_ERR_CODE 0 Module error code 0						
	(Module error code) FB_OK(Completed without error)						
	FB_ERROR(Error flag)						
	ERROR_ID(Error code) 0						

Item	Description	
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual	
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)	
	GX Works2 Version 1 Operating Manual(Common)	
	GX Works2 Version 1 Operating Manual(Simple Project, Function Block)	

Error code list

Error code	Description	Action
None	None	None

Labels

Input labels

Name(comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Error reset	i_ErrorReset		ON,OFF	ON: Turn ON the error clear
command				request of the module.
				OFF: Turn OFF the error
		Bit		clear request of the module.
				*After error reset is
				completed, please turn
				this input OFF.

Output labels

- Output labels				
Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Dit	OFF	ON: Execution command is ON.
		Bit	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	D:4	OFF	When ON, it indicates that the error reset is
error		Bit	OFF	completed.

Name(comment)	Label name	Data	Initial	Description
		type	value	
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_COD	Word	0	Specified module error code output
	E	vvoid	U	
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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_ErrorOperation function block.

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

FB Name

M+Q64ADH_SetDigitalClip

Item	Description				
Function overview	Enable or disable the digital clipping of a specified channel.				
Symbol		ss—W:i_Start_IO_No	Clip FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code		
Applicable hardware	Analog-Digital	Q64ADH			
and software	converter module				
	CPU module				
		Series	Model		
		MELSEC-Q Series *1	Basic model		
			High performance model		
		Universal model			
		*1 Not applicable to QCPU(A mode)			
	Engineering software	GX Works2 *1			
		Language	Software version		
		English version	Version1.24A or later		
		Chinese version	Version1.49B or later		
		*1 For software versions ap	oplicable to the modules used, refer to		
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	1) Enables or disables the digital clipping of a specified channel by turning ON the				
	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 'operation condition setting request'				
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request				
	FB(M+Q64ADH_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.				
	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) This FB uses index registers Z7, Z8, and Z9. 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 devices connected to the				
	Q64ADH 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 Version 1 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_EN(Execution command)				
	FB_ENO(Execution status) FB_ENO(Execution status)				
	Digital clipping setting Write processing Write processing Write processing Write processing No processing No processing				
	FB_OK(Completed without FB_OK(Completed without				
	error) FB_ERROR(Error flag) FB_ERROR(Error flag)				
	ERROR_IDXError code) 0 ERROR_IDXError code) 0				
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual				
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)				
	GX Works2 Version 1 Operating Manual(Common)				
	GX Works2 Version 1 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 4.		

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Digital clipping	i_SetDigiClip		ON,OFF	ON: Enable the digital
enable/disable		Bit		clipping function.
setting		DIL		OFF: Disable the digital
				clipping function.

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Dit	OFF	ON: Execution command is ON.
		Bit OFF		OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the digital
error		DIL	OFF	clipping setting has been completed.
Error flag	FB_ERROR	Di4	OFF	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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetDigitalClip function block.

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

2.17 M+Q64ADH_SetLoggingPARAM(Logging function parameter setting)

FB Name

 $M+Q64ADH_SetLoggingPARAM$

Item	Description				
Function overview	Perform the logging function of a specified channel.				
Symbol	Execution comma	M+Q64ADH_SetLoggin	gPARAM FB_ENO : B — Execution status		
	Module start XY addre	ess—W:i_Start_IO_No	FB_OK: B—Completed without error		
	Target 0	CH—W:i_CH	FB_ERROR: B—Error flag		
	Logging enable/disable setti	ng—B: i_Log_Enable	ERROR_ID: W—Error code		
	Logging data setti	ng—W: i_Log_Data			
	Logging cycle setting val	ue—W:i_Log_Cycle_Val			
	Logging cycle unit setti	ng—W: i_Log_Cycle_Unit			
	Logging points after trigg	ger—W:i_Log_Points			
	Level trigger condition setti	ng—W:i_Log_Trig_Cond			
	Trigger da	ata—W:i_Log_Trig_Data			
	Trigger setting val	ue—W:i_Log_Trig_Value			
Applicable hardware	Analog-Digital	Q64ADH			
and software	converter module				
	CPU module				
		Series	Model		
		MELSEC-Q Series *1	Basic model		
			High performance model		
			Universal model		
		*1 Not applicable to QCP	PU(A mode)		
Applicable hardware	Engineering software	GX Works2 *1			
and software		Language	Software version		
		English version Version1.24A or later			
		Chinese version Version1.49B or later			
		*1 For software versions applicable to the modules used, refer to			
		"Relevant manuals".			
Programming	Ladder				
language					

Item	Description				
Number of steps	278 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	Performs the logging function of a specified channel when the FB_EN(Execution				
	command) is turned ON.				
	2) FB operation is one-shot only, triggered by the FB_EN signal.				
	3) The new setting value will not take effect until the 'operation condition setting request'				
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request				
	FB(M+Q64ADH_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.				
	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 Z7, Z8, and Z9. 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 devices connected to the				
	Q64ADH 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 Version 1 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_EN(Execution command)				
	FB_ENO(Execution status) FB_ENO(Execution status)				
	Logging function parameter setting Write processing Write processing Write processing Write processing Write processing Write processing				
	FB_OK(Completed without error) FB_OK(Completed without error)				
	FB_ERROR(Error flag) FB_ERROR(Error flag)				
	ERROR_ID(Error code) 0 ERROR_ID(Error code) 0 VError code 0				

Item	Description	
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual	
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)	
	GX Works2 Version 1 Operating Manual(Common)	
	GX Works2 Version 1 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 4.		

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Logging	i_Log_Enable		ON,OFF	ON: Enable the logging
enable/disable		Bit		function.
setting		DIL		OFF: Disable the logging
				function.
Logging data setting	i_Log_Data	Word	0: Digital output value	Set the data to be logged.
		vvoid	1: Digital operation value	

Name(comment)	Label name	Data	Setting range	Description
		type		
Logging cycle	i_Log_Cycle_Val		1) Logging cycle unit	Set the cycle to store data.
setting value			setting=0(μs):	
		Word	80~32,767	
			2) Logging cycle unit	
			setting =1(ms):	
			1~32,767	
			3) Logging cycle unit	
			setting =2(s): 1~3,600	
Logging cycle unit	i_Log_Cycle_Unit		0: μs	Specify the cycle unit to
setting		Word	1: ms	store data.
			2: s	
Logging points after	i_Log_Points		1~10,000	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		Mord	1: Above	trigger or not. If used, set the
		Word	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	\\\/ a = a	-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 is ON.	
			OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the logging
error		Bit OFF		function parameter setting has been
				completed.
Error flag	FB_ERROR	Dit Of	OFF	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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetLoggingPARAM function block.

