

Programmable Controller

MELSEC iQ-R

MELSEC iQ-R Simple Motion Module Function Block Reference

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1 List of FBs

This FB list is for using the MELSEC iQ-R series simple motion module.

Name	Description
M+RD77_SetPositioningData	Sets positioning data ([Da.1] to [Da.10], [Da.20] to [Da.22], [Da.27] to [Da.29]).
M+RD77_StartPositioning	Starts the positioning operation.
M+RD77_JOG	Performs the JOG operation or inching operation.
M+RD77_MPG	Performs the manual pulse generator operation.
M+RD77_ChangeSpeed	Changes the speed.
M+RD77_ChangeAccDecTime	Changes the acceleration/deceleration time at a speed change.
M+RD77_ChangePosition	Changes the target position.
M+RD77_Restart	Restarts the axis being stopped.
M+RD77_OperateError	Monitors errors and warnings, and resets errors.
M+RD77_InitializeParameter	Initializes the parameter.
M+RD77_WriteFlash	Writes the parameter, positioning data, and block start data in the buffer memory to the flash ROM.
M+RD77_ChangeServoParameter	Changes the servo parameter after the amplifier is activated.
M+RD77_ReadWriteServoParameter	Changes the servo parameter after the amplifier is activated. When changing it, 1 word unit or 2 words unit can be specified. Writes the servo parameter of MR-J5-B into the internal memory of the Simple Motion module.
M+RD77_ChangeTorqueControlMode	Sets torque limit values in the forward direction and reverse direction individually.
M+RD77_ChangeSpeedControlMode	Activates the speed control mode.
M+RD77_ChangePositionControlMode	Activates the position control mode.
M+RD77_ChangeContinuousTorqueMode	Activates the continuous operation to torque control mode.
M+RD77_Sync	Starts and ends the synchronous control.
M+RD77_ChangeSyncEncoderPosition	Changes the synchronous encoder axis current value and synchronous encoder axis current value per cycle.
M+RD77_DisableSyncEncoder	Disables inputs from the synchronous encoder axis.
M+RD77_EnableSyncEncoder	Enables inputs from the synchronous encoder axis.
M+RD77_ResetSyncEncoderError	Reads error information from the synchronous encoder axis, and resets the error.
M+RD77_ConnectSyncEncoder	Connects a synchronous encoder via CPU.
M+RD77_MoveCamReferencePosition	Adds the movement amount set in the synchronous control change value to the cam reference position to move the cam reference position.
M+RD77_ChangeCamPositionPerCycle	Changes the cam axis current value per cycle to a synchronous control change value.
M+RD77_ChangeMainShaftGearPositionPerCycle	Changes the current value per cycle after main shaft gear to a synchronous control change value.
M+RD77_ChangeAuxiliaryShaftGearPositionPerCycle	Changes the current value per cycle after auxiliary shaft gear to a synchronous control change value.
M+RD77_MoveCamPositionPerCycle	Adds the movement amount set in the synchronous control change value to a cam axis current value per cycle to move the cam axis current value per cycle.
M+RD77_MakeRotaryCutterCam	Automatically generates the cam for a rotary cutter.
M+RD77_CalcCamCommandPosition	Calculates a cam axis feed current value, and outputs the calculation result.
M+RD77_CalcCamPositionPerCycle	Calculates a cam axis current value per cycle, and outputs the calculation result.

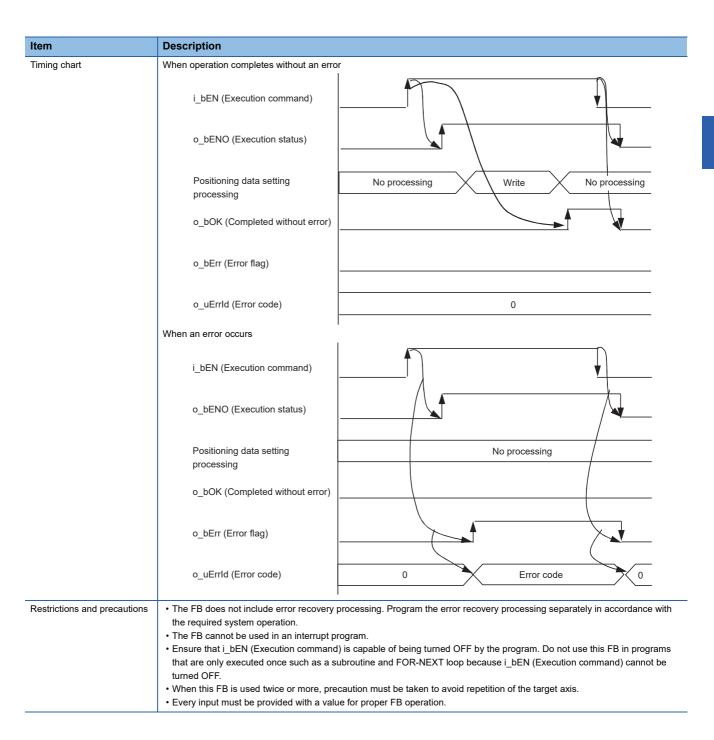
2 Simple Motion Module FB

2.1 M+RD77_SetPositioningData

Name

M+RD77_SetPositioningData

Item	Description	Description					
Function overview	Sets positioning data ([Da.1] to [Da.10], [Da.20] to [Da.22], [Da.27] to [Da.29]).						
Symbol							
			M+RD77 SetPositioningData				
	Execution command	B : i_bEN		o_bENO : B	Execution status		
	Module label ———	DUT : i_stN	Module	o_bOK : B	Completed without error		
	Target axis	UW : i_uAx	is	o_bErr : B	Error flag		
	Positioning data No. ———UW : i		UW : i_uDataNo o_uErrld : UV		Error code		
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2					
software	Applicable CPU		MELSEC iQ-R series				
	Applicable engineering soft	ware	GX Works3				
Programming language	Ladder						
Number of steps (maximum)	209 steps						
Function description	 By turning ON i_bEN (Execution command), the set positioning data is written to the buffer memory. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). When the setting value of the positioning data No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 101 (Hexadecimal) is stored in o_uErrId (Error code). 						
Compiling method	Macro type						
FB operation type	Pulsed execution (single sc	an executior	n type)				



Error code	Description	Action	
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.	
101 (Hexadecimal)	The setting value of i_uDataNo (Positioning data No.) is out of the range. The positioning data No. is not within the range of 1 to 100.	Please try again after confirming the setting.	

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Positioning data No.	i_uDataNo	Word [unsigned]	1 to 100	Specify the positioning data No.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that setting the positioning data has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

■Disclosed labels

Name	Variable name	Data type	Setting range	Description
Da.1: Operation pattern	pb_uOpePattern	Word [unsigned]	O: Positioning complete 1: Continuous positioning control 3: Continuous path control	Specify whether the positioning is completed with the data being executed, or continues with the following data. When 4 or higher, which is out of the setting range, is specified, bit 0 and 1 are enabled. For example, when 4 is set, 0 is applied.
Da.2: Control system	pb_uCtrlSys	Word [unsigned]	01H: ABS1 1-axis linear control (ABS) 02H: INC1 1-axis linear control (INC) 03H: FEED1 1-axis fixed-feed control 04H: VF1 1-axis speed control (Forward) 05H: VR1 1-axis speed control (Reverse) 06H: VPF Speed-position switching control (Forward) 07H: VPR Speed-position switching control (Reverse) 08H: PVF Position-speed switching control (Reverse) 08H: INC2 2-axis linear interpolation control (INC) 08H: INC2 2-axis linear interpolation control (INC) 08H: INC2 2-axis linear interpolation control with sub point designation (ABS) 08H: INC^ Circular interpolation control with sub point designation (INC) 08H: ABS. Circular interpolation control with center point designation (ABS, CW) 10H: ABS. Circular interpolation control with center point designation (ABS, CW) 11H: INC. Circular interpolation control with center point designation (INC, CW) 12H: INC. Circular interpolation control with center point designation (INC, CW) 13H: VF2 2-axis speed control (Forward) 14H: VR2 2-axis speed control (Reverse) 15H: ABS3 3-axis linear interpolation control (ABS) 16H: INC3 3-axis linear interpolation control (ABS) 16H: INC3 3-axis speed control (Reverse) 17H: FEED3 Fixed-feed control by 3-axis linear interpolation 18H: VF3 3-axis speed control (Reverse) 18H: NG4 4-axis linear interpolation control (ABS) 18H: INC4 4-axis linear interpolation control (INC) 17H: FEED4 Fixed-feed control by 4-axis linear interpolation 18H: VF3 3-axis speed control (Reverse) 18H: NG4 4-axis speed control (Reverse) 18H: NG9 OPP oPP instruction 18H: VR4 4-axis speed control (Reverse)	Sets the control system for positioning control.
Da.3: Acceleration time No.	pb_uAccTimeNo	Word [unsigned]	0: Acceleration time 0 1: Acceleration time 1 2: Acceleration time 2 3: Acceleration time 3	Set any of the acceleration time 0 to 3 as the acceleration time for positioning. When 4 or higher, which is out of the setting range, is specified, bit 0 and 1 are enabled. For example, when 4 is set, 0 is applied.

