

MELSEC-Q/L High-Speed Counter Module FB Library Reference Manual

Applicable module:

QD62, QD62E, QD62D, LD62, LD62D

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Reference Manual Revision History

Reference Manual Number	Date	Description
FBM-M032-A	2010/08/06	First edition
FBM-M032-B	2011/04/30	Added "Reference Manual Revision History", "Overview", "Chinese version of GX Works2".
FBM-M032-C	2015/03/27	1) Added applicable GX Works2 Version. •This FB is able to install on GX Works2 of all language versions.

1. Overview

1.1 Overview of the FB Library

This FB library is for using the MELSEC-Q QD62(E/D) or MELSEC-L LD62(D) high-speed counter module.

1.2 Function of the FB Library

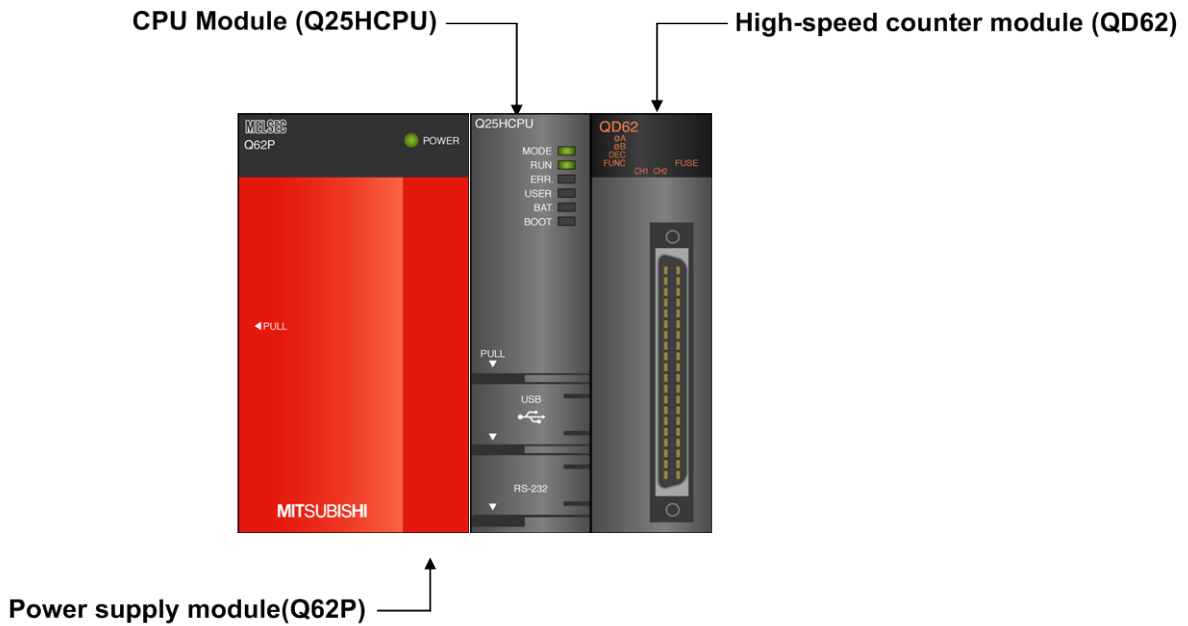
Item	Description
M+D62_SetRingCounter	Sets the ring counter upper limit and lower limit for a specified channel.
M+D62_CountEnable	Performs count operation (count start/stop) for a specified channel or all channels.
M+D62_PresentValueStorage	Monitors the present value for a specified channel.
M+D62_AllPresentValueStorage	Monitors the present value for all channels.
M+D62_SetCoincidenceOutput	Sets a coincidence output point and resets counter value coincidence for a specified channel.
M+D62_CoincidenceOutputEnable	Enables external coincidence output for a specified channel or all channels.
M+D62_PresetOperation	Performs a preset of present value.
M+D62_CountDisableOperation	Executes disable count function for a specified channel or all channels.
M+D62_LatchCounterOperation	Executes latch counter function.
M+D62_SamplingOperation	Executes sampling counter function.
M+D62_PeriodicPulseCounter	Executes periodic pulse counter function.
M+D62_OverflowDetection	Detects overflow.



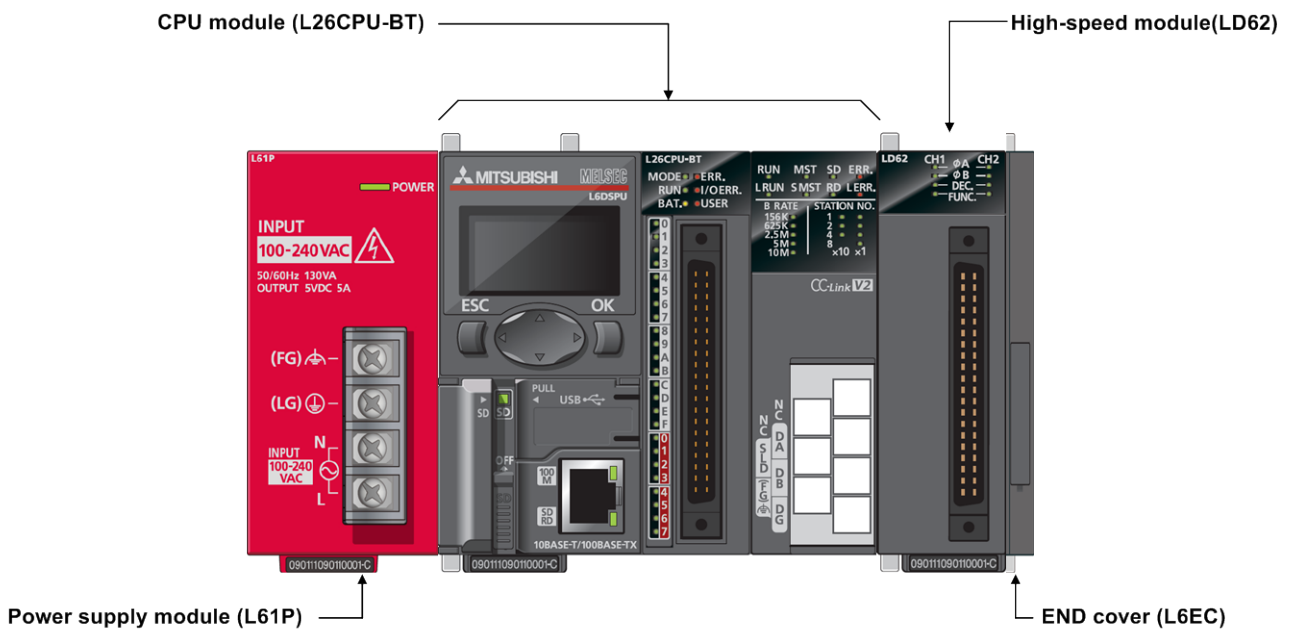
1.3 System Configuration Example

I/O signals are allocated as shown in the figure below. Q series and L series have the same allocation.

(1) Q series system configuration Example



(2) L series system configuration Example



1.4 Relevant manual

- MELSEC-Q High-Speed Counter Module User's Manual
- MELSEC-L High-Speed Counter 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+D62_SetRingCounter (Ring counter setting)

FB Name

M+D62_SetRingCounter

Function Overview

Item	Description								
Function overview	Sets the ring counter upper limit and lower limit for a specified channel.								
Symbol	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 45%;"> <p>Execution command — B : FB_EN</p> <p>Module start XY address — W : i_Start_IO_No</p> <p>Target CH — W : i_CH</p> <p>Ring counter upper limit — D : i_RingUpperLimit</p> <p>Ring counter lower limit — D : i_RingLowerLimit</p> </div> <div style="width: 10%; text-align: center; border: 1px solid black; padding: 5px;"> <p>M+D62_SetRingCounter</p> </div> <div style="width: 45%;"> <p>FB_ENO : B — Execution status</p> <p>FB_OK : B — Completed without error</p> <p>FB_ERROR : B — Error flag</p> <p>ERROR_ID : W — Error code</p> </div> </div>								
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D	
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MELSEC-Q Series	QD62, QD62E, QD62D								
MELSEC-L Series	LD62, LD62D								
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU
Series	Model								
MELSEC-Q Series	Basic model								
	High performance model *								
	Universal model								
MELSEC-L Series	LCPU								

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	128 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	<p>1) When FB_EN (Execution command) is turned ON, the set ring counter lower and upper value are stored in the buffer memory.</p> <p>2) FB operation is one-shot only, triggered by the FB_EN signal.</p> <p>3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	

Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> 1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with a value for proper FB operation. 7) When count enable command (Y signal) is ON, the FB does not complete its execution until turned OFF. (Please turn OFF count enable command (Y signal).) 8) If the parameter is set using GX Configurator-CT or the configuration function of GX Works 2, using this FB is unnecessary. 9) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.
Ring counter upper limit	i_RingUpperLimit	Double Word	-2,147,483,648 to 2,147,483,647	Specify the ring counter upper limit.
Ring counter lower limit	i_RingLowerLimit	Double Word	-2,147,483,648 to 2,147,483,647	Specify the ring counter lower limit.



●Output labels

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

FB Version Upgrade History

Version	Date	Description
1.00A	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_SetRingCounter function block.

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

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

2.2 M+D62_CountEnable (Count enable operation)

FB Name

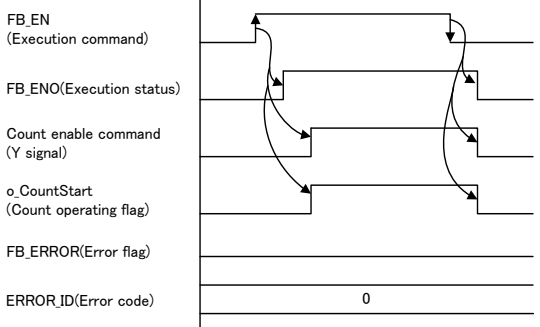
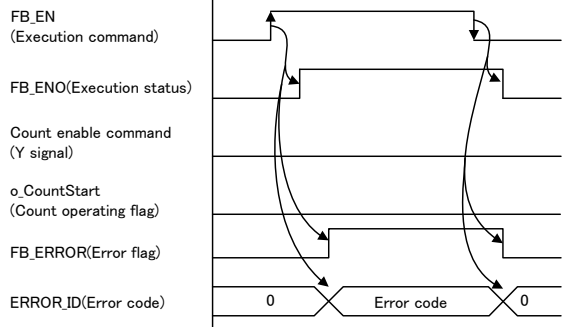
M+D62_CountEnable

Function Overview

Item	Description																	
Function overview	Performs count operation (count start/stop) for a specified channel or all channels.																	
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center;">M+D62_CountEnable</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: right;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 30%; text-align: left;">FB_ENO : B</td> <td style="width: 10%; text-align: left;">Execution status</td> </tr> <tr> <td style="text-align: right;">Module start XY address</td> <td>W : i_Start_IO_No</td> <td style="text-align: left;">o_CountStart : B</td> <td style="text-align: left;">Count operating flag</td> </tr> <tr> <td style="text-align: right;">Target CH</td> <td>W : i_CH</td> <td style="text-align: left;">FB_ERROR : B</td> <td style="text-align: left;">Error flag</td> </tr> <tr> <td></td> <td></td> <td style="text-align: left;">ERROR_ID : W</td> <td style="text-align: left;">Error code</td> </tr> </table> </div>		Execution command	B : FB_EN	FB_ENO : B	Execution status	Module start XY address	W : i_Start_IO_No	o_CountStart : B	Count operating flag	Target CH	W : i_CH	FB_ERROR : B	Error flag			ERROR_ID : W	Error code
Execution command	B : FB_EN	FB_ENO : B	Execution status															
Module start XY address	W : i_Start_IO_No	o_CountStart : B	Count operating flag															
Target CH	W : i_CH	FB_ERROR : B	Error flag															
		ERROR_ID : W	Error code															
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D										
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CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU									
Series	Model																	
MELSEC-Q Series	Basic model																	
	High performance model *																	
	Universal model																	
MELSEC-L Series	LCPU																	

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	137 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	<p>1) By turning ON/OFF FB_EN (Execution command), the count operation is started or stopped.</p> <p>2) FB operation is one-shot only, triggered by the FB_EN signal.</p> <p>3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	



Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> 1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z8 and Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with 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 pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p>  </div> <div style="width: 48%;"> <p>[When an error occurs]</p>  </div> </div>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2 or 15.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2 or 15	1 to 2: Specify the CH number. 15: Specify all CHs.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Count operating flag	o_CountStart	Bit	OFF	When ON, it indicates that count enable command (Y signal) is ON.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_CountEnable function block.