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

FB Name

M+Q64ADH_SaveLogging

Function Overview

Item	Description		
Function overview	Save the logging data of a specified channel in a file.		
Symbol	Target C		FB_ENO: B — Execution status FB_OK: B — Completed without error aking_File: B — Creating file d_Number: B — Maximum No. reached flag B_ERROR: B — Error flag RROR_ID: W — Error code
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH	
		Series	Model
		MELSEC-Q Series *1	High performance model
			Universal model *2
		*1 Not applicable to QCPU(A mode)
		*2 Not applicable to Q00UJ	CPU, Q00UCPU, or Q01UCPU
		because memory cards of	cannot be mounted on them.
	Engineering software	GX Works2 *1	
		Language	Software version
		English version	Version1.24A or later
		Chinese version	Version1.49B or later
		*1 For software versions ap	plicable to the modules used, refer to
		"Relevant manuals".	
Programming language	Ladder		
Number of steps	1737 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) 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 "AD" + "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 "AD453006.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
	ATA card, the existing file is replaced by a new file.
	6) If i_Over_Write(Overwrite save command) is turned ON and the number of files the FB
	saved in the 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 the 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 the 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).

Item	Description	
Function description	10) If the FB is executed without mounting an ATA card, if the mounted ATA card does not	
	have sufficient space, or if the number of files that can be saved is exceeded *1, 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 and the error code is stored in ERROR_ID.	
	11) For information on the format of the CSV file the FB creates, refer to the MELSEC-Q	
	High Speed Analog-Digital Converter Module User's Manual.	
	*1 For information on the size of ATA card and the number of files that can be saved, refe	
	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, Z6, Z7, Z8, and Z9. 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).	
	mopoulony.	

Item	Description				
Restrictions and	10) The input range settings must be properly configured to match devices connected to				
precautions	the Q64ADH 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 Version 1 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_ENCExecution command) FB_ENCExecution status) Logging hold flag O_Making_File(Creating file) FB_ONCOmpleted without error) O_Exceed Number (Maximum No. reached) FB_ERROREror flag) ERRORID(Error flag) ERRORID(Error code) 0 ERRORID(Error code) 0 ERRORID(Error code) 0 ERRORID(Error code)				
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual QCPU User's Manual(Hardware Design, Maintenance and Inspection) GX Works2 Version 1 Operating Manual(Common) GX Works2 Version 1 Operating Manual(Simple Broiset, Eugetian Block)				
	GX Works2 Version 1 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 4.	
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.	
	An incomplete CSV file is saved in the	
	ATA card.	
4-digit error code	CPU error code	For details on the error codes for errors
		occurring, refer to Appendix 1 Error Code List
		in the QCPU User's Manual(Hardware
		Design, Maintenance and Inspection).

Labels

Input labels

Name(comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON,OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address(in hexadecimal) where the Q64ADH module is mounted.(For example, enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Maximum No. of save files	i_Max_Number	Word	1~511	Specify the maximum number of CSV files the FB saves.
Overwrite save command	i_Over_Write	Bit	ON,OFF	Set whether to overwrite a CSV file with the youngest serial number when the number of CSV files saved by this FB exceeds the maximum number of save files. (When OFF, the save processing of logging data stops.)

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL		OFF: Execution command is OFF.
Completed without	FB_OK		OFF	When ON, it indicates that the file saving
error		Bit		has been completed.
				Turned OFF when the logging resumes.
Creating file	o_Making_File	Dit	OFF	When ON, it indicates that a file is being
		Bit		created.

Name(comment)	Label name	Data	Initial	Description
		type	value	
Maximum No.	o_Exceed_Number		OFF	When ON, it indicates that the number of
reached flag		Bit		CSV files saved by this FB has reached the
				maximum number of save files.
Error flag	FB_ERROR	Bit	OFF	When ON, it indicates that an error has
		DIL		occurred.
Error code	ERROR_ID	Word	0	FB error code output

FB Version Upgrade History

Version	Date	Description
1.00A	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SaveLogging function block.

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

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

2.19 M+Q64ADH_SetFlowRatePARAM(Flow amount integration function parameter setting)

FB Name

M+Q64ADH_SetFlowRatePARAM

Function Overview

Item	Description		
Function overview	Set the flow amount integration function of a specified channel.		
Symbol	Target C Flow amount integration enable/disable setting Integration cycle setting Flow amount time unit setting	w: i_Start_IO_No H—w: i_CH pon B: i_FRI_Enable ng—w: i_FRI_Cycle_Val	PARAM FB_ENO: B — Execution status FB_OK: B — Completed without error FB_ERROR: B — Error flag ERROR_ID: W — Error code
Applicable hardware	Analog-Digital	Q64ADH	
and software	converter module		
	CPU module		
		Series	Model
		MELSEC-Q Series *1	Basic model
			High performance model
			Universal model
		*1 Not applicable to QCPU	(A mode)
	Engineering software	GX Works2 *1	
		Language	Software version
		English version	Version1.24A or later
		Chinese version	Version1.49B or later
		*1 For software versions ap	oplicable to the modules used, refer to
		"Relevant manuals".	
Programming language	Ladder		
Number of steps	270 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) Sets the flow amount integration function of a specified channel when the			
	FB_EN(Execution command) is turned ON.			
	2) FB operation is one-shot only, triggered by the FB_EN signal.			
	3) The new setting value will not take effect until the 'operation condition setting request'			
	signal(Yn9) is turned OFF->ON->OFF or the Operation condition setting request			
	FB(M+Q64ADH_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.			
	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 Z7, Z8, and Z9. 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 devices connected to the			
	Q64ADH 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 Version 1 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_EN(Execution command)			
	FB_ENO(Execution status) FB_ENO(Execution status)			
	Flow amount integration function parameter setting Writing No processing Writing No processing Write Wri			
	FB_OK(Completed without error) FB_OK(Completed without error)			
	FB_ERROR(Error flag) FB_ERROR(Error flag) FB_ERROR(Error flag) FB_ERROR(Error code) O ERROR ID(Error code) O Error code			
	ERROR ID(Error code) 0 ERROR ID(Error code) 0 Fror code 0			

Item	Description	
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual	
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)	
	GX Works2 Version 1 Operating Manual(Common)	
	GX Works2 Version 1 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 4.	

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. For details,	address(in hexadecimal)
		Word	refer to the CPU user's	where the Q64ADH module
			manual.	is mounted.(For example,
				enter H10 for X10.)
Target CH	i_CH	Word	1~4	Specify the channel number.
Flow amount	i_FRI_Enable		ON,OFF	ON: Enable the flow amount
integration		Bit		integration function.
enable/disable		DIL		OFF: Disable the flow
setting				amount integration function.
Integration cycle	i_FRI_Cycle_Val	Word	1~5,000(ms)	Set the cycle for flow
setting		vvoid		amount integration.
Flow amount time	i_F_Time_Unit		0: /s	Set the range(time unit) of
unit setting		Word	1: /min	the flow meter.
			2: /h	

Name(comment)	Label name	Data	Setting range	Description
		type		
Unit scaling setting	i_F_Scale		0: ×1	Specify the unit scale to
			1: ×10	calculate the integrated flow
		Word	2: ×100	amount.
			3: ×1,000	
			4: ×10,000	

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the flow amount
error		Bit	OFF	integration function parameter 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	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_SetFlowRatePARAM function block.

