

# **Programmable Controller**

# MELSEC iQ-R

MELSEC iQ-R High-Speed Counter Module Function Block Reference

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REVISIONS
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# **1** FUNCTION BLOCK (FB) LIST

#### Name<sup>\*1</sup> Description M+RD62\_SetRingCounter Sets the ring counter upper/lower limit values for a specified channel. M+RD62\_CountEnable Executes the count operation (Count start/stop) on a specified channel or all channels. M+RD62 SetCoincidenceOutput Sets coincidence output points of a specified channel and resets the counter value coincident. M+RD62 CoincidenceOutputEnable Enables the external coincidence output of a specified channel or all channels. M+RD62\_PresetOperation Presets the current value. M+RD62\_CountDisableOperation Executes the count disable function on a specified channel or all channels. M+RD62\_LatchCounterOperation Executes the latch counter function. M+RD62\_SamplingOperation Executes the sampling counter function. Executes the cycle pulse counter function. M+RD62 PeriodicPulseCounter M+RD62\_PulseMeasure Starts the pulse measurement function and reads the measured pulse value. M+RD62\_PWMOutput Executes the PWM output function. M+RD62\_DegreeToCountVal Calculates count values from angles.

#### This chapter lists the FBs for the MELSEC iQ-R series high-speed counter module.

\*1 Note that this reference does not describe the FB version information which is displayed such as "\_00A" at the end of FB name

# **2** HIGH-SPEED COUNTER MODULE FB

# 2.1 M+RD62\_SetRingCounter

#### Name

M+RD62\_SetRingCounter

#### Overview

Item	Description			
Overview	Sets the ring counter upper/lower limit values for a specified channel.			
Symbol				
-	M+RD62_SetRingCounter			
	(1) B : i_bEN o_bENO : B(6)			
	(2) DUT : i_stModule			
	(3) UW : i_uCH			
	(4) D : i_dRingUpperLimit o_uErrld : UW (9)			
	(5) D : i_dRingLowerLimit			

#### Labels

#### ∎Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.
(4)	i_dRingUpperLimit	Ring counter upper limit value	Double word [signed]	-2,147,483,648 to 2,147,483,647	Specify the ring counter upper limit value.
(5)	i_dRingLowerLimit	Ring counter lower limit value	Double word [signed]	-2,147,483,648 to 2,147,483,647	Specify the ring counter lower limit value.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(6)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(7)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that setting the ring counter upper/lower limit values has been completed.
(8)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(9)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Item	Description				
Available device	Target module	RD62P2, RD62D2, RD62P2E			
	CPU module	MELSEC iQ-R series CPU modules			
	Engineering tool	GX Works3			
Language	Ladder diagram				
Number of basic steps	159 steps				
	The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and t options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.				

Item	Description		
Processing	<ul> <li>By turning on i_bEN (Execution command), the set ring counter upper/lower limit values are written to the buffer memory.</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error codes.</li> </ul>		
FB compilation method	Macro type		
FB operation	Pulsed execution (single scan execution	ution type)	
Timing chart of I/O signals	When the operation is completed	successfully	
	i_bEN		
	o_bENO	OFF	
	Ring counter value write processing	Unexecuted Write Unexecuted	
	Count enable command (Y signal)	OFF	
	o_bOK		
	o_uErrld	0	
	■ When the operation is completed	with an error	
	i_bEN	OFF ON	
	o_bENO	OFF ON	
	Ring counter value write processing	Unexecuted	
	Count enable command (Y signal)	OFF	
	o_bOK	OFF ON	
	o_bErr	OFF The second s	
Postrictions or proceptions	• This ER does not include the error		
Restrictions or precautions	<ul> <li>This FB does not include the erro with the required system operatio</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance n.	
	This FB cannot be used in an inter-	errupt program.	
	i_bEN (Execution command) can	not be turned off and the normal operation cannot be acquired. Always use this FB in	
	programs that can turn off i_bEN (Execution command).		
	<ul> <li>When this FB is used twice or mo</li> <li>Every input must be provided with</li> </ul>	re, precaution must be taken to avoid duplication of the target channel.	
	While Count enable command (Y	signal) is on, the execution of this FB is not completed. (Turn off Count enable command	
	(Y signal).)		
	It the parameter is set using the n     To operate the RD62P2_RD62D2	nodule parameter of GX Works3, this FB is not required.	
	system connected. Set the modul module parameter, refer to MELS	e parameter of GX Works3 according to the application. For the setting method of the EC iQ-R High-Speed Counter Module User's Manual (Application).	
Restrictions or precautions	o_bENO Ring counter value write processing Count enable command (Y signal) o_bOK o_bErr o_uErrld • This FB does not include the error with the required system operatio • This FB cannot be used in an inter • Do not use this FB in programs the i_bEN (Execution command) camprograms that can turn off i_bEN • When this FB is used twice or more • Every input must be provided witt • While Count enable command (Y (Y signal).) • If the parameter is set using the n • To operate the RD62P2, RD62D22 system connected. Set the modul module parameter, refer to MELS	OFF Unexecuted Unexecuted Unexecuted OFF OFF OFF OFF OFF OFF OFF OF	

Error code				
Error code	Description	Action		
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.		

M+RD62\_CountEnable

### Overview

Overview				
Item	Description			
Overview	Executes the count operation (Count start/stop) on a specified channel or all channels.			
Symbol	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			

### Labels

#### ∎Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1, 2, or 15	1 or 2: Specify the channel number. 15: Specify all the channels.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(5)	o_bCountStart	Count in operation flag	Bit	Off	On: Count enable command (X signal) is on. Off: Count enable command (X signal) is off.
(6)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(7)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

B details				
Item	Description			
Available device	Target module	RD62P2, RD62D2, RD62P2E		
	CPU module	MELSEC iQ-R series CPU modules		
	Engineering tool	GX Works3		
Language	Ladder diagram			
Number of basic steps	142 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.			
Processing	<ul> <li>By turning on or off i_bEN (Execution command), the count operation starts or stops.</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.</li> </ul>			
FB compilation method	Macro type			
FB operation	Always executed			