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

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

2.3 M+D62_PresentValueStorage (Present value monitoring)

FB Name

M+D62_PresentValueStorage

Function Overview

Item	Description								
Function overview	Monitors the present value for a specified channel.								
Symbol	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;"> <p>Execution command — B : FB_EN</p> <p>Module start XY address — W : i_Start_IO_No</p> <p>Target CH — W : i_CH</p> </div> <div style="width: 35%; border: 1px solid black; padding: 5px; text-align: center;"> <p>M+D62_PresentValueStorage</p> </div> <div style="width: 30%;"> <p>FB_ENO : B — Execution status</p> <p>FB_OK : B — Completed without error</p> <p>o_PresentValue : D — Present value</p> <p>FB_ERROR : B — Error flag</p> <p>ERROR_ID : W — Error code</p> </div> </div>								
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D	
	Series	Model							
MELSEC-Q Series	QD62, QD62E, QD62D								
MELSEC-L Series	LD62, LD62D								
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU
Series	Model								
MELSEC-Q Series	Basic model								
	High performance model *								
	Universal model								
MELSEC-L Series	LCPU								

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	97 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	<p>1) When FB_EN (Execution command) is turned ON, the present value is read from the buffer memory.</p> <p>2) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	
Restrictions and precautions	<p>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</p> <p>2) The FB cannot be used in an interrupt program.</p> <p>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.</p> <p>4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH.</p> <p>5) This FB uses index registers Z7 to Z9. Please do not use these index registers in an interrupt program.</p> <p>6) Every input must be provided with a value for proper FB operation.</p> <p>7) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).</p>	
FB operation type	Real-time execution	
Application example	Refer to "Appendix 1 - FB Library Application Examples".	

Item	Description	
Timing chart	<p>[When operation completes without error]</p>	<p>[When an error occurs]</p>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the present value is being read.
Present value	o_PresentValue	Double Word	0	Store the present value.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_PresentValueStorage function block.

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

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

2.4 M+D62_AllPresentValueStorage (Present value monitoring (All CHs))

FB Name

M+D62_AllPresentValueStorage

Function Overview

Item	Description								
Function overview	Monitors the present value for all channels.								
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+D62_AllPresentValueStorage</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;"> Execution command — B : FB_EN Module start XY address — W : i_Start_IO_No </td> <td style="width: 40%; text-align: center; vertical-align: middle;"> FB_ENO : B FB_OK : B o_PresentValue1 : D o_PresentValue2 : D FB_ERROR : B ERROR_ID : W </td> <td style="width: 30%; vertical-align: top;"> Execution status Completed without error CH1 present value CH2 present value Error flag Error code </td> </tr> </table> </div>		Execution command — B : FB_EN Module start XY address — W : i_Start_IO_No	FB_ENO : B FB_OK : B o_PresentValue1 : D o_PresentValue2 : D FB_ERROR : B ERROR_ID : W	Execution status Completed without error CH1 present value CH2 present value Error flag Error code				
Execution command — B : FB_EN Module start XY address — W : i_Start_IO_No	FB_ENO : B FB_OK : B o_PresentValue1 : D o_PresentValue2 : D FB_ERROR : B ERROR_ID : W	Execution status Completed without error CH1 present value CH2 present value Error flag Error code							
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D	
	Series	Model							
MELSEC-Q Series	QD62, QD62E, QD62D								
MELSEC-L Series	LD62, LD62D								
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU
Series	Model								
MELSEC-Q Series	Basic model								
	High performance model *								
	Universal model								
MELSEC-L Series	LCPU								

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	64 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.	
Function description	1) When FB_EN (Execution command) is turned ON, the present value is read from the buffer memory.	
Compiling method	Macro type	
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z8 and Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with a value for proper FB operation. 7) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).	
FB operation type	Real-time execution	
Application example	Refer to "Appendix 1 - FB Library Application Examples".	



Item	Description
Timing chart	<p>[When operation completes without error]</p> <p>FB_EN (Execution command)</p> <p>FB_ENO(Execution status)</p> <p>o.PresentValue1 (CH1 present value)</p> <p>o.PresentValue2 (CH1 present value)</p> <p>FB_OK (Completed without error)</p> <p>FB_ERROR(Error flag)</p> <p>ERROR_ID(Error code)</p> <p>0</p>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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
None	None	None

Label

●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 D62 module is mounted. (For example, enter H10 for X10.)

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the present value is being read.
CH1 present value	o_PresentValue1	Double Word	0	Store the present value of CH1.
CH2 present value	o_PresentValue2	Double Word	0	Store the present value of CH2.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_AllPresentValueStorage function block.

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

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

2.5 M+D62_SetCoincidenceOutput (Coincidence output function setting)

FB Name

M+D62_SetCoincidenceOutput

Function Overview

Item	Description																													
Function overview	Sets a coincidence output point and resets counter value coincidence for a specified channel.																													
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center;">M+D62_SetCoincidenceOutput</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 30%;">FB_END : B</td> <td>Execution status</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B</td> <td>Completed without error</td> </tr> <tr> <td>Target CH</td> <td>W : i_CH</td> <td>FB_ERROR : B</td> <td>Error flag</td> </tr> <tr> <td>Coincidence output No.1 enable</td> <td>B : i_OutEnable_No1</td> <td>ERROR_ID : W</td> <td>Error code</td> </tr> <tr> <td>Coincidence output No.2 enable</td> <td>B : i_OutEnable_No2</td> <td></td> <td></td> </tr> <tr> <td>Coincidence output No.1 point setting</td> <td>D : i_SetPoint_No1</td> <td></td> <td></td> </tr> <tr> <td>Coincidence output No.2 point setting</td> <td>D : i_SetPoint_No2</td> <td></td> <td></td> </tr> </table> </div>		Execution command	B : FB_EN	FB_END : B	Execution status	Module start XY address	W : i_Start_IO_No	FB_OK : B	Completed without error	Target CH	W : i_CH	FB_ERROR : B	Error flag	Coincidence output No.1 enable	B : i_OutEnable_No1	ERROR_ID : W	Error code	Coincidence output No.2 enable	B : i_OutEnable_No2			Coincidence output No.1 point setting	D : i_SetPoint_No1			Coincidence output No.2 point setting	D : i_SetPoint_No2		
Execution command	B : FB_EN	FB_END : B	Execution status																											
Module start XY address	W : i_Start_IO_No	FB_OK : B	Completed without error																											
Target CH	W : i_CH	FB_ERROR : B	Error flag																											
Coincidence output No.1 enable	B : i_OutEnable_No1	ERROR_ID : W	Error code																											
Coincidence output No.2 enable	B : i_OutEnable_No2																													
Coincidence output No.1 point setting	D : i_SetPoint_No1																													
Coincidence output No.2 point setting	D : i_SetPoint_No2																													
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D																						
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MELSEC-Q Series	QD62, QD62E, QD62D																													
MELSEC-L Series	LD62, LD62D																													
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU																					
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MELSEC-Q Series	Basic model																													
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MELSEC-L Series	LCPU																													

Item	Description													
	Engineering software	GX Works2 *1 <table border="1" data-bbox="639 327 1481 622"> <thead> <tr> <th data-bbox="639 327 1043 371">Language</th> <th data-bbox="1043 327 1481 371">Software version</th> </tr> </thead> <tbody> <tr> <td data-bbox="639 371 1043 423">Japanese version</td> <td data-bbox="1043 371 1481 423">Version 1.86Q or later</td> </tr> <tr> <td data-bbox="639 423 1043 474">English version</td> <td data-bbox="1043 423 1481 474">Version 1.24A or later</td> </tr> <tr> <td data-bbox="639 474 1043 526">Chinese (Simplified) version</td> <td data-bbox="1043 474 1481 526">Version 1.49B or later</td> </tr> <tr> <td data-bbox="639 526 1043 577">Chinese (Traditional) version</td> <td data-bbox="1043 526 1481 577">Version 1.49B or later</td> </tr> <tr> <td data-bbox="639 577 1043 622">Korean version</td> <td data-bbox="1043 577 1481 622">Version 1.49B or later</td> </tr> </tbody> </table> <p data-bbox="639 629 1509 712">*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>	Language	Software version	Japanese version	Version 1.86Q or later	English version	Version 1.24A or later	Chinese (Simplified) version	Version 1.49B or later	Chinese (Traditional) version	Version 1.49B or later	Korean version	Version 1.49B or later
Language	Software version													
Japanese version	Version 1.86Q or later													
English version	Version 1.24A or later													
Chinese (Simplified) version	Version 1.49B or later													
Chinese (Traditional) version	Version 1.49B or later													
Korean version	Version 1.49B or later													
Programming language	Ladder													
Number of steps	199 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	<p data-bbox="375 969 1485 1099">1) After turning ON i_OutEnable_No1 (Coincidence output No.1 enable), turn ON FB_EN (Execution command) to enable i_SetPoint_No1 (Coincidence output No.1 point setting).</p> <p data-bbox="406 1111 1509 1290">When i_OutEnable_No1 (Coincidence output No.1 enable) is not turned ON, i_SetPoint_No1 (Coincidence output No.1 point setting) is not written in the buffer memory and coincidence signal No. 1 reset command (Y signal) is not turned ON either. (The same operation is applied to No.2)</p> <p data-bbox="406 1301 1406 1384">Turn ON both i_OutEnable_No1 (Coincidence output No.1 enable) and i_OutEnable_No2 (Coincidence output No.2 enable) to use both No.1 and No.2.</p> <p data-bbox="375 1395 1501 1626">2) By turning ON FB_EN (Execution command), i_SetPoint_No1 (Coincidence output No.1 point setting) is written in the buffer memory and coincidence signal No. 1 reset command (Y signal) is turned ON. When counter value coincidence (X signal) is turned OFF, coincidence signal No. 1 reset command (Y signal) is turned OFF. (The same operation is applied to No.2)</p> <p data-bbox="375 1637 1485 1771">3) Counter value coincidence (X signal) and external coincidence output are turned ON again even if counter value coincidence (X signal) and external coincidence output are reset with this FB while the present value is the coincidence output point.</p> <p data-bbox="375 1783 1174 1816">4) FB operation is one-shot only, triggered by the FB_EN signal.</p> <p data-bbox="375 1827 1445 1962">5) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>													

Item	Description
Compiling method	Macro type
Restrictions and precautions	<ol style="list-style-type: none"> 1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z5 to Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with 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 pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Pulsed execution (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.
Coincidence output No.1 enable	i_OutEnable_No1	Bit	ON, OFF	ON: Coincidence output No.1 is used. OFF: Coincidence output No.1 is not used. When ON, the function is enabled by turning on FB_EN (Execution command).



Name (Comment)	Label name	Data type	Setting range	Description
Coincidence output No.2 enable	i_OutEnable_No2	Bit	ON, OFF	ON: Coincidence output No.2 is used. OFF: Coincidence output No.2 is not used. When ON, the function is enabled by turning ON FB_EN (Execution command).
Coincidence output No.1 point setting	i_SetPoint_No1	Double Word	-2,147,483,648 to 2,147,483,647	Specify the coincidence output No.1 point setting value.
Coincidence output No.2 point setting	i_SetPoint_No2	Double Word	-2,147,483,648 to 2,147,483,647	Specify the coincidence output No.2 point setting value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that counter value coincidence (X signal) has been reset.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_SetCoincidenceOutput function block.

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

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

2.6 M+D62_CoincidenceOutputEnable (Coincidence output enable setting)

FB Name

M+D62_CoincidenceOutputEnable

Function Overview

Item	Description								
Function overview	Enables external coincidence output for a specified channel or all channels.								
Symbol	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 30%;"> <p>Execution command — B : FB_EN</p> <p>Module start XY address — W : i_Start_IO_No</p> <p>Target CH — W : i_CH</p> </div> <div style="width: 35%; border: 1px solid black; padding: 5px; text-align: center;"> <p>M+D62_CoincidenceOutputEnable</p> </div> <div style="width: 30%;"> <p>FB_ENO : B — Execution status</p> <p>FB_OK : B — Completed without error</p> <p>FB_ERROR : B — Error flag</p> <p>ERROR_ID : W — Error code</p> </div> </div>								
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D	
	Series	Model							
MELSEC-Q Series	QD62, QD62E, QD62D								
MELSEC-L Series	LD62, LD62D								
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU
Series	Model								
MELSEC-Q Series	Basic model								
	High performance model *								
	Universal model								
MELSEC-L Series	LCPU								

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps (maximum value)	139 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	<p>1) By turning ON/OFF FB_EN (Execution command), the coincidence output is enabled/disabled.</p> <p>2) FB operation is one-shot only, triggered by the FB_EN signal.</p> <p>3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	

Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> 1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z8 and Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with 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 pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2 or 15.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2 or 15	1 to 2: Specify the CH number. 15: Specify all CHs.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that coincidence signal enable command (Y signal) is ON.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_CoincidenceOutputEnable function block.

