CC-Link IE Field Network High-Speed Counter Module FB Library Reference Manual

Applicable modules: NZ2GFCF-D62PD2

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Reference Manual Revision History

Reference Manual	Date	Description
Number		
FBM-M100-A	2013/06/14	First edition



1. Overview

1.1. Overview of the FB Library

This FB library is for using the NZ2GFCF-D62PD2 CC-Link IE Field Network high-speed counter module.

1.2. Function of the FB Library

Item	Description
M+NZ2GFD62_SetCncdOutput	Sets the point of the coincidence output and resets the coincidence output.
M+NZ2GFD62_Preset	Executes the preset/replace of the present value.
M+NZ2GFD62_LatchCntOperation	Executes the latch counter function.
M+NZ2GFD62_SamplingOperation	Executes the sampling counter function.
M+NZ2GFD62_PeriodicPlsCnt	Executes the periodic pulse counter function.
M+NZ2GFD62_FrequencyMeas	Starts the frequency measurement function and reads the measured
	frequency value that has been calculated.
M+NZ2GFD62_RotationSpeedMeas	Starts the rotation speed measurement function and reads the measured
	rotation speed value that has been calculated.
M+NZ2GFD62_PulseMeas	Starts the pulse measurement function and reads the measured pulse
	value.
M+NZ2GFD62_PWMOutput	Executes the PWM output function.
M+NZ2GFD62_ErrorOperation	Monitors errors and warnings, and performs error reset.
M+NZ2GFD62_DegreeToCountVal	Calculates the count value from the angle.
M+NZ2GFD62_SetCamSwitch	Performs the specified cam switch output setting.
M+NZ2GFD62_SetInitData	Performs the initial data setting.



1.3. System Configuration Examples

The following examples show system configurations when using the high-speed counter module (NZ2GFCF-D62PD2) as the remote device station.



CC-Link IE Field Network High-Speed Counter Module FB Library Reference Manual FBM-M100-A



1.4. Setting the CC-Link IE Field Network Master/Local Module

This section explains the settings of CC-Link IE Field Network master/local module based on Section "1.3 System Configuration Examples". Set the following items using GX Works2.

(1) Network parameters

Item	Description
Network Type	Select the CC IE Field (Master Station).
Start I/O No.	Set the start I/O number of the master/local module in increments of 16 points.
	Set "0000".
Network No.	Set the network number of the master/local module.
	Set "1".
Total Stations	Set the number of slave stations connected to the master station. Include the number of
	reserved slave stations.
	Set "1".

	Module 1		Module 2
Network Type	CC IE Field (Master Station) 🗾 🗸	No	ne 🗸
Start I/O No.	0000		
Network No.	1		
Total Stations	1		
Group No.			
Station No.	0		
Mode	Online (Normal Mode) 📃 🗸		•
	Network Configuration Setting		
	Network Operation Setting		
	Refresh Parameters		
	Interrupt Setting		
	Specify Station No. by Parameter 🚽 👻		
4			



(2) Network configuration setting

Item	Description							
Station No.	Set the station number of the slave station connected to the master station.							
	Set "1".							
Station Type	Set the station ty	pe of the slave station connected to the master station.						
	Set "Remote Device Station".							
RX/RY setting	Set assignment for RX/RY for the slave station connected to the master station.							
	(a) Points	Set "96".						
	(b) Start	Set "0000".						
RWw/RWr setting	Set assignment	for RWw/RWr for the slave station connected to the master station.						
	(a) Points	Set "64".						
	(b) Start	Set "0000".						

Assignment Method Points/Start Start/End	The colun Please re	nn contents for refresh c open the window after c	will be ch ting refre	hanged c esh parar	orrespor neter sel	iding to ri ting whe	efresh pa en changi	aramete ing refre	
				RX,	/RY Setti	ng	RWw	/RWr Sel	tting
Number of PLCs Sta	tion No	Station Type		Pointe	Start	End	Pointe	Start	End
1	1	Remote Device Station	•	96	0000	005F	64	0000	003F



(3) Refresh Parameters

Item	Description	Setting value
Transfer SB	Select the link refresh range of SB device.	•"Link Side Points" : 512
		•"Link Side Start" : 0000
		•"PLC Side Dev. Name" : SB
		•"PLC Side Start" : 0000
Transfer SW	Select the link refresh range of SW device.	•"Link Side Points" : 512
		•"Link Side Start" : 0000
		•"PLC Side Dev. Name" : SW
		•"PLC Side Start" : 0000
Transfer 1	Select the link refresh range of RX device.	•"Link Side Dev. Name" : RX
		•"Link Side Points" : 96
		•"Link Side Start" : 0000
		•"PLC Side Dev. Name" : M
		•"PLC Side Start" : 1024
Transfer 2	Select the link refresh range of RY device.	•"Link Side Dev. Name" : RY
		•"Link Side Points" : 96
		•"Link Side Start" : 0000
		•"PLC Side Dev. Name" : M
		•"PLC Side Start" : 2048
Transfer 3	Select the link refresh range of RWr device.	•"Link Side Dev. Name" : RWr
		•"Link Side Points" : 64
		•"Link Side Start" : 0000
		•"PLC Side Dev. Name" : W
		•"PLC Side Start" : 1000
Transfer 4	Select the link refresh range of RWw device.	•"Link Side Dev. Name" : RWw
		•"Link Side Points" : 64
		•"Link Side Start" : 0000
		•"PLC Side Dev. Name" : W
		•"PLC Side Start" : 1100

* Make sure to set "0000" for Start of Link Side.

* Change the Points of Link Side and Dev. Name and Start of PLC Side according to the system.

They must be the same as for "M_F_RX ", "M_F_RY", "M_F_RWr" and "M_F_RWw" devices of the global label setting.



Assignment Method												
Points/Start												
C Start/End						*5	Set 000	0 for	the start	address		
						0	f Link S	Side				
			Link S	õide 🖌					PLC Si	ide		
	Dev. Na	ame	Points	Start	End		Dev. N	ame	Points	Start	End	
Transfer SB	SB		512	0000	01FF	ŧ	SB	-	512	0000	01FF	
Transfer SW	SW		512	0000	01FF	+	SW	-	512	0000	01FF	
Transfer 1	RX	•	96	0000	005F	+	М	-	96	1024	1119	
Transfer 2	RY	Ŧ	96	0000	005F	+	м	4	96	2048	2143	
Transfer 3	RWr	•	64	0000	003F	+	W	4	64	001000	00103F	
Transfer 4	RWw	•	64	0000	003F	+	W	4	64	001100	00113F	
Transfer 5		•				+		4				
Transfer 6		•				+		4				
Transfer 7		•				+		+				
Transfer 8		•				+		+				-
			. 1		1					- 1		
		Defa	ult	Check	<	En	d		Cancel			



1.5. Setting Global Labels

Global labels must be set before using this FB. This section explains global label settings.

(1) M_F_RX Set remote input (RX).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RX".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z9" prefix.

(2) M_F_RY Set remote output (RY).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RY".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z8" prefix.

(3) M_F_RWr Set remote register (RWr).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RWr".
Data Type	Select "Word [Signed]".
Device	Enter the refresh device set for the refresh parameter with a "Z7" prefix.

(4) M_F_RWw Set remote register (RWw).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RWw".
Data Type	Select "Word [Signed]".
Device	Enter the refresh device set for the refresh parameter with a "Z6" prefix.

		Class	Label Marea	Data Tupo	Con	Douiso	Commont	Remark
1		VAR_GLOBAL	M_F_RX	Bit		M1024Z9	RXrefresh device	
2	2	VAR_GLOBAL	M_F_RY	Bit		M2048Z8	RYrefresh device	
3	3	VAR_GLOBAL	M_F_RWr	Word[Signed]		W1000Z7	RWrrefresh device	
- 4	1	VAR_GLOBAL	✓ M_F_RWw	Word[Signed]		W1100Z6	RWwrefresh device	



1.6. Creating Interlock Programs

Interlock programs must be created for the FBs. The following are examples of interlock programs. Set one interlock program to each cyclic transmission and transient transmission. (Set a corresponding FB between MC and MCR instructions.)

1.6.1. Cyclic Transmission Program

Use link special relay (SB) and link special register (SW) to create an interlock for cyclic transmission program.

- Own station data link status (SB0049)
- Each station data link status (SW00B0 to SW00B7)

Example: Interlock example (Station No. 1)





1.6.2. Transient Transmission Program

Use link special relay (SB) and link special register (SW) to create an interlock for transient transmission program.

- Own station baton pass status (SB0047)
- Each station baton pass status (SW00A0 to SW00A7)

Example: Interlock (Station No.1)





1.6.3. FB Transmission List

This table lists transmission types used for FBs.

FB name	Cyclic transmission	Transient transmission
M+NZ2GFD62_SetCncdOutput	0	-
M+NZ2GFD62_Preset	0	-
M+NZ2GFD62_LatchCntOperation	0	-
M+NZ2GFD62_SamplingOperation	0	-
M+NZ2GFD62_PeriodicPlsCnt	0	-
M+NZ2GFD62_FrequencyMeas	0	-
M+NZ2GFD62_RotationSpeedMeas	0	-
M+NZ2GFD62_PulseMeas	0	-
M+NZ2GFD62_PWMOutput	0	-
M+NZ2GFD62_ErrorOperation	0	-
M+NZ2GFD62_DegreeToCountVal	-	-
M+NZ2GFD62_SetCamSwitch	-	0
M+NZ2GFD62_SetInitData	0	-

o: Used

-: Not used

1.7. Relevant Manuals

CC-Link IE Field Network High-Speed Counter Module User's Manual MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Common) GX Works2 Version1 Operating Manual (Simple Project, Function Block)

1.8. 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+NZ2GFD62_SetCncdOutput (Coincidence output function setting)

FB Name

M+NZ2GFD62_SetCncdOutput

Function Overview

Item	Description					
Function overview	Sets the point of the coincidence output and resets the coincidence output.					
Symbol	M+NZ2GED62_SetCordQuitout					
	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	
	Station No. ——	N: i_Station_No		FB_ERROR : B	——Error flag	
	Point setting	D : i_SetPoint1		ERROR_ID : W	Error code	
	Point setting	D : i_SetPoint2				
	Point setting	D : i_SetPoint3				
	Point setting	D : i_SetPoint4				
	(Coincidence output 4)					
Applicable bardware						
and software	Network high-speed					
	counter module					
	CC-Link IE Field	CC-Link IE Field Network master/local module *1				
	Network module	*1 The first five digit	*1 The first five digits of the serial number are "14102" or later.			
	CPU module					
		Series			Model	
		MELSEC-Q Series	s *1	Universal model QCPU *2		
		MELSEC-L Series		LCPU *3		
		*1 Not applicable to	QCPU (A mode)		
		*2 The first five digit	s of the	serial number	are "12012" or later.	
		*3 The first five digits of the serial number are "13012" or late			are "13012" or later.	
	Engineering software	e GX Works2 *1				
		Language Software versio		e version		
		English version Version1.24A or later				
		Chinese version Version1.49B or later				
		*1 For software versions applicable to the modules used, refe				
		"Relevant manuals".				