Name	Variable name	Data type	Setting range	Description
Da.4: Deceleration time No.	pb_uDecTimeNo	Word [unsigned]	0: Deceleration time 0 1: Deceleration time 1 2: Deceleration time 2 3: Deceleration time 3	Set any of the deceleration time 0 to 3 as the deceleration time for positioning. When 4 or higher, which is out of the setting range, is specified, bit 0 and 1 are enabled. For example, when 4 is set, 0 is applied.
Da.10: M code	pb_uMcode	Word [unsigned]	Da.2: Control system = 82H: JUMP instruction • 0 to 10 Da.2: Control system = 83H: LOOP • 1 to 65535 Da.2: Control system = Other than the above • 0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the condition data No., number of repetitions, or M code for the control system.
Da.9: Dwell time	pb_uDwellTime	Word [unsigned]	Da.2: Control system = 82H: JUMP instruction • 1 to 600 Da.2: Control system = 82H: Other than JUMP instruction • 0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the positioning data No. or dwell time for the control system.
Da.27: M code ON signal output timing	pb_uMcodeOnTimin g	Word [unsigned]	0: Setting value of "[Pr.18] M code ON signal output timing" 1: WITH mode 2: AFTER mode	Set the timing to output the M code ON signal. When 4 or higher is specified, bit 0 and 1 are enabled. For example, when 4 is set, 0 is applied.
Da.28: ABS direction in degrees	pb_uABS	Word [unsigned]	0: Setting value of "[Cd.40] ABS direction in degrees" 1: ABS circular right 2: ABS circular left 3: Takes a shortcut. (Specified direction ignored.)	Set the movement direction of ABS when the unit is degree under position control. When 4 or higher, which is out of the setting range, is specified, bit 0 and 1 are enabled. For example, when 4 is set, 0 is applied.
Da.29: Interpolation speed designation method	pb_uInterpolateSpd	Word [unsigned]	O: Setting value of "[Pr.20] Interpolation speed designation method" 1: Composite speed 2: Reference axis speed	Set whether to specify the composite speed or reference axis speed when performing liner interpolation or circular interpolation. When 8 or higher is specified, bit 0, 1, and 2 are enabled. For example, when 8 is set, 0 is applied.
Da.8: Command speed	pb_udCmdSpd	Double word [unsigned]	"[Pr.1] Unit setting" = 0, 1, 2 • 1 to 2000000000 "[Pr.1] Unit setting" = 3 • 1 to 5000000	Set the command speed for positioning.
			FFFFFFFH: Current speed (Speed set for the previous positioning data No.)	The speed set for the previous positioning data No. is used for positioning control.

Name	Variable name	Data type	Setting range	Description
Da.6: Positioning address	pb_dPositAdr	Double word [signed]	"[Pr.1] Unit setting" = 0, 1, 3 • Da.2: Control system = 06H to 09H: 0 to 2147483647 "[Pr.1] Unit setting" = 0, 1, 3 • Da.2: Control system = Other than 06H to 09H: -2147483648 to 2147483647 "[Pr.1] Unit setting" = 2 • Da.2: Control system = 01H, 0AH, 15H, 1AH, 81H, 20H, 22H, 23H: 0 to 35999999 "[Pr.1] Unit setting" = 2 • Da.2: Control system = 02H, 0BH, 16H, 1BH, 03H, 0CH, 17H, 1CH, 20H, 22H, 23H: -2147483648 to 2147483647 "[Pr.1] Unit setting" = 2 • Da.2: Control system = 06H, 07H: 0 to 2147483647 (INC mode), 0 to 35999999 (ABS mode) "[Pr.1] Unit setting" = 2 • Da.2: Control system = 08H, 09H: 0 to 2147483647	Specify the target position or movement amount for positioning control. The setting value differs depending on the control system.
Da.7: Arc address	pb_dArcAdr	Double word [signed]	"[Pr.1] Unit setting" = 0, 1, 3 • -2147483648 to 2147483647 "[Pr.1] Unit setting" = 2 • Unused (Set 0.)	Use this label only when performing circular interpolation control. For the control with sub point designation, set the sub point address. For the control with center point designation, set the center point address of the arc.
Da.20: Axis to be interpolated No. 1	pb_uinterpolatedAx No1	Word [unsigned]	0H: Axis 1 1H: Axis 2 2H: Axis 3 3H: Axis 4 4H: Axis 5 5H: Axis 6 6H: Axis 7 : : EH: Axis 15 FH: Axis 16	Set the interpolation-target axis 1 when performing interpolation operation. Values out of the setting range or the own axis cannot be set as the interpolation-target axis. Set 0 to disable the interpolation. When 100H or higher is set, lower 8 bits (bit 0 to 7) are enabled. For example, when 101H is set, 1H is applied.
Da.21: Axis to be interpolated No. 2	pb_uInterpolatedAx No2	Word [unsigned]	0H: Axis 1 1H: Axis 2 2H: Axis 3 3H: Axis 4 4H: Axis 5 5H: Axis 6 6H: Axis 7 : : EH: Axis 15 FH: Axis 16	Set the interpolation-target axis 2 when performing interpolation operation. Values out of the setting range or the own axis cannot be set as the interpolation-target axis. Set 0 to disable the interpolation or for 2-axis interpolation control. When 100H or higher is set, lower 8 bits (bit 0 to 7) are enabled. For example, when 101H is set, 1H is applied.

Name	Variable name	Data type	Setting range	Description
Da.22: Axis to be	pb_uInterpolatedAx	Word [unsigned]	0H: Axis 1	Set the interpolation-target
interpolated No. 3	No3		1H: Axis 2	axis 3 when performing
			2H: Axis 3	interpolation operation.
			3H: Axis 4	Values out of the setting
			4H: Axis 5	range or the own axis cannot
			5H: Axis 6	be set as the interpolation-
			6H: Axis 7	target axis.
			:	Set 0 to disable the
			:	interpolation, for 2-axis
			EH: Axis 15	interpolation control, or for 3-
			FH: Axis 16	axis interpolation control.
				When 100H or higher is set,
				lower 8 bits (bit 0 to 7) are
				enabled.
				For example, when 101H is
				set, 1H is applied.

2.2 M+RD77_StartPositioning

Name

M+RD77_StartPositioning

Item	Description	Description					
Function overview	Starts the positioning operation.						
Symbol		M+RD77 StartPositioning					
	Execution command ———	B : i_bEN		o_bENO : B	Execution status		
	Module label	DUT : i_stM	odule	o_bOK : B	— Completed without error		
	Target axis	UW : i_uAx	is	o_bErr : B	— Error flag		
	Cd.3: Positioning start No.	-UW : i_uStartNo		o_uErrld : UW	— Error code		
Applicable hardware and	Applicable module RD		RD77MS16, RD77MS8, RD77MS4, RD77MS2				
software	Applicable CPU		MELSEC iQ-R series				
	Applicable engineering soft	ware	GX Works3				
Programming language	Ladder						
Number of steps (maximum)	410 steps						
Function description	 By turning ON i_bEN (Execution command), the control corresponding to i_uStartNo (Cd.3: Positioning start No.) is started. This FB is activated by turning ON the positioning start signal (Y10 to Y1F). Only when the following conditions are met, the positioning start signal (Y10 to Y1F) is turned ON by turning ON i_bEN (Execution command). The conditions are the following: READY signal (X0) is ON, positioning start signal (Y10 to Y1F) is OFF, start complete signal ([Md.31] Status: b14) is OFF, and BUSY signal (X10 to X1F) is OFF. If any of the conditions are not met, the error code 200 (hexadecimal) is stored in o_uErrld (Error code). When the start complete signal ([Md.31] Status: b14) is turned ON or i_bEN (Execution command) is turned OFF, the positioning start signal (Y10 to Y1F) is turned OFF. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When the setting value of the positioning start No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 102 (Hexadecimal) is stored in o_uErrld (Error code). 						
Compiling method	Macro type		, _	,			
FB operation type	Pulsed execution (multiple scan execution type)						

Item	Description	
Timing chart	When operation completes without an e	rror
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	Parameter writing processing	No processing Write No processing
	Positioning start signal	
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0
	When an error occurs	
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	Parameter writing processing	No processing
	Positioning start signal	
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrId (Error code)	0 Error code 0
Restrictions and precautions	the required system operation. The FB cannot be used in an interrup: Ensure that i_bEN (Execution comma that are only executed once such as a turned OFF. This FB turns ON and OFF the positio (Y10 to Y1F) by any other means while When this FB is used twice or more o interlock to prevent the FBs from bein. When this FB is used twice or more, p. When this FB is used in two or more p. signal being operated by the module I.	and) is capable of being turned OFF by the program. Do not use this FB in programs a subroutine and FOR-NEXT loop because i_bEN (Execution command) cannot be ning start signal (Y10 to Y1F). Thus, do not turn ON or OFF the positioning start signal le this FB is being executed. To other FB that operates the Y signal same as the signal this FB does, create an gractivated at the same time. Direction must be taken to avoid repetition of the target axis. Diaces, a duplicated coil warning may occur during compile operation due to the Y abel. However, this is not a problem and the FB will operate without an error. Arted. Data required for controlling the start No. must be set on the parameter or buffer

Error code	Description	Action	
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.	
102 (Hexadecimal)	The setting value of i_uStartNo (Cd.3: Positioning start No.) is out of the range. The positioning start No. is not within the range of 1 to 600, 7000 to 7004, and 9001 to 9004.	Please try again after confirming the setting.	
200 (Hexadecimal)	The condition for positioning start is not met. Any of the following conditions are not met. • READY signal: On • Positioning start signal: Off • Start complete signal: Off • BUSY signal: Off	Execute the FB when all of the following conditions are met. READY signal: On Positioning start signal: Off Start complete signal: Off BUSY signal: Off	

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.3: Positioning start No.	i_uStartNo	Word [unsigned]	1 to 600: Positioning data No. 7000 to 7004: Block start designation 9001: Machine home position return 9002: Fast-home position return 9003: Current value changing 9004: Simultaneous starting of multiple axes	Set the positioning start No. corresponding to the control to be started.