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

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

2.7 M+D62_PresetOperation (Preset function operation)

FB Name

M+D62_PresetOperation

Function Overview

Item	Description								
Function overview	Performs a preset of present value.								
Symbol	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 30%;"> <p>Execution command — B : FB_EN</p> <p>Module start XY address — W : i_Start_IO_No</p> <p>Target CH — W : i_CH</p> <p>Preset value — W : i_PresetValue</p> </div> <div style="width: 30%; border: 1px solid black; padding: 5px; text-align: center;"> <p>M+D62_PresetOperation</p> </div> <div style="width: 30%;"> <p>FB_ENO : B — Execution status</p> <p>FB_OK : B — Completed without error</p> <p>FB_ERROR : B — Error flag</p> <p>ERROR_ID : W — Error code</p> </div> </div>								
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D	
	Series	Model							
MELSEC-Q Series	QD62, QD62E, QD62D								
MELSEC-L Series	LD62, LD62D								
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU
Series	Model								
MELSEC-Q Series	Basic model								
	High performance model *								
	Universal model								
MELSEC-L Series	LCPU								

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	139* 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	<p>1) By turning ON FB_EN (Execution command), the present value is rewritten to i_PresetValue (Preset value).</p> <p>2) FB operation is one-shot only, triggered by the FB_EN signal.</p> <p>3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	



Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> 1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with 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 pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.
Preset value	i_PresetValue	Double Word	-2,147,483,648 to 2,147,483,647	Specify the preset value.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that preset command (Y signal) is ON.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_PresetOperation function block.

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

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

2.8 M+D62_CountDisableOperation (Disable count function operation)

FB Name

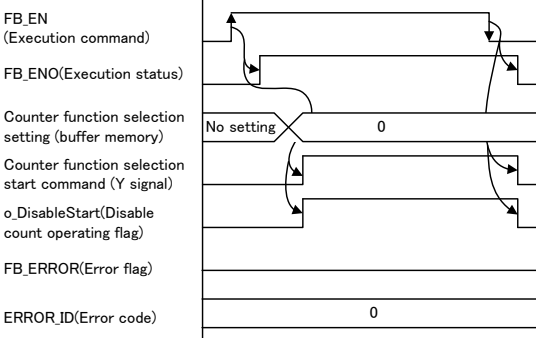
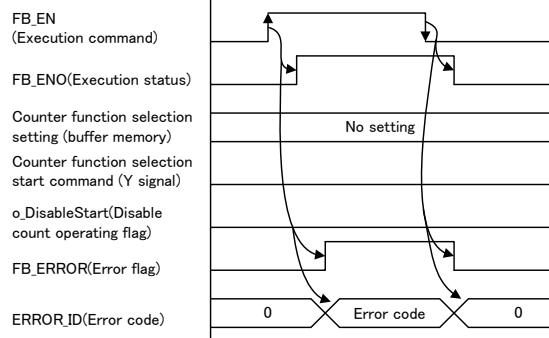
M+D62_CountDisableOperation

Function Overview

Item	Description																	
Function overview	Executes disable count function for a specified channel or all channels.																	
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+D62_CountDisableOperation</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Execution command</td> <td style="width: 30%; padding: 5px;">B : FB_EN</td> <td style="width: 30%; padding: 5px;">FB_ENO : B</td> <td style="width: 10%; padding: 5px;">Execution status</td> </tr> <tr> <td style="padding: 5px;">Module start XY address</td> <td style="padding: 5px;">W : i_Start_IO_No</td> <td style="padding: 5px;">o_DisableStart : B</td> <td style="padding: 5px;">Disable count operating flag</td> </tr> <tr> <td style="padding: 5px;">Target CH</td> <td style="padding: 5px;">W : i_CH</td> <td style="padding: 5px;">FB_ERROR : B</td> <td style="padding: 5px;">Error flag</td> </tr> <tr> <td></td> <td></td> <td style="padding: 5px;">ERROR_ID : W</td> <td style="padding: 5px;">Error code</td> </tr> </table> </div>		Execution command	B : FB_EN	FB_ENO : B	Execution status	Module start XY address	W : i_Start_IO_No	o_DisableStart : B	Disable count operating flag	Target CH	W : i_CH	FB_ERROR : B	Error flag			ERROR_ID : W	Error code
Execution command	B : FB_EN	FB_ENO : B	Execution status															
Module start XY address	W : i_Start_IO_No	o_DisableStart : B	Disable count operating flag															
Target CH	W : i_CH	FB_ERROR : B	Error flag															
		ERROR_ID : W	Error code															
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D										
	Series	Model																
	MELSEC-Q Series	QD62, QD62E, QD62D																
MELSEC-L Series	LD62, LD62D																	
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU									
Series	Model																	
MELSEC-Q Series	Basic model																	
	High performance model *																	
	Universal model																	
MELSEC-L Series	LCPU																	
Engineering software	GX Works2 *1	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>Japanese version</td> <td>Version 1.86Q or later</td> </tr> <tr> <td>English version</td> <td>Version 1.24A or later</td> </tr> <tr> <td>Chinese (Simplified) version</td> <td>Version 1.49B or later</td> </tr> <tr> <td>Chinese (Traditional) version</td> <td>Version 1.49B or later</td> </tr> <tr> <td>Korean version</td> <td>Version 1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>	Language	Software version	Japanese version	Version 1.86Q or later	English version	Version 1.24A or later	Chinese (Simplified) version	Version 1.49B or later	Chinese (Traditional) version	Version 1.49B or later	Korean version	Version 1.49B or later				
Language	Software version																	
Japanese version	Version 1.86Q or later																	
English version	Version 1.24A or later																	
Chinese (Simplified) version	Version 1.49B or later																	
Chinese (Traditional) version	Version 1.49B or later																	
Korean version	Version 1.49B or later																	

Item	Description
Programming language	Ladder
Number of steps (maximum value)	174 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) By turning ON FB_EN (Execution command), the disable count function is executed. 2) FB operation is one-shot only, triggered by the FB_EN signal. 3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) Turn OFF the counter function selection start command (Y signal) signal when using the FB. When the signal is ON, the disable count function of the target channel will not be executed. 5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 6) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program. 7) Every input must be provided with a value for proper FB operation. 8) 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. 9) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".



Item	Description	
Timing chart	<p>[When operation completes without error]</p> 	<p>[When an error occurs]</p> 
Relevant manuals	<ul style="list-style-type: none"> ●MELSEC-Q High-Speed Counter Module User's Manual ●MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2 or 15.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2 or 15	1 to 2: Specify the CH number. 15: Specify all CHs.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Disable count operating flag	o_DisableStart	Bit	OFF	When ON, it indicates that the execution command for disable count is ON.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_CountDisableOperation function block.

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

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

2.9 M+D62_LatchCounterOperation (Latch counter function operation)

FB Name

M+D62_LatchCounterOperation

Function Overview

Item	Description								
Function overview	Executes latch counter function.								
Symbol	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 30%;"> <p>Execution command — B : FB_EN</p> <p>Module start XY address — W : i_Start_IO_No</p> <p>Target CH — W : i_CH</p> </div> <div style="width: 40%; border: 1px solid black; padding: 5px; text-align: center;"> <p>M+D62_LatchCounterOperation</p> </div> <div style="width: 30%;"> <p>FB_ENO : B — Execution status</p> <p>FB_OK : B — Completed without error</p> <p>o_LatchCount : D — Latch count value</p> <p>FB_ERROR : B — Error flag</p> <p>ERROR_ID : W — Error code</p> </div> </div>								
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D	
	Series	Model							
MELSEC-Q Series	QD62, QD62E, QD62D								
MELSEC-L Series	LD62, LD62D								
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU
Series	Model								
MELSEC-Q Series	Basic model								
	High performance model *								
	Universal model								
MELSEC-L Series	LCPU								

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	144 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	<p>1) By turning ON FB_EN (Execution command), the latch counter function is executed.</p> <p>2) FB operation is one-shot only, triggered by the FB_EN signal.</p> <p>3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	



Item	Description
Restrictions and precautions	<ol style="list-style-type: none"> 1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) Turn OFF the counter function selection start command (Y signal) signal when using the FB. When the signal is ON, the latch counter function of the target channel will not be executed. 5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 6) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program. 7) Every input must be provided with a value for proper FB operation. 8) 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. 9) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Pulsed execution (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>

Item	Description
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the execution command for latch counter is ON.
Latch count value	o_LatchCount	Double Word	0	Store the latch count value.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_LatchCounterOperation function block.

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

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

2.10 M+D62_SamplingOperation (Sampling counter function operation)

FB Name

M+D62_SamplingOperation

Function Overview

Item	Description																					
Function overview	Executes sampling counter function.																					
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+D62_SamplingOperation</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Execution command</td> <td style="width: 30%; padding: 5px;">B : FB_EN</td> <td style="width: 30%; padding: 5px;">FB_ENO : B</td> <td style="width: 10%; padding: 5px;">Execution status</td> </tr> <tr> <td style="padding: 5px;">Module start XY address</td> <td style="padding: 5px;">W : i_Start_IO_No</td> <td style="padding: 5px;">FB_OK : B</td> <td style="padding: 5px;">Completed without error</td> </tr> <tr> <td style="padding: 5px;">Target CH</td> <td style="padding: 5px;">W : i_CH</td> <td style="padding: 5px;">o_SamplingCount : D</td> <td style="padding: 5px;">Sampling count value</td> </tr> <tr> <td style="padding: 5px;">Sampling time setting</td> <td style="padding: 5px;">W : i_SamplingTime</td> <td style="padding: 5px;">FB_ERROR : B</td> <td style="padding: 5px;">Error flag</td> </tr> <tr> <td></td> <td></td> <td style="padding: 5px;">ERROR_ID : W</td> <td style="padding: 5px;">Error code</td> </tr> </table> </div>		Execution command	B : FB_EN	FB_ENO : B	Execution status	Module start XY address	W : i_Start_IO_No	FB_OK : B	Completed without error	Target CH	W : i_CH	o_SamplingCount : D	Sampling count value	Sampling time setting	W : i_SamplingTime	FB_ERROR : B	Error flag			ERROR_ID : W	Error code
Execution command	B : FB_EN	FB_ENO : B	Execution status																			
Module start XY address	W : i_Start_IO_No	FB_OK : B	Completed without error																			
Target CH	W : i_CH	o_SamplingCount : D	Sampling count value																			
Sampling time setting	W : i_SamplingTime	FB_ERROR : B	Error flag																			
		ERROR_ID : W	Error code																			
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D														
	Series	Model																				
MELSEC-Q Series	QD62, QD62E, QD62D																					
MELSEC-L Series	LD62, LD62D																					
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU													
Series	Model																					
MELSEC-Q Series	Basic model																					
	High performance model *																					
	Universal model																					
MELSEC-L Series	LCPU																					

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps (maximum value)	176 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	<p>1) By turning ON FB_EN (Execution command), the sampling count starts with the preset i_SamplingTime (Sampling time setting (unit: 10ms)), and the sampling count value is read from the buffer memory.</p> <p>2) When the sampling time period elapses, FB_OK (Completed without error) is turned ON, and the processing is completed.</p> <p>3) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	



Item	Description
Restrictions and precautions	<p>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</p> <p>2) The FB cannot be used in an interrupt program.</p> <p>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.</p> <p>4) Turn OFF the counter function selection start command (Y signal) signal when using the FB. When the signal is ON, the sampling counter function of the target channel will not be executed.</p> <p>5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH.</p> <p>6) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</p> <p>7) Every input must be provided with a value for proper FB operation.</p> <p>8) 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.</p> <p>9) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).</p>
FB operation type	Pulsed execution (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>

Item	Description
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.
Sampling time setting (unit: 10ms)	i_SamplingTime	Word	1 to 65,535*1	Set the sampling time. (unit: 10ms) *1: Setting method •1 to 32,767: Set in decimal. •32,768 to 65,535: Set after converted into hexadecimal.