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

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

FB Name

M+Q64ADH_MakeFlowRateDailyReport

Function Overview

Item	Description			
Function overview	Save the flow amount daily report data of all channels in a file.			
Symbol		F	ailyReport FB_ENO : B — Execution status FB_OK : B — Completed without error Making_File : B — Creating file FB_ERROR : B — Error flag ERROR_ID : W — Error code	
Applicable hardware and software	Analog-Digital converter module CPU module	Q64ADH		
		Series	Model	
		MELSEC-Q Series *1	High performance model	
			Universal model *2	
			(A mode) JCPU, Q00UCPU, or Q01UCPU cannot be mounted on them.	
	Engineering software	GX Works2 *1		
		Language	Software version	
		English version	Version1.24A or later	
		Chinese version	Version1.49B or later	
		*1 For software versions ap	pplicable to the modules used, refer to	
Programming language	Ladder			
Number of steps	1565 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	1) By turning ON FB_EN(Execution command), the "flow amount per hour" that flows on
	the hour for 24 hours and the "total flow amount of the day" are calculated based on the
	integrated flow amount(Un\G1332~Un\G1339) of the Q64ADH. Then, they are saved in
	a flow amount daily report file in CSV format. The flow amount daily report is saved in the
	ATA card mounted on the CPU module.
	2) When FB_EN is ON, a flow amount daily report is created at 12 am every day. The
	process to create a flow amount daily report starts when the FB detects the change from
	11 pm to 12 am.
	3) It requires multiple scans to complete the save processing of the flow amount daily
	report data. o_Making_File(Creating file) is turned ON while the flow amount daily report data is being saved.
	4) By executing a single FB, a flow amount daily report for all channels of a module can be
	created.
	5) The format for the file name that the FB saves in an ATA card is "second and third digits
	of the module starting XY address that is expressed in 4 digits" + "lower two digits of the
	year the daily report is created " + "month and day the daily report is created" +" .CSV".
	[File name example]
	The file name is "45110601.CSV" when the module starting XY address is H0450 and
	the daily report was created on June 1, 2011.
	6) When the FB creates a CSV file in an ATA card, if the same file is already in the ATA
	card(e.g. the clock information of the CPU is changed), the existing file is replaced by a new file.
	7) If the FB is executed without mounting an ATA card, if the mounted ATA card does not
	have sufficient space, or if the number of files that can be saved is exceeded *1, 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 and the error code is stored in ERROR_ID.
	8) For information on the format of the CSV file the FB creates, refer to the MELSEC-Q
	High Speed Analog-Digital Converter 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

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 Z8 and Z9. Please do not use these index registers in an			
	interrupt program.			
	5) This FB can save flow amount daily report 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) This FB uses the clock information of the CPU to calculate the "flow amount per hour"			
	and "total flow amount of the day". If the clock information of the CPU is changed while			
	this FB is being performed, the processing to create a flow amount daily report may not			
	be performed normally.			
	8) Every input must be provided a value for proper FB operation.			
	9) If the size of ATA card or the number of files that can be saved is exceeded by executing			
	this FB, 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 devices connected to			
	10) The input range settings must be properly configured to match devices connected to			
	the Q64ADH 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 Version 1 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]			
Tilling Graft	[when operation completes without error]			
	FB_EN(Execution command) FB_EN(Execution command)			
	FB_ENC(Execution status) FB_ENC(Execution status)			
	o_Making_File(Creating file) FB_OK(Completed without			
	error) FB_ERROR(Error flag) FB_ERROR(Error flag)			
	ERRORJD(Error code) 0 ERRORJD(Error code) 0 Error code			
Relevant manuals	MELSEC-Q High Speed Analog-Digital Converter Module User's Manual			
	QCPU User's Manual(Hardware Design, Maintenance and Inspection)			
	GX Works2 Version 1 Operating Manual(Common)			
	GX Works2 Version 1 Operating Manual(Simple Project, Function Block)			

Error Codes

Error code list

Error code	Description	Action
4-digit error code	CPU error code	For details on the error codes for errors
		occurring, 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	Bit	ON,OFF	ON: The FB is activated.
		DIL		OFF: The FB is not activated.
Module start XY	i_Start_IO_No		Depends on the	Specify the starting XY address(in
address			I/O point range.	hexadecimal) where the Q64ADH
		Word	For details,	module is mounted.(For example,
			refer to the CPU	enter H10 for X10.)
			user's manual.	

Output labels

Name(comment)	Label name	Data	Initial	Description
		type	value	
Execution status	FB_ENO	Di OFF		ON: Execution command is ON.
		Bit	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	Di4	OFF	When ON, it indicates that the creation of the
error		Bit OFF		flow amount daily report has been completed.
Creating file	o_Making_File	Dit	OFF	When ON, it indicates that a file is being
				created.
Error flag	FB_ERROR	Dit OFF	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

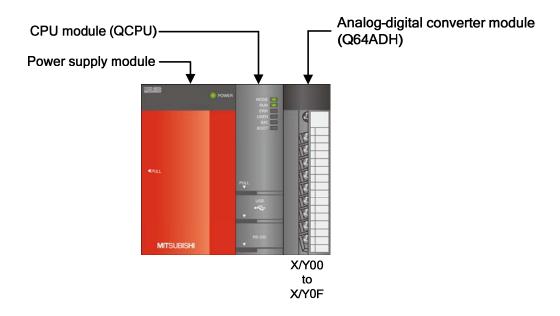
Version	Date	Description
1.00A	2012/03/26	First edition

Note

This chapter includes information related to the M+Q64ADH_MakeFlowRateDailyReport function block. It does not include information on restrictions of use such as combination with intelligent function modules or programmable controller CPUs.

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

System Configuration Examples



Reminder

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

List of devices

External input (commands)

	l input (commands)	
Device	FB function name	Application (ON details)
M0	Read AD conversion data	AD conversion data read request
M10	Read all AD conversion data	All AD conversion data read request
M20	Read digital operation value	Digital operation value read request
M30	Read all digital operation	All digital operation value read request
M40	Conversion speed setting	Conversion speed setting request
M50		AD conversion enable/disable setting
	Enable/disable AD conversion	request
M51		AD conversion enable/disable setting
M60	Averaging process setting	Averaging process setting request
M70	Scaling setting	Scaling setting request
M71	Scaling Setting	Scaling enable/disable
M80	Process alarm setting	Process alarm setting request
M81	Frocess alaini setting	Process alarm enable/disable
M90	Input signal error detection	Input signal error detection setting
M100	Operation condition setting request	Operation condition setting request
M110	Offset setting	Offset setting request
M111	Offset setting	Offset value write request
M120	Gain setting	Gain setting request
M121	Gain setting	Gain value write request
M130	Shift setting	Shift setting request
M140	Error operation	Error operation request
M141	Ellor operation	Error reset request
M150	Digital clipping setting	Digital clipping setting request
M151	0 11 0 0	Digital clipping enable/disable setting
M160	Logging function parameter	Logging function parameter setting
M161	setting	Logging enable/disable setting
M170	Logging data save	Logging data save request
M171		Logging file overwrite enable/disable
M180		Flow amount integration function
IVITOU	Flow amount integration	parameter setting request
M181	function parameter setting	Flow amount integration enable/disable setting
M190	Flow amount daily report	Daily report creation request