Item	Description	
Timing chart of I/O signals	When the operation is completed	successfully
	i_bEN	
	o_bENO	
	Count enable command (Y signal)	
	o_bCountStart	OFF
	o_bErr	OFF
	o_uErrld	0
	■When the operation is completed	with an error
	i_bEN	
	o_bENO	
	Count enable command (Y signal)	OFF
	o_bCountStart	
	o_bErr	
	o_uErrld	0 Error code 0
Restrictions or precautions	<ul> <li>This FB does not include the error with the required system operatio</li> <li>This FB cannot be used in an inte</li> <li>Do not use this FB in programs th i_bEN (Execution command) can programs that can turn off i_bEN</li> <li>When this FB is used twice or mo</li> <li>Every input must be provided with</li> <li>To operate the RD62P2, RD62D2 system connected. Set the modul module parameter, refer to MELS</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance n. errupt program. Hat are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command). re, precaution must be taken to avoid duplication of the target channel. a value for proper FB operation. , or RD62P2E, the setting is required to be configured according to each device and e parameter of GX Works3 according to the application. For the setting method of the EC iQ-R High-Speed Counter Module User's Manual (Application).

Error code				
Error code	Description	Action		
101H	The specified channel is not valid. The target channel is not within the range of 1, 2, or 15.	Try again after checking the setting.		

#### M+RD62\_SetCoincidenceOutput

#### Overview

Item	Description		
Overview	Sets coincidence output points of a specified channel and resets the counter value coincident.		
Symbol	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		

#### Labels

#### ∎Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.
(4)	i_bOutEnableNo1	Coincidence output No.1 enable	Bit	On or off	On: Coincidence output No.1 is used. Off: Coincidence output No.1 is not used. The operation when this label is on is enabled by turning on i_bEN (Execution command).
(5)	i_bOutEnableNo2	Coincidence output No.2 enable	Bit	On or off	On: Coincidence output No.2 is used. Off: Coincidence output No.2 is not used. The operation when this label is on is enabled by turning on i_bEN (Execution command).
(6)	i_dSetPointNo1	Coincidence output No.1 point	Double word [signed]	-2,147,483,648 to 2,147,483,647	Specify the coincidence output No.1 point value.
(7)	i_dSetPointNo2	Coincidence output No.2 point	Double word [signed]	-2,147,483,648 to 2,147,483,647	Specify the coincidence output No.2 point value.

#### ■Output label

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No.	Variable name	Name	Data type	Default value	Description
(8)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(9)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that Counter value coincident (X signal) has been reset.
(10)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(11)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

FB details			
Item	Description		
Available device	Target module	RD62P2, RD62D2, RD62P2E	
	CPU module	MELSEC iQ-R series CPU modules	
	Engineering tool	GX Works3	
Language	Ladder diagram		
Number of basic steps	619 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.		
Processing	<ul> <li>options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.</li> <li>When i_dSetPointNo1 (Coincidence output No.1 point) is used, the function is enabled by turning on i_bOutEnableNo1 (Coincidence output No.1 enable) and i_bEN (Execution command). When i_bOutEnableNo1 (Coincidence output No.1 enable) is not turned on, i_dSetPointNo1 (Coincidence output No.1 point) is not written to the buffer memory and Coincidence signal No.1 reset command (Y signal) does not turn on. (This also applies to the signals for No.2.) To use both No.1 and No.2, turn on both i_bOutEnableNo1 (Coincidence output No.1 enable) and i_bOutEnableNo2 (Coincidence output No.2 enable).</li> <li>By turning on i_bEN (Execution command), this FB writes i_dSetPointNo1 (Coincidence output No.1 point) to the buffer memory and Coincidence signal No.1 reset command (Y signal) turns on. When Counter value coincident (X signal) turns off, Coincidence signal No.1 reset command (Y signal) is turned off. (This also applies to the signals for No.2.)</li> <li>Even though Counter value coincident (X signal) and the external coincidence output are reset using this FB while the current value is the coincidence output point, Counter value coincident (X signal) and the external coincidence output turn or again.</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing o this FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes</li> </ul>		
FB compilation method	Macro type		
FB operation	Pulse execution (multiple scan execution type)		

Item	Description	
Timing chart of I/O signals	When the operation is completed	successfully
	i_bEN	
	o_bENO	
	i_bOutEnableNo1	OFF
	Coincidence output point No.1	Unset Changed value
	Counter value coincident (X signal)	OFF OFF
	Coincidence signal reset command (Y signal)	
	Count enable command (Y signal)	OFF
	o_bOK	OFF A
	o_bErr	OFF
	o_uErrld	0
	■When the operation is completed	with an error
	i_bEN	
	o_bENO	
	i_bOutEnableNo1	OFF
	Coincidence output point No.1	Unset
	Counter value coincident (X signal)	OFF
	Coincidence signal reset command (Y signal)	OFF /
	Count enable command (Y signal)	OFF
	o_bOK	OFF ON
	o_bErr	OFF A
	o_uErrld	0 Error code 0
Restrictions or precautions	<ul> <li>This FB does not include the error with the required system operatio</li> <li>This FB cannot be used in an inte</li> <li>Do not use this FB in programs the i_bEN (Execution command) can programs that can turn off i_bEN</li> <li>When this FB is used twice or modeling the two system connected. Set the module module parameter, refer to MELS</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance n. arrupt program. at are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command). are, precaution must be taken to avoid duplication of the target channel. a value for proper FB operation. signal) is on, the execution of this FB is not completed. (Turn off Count enable command c, or RD62P2E, the setting is required to be configured according to each device and le parameter of GX Works3 according to the application. For the setting method of the SEC iQ-R High-Speed Counter Module User's Manual (Application).
Error code		

Error code	Description	Action		
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.		