●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the sampling time period elapses, and sampling counter function is ended.
Sampling count value	o_SamplingCount	Double Word	0	Store the sampling count value.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_SamplingOperation function block.

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

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

2.11 M+D62_PeriodicPulseCounter (Periodic pulse counter function operation)

FB Name

M+D62_PeriodicPulseCounter

Function Overview

Item	Description																						
Function overview	Executes periodic pulse counter function.																						
Symbol	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">M+D62_PeriodicPulseCounter</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 40%;">FB_ENO : B — Execution status</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B — Completed without error</td> </tr> <tr> <td>Target CH</td> <td>W : i_CH</td> <td>o_PreviousValue : D — Periodic pulse count previous value</td> </tr> <tr> <td>Periodic time setting</td> <td>W : i_PeriodTime</td> <td>o_PresentValue : D — Periodic pulse count present value</td> </tr> <tr> <td></td> <td></td> <td>FB_ERROR : B — Error flag</td> </tr> <tr> <td></td> <td></td> <td>ERROR_ID : W — Error code</td> </tr> </tbody> </table>		M+D62_PeriodicPulseCounter			Execution command	B : FB_EN	FB_ENO : B — Execution status	Module start XY address	W : i_Start_IO_No	FB_OK : B — Completed without error	Target CH	W : i_CH	o_PreviousValue : D — Periodic pulse count previous value	Periodic time setting	W : i_PeriodTime	o_PresentValue : D — Periodic pulse count present value			FB_ERROR : B — Error flag			ERROR_ID : W — Error code
M+D62_PeriodicPulseCounter																							
Execution command	B : FB_EN	FB_ENO : B — Execution status																					
Module start XY address	W : i_Start_IO_No	FB_OK : B — Completed without error																					
Target CH	W : i_CH	o_PreviousValue : D — Periodic pulse count previous value																					
Periodic time setting	W : i_PeriodTime	o_PresentValue : D — Periodic pulse count present value																					
		FB_ERROR : B — Error flag																					
		ERROR_ID : W — Error code																					
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D															
	Series	Model																					
MELSEC-Q Series	QD62, QD62E, QD62D																						
MELSEC-L Series	LD62, LD62D																						
CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU														
Series	Model																						
MELSEC-Q Series	Basic model																						
	High performance model *																						
	Universal model																						
MELSEC-L Series	LCPU																						

Item	Description	
Engineering software	GX Works2 *1	
	Language	Software version
	Japanese version	Version 1.86Q or later
	English version	Version 1.24A or later
	Chinese (Simplified) version	Version 1.49B or later
	Chinese (Traditional) version	Version 1.49B or later
	Korean version	Version 1.49B or later
	*1 For software versions applicable to the modules used, refer to "Relevant manuals".	
Programming language	Ladder	
Number of steps	169 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	<p>1) By turning ON FB_EN (Execution command), the periodic pulse count starts with the preset i_PeriodTime (Periodic time setting (unit: 10ms)), and the periodic pulse count previous value and periodic pulse count present value are read from the buffer memory.</p> <p>2) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.</p>	
Compiling method	Macro type	



Item	Description
Restrictions and precautions	<p>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</p> <p>2) The FB cannot be used in an interrupt program.</p> <p>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.</p> <p>4) Turn OFF the counter function selection start command (Y signal) signal when using the FB. When the signal is turned ON, the periodic pulse counter function of the target channel will not be executed.</p> <p>5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH.</p> <p>6) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</p> <p>7) Every input must be provided with a value for proper FB operation.</p> <p>8) 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.</p> <p>9) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).</p>
FB operation type	Pulsed execution (multiple scan execution type)
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>

Item	Description
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.
Periodic time setting (unit: 10 ms)	i_PeriodTime	Word	1 to 65,535*1	Set periodic time setting. (unit: 10ms) *1: Setting method •1 to 32,767: Set in decimal. •32,768 to 65,535: Set after converted into hexadecimal.



●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Completed without error	FB_OK	Bit	OFF	When ON, it indicates that the periodic pulse counter function is started.
Periodic pulse count previous value	o_PreviousValue	Double Word	0	Store the periodic pulse count previous value.
Periodic pulse count present value	o_PresentValue	Double Word	0	Store the periodic pulse count present value.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_PeriodicPulseCounter function block.

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

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

2.12 M+D62_OverflowDetection (Overflow detection)

FB Name

M+D62_OverflowDetection

Function Overview

Item	Description																	
Function overview	Detects overflow.																	
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+D62_OverflowDetection</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Execution command</td> <td style="width: 30%; padding: 5px;">B : FB_EN</td> <td style="width: 30%; padding: 5px;">FB_ENO : B</td> <td style="width: 10%; padding: 5px;">Execution status</td> </tr> <tr> <td style="padding: 5px;">Module start XY address</td> <td style="padding: 5px;">W : i_Start_IO_No</td> <td style="padding: 5px;">o_Overflow : B</td> <td style="padding: 5px;">Overflow occurrence flag</td> </tr> <tr> <td style="padding: 5px;">Target CH</td> <td style="padding: 5px;">W : i_CH</td> <td style="padding: 5px;">FB_ERROR : B</td> <td style="padding: 5px;">Error flag</td> </tr> <tr> <td></td> <td></td> <td style="padding: 5px;">ERROR_ID : W</td> <td style="padding: 5px;">Error code</td> </tr> </table> </div>		Execution command	B : FB_EN	FB_ENO : B	Execution status	Module start XY address	W : i_Start_IO_No	o_Overflow : B	Overflow occurrence flag	Target CH	W : i_CH	FB_ERROR : B	Error flag			ERROR_ID : W	Error code
Execution command	B : FB_EN	FB_ENO : B	Execution status															
Module start XY address	W : i_Start_IO_No	o_Overflow : B	Overflow occurrence flag															
Target CH	W : i_CH	FB_ERROR : B	Error flag															
		ERROR_ID : W	Error code															
Applicable hardware and software	High-Speed Counter Module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series</td> <td>QD62, QD62E, QD62D</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LD62, LD62D</td> </tr> </tbody> </table>	Series	Model	MELSEC-Q Series	QD62, QD62E, QD62D	MELSEC-L Series	LD62, LD62D										
	Series	Model																
	MELSEC-Q Series	QD62, QD62E, QD62D																
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CPU module	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MELSEC-Q Series</td> <td>Basic model</td> </tr> <tr> <td>High performance model *</td> </tr> <tr> <td>Universal model</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU</td> </tr> </tbody> </table> <p>* Not applicable for QCPU (A mode)</p>	Series	Model	MELSEC-Q Series	Basic model	High performance model *	Universal model	MELSEC-L Series	LCPU									
Series	Model																	
MELSEC-Q Series	Basic model																	
	High performance model *																	
	Universal model																	
MELSEC-L Series	LCPU																	
Engineering software	<p>GX Works2 *1</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>Japanese version</td> <td>Version 1.86Q or later</td> </tr> <tr> <td>English version</td> <td>Version 1.24A or later</td> </tr> <tr> <td>Chinese (Simplified) version</td> <td>Version 1.49B or later</td> </tr> <tr> <td>Chinese (Traditional) version</td> <td>Version 1.49B or later</td> </tr> <tr> <td>Korean version</td> <td>Version 1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>		Language	Software version	Japanese version	Version 1.86Q or later	English version	Version 1.24A or later	Chinese (Simplified) version	Version 1.49B or later	Chinese (Traditional) version	Version 1.49B or later	Korean version	Version 1.49B or later				
Language	Software version																	
Japanese version	Version 1.86Q or later																	
English version	Version 1.24A or later																	
Chinese (Simplified) version	Version 1.49B or later																	
Chinese (Traditional) version	Version 1.49B or later																	
Korean version	Version 1.49B or later																	

Item	Description
Programming language	Ladder
Number of steps	100 steps (for MELSEC-Q series universal model CPU) * The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.
Function description	1) While FB_EN (Execution command) is ON, o_Overflow (Overflow occurrence flag) turns ON if overflow occurs. 2) When the target CH setting value is out of range, the FB_ERROR output turns ON, processing is interrupted, and the error code is stored in ERROR_ID (Error code). Refer to the error code explanation section for details.
Compiling method	Macro type
Restrictions and precautions	1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. 3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop, etc. because it is impossible to turn OFF. 4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target CH. 5) This FB uses index registers Z7 to Z9. Please do not use these index registers in an interrupt program. 6) Every input must be provided with a value for proper FB operation. 7) The pulse input mode, counting speed setting, and counter format must be properly configured to match systems and devices connected to the QD62(E/D) or LD62(D).
FB operation type	Real-time execution
Application example	Refer to "Appendix 1 - FB Library Application Examples".
Timing chart	<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>

Item	Description
Relevant manuals	<ul style="list-style-type: none"> •MELSEC-Q High-Speed Counter Module User's Manual •MELSEC-L High-Speed Counter 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. The target channel is not within the range of 1 to 2.	Please try again after confirming the setting.

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module start XY address	i_Start_IO_No	Word	Depends on the I/O point range. For details, refer to the CPU user's manual.	Specify the starting XY address (in hexadecimal) where the D62 module is mounted. (For example, enter H10 for X10.)
Target CH	i_CH	Word	1 to 2	Specify the CH number.

●Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON. OFF: Execution command is OFF.
Overflow occurrence flag	o_Overflow	Bit	OFF	ON: Overflow being occurred. OFF: No overflow detected.
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	2010/08/06	First edition

Note

This chapter includes information related to the M+D62_OverflowDetection function block.

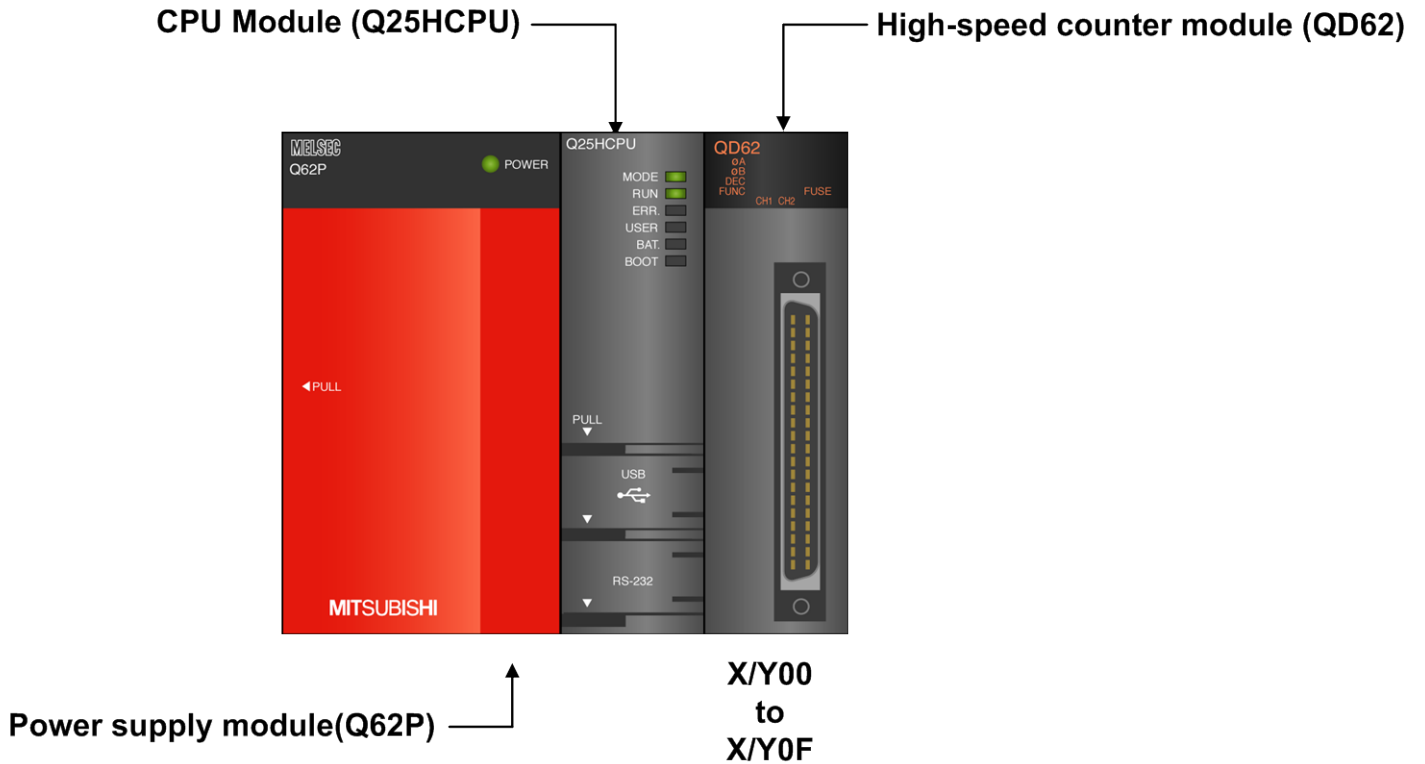
It does not include information on restrictions of use such as combination with high-speed counter modules or programmable controller CPUs.