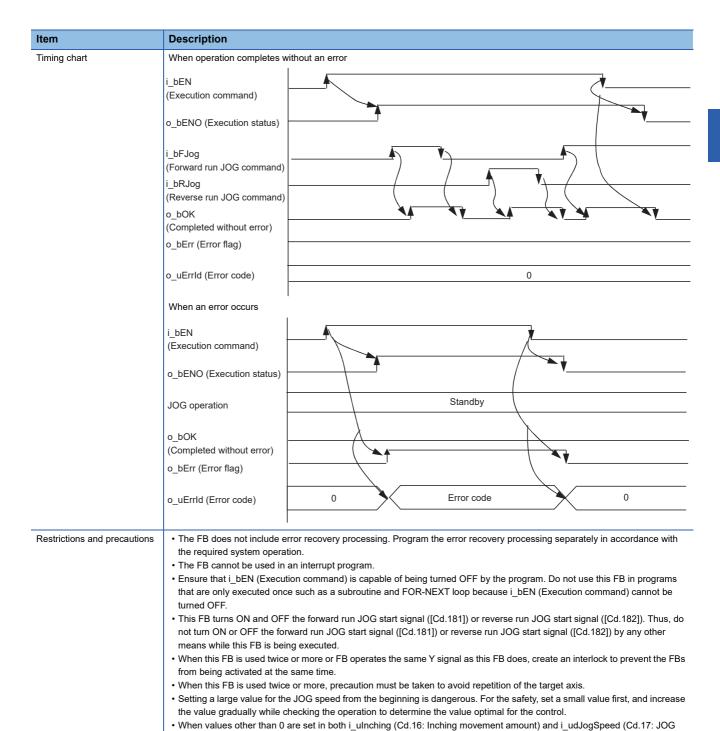
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that executing this FB has been completed. However, this label does not turn ON when a module error occurs at the start.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.3 M+RD77_JOG

Name

M+RD77_JOG

Item	Description				
Function overview	Performs the JOG operation or inching operation.				
Symbol					
		M+RD7	77_JOG		
	Execution command ——	B:i_bEN	o_bENO : B	—— Execution status	
	Module label ——	DUT : i_stModule	o_bOK : B	——— Completed without erro	
	Target axis	UW : i_uAxis	o_bErr : B	—— Error flag	
	Forward run JOG command	B:i_bFJog	o_uErrld : UW	—— Error code	
	Reverse run JOG command ——	B:i_bRJog			
	Cd.17: JOG speed ——	UD : i_udJogSpeed			
	Cd.16: Inching movement amount	- UW : i_uInching			
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2			
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	384 steps				
Function description	 By turning ON i_bFJog (Forward run JOG command) or i_bRJog (Reverse run JOG command) after i_bEN (Execution command) is turned ON, the JOG operation or inching operation is performed. When i_bFJog (Forward run JOG command) and i_bRJog (Reverse run JOG command) are ON at the same time, the operation stops. When i_bEN (Execution command) is turned OFF from ON during operation that has been started by i_bFJog (Forward run JOG command) or i_bRJog (Reverse run JOG command), the operation stops. When i_bRJog (Reverse run JOG command) is turned ON during forward run JOG operation, the operation stops. However, when i_bRJog (Reverse run JOG command) is turned OFF from ON, the forward run JOG operation restarts. (This relation is also applied to the reverse run JOG operation and i_bFJog (Forward run JOG command). When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 				
Compiling method	Macro type				
FB operation type	Real-time execution				



Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting. (Turn OFF the forward run JOG command or reverse run JOG command, turn ON i_bEN (Execution command) from OFF, and turn ON the forward run JOG command or reverse run JOG command again.)

 When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error.

speed), inching operation is performed.

• Every input must be provided with a value for proper FB operation.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Forward run JOG command	i_bFJog	Bit	ON, OFF	Turn ON this label when performing the forward run JOG operation or forward run inching operation.
Reverse run JOG command	i_bRJog	Bit	ON, OFF	Turn ON this label when performing the reverse run JOG operation or reverse run inching operation.
Cd.17: JOG speed	i_udJogSpeed	Double word [unsigned]	"[Pr.1] Unit setting" = mm	Specify the JOG speed. For inching operation, set 0.
Cd.16: Inching movement amount	i_ulnching	Word [unsigned]	0 to 65535 0: JOG operation (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Specify the inching movement amount. For JOG operation, set 0.

•	•				
Name	Variable name	Data type	Default value	Description	
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.	
Completed without error	o_bOK	Bit	OFF	ON: The JOG command is ON. OFF: The JOG command is OFF.	
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.	
Error code	o_uErrld	Word [unsigned]	0	The generated error code is stored.	

2.4 M+RD77_MPG

Name

M+RD77_MPG

	-				
Item	Description				
Function overview	Performs the manual pulse generator operation.				
Symbol					
		M+RD77_MPG			
	Execution command ——	B : i_bEN	o_bENO : B	Execution status	
	Module label ———	DUT : i_stModule	o_bOK : B —	— Completed without error	
	Target axis	UW : i_uAxis	o_bErr : B	— Error flag	
	Cd.20: Manual pulse generator —— 1 pulse input magnification	UD : i_udMPGInputMagnification	o_uErrld : UW —	Error code	
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4	4, RD77MS2		
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	336 steps				
Function description	 By turning ON or OFF i_bEN (Execution command), the manual pulse generator operation is enabled or disabled. This FB is constantly executed after i_bEN (Execution command) is turned ON. The workpiece moves according to the pulses input from the manual pulse generator while o_bOK (Completed without error) is ON. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 				
Compiling method	Macro type				
FB operation type	Real-time execution				

Item	Description
Timing chart	When operation completes without an error
	i_bEN (Execution command)
	o_bENO (Execution status)
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrId (Error code)
	When an error occurs
	i_bEN (Execution command)
	o_bENO (Execution status)
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code) 0 Error code 0
Restrictions and precautions	The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program. Ensure that i_bEN (Execution command) 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 and FOR-NEXT loop because i bEN (Execution command) cannot be
	turned OFF.
	 Do not change i_uAxis (Target axis) while i_bEN (Execution command) is ON. When this FB is used twice or more, precaution must be taken to avoid repetition of the target axis.
	Every input must be provided with a value for proper FB operation.

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.20: Manual pulse generator 1 pulse input magnification	i_udMPGInputMagnifi cation	Double word [unsigned]	1 to 10000	Set the input magnification of the manual pulse generator 1 pulse. When the setting value is 0, the magnification is 1. When the setting value is 10,001 or higher, the magnification is 10,000.

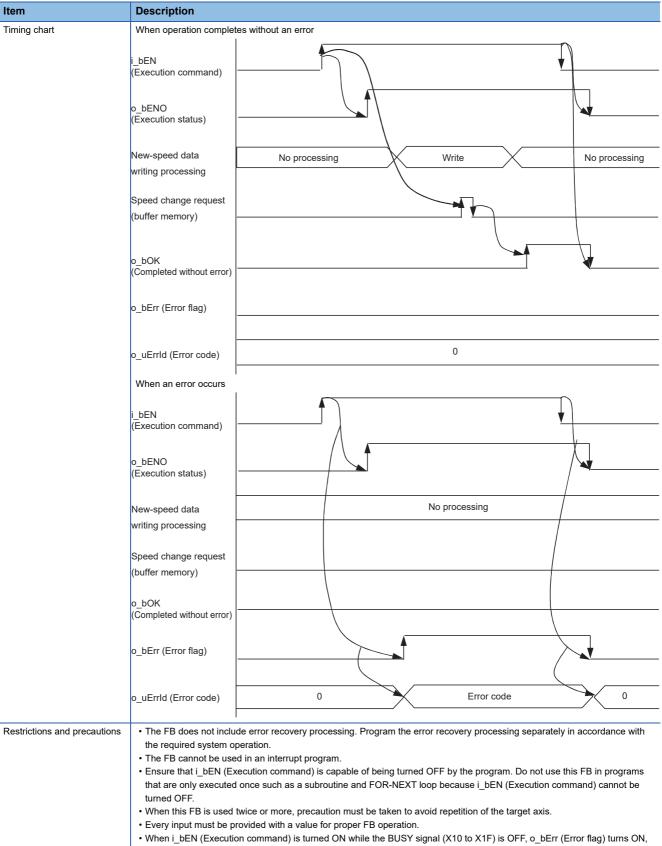
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that the manual pulse generator operation has been enabled.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.5 M+RD77_ChangeSpeed

Name

M+RD77_ChangeSpeed

Item	Description				
Function overview	Changes the speed.				
Symbol					
		M+RD77_ChangeSpee	eSpeed		
	Execution command B: i_bE	N	o_bENO : B	Execution status	
	Module label —— DUT : i_	stModule	o_bOK : B	Completed without error	
	Target axis UW : i_u	ıAxis	o_bErr : B	— Error flag	
	Cd.14: New speed value —— UD : i_u	dSpeedChangeValue	o_uErrld : UW	— Error code	
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2			
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	210 steps				
Function description	 By turning ON i_bEN (Execution command), the speed used for the control is changed to a new speed. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 				
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan execut	ion type)			



the FB processing is interrupted, and the error code 201 (Hexadecimal) is stored in o_uErrId (Error code).

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.
201 (Hexadecimal)	This FB is executed before positioning operation starts.	Please try again during positioning operation.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.14: New speed value	i_udSpeedChangeValue	Double word [unsigned]	"[Pr.1] Unit setting" = mm • 0 to 200000000 "[Pr.1] Unit setting" = inch • 0 to 200000000 "[Pr.1] Unit setting" = degree • 0 to 200000000 "[Pr.1] Unit setting" = pulse • 0 to 1000000000	Set a new speed.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing the speed has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The generated error code is stored.

2.6 M+RD77_ChangeAccDecTime

Name

M+RD77_ChangeAccDecTime

Item	Description				
Function overview	Changes the acceleration/deceleration time at a speed change.				
Symbol					
		M+RD77_ChangeAccl	DecTime		
	Execution command ——	B:i_bEN	o_bENO : B	Execution status	
	Module label ———	DUT : i_stModule	o_bOK : B —	—— Completed without error	
	Target axis	UW : i_uAxis	o_bErr : B	—— Error flag	
	Acceleration/deceleration time ————————————————————————————————————	B : i_bEnable	o_uErrId : UW	—— Error code	
	Cd.10: New acceleration time value	UD : i_udNewAccelerationTime			
	Cd.11: New deceleration time ——value	UD : i_udNewDecelerationTime			
Applicable hardware and	Applicable module RD77MS16, RD77MS8, RD77MS4, RD77MS2				
software	Applicable CPU MELSEC iQ-R series				
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	212 steps				
Function description	By turning ON i_bEN (Execution command), the setting of the acceleration/deceleration time is changed according to i_bEnable (Acceleration/deceleration time change enabled flag). When i_bEnable (Acceleration/deceleration time change enabled flag) is ON, i_udNewAccelerationTime (Cd.10: New acceleration time value) and i_udNewDecelerationTime (Cd.11: New deceleration time value) are set and "[Cd.12] Acceleration/deceleration time change value during speed change, enable/disable" is changed to "1: Enables modifications to acceleration/deceleration time". When i_bEnable (Acceleration/deceleration time change enabled flag) is OFF, i_udNewAccelerationTime (Cd.10: New acceleration time value) and i_udNewDecelerationTime (Cd.11: New deceleration time value) are not set and "[Cd.12] Acceleration/deceleration time change value during speed change, enable/disable" is changed to "0: Disables modifications to acceleration/deceleration time". When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code).				
Compiling method	Macro type				
FB operation type	Pulsed execution (single scan execution type)				