#### M+RD62\_CoincidenceOutputEnable

### Overview

Item	Description		
Overview	Enables the external coincidence output of a specified channel or all channels.		
Symbol	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		

### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1, 2, or 15	1 or 2: Specify the channel number. 15: Specify all the channels.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(5)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that Coincidence signal enable command (Y signal) is on.
(6)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(7)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

FB details					
Item	Description				
Available device	Target module	RD62P2, RD62D2, RD62P2E			
	CPU module	MELSEC iQ-R series CPU modules			
	Engineering tool	GX Works3			
Language	Ladder diagram				
Number of basic steps	143 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.				
Processing	<ul> <li>By turning on or off i_bEN (Execution command), the coincidence output is enabled or disabled.</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error codes.</li> </ul>				
FB compilation method	Macro type				
FB operation	Pulsed execution (single scan execution type)				

Item	Description	
Timing chart of I/O signals	When the operation is completed	successfully
	i_bEN	
	o_bENO	
	Count enable command (Y signal)	
	o_bOK	OFF
	o_bErr	OFF
	o_uErrld	0
	■When the operation is completed	with an error
	i_bEN	
	o_bENO	
	Count enable command (Y signal)	OFF
	o_bOK	
	o_bErr	OFF C
	o_uErrld	0 Error code 0
Restrictions or precautions	<ul> <li>This FB does not include the error with the required system operatio</li> <li>This FB cannot be used in an inte</li> <li>Do not use this FB in programs the i_bEN (Execution command) can programs that can turn off i_bEN</li> <li>When this FB is used twice or moder to a system connected. Set the modul module parameter, refer to MELS</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance n. errupt program. hat are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command). ore, precaution must be taken to avoid duplication of the target channel. n a value for proper FB operation. e, or RD62P2E, the setting is required to be configured according to each device and le parameter of GX Works3 according to the application. For the setting method of the iEC iQ-R High-Speed Counter Module User's Manual (Application).

Error code			
Error code	Description	Action	
101H	The specified channel is not valid. The target channel is not within the range of 1, 2, or 15.	Try again after checking the setting.	

M+RD62\_PresetOperation

#### Overview

Item	Description	Description			
Overview	Presets the current value.	Presets the current value.			
Symbol					
	M+RD62_Preset	Operation			
	(1) — B : i_bEN	o_bENO : B (5)			
	(2) DUT : i_stModule	o_bOK : B (6)			
	(3) UW : i_uCH	o_bErr : B (7)			
	(4) D : i_dPresetValue	o_uErrId : UW (8)			

#### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.
(4)	i_dPresetValue	Preset value	Double word [signed]	-2,147,483,648 to 2,147,483,647	Specify the preset value.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that Preset command (Y signal) is on.
(7)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(8)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

ltem	Description		
nem	Description		
Available device	Target module   RD62P2, RD62D2, RD62P2E		
	CPU module	MELSEC iQ-R series CPU modules	
	Engineering tool	GX Works3	
Language	Ladder diagram		
Number of basic steps	165 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.		
Processing	<ul> <li>By turning on i_bEN (Execution command), the current value is overwritten with i_dPresetValue (Preset value).</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error codes.</li> </ul>		
FB compilation method	Macro type		
FB operation	Pulsed execution (single scan execution type)		

tem	Description	
iming chart of I/O signals	When the operation is completed	I successfully
		ON
	i_bEN	OFF
	o_beno	OFF Y
	Preset value (Buffer memory)	Unset Changed value
	Preset command (Y signal)	
	Present value (Buffer memory)	Present value Changed value
	o_bOK	OFF T
	o_bErr	OFF
	o_uErrld	0
	When the operation is completed	d with an error
		ON
	i_bEN	
	0_DENU	
	Dropot value (Buffer memory)	
	Freset value (Buller Melhory)	Unset
	Preset command (Y signal)	OFF /
	Present value (Buffer memory)	Present value
	o bOK	OFF
	_	ON CON
	o_bErr	
	o uErrld	
	0_dEma	
Restrictions or precautions	This FB does not include the err     with the required system operation	or recovery processing. Program the error recovery processing separately in accordan
	This FB cannot be used in an in	terrupt program.
	• Do not use this FB in programs	that are executed only once, such as a subroutine program or FOR-NEXT loop, because
	i_bEN (Execution command) ca	nnot be turned off and the normal operation cannot be acquired. Always use this FB in
	programs that can turn off i_bEN	I (Execution command).
	Every input must be provided with the provided withe provided with the provided with the provided with the provided	th a value for proper FB operation.
	To operate the RD62P2, RD62D	2, or RD62P2E, the setting is required to be configured according to each device and
	system connected. Set the mod	ule parameter of GX Works3 according to the application. For the setting method of the
		REC IO D Lligh Speed Counter Medule Llear's Manual (Application)

Error code	Description	Action
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.

#### M+RD62\_CountDisableOperation

Dverview					
Item	Description				
Overview	Executes the count disable function on a specified channel or all channels.				
Symbol	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				

#### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1, 2, or 15	1 or 2: Specify the channel number. 15: Specify all the channels.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(5)	o_bDisableStart	Count disable in operation flag	Bit	Off	When this label is on, it indicates that the count disable execution command is on.
(6)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(7)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Item	Description		
Available device	Target module	RD62P2, RD62D2, RD62P2E	
	CPU module	MELSEC iQ-R series CPU modules	
	Engineering tool	GX Works3	
Language	Ladder diagram		
Number of basic steps	232 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.		
Processing	<ul> <li>By turning on i_bEN (Execution command), the count disable function is executed.</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error codes.</li> </ul>		
FB compilation method	Macro type		
FB operation	Pulsed execution (single scan execution type)		

Item	Description					
Timing chart of I/O signals	■When the operation is completed	successfully				
	i_bEN					
	o_bENO					
	Counter function selection setting (Buffer memory)	Unset 0				
	Counter function selection start command (Y signal)					
	o_bDisableStart	OFF Y				
	o_bErr	OFF				
	o_uErrld	0				
	When the operation is completed	with an error				
	i_bEN					
	o_bENO	OFF				
	Counter function selection setting (Buffer memory)	Unset				
	Counter function selection start command (Y signal)	OFF				
	o_bDisableStart	OFF ON				
	o_bErr	OFF C				
	o_uErrld	0 Error code 0				
Restrictions or precautions	This FB does not include the error with the required system operation	I				
	This FB cannot be used in an inte	errupt program.				
	<ul> <li>Do not use this FB in programs the i bEN (Execution command) can</li> </ul>	at are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in				
	programs that can turn off i_bEN	(Execution command).				
	• When this FB is used, turn off Counter function selection start command (Y signal). When the signal is on, the count disable					
	<ul> <li>When this FB is used twice or more, precaution must be taken to avoid duplication of the target channel</li> </ul>					
	Every input must be provided with	n a value for proper FB operation.				
	To operate the RD62P2, RD62D2	, or RD62P2E, the setting is required to be configured according to each device and				
	module parameter, refer to MELS	EC iQ-R High-Speed Counter Module User's Manual (Application).				
Error code						

Error code						
Error code	Description	Action				
101H	The specified channel is not valid. The target channel is not within the range of 1, 2, or 15.	Try again after checking the setting.				