Data register

Dala IE	giotoi	
Device	FB function name	Application (ON details)
D0	Read AD conversion data	AD conversion data
D1	Read AD Conversion data	AD conversion data read FB error code
D10		CH1 AD conversion data
D11	Read all AD conversion data	CH2 AD conversion data
D12	Read all AD Conversion data	CH3 AD conversion data
D13		CH4 AD conversion data
D20	Read digital operation value	Digital operation value
D21	Read digital operation value	Digital operation value FB error code
D30		CH1 digital operation value
D31	Read all digital operation	CH2 digital operation value
D32	values	CH3 digital operation value
D33		CH4 digital operation value
D50	Enable/disable AD conversion	AD conversion enable/disable FB error
טפט	Enable/disable AD conversion	code
D60	Averaging process setting	Averaging process setting FB error
D70	Scaling setting	Scaling setting FB error code
D80	Process alarm setting	Process alarm FB error code
D90	Input signal error detection	Input signal error detection FB error
D110	Offset setting	Offset setting FB error code
D120	Gain setting	Gain setting FB error code
D130	Shift setting	Shift setting FB error code
D140	Error operation	Module error code
D150	Digital clipping setting	Digital clipping FB error code
D160	Logging function parameter	Logging parameter FB error code
D170	Logging data save	Logging data save FB error code
	Flow amount integration	Flow amount integration parameter FB
	function parameter setting	error code
D190	Flow amount daily report	Daily report creation FB error code

External output (checks)

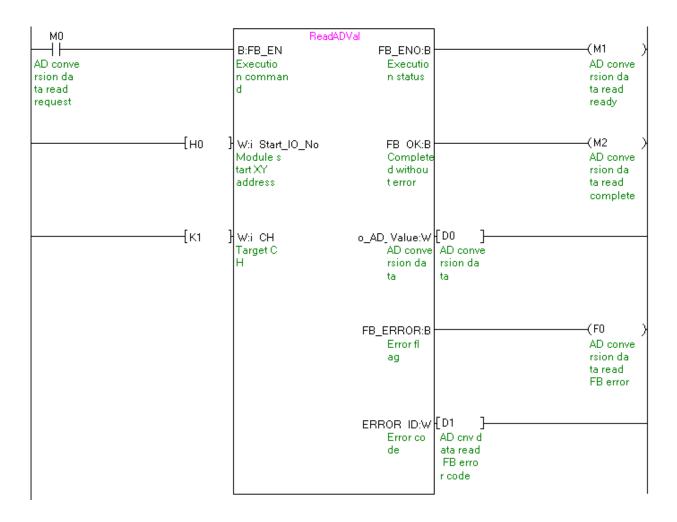
Externa	l output (checks)	
Device	FB function name	Application (ON details)
M1		AD conversion data read ready
M2	Read AD conversion data	AD conversion data read complete
F0		AD conversion data read FB error
M11 M12	Read all AD conversion data	All AD conversion data read ready All AD conversion data read complete
M21		
	Read digital operation value	Digital operation value read ready
M22 F5		Digital operation value read complete Digital operation value FB error
M31	Read all digital operation	All digital operation value read ready
M32	values	All digital operation value read
M41	Conversion speed setting	Conversion speed setting ready
M42	Conversion speed setting	Conversion speed setting complete
M52		AD conversion enable/disable setting
M53	Enable/disable AD conversion	AD conversion enable/disable setting request complete
F10		AD conversion enable/disable FB error
M61		Averaging process setting ready
M62	Averaging process setting	Averaging process setting complete
F15		Averaging process setting FB error
M72		Scaling setting ready
M73	Scaling setting	Scaling setting complete
F20		Scaling setting FB error
M82	<u> </u>	Process alarm setting ready
M83	Process alarm setting	Process alarm setting complete
F25		Process alarm setting FB error
M91	lanut cianal arrar dataction	Input signal error detection setting
M92	Input signal error detection	Input signal error detection setting
F30	setting	complete Input signal error detection setting FB
F30		Operation condition setting request
M101	Operation condition setting	ready
	request	Operation condition setting request
M102	1044001	setting complete
M112		Offset setting ready
M113	Offset setting	Offset setting complete
F35		Offset setting FB error
M122		Gain setting ready
M123	Gain setting	Gain setting complete
F40		Gain setting FB error
M131	A. 16.	Shift setting ready
M132	Shift setting	Shift setting complete
F45		Shift setting FB error
M142	Francoscion	Error operation ready
M143	Error operation	Error operation complete
M144 M152		Module error flag Digital clipping setting ready
M153	Digital clipping setting	Digital clipping setting ready Digital clipping setting complete
F50	Digital dippling setting	Digital clipping FB error
M162		Logging function parameter setting
	Logging function parameter	Logging function parameter setting
M163	setting	complete
F55		Logging parameter FB error
M172		Logging data save ready complete
M173		Logging data save complete
M174	Logging data save	Logging data saving
M175		Maximum No. of logging files reached
F60		Logging data save FB error
M182		Flow amount integration function parameter setting ready
M183	Flow amount integration	Flow amount integration function
.,,,,,,,,	function parameter setting	parameter setting complete
F65		Flow amount integration parameter FB
		error
M191		Daily report creation ready
M192	Flow amount daily report	Daily report creation complete
M193	creation	Daily report creating
F70		Daily report creation FB error

Program

M+Q64ADH_ReadADVal(Read AD conversion data)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.

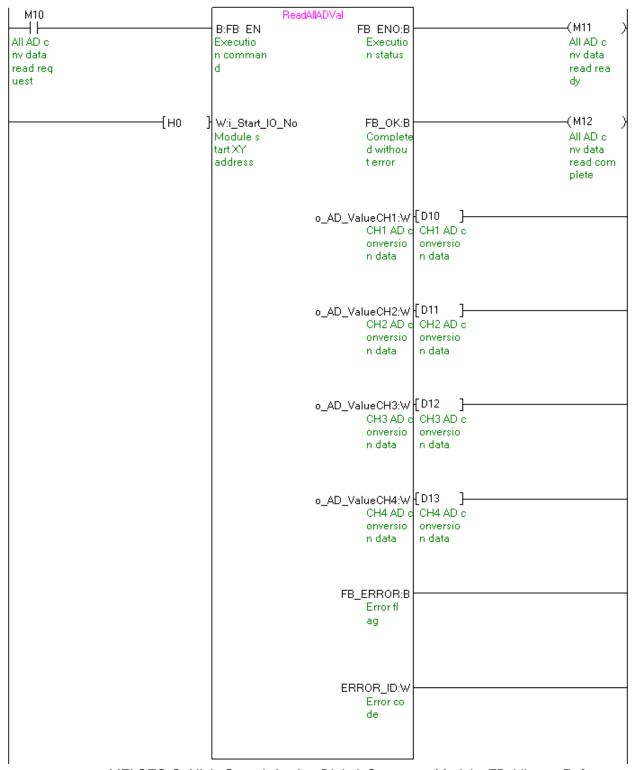
By turning ON M0, the AD conversion data of channel 1 is read.