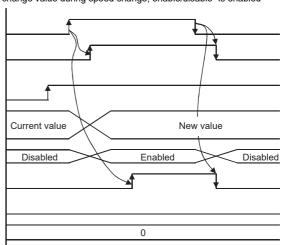
Item

Description

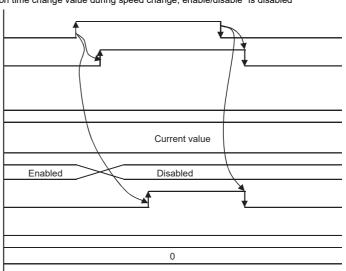
Timing chart

When operation completes without an error

- When "[Cd.12] Acceleration/deceleration time change value during speed change, enable/disable" is enabled
 - i_bEN (Execution command)
 - o_bENO (Execution status)
 - i_bEnable (Acceleration/deceleration time change enabled flag)
 - Cd.10/Cd.11: New acceleration time value/New deceleration time value [Cd.12] Acceleration/deceleration time change value during speed change, enable/disable o_bOK (Completed without error)
 - o_bErr (Error flag)
 - o_uErrId (Error code)

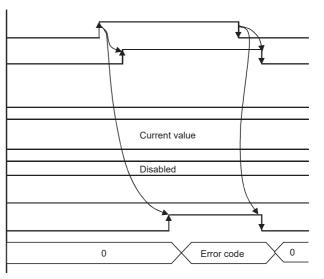


- When "[Cd.12] Acceleration/deceleration time change value during speed change, enable/disable" is disabled
 - i_bEN (Execution command)
- o_bENO (Execution status)
- i_bEnable (Acceleration/deceleration time change enabled flag)
- Cd.10/Cd.11: New acceleration time value/New deceleration time value
- [Cd.12] Acceleration/deceleration time change value during speed change, enable/disable
- o_bOK (Completed without error)
- o_bErr (Error flag)
- o_uErrId (Error code)



When an error occurs

- i_bEN (Execution command)
- o_bENO (Execution status)
- i_bEnable (Acceleration/deceleration time change enabled flag)
- Cd.10/Cd.11: New acceleration time value/New deceleration time value [Cd.12] Acceleration/deceleration time change value during speed change, enable/disable
- o_bOK (Completed without error)
- o_bErr (Error flag)
- o_uErrId (Error code)



Item	Description				
Restrictions and precautions	The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB connect to used in an interpret program.				
	 The FB cannot be used in an interrupt program. Ensure that i bEN (Execution command) is capable of being turned OFF by the program. Do not use this FB in program. 				
	that are only executed once such as a subroutine and FOR-NEXT loop because i_bEN (Execution command) cannot be turned OFF.				
	When this FB is used twice or more, precaution must be taken to avoid repetition of the target axis.				
	A duplicated coil warning may occur during compile operation. However, this is not a problem and the FB will operate without an error.				
	Every input must be provided with a value for proper FB operation.				

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Acceleration/ deceleration time change enabled flag	i_bEnable	Bit	ON: Enabled OFF: Disabled	Set this label to enable or disable acceleration/deceleration time changes.
Cd.10: New acceleration time value	i_udNewAcceleratio nTime	Double word [unsigned]	0 to 8388608	Set a new acceleration time. When 0 is set, the acceleration time is not changed after the speed is changed. In this case, the previously set acceleration time is applied to the control.
Cd.11: New deceleration time value	i_udNewDeceleratio nTime	Double word [unsigned]	0 to 8388608	Set a new deceleration time. When 0 is set, the deceleration time is not changed after the speed is changed. In this case, the previously set deceleration time is applied to the control.

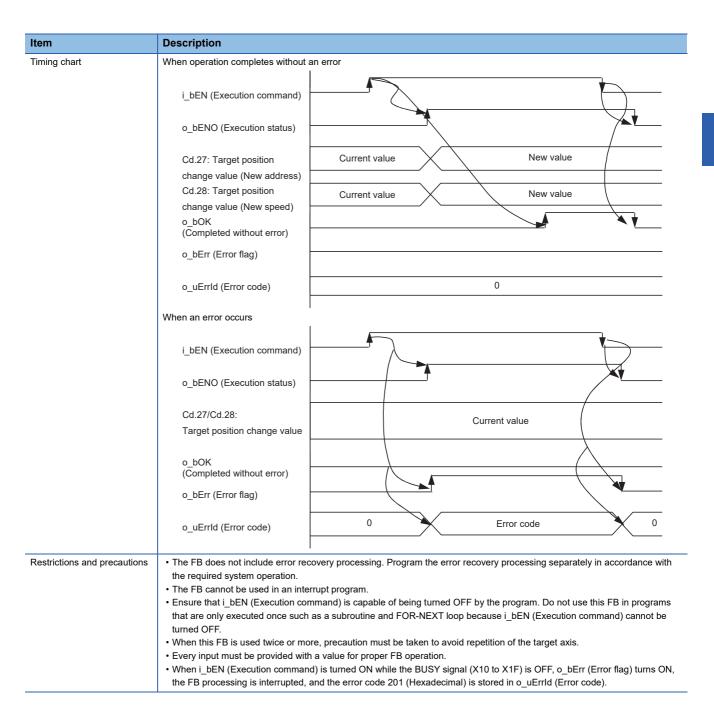
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that setting acceleration/deceleration time change has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.7 M+RD77_ChangePosition

Name

M+RD77_ChangePosition

i unction overvie	-					
Item	Description					
Function overview	Changes the target position.					
Symbol						
		M+RD77_Char	ngePosition			
	Execution command ——B	: i_bEN	o_bENO : B	—— Execution status		
	Module label ——Di	UT : i_stModule	o_bOK : B	—— Completed without error		
	Target axis ——U	W : i_uAxis	o_bErr : B	—— Error flag		
	value (New address)	: i_dTargetNewPosition D : i_udTargetNewSpeed	o_uErrId : UW	—— Error code		
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77	7MS4, RD77MS2	l		
software	Applicable CPU	MELSEC iQ-R series				
	Applicable engineering software	GX Works3				
Programming language	Ladder					
Number of steps (maximum)	254 steps					
Function description	 By turning ON i_bEN (Execution command), the target position is changed according to the value set in i_dTargetNewPosition (Cd.27: Target position change value (New address)) and the speed is changed according to the value set in i_udTargetNewSpeed (Cd.28: Target position change value (New speed)) during position control. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 					
Compiling method	Macro type					
FB operation type	Pulsed execution (multiple scan execution	ion type)				



Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.
201 (Hexadecimal)	This FB is executed before positioning operation starts.	Please try again during positioning operation.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.27: Target position change value (New address)	i_dTargetNewPositi on	Double word [signed]	"[Pr.1] Unit setting" = mm • ABS: -2147483648 to 2147483647 • INC: -2147483648 to 2147483647 "[Pr.1] Unit setting" = inch • ABS: -2147483648 to 2147483647 • INC: -2147483648 to 2147483647 "[Pr.1] Unit setting" = degree • ABS: 0 to 35999999 • INC: -2147483648 to 2147483647 "[Pr.1] Unit setting" = pulse • ABS: -2147483648 to 2147483647 • INC: -2147483648 to 2147483647	Set the new positioning address when changing the target position during positioning operation.
Cd.28: Target position change value (New speed)	i_udTargetNewSpee d	Double word [unsigned]	"[Pr.1] Unit setting" = mm • 0 to 2000000000 "[Pr.1] Unit setting" = inch • 0 to 2000000000 "[Pr.1] Unit setting" = degree • 0 to 2000000000 "[Pr.1] Unit setting" = pulse • 0 to 10000000000	Set the new speed when changing the target position during positioning operation. When 0 is set, the speed is not changed.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that the module has accepted the target position change values.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The generated error code is stored.

2.8 M+RD77_Restart

Name

M+RD77_Restart

Item	Description					
Function overview	Restarts the axis being stopped.					
Symbol						
		M+RD77_	Restart			
	Execution command —— B : i_b	EN	o_bENO : B	Execution status		
	Module label ——DUT :	i_stModule	o_bOK : B ·	Completed without error		
	Target axis ——W : i_	uAxis	o_bErr : B	Error flag		
			o_uErrld : UW -	Error code		
Applicable hardware and	Applicable module	RD77MS16, RD77M	RD77MS16, RD77MS8, RD77MS4, RD77MS2			
software	Applicable CPU	MELSEC iQ-R series	MELSEC iQ-R series			
	Applicable engineering software	GX Works3				
Programming language	Ladder					
Number of steps (maximum)	263 steps					
Function description	 Only when the following conditions are met, the positioning operation that is stopped due to an error is restarted by turning ON i_bEN (Execution command). The conditions are the following: the positioning complete signal ([Md.31] Status: b15) is OFF and the axis operation status is a stop. When any of the conditions is not met, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 202 (Hexadecimal) is stored in o_uErrld (Error code). When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). 					
Compiling method	Macro type					
FB operation type	Pulsed execution (multiple scan exe	cution type)				

Item	Description
Timing chart	When operation completes without an error
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.6] Restart command
	o_bOK (Completed without error) o_bErr (Error flag)
	o_uErrId (Error code)
	When an error occurs
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.6] Restart command
	o_bOK (Completed without error) o_bErr (Error flag)
	o_uErrld (Error code) 0 Error code 0
Restrictions and precautions	The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program. Ensure that i_bEN (Execution command) 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 and FOR-NEXT loop because i_bEN (Execution command) cannot be turned OFF.
	 When this FB is used twice or more, precaution must be taken to avoid repetition of the target axis. Every input must be provided with a value for proper FB operation.

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.
202 (Hexadecimal)	The conditions for positioning restart are not met. Any of the following conditions are not met. • Positioning complete signal: Off • Axis operation status: Stop	Please try again after confirming the setting. • Positioning complete signal: Off • Axis operation status: Stop

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.