Item	Description						
Programming	Ladder						
language							
Number of steps	628 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 point setting (coincidence output 1 to						
	4) (remote register) is performed and the coincidence output is reset.						
	2) The coincidence output and external coincidence output are turned ON again even if						
	the coincidence output and external coincidence output are reset with this FB while the						
	present value is equal to the point setting of the coincidence output.						
	3) This FB is executed for the channel that is assigned in the coincidence output channel						
	assignment setting.						
	4) FB operation is one-shot only, triggered by the FB_EN signal.						
	5) When the network configuration setting of the station number specified by						
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the						
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID						
	(Error code).						
	6) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR						
	output turns ON and processing is interrupted, and the error code 60 (decimal) is						
	stored in ERROR_ID (Error code).						
	Refer to the error code explanation section for details.						
Compiling method	Macro type						



Item	Description					
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery					
precautions	processing separately in accordance with the required system operation.					
	The FB cannot be used in an interrupt program.					
	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 because it is impossible to turn OFF.					
	4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.					
	5) Every input must be provided with a value for proper FB operation.					
	6) When this FB is used, the comparison condition setting of the module-based					
	parameter data must be set to "Coincidence Output (00b)". (For the module-based					
	parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module					
	User's Manual.)					
	7) A duplicated coil warning may occur during compile operation due to the RY signal					
	being operated by index modification in the FB. However this is not a problem and the					
	FB will operate without error.					
	8) Only one master/local module can be controlled by the CC-Link IE Field system FB. To					
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using					
	the FB for 2 or More Master/Local Modules".					
	9) This FB uses cyclic transmission. Therefore, an interlock program for cyclic					
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic					
	Transmission Program".					
FB operation type	Pulsed execution (multiple scan execution type)					
Application example	Refer to "Appendix 2. FB Library Application Examples".					
Timing chart	[When operation completes without error] [When an error occurs]					
	FB_EN (Execution command)					
	FB_ENO (Execution status)					
	Point setting (Coincidence output 1 to 4) Change processing No Point setting (Coincidence output 1 to 4) No Change processing Processing Change processing Processing Processing Processing					
	FB_OK (Completed without error) FB_OK (Completed without error)					
	FB_ERROR (Error flag)					
	ERROR_ID (Error code) 0 ERROR_ID (Error code) 0 Error code 0					



Item	Description				
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual				
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual				
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual				
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)				
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)				
	•GX Works2 Version1 Operating Manual (Common)				
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)				

Error codes

•Error code list

Error code	Description	Action	
50 (Decimal)	The network configuration setting of the	Review the following setting.	
	station number specified by i_Station_No	 Network configuration setting 	
	is incorrect.	Refer to (2) in Section "1.4 Setting the	
		CC-Link IE Field Network Master/Local	
		Module".	
		 The value entered in i_Station_No 	
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.	
	The station number is not within the range		
	of 1 to 120.		

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range of the CPU.	address (in hexadecimal)
			For details, refer to the	where the CC-Link IE Field
		Word	CPU user's manual.	Network master/local
				module is mounted. (For
				example, enter H10 for
				X10.)
Station No.	i_Station_No	Word	1 to 120	Specify the target station
		vvoru		number.



Name (Comment)	Label name	Data type	Setting range	Description
Point setting (Coincidence output 1)	i_SetPoint1	Double Word	-2,147,483,648 to 2,147,483,647	Specify the point setting value for coincidence output 1.
Point setting (Coincidence output 2)	i_SetPoint2	Double Word	-2,147,483,648 to 2,147,483,647	Specify the point setting value for coincidence output 2.
Point setting (Coincidence output 3)	i_SetPoint3	Double Word	-2,147,483,648 to 2,147,483,647	Specify the point setting value for coincidence output 3.
Point setting (Coincidence output 4)	i_SetPoint4	Double Word	-2,147,483,648 to 2,147,483,647	Specify the point setting value for coincidence output 4.

Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO			ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the point
error		Dit		setting for the coincidence output and
		DIL	OFF	resetting of the coincidence output are
				completed.
Error flag	FB_ERROR	Dit	OFF	When ON, it indicates that an error has
		BIL OFF		occurred.
Error code	ERROR_ID	Word	0	FB error code output.



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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



2.2. M+NZ2GFD62_Preset (Preset/replace)

FB Name

M+NZ2GFD62_Preset

Function Overview

Item	Description				
Function overview	Executes the preset/replace of the present value.				
Symbol					
	Execution command —	B : FB_EN	Joz_Piesei	FB_ENO : B	——Execution status
	Module start XY address	N : i Start IO No		FB OK : B	Completed without error
	Station No	N : i Station No			Error flag
					Error codo
				ERROR_ID . W	Ellor code
	Preset value	D : I_PresetValue			
					I
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Network master/local module *1			dule *1
	Network module	*1 The first five digits of the serial number are "14102" or later			
	CPU module				
		Series			Model
		MELSEC-Q Series	s *1	Universal mo	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial number	are "12012" or later.
		*3 The first five digit	s of the	serial number	are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Software	e version
		English version	Versior	1.24A or later	
		Chinese version	Versior	n1.49B or later	
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manua	ls".		
Programming	Ladder				
language					



Item	Description		
Number of steps	376 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), i_PresetValue (Preset value) is set and		
	the present value is rewritten.		
	2) FB operation is one-shot only, triggered by the FB_EN signal.		
	3) When the setting value of the target channel is out of range, the FB_ERROR output		
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in		
	ERROR_ID (Error code).		
	4) When the network configuration setting of the station number specified by		
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the		
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID		
	(Error code).		
	5) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR		
	output turns ON and processing is interrupted, and the error code 60 (decimal) is		
	stored in ERROR_ID (Error code).		
	Refer to the error code explanation section for details.		
Compiling method	Macro type		



Item	Description			
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery			
precautions	processing separately in accordance with the required system operation.			
	2) The FB cannot be used in an interrupt program.			
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.			
	Do not use this FB in programs that are only executed once such as a subroutine,			
	FOR-NEXT loop because it is impossible to turn OFF.			
	4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an			
	interrupt program.			
	5) When two or more of these FBs are used, precaution must be taken to avoid repetition			
	of the target channel.			
	6) Every input must be provided with a value for proper FB operation.			
	7) The preset/replace is not performed by phase Z input terminal with this FB.			
	8) A duplicated coil warning may occur during compile operation due to the RY signal			
	being operated by index modification in the FB. However this is not a problem and the			
	FB will operate without error.			
	9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To			
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using			
	the FB for 2 or More Master/Local Modules".			
	10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic			
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic			
	Transmission Program".			
FB operation type	Pulsed execution (1 scan execution type)			
Application example	Refer to "Appendix 2. FB Library Application Examples".			
Timing chart	[When operation completes without error] [When an error occurs]			
	FB_EN (Execution			
	FB_ENO (Execution status)			
	Preset/replace No processing Proc			
	FB_OK (Completed without error)			
	FB_ERROR (Error flag)			
	ERROR_ID (Error code) 0 Error code 0 Error code			



Item	Description		
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual		
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual		
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual		
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)		
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)		
	•GX Works2 Version1 Operating Manual (Common)		
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)		

Error codes

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	



Labels

Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range of the CPU.	address (in hexadecimal)
			For details, refer to the	where the CC-Link IE Field
		Word	CPU user's manual.	Network master/local
				module is mounted. (For
				example, enter H10 for
				X10.)
Station No.	i_Station_No	Mord	1 to 120	Specify the target station
		vvoru		number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
Preset value	i_PresetValue	Double	-2,147,483,648 to	Specify the preset value.
		Word	2,147,483,647	

Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit OFF O		ON: Execution command is ON.
				OFF: Execution command is OFF.
Completed without	FB_OK	Bit OFF p		When ON, it indicates that the
error				preset/replace command 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	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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



2.3. M+NZ2GFD62_LatchCntOperation (Latch counter function operation)

FB Name

M+NZ2GFD62_LatchCntOperation

Function Overview

Item	Description				
Function overview	Executes the latch counter function.				
Symbol	M+NZ2GFD62 LatchCntOperation				
	Execution command — E	B : FB_EN		FB_ENO : B	——Execution status
	Module start XY address — V	V : i_Start_IO_No		FB_OK : B	Completed without error
	Station No. —— V	V : i_Station_No	0	_LatchCount : D	Latch count value
	Target CH—— V	W : i_CH		FB_ERROR : B	——Error flag
				ERROR_ID : W	Error code
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Ne	etwork m	aster/local mo	odule *1
	Network module	*1 The first five digits of the serial number are "14102" or later			
	CPU module				
		Series			Model
		MELSEC-Q Series	s *1	Universal mo	odel QCPU *2
		MELSEC-L Series LCPU *3			
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	ts of the	serial number	are "12012" or later.
		*3 The first five digit	ts of the	serial number	are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Softwar	e version
		English version	Versior	n1.24A or later	r
		Chinese version	Versior	n1.49B or late	r
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manua	als".		
Programming	Ladder				
language					



Item	Description
Number of steps	455 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 count value, which has been latched
	by the latch counter function, is stored in o_LatchCount (Latch count value).
	2) FB operation is one-shot only, triggered by the FB_EN signal.
	3) When the setting value of the target channel is out of range, the FB_ERROR output
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in
	ERROR_ID (Error code).
	4) When the network configuration setting of the station number specified by i_Station_No
	(Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is
	interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).
	5) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR
	output turns ON and processing is interrupted, and the error code 60 (decimal) is
	stored in ERROR_ID (Error code).
	Refer to the error code explanation section for details.
Compiling method	Macro type



Item	Description		
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery		
precautions	processing separately in accordance with the required system operation.		
	2) The FB cannot be used in an interrupt program.		
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.		
	Do not use this FB in programs that are only executed once such as a subroutine,		
	FOR-NEXT loop because it is impossible to turn OFF.		
	4) When this FB is used, the selected counter function start command (RY(n+2)5,		
	RY(n+3)D) must be turned OFF.		
	5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an		
	interrupt program.		
	6) When two or more of these FBs are used, precaution must be taken to avoid repetition		
	of the target channel.		
	7) Every input must be provided with a value for proper FB operation.		
	8) When the latch counter function is executed, the counter function selection of the		
	module-based parameter data must be set to 1: Latch Counter Function. (For the		
	module-based parameter data, refer to the CC-Link IE Field Network High-Speed		
	Counter Module User's Manual.)		
	9) A duplicated coil warning may occur during compile operation due to the RY signal		
	being operated by index modification in the FB. However this is not a problem and the		
	FB will operate without error.		
	10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To		
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using		
	the FB for 2 or More Master/Local Modules.		
	11) This FB uses cyclic transmission. Therefore, an interlock program for cyclic		
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic		
	Transmission Program".		
FB operation type	Pulsed execution (multiple scan execution type)		
Application example	Refer to "Appendix 2. FB Library Application Examples".		
Timing chart	[When operation completes without error] [When an error occurs]		
	FB_EN (Execution command)		
	FB_ENO (Execution status)		
	Latch count processing Process ng Orocessing Latch count processing Processin		
	o_LatchCount No o_LatchCount o_LatchCount o_LatchCount o_LatchCount refreshing (Latch count value) refreshing refreshing		
	FB_OK (Completed without		
	FB_ERROR (Error flag) FB_ERROR (Error flag)		
	ERROR_ID (Error code) 0 ERROR_ID (Error code) 0 Error code 0		



Item	Description				
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual				
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual				
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual				
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)				
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)				
	•GX Works2 Version1 Operating Manual (Common)				
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)				

Error codes

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	

Labels

Input labels

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



Name (Comment)	Label name	Data type	Setting range	Description
Station No.	i_Station_No	Word	1 to 120	Specify the target station number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.

Output labels

Name (Comment)	Label name	Data type	Initial value	Description	
Execution status	FB_ENO	Bit	OFF	ON: Execution command is ON.	
		DIL		OFF: Execution command is OFF.	
Completed without	FB_OK	Dit	OFF	When ON, it indicates that the latch	
error		DIL	OFF	counter function is completed.	
Latch count value	o_LatchCount	Double	0	Store the count value that has been	
		Word	0	latched.	
Error flag	FB_ERROR	Dit	OFF	When ON, it indicates that an error has	
		DIL	OFF	occurred.	
Error code	ERROR_ID	Word	0	FB error code output.	

FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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



2.4. M+NZ2GFD62_SamplingOperation (Sampling counter function operation)

FB Name

M+NZ2GFD62_SamplingOperation

Function Overview

Item	Description				
Function overview	Executes the sampling counter function.				
Symbol	M+NZ2GFD62_SamplingOperation				
	Execution command——	3 : FB_EN		FB_ENO : B	Execution status
	Module start XY address	W : i_Start_IO_No		FB_OK : B	Completed without error
	Station No. ——	W : i_Station_No	o_Sa	amplingCount : D	——Sampling count value
	Target CH	W : i_CH		FB_ERROR : B	Error flag
	Time unit setting	W : i_SetUnitTime		ERROR_ID : W	Error code
	Cycle setting	W : i_SamplingTime			
	(Sampling Counter)				
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Network master/local module *1			
	Network module	*1 The first five digits of the serial number are "14102" or later			
	CPU module				
		Series	Series		Model
		MELSEC-Q Series *1 Unive		Universal mo	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial number	are "12012" or later.
		*3 The first five digit	s of the	serial number	are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Software	e version
		English version	Versior	1.24A or later	
		Chinese version	Versior	1.49B or later	,
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manua	ls".		
Programming	Ladder				
language					



Item	Description			
Number of steps	542 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 sampling count is started with the			
	preset i_SamplingTime (Time unit setting (Sampling counter)) and i_SamplingTime			
	(Cycle setting (Sampling counter)), and the sampling count value is read from the			
	remote register.			
	2) When the sampling time has elapsed, FB_OK (Completed without error) is turned ON			
	and the processing ends.			
	3) FB operation is one-shot only, triggered by the FB_EN signal.			
	4) When the setting value of the target channel is out of range, the FB_ERROR output			
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in			
	ERROR_ID (Error code).			
	5) When the network configuration setting of the station number specified by			
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the			
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID			
	(Error code).			
	6) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR			
	output turns ON and processing is interrupted, and the error code 60 (decimal) is			
	stored in ERROR_ID (Error code).			
	Refer to the error code explanation section for details.			
Compiling method	Macro type			



Item	Description					
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery					
precautions	processing separately in accordance with the required system operation.					
	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 because it is impossible to turn OFF.					
	4) When this FB is used, the selected counter function start command (RY(n+2)5,					
	RY(n+3)D) must be turned OFF.					
	5) When two or more of these FBs are used, precaution must be taken to avoid repetition					
	of the target channel.					
	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 the sampling counter function is executed, the counter function selection of the					
	module-based parameter data must be set to 2: Sampling Counter Function. (For the					
	module-based parameter data, refer to the CC-Link IE Field Network High-Speed					
	Counter Module User's Manual.)					
	9) A duplicated coil warning may occur during compile operation due to the RY signal					
	being operated by index modification in the FB. However this is not a problem and the					
	FB will operate without error.					
	10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To					
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using					
	he FB for 2 or More Master/Local Modules".					
	11) This FB uses cyclic transmission. Therefore, an interlock program for cyclic					
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic					
	Transmission Program".					
FB operation type	Pulsed execution (multiple scan execution type)					
Application example	Refer to "Appendix 2. FB Library Application Examples".					
Timing chart	[When operation completes without error] [When an error occurs]					
	FB_EN (Execution command)					
	FB_ENO (Execution status) FB_ENO (Execution status) FB_ENO (Execution					
	Sampling count processing Processing Processing Sampling count processing Pro					
	o_SamplingCount (Sampling count value) Refreshing Refreshing Refreshing Count refreshing (Sampling count value) Refreshing Refreshing Refreshing Refreshing Refreshing (Sampling count value)					
	FB_OK (Completed without FB_OK (Completed without error)					
	FB_ERROR (Error flag) FB_ERROR (Error flag)					
	ERROR_ID (Error code) 0 ERROR_ID (Error code) 0 Error code					



Item	Description			
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual			
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual			
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual			
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)			
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)			
	•GX Works2 Version1 Operating Manual (Common)			
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)			

Error codes

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	

Labels

Input labels

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



Name (Comment)	Label name	Data type	Setting range	Description
Station No.	i_Station_No	Word	1 to 120	Specify the target station
				number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
Time unit setting	i_SetUnitTime	Word	0: 1ms	Specify the unit for the
(Sampling counter)			1: 10ms	sampling operation time.
Cycle setting	i_SamplingTime		1 to 65,535 *1	Specify the sampling time.
(Sampling counter)				When the time unit setting
				(sampling counter) is set to
				"1: 10ms", the setting range
		Word		is 10 to 655,350ms.
				*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	Dit	OFF	ON: Execution command is ON.
		DIL		OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the execution
error		Bit	OFF	of the sampling counter function is
				completed.
Sampling count	o_SamplingCount	Double	0	Store the count value during sampling
value		Word	0	time.
Error flag	FB_ERROR	Dit		When ON, it indicates that an error has
		OFF	occurred.	
Error code	ERROR_ID	Word	0	FB error code output.



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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


2.5. M+NZ2GFD62_PeriodicPlsCnt (Periodic pulse counter function operation)

FB Name

M+NZ2GFD62_PeriodicPlsCnt

Item	Description				
Function overview	Executes the periodic p	ulse counter function.			
Symbol		M+NZ2GFD62_	PeriodicPls	Cnt]
	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
	Station No.	W : i_Station_No	٥_١	DifferenceVal : D	Periodic pulse count, difference value
	Target CH	W : i_CH	c	_PresentVal : D	Periodic pulse count, present value
	Time unit setting, (Periodic pulse counter)	W : i_SetUnitTime		FB_ERROR : B	Error flag
	Cycle setting, (Periodic pulse counter)	W : i_PeriodTime		ERROR_ID : W	Error code
	L	1			
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Ne	etwork m	aster/local mo	odule *1
	Network module	*1 The first five digit	s of the	serial number	are "14102" or later
	CPU module				
		Series			Model
		MELSEC-Q Series	s *1	Universal mo	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial number	are "12012" or later.
		*3 The first five digit	s of the	serial number	are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Softwar	e version
		English version	Versior	1.24A or late	r
		Chinese version	Versior	1.49B or late	r
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manua	ls".		
Programming	Ladder				
language					



Item	Description
Number of steps	542 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 periodic pulse count is started with
	the preset i_SetUnitTime (Time unit setting (Periodic pulse counter)) and i_PeriodTime
	(Cycle setting (Periodic pulse counter)), and the periodic pulse count difference value
	and periodic pulse count present value are read from the remote register.
	2) When the setting value of the target channel is out of range, the FB_ERROR output
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in
	ERROR_ID (Error code).
	3) When the network configuration setting of the station number specified by
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID
	(Error code).
	4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR
	output turns ON and processing is interrupted, and the error code 60 (decimal) is
	stored in ERROR_ID (Error code).
	Refer to the error code explanation section for details.
Compiling method	Macro type

Item	Description
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery
precautions	processing separately in accordance with the required system operation.
	2) The FB cannot be used in an interrupt program.
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.
	Do not use this FB in programs that are only executed once such as a subroutine,
	FOR-NEXT loop because it is impossible to turn OFF.
	4) When this FB is used, the selected counter function start command (RY(n+2)5,
	RY(n+3)D) must be turned OFF.
	5) When two or more of these FBs are used, precaution must be taken to avoid repetition
	of the target channel.
	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 the periodic pulse counter function is executed, the counter function selection of
	the module-based parameter data must be set to 3: Periodic Pulse Counter Function.
	(For the module-based parameter data, refer to the CC-Link IE Field Network
	High-Speed Counter Module User's Manual.)
	9) A duplicated coil warning may occur during compile operation due to the RY signal
	being operated by index modification in the FB. However this is not a problem and the
	FB will operate without error.
	10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using
	the FB for 2 or More Master/Local Modules".
	11) This FB uses cyclic transmission. Therefore, an interlock program for cyclic
	transmission is required. For the interlock program, refer to Section " 1.6.1 Cyclic
	Transmission Program".
FB operation type	Real-time execution
Application example	Refer to "Appendix 2. FB Library Application Examples".



Item	Description		
Timing chart	[When operation completes without error]	[When an error occurs]	
	FB_EN (Execution command)	FB_EN (Execution command)	
	rB_ENU (Execution status)	status)	
	Pulse count processing Processing processing processing	n Pulse count processing No	
	o_DifferenceVal (Periodic pulse count, difference value)		
	o_PresentVal (Periodic pulse count, present value) Refreshing Ing	o_PresentVal	
	FB_OK (Completed without error)	FB_OK (Completed without	
	FB_ERROR (Error flag)	FB_ERROR (Error flag)	
	ERROR_ID (Error code) 0	_ ERROR_ID (Error code) 0 Error code 0	
Relevant manuals	•CC-Link IE Field Network High-Speed Co	unter Module User's Manual	
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual		
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual		
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)		
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)		
	•GX Works2 Version1 Operating Manual (0	Common)	
	•GX Works2 Version1 Operating Manual (S	Simple Project, Function Block)	

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	



Labels

Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range of the CPU.	address (in hexadecimal)
			For details, refer to the	where the CC-Link IE Field
		Word	CPU user's manual.	Network master/local
				module is mounted. (For
				example, enter H10 for
				X10.)
Station No.	i_Station_No	Mord	1 to 120	Specify the target station
		vvord		number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
Time unit setting	i_SetUnitTime		0: 1ms	Specify the unit for the
(Periodic pulse		Word	1: 10ms	periodic time.
counter)				
Cycle setting	i_PeriodTime		1 to 65,535 *1	Specify the periodic time
(Periodic pulse				setting.
counter)				When the time unit setting
				(periodic pulse counter) is
		Word		set to "1: 10ms", the setting
		vvoru		range is 10 to 655,350ms.
				*1: Setting method
				•1 to 32,767: Set in decimal.
				•32,768 to 65,535: Set after
				converted into hexadecimal.



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	FB_OK	Bit	OFF	When ON, it indicates that the periodic
error		Dit		pulse count is being performed.
Periodic pulse count,	o_DifferenceVal	Double	0	Store the count value (difference) per
difference value		Word	0	periodic time.
Periodic pulse count,	o_PresentVal	Double	0	Store the present value of when the
present value		Word	0	periodic time has elapsed.
Error flag	FB_ERROR	Dit	OFF	When ON, it indicates that an error has
		Ы	UFF	occurred.
Error code	ERROR_ID	Word	0	FB error code output.

FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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



2.6. M+NZ2GFD62_FrequencyMeas (Frequency measurement)

FB Name

M+NZ2GFD62_FrequencyMeas

Item	Description				
Function overview	Starts the frequency measurement function and reads the measured frequency value that				
	has been calculated.				
Symbol			Frequency	1000	1
	Execution command—	B : FB EN	_Frequencyi	FB ENO : B	Execution status
	Module start XY address —	- W : i Start IO No		FB OK : B	Completed without error
	Station No.	W : i Station No	o F	requencyVal : D	Measured frequency value
	Target CH	W·iCH	-	FB FRROR · B	Error flag
	Time unit setting	W . i SetUnitTime			Error code
	(Frequency measurement) Moving average count			LINOR_D. W	
	(Frequency measurement)	VV : I_SetAverage			
]
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Ne	twork m	aster/local me	odule *1
	Network module	*1 The first five digit	s of the	serial numbe	r are "14102" or later
	CPU module				
		Series			Model
		MELSEC-Q Series	s *1	Universal m	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial numbe	r are "12012" or later.
		*3 The first five digit	s of the	serial numbe	r are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Softwar	re version
		English version	Versior	n1.24A or late	r
		Chinese version	Versior	n1.49B or late	er
		*1 For software vers	sions app	plicable to the	e modules used, refer to
		"Relevant manua	ls".		



Item	Description	
Programming	Ladder	
language		
Number of steps	490 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 frequency measurement function is	
	executed with the preset i_SetUnitTime (Time unit setting (Frequency measurement))	
	and i_SetAverage (Moving average count (Frequency measurement)), and the	
	measured frequency value is read from the remote register.	
	2) When the setting value of the target channel is out of range, the FB_ERROR output	
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in	
	ERROR_ID (Error code).	
	3) When the network configuration setting of the station number specified by	
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the	
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID	
	(Error code).	
	4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR	
	output turns ON and processing is interrupted, and the error code 60 (decimal) is	
	stored in ERROR_ID (Error code).	
	Refer to the error code explanation section for details.	
Compiling method	Macro type	



Item	Description
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery
precautions	processing separately in accordance with the required system operation.
	2) The FB cannot be used in an interrupt program.
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.
	Do not use this FB in programs that are only executed once such as a subroutine,
	FOR-NEXT loop because it is impossible to turn OFF.
	4) When two or more of these FBs are used, precaution must be taken to avoid repetition
	of the target channel.
	5) This FB uses index registers Z6 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 the frequency measurement function is executed, the operation mode of the
	module-based parameter data must be set to 1: Frequency Measurement Mode. (For
	the module-based parameter data, refer to the CC-Link IE Field Network High-Speed
	Counter Module User's Manual.)
	8) A duplicated coll warning may occur during compile operation due to the RY signal
	ER will experted without error
	 Only one master/local module can be controlled by the CC Link IE Field system EP. To
	control 2 or more master/local modules by the EB refer to "Appendix 1. When Using
	the FB for 2 or More Master/Local Modules"
	10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic
	transmission is required. For the interlock program, refer to Section "1.6.1 Cvclic
	Transmission Program".
FB operation type	Real-time execution
Application example	Refer to "Appendix 2. FB Library Application Examples".
Timing chart	[When operation completes without error] [When an error occurs]
	FB EN (Execution FB_EN (Execution
	command) FB_ENO (Execution
	status) Frequency No Frequency Frequency No Frequency
	measurement Processing measurement processing processing of FrequencyVal
	(Measured frequency value) (Measured frequency value) (Measured frequency value) No refreshing No refreshing No refreshing No No No No No No No No No N
	FB_OK (Completed without error) FB_OK (Completed without error)
	FB_ERROR (Error flag)
	ERROR_ID (Error code) 0 Error code 0



Item	Description
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)
	•GX Works2 Version1 Operating Manual (Common)
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	



Labels

Input labels

Name (Comment)		Data	Sotting range	Description	
Name (Comment)		type	Setting range	Description	
Execution command	FB_EN		ON, OFF	ON: The FB is activated.	
		Bit		OFF: The FB is not	
				activated.	
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY	
address			range of the CPU.	address (in hexadecimal)	
			For details, refer to the	where the CC-Link IE Field	
		Word	CPU user's manual.	Network master/local	
				module is mounted. (For	
				example, enter H10 for	
				X10.)	
Station No.	i_Station_No	Word	1 to 120	Specify the target station	
		vvoru		number.	
Target CH	i_CH	Word	1 or 2	Specify the channel number.	
Time unit setting	i_SetUnitTime		0: 0.01s	Specify the unit of time for	
(Frequency		Word	1: 0.1s	the frequency	
measurement)			2: 1s	measurement.	
Moving average	i_SetAverage		1 to 100	Specify the moving average	
count (Frequency		Word		count for the frequency	
measurement)				measurement.	