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

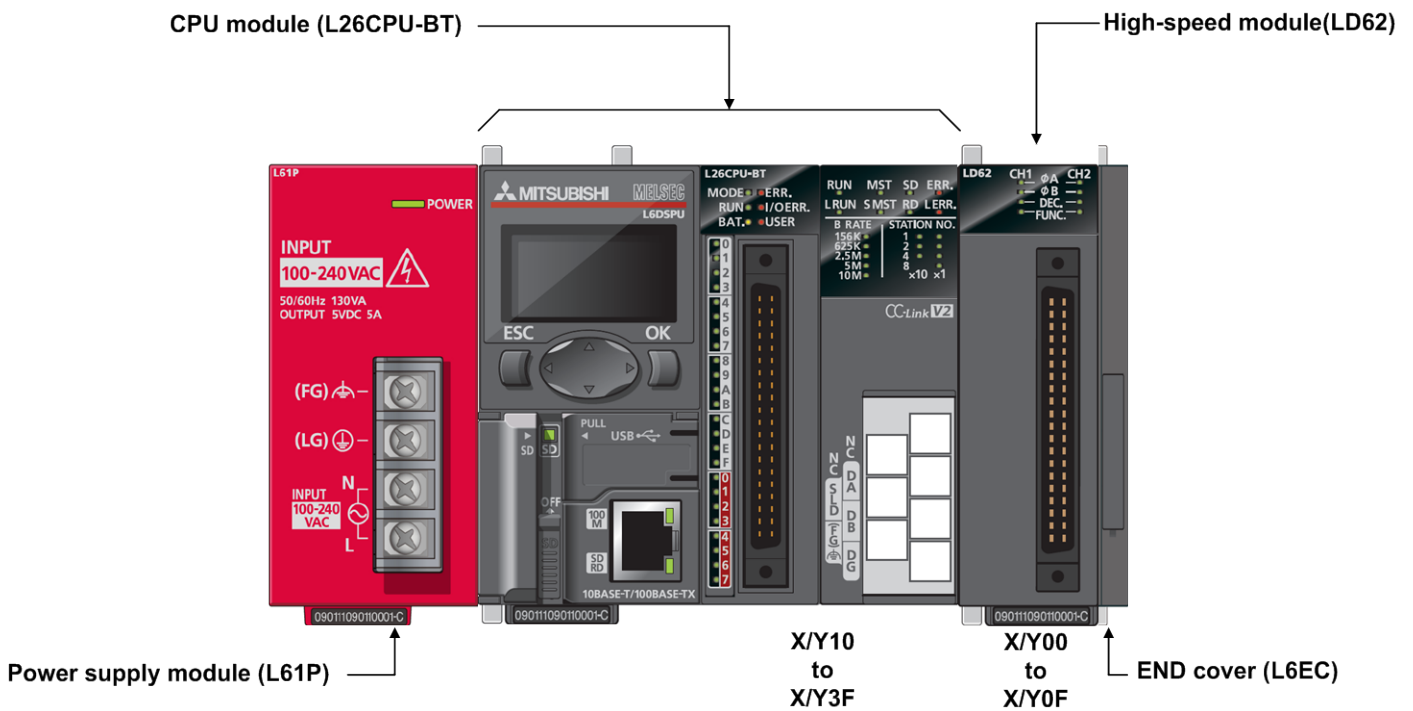
Appendix 1. FB Library Application Examples
D62 FB Application examples

System Configuration Example

(1) Q series system configuration Example



(2) L series system configuration Example



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)

Device	FB function name	Application(ON details)
M0	Ring counter setting	Ring counter setting request
M10	Count enable operation	Count enable command
M20	Present value monitoring	Present value read request
M30	Present value monitoring (All CHs)	Present value read request
M40	Coincidence output function setting	Coincidence output set command
M41		Coincidence output No.1 enable
M42		Coincidence output No.2 enable
M50	Coincidence output enable setting	Coincidence enable command
M60	Preset function operation	Preset function execution cmd
M70	Disable count function operation	Disable count command
M80	Latch counter function operation	Latch counter command
M90	Sampling counter function operation	Sampling count command
M100	Periodic pulse counter function operation	Periodic pulse count command
M110	Overflow detection	Overflow detection command

External output (checks)

Device	FB function name	Application(ON details)
M1	Ring counter setting	Ring counter setting FB ready
M2		Ring counter setting complete
F0		Ring counter setting FB error
M11	Count enable operation	Count enable FB ready
M12		Count operating flag
F5		Count enable FB error
M21	Present value monitoring	Present value monitoring ready
M22		Present value read OP complete
F10		Present value monitoring error
M31	Present value monitoring (All CHs)	Present value monitoring ready
M32		Present value read OP complete
M43	Coincidence output function setting	Coincidence output fcn set ready
M44		Coincidence output fcn set comp
F15		Coincidence output fcn set error
M51	Coincidence output enable setting	Coincidence enable set ready
M52		Coincidence enable set complete
F20		Coincidence enable set error
M61	Preset function operation	Preset function execution ready
M62		Preset function execution comp
F25		Preset function execution error
M71	Disable count function operation	Disable count execution ready
M72		Disable count operating flag
F30		Disable count execution error
M81	Latch counter function operation	Latch counter execution ready
M82		Latch counter execution complete
F35		Latch counter execution error
M91	Sampling counter function operation	Sampling counter execution ready
M92		Sampling counter execution comp
F40		Sampling counter execution error
M101	Periodic pulse counter function operation	Periodic pls counter ready
M102		Periodic pls counter complete
F45		Periodic pls counter error
M111	Overflow detection	Overflow detection FB ready
M112		Overflow being detected
F50		Overflow detection FB error

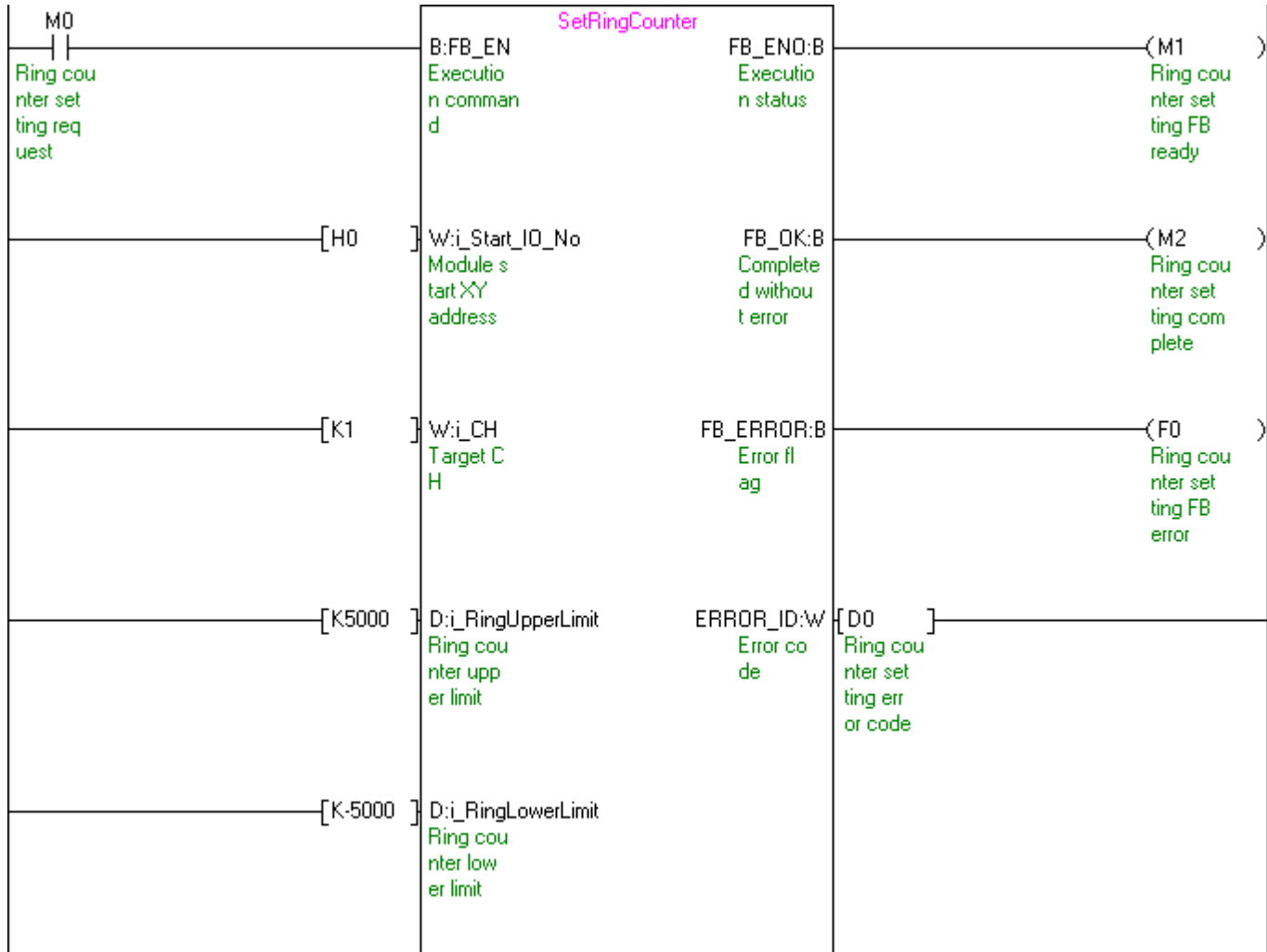
Data register

Device	FB function name	Application(ON details)
D0	Ring counter setting	Ring counter setting error code
D10	Count enable operation	Count enable FB error code
D20	Present value monitoring	Present value
D21		Present value monitoring error code
D22	Present value monitoring (All CHs)	CH1 present value
D30		CH2 present value
D31		
D32		
D33		
D40	Coincidence output function setting	setting FB error code
D50	Coincidence output enable setting	Coincidence enable set err code
D60	Preset function operation	Preset fcn execution error code
D70	Disable count function operation	Disable count execution err code
D80	Latch counter function operation	Latch count value
D81		Latch counter execution err code
D82		
D90	Sampling counter function operation	Sampling count value
D91		Sampling execution error code
D92		
D100	Periodic pulse counter function operation	Periodic pls cnt previous value
D101		Periodic pls cnt present value
D102		Periodic pls cnt error code
D103		
D104		
D110	Overflow detection	Overflow detection FB error code