#### M+RD62\_LatchCounterOperation

#### Overview Description Item Overview Executes the latch counter function. Symbol M+RD62\_LatchCounterOperation B : i\_bEN (1)o\_bENO : B -(4) (2) DUT : i\_stModule o\_bOK : B -(5) (3) UW : i\_uCH o\_dLatchCount : D -(6) o\_bErr : B -(7) o\_uErrld : UW (8)

#### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(5)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that the latch counter execution command is on.
(6)	o_dLatchCount	Latch count value	Double word [signed]	0	Stores the latch count value.
(7)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(8)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Item	Description				
Available device	Target module RD62P2, RD62D2, RD62P2E				
	CPU module	MELSEC iQ-R series CPU modules			
	Engineering tool	GX Works3			
Language	Ladder diagram				
Number of basic steps	247 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.				
Processing	<ul> <li>By turning on i_bEN (Execution command), the latch counter function is executed.</li> <li>The operation of this FB is one-shot, triggered by i_bEN (Execution command).</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error codes.</li> </ul>				
FB compilation method	Macro type				

Item	Description					
FB operation	Pulse execution (multiple scan execution type)					
Timing chart of I/O signals	When the operation is completed successfully					
	i_bEN					
	o_bENO					
	Counter function selection setting (Buffer memory)	Unset 1				
	Counter function selection start command (Y signal)					
	o_dLatchCount	Unset Latch count value				
	o_bOK	OFF CONTRACTOR				
	o_bErr	OFF				
	o_uErrld	0				
	When the operation is completed	with an error				
	i_bEN	OFF ON				
	o_bENO	OFF				
	Counter function selection setting (Buffer memory)	Unset				
	Counter function selection start command (Y signal)	OFF				
	o_dLatchCount	Unset				
	o_bOK	OFF ON				
	o_bErr	OFF A				
	o_uErrld	0 Error code 0				
Restrictions or precautions	<ul> <li>This FB does not include the error with the required system operatio</li> <li>This FB cannot be used in an inte</li> <li>Do not use this FB in programs the i_bEN (Execution command) can programs that can turn off i_bEN</li> <li>When this FB is used, turn off Co function is not executed on the ta</li> <li>When this FB is used twice or modeling the two the tax of the RD62P2, RD62D2 system connected. Set the modul module parameter, refer to MELS</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance in. errupt program. hat are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command). unter function selection start command (Y signal). When the signal is on, the latch counter rget channel. ore, precaution must be taken to avoid duplication of the target channel. h a value for proper FB operation. 2, or RD62P2E, the setting is required to be configured according to each device and le parameter of GX Works3 according to the application. For the setting method of the SEC iQ-R High-Speed Counter Module User's Manual (Application).				

Error code					
Error code	Description	Action			
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.			

#### M+RD62\_SamplingOperation

#### Overview

Item	Desc	Description					
Overview	Execu	Executes the sampling counter function.					
Symbol		M. 5500.0	_				
		M+RD62_San	nplingOperation				
	(1)	B : i_bEN	o_bENO : B	(5)			
	(2)—	DUT : i_stModule	o_bOK: B	(6)			
	(3)—	UW:i_uCH	o_dSamplingCount: D	(7)			
	(4)—	UW : i_uSamplingTime	o_bErr: B	(8)			
			o_uErrld:UV	V (9)			
	L						

#### Labels

#### ∎Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.
(4)	i_uSamplingTime	Sampling time	Word [Unsigned]	1 to 65,535	<ul> <li>Set the sampling time. (Unit: When the counting speed setting is 500kpps or lower: 10ms, when the counting speed setting is 1Mpps or greater: 1ms)</li> <li>1 to 32767: Set a value in decimal.</li> <li>32768 to 65535: Convert decimal to hexadecimal and set the value.</li> </ul>

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that the sampling time has elapsed and the execution of the sampling counter function has been completed.
(7)	o_dSamplingCount	Sampling count value	Double word [signed]	0	Stores the sampling count value.
(8)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(9)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Item	Description		
Available device	Target module     RD62P2, RD62D2, RD62P2E		
	CPU module	MELSEC iQ-R series CPU modules	
	Engineering tool GX Works3		
Language	Ladder diagram		

Item	Description				
Number of basic steps	424 steps The number of steps of the FB ember options setting of GX Works3. For the	edded in a program depends on the CPU module used, the input/output definitions, and the ne options setting of GX Works3, refer to the GX Works3 Operating Manual.			
Processing	<ul> <li>By turning on i_bEN (Execution command), the sampling count operation is performed for the preset i_uSamplingTime (Sampling time) and the sampling count value is read from the buffer memory.</li> <li>Once the sampling time elapses, o_bOK (Normal completion) is turned on and the processing is completed.</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.</li> </ul>				
FB compilation method	Macro type				
FB operation	Pulse execution (multiple scan exec	sution type)			
Timing chart of I/O signals	■When the operation is completed	successfully			
	i_bEN				
	o_bENO				
	Counter function selection setting (Buffer memory)	Unset 2			
	Sampling time setting (Buffer memory)	Unset Set value			
	Counter function selection start command (Y signal)	OFF ON			
	o_dSamplingCount	Update stopped Update in progress Update stopped			
	Sampling counter flag (Buffer memory)				
	o_bOK				
	o_bErr	OFF			
	o_uErrld	0			
	When the operation is completed	with an error			
	i_bEN				
	o_bENO	OFF			
	Counter function selection setting	Unset			
	Sampling time setting				
	(Buffer memory)				
	command (Y signal)	OFF			
	o_dSamplingCount	Unset			
	Sampling counter flag (Buffer memory)	0			
	o_bOK	OFF			
	o_bErr				
	o_uErrld	0 Error code 0			
Restrictions or precautions	<ul> <li>This FB does not include the errowith the required system operatio</li> <li>This FB cannot be used in an inte</li> <li>Do not use this FB in programs the i_bEN (Execution command) can programs that can turn off i_bEN</li> <li>When this FB is used, turn off Co counter function is not executed of When this FB is used twice or more Every input must be provided with</li> <li>To operate the RD62P2, RD62D2 system connected. Set the modul module parameter, refer to MELS</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance n. errupt program. lat are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command). unter function selection start command (Y signal). When the signal is on, the sampling on the target channel. re, precaution must be taken to avoid duplication of the target channel. a value for proper FB operation. c, or RD62P2E, the setting is required to be configured according to each device and e parameter of GX Works3 according to the application. For the setting method of the EC iQ-R High-Speed Counter Module User's Manual (Application).			