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	FB_OK			When ON, it indicates that the frequency
error		Dit		is being measured.
Measured frequency	o_FrequencyVal	Double	0	Store the measured frequency value.
value		Word	0	
Error flag	FB_ERROR	Dit		When ON, it indicates that an error has
		ы	UFF	occurred.
Error code	ERROR_ID	Word	0	FB error code output.



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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



2.7. M+NZ2GFD62_RotationSpeedMeas (Rotation speed measurement)

FB Name

M+NZ2GFD62_RotationSpeedMeas

Item	Description					
Function overview	Starts the rotation speed measurement function and reads the measured rotation speed					
	value that has been calculated.					
Symbol		M+NZ2GFD62_RotationSpeedMeas				
	Execution command	B : FB_EN	F	B_ENO : B	Execution status	
	Module start XY address —	W : i_Start_IO_No		FB_OK : В	Completed without error	
	Station No.	W : i_Station_No	o_Rota	ationVal : D	Measured rotation speed value	
	Target CH	W : i_CH	FB_I	ERROR : B	Error flag	
	Time unit setting	W : i_SetUnitTime	ER	ROR_ID : W	Error code	
	(Rotation speed measurement)	W : i_SetAverage				
	No. of pulses per rotation	D : i_SetRotation				
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2				
and software	Network high-speed					
	counter module					
	CC-Link IE Field	CC-Link IE Field Network master/local module *1				
	Network module	*1 The first five digits of the serial number are "14102" or later				
	CPU module					
		Series			Model	
		MELSEC-Q Series	;*1	Univers	al model QCPU *2	
		MELSEC-L Series		LCPU *	3	
		*1 Not applicable to	QCPU (A mode)		
		*2 The first five digit	s of the s	serial nur	nber are "12012"or later.	
		*3 The first five digit	s of the s	serial nur	nber are "13012" or later.	
	Engineering software	GX Works2 *1				
		Language		Sof	tware version	
		English version Version1.24A or later		later		
		Chinese version Version1.49B or later		later		
		*1 For software vers	sions app	licable to	the modules used, refer to	
		"Relevant manua	ls".			
Programming	Ladder					
language						



Item	Description
Number of steps	498 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 rotation speed measurement is
	executed with the preset i_SetUnitTime (Time unit setting (Rotation speed
	measurement)), i_SetAverage (Moving average count (Rotation speed measurement))
	and i_SetRotation (No. of pulses per rotation), and the measured rotation speed value
	is read from the remote register.
	2) When the setting value of the target channel is out of range, the FB_ERROR output
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in
	ERROR_ID (Error code).
	3) When the network configuration setting of the station number specified by
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID
	(Error code).
	4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR
	output turns ON and processing is interrupted, and the error code 60 (decimal) is
	stored in ERROR_ID (Error code).
	Refer to the error code explanation section for details.
Compiling method	Macro type

Item	Description				
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery				
precautions	processing separately in accordance with the required system operation.				
	2) The FB cannot be used in an interrupt program.				
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.				
	Do not use this FB in programs that are only executed once such as a subroutine,				
	FOR-NEXT loop because it is impossible to turn OFF.				
	4) When two or more of these FBs are used, precaution must be taken to avoid repetition				
	of the target channel.				
	5) This FB uses index registers Z6 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 the rotation speed measurement function is executed, the operation mode of the				
	module-based parameter data must be set to 2: Rotation Speed Measurement Mode.				
	(For the module-based parameter data, refer to the CC-Link IE Field Network				
	High-Speed Counter Module User's Manual.)				
	8) A duplicated coil warning may occur during compile operation due to the RY signal				
	being operated by index modification in the FB. However this is not a problem and the				
	FB will operate without error.				
	9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To				
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using				
	the FB for 2 or More Master/Local Modules".				
	10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic				
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic				
	Transmission Program".				
FB operation type	Real-time execution				
Application example	Refer to "Appendix 2. FB Library Application Examples".				
Timing chart	[When operation completes without error] [When an error occurs]				
	FB_EN (Execution command)				
	FB_ENO (Execution status)				
	Rotation speed No Processing Proc				
	o_RotationVal O_RotatioNo O_Rota				
	FB_OK (Completed without				
	FB_ERROR (Error flag) FB_ERROR (Error flag)				
	ERROR_ID (Error code) 0 Error code 0				



Item	Description				
Relevant manuals	 CC-Link IE Field Network High-Speed Counter Module User's Manual 				
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual				
	 MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual 				
	 QCPU User's Manual (Hardware Design, Maintenance and Inspection) 				
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)				
	•GX Works2 Version1 Operating Manual (Common)				
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)				

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	

Labels

Input labels

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



Name (Comment)	Label name	Data type	Setting range	Description
Station No.	i_Station_No	Word	1 to 120	Specify the target station number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
Time unit setting	i_SetUnitTime		0: 0.01s	Specify the unit of time for
(Rotation speed		Word	1: 0.1s	the rotation speed
measurement)			2: 1s	measurement.
Moving average	i_SetAverage		1 to 100	Specify the moving average
count (Rotation		Word		count for the rotation speed
speed measurement)				measurement.
No. of pulses per	i_SetRotation	Double	1 to 8,000,000	Specify the number of
rotation		Word		pulses per rotation.

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	Bit OFF (ON: Execution command is ON.
		Dit		OFF: Execution command is OFF.
Completed without	FB_OK			When ON, it indicates that the rotation
error		DIL	OFF	speed is being measured.
Measured rotation	o_RotationVal	Double		Store the measured rotation speed value.
speed value		Word	0	
Error flag	FB_ERROR	Dit		When ON, it indicates that an error has
		ы	UFF	occurred.
Error code	ERROR_ID	Word	0	FB error code output.

FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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

CC-Link IE Field Network High-Speed Counter Module FB Library Reference Manual FBM-M100-A



2.8. M+NZ2GFD62_PulseMeas (Pulse measurement)

FB Name

M+NZ2GFD62_PulseMeas

Item	Description				
Function overview	Starts the pulse measurement function and reads the measured pulse value.				
Symbol		M+NZ2GFD62_Pt	ulseMeas		
	Execution command — B	: FB_EN	FI	B_ENO : B	——Execution status
	Module start XY address — W	: i_Start_IO_No		FB_OK : B	Completed without error
	Station No. — W	: i_Station_No	o_UpdateFo	orFUNC : B	Measured pulse value update flag (Function input terminal)
	Target CHW	: i_CH	o_ResultFo	orFUNC : D	Measured pulse value (Function input terminal)
	Function input B	: i_MeasureByFUNC	o_UpdateFor	LATCH : B	Measured pulse value update flag (Latch counter input terminal)
	Latch counter input B	: i_MeasureByLATCH	o_ResultFor	LATCH : D	Measured pulse value
			FB_E	ERROR : B	Error flag
			ERF	ROR_ID : W	Error code
Applicable bardware	CC-Link IF Field	NZ2GECE-D62PD2	1		
and software	Network high-speed				
	counter module				
		CC Link IE Field No	twork m	astor/loca	l modulo *1
		*1 The first five digit			hor oro "14102" or lator
			s or the s	senai nun	
	CPU module				
		Series			Model
		MELSEC-Q Series	s *1	Universa	al model QCPU *2
		MELSEC-L Series		LCPU *3	3
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial num	nber are "12012" or later.
		*3 The first five digit	s of the	serial num	nber are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Soft	ware version
		English version	Versior	1.24A or	later
		Chinese version	Versior	1.49B or	later
		*1 For software vers	sions app	licable to	the modules used, refer to
		"Relevant manua	ıls".		



Item	Description	
Programming	Ladder	
language		
Number of steps	588 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 pulse measurement is started when	
	the preset i_MeasureByFUNC (Function input terminal measurement) or	
	i_MeasureByLATCH (Latch counter input terminal measurement) is turned ON after	
	the count enable command is turned ON.	
	2) When the setting value of the target channel is out of range, the FB_ERROR output	
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in	
	ERROR_ID (Error code).	
	3) When the network configuration setting of the station number specified by	
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the	
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID	
	(Error code).	
	4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR	
	output turns ON and processing is interrupted, and the error code 60 (decimal) is	
	stored in ERROR_ID (Error code).	
	Refer to the error code explanation section for details.	
Compiling method	Macro type	



Item	Description
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery
precautions	processing separately in accordance with the required system operation.
	2) The FB cannot be used in an interrupt program.
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.
	Do not use this FB in programs that are only executed once such as a subroutine,
	FOR-NEXT loop because it is impossible to turn OFF.
	4) When two or more of these FBs are used, precaution must be taken to avoid repetition
	of the target channel.
	5) This FB uses index registers Z6 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 the pulse measurement function is executed, the operation mode of the
	module-based parameter data must be set to 3: Pulse Measurement Mode. (For the
	module-based parameter data, refer to the CC-Link IE Field Network High-Speed
	Counter Module User's Manual.)
	8) A duplicated coil warning may occur during compile operation due to the RY signal
	being operated by index modification in the FB. However this is not a problem and the
	FB will operate without error.
	9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using
	the FB for 2 or More Master/Local Modules".
	10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic
	Transmission Program".
FB operation type	Real-time execution
Application example	Refer to "Appendix 2. FB Library Application Examples".



Item	Description		
Timing chart	[When operation completes without error]	[When an error occurs]	
	(Function input terminal measurement)	(Latch counter input terminal measurement)	
	FB_EN (Execution command) FB_ENO (Execution status)	FB_EN (Execution command) FB_ENO (Execution status)	
	i_MeasureByFUNC (Function input terminal measurement)	i_MeasureByFUNC (Function	
	Pulse measurement processing o_UpdateForFUNC (Measured pulse value update flag (Function input terminal)) o_ResultForFUNC (Measured pulse value (Function input terminal)) FB_OK (Completed without error) FB_ERROR (Error flag) ERROR_ID (Error code) 0	Pulse measurement processing No o_UpdateForFUNC (Measured pulse value update flag (Function input terminal)) o_ResultForFUNC (Measured pulse value (Function input terminal)) FB_OK (Completed without error) No FB_ERROR (Error flag) 0 Error code 0	
Relevant manuals		ter Module User's Manual	
	MELSEC-Q CC-Link IE Field Network Master	er/Local Module User's Manual	
	MELSEC-L CC-Link IE Field Network Maste	r/Local Module User's Manual	
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)		
	•MELSEC-L CPU Module User's Manual (Ha	Irdware Design, Maintenance and Inspection)	
	•GX Works2 Version1 Operating Manual (Co	mmon)	
	•GX Works2 Version1 Operating Manual (Sin	nple Project, Function Block)	



Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range of the CPU.	address (in hexadecimal)
			For details, refer to the	where the CC-Link IE Field
		Word	CPU user's manual.	Network master/local
				module is mounted. (For
				example, enter H10 for
				X10.)
Station No.	i_Station_No	Word	1 to 120	Specify the target station
		vvoru		number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
Function input	i_MeasureByFUNC		ON, OFF	Turn ON when performing
terminal		Bit		the pulse measurement with
measurement				the function input terminal.



Name (Comment)	Label name	Data type	Setting range	Description
Latch counter input	i_MeasureByLATCH		ON, OFF	Turn ON when performing
terminal		Dit		the pulse measurement with
measurement		BI		the latch counter input
				terminal.