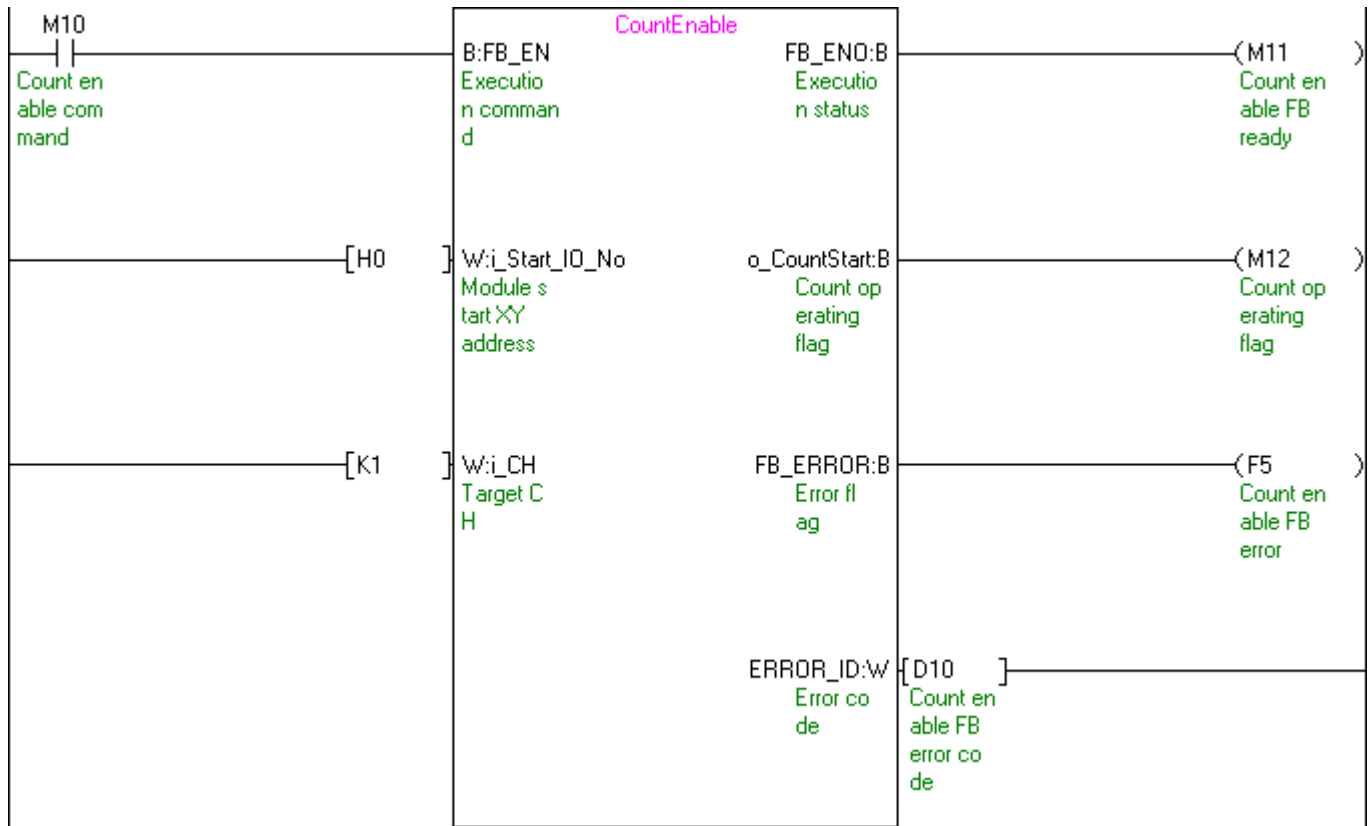


Program

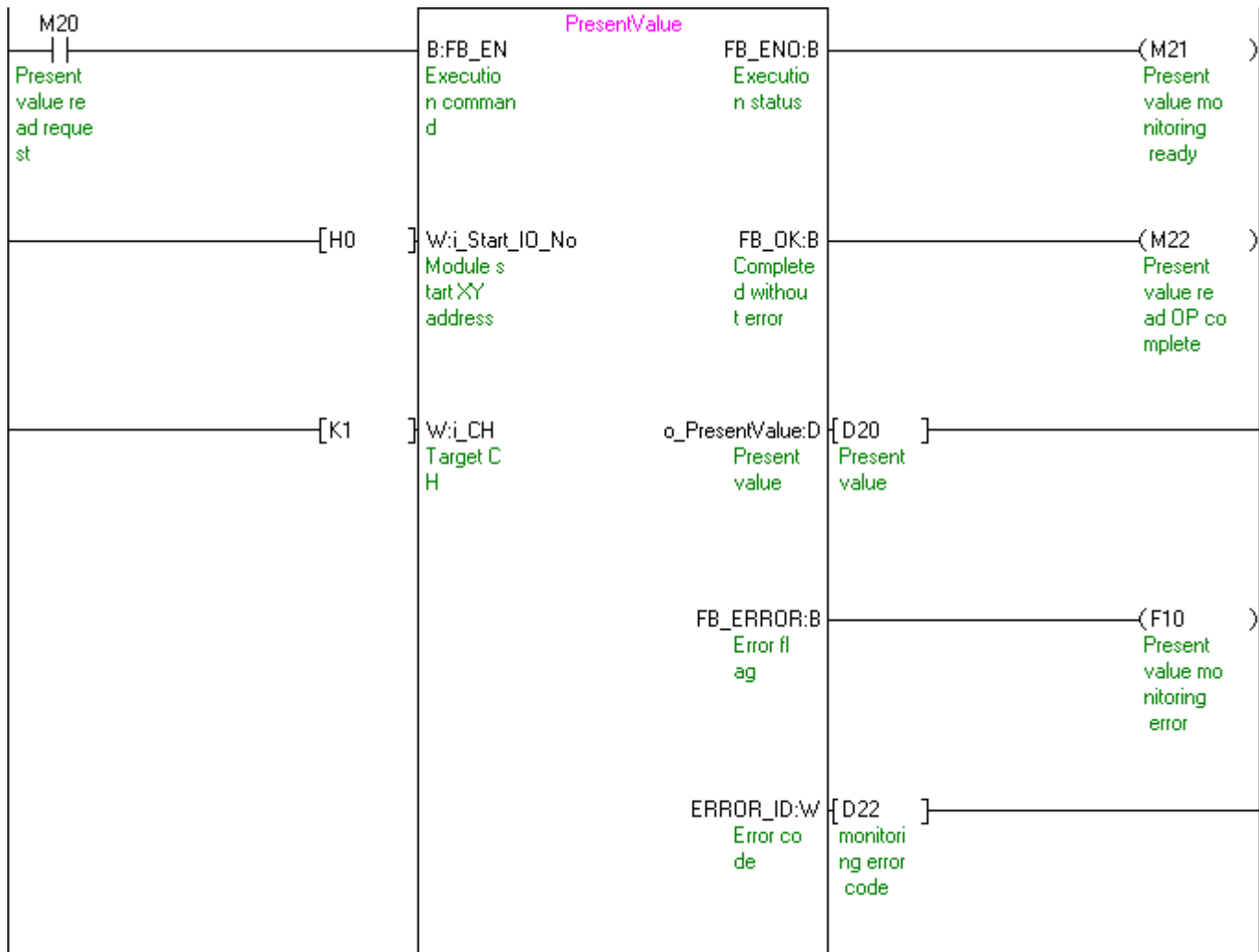
M+D62_SetRingCounter (Ring counter setting)



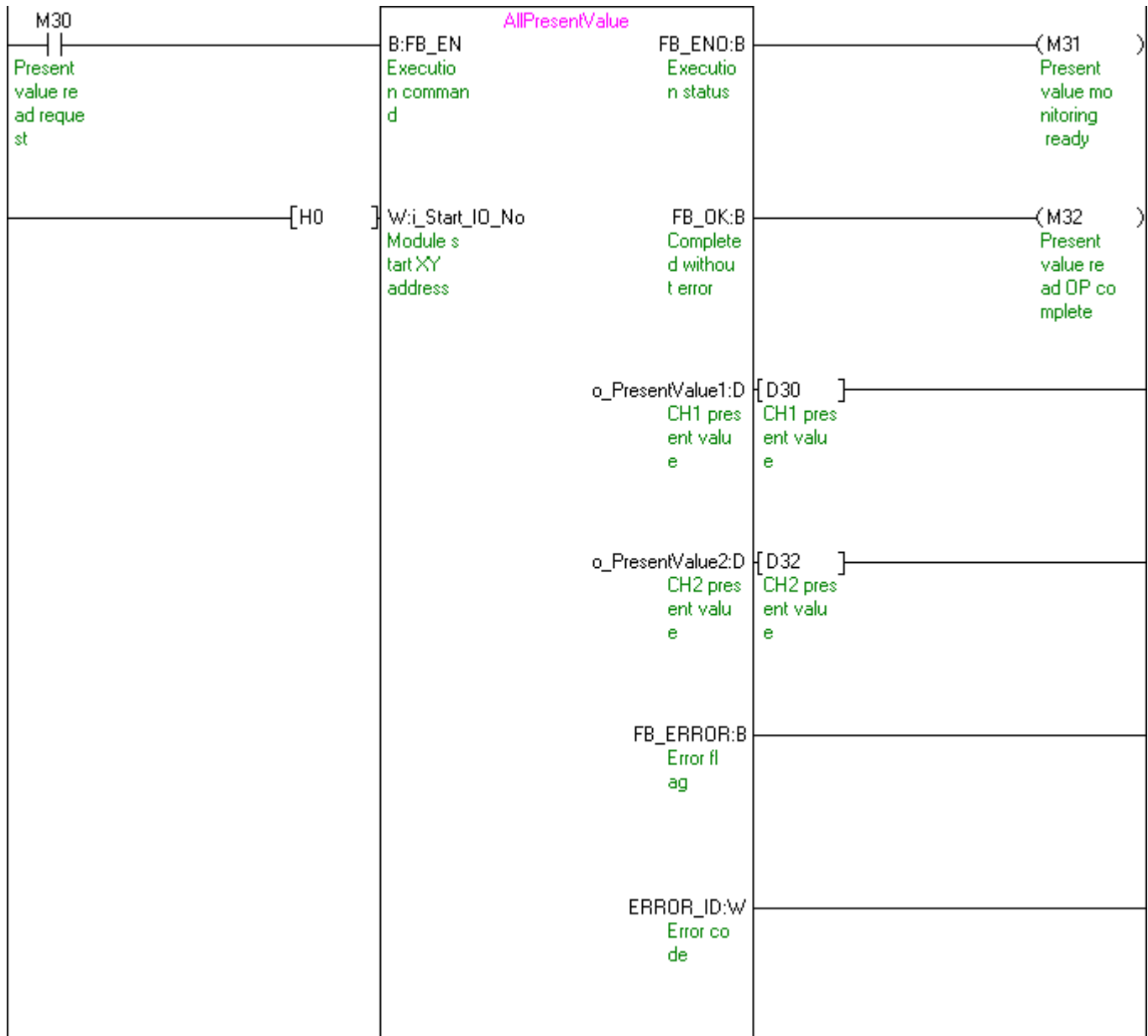
M+D62_CountEnable (Count enable operation)



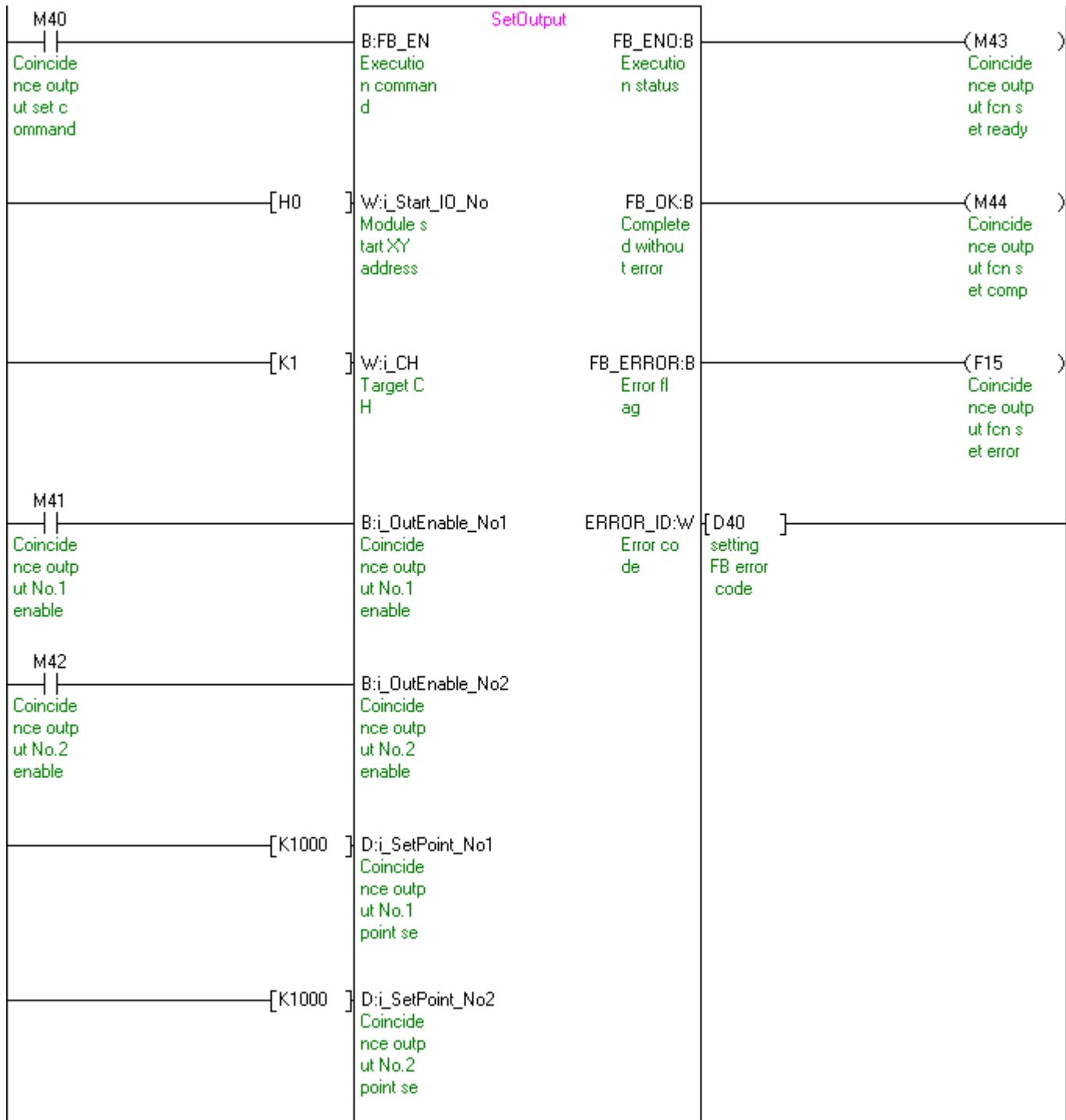
M+D62_PresentValueStorage (Present value monitoring)