M+Q64ADH_ReadAllADVal(Read all AD conversion data)

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.

By turning ON M10, AD conversion data of all channels are read.

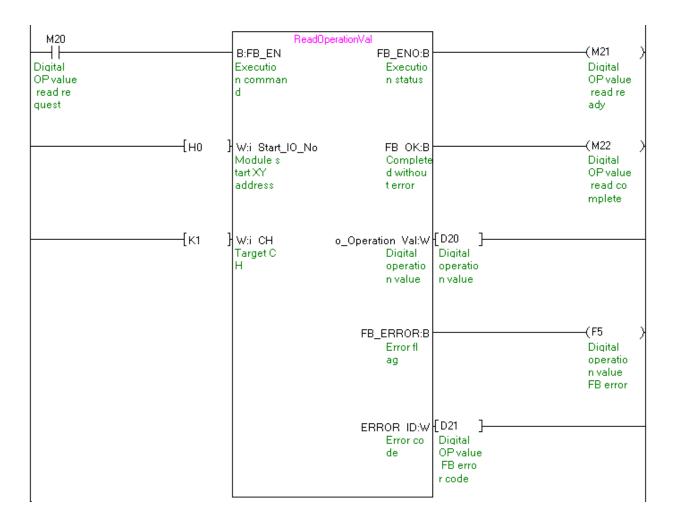


MELSEC-Q High Speed Analog-Digital Converter Module FB Library Reference Manual FBM-M086-A

M+Q64ADH_ReadOperationVal(Read digital operation value)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.

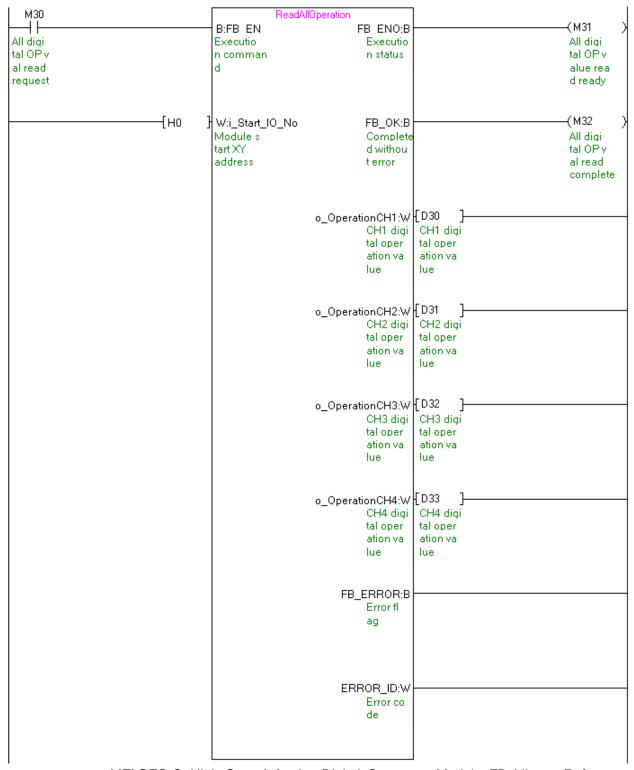
By turning ON M20, the digital operation value of channel 1 is read.



M+Q64ADH_ReadAllOperationVal(Read all digital operation values)

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.

By turning ON M30, the digital operation values of all channels are read.

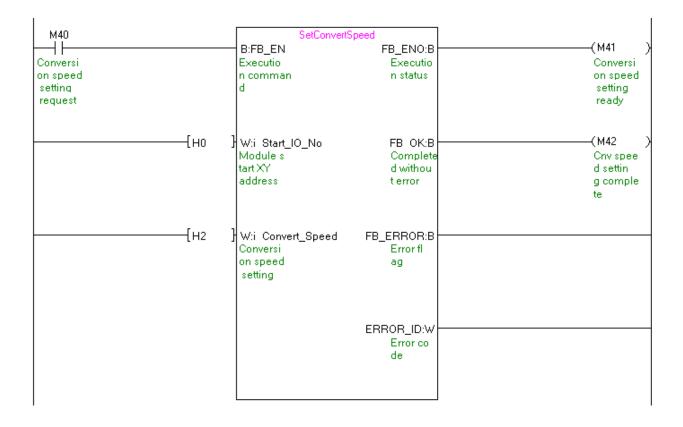


MELSEC-Q High Speed Analog-Digital Converter Module FB Library Reference Manual FBM-M086-A

M+Q64ADH_SetConvertSpeed(Conversion speed setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_Convert_Speed	H2	Set the conversion speed of all channels to 1 ms.

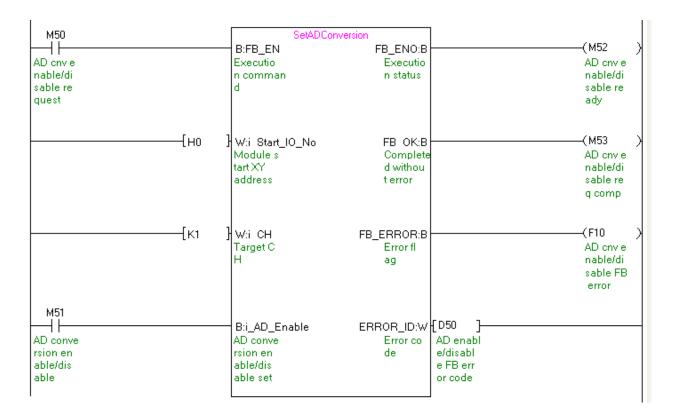
By turning ON M40, the conversion speed setting value is written to the buffer memory.



M+Q64ADH_SetADConversion(Enable/disable AD conversion)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_AD_Enable	ON/OFF	Turn ON this parameter to enable the AD conversion of the target channel.

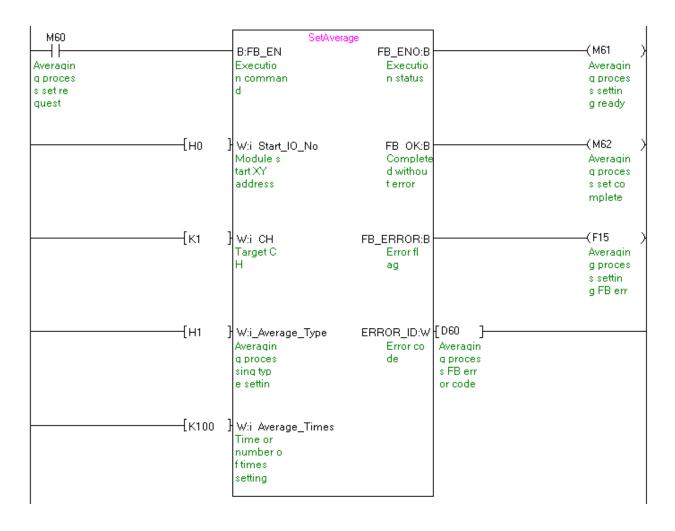
By turning ON M50, the AD conversion enable/disable setting value of channel 1 is written to the buffer memory.