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO			ON: Execution command is ON.
		DIL	OFF	OFF: Execution command is OFF.
Completed without	FB_OK	Bit	OFF	When ON, it indicates that the pulse is
error		Dit		being measured.
Measured pulse	o_UpdateForFUNC			When ON, it indicates that the measured
value update flag		Rit	OFF	pulse value of the function input terminal
(Function input		Dit		has been updated.
terminal)				
Measured pulse	o_ResultForFUNC	Double		Store the measured pulse value of the
value (Function input		Word	0	function input terminal.
terminal)		vvoru		
Measured pulse	o_UpdateForLATCH			When ON, it indicates that the measured
value update flag		Dit	OFF	pulse value of the latch counter input
(Latch counter input		ter		terminal has been updated.
terminal)				
Measured pulse	o_ResultForLATCH	Double		Store the measured pulse value of the
value (Latch counter		Mord	0	latch counter input terminal.
input terminal)		vvoru		
Error flag	FB_ERROR			When ON, it indicates that an error has
		DIL		occurred.
Error code	ERROR_ID	Word	0	FB error code output.



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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



2.9. M+NZ2GFD62_PWMOutput (PWM output)

FB Name

M+NZ2GFD62_PWMOutput

Item	Description				
Function overview	Executes the PWM output function.				
Symbol	Execution command - Module start XY address - Station No Target CH - PWM output assignment setting -	M+NZ2GF B : FB_EN W : i_Start_IO_No W : i_Station_No W : i_CH W : i_SetLayout	D62_PWMC	FB_ENO : B FB_OK : B FB_ERROR : B ERROR_ID : W	 Execution status Completed without error Error flag Error code
	ON width setting (PWM output)- Cycle setting (PWM output)-	D : i_SetONTime D : i_SetCycleTime			
Applicable hardware and software	CC-Link IE Field Network high-speed counter module	NZ2GFCF-D62PD2			
	CC-Link IE Field Network module	CC-Link IE Field Ne *1 The first five digit	twork m	aster/local module serial number are	e *1 "14102" or later
	CPU module	Series MELSEC-Q Series MELSEC-L Series *1 Not applicable to *2 The first five digit *3 The first five digit	s*1 QCPU (s of the s	Mo Universal model LCPU *3 A mode) serial number are serial number are	odel QCPU *2 "12012" or later. "13012" or later.
	Engineering software	GX Works2 *1 Language English version Chinese version *1 For software vers "Relevant manua	Versior Versior sions app ls".	Software ver 11.24A or later 11.49B or later blicable to the mod	rsion dules used, refer to



Item	Description		
Programming	Ladder		
language			
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) By turning ON FB_EN (Execution command), the PWM output function is executed		
	with the preset i_SetLayout (PWM output assignment setting), i_SetONTime (ON		
	width setting (PWM output)) and i_SetCycleTime (Cycle setting (PWM output)).		
	2) When the setting value of the target channel is out of range, the FB_ERROR output		
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in		
	ERROR_ID (Error code).		
	3) When the network configuration setting of the station number specified by		
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the		
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID		
	(Error code).		
	4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR		
	output turns ON and processing is interrupted, and the error code 60 (decimal) is		
	stored in ERROR_ID (Error code).		
	Refer to the error code explanation section for details.		
Compiling method	Macro type		



Item	Description			
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery			
precautions	processing separately in accordance with the required system operation.			
	The FB cannot be used in an interrupt program.			
	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 because it is impossible to turn OFF.			
	4) When two or more of these FBs are used, precaution must be taken to avoid repetition			
	of the target channel.			
	5) This FB uses index registers Z6 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 the PWM output function is executed, the operation mode of the module-based			
	parameter data must be set to 4: PWM Output Mode. (For the module-based			
	parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module			
	User's Manual.)			
	8) A duplicated coil warning may occur during compile operation due to the RY signal			
	being operated by index modification in the FB. However this is not a problem and the			
	FB will operate without error.			
	9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To			
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using			
	the FB for 2 or More Master/Local Modules".			
	10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic			
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic			
	Transmission Program".			
FB operation type	Pulsed execution (multiple scan execution type)			
Application example	Refer to "Appendix 2. FB Library Application Examples".			
Timing chart	[When operation completes without error] [When an error occurs]			
	FB_EN (Execution command) FB_EN (Execution command)			
	FB_ENO (Execution status)			
	PWM output processing No No No PwM output processing Processing PWM output processing No			
	Coincidence output (Terminal)			
	FB_OK (Completed without error)			
	FB_ERROR (Error flag)			
	ERROR_ID (Error code) 0 Error code 0			



Item	Description		
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual		
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual		
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual		
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)		
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)		
	•GX Works2 Version1 Operating Manual (Common)		
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)		

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	

Labels

Input labels

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



Name (Comment)	Label name	Data type	Setting range	Description
Station No.	i_Station_No	Word	1 to 120	Specify the target station number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
PWM output assignment setting	i_SetLayout	Word	b00: Coincidence output 1 b01: Coincidence output 2 b02: Coincidence output 3 b03: Coincidence output 4 b04 to b15: Not used *1 0b: No assignment	Specify the comparison output to output the output pulse. *1: Set 0.
ON width setting	i_SetONTime	Double	0 or 10 to 10,000,000	Specify the ON width for the
Cycle setting (PWM output)	i_SetCycleTime	Double	50 to 10,000,000	Specify the cycle time for the output pulse. (Unit: 0.1µs)

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO			ON: Execution command is ON.
		DIL	UFF	OFF: Execution command is OFF.
Completed without	FB_OK	Dit.	OFF	When ON, it indicates that the PWM
error		DI		output is being performed.
Error flag	FB_ERROR	Dit.	OFF	When ON, it indicates that an error has
		DIL		occurred.
Error code	ERROR_ID	Word	0	FB error code output.



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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



2.10. M+NZ2GFD62_ErrorOperation (Error operation)

FB Name

M+NZ2GFD62_ErrorOperation

Item	Description				
Function overview	Monitors errors and warnings, and performs error reset.				
Symbol	M+NZ2GFD62_ErrorOperation				
	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
	Station No.	W : i_Station_No	o_U	NIT_ERROR : B	Module error detection
	Target CH	W : i_CH	o_UNIT_	ERR_CODE : W	Module error code
	Error reset request	B : i_ErrorReset	o_UN⊓	_WARNING : B	Module warning detection
			o_UNIT_\	WAR_CODE : W	Module warning code
				FB_ERROR : B	——Error flag
				ERROR_ID : W	Error code
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Ne	twork m	aster/local mo	dule *1
	Network module	*1 The first five digit	s of the	serial number	are "14102" or later
	CPU module				
		Series			Model
		MELSEC-Q Series	s *1	Universal mo	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial number	are "12012" or later.
		*3 The first five digit	s of the	serial number	are "13012" or later.
	Engineering software	e GX Works2 *1			
		Language		Software	e version
		English version	Versior	1.24A or later	-
		Chinese version	Versior	1.49B or late	r
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manuals".			



Item	Description		
Programming	Ladder		
language			
Number of steps	462 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), an error and a warning in the target		
	channel are monitored.		
	2) When an error occurs, o_UNIT_ERROR (Module error detection) is turned ON and the		
	error code is stored in o_UNIT_ERR_CODE (Module error code).		
	3) When a warning occurs, o_UNIT_WARNING (Module warning detection) is turned ON		
	and the warning code is stored in o_UNIT_WAR_CODE (Module warning code).		
	4) After FB_EN (Execution command) is turned ON, error reset is performed when		
	i_ErrorReset (Error reset request) is turned ON during error or warning occurrence.		
	5) When the setting value of the target channel is out of range, the FB_ERROR output		
	turns ON and processing is interrupted, and the error code 10 (decimal) is stored in		
	ERROR_ID (Error code).		
	6) When the network configuration setting of the station number specified by		
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the		
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID		
	(Error code).		
	7) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR		
	output turns ON and processing is interrupted, and the error code 60 (decimal) is		
	stored in ERROR_ID (Error code).		
	Refer to the error code explanation section for details.		
Compiling method	Macro type		



Item	Description			
Restrictions and	1) The FB does not include error recovery pr	ocessing. Program the error recovery		
precautions	processing separately in accordance with the required system operation.			
	2) The FB cannot be used in an interrupt program.			
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.			
	Do not use this FB in programs that are or	nly executed once such as a subroutine,		
	FOR-NEXT loop because it is impossible t	to turn OFF.		
) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.			
	5) When two or more of these FBs are used.	precaution must be taken to avoid repetition		
	of the target channel.			
	6) Every input must be provided with a value	for proper FB operation.		
	7) A duplicated coil warning may occur during	g compile operation due to the RY signal		
	being operated by index modification in the	e FB. However this is not a problem and the		
	FB will operate without error.			
	8) Only one master/local module can be cont	trolled by the CC-Link IE Field system FB. To		
	control 2 or more master/local modules by	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using		
	the FB for 2 or More Master/Local Module	s".		
	9) This FB uses cyclic transmission. Therefore	re, an interlock program for cyclic		
	transmission is required. For the interlock	program, refer to Section "1.6.1 Cyclic		
	Transmission Program".			
FB operation type	Real-time execution			
Application example	Refer to "Appendix 2. FB Library Application Ex	xamples".		
Timing chart	[When operation completes without error]	[When an error occurs]		
	FB_EN (Execution command)	FB_EN (Execution command)		
	FB_ENO (Execution status)	FB_ENO (Execution status)		
	i.ErrorReset (Error reset request)	i_ErrorReset (Error reset request)		
	o_UNIT_ERROR (Module error detection)	o_UNIT_ERROR		
	o_UNIT_ERR_CODE (Module error code) 0 Error code 0	o_UNIT_ERR_CODE 0 (Module error code)		
	o_UNIT_WARNING (Module warning detection)	o_UNIT_WARNING (Module warning detection)		
	o_UNIT_WAR_CODE (Module warning code) 0 Varning code 0	o_UNIT_WAR_CODE (Module warning code) 0		
	FB_OK (Completed without error)	FB_OK (Completed without error)		
	FB_ERROR (Error flag)	FB_ERROR (Error flag)		
	ERROR_ID (Error code) 0	ERROR ID (Error code) 0 Error code 0		



Item	Description		
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual		
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual		
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual		
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)		
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)		
	•GX Works2 Version1 Operating Manual (Common)		
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)		

•Error code list

Error code	Description	Action
10 (Decimal)	The specified target channel is not valid.	Please try again after confirming the setting.
	The target channel is not 1 or 2.	
50 (Decimal)	The network configuration setting of the	Review the following setting.
	station number specified by i_Station_No	 Network configuration setting
	is incorrect.	Refer to (2) in Section "1.4 Setting the
		CC-Link IE Field Network Master/Local
		Module".
		 The value entered in i_Station_No
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	

Labels

Input labels

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



Name (Comment)	Label name	Data type	Setting range	Description
Station No.	i_Station_No	Word	1 to 120	Specify the target station number.
Target CH	i_CH	Word	1 or 2	Specify the channel number.
Error reset request	i_ErrorReset	Bit	ON, OFF	Turn ON when performing error reset. Turn OFF the request when
				FB_OK (Completed without error) is turned ON.

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO		OFF	ON: Execution command is ON.
	Віс С	OFF	OFF: Execution command is OFF.	
Completed without	FB_OK		OFF	When ON, it indicates that error reset is
error		DIL	UFF	completed.
Module error	o_UNIT_ERROR	Dit	OFF	When ON, it indicates an error has
detection		DIL	OFF	occurred.
Module error code	o_UNIT_ERR_CODE	Word 0	0	Return the error code for an error
		vvoru	0	occurred in the module.
Module warning	o_UNIT_WARNING	Bit	OFF	When ON, it indicates a warning has
detection		Dit		occurred.
Module warning	o_UNIT_WAR_CODE	Word	0	Return the warning code for a warning
code		vvoru		occurred in the module.
Error flag	FB_ERROR		OFF	When ON, it indicates that an error has
			ON	occurred.
Error code	ERROR_ID	Word	0	FB error code output.