Error code					
Error code	Description	Action			
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.			

M+RD62\_PeriodicPulseCounter

#### Overview

Item	Description				
Overview	Executes the cycle pulse counter function.				
Symbol	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				
	o_bErr : B (9) o_uErrld : UW (10)				

#### Labels

#### ∎Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.
(4)	i_uPeriodTime	Cycle time setting	Word [Unsigned]	1 to 65,535	<ul> <li>Specify the cycle time setting. (Unit: When the counting speed setting is 500kpps or lower: 10ms, when the counting speed setting is 1Mpps or greater: 1ms)</li> <li>1 to 32767: Set a value in decimal.</li> <li>32768 to 65535: Convert decimal to hexadecimal and set the value.</li> </ul>

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that the cycle pulse counter function has been started.
(7)	o_dPreviousValue	Cycle pulse count previous value	Double word [signed]	0	Stores the cycle pulse count previous value.
(8)	o_dPresentValue	Cycle pulse count current value	Double word [signed]	0	Stores the cycle pulse count current value.
(9)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(10)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Item	Description			
Available device	Target module	RD62P2, RD62D2, RD62P2E		
	CPU module	MELSEC iQ-R series CPU modules		
	Engineering tool	GX Works3		
Language	Ladder diagram			

Item	Description				
Number of basic steps	423 steps				
	The number of steps of the FB ember options setting of GX Works3. For the	edded in a program depends on the CPU module used, the input/output definitions, and the e options setting of GX Works3, refer to the GX Works3 Operating Manual			
Processing	<ul> <li>By turning on i_bEN (Execution command), the cycle pulse count operation is performed for the preset i_uPeriodTime (Cycle time setting) and the cycle pulse count previous value and cycle pulse count current value are read from the buffer memory.</li> <li>If the setting value of the target channel is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error codes.</li> </ul>				
FB compilation method	Macro type				
FB operation	Pulse execution (multiple scan execution type)				
Timing chart of I/O signals	When the operation is completed s	successfully			
	i_bEN	OFF ON			
	o_bENO	OFF OFF			
	Counter function selection setting (Buffer memory)	Unset 3			
	Cycle time setting (Buffer memory)	Unset Set value			
	Counter function selection start command (Y signal)				
	o_dPreviousValue	Not updated Update in progress Not updated			
	o_dPresentValue	Not updated Update in progress Not updated			
	o_bOK	OFF			
	o_bErr	OFF			
	o_uErrld	0			
	■When the operation is completed v	vith an error			
	i_bEN				
	o_bENO				
	Counter function selection setting (Buffer memory)	Unset			
	Cycle time setting (Buffer memory)	Unset			
	Counter function selection start command (Y signal)	OFF			
	o_dPreviousValue	Not updated			
	o_dPresentValue	Not updated			
	o_bOK	OFF ON			
	o_bErr	OFF			
	o_uErrld	0 Error code 0			
Restrictions or precautions	This FB does not include the error	recovery processing. Program the error recovery processing separately in accordance with			
	the required system operation.				
	<ul> <li>This FB cannot be used in an intel</li> <li>Do not use this FB in programs that</li> </ul>	rrupt program. at are executed only once such as a subroutine program or FOR-NEXT loop, because i, bEN			
	(Execution command) cannot be t	urned off and the normal operation cannot be acquired. Always use this FB in programs that			
	can turn off i_bEN (Execution com	imand).			
	When this FB is used, turn off Cou	Inter function selection start command (Y signal). When the signal is on, the cycle pulse			
	When this FB is used twice or more	re, precaution must be taken to avoid duplication of the target channel.			
	Every input must be provided with	a value for proper FB operation.			
	To operate the RD62P2, RD62D2,	, or RD62P2E, the setting is required to be configured according to each device and system			
	connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R High-Speed Counter Module User's Manual (Application).				

Error code					
Error code	Description	Action			
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.			

M+RD62\_PulseMeasure

#### Overview

#### Description Item Overview Starts the pulse measurement function and reads the measured pulse value. Symbol M+RD62\_PulseMeasure (1)-B : i\_bEN o\_bENO: B - (4) (2) DUT : i\_stModule o\_bOK: B — (5) (3) UW : i\_uCH o\_bUpdate : B \_\_\_ (6) o\_dResult : D — (7) o\_bErr : B — (8) $o_uErrld$ : UW \_\_ (9)

#### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(5)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that pulses are being measured.
(6)	o_bUpdate	Measured pulse value update flag	Bit	Off	When this label is on, it indicates that measured pulse value has been updated.
(7)	o_dResult	Measured pulse value	Double word [signed]	0	Stores the measured pulse value.
(8)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(9)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Daotano		
Item	Description	
Available device	Target module	RD62P2, RD62D2, RD62P2E
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	591 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.	