M+Q64ADH_SetAverage(Averaging process setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH 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	K100	Set the time average to 100.

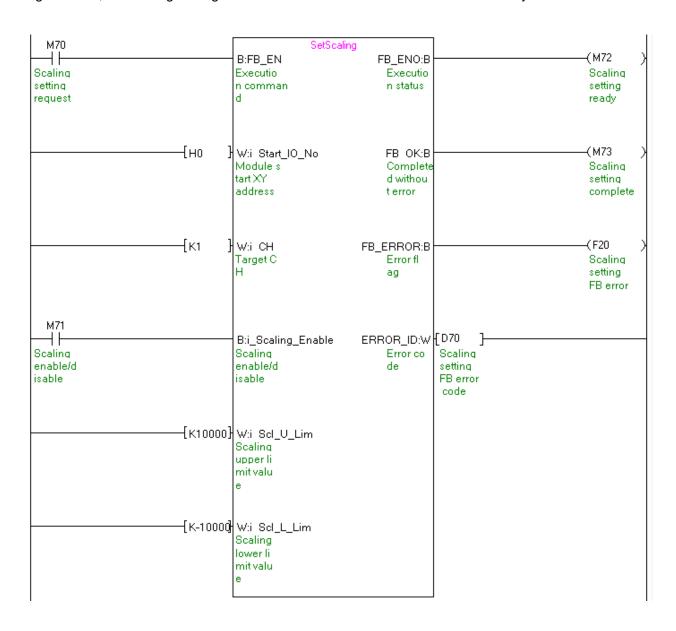
By turning ON M60, the averaging processing setting value of channel 1 is written to the buffer memory.



M+Q64ADH_SetScaling(Scaling setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH 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.
i_Scl_U_Lim	K10000	Set the scaling upper limit value to 10,000.
i_Scl_L_Lim	K-10000	Set the scaling lower limit value to -10,000.

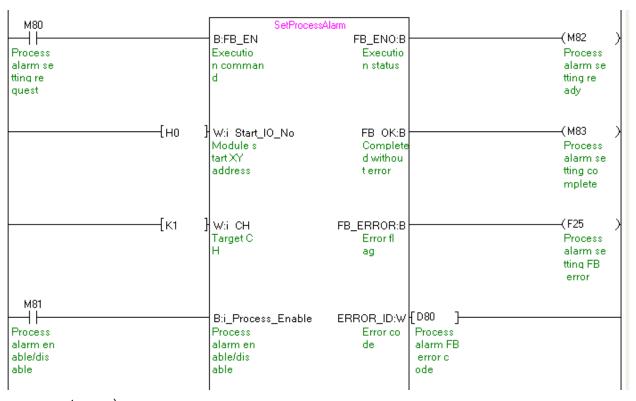
By turning ON M70, the scaling setting value of channel 1 is written to the buffer memory.



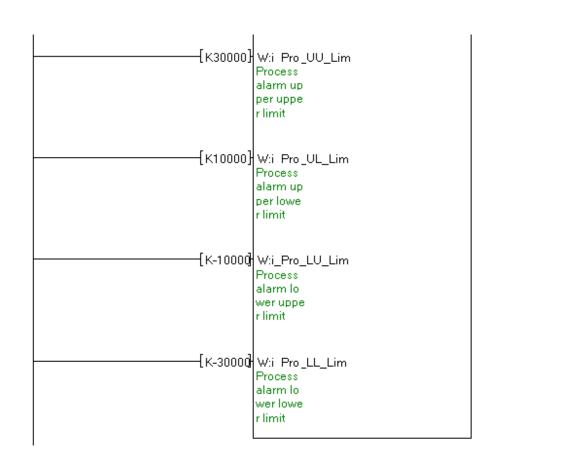
M+Q64ADH_SetProcessAlarm(Process alarm setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH 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 warning output of the process alarm.
i_Pro_UU_Lim	K30000	Set the process alarm upper upper limit value to 30,000.
i_Pro_UL_Lim	K10000	Set the process alarm upper lower limit value to 10,000.
i_Pro_LU_Lim	K-10000	Set the process alarm lower upper limit value to -10,000.
i_Pro_LL_Lim	K-30000	Set the process alarm lower lower limit value to -30,000.

By turning ON M80, the process alarm setting value of channel 1 is written to the buffer memory.



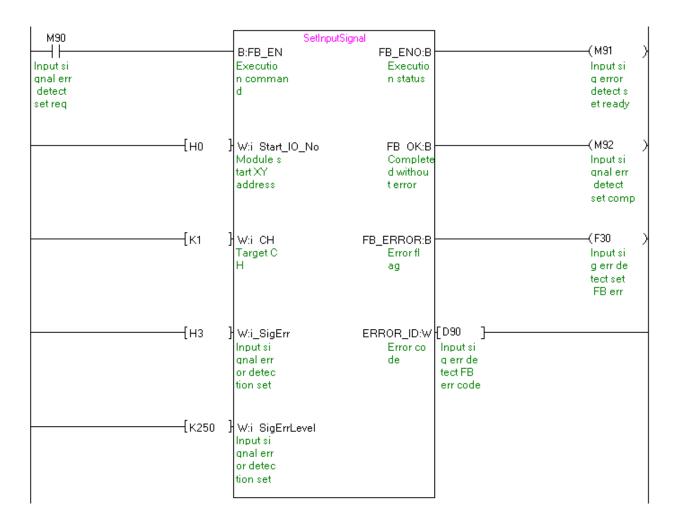
(Continues on next page.)



M+Q64ADH_SetInputSignalErr(Input signal error detection setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_SigErr	H3	Set the input signal error detection setting to "Upper detection".
i_SigErrLevel	K250	Set the input signal error detection setting value to 25.0%.

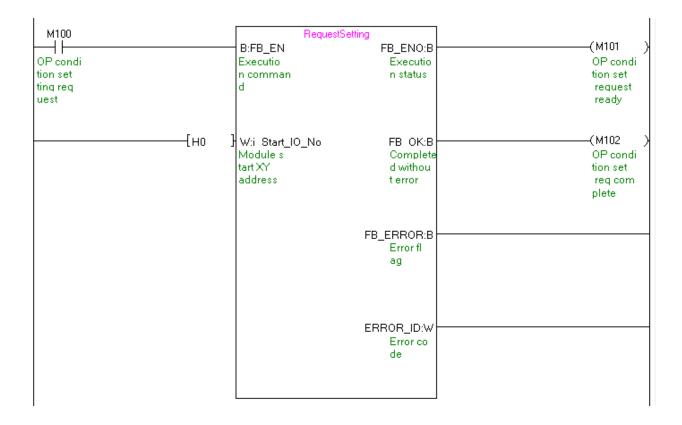
By turning ON M90, the input signal error detection setting value of channel 1 is written to the buffer memory.