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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


2.11. M+NZ2GFD62_DegreeToCountVal (Angle conversion)

FB Name

M+NZ2GFD62_DegreeToCountVal

Function Overview

Item	Description				
Function overview	Calculates the count value from the angle.				
Symbol	M+NZ2GFD62_D			intVal	
	Execution command	B : FB_EN		FB_ENO : B	——Execution status
	Angle	W : i_Angle		FB_OK : B	Completed without error
	Resolution D : i_Resolution			o_CountVal : D	Count value
	Zero degree setting value — W : i_ZeroValue			FB_ERROR : B	——Error flag
				ERROR_ID : W	Error code
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Ne	twork m	aster/local mo	odule *1
	Network module	*1 The first five digit	s of the s	serial number	are "14102" or later
	CPU module				
		Series			Model
		MELSEC-Q Series *1 Univ		Universal m	odel QCPU *2
		MELSEC-L Series	MELSEC-L Series LCPU *3		
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial number	are "12012" or later.
		*3 The first five digit	s of the	serial number	are "13012" or later.
	Engineering software	GX Works2 *1			
		Language		Softwar	e version
		English version	Versior	1.24A or late	r
		Chinese version	Versior	n1.49B or late	r
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manua	ls".		
Programming	Ladder				
language					



Number of steps 218 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 count value is calculated from the angle (input by 0.1 degree). The calculation is performed by using a resolution for the ring counter upper value and 0 for the lower value. 2) The count value is calculated from the following formula. i_Angle + (3600 + i_Resolution) + i_ZeroValue When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value is invalid, the FB_ERROR output turns ON and 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 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 because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. FB operation type Rel-time execution <hth>Rel-tim</hth>	Item	Description				
* 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 count value is calculated from the angle (input by 0.1 degree). The calculation is performed by using a resolution for the ining counter upper value and 0 for the lower value. 2) The count value is calculated from the following formula. [_Angle + (3600 + [_Resolution) + [_ZeroValue] When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value is invalid, the FB_ERROR output turns ON and 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 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 subtoutine, FOR-NEXT loop because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. Real-time execution Application example Refer to "Appendix 2. FB Library Application Examples". Timing chart [When operation completes without error] [When an error occurs] <t< td=""><td>Number of steps</td><td colspan="5">218 steps (for MELSEC-Q series universal model CPU)</td></t<>	Number of steps	218 steps (for MELSEC-Q series universal model CPU)				
Input and output definition. Function description 1) By turning ON FB_EN (Execution command), the count value is calculated from the angle (input by 0.1 degree). The calculation is performed by using a resolution for the ring counter upper value and 0 for the lower value. 2) The count value is calculated from the following formula. i_Angle + (3600 + i_Resolution) + i_ZeroValue When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value is invalid, the FB_ERROR output turns ON and 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 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 because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. FB operation type Real-time execution Application example Refer to "Appendix 2. FB Library Application Examples". Timing chart IMmenderin the the time the term the trans the term the term the		* The number of steps of the FB in a program depends on the CPU model that is used and				
Function description 1) By turning ON FB_EN (Execution command), the count value is calculated from the angle (input by 0.1 degree). The calculation is performed by using a resolution for the ring counter upper value and 0 for the lower value. 2) The count value is calculated from the following formula. i_Angle + (3600 + i_Resolution) + i_ZeroValue When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value (o_CountVal). 3) When the provide (o_CountVal). 3) When the provide of the cover yalue (D_CountVal). 3) When the provide of the cover yalue (D_CountVal). 3) When the provide of the cover yalue (D_CountVal). 3) When the provide of the cover yalue (D_CountVal). 3) When the provide 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. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. FB operation type Real-time execution Application example [When operation completes without error] [When an error occurs] Timing chart [When operation completes wit		input and output definition.				
angle (input by 0.1 degree). The calculation is performed by using a resolution for the ring counter upper value and 0 for the lower value. 2) The count value is calculated from the following formula. i_Angle + (3600 + i_Resolution) + i_ZeroValue When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value is invalid, the FB_ERROR output turns ON and 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 processing separately in accordance with the required system operation. 2) The FB cannot be used in an interrupt program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. FB operation type Real-time execution Application example Refer to "Appendix 2. FB Library Application Examples". Timing chart [When operation completes without error] [When an error occurs] FB 0 Generation type Real-time execution Restriction means the are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation.	Function description	1) By turning ON FB_EN (Execution command), the count value is calculated from the				
ring counter upper value and 0 for the lower value. 2) The count value is calculated from the following formula. i_Angle ÷ (3600 ÷ i_Resolution) + i_ZeroValue When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value is invalid, the FB_ERROR output turns ON and 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 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 because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. FB operation type Real-time execution Application example Refer to "Appendix 2. FB Library Application Examples". Timing chart [When operation completes without error] [When an error occurs] FB McGramentary Resolution Refer to "Appendix 2. FB Library Application Examples". [Refer to "Appendix 2. FB Library Application Examples". Timing chart [Refer to "Appendix 2. FB Library A		angle (input by 0.1 degree). The calculation is performed by using a resolution for the				
2) The count value is calculated from the following formula. i_Angle ÷ (3600 ÷ i_Resolution) + i_ZeroValue When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal). 3) When the input value is invalid, the FB_ERROR output turns ON and 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 precessing 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 because it is impossible to turn OFF. 4) Every input must be provided with a value for proper FB operation. FB operation type Real-time execution Application example Refer to "Appendix 2. FB Library Application Examples". Timing chart [When operation completes without error] [When an error occurs] If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder If RENO Encoder </td <td></td> <td>ring counter upper value and 0 for the lower value.</td>		ring counter upper value and 0 for the lower value.				
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ERROR_ID (Error code) 0		FB_ERROR (Error flag)				
ERROR_ID (Error code) 0 Error code U		ERROR ID (Error code) 0 ERROR ID (Error code) 0 ERROR ID (Error code) 0				



Item	Description				
Relevant manuals	•CC-Link IE Field Network High-Speed Counter Module User's Manual				
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual				
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual				
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)				
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)				
	•GX Works2 Version1 Operating Manual (Common)				
	•GX Works2 Version1 Operating Manual (Simple Project, Function Block)				

Error codes

•Error code list

Error code	Description	Action
20 (Decimal)	The resolution setting is not valid. The	Please try again after confirming the setting.
	resolution is not within the range of 10 to	
	32,768.	
21 (Decimal)	The setting of the zero degree setting	Please try again after confirming the setting.
	value is not valid. The zero degree setting	
	value is not within the range of 0 to	
	(i_Resolution-1).	
22 (Decimal)	The angle setting is not valid. The angle	Please try again after confirming the setting.
	is not within the range of 0 to 3,599.	

Labels

●Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Angle	i_Angle	Mord	0 to 3,599	Specify the angle.
		vvoru		(Unit: 0.1 degree)
Resolution	i_Resolution	Double	10 to 32,768	Specify the encoder
		Word		resolution.
Zero degree setting	i_ZeroValue	Word	0 to (i_Resolution-1)	Specify the value that is
value		vvoru		considered as zero degree.



Output labels

Name (Comment)	Label name	Data type	Initial value	Description
Execution status	FB_ENO	D it	OFF	ON: Execution command is ON.
		DI		OFF: Execution command is OFF.
Completed without	FB_OK	Dit.	OFF	When ON, it indicates that calculation is
error		DI		being performed.
Count value	o_CountVal	Double	0	Store the count value that has been
		Word	0	calculated from the angle.
Error flag	FB_ERROR	Dit.	OFF	When ON, it indicates that an error has
		DIL	OFF	occurred.
Error code	ERROR_ID	Word	0	FB error code output.

FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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



2.12. M+NZ2GFD62_SetCamSwitch (Cam switch setting)

FB Name

M+NZ2GFD62_SetCamSwitch

Function Overview

Item	Description				
Function overview	Performs the specified cam switch output setting.				
Symbol	Г	M+NZ2GFD62_SetCamSwitch			
	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
	Station No.	W : i_Station_No		FB_ERROR : B	——Error flag
	Own station channel	W : i_CH_No		ERROR_ID : W	Error code
	Cam switch No.	W:i_CamSwitchNo			
	Step type	W : i_StepFormat			
	No. of steps	W : i_StepNumber			
	Step No. setting value	W : i_StepSetting			
Applicable hardware	CC-Link IE Field	NZ2GFCF-D62PD2			
and software	Network high-speed				
	counter module				
	CC-Link IE Field	CC-Link IE Field Network master/local module *1			
	Network module	*1 The first five digits of the serial number are "14102" or later			are "14102" or later
	CPU module				
		Series			Model
		MELSEC-Q Series	; *1	Universal mo	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digit	s of the	serial number	are "12012" or later.
		*3 The first five digit	s of the	serial number	are "13012" or later.
	Engineering software	GX Works2 *1			
		Language Software version		e version	
		English version Version1.24A or later			r
		Chinese version	Versior	1.49B or late	r
		*1 For software vers	sions app	plicable to the	modules used, refer to
		"Relevant manuals".			



Item	Description			
Programming	Ladder			
language				
Number of steps	277 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 data starting from the specified			
	device set with i_StepSetting (Step No. setting value) for the number of points set with			
	i_StepNumber (No. of steps) is written starting from step No.1 of the specified cam			
	switch output.			
	(For example, if cam switch No. is set to 1, the number of steps is set to 10 and the			
	step No. setting value is set to D100, then the values of D100 to D119 are written to			
	step No.1 to 10 of output 1.			
	Write data Remote buffer			
	D100 Write memory			
	D101 Step No.1 setting			
	No. of steps			
	D118 1514H Step No.10 setting			
	D119 1515H			
	2) When CC-Link IE field network error occurs, FB_ERROR (Error flag) is turned ON and			
	processing is interrupted, and the error code is stored in ERROR_ID (Error code).			
	3) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR			
	output turns ON and processing is interrupted, and the error code 60 (decimal) is			
	stored in ERROR_ID (Error code).			
	Refer to the error code explanation section for details.			
Compiling method	Macro type			
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery			
precautions	processing separately in accordance with the required system operation.			
	2) The FB cannot be used in an interrupt program.			
	3) This FB uses the REMTO instruction. When this FB is operated with other FBs or the			
	REMFR/REMTO instruction is used in the ladder program, precaution must be taken to			
	avoid repetition of the own station channel.			
	4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an			
	interrupt program.			
	5) Every input must be provided with a value for proper FB operation.			
	6) This FB uses transient transmission. Therefore, an interlock program for transient			
	transmission is required. For the interlock program, refer to Section "1.6.2 Transient			
	Transmission Program".			



Item	Description				
FB operation type	Pulsed execution (multiple scan execution type)				
Application example	Refer to "Appendix 2. FB Library Application Examples".				
Timing chart	[When operation completes without error] [When an error occurs]				
	FB_EN (Execution command) FB_ENO (Execution status) FB_ENO (Execution status) No Carn switch setting Write processing Processing FB_OK (Completed without error) Sing FB_ERROR (Error flag) FB_ERROR (Error flag) ERROR JD (Error code) 0				
Relevant manuals	 CC-Link IE Field Network High-Speed Counter Module User's Manual MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual QCPU User's Manual (Hardware Design, Maintenance and Inspection) MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection) GX Works2 Version1 Operating Manual (Simple Project, Function Block) 				

Error codes

•Error code list

Error code	Description	Action
60 (Decimal)	The specified station number is not valid.	Please try again after confirming the setting.
	The station number is not within the range	
	of 1 to 120.	
D000 to DAF9	A CC-Link IE field network error has	Refer to Error Code List in the
(Hexadecimal)	occurred.	MELSEC-Q/MELSEC-L CC-Link IE Field
		Network Master/Local Module User's Manual
		for details.



Labels

Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range of the CPU.	address (in hexadecimal)
			For details, refer to the	where the CC-Link IE Field
		Word	CPU user's manual.	Network master/local
				module is mounted. (For
				example, enter H10 for
				X10.)
Station No.	i_Station_No	\\/ord	1 to 120	Specify the target station
		word		number.
Own station channel	i_CH_No		1 to 32	Specify the channel to
		Word		access from own station to
				other station.
Cam switch No.	i_CamSwitchNo		1 to 16	Specify the cam switch
		Word		output number for the
				setting.
Step type	i_StepFormat		0: Starts with output	Specify the step type for the
		Word	status being OFF	cam.
		word	1: Starts with output	
			status being ON	
No. of steps	i_StepNumber	Word	0 to 16	Specify the number of steps
		word		for the cam.
Step No. setting	i_StepSetting		-	Specify the start device
value		Word		storing data that will be
		vvoru		written to steps 1 to 16 of
				the cam switch output.