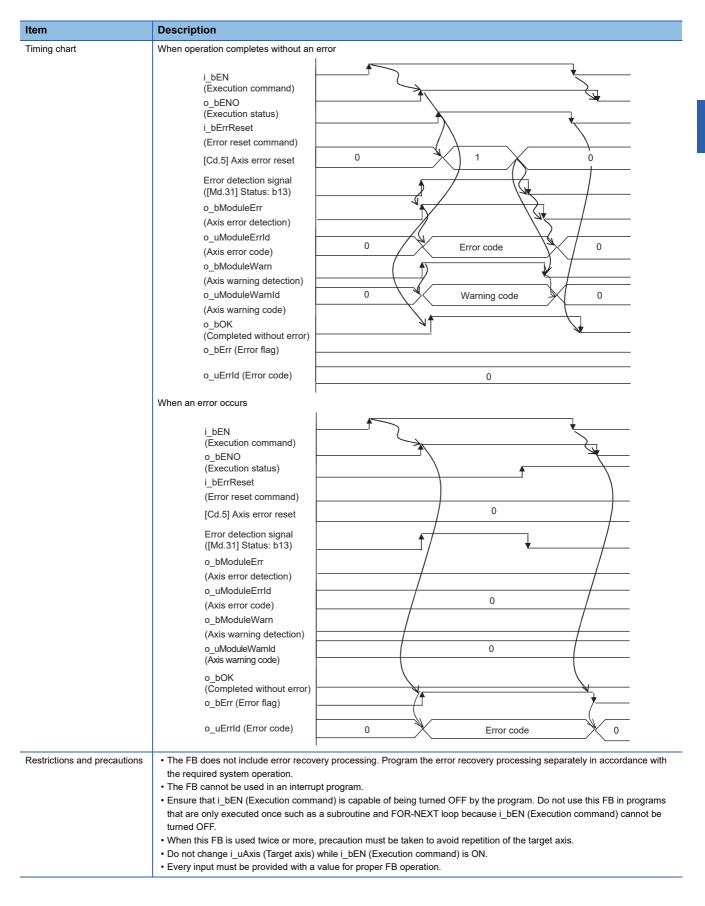
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that the module has accepted the restart command request.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The generated error code is stored.

2.9 M+RD77_OperateError

Name

M+RD77_OperateError

Item	Description					
Function overview	Monitors errors and warnings, and resets errors.					
Symbol						
	Execution command	B : i_bEN		o_bENO : B	Execution status	
	Module label ——	DUT : i_st	Module	o_bOK : B	Completed without error	
	Target axis	UW : i_uA	xis	o_bModuleErr : B	Axis error detection	
	Error reset command	B : i_bErrf	Reset	o_uModuleErrld : UW	Axis error code	
				o_bModuleWarn : B	—— Axis warning detection	
				o_uModuleWarnId : UW	—— Axis warning code	
		o_bErr : I			—— Error flag	
				o_uErrld : UW	Error code	
Applicable hardware and	Applicable module		RD77MS16 F	RD77MS8, RD77MS4, RD77MS2		
software	Applicable CPU		MELSEC iQ-R series			
	Applicable engineering softwa	re	GX Works3			
Programming language	Ladder					
Number of steps (maximum)	407 steps					
Function description	By turning ON i_bEN (Execution command), errors of the target axis are monitored. When a module error occurs, an error code is stored in o_uModuleErrId (Axis error code). After i_bEN (Execution command) is turned ON, the generated error is reset by turning ON i_bErrReset (Error reset command). When a warning occurs in the module, the warning can be reset by turning ON i_bErrReset (Error reset command). When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code).					
Compiling method	Macro type					
FB operation type	Real-time execution					



Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Error reset command	i_bErrReset	Bit	ON, OFF	ON: Errors are reset. OFF: Errors are not reset.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that resetting the error has been completed.
Axis error detection	o_bModuleErr	Bit	OFF	When ON, it indicates that an axis error has occurred.
Axis error code	o_uModuleErrId	Word [unsigned]	0	An error code of an error that has occurred in the module of the specified axis is stored.
Axis warning detection	o_bModuleWarn	Bit	OFF	When ON, it indicates that an axis warning has occurred.
Axis warning code	o_uModuleWarnId	Word [unsigned]	0	A warning code of a warning that has occurred in the module of the specified axis is stored.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The generated error code is stored.

2.10 M+RD77_InitializeParameter

Name

M+RD77_InitializeParameter

Function overview

Item	Description				
Function overview	Initializes the parameter.				
Symbol				_	
		M+RD77_InitializeParameter			
	Execution command B : i_bEN		o_bENO : B	Execution status	
	Module label ——DUT : i_stN	Module	o_bOK : B	Completed without erro	
			o_bErr : B	Error flag	
			o_uErrld : UW	Error code	
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4,	RD77MS2		
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	45 steps				
Function description	By turning ON i_bEN (Execution command), the setting data stored in the buffer memory and the flash ROM of the RD77 is reset to the factory setting.				
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan execution type)				
Timing chart	i_bEN (Execution command) o_bENO (Execution status) Cd.2: Module initialization red o_bOK (Completed without e o_bErr (Error flag) o_uErrld (Error code)	uest 0	0	0	
Restrictions and precautions	The FB does not include error recover the required system operation. The FB cannot be used in an interrup Ensure that i_bEN (Execution commentation are only executed once such as a turned OFF. Every input must be provided with a very Before using this FB, make sure that	t program. and) is capable of being turned OFF bear subroutine and FOR-NEXT loop bear aralue for proper FB operation.	y the program. D	o not use this FB in programs	

• After the setting data is initialized, reset the CPU module or restart the power of the programmable controller.

Error code	Description	Action
None	None	None

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that initializing the parameter has been completed.
Error flag	o_bErr	Bit	OFF	Always OFF
Error code	o_uErrld	Word [unsigned]	0	Always 0

2.11 M+RD77_WriteFlash

Name

M+RD77_WriteFlash

Item	Description				
Function overview	Writes the parameter, positioning data, and block start data in the buffer memory to the flash ROM.				
Symbol		M+RD77_WriteFlash			
	Execution command B: i_bEN	o_bENO :	B Execution status		
	Module label ———DUT : i_st	Module o_bOK :	B Completed without erro		
		o_bErr :	B Error flag		
		o_uErrld : U	W Error code		
Applicable hardware and software	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2			
sonware	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	45 steps				
Function description	By turning ON i_bEN (Execution command), the setting data in the buffer memory is written to the flash ROM.				
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan execution	on type)			
Timing chart	i_bEN (Execution command o_bENO (Execution status) Cd.1: Flash ROM writing rec o_bOK (Completed without o o_bErr (Error flag) o_uErrld (Error code)		0		
Restrictions and precautions	the required system operation. The FB cannot be used in an interrup Ensure that i_bEN (Execution comma	nd) is capable of being turned OFF by the prograr subroutine and FOR-NEXT loop because i_bEN alue for proper FB operation.	n. Do not use this FB in programs		

Error code	Description	Action
None	None	None

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that writing the setting data to the flash ROM has been completed.
Error flag	o_bErr	Bit	OFF	Always OFF
Error code	o_uErrld	Word [unsigned]	0	Always 0

2.12 M+RD77_ChangeServoParameter

Name

M+RD77_ChangeServoParameter

Item	Description				
Function overview	Changes the servo parameter after the amplifier is activated.				
Symbol	M+RD77_ChangeServoParameter				
	Execution command B: i_bE	N	o_bENO : B	Execution status	
	Module label ——DUT : i_	stModule	o_bOK : B	Completed without error	
	Target axis ———UW : i_u	UW : i_uAxis		Error flag	
	Cd.131: Parameter No. ——UW : i_u			Error code	
	Cd.132: Change data ——— D : i_dC	hangeValue			
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4	I, RD77MS2		
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder	Ladder			
Number of steps (maximum)	236 steps	236 steps			
Function description	 By turning ON i_bEN (Execution command), the servo parameter after the amplifier is started is changed. When the target axis of the input label is incorrectly set, o_bErr (Error flag) turns ON and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 				
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan execut	ion type)			

Item	Description	
Timing chart	When operation completes without an error	
	i_bEN (Execution command) o_bENO (Execution status)	
	Parameter writing processing	No processing Write No processing
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0
	When an error occurs	
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	Parameter writing processing	No processing
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrId (Error code)	0 Error code 0
Restrictions and precautions	the required system operation. The FB cannot be used in an interrupt progran Ensure that i_bEN (Execution command) is ca that are only executed once such as a subrout turned OFF. When this FB is used twice or more, precautio Every input must be provided with a value for precaution Before using this FB, make sure that communium when this FB fails to write the parameter, o_b0 The setting items and range differ depending of	pable of being turned OFF by the program. Do not use this FB in programs ine and FOR-NEXT loop because i_bEN (Execution command) cannot be n must be taken to avoid repetition of the target axis. proper FB operation. ication with the servo amplifier is established. OK (Completed without error) does not turn ON.



Use M+RD77_ReadWriteServoParameter when using the servo amplifier of 2 words servo parameter.

Page 42 M+RD77_ReadWriteServoParameter

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.131: Parameter No.	i_uParameterNo	Word [unsigned]	H0001 to H0C40	Set the servo parameter No. to be changed. Set the data in the same specifications as "[Cd.131] Parameter No." of the system control data. Even when the data No. different from the data specifications of "[Cd.131] Parameter No." is specified, the execution of this FB is completed normally. In this case, an error may occur in the Simple Motion module. The following figure shows the data specifications of "[Cd.131] Parameter No.". Setting value Parameter No. setting 01h to 40h Parameter group 0: PA group 1: PB group 2: PC group 3: PD group 4: PE group 5: PF group 9: PO group A: PS group B: PL group
Cd.132: Change data	i_dChangeValue	Double word [signed]	Refer to the servo amplifier manual and instruction manual.	Set the servo parameter value to be changed. Lower 1 word is valid.

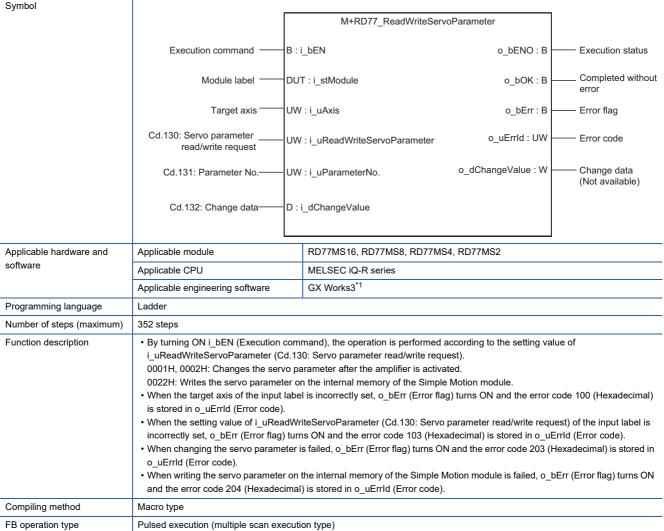
Name	Variable name	Data type	Default value	Description	
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.	
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing the servo parameter has be completed.	
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.	
Error code	o_uErrId	Word [unsigned]	0	The error code generated in the FB is stored.	