M+Q64ADH_RequestSetting(Operation condition setting request)

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.

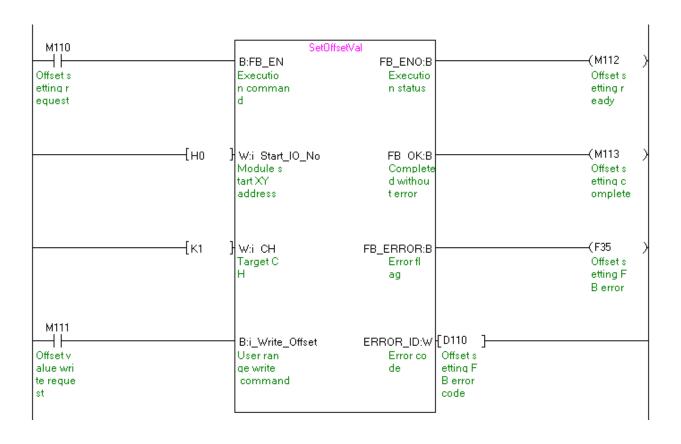
By turning ON M100, the settings of the enable/disable AD conversion, averaging processing setting, digital clipping setting, input signal error detection setting, conversion speed setting, warning output setting, scaling setting, process alarm setting, logging function parameter setting and flow amount integration function setting are enabled.



M+Q64ADH_SetOffsetVal(Offset setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Write_Offset	ON/OFF	Turn ON to perform the user range write operation.

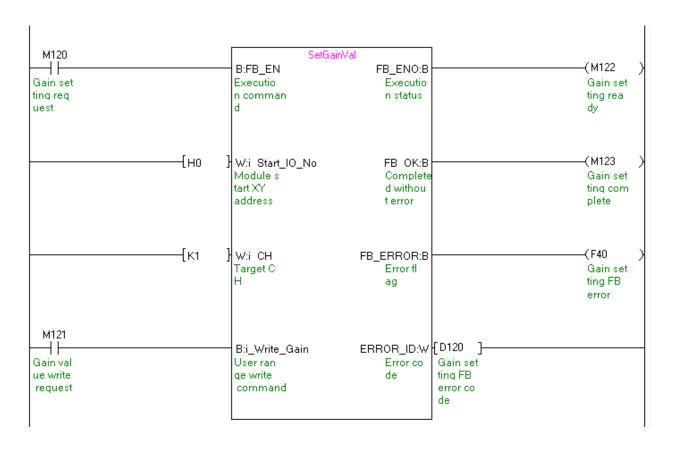
By turning ON M110 and then M111, the offset value of channel 1 is written.



M+Q64ADH_SetGainVal(Gain setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH 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.

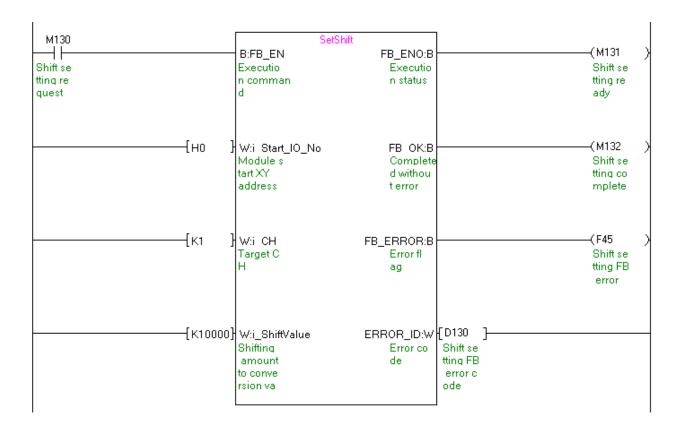
By turning ON M120 and then M121, the gain value of channel 1 is written.



M+Q64ADH_SetShift(Shift setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_ShiftValue	K10000	Set the shifting amount to conversion value to 10,000.

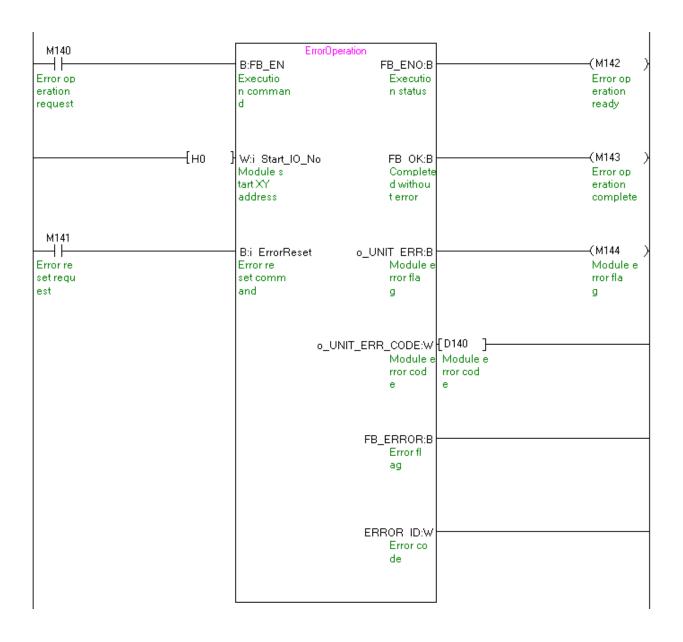
By turning ON M130, the shift setting value of channel 1 is written to the buffer memory.



M+Q64ADH_ErrorOperation(Error operation)

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_ErrorReset	ON/OFF	Turn ON to reset errors.

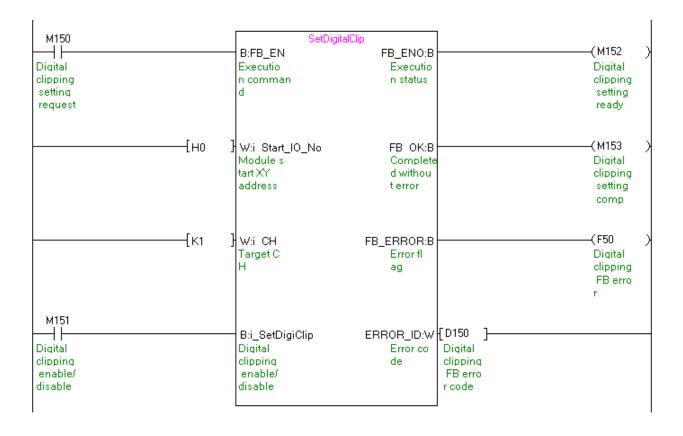
By turning ON M140, an error code is output if an error occurs. After an error output, by turning ON M141, the error is reset.



M+Q64ADH_SetDigitalClip(Digital clipping setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_SetDigiClip	ON/OFF	Turn ON to enable the digital clipping function.