Output labels

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

FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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



2.13. M+NZ2GFD62_SetInitData (Initial data setting)

FB Name

M+NZ2GFD62_SetInitData

Function Overview

Item	Description				
Function overview	Performs the initial data	setting.			
Symbol	ſ	M+NZ2GFD62	2 SetInitDat	а]
	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
	Station No.	W : i_Station_No		FB_ERROR : B	——Error flag
				ERROR_ID : W	Error code
Applicable bardware	CC-l ink IE Field				
and software	Network high-speed				
	counter module				
	CC-I ink IF Field	CC-I ink IF Field Ne	twork m	aster/local mo	odule *1
	Network module	*1 The first five digits of the serial number		are "14102" or later	
	CPU module				
		Series			Model
		MELSEC-Q Series	; *1	Universal m	odel QCPU *2
		MELSEC-L Series		LCPU *3	
		*1 Not applicable to	QCPU (A mode)	
		*2 The first five digits of the serial number are "12012" or later.			
		*3 The first five digits of the serial number are "13012" or later.			
	Engineering software	GX Works2 *1			
		Language		Softwar	re version
		English version	Versior	1.24A or late	r
		Chinese version	Versior	1.49B or late	r
		*1 For software versions applicable to the modules used, refer to			modules used, refer to
		"Relevant manua	ls".		
Programming	Ladder				
language					



Item	Description		
Number of steps	419 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 operation condition of the target		
	module is set.		
	2) FB operation is one-shot only, triggered by the FB_EN signal.		
	3) When the network configuration setting of the station number specified by		
	i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the		
	processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID		
	(Error code).		
	4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR		
	output turns ON and processing is interrupted, and the error code 60 (decimal) is		
	stored in ERROR_ID (Error code).		
	Refer to the error code explanation section for details.		
Compiling method	Macro type		
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery		
precautions	processing separately in accordance with the required system operation.		
	2) The FB cannot be used in an interrupt program.		
	3) Please ensure that the FB_EN signal is capable of being turned OFF by the program.		
	Do not use this FB in programs that are only executed once such as a subroutine,		
	FOR-NEXT loop because it is impossible to turn OFF.		
	4) This FB uses index registers Z8 and Z9. Please do not use these index registers in an		
	interrupt program.		
	5) A duplicated coil warning may occur during compile operation due to the RY signal		
	being operated by index modification in the FB. However this is not a problem and the		
	FB will operate without error.		
	6) Every input must be provided with a value for proper FB operation.		
	7) Only one master/local module can be controlled by the CC-Link IE Field system FB. To		
	control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using		
	the FB for 2 or More Master/Local Modules".		
	8) This FB uses cyclic transmission. Therefore, an interlock program for cyclic		
	transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic		
	Transmission Program".		
FB operation type	Pulsed execution (multiple scan execution type)		
Application example	Refer to "Appendix 2. FB Library Application Examples".		



Item	Description					
Timing chart	[When operation completes without error]	[When an error occurs]				
	FB_EN (Execution command)	FB_EN (Execution command)				
	FB_ENO (Execution status)	FB_ENO (Execution status)				
	Initial data setting Request processing sing Processing processing	Initial data setting No Request processing processing				
	FB_OK (Completed without error)	FB_OK (Completed without error)				
	FB_ERROR (Error flag)	FB_ERROR (Error flag)				
	ERROR ID (Error code) 0	ERROR ID (Error code)				
Relevant manuals	 CC-Link IE Field Network High-Speed Counter Module User's Manual 					
	•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual					
	•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual					
	•QCPU User's Manual (Hardware Design, Maintenance and Inspection)					
	•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)					
	•GX Works2 Version1 Operating Manual (Co	mmon)				
	•GX Works2 Version1 Operating Manual (Sin	nple Project, Function Block)				

Error codes

•Error code list

Error code	Description	Action	
50 (Decimal)	The network configuration setting of the	Review the following setting.	
	station number specified by i_Station_No	 Network configuration setting 	
	is incorrect.	Refer to (2) in Section "1.4 Setting the	
		CC-Link IE Field Network Master/Local	
		Module".	
		 The value entered in i_Station_No 	
60 (Decimal) The specified station number is not valid.		Please try again after confirming the setting.	
	The station number is not within the range		
	of 1 to 120.		



Labels

Input labels

Name (Comment)	Label name	Data type	Setting range	Description
Execution command	FB_EN		ON, OFF	ON: The FB is activated.
		Bit		OFF: The FB is not
				activated.
Module start XY	i_Start_IO_No		Depends on the I/O point	Specify the starting XY
address			range of the CPU.	address (in hexadecimal)
			For details, refer to the	where the CC-Link IE Field
		Word	CPU user's manual.	Network master/local
				module is mounted. (For
				example, enter H10 for
				X10.)
Station No.	i_Station_No	Word	1 to 120	Specify the target station
		vvoru		number.

Output labels

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



FB Version Upgrade History

Version	Date	Description
1.00A	2013/06/14	First edition

Note

This chapter includes information related to this function block.

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

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



Appendix 1. When Using the FB for 2 or More Master/Local Modules

To use 2 or more CC-Link IE field master/local modules and to use an FB for the second and subsequent CC-Link IE field master/local modules, it is necessary to create an FB for the second and subsequent modules from the MELSOFT Library CC-Link IE field master/local module FB using the following procedure.

Four steps are required to create the FB for the second and subsequent modules.

- (1) Enter network parameters
- (2) Set global labels
- (3) Copy MELSOFT Library to create the FB for the second module
- (4) Replace devices to create the FB for the second module



Appendix 1.1. Entering Network Parameters

Item	Description			
Network Type	Select CC IE Field (Master Station).			
Start I/O No.	Set the start I/O number of the master/local module in increments of 16 points.			
	Set "0020".			
Network No.	Set the network number of the master/local module.			
	Set "2".			
Total Stations	Set the number of slave stations connected to the master station. Include the number of			
	reserved slave stations.			
	Set "1".			

	((1)	Enter the	network	parameters for	or the	second	module.
--	---	-----	-----------	---------	----------------	--------	--------	---------

	Module 1	Module 2
Network Type	CC IE Field (Master Station) 🛛 🗸 🗸	CC IE Field (Master Station) 🛛 🗸
Start I/O No.	0000	0020
Network No.		2
Total Stations		1
Group No.		
Station No.	0	0
Mode	Online (Normal Mode) 🛛 🗸 🗸	Online (Normal Mode) 📃 🚽
	Network Configuration Setting	Network Configuration Setting
	Network Operation Setting	Network Operation Setting
	Refresh Parameters	Refresh Parameters
	Interrupt Setting	Interrupt Setting
	Specify Station No. by Parameter 🛛 👻	Specify Station No. by Parameter 🚽 👻
•		



(2) Set the network configuration setting for the second module.

Item	Description				
Station No.	Set the station number of the slave station connected to the master station.				
	Set "1".				
Station Type	Set the station type of the slave station connected to the master station.				
	Set "Remote Device Station".				
RX/RY Setting	Set assignment for RX/RY for the slave station connected to the master station.				
	(a) Points	Set "96".			
	(b) Start	Set "0000".			
RWw/RWr Setting	Set assignment for RWw/RWr for the slave station connected to the master station.				
	(a) Points	Set "64".			
	(b) Start	Set "0000".			

Assignment Metho Points/Start Start/End	Dd The colur Please re	The column contents for refresh device will be changed corresponding to refresh parameter Please reopen the window after completing refresh parameter setting when changing refre								
				RX,	/RY Setti	ng	RWw	/RWr Sel	tting	
Number of PLCs	Station No.	Station Type		Points	Start	End	Points	Start	End	
1	1	Remote Device Station	•	96	0000	005F	64	0000	003F	



(3) Enter the network parameters for the second module.

Item	Description	Setting value	e
Transfer SB	Select the link refresh range of SB device.	•"Link Side	Points" : 512
		•"Link Side	Start" : 0000
		•"PLC Side	Dev. Name" : SB
		•"PLC Side	Start" : 0200
Transfer SW	Select the link refresh range of SW device.	•"Link Side	Points" : 512
		•"Link Side	Start" : 0000
		•"PLC Side	Dev. Name" : SW
		•"PLC Side	Start" : 0200
Transfer 1	Select the link refresh range of RX device.	•"Link Side	Dev. Name" : RX
		•"Link Side	Points" : 96
		•"Link Side	Start" : 0000
		•"PLC Side	Dev. Name" : M
		•"PLC Side	Start" : 1120
Transfer 2	Select the link refresh range of RY device.	•"Link Side	Dev. Name" : RY
		•"Link Side	Points" : 96
		•"Link Side	Start" : 0000
		•"PLC Side	Dev. Name" : M
		•"PLC Side	Start" : 2144
Transfer 3	Select the link refresh range of RWr device.	•"Link Side	Dev. Name" : RWr
		•"Link Side	Points" : 64
		•"Link Side	Start" : 0000
		•"PLC Side	Dev. Name" : W
		•"PLC Side	Start" : 1040
Transfer 4	Select the link refresh range of RWw device.	•"Link Side	Dev. Name" : RWw
		•"Link Side	Points" : 64
		•"Link Side	Start" : 0000
		•"PLC Side	Dev. Name" : W
		•"PLC Side	Start" : 1140

*Change the Points of Link Side and Dev. Name and Start of PLC Side according to the system.



Assignment Method

Points/Start

🔘 Start/End

	Link Side								PLC S	ide	
	Dev. Na	ame	Points	Start	End		Dev. Nam	ie	Points	Start	End
Transfer SB	SB		512	0000	01FF	+	SB	•	512	0200	03FF
Transfer SW	S₩		512	0000	01FF	+	SW	•	512	0200	03FF
Transfer 1	RX	•	96	0000	005F	+	M	•	96	1120	1215
Transfer 2	RY	•	96	0000	005F	+	M	•	96	2144	2239
Transfer 3	RWr	•	64	0000	003F	+	W	•	64	001040	00107F
Transfer 4	RWw	•	64	0000	003F	+	W ·	•	64	001140	00117F
Transfer 5		•				++		•			
Transfer 6		•				+		•			
Transfer 7		•				+		•			
Transfer 8		•				+		-			-



Appendix 1.2. Entering Global Labels

Enter the global labels for the second module.

Specify label names for the second module. The names must be different from the label names for the first module. The following explains how to set the global label for the second module.

•							
	Item	Description					
	Class	Select "VAR_GLOBAL".					
	Label Name	Enter "M_F_RX2".					
	Data Type	Select "Bit".					
	Device	Enter the refresh device set for the refresh parameter with a "Z9" prefix.					

(1) M_F_RX2 Set remote input (RX).

(2) M_F_RY2 Set remote output (RY).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RY2".
Data Type	Select "Bit".
Device	Enter the refresh device set for the refresh parameter with a "Z8" prefix.

(3) M_F_RWr Set remote register (RWr).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RWr2".
Data Type	Select "Word [Signed]".
Device	Enter the refresh device set for the refresh parameter with a "Z7" prefix.

(4) M_F_RWw Set remote register (RWw).

Item	Description
Class	Select "VAR_GLOBAL".
Label Name	Enter "M_F_RWw2".
Data Type	Select "Word [Signed]".
Device	Enter the refresh device set for the refresh parameter with a "Z6" prefix.



Appendix 1.3. Copying MELSOFT Library to Create an FB for the Second Module

(1) Select an FB necessary for the second module from the Project tab of the Navigation window. Execute the Copy command.



(2) Paste the copied FB to "FB_Pool" on the Project tab of the Navigation window.





(3) After selecting the paste command, a window appears to enter an FB name. Enter an FB name after paste. (Example: NZ2GFD62_Preset_02)

[Note] The character string "+" of M+... cannot be entered.

Data Paste	
Data Type: Function Block	
Copy Source Data Name	
M+NZ2GFD62_Preset	
Data Name After Paste	ОК
NZ2GFD62_Preset_2	Cancel





Appendix 1.4.Replacing Devices to Create the FB for the Second Module(1) Open "Program" of the added FB.



(2) Select "Find/Replace" menu and then select "Replace Device". "Find/Replace" window appears.





(3) Select "Current Window" from Find In, "M_F_RY" from Find Device, and "M_F_RY2" from Replace Device. Then replace all devices. In the same way, replace "M_F_RX", "M_F_RWr" and "M_F_RWw".

Find/Replace	×
Device Instruction String Open/Close Con	ntact Device Batch Result Error Log
Find In (Current Window)	<u>B</u> rowse
Find Device M_F_RY	Eind Next
Replace Device M_F_RY2	All Find
Device Point 1 DEC -	<u>R</u> eplace
Find Direction Option	<u>A</u> ll Replace
 From <u>I</u>op □ Digit □ Down □ Multiple word □ Up □ Consecutive search with enter key 	Device Comment Mov <u>e</u> O not move

By performing the steps above, the CC-Link IE field master/local FB can be used for the second module.