2.13 M+RD77_ReadWriteServoParameter

Name

M+RD77_ReadWriteServoParameter

Function overview Item Description Function overview Changes the servo parameter after the amplifier is activated. When changing it, 1 word unit or 2 words unit can be specified. Writes the servo parameter of MR-J5-B into the internal memory of the Simple Motion module. Symbol M+RD77_ReadWriteServoParameter



Description Item When operation completes without an error (write) Timing chart i bEN (Execution command) o_bENO (Execution status) Write No processing Parameter writing processing No processing o_bOK (Completed without error) o_bErr (Error flag) o_uErrld (Error code) 0 When an error occurs (write) i_bEN (Execution command) o bENO (Execution status) Parameter writing processing No processing o_bOK (Completed without error) o_bErr (Error flag) o_uErrld (Error code) 0 Error code Restrictions and precautions • This FB, its version 00A, cannot be used because it does not support the read function of the internal memory of the Simple Motion module. The version information of this FB used can be checked on the engineering tool (GX Works3). • The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • The FB cannot be used in an interrupt program. • Ensure that i_bEN (Execution command) 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 and FOR-NEXT loop because i_bEN (Execution command) cannot be • When this FB is used twice or more, precaution must be taken to avoid repetition of the target axis. • Every input must be provided with a value for proper FB operation. · Before changing the parameter in the servo amplifier by this FB, make sure that communication with the servo amplifier is • When this FB fails to write the parameter, o_bOK (Completed without error) does not turn ON. • The setting items and range differ depending on the module used in the system. • When this FB is used, do not use it with M+RD77_ChangeServoParameter at the same time. · When changing the servo parameter on the internal memory of the Simple Motion module by this FB, the changed servo parameter is lost when the power supply turns OFF. Execute the execution data backup to save it. Refer to the following manual for details of the execution data backup method. MELSEC iQ-R Simple Motion Module User's Manual (Application) • The input label, i_uReadWriteServoParameter (Cd.130: Servo parameter read/write request), has restrictions on its setting value depending on the Simple Motion module software version. $\!\!\!\!^{\star2}$

- *1 The supported version is "1.090U" or later.
- *2 Refer to the following combination of setting values and software versions.
 - "0001H: 1 word write request" No restriction
 - "0002H: 2 words write request" No restriction
 - "0022H: 2 words write request to internal memory" Ver.13 or later

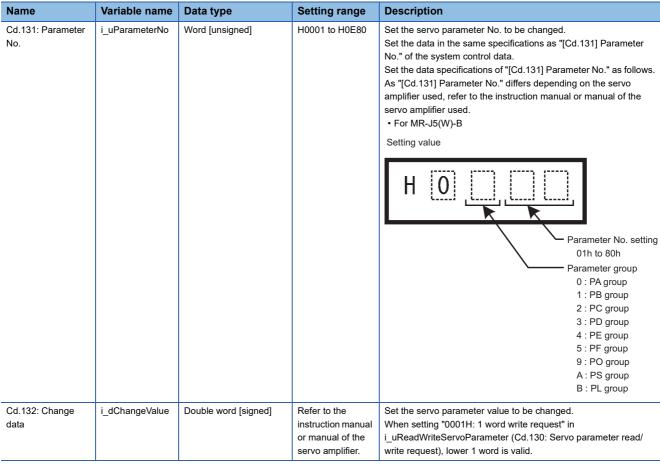
When the software version is "Ver.12" or earlier, even if the write to the internal memory of the Simple Motion module is executed, both o_bOK (Completed without error) and o_bErr (Error flag) do not turn ON and it will not complete.

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.
103 (Hexadecimal)	The setting value of i_uReadWriteServoParameter (Cd.130: Servo parameter read/write request) is out of the range.	Please try again after confirming the setting.
203 (Hexadecimal)	"0001H: 1 word write request" or "0002H: 2 words write request" is requested to i_uReadWriteServoParameter (Cd.130: Servo parameter read/write request) in the following status. • Communication with the servo amplifier is not established or communication error occurs. • i_uParameterNo (Cd.131: Parameter No.) is outside the range. • The servo amplifier does not support the write of the specified number of the words.	Please try again after confirming the setting.
204 (Hexadecimal)	"0022H: 2 words write request to internal memory" is requested to i_uReadWriteServoParameter (Cd.130: Servo parameter read/write request) in the following status. • The servo amplifier other than MR-J5-B is used. • i_uParameterNo (Cd.131: Parameter No.) is outside the range.	Please try again after confirming the setting.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R Simple Motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.130: Servo parameter read/ write request	i_uReadWriteSer voParameter	Word [unsigned]	0001H: 1 word write request 0002H: 2 words write request 0022H: 2 words write request to internal memory	Set the write request of the servo parameter write request or the write request of servo parameter into the internal memory of the Simple Motion module.



Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that writing the servo parameter has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.
Change data (Not available)	o_dChangeValue	Double word [signed]	0	0 is always output.

2.14 M+RD77_ChangeTorqueControlMode

Pulsed execution (multiple scan execution type)

Name

M+RD77_ChangeTorqueControlMode

Function overview Item **Description** Function overview Activates the torque control mode. Symbol $M+RD77_ChangeTorqueControlMode$ Execution command B:i_bEN o bENO: B **Execution status** Module label DUT: i_stModule o_bOK:B Completed without error UW : i_uAxis Target axis o_bErr : B Error flag o_uErrId: UW Error code Cd.143: Command torque W : i_wCommandTorque at torque control mode Cd.144: Torque time constant UW: i_uTorqueTimeConstDrivingMode at torque control mode (Forward direction) Cd.145: Torque time constant at torque control mode UW: i_uTorqueTimeConstRegenerativeMode (Negative direction) Cd.146: Speed limit value UD : i_udSpeedLimit at torque control mode RD77MS16, RD77MS8, RD77MS4, RD77MS2 Applicable module Applicable hardware and software Applicable CPU MELSEC iQ-R series GX Works3 Applicable engineering software Programming language Ladder Number of steps (maximum) • By turning ON i_bEN (Execution command), the torque control mode is activated for the specified axis. Function description · When this FB is executed under torque control, the command torque and speed limit value are changed. • When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o uErrld (Error code). Compiling method Macro type

FB operation type

Item	Description	
Timing chart	When operation completes without an error	
	i_bEN (Execution command) o_bENO (Execution status)	
	[Cd.138] Control mode switching request	0 1 0
	Servo status control mode	Currently activated control mode Torque control mode activated
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0
	When an error occurs	1
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	[Cd.138] Control mode switching request	0
	Servo status control mode	Currently activated control mode
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0 Error code 0
Restrictions and precautions	the required system operation. The FB cannot be used in an interrupt progr Ensure that i_bEN (Execution command) is that are only executed once such as a subroturned OFF. When this FB is used twice or more, precau Every input must be provided with a value for	capable of being turned OFF by the program. Do not use this FB in programs outine and FOR-NEXT loop because i_bEN (Execution command) cannot be tion must be taken to avoid repetition of the target axis.

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.143: Command torque at torque control mode	i_wCommandTorque	Word [signed]	-10000 to 10000	Set the command torque at toque control mode.
Cd.144: Torque time constant at torque control mode (Forward direction)	i_uTorqueTimeConstDrivin gMode	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the time constant for the driving of torque control mode.
Cd.145: Torque time constant at torque control mode (Negative direction)	i_uTorqueTimeConstRegen erativeMode	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the time constant for the regeneration of torque control mode.
Cd.146: Speed limit value at torque control mode	i_udSpeedLimit	Double word [unsigned]	"[Pr.1] Unit setting" = mm	Set the speed limit value at torque control mode.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing control mode has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.15 M+RD77_ChangeSpeedControlMode

Name

M+RD77_ChangeSpeedControlMode

Item	Description				
Function overview	Activates the speed control mode.				
Symbol					1
		M+RD77_ChangeSpeedControlMode			
	Execution command	B : i_bEN		o_bENO : B	Execution status
	Module label	DUT : i_sti	Module	o_bOK : B	Completed without error
	Target axis	UW : i_uA	xis	o_bErr : B	Error flag
	Cd.140: Command speed at speed control mode	o_uErrId : UW - D : i_dCommandSpeed		Error code	
	Cd.141: Acceleration time at speed control mode	UW:i_uSpeedAccelerationTime UW:i_uSpeedDecelerationTime			
	Cd.142: Deceleration time at speed control ——— mode				
Applicable hardware and	Applicable module	pplicable module RD77MS16, RD77MS8, RD77MS4, RD77MS2			!
software	Applicable CPU		MELSEC iQ-R series		
	Applicable engineering software		GX Works3		
Programming language	Ladder				
Number of steps (maximum)	303 steps				
Function description	 By turning ON i_bEN (Execution command), the speed control mode is activated for the specified axis. When this FB is executed under speed control, the command speed is changed. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 				
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple s	can executi	on type)		

Item	Description	Description					
Timing chart	When operation completes without an error						
	i_bEN (Execution command)						
	o_bENO (Execution status)						
	[Cd.138] Control mode switching request	0 1 0					
	Servo status control mode	Currently activated control mode Speed control mode activated					
	o_bOK (Completed without error)						
	o_bErr (Error flag)						
	o_uErrld (Error code)	0					
	When an error occurs						
	i_bEN (Execution command)						
	o_bENO (Execution status)						
	[Cd.138] Control mode	0					
	switching request						
	Servo status control mode	Currently activated control mode					
	o_bOK (Completed without error)						
	o_bErr (Error flag)						
	o_uErrld (Error code)	0 Error code 0					
Restrictions and precautions	the required system operation. The FB cannot be used in an interrupt progra Ensure that i_bEN (Execution command) is command.	essing. Program the error recovery processing separately in accordance with am. capable of being turned OFF by the program. Do not use this FB in programs utine and FOR-NEXT loop because i_bEN (Execution command) cannot be					
	Every input must be provided with a value for	ion must be taken to avoid repetition of the target axis. r proper FB operation. oK (Completed without error) does not turn ON.					