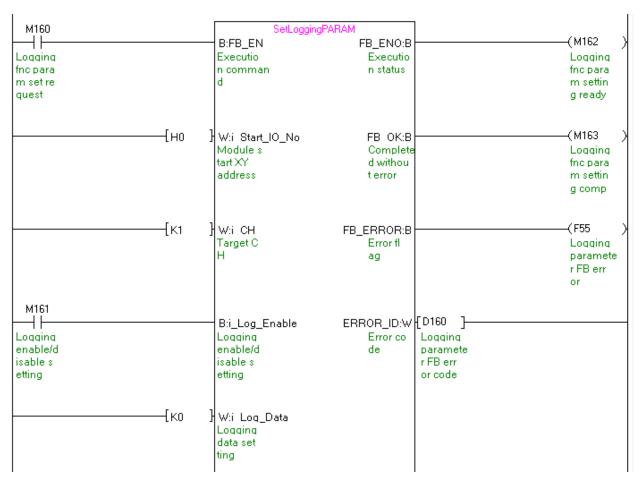
By turning ON M150, the digital clipping setting value of channel 1 is written to the buffer memory.



M+Q64ADH_SetLoggingPARAM(Logging function parameter setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH 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.
i_Log_Data	K0	Set the logging data to "Digital output value".
i_Log_Cycle_Val	K320	Set the cycle to save the logging data to 320 µs.
i_Log_Cycle_Unit	K0	Set the time unit of the logging cycle to "µs".
i_Log_Points	K1	Set the data points to record from when the hold trigger occurs until the
		logging function stops temporarily to 1.
i_Log_Trig_Cond	K1	Set the condition to cause the hold trigger "Above".
i_Log_Trig_Data	K12	Set the buffer memory address to operate the level trigger to 12.
i_Log_Trig_Value	K10000	Set the level at which the level trigger occurs to 10,000.

By turning ON M160, the logging function parameter setting value of channel 1 is written to the buffer memory.



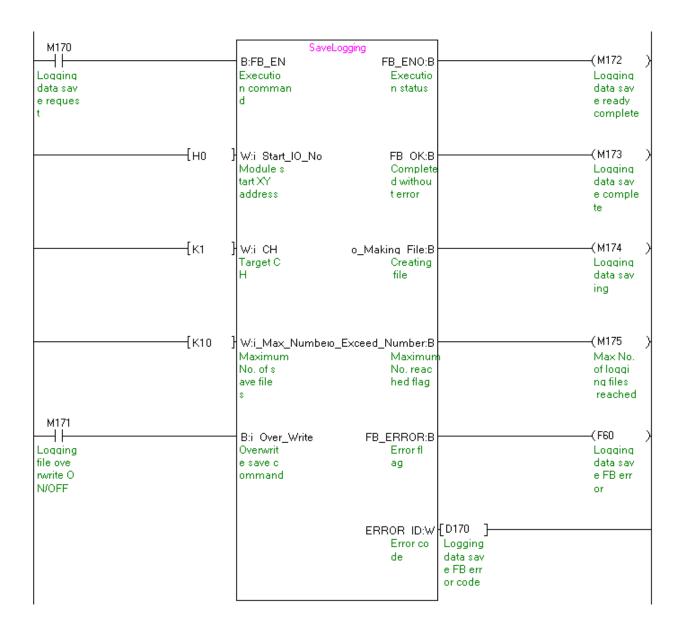
(Continues on next page.)

[K320]	W:i Loq_Cycle_Val Loqqinq cycle se tting va lue	
[K0]	W:i Loq_Cycle_Unit Loqqinq cycle un it setti ng	
[K1	W:i_Log_Points Loqqinq points a fter tri gger	
[K1	W:i Log_Trig_Cond Level tr iqqer co ndition setting	
[K12]	W:i Log_Trig_Data Trigger data	
[K10000]	W:i_Log_Trig_Value Triqqer setting value	

M+Q64ADH_SaveLogging(Logging data save)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_Max_Number	K10	Set the maximum number of CSV files to be saved to 10.
i_Over_Write	ON/OFF	Set whether to overwrite the file to which the logging data is written.

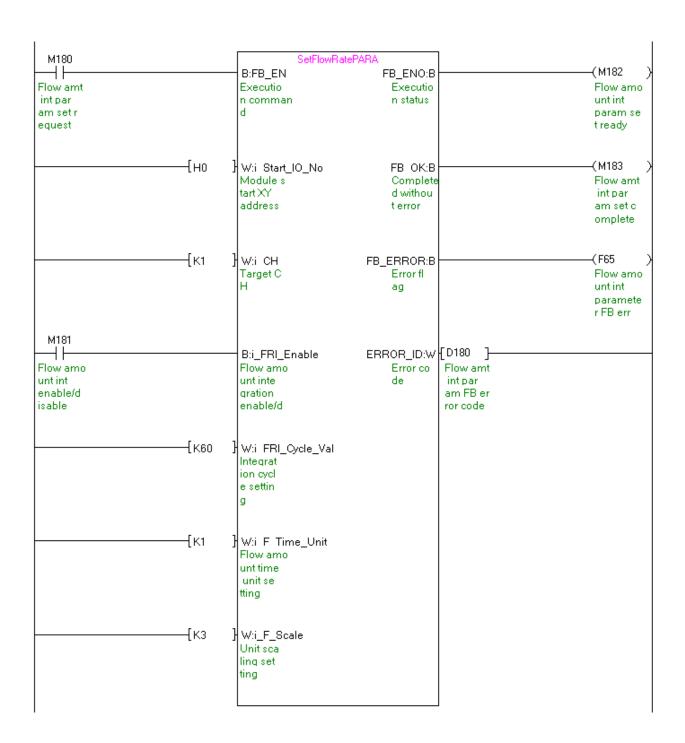
By turning ON M170, the logging data from the start pointer of channel 1 for the number of the logging data are sorted chronologically. Then, the logging data and the trigger occurrence information are saved in CSV format in the ATA card mounted on the CPU.



M+Q64ADH_SetFlowRatePARAM(Flow amount integration function parameter setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.
i_CH	K1	Set the target channel to channel 1.
i_FRI_Enable	ON/OFF	Turn ON to enable the flow amount integration function.
i_FRI_Cycle_Val	K60	Set the integration cycle of the connected flow meter to 60 ms.
i_F_Time_Unit	K1	Set the time unit of the flow meter to "min".
i_F_Scale	K3	Set the unit scale used to calculate the integrated flow amount to "×1000".

By turning ON M180, the flow amount integration function parameter setting value of channel 1 is written to the buffer memory.



M+Q64ADH_MakeFlowRateDailyReport(Flow amount daily report creation)

Label name	Setting value	Description
i_Start_IO_No	H0	Set the starting XY address where the Q64ADH module is mounted to 0H.

By turning ON M190, the "flow amount per hour" that flows on the hour for 24 hours and "total flow amount of the day" are calculated based on the integrated flow amount of the Q64ADH. Then, they are saved in a flow amount daily report file in CSV format in the ATA card mounted on the CPU module.