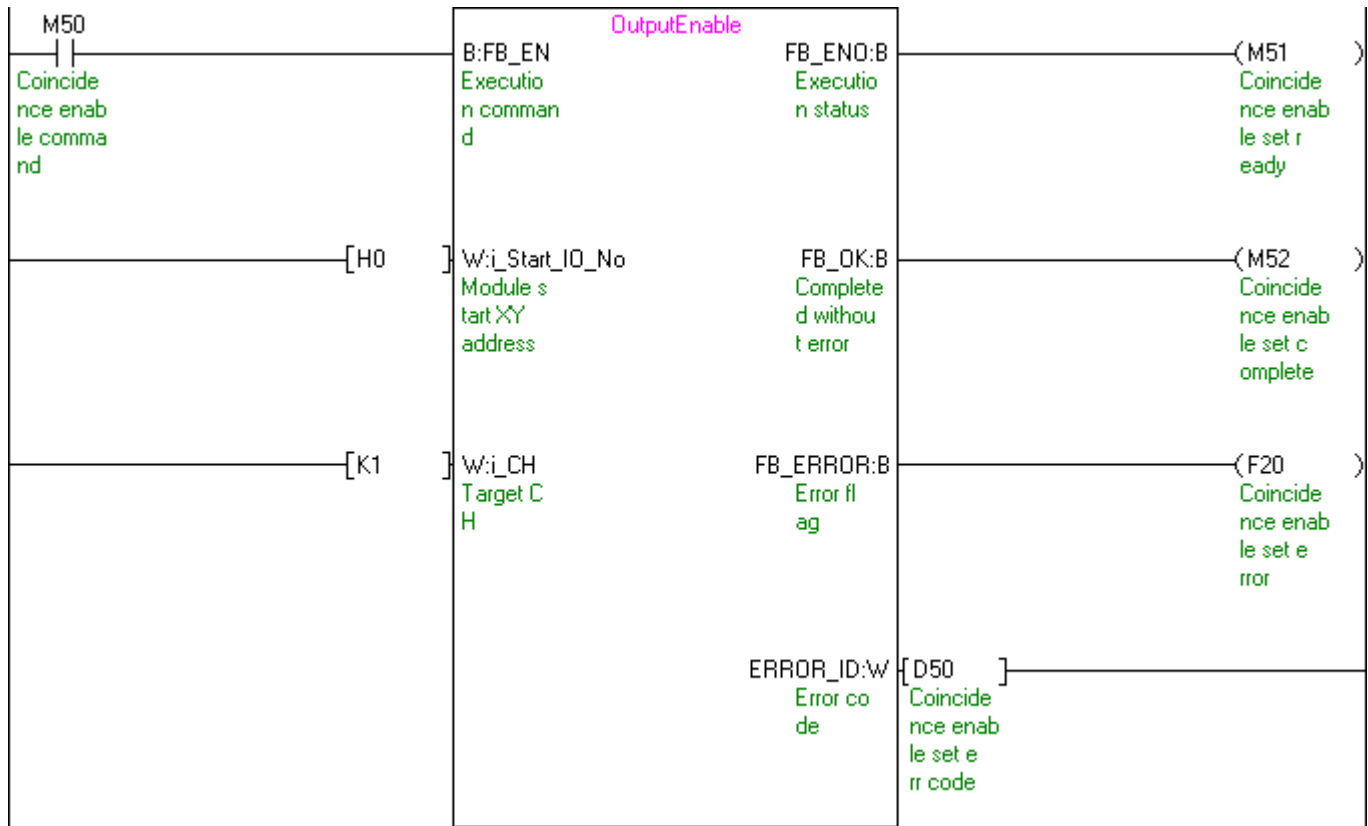
M+D62_AllPresentValueStorage (Present value monitoring (All CHs))



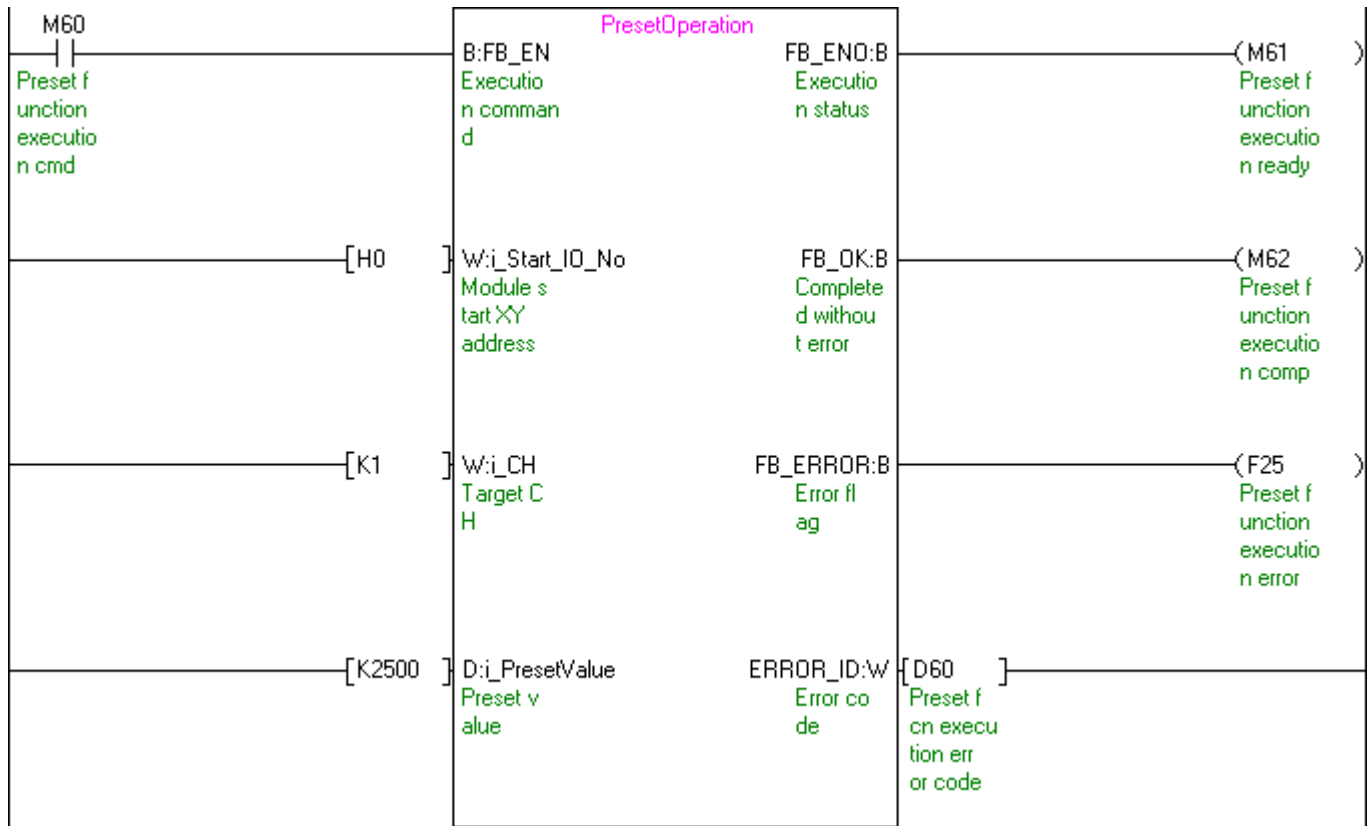
M+D62_SetCoincidenceOutput (Coincidence output function setting)



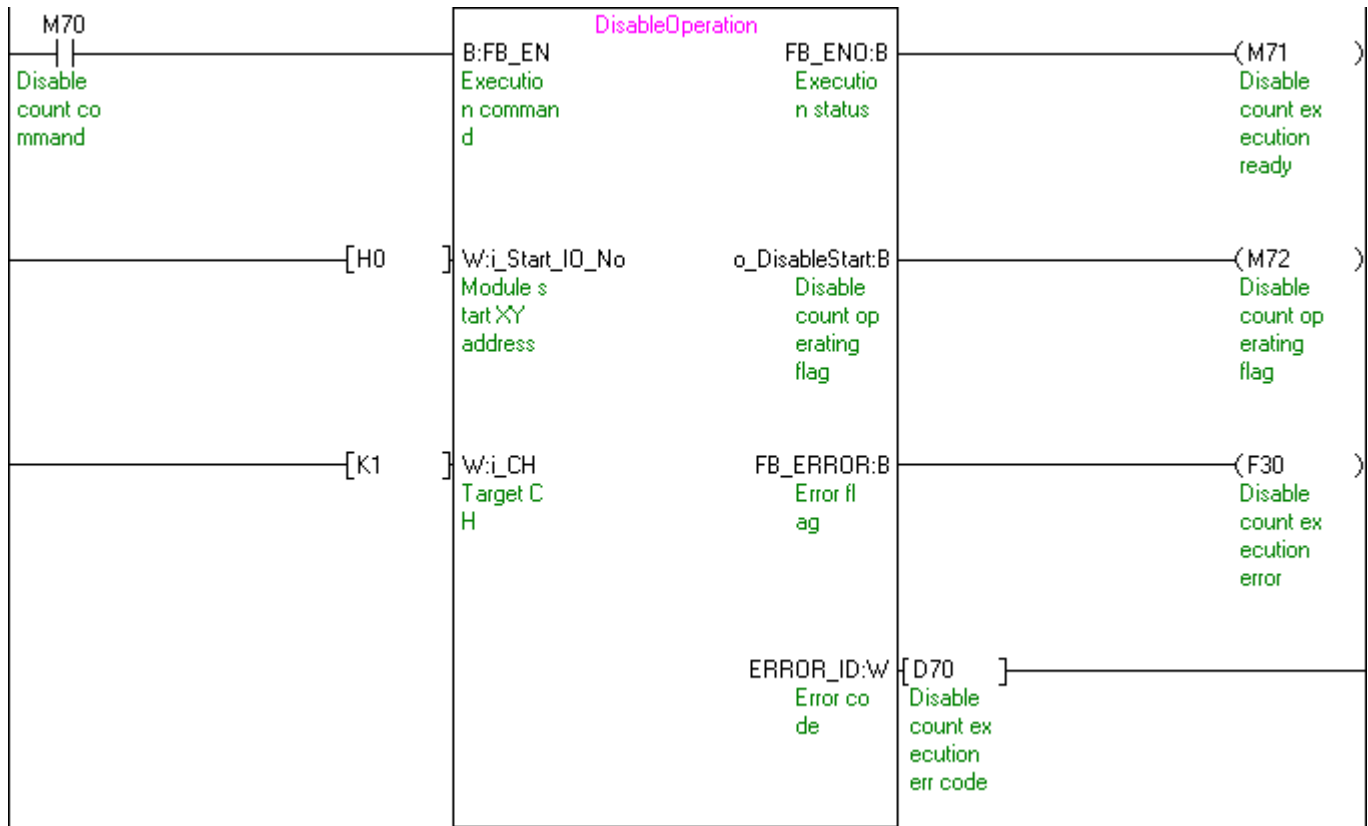
M+D62_CoincidenceOutputEnable (Coincidence output enable setting)