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.140: Command speed at speed control mode	i_dCommandSpeed	Double word [signed]	"[Pr.1] Unit setting" = mm	Set the command speed at speed control mode.
Cd.141: Acceleration time at speed control mode	i_uSpeedAccelerationTime	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the acceleration time at speed control mode.
Cd.142: Deceleration time at speed control mode	i_uSpeedDecelerationTime	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the deceleration time at speed control mode.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing control mode has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.16 M+RD77_ChangePositionControlMode

Name

M+RD77_ChangePositionControlMode

Item	Description					
Function overview	Activates the position control mode.					
Symbol						
			M+RD77_ChangePos	sitionControlMode	olMode	
	Execution command ——	B : i_bEN	1	o_bENO : B	Execution status	
	Module label ———	DUT : i_s	stModule	o_bOK : B	Completed without error	
	Target axis	UW : i_u	Axis	o_bErr : B	Error flag	
				o_uErrld : UW	Error code	
Applicable hardware and	Applicable module		RD77MS16, RD77MS	8, RD77MS4, RD77MS2		
software	Applicable CPU		MELSEC iQ-R series			
	Applicable engineering software	е	GX Works3			
Programming language	Ladder					
Number of steps (maximum)	347 steps					
Function description	 By turning ON i_bEN (Execution command), the position control mode is activated for the specified axis. When this FB is executed during position control, the execution is completed without any processing. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). 					
Compiling method	Macro type					
FB operation type	Pulsed execution (multiple scar	n executi	on type)			

Item	Description	
Timing chart	When operation completes without an error	
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	[Cd.138] Control mode switching request	0 1 0
	Servo status control mode	Currently activated control mode Position control mode activated
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0
	When an error occurs	
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	[Cd.138] Control mode switching request	0
	Servo status control mode	Currently activated control mode
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0 Error code 0
Restrictions and precaution	the required system operation. The FB cannot be used in an interrupt progra Ensure that i_bEN (Execution command) is command that are only executed once such as a subrotturned OFF.	apable of being turned OFF by the program. Do not use this FB in programs utine and FOR-NEXT loop because i_bEN (Execution command) cannot be
	When this FB is used twice or more, precauti Every input must be provided with a value for When this FB fails switching the mode, o_bO	

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing control mode has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.17 M+RD77_ChangeContinuousTorqueMode

Name

M+RD77_ChangeContinuousTorqueMode

Item	Description					
Function overview	Activates the continuous operation to torque control mode.					
Symbol						
		M+RD77_ChangeCon	ntinuousTorqueMode			
	Execution command ——	B : i_bEN	o_bENO : B	Execution status		
	Module label ——	DUT : i_stModule	o_bOK : B	— Completed without erro		
	Target axis ——	UW : i_uAxis	o_bErr : B	Error flag		
	Cd.147: Speed limit value at continuous operation to ——torque control mode	− D : i_dSpeedLimit	o_uErrld : UW _	— Error code		
	Cd.148: Acceleration time at continuous operation to torque control mode	UW : i_uSpeedAcceleration	iTime			
	Cd.149: Deceleration time at continuous operation to ——torque control mode	UW: i_uSpeedDecelerationTime W: i_wCommandTorque UW: i_uTorqueTimeConstDrivingMode UW: i_uTorqueTimeConstRegenerativeMode				
	Cd.150: Target torque at continuous operation to ——torque control mode					
	Cd.151: Torque time constant at continuous operation to torque ——control mode (Forward direction)					
	Cd.152: Torque time constant at continuous operation to torque ——control mode (Negative direction)					
	Cd.153: Control mode auto-shift selection	UW : i_uAutoSwitchingMod	e			
	Cd.154: Control mode auto-shift parameter	D : i_dAutoSwitchingParameter				
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RI	D77MS4, RD77MS2			
software	Applicable CPU	MELSEC iQ-R series				
	Applicable engineering software	GX Works3				
Programming language	Ladder	•				
Number of steps (maximum)	523 steps					
Function description	 By turning ON i_bEN (Execution command), the continuous operation to torque control mode is activated for the specified axis. When this FB is executed during continuous operation to torque control mode, the speed limit value and target torque are changed. When the setting value of the target axis is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). 					
Compiling method	Macro type					
FB operation type	Pulsed execution (multiple scan execu	tion type)				

Description Item Timing chart When operation completes without an error • When i_uAutoSwitchingMode (Cd.153: Control mode auto-shift selection) is set to "0: No switching condition" i_bEN (Execution command) o_bENO (Execution status) [Cd.138] Control mode 0 0 switching request Continuous operation to torque Servo status control mode Currently activated control mode control mode activated o_bOK (Completed without error) o_bErr (Error flag) o_uErrld (Error code) 0 • When i_uAutoSwitchingMode (Cd.153: Control mode auto-shift selection) is set to "1: Current feed value passs" or "2: Real current value pass" i_bEN (Execution command) o_bENO (Execution status) [Cd.138] Control mode 0 0 switching request Mode switching condition value Feed current value or real current value Continuous operation to torque control mode activated Servo status control mode Currently activated control mode o bOK (Completed without error) o_bErr (Error flag) o_uErrId (Error code) 0 When an error occurs i_bEN (Execution command) o_bENO (Execution status) [Cd.138] Control mode 0 switching request Servo status control mode Currently activated control mode o_bOK (Completed without error) o_bErr (Error flag) 0 0 o_uErrId (Error code) Error code

Item	Description
Restrictions and precautions	 The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program. Ensure that i_bEN (Execution command) 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 and FOR-NEXT loop because i_bEN (Execution command) cannot be turned OFF. When this FB is used twice or more, precaution must be taken to avoid repetition of the target axis. Every input must be provided with a value for proper FB operation. When this FB fails switching the mode, o_bOK (Completed without error) does not turn ON.

Error code	Description	Action
100 (Hexadecimal)	The setting value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 16.	Please try again after confirming the setting.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Target axis	i_uAxis	Word [unsigned]	1 to 16	Specify the axis No. The setting range differs depending on the module used.
Cd.147: Speed limit value at continuous operation to torque control mode	i_dSpeedLimit	Double word [signed]	"[Pr.1] Unit setting" = mm	Set the speed limit value at continuous operation to torque control mode.
Cd.148: Acceleration time at continuous operation to torque control mode	i_uSpeedAccelerationTime	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the acceleration time at continuous operation to torque control mode.
Cd.149: Deceleration time at continuous operation to torque control mode	i_uSpeedDecelerationTime	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the deceleration time at continuous operation to torque control mode.
Cd.150: Target torque at continuous operation to torque control mode	i_wCommandTorque	Word [signed]	-10000 to 10000	Set the target torque at continuous operation to torque control mode.
Cd.151: Torque time constant at continuous operation to torque control mode (Forward direction)	i_uTorqueTimeConstDriving Mode	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the time constant for the driving at continuous operation to torque control mode.
Cd.152: Torque time constant at continuous operation to torque control mode (Negative direction)	i_uTorqueTimeConstRegene rativeMode	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the time constant for the regeneration at continuous operation to torque control mode.

Name	Variable name	Data type	Setting range	Description
Cd.153: Control mode auto-shift selection	i_uAutoSwitchingMode	Word [unsigned]	0 to 2	Set the switching condition of the control mode to switch to continuous operation to torque control mode. 0: No switching condition 1: Current feed value passs 2: Real current value pass
Cd.154: Control mode auto-shift parameter	i_dAutoSwitchingParameter	Double word [signed]	"[Pr.1] Unit setting" = mm	Set the condition value when the control mode auto-shift selection is set to 1 or 2.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing control mode has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.18 M+RD77_Sync

Name

M+RD77_Sync

Item	Description					
Function overview	Starts and ends the synchronous control.					
Symbol	M+RD77_Sync					
	Execution command ——	B : i_bEN	1	o_bENO : B	Execution status	
	Module label ——	DUT : i_s	stModule	o_bOK : B	— Completed without error	
	Output axis No. ——UW : i_uOutputAxis		OutputAxis	o_bErr : B	— Error flag	
				o_uErrld : UW	Error code	
Applicable hardware and	Applicable module		RD77MS16, RD77MS8,	RD77MS4, RD77MS2		
software	Applicable CPU		MELSEC iQ-R series			
	Applicable engineering software		GX Works3			
Programming language	Ladder					
Number of steps (maximum)	178 steps					
Function description	 By turning ON i_bEN (Execution command), synchronous control of the output axis No. is started. Turning OFF i_bEN (Execution command) ends the synchronous control. When the setting value of the output axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). The synchronous control does not start while the READY signal (X0) is OFF, the BUSY signal (X10 to X1F) is ON, or the error detection signal is ON. 					
Compiling method	Macro type					
FB operation type	Pulsed execution (multiple scan execution type)					

Item	Description
Timing chart	When operation completes without an error
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Md.26] Axis operation status 0: Standby 15: Synchronous control 0: Standby
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code)
	When an error occurs
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Md.26] Axis operation status 0: Standby
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code) 0 Error code 0
Restrictions and precautions	 The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program. When this FB is used twice or more, precaution must be taken to avoid repetition of the output axis No. Every input must be provided with a value for proper FB operation.

Error code	Description	Action
100 (Hexadecimal)	The output axis No. is not within the setting range.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Output axis No.	i_uOutputAxis	Word [unsigned]	1 to 16	Specify the axis No. for which synchronous control is started. The setting range differs depending on the module used.