Item	Description	
Processing	<ul> <li>By turning on i_bEN (Execution of measurement is started.</li> <li>If the setting value of the target of this FB is interrupted. In addition, codes.</li> </ul>	ommand), Pulse measurement start command (Y signal) is turned on and the pulse nannel is out of the setting range, o_bErr (Error completion) turns on and the processing of the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error
FB compilation method	Macro type	
FB operation	Always executed	
Timing chart of I/O signals	■When the operation is completed	successfully
	i_bEN	
	o_bENO	
	(Y signal)	OFF ON
	Function start input terminal	
	Measured pulse value (Buffer memory)	0 Updated value Updated value
	Measured pulse value update flag (Buffer memory)	
	Timing of the write to measured pulse value update flag	
	Pulse under-measurement flag (Buffer memory)	
	o_bUpdate	
	o_dResult	0 Updated value Updated value
	o_bOK	OFF
	o_bErr	OFF
	o_uErrld	0
	■When the operation is completed	vith an error
	i_bEN	OFF ON
	o_bENO	OFF
	Pulse measurement start command (Y signal)	OFF ON
	Function start input terminal	OFF
	Measured pulse value (Buffer memory)	0
	Measured pulse value update flag (Buffer memory)	0
	Timing of the write to measured pulse value update flag	OFF
	Pulse under-measurement flag (Buffer memory)	0
	o_bUpdate	OFF
	o_dResult	0
	o_bOK	
	o_bErr	OFF
	o_uErrld	0 Error code 0

Item D	Description
Restrictions or precautions	<ul> <li>This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>This FB cannot be used in an interrupt program.</li> <li>Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command).</li> <li>When this FB is used twice or more, precaution must be taken to avoid duplication of the target channel.</li> <li>Every input must be provided with a value for proper FB operation.</li> <li>To execute the pulse measurement function, the counter operation mode of the module parameter is required to be set to the pulse measurement mode. For the setting method of the module parameter, refer to MELSEC iQ-R High-Speed Counter Module User's Manual (Application).</li> <li>When the interval for measuring the target is shorter than the scan time, the measurement may not be performed properly. Adjust the measurement interval to twice the scan time or longer.</li> <li>To operate the RD62P2, RD62D2, or RD62P2E, the setting is required to be configured according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module User's Manual (Application).</li> </ul>

Error code				
Error code	Description	Action		
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.		

M+RD62\_PWMOutput

#### FB details

#### Description Item Overview Executes the PWM output function. Symbol M+RD62\_PWMOutput B : i\_bEN (1)o\_bENO : B - (7) (2) DUT : i\_stModule o\_bOK : B - (8) (3) UW : i\_uCH o\_bErr : B — (9) (4) UD : i\_udSetONTime1 o\_uErrld : UW \_\_\_ (10) (5) UD : i\_udSetONTime2 (6) UD : i\_udSetCycleTime

#### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_stModule	Module label	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R high- speed counter module.
(3)	i_uCH	Target channel	Word [Unsigned]	1 to 2	Specify the channel number.
(4)	i_udSetONTime1	PWM output on width setting 1	Double Word [Unsigned]	0 to 2,147,483,647	Specify the ON time of the output pulse for Coincidence output No.1. (Unit: $0.1 \mu s$ )
(5)	i_udSetONTime2	PWM output on width setting 2	Double Word [Unsigned]	0 to 2,147,483,647	Specify the ON time of the output pulse for Coincidence output No.2. (Unit: $0.1 \mu s$ )
(6)	i_udSetCycleTime	PWM output cycle setting	Double Word [Unsigned]	0 to 2,147,483,647	Specify the time of one cycle for output pulses. (Unit: $0.1 \mu s)$

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(7)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(8)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that the PWM is being output.
(9)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(10)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

Item	Description			
Available device	Target module     RD62P2, RD62D2, RD62P2E       CPU module     MELSEC iQ-R series CPU modules			
	Engineering tool GX Works3			
Language	Ladder diagram			
Number of basic steps	330 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.			

item	Description	
Processing	<ul> <li>By turning on i_bEN (Execution or ON time setting 1), i_udSetONTin setting).</li> <li>If the setting value of the target of this FB is interrupted. In addition, codes.</li> </ul>	ommand), the PWM output function is executed with the set i_udSetONTime1 (PWM output ne2 (PWM output ON time setting 2), and i_udSetCycleTime (PWM output cycle time hannel is out of the setting range, o_bErr (Error completion) turns on and the processing of the error code is stored in o_uErrld (Error code). For the error code, refer to the list of error
FB compilation method	Macro type	
FB operation	Always executed	
Timing chart of I/O signals	When the operation is completed	successfully
	i_bEN o_bENO PWM output ON time setting 1 (Buffer memory)	OFF ON OFF ON Set value
	PWM output ON time setting 2 (Buffer memory) PWM output cycle time setting (Buffer memory)	Unset Set value Unset ON
	PWM output start command (Y signal)	
	Coincidence output (Terminal) 1	
	Coincidence output (Terminal) 2	
	o_bOK	OFF
	o_bErr	OFF
	o_uErrld	0
	■When the operation is completed	with an error
	i_bEN	
	o_bENO PWM output ON time setting 1 (Buffer memory)	OFF Unset
	(Buffer memory) PWM output cycle time setting	
	(Buffer memory) PWM output start command (Y signal)	OFF
	Coincidence output (Terminal) 1 Coincidence output (Terminal) 2	OFF OFF
	o_bOK	
	o_bFu	
	o_uErrld	0 Error code 0
Restrictions or precautions	<ul> <li>This FB does not include the error with the required system operatio.</li> <li>This FB cannot be used in an interaction of the transmission of the system operation.</li> <li>Do not use this FB in programs the i_bEN (Execution command) can programs that can turn off i_bEN.</li> <li>When this FB is used twice or more the system connected. Set the modu</li> </ul>	r recovery processing. Program the error recovery processing separately in accordance in. arrupt program. hat are executed only once, such as a subroutine program or FOR-NEXT loop, because not be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command). bre, precaution must be taken to avoid duplication of the target channel. h a value for proper FB operation. tion, the counter operation mode of the module parameter is required to be set to the PWM hod of the module parameter, refer to MELSEC iQ-R High-Speed Counter Module User's 2, or RD62P2E, the setting is required to be configured according to each device and le parameter of GX Works3 according to the application. For the setting method of the

### Error code

Error code	Description	Action
100H	The specified channel is not valid. The target channel is not within the range of 1 to 2.	Try again after checking the setting.