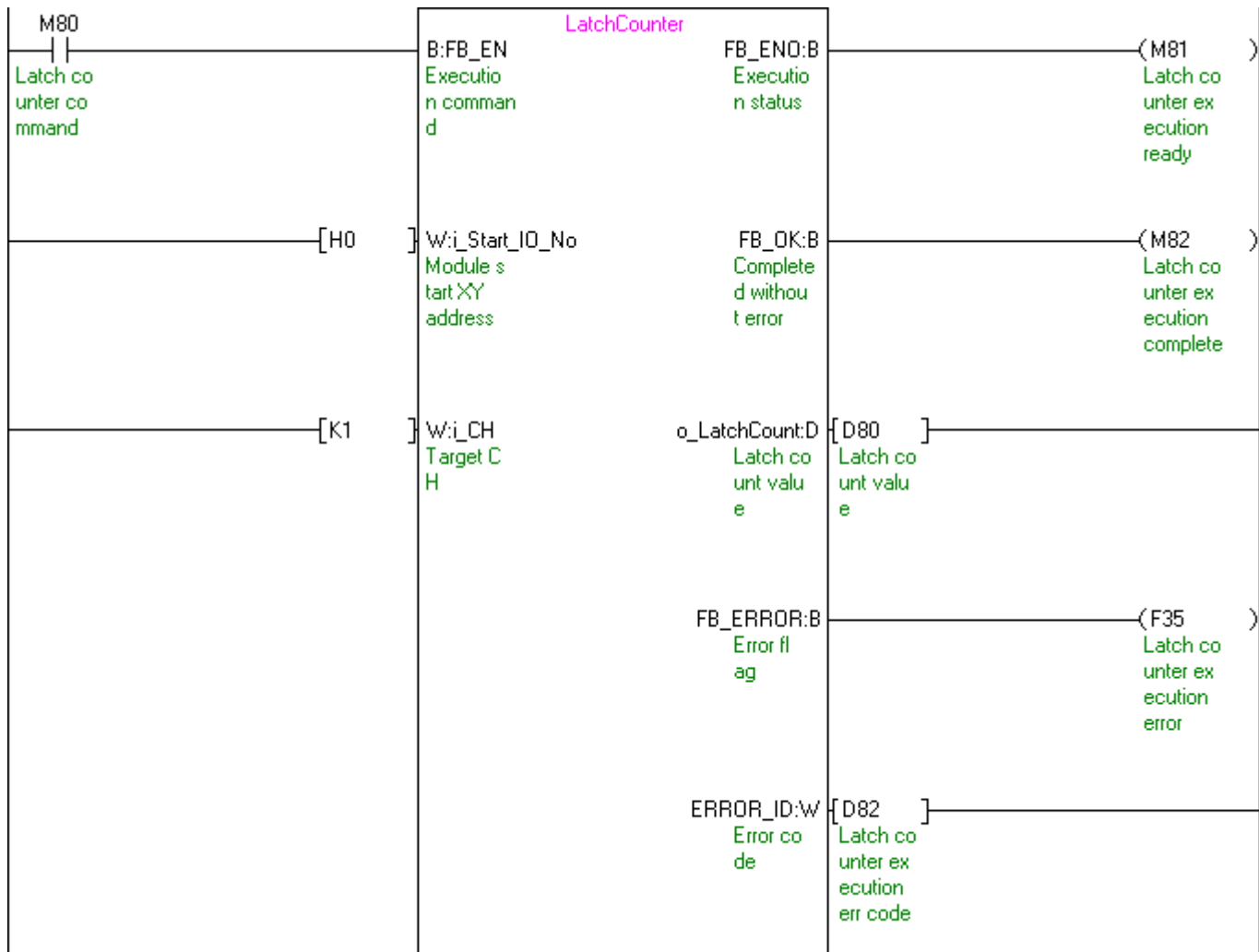
M+D62_PresetOperation (Preset function operation)



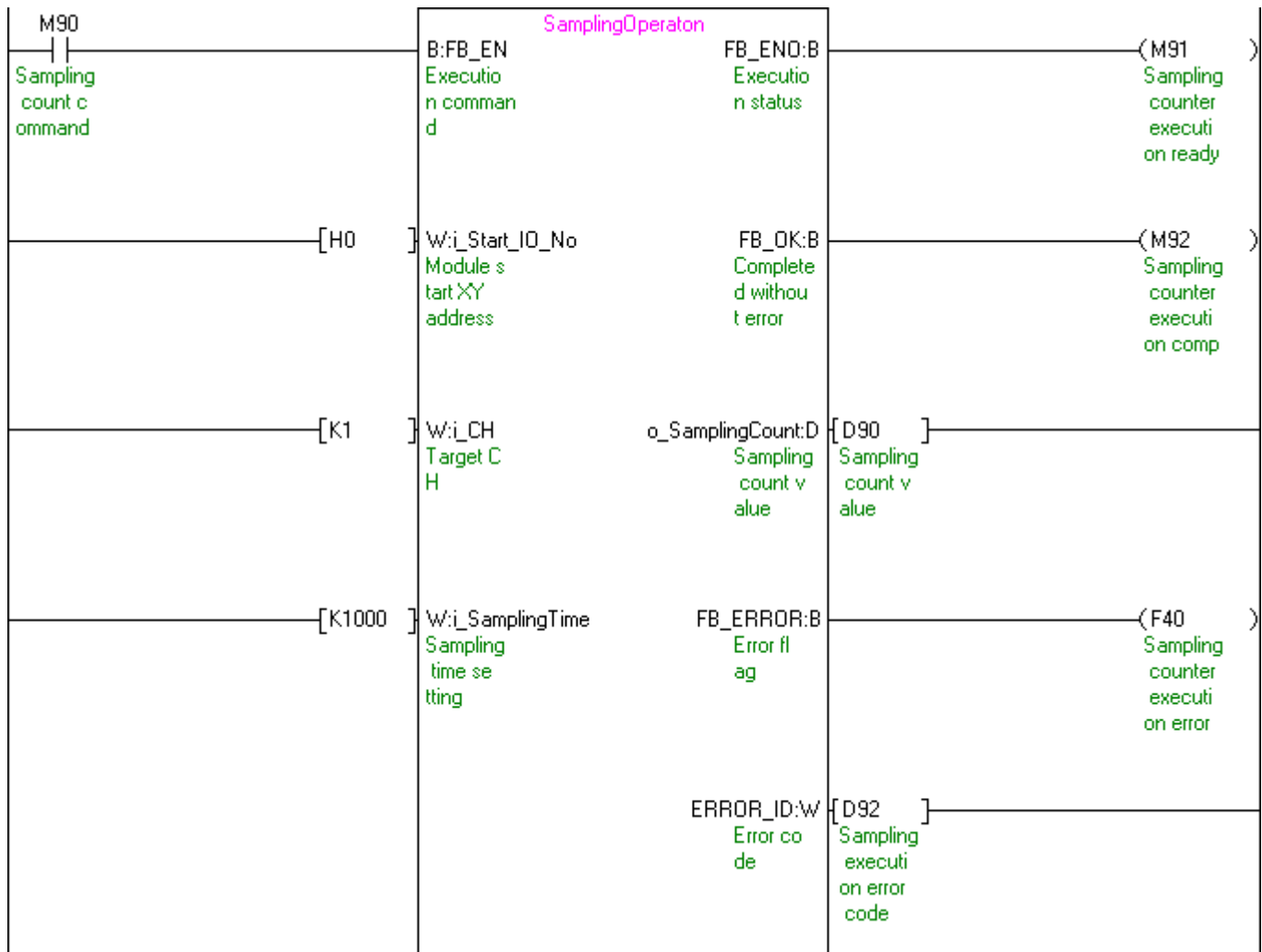
M+D62_CountDisableOperation (Disable count function operation)



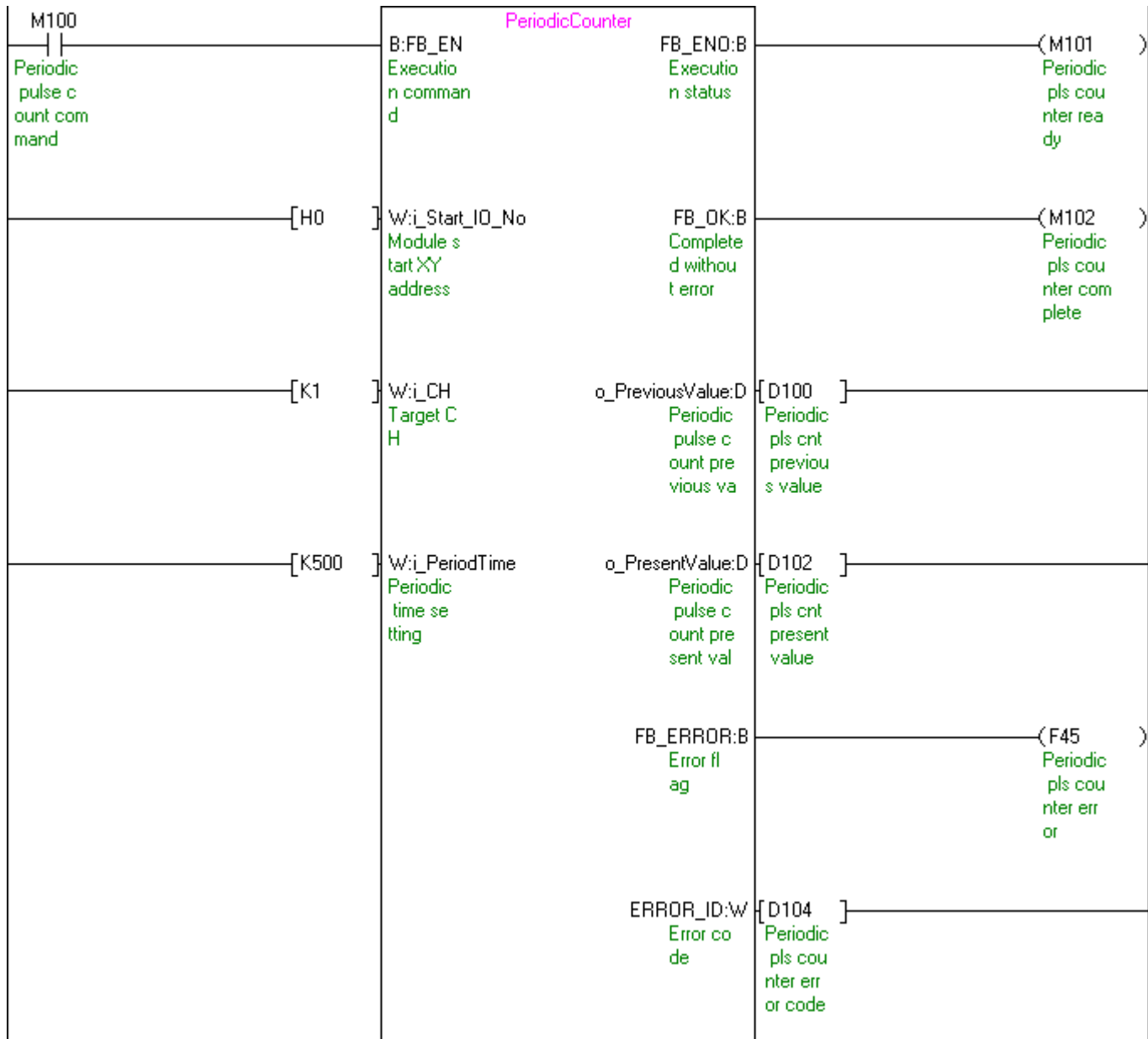
M+D62_LatchCounterOperation (Latch counter function operation)



M+D62_SamplingOperation (Sampling counter function operation)



M+D62_PeriodicPulseCounter (Periodic pulse counter function operation)



M+D62_OverflowDetection (Overflow detection)