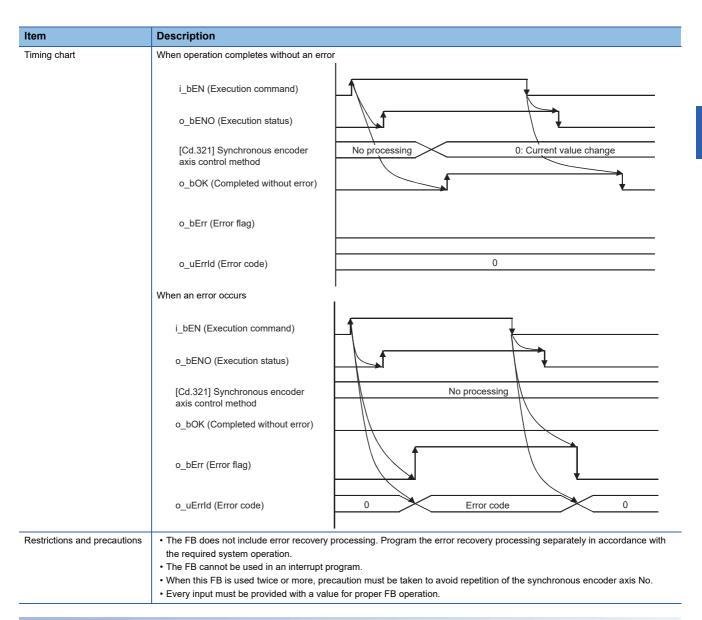
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that synchronous control has been started.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.19 M+RD77_ChangeSyncEncoderPosition

Name

M+RD77_ChangeSyncEncoderPosition

Item	Description					
Function overview	Changes the synchronous encoder axis current value and synchronous encoder axis current value per cycle.					
Symbol	_					
			M+RD77_ChangeSyn	cEncoderPosition		
	Execution command ——B	3 : i_bE	EN	o_bENO : B —	— Execution status	
	Module label ———	UT : i	_stModule	o_bOK : B —	—— Completed without error	
	Synchronous encoder —— U axis No.	JW : i_	uSyncEncAxis	o_bErr : B —	— Error flag	
	Cd.320: Synchronous —— UW encoder axis control start		uStartControl	o_uErrld : UW –	—— Error code	
	Cd.322: Synchronous ————————————————————————————————————) : i_d l	NewPosition			
Applicable hardware and	Applicable module		RD77MS16, RD77MS8, RD77MS4, RD77MS2			
software	Applicable CPU		MELSEC iQ-R series			
	Applicable engineering software		GX Works3			
Programming language	Ladder					
Number of steps (maximum)	215 steps					
Function description	The operation method differs depending on the setting value of i_uStartControl (Cd.320: Synchronous encoder axis constart). When the setting value is 1, the synchronous encoder axis current value is changed by turning ON i_bEN (Executionmand). When the setting value is 101 to 116, the synchronous encoder axis current value is changed by the high sprinput request [DI] after i_bEN (Execution command) is turned ON. When the setting value of the synchronous encoder axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). When this FB is executed for the synchronous encoder axis for which the synchronous encoder axis enabled flag is OFI o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 301 (Hexadecimal) is stored in o_uErrId (Error code).				g ON i_bEN (Execution nged by the high speed urns ON, the FB enabled flag is OFF,	
Compiling method	Macro type					
FB operation type	Pulsed execution (single scan exe	cution	ı type)			



Error code	Description	Action
100 (Hexadecimal)	The synchronous encoder axis No. is not within the setting range.	Please try again after confirming the setting.
301 (Hexadecimal)	The synchronous encoder axis enabled flag of the synchronous encoder axis No. is OFF.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Synchronous encoder axis No.	i_uSyncEncAxis	Word [unsigned]	1 to 4: Synchronous encoder axis No.	Set the synchronous encoder axis No. whose current value is to be changed.
Cd.320: Synchronous encoder axis control start	i_uStartControl	Word [unsigned]	Start for synchronous encoder axis control 101 to 116: High-speed input start for synchronous encoder axis control (axis 1 to axis 16)	When 1 is set, synchronous encoder axis control is started. When 101 to 116 is set, the synchronous encoder axis control starts based on the high-speed input request (external command signal). The setting range differs depending on the module used.
Cd.322: Synchronous encoder axis current value setting address	i_dNewPosition	Double word [signed]	-2147483648 to 2147483647	Set the new current value after a current value change.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that setting the synchronous encoder axis current value change has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.20 M+RD77_DisableSyncEncoder

Name

M+RD77_DisableSyncEncoder

Item	Description				
Function overview	Disables inputs from the synchronous encoder axis.				
Symbol					
			M+RD77_DisableSy	ncEncoder	
	Execution command ——	B : i_bE	EN	o_bENO : B -	—— Execution status
	Module label ———	DUT : i	_stModule	o_bOK : B	—— Completed without error
	Synchronous encoder ———axis No.	UW : i_	uSyncEncAxis	o_bErr : B -	Error flag
	Cd.320: Synchronous ——encoder axis control start	UW : i_	uStartControl	o_uErrld : UW -	—— Error code
Applicable hardware and	Applicable module		RD77MS16, RD77MS8, RD77MS4, RD77MS2		
software	Applicable CPU		MELSEC iQ-R series		
	Applicable engineering software		GX Works3		
Programming language	Ladder				
Number of steps (maximum)	170 steps				
Function description	The operation method differs depending on the setting value of i_uStartControl (Cd.320: Synchronous encoder axis control start). When the setting value is 1, the synchronous encoder axis counter is disabled by turning ON i_bEN (Execution command). When the setting value is 101 to 116, the synchronous encoder axis counter is disabled by the high speed input request [DI] after i_bEN (Execution command) is turned ON. When the setting value of the synchronous encoder axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When this FB is executed for the synchronous encoder axis for which the synchronous encoder axis enabled flag is OFF, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 301 (Hexadecimal) is stored in o_uErrld (Error code).				
Compiling method	Macro type				
FB operation type	Pulsed execution (single scan e	xecution	type)		

Item	Description
Fiming chart	When operation completes without an error
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.321] Synchronous encoder axis control method No processing 1: Counter disable
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code)
	When an error occurs
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.321] Synchronous encoder axis control method
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code) 0 Error code 0
estrictions and preca	 The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program.
	When this FB is used twice or more, precaution must be taken to avoid repetition of the synchronous encoder axis No. Every input must be provided with a value for proper FB operation.

Error code	Description	Action
100 (Hexadecimal)	The synchronous encoder axis No. is not within the setting range.	Please try again after confirming the setting.
301 (Hexadecimal)	The synchronous encoder axis enabled flag of the synchronous encoder axis No. is OFF.	Execute the FB again after turning ON the synchronous encoder axis setting enabled flag.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Synchronous encoder axis No.	i_uSyncEncAxis	Word [unsigned]	1 to 4: Synchronous encoder axis No.	Set the synchronous encoder axis No. whose inputs are to be disabled.
Cd.320: Synchronous encoder axis control start	i_uStartControl	Word [unsigned]	Start for synchronous encoder axis control 101 to 116: High-speed input start for synchronous encoder axis control (axis 1 to axis 16)	When 1 is set, synchronous encoder axis control is started. When 101 to 116 is set, the synchronous encoder axis control starts based on the high-speed input request (external command signal). The setting range differs depending on the module used.

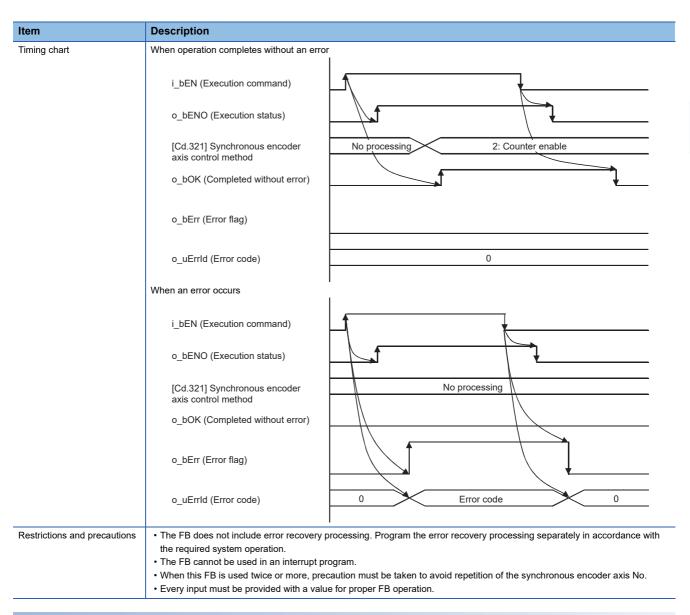
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that disabling the synchronous encoder axis counter has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.21 M+RD77_EnableSyncEncoder

Name

M+RD77_EnableSyncEncoder

Item	Description			
Function overview	Enables inputs from the synchronous encoder axis.			
Symbol		M+RD77_Enable	SyncEncoder	
	Execution command ——B : i_	bEN	o_bENO : B —— Execution status	
	Module label ——DUT	: i_stModule	o_bOK : B ——— Completed without erro	
	Synchronous encoder —— UW : axis No.	i_uSyncEncAxis	o_bErr : B ——— Error flag	
	Cd.320: Synchronous ——UW : encoder axis control start	i_uStartControl	o_uErrld : UW ——— Error code	
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2		
software	Applicable CPU	MELSEC iQ-R series		
	Applicable engineering software	GX Works3		
Programming language	Ladder			
Number of steps (maximum)	170 steps			
Function description	 The operation method differs depending on the setting value of i_uStartControl (Cd.320: Synchronous encoder axis control start). When the setting value is 1, the synchronous encoder axis counter is enabled by turning ON i_bEN (Execution command). When the setting value is 101 to 116, the synchronous encoder axis counter is enabled by the high speed input request [DI] after i_bEN (Execution command) is turned ON. When the setting value of the synchronous encoder axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When this FB is executed for the synchronous encoder axis for which the synchronous encoder axis enabled flag is OFF, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 301 (Hexadecimal) is stored in o_uErrld (Error code). 			
Compiling method	Macro type			
FB operation type	Pulsed execution (single scan execution type)			



Error code	Description	Action
100 (Hexadecimal)	The synchronous encoder axis No. is not within the setting range.	Please try again after confirming the setting.
301 (Hexadecimal)	The synchronous encoder axis enabled flag of the synchronous encoder axis No. is OFF.	Execute the FB again after turning ON the synchronous encoder axis setting enabled flag.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Synchronous encoder axis No.	i_uSyncEncAxis	Word [unsigned]	1 to 4: Synchronous encoder axis No.	Set the synchronous encoder axis No. whose inputs are to be enabled.
Cd.320: Synchronous encoder axis control start	i_uStartControl	Word