#### M+RD62\_DegreeToCountVal

#### Overview

Item	Description	
Overview	Calculates count values from angles.	
Symbol		
	M+RD62_DegreeToCountVal	
	(1) B : i_bEN o_bENO : B	— (5)
	(2) UW : i_uAngle o_bOK : B	(6)
	(3) UD : i_udResolution o_dCountVal : D	— (7)
	(4) UW : i_uZeroValue o_bErr : B	— (8)
	o_uErrld:UW	/ (9)

#### Labels

#### ■Input label

No.	Variable name	Name	Data type	Range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uAngle	Angle	Word [Unsigned]	0 to 3,599	Specify the angle. (Unit: 0.1 degree)
(3)	i_udResolution	Resolution	Double Word [Unsigned]	10 to 32,768	Specify the resolution of the encoder.
(4)	i_uZeroValue	Zero degree setting value	Word [Unsigned]	0 to (i_udResolution-1)	Specify a value to set as 0 degree.

#### ■Output label

No.	Variable name	Name	Data type	Default value	Description
(5)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	o_bOK	Normal completion	Bit	Off	When this label is on, it indicates that a count value is being calculated.
(7)	o_dCountVal	Count value	Double word [signed]	0	Stores the count value calculated from the angle.
(8)	o_bErr	Error completion	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
(9)	o_uErrld	Error code	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

#### FB details Description Item Available device Target module RD62P2, RD62D2, RD62P2E CPU module MELSEC iQ-R series CPU modules Engineering tool GX Works3 Language Ladder diagram Number of basic steps 96 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.