[Point]

- (1) To use multiple FBs for the second CC-Link IE field master/local module, repeat "Appendix 1. When Using the FB for 2 or More Master/Local Modules".
- (2) To use an FB for third or subsequent CC-Link IE field master/local modules, make sure that the "Global label name", "Data Name After Paste" that is set when pasting FB data and "Replace Device" that is set when replacing devices are not duplicated for the first and second modules.

[Note]

If MELSOFT Library is upgraded, MELSOFT Library FBs can be upgraded by importing them again. However, the FBs that were created by following these procedures for the second and subsequent modules are not upgraded even if the FBs are imported again. Therefore, create FBs again by following "Appendix 1. When Using the FB for 2 or More Master/Local Modules".



Appendix 2. FB Library Application Examples

The following are application examples of CC-Link IE Field Network high-speed counter module FB.

1) System configuration

(1) Q series system configuration



Reminder

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



Interlock program

*This is the interlock program for when using both cyclic and transient transmission.

0047						<own (<="" baton="" st="" th=""><th>pass failure mntr</th></own>	pass failure mntr
3647						н	K4
						(T10	
Dwn stat						Own stat	
on bato						ion bato	
n pass s						n pass f	
tatus						ailure m	
						<own data<="" st="" td=""><td>link failure mntr</td></own>	link failure mntr
SB49						н	К3
						(T11	
Own stat						Own stat	
on data						ion data	
link st						link fa	
atus						ilure mo	
						<st baton<="" no.1="" td=""><td>pass failure mntr</td></st>	pass failure mntr
SW0A0.0						н	K4
						(T12	
Station						Station	
Vo.1 bat						No.1 bat	
on pass						on pass	
status						failure	
						<st cycl<="" no.1="" td=""><td>ic trans fail mntr</td></st>	ic trans fail mntr
SW080.0						н	К3
						(T1 3	
Station						Station	
Vo.1 dat						No.1 cyc	
a link s						lic tran	
tatus						smission	
						<master cor<="" td=""><td>ntrol start</td></master>	ntrol start
XOF	T1 0	T11	T1 2	T1 3			
	1r	/Ł_	/t	/*	ГМО	NO	M200
Module R	Own stat	Own stat	Station	Station	L		Comm con
EADY	ion bato	ion data	No.1 bat	No.1 cyc			d match
	n pass f	link fa	on pass	lic tran			flag, st
	ailure m	ilure mo	failure	smission			ation 1



2) List of devices

a) External input (commands)

Device	FB name	Application (ON details)
M0	M+NZ2GFD62_SetCncdOutput	Coincidence output function setting request
M10	M+NZ2GFD62_Preset	Preset/replace execution command
M20	M+NZ2GFD62_LatchCntOperation	Latch counter command
M30	M+NZ2GFD62_SamplingOperation	Sampling counter command
M40	M+NZ2GFD62_PeriodicPlsCnt	Periodic pulse counter command
M50	M+NZ2GFD62_FrequencyMeas	Frequency measurement command
M60	M+NZ2GFD62_RotationSpeedMeas	Rotation speed measurement command
M70	M+NZ2GFD62_PulseMeas	Pulse measurement command
M71		Function input terminal measurement
M72		Latch counter input terminal measurement
M80	M+NZ2GFD62_PWMOutput	PWM output command
M90	M+NZ2GFD62_ErrorOperation	Error operation start
M91		Error reset request
M100	M+NZ2GFD62_DegreeToCountVal	Angle conversion execution command
M110	M+NZ2GFD62_SetCamSwitch	Cam switch setting request
D110		Write data
M150	M+NZ2GFD62_SetInitData	Initial data setting request



b) External output (checks)

Device	FB name	Application (ON details)
M1	M+NZ2GFD62_SetCncdOutput	Coincidence output function FB ready
M2		Coincidence output function setting complete
F0		Coincidence output function setting FB error
D0		Coincidence output function setting FB error code
M11	M+NZ2GFD62_Preset	Preset/replace FB ready
M12		Preset/replace execution complete
F5		Preset/replace FB error
D10		Preset/replace FB error code
M21	M+NZ2GFD62_LatchCntOperation	Latch counter function FB ready
M22		Latch counter function execution complete
D20		Latch count value
F10		Latch counter FB error
D22		Latch counter function FB error code
M31	M+NZ2GFD62_SamplingOperation	Sampling function FB ready
M32		Sampling counter function execution complete
D30		Sampling count value
F15		Sampling counter FB error
D32		Sampling function FB error code
M41	M+NZ2GFD62_PeriodicPlsCnt	Periodic pulse counter function FB ready
M42		Periodic pulse counter function execution complete
D40		Periodic pulse count, difference value
D42		Periodic pulse count, present value
F20		Periodic pulse counter FB error
D44		Periodic pulse function FB error code
M51	M+NZ2GFD62_FrequencyMeas	Frequency measurement function FB ready
M52		Frequency measurement function execution complete
D50		Measured frequency value
F25		Frequency measurement FB error
D52		Frequency measurement function FB error code
M61	M+NZ2GFD62_RotationSpeedMeas	Rotation speed measurement function FB ready
M62		Rotation speed measurement execution complete
D60		Measured rotation speed value
F30		Rotation speed measurement FB error
D62		Rotation speed measurement function FB error code



Device	FB name	Application (ON details)
M73	M+NZ2GFD62_PulseMeas	Pulse measurement function FB ready
M74		Pulse measurement execution complete
M75		Update flag (Function input terminal)
D70		Measured pulse value (Function input terminal)
M76		Update flag (Latch counter input terminal)
D72		Measured pulse value (Latch counter input terminal)
F35		Pulse measurement command FB error
D74		Pulse measurement function FB error code
M81	M+NZ2GFD62_PWMOutput	PWM output function FB ready
M82		PWM output execution complete
F40		PWM output FB error
D80		PWM output function FB error code
M92	M+NZ2GFD62_ErrorOperation	Error operation FB ready
M93		Error reset execution complete
M94		Module error detection
D90		Module error code
M95		Module warning detection
D91		Module warning code
F45		Error operation FB error
D92		Error operation function FB error code
M101	M+NZ2GFD62_DegreeToCountVal	Angle conversion FB ready
M102		Angle conversion execution complete
D100		Count value
F50		Angle conversion FB error
D102		Angle conversion function FB error code
M111	M+NZ2GFD62_SetCamSwitch	Cam switch setting write ready
M112		Cam switch setting write complete
F55		Cam switch setting FB error
D142		Cam switch setting FB error code
M151	M+NZ2GFD62_SetInitData	Initial data setting FB ready
M152		Initial data setting FB complete
F60		Initial data setting FB error
D150		Initial data setting FB error code



3) Global label setting

a) Common setting

Class	Label name	Data type	Device
VAR_GLOBAL	M_F_RX	Bit	M1024Z9
VAR_GLOBAL	M_F_RY	Bit	M2048Z8
VAR_GLOBAL	M_F_RWr	Word [Signed]	W1000Z7
VAR_GLOBAL	M_F_RWw	Word [Signed]	W1100Z6



4) Programs

M+NZ2GFD62_SetCncdOutput (Coincidence output function setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_SetPoint1	K1000	Set the point setting (coincidence output 1) to 1,000.
i_SetPoint2	K2000	Set the point setting (coincidence output 2) to 2,000.
i_SetPoint3	K3000	Set the point setting (coincidence output 3) to 3,000.
i_SetPoint4	K4000	Set the point setting (coincidence output 4) to 4,000.

The example below shows a program with the following conditions.

By turning ON M0, the point of the coincidence output is set and the coincidence output is reset.







M+NZ2GFD62_Preset (Preset/replace)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
I_CH	K1	Set the target channel to channel 1.
i_PresetValue	K1000	Set the preset value to 1,000.

The example below shows a program with the following conditions.

By turning ON M10, the preset/replace of the present value is performed.





M+NZ2GFD62_LatchCntOperation (Latch counter function operation)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.

The example below shows a program with the following conditions.

By turning ON M20, the latch count value is read.





CC-Link IE Field Network High-Speed Counter Module FB Library Reference Manual FBM-M100-A M+NZ2GFD62_SamplingOperation (Sampling counter function operation)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_SetUnitTime	К0	Set the time unit setting (sampling counter) to "0: 1ms".
i_SamplingTime	K1000	Set the cycle setting (sampling counter) to 1,000.

The example below shows a program with the following conditions.

By turning ON M30, the sampling count value is read.





M+NZ2GFD62_PeriodicPlsCnt (Periodic pulse counter function operation)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_SetUnitTime	K0	Set the time unit setting (periodic pulse counter) to "0: 1ms ".
i_PeriodTime	K1000	Set the cycle setting (periodic pulse counter) to 1,000.

The example below shows a program with the following conditions.

By turning ON M40, the periodic pulse count difference value and periodic pulse count present value are read.




M+NZ2GFD62_FrequencyMeas (Frequency measurement)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_SetUnitTime	K0	Set the time unit setting (frequency measurement) to "0: 0.01s ".
i_SetAverage	K10	Set the moving average count (frequency measurement) to 10.

The example below shows a program with the following conditions.

By turning ON M50, the measured frequency value that has been calculated is read.





M+NZ2GFD62_RotationSpeedMeas (Rotation speed measurement)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_SetUnitTime	K0	Set the time unit setting (rotation speed measurement) to "0: 0.01s".
i_SetAverage	K10	Set the moving average count (rotation speed measurement) to 10.
i_SetRotation	K60	Set the number of pulses per rotation to 60.

The example below shows a program with the following conditions.

By turning ON M60, the measured rotation speed value that has been calculated is read.







M+NZ2GFD62_PulseMeas (Pulse measurement)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_MeasureByFUNC	ON/OFF	Turn ON when performing the pulse measurement with the function input
		terminal.
i_MeasureByLATCH	ON/OFF	Turn ON when performing the pulse measurement with the latch counter
		input terminal.

The example below shows a program with the following conditions.

After turning ON M70, by turning ON M71, the pulse measurement is performed with the function input terminal. After turning ON M70, by turning ON M72, the pulse measurement is performed with the latch counter input terminal.





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FB_ERROR:B Error fl ag	(F35 Pulse me asure co mmand F8 error
ERROR_ID:W Error co de	ED74 Pulse me asure fn o FB err or code



M+NZ2GFD62_PWMOutput (PWM output)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_SetLayout	H1	Set the PWM output assignment setting to 1H.
i_SetONTime	K1000	Set the ON width setting (PWM output) to 1,000.
i_SetCycleTime	K2000	Set the cycle setting (PWM output) to 2,000.

The example below shows a program with the following conditions.

By turning ON M80, the PWM output function is executed.







M+NZ2GFD62_ErrorOperation (Error operation)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH	K1	Set the target channel to channel 1.
i_ErrorReset	ON/OFF	Turn ON when performing error reset.

The example below shows a program with the following conditions.

By turning ON M90, errors and warnings are monitored.

After turning ON M90, by turning ON M91, error reset is performed.



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M+NZ2GFD62_DegreeToCountVal (Angle conversion)

Label name	Setting	Description
	value	
i_Angle	K500	Set the angle to 500.
i_Resolution	K3600	Set the resolution to 3,600.
i_ZeroValue	K1000	Set the zero degree setting value to 1,000.

The example below shows a program with the following conditions.

By turning ON M100, the count value is calculated from the angle.





M+NZ2GFD62_SetCamSwitch (Cam switch setting)

Label name	Setting	Description
	value	
i_Start_IO_No	HO	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.
i_CH_No	K1	Set the own station channel to 1.
i_CamSwitchNo	K1	Set the cam switch output number for the setting to 1.
i_StepFormat	K0	Set the step type to "0: Starts with output status being OFF".
i_StepNumber	K16	Set the number of steps to 16.
i_StepSetting	D110	Set the start device for the write operation to D110.

The example below shows a program with the following conditions.

By turning ON M110, the specified cam switch output setting is performed.



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M+NZ2GFD62_SetInitData (Initial data setting)

Label name	Setting	Description
	value	
i_Start_IO_No	H0	Set the starting XY address where the CC-Link IE Field Network master/local
		module is mounted to 0H.
i_Station_No	K1	Set the target station number to 1.

The example below shows a program with the following conditions.

By turning ON M150, the initial data setting is performed.