Processing <ul> <li>by turning on L_EEA (Execution command), a count value is calculated using an angle input in increments of 0.1 deg The value to be calculated is the one when the resolution is set as the ring counter upper limit value and 0 is set as th counter lower limit value.</li> <li>The calculation tomula for a count value (or _dCountVal) is as follows: LuAngle + (3600) = LudResolution), the LuZeroVA When a calculation value is greater than the resolution (_udResolution), the resolution (_udResolution), the use of the resolution (_udResolution), the resolution (_udResolution), the use of the resolution (_udResolution), the resolution (_udResolution), the selection (_udResolution), the resolution (_udResolution), the resolution (_udResolution), the use is subt for the error code, refer to the list of error codes.</li> </ul> FB compilation method     Mazor type <b>FB compilation method</b> Always executed        Timing chart of I/O signals <ul> <li>adclution processing</li> <li>beENO</li> <li>Calculation processing</li> <li>adclution processing</li> <li>beENO</li> <li>calculation processing</li> <li>adclution processing</li> <li>beENO</li> <li>calculation processing</li> <li>beFIF</li> <li>adclution processing</li> <li>beFIF</li> <li>calculation processing</li> <li>befIF</li> <li>befIF</li> <li>cu</li></ul>	Item	Description			
FB complation method       Macro type         FB operation       Always executed         Timing chart of I/O signals       When the operation is completed successfully         LbEN       OFF         0_bENO       Calculation processing         0_dCountVal       OFF         0_bEN       OFF         0_bEN       OFF         0_bEN       OFF         0_dCountVal       OFF         0_bEN       OFF	Processing	<ul> <li>By turning on i_bEN (Execution of The value to be calculated is the counter lower limit value.</li> <li>The calculation formula for a cou When a calculation value is great from the calculation value and th</li> <li>If the input value is an error, o_bI</li> <li>For the error code, refer to the list</li> </ul>	command), a count value is calculated using an angle (input in increments of 0.1 degrees). one when the resolution is set as the ring counter upper limit value and 0 is set as the ring nt value (o_dCountVal) is as follows: i_uAngle ÷ (3600 ÷ i_udResolution) + i_uZeroValue. ter than the resolution (i_udResolution), the resolution (i_udResolution) value is subtracted e result is stored in Count value (o_dCountVal). Err turns on and the processing of this FB is interrupted. st of error codes.		
FB operation       Always executed         Timing chart of I/O signals       When the operation is completed successfully         i_bEN       0_ENO         calculation processing       0_EF         0_dCount/Val       0_EF         0_bENO       0_EF         0_bErr       0_EF         0_uErrld       0         0_bENO       0_EF         Calculation processing       0_EF         0_uErrld       0         0_bENO       0_EF         0_uErrld       0         0_bENO       0_EF         0_uErrld       0         0_bENO       0_EF         0_uErrld       0         0_bENO       0_EF         Calculation processing       Unexecuted         0_dCount/Val       0         0_bErr       0_EFF         0_uErrld       0         0_bErr       0_EFF         0_uErrld       0         0_bCK       0_EFF         0_uErrld       0         0_bCK       0_EFF         0_uErrld       0         0_bErr       0_UErrld         0_uErrld       0_EFF         0_uErrld       0_EFF	FB compilation method	Macro type			
Timing chart of I/O signals <ul> <li>When the operation is completed successfully</li> <li>i_bENO</li> <li>i_bENO</li> <li>Calculation processing</li> <li></li></ul>	FB operation	Always executed	xecuted		
LbEN       Image: constraint of the recursion of th	Timing chart of I/O signals	When the operation is completed	successfully		
o_bENO       OFF       Unexecuted       Executed       Unexecuted         o_dCountVal       OFF       OFF       OFF       OFF         o_bErr       OFF       OFF       OFF       OFF         o_UErrld       O       OFF       OFF       OFF         o_bENO       OFF       OFF       OFF       OFF       OFF         o_bENO       OFF       <		i_bEN			
Calculation processing       Unexecuted       Executed       Unexecuted         o_dCountVal       0       Updated value       0         o_bCK       0FF       0       0         o_bErr       0       0       0         o_uterrid       0       0       0         When the operation is completed with an error       0       0       0         i_bENO       0       0       0       0         Calculation processing       0       0       0       0         o_bCK       0       0       0       0       0         o_bENO       0       0       0       0       0       0         o_bCK       0		o_bENO	OFF C		
o_dCountVal       0       Updated value       0         o_bOK       0FF       0       0         o_bErr       0       0       0         o_uErrld       0       0       0         When the operation is completed with an error       0       0       0         LbEN       0FF       0       0       0         o_bENO       0FF       0       0       0         Calculation processing       0       0       0       0         o_bCK       0       0       0       0       0         o_bErr       0_UErrld       0       0       0       0         o_bCK       0       0       0       0       0       0         o_UErrld       0       0       0       0       0       0         vith the required system operation.       0       0       0       0       0       0         Vito use this FB is programs that can turn off i_bEN (Execution command).       0       0       0       0       0       0         UPERIDENCIDENCE       0       0       0       0       0       0       0       0       0       0       0       0		Calculation processing	Unexecuted Executed Unexecuted		
0_DOR       OFF         0_bErr       OFF         0_uErrld       0         When the operation is completed with an error         i_bEN       OFF         0_bENO       OFF         Calculation processing       OFF         0_dCountVal       0         0_bER       OFF         0_bCK       OFF         0_bErr       OFF         0_uErrld       OFF         0_uErrld       OFF         0_rldErr       OFF         0_rldErr       OFF         0_rldErr       OFF         0_rldErr       OFF         0_rldErr       OFF         0_rldErr       OFF         0_rldErrld       OFF		o_dCountVal	0 Updated value 0		
Image: Construction of the second		o bErr	OFF CFF		
•When the operation is completed with an error         i_bEN         o_bENO         Calculation processing         0_dCountVal         0_bDK         0_bErr         0_uErrId         0         This FB does not include the error recovery processing. Program the error recovery processing separately in accordar with the required system operation.         • This FB does not include the error recovery processing. Program the error recovery processing separately in accordar with the required system operation.         • This FB does not include the error recovery processing. Program the error recovery processing separately in accordar with the required system operation.         • This FB cannot be used in an interrupt program.         • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, becau i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB ir programs that can turn off _bEN (Execution command).         • Toro perate the RD62P2, RD62D2, or RD62P2E, the setting is required to be configured according to each device and		o_uErrld	0		
I_DEN       OFF       ON         O_BENO       OFF       OFF         Calculation processing       OFF       OFF         O_dCountVal       O       OFF         O_bDK       OFF       OFF         O_bErr       OFF       OFF         O_uErrid       OFF       OFF         O_terrid       OFF       OFF         O_terrid       OFF       OFF         O_uErrid       OFF       OFF         O_terrid       OFF       OFF         O_terrid       OFF       OFF         O_uErrid       OFF       OFF         O_terrid       OFF       OFF         O_terrid       OFF       OFF         O_uerrid       OFF       OFF      <		■When the operation is completed	with an error		
o_bENO       OFF       OFF         Calculation processing       Unexecuted         o_dCountVal       0         o_bOK       OFF         o_bErr       OFF         o_uErrId       OFF         OFF       OFF         OULTOR       OFF         OULTOR       OFF         OFF       OFF         OULTOR       OFF         OULTOR       OFF         OULTOR       OFF         OFF       OFF <t< td=""><td></td><td>i_bEN</td><td></td></t<>		i_bEN			
Calculation processing       Unexecuted         o_dCountVal       0         o_bOK       0         o_bErr       0         o_uErrId       0         FF       0         Error code       0         Outrind       0         Error code       0         Image: Construction of the transformer of the transf		o_bENO	OFF ON		
o_dCountVal       0         o_bOK       0         o_bErr       0         o_uErrId       0         FF       0         Error code       0         • This FB does not include the error recovery processing. Program the error recovery processing separately in accordant with the required system operation.         • This FB cannot be used in an interrupt program.         • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, becau i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command).         • Every input must be provided with a value for proper FB operation.         • To operate the RD62P2, RD62D2, or RD62P2E, the setting is required to be configured according to each device and		Calculation processing	Unexecuted		
o_bOK       OFF         o_bErr       OFF         o_uErrId       OFF         Restrictions or precautions       • This FB does not include the error recovery processing. Program the error recovery processing separately in accordate with the required system operation.         • This FB cannot be used in an interrupt program.         • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command).         • Every input must be provided with a value for proper FB operation.         • To operate the RD62P2, RD62D2, or RD62P2E, the setting is required to be configured according to each device and		o_dCountVal	0		
o_bErr       OFF         o_uErrld       0         Restrictions or precautions       • This FB does not include the error recovery processing. Program the error recovery processing separately in accordant with the required system operation.         • This FB cannot be used in an interrupt program.         • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, becautions         • LibEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command).         • Every input must be provided with a value for proper FB operation.         • To operate the RD62P2, RD62D2, or RD62P2E, the setting is required to be configured according to each device and		o_bOK			
Restrictions or precautions       • This FB does not include the error recovery processing. Program the error recovery processing separately in accordation.         • This FB cannot be used in an interrupt program.       • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, becauting between the transmission of tra		o_bErr			
<ul> <li>with the required system operation.</li> <li>This FB cannot be used in an interrupt program.</li> <li>Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, becau i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command).</li> <li>Every input must be provided with a value for proper FB operation.</li> <li>To operate the RD62P2, RD62D2, or RD62P2E, the setting is required to be configured according to each device and</li> </ul>	Restrictions or precautions	o_u⊢rrld <ul> <li>This FB does not include the error</li> </ul>	U Error code 0		
system connected. Set the module parameter of GX Works3 according to the application. For the setting method of th module parameter, refer to MELSEC iQ-R High-Speed Counter Module User's Manual (Application).		<ul> <li>with the required system operatio</li> <li>This FB cannot be used in an into</li> <li>Do not use this FB in programs thi</li> <li>i_bEN (Execution command) can programs that can turn off i_bEN</li> <li>Every input must be provided wit</li> <li>To operate the RD62P2, RD62D2 system connected. Set the modul module parameter, refer to MELS</li> </ul>	<ul> <li>b. errupt program.</li> <li>hat are executed only once, such as a subroutine program or FOR-NEXT loop, because inot be turned off and the normal operation cannot be acquired. Always use this FB in (Execution command).</li> <li>h a value for proper FB operation.</li> <li>2, or RD62P2E, the setting is required to be configured according to each device and le parameter of GX Works3 according to the application. For the setting method of the SEC iQ-R High-Speed Counter Module User's Manual (Application).</li> </ul>		

Error code	Description	Action
102H	The resolution is out of the setting range. The resolution is not within the range of 10 to 32768.	Try again after checking the setting.
103H	The zero degree setting value is out of the setting range. The zero degree setting value is not within the range of 0 to (i_udResolution - 1).	Try again after checking the setting.
104H	The angle is out of the setting range. The angle is not within the range of 0 to 3599.	Try again after checking the setting.

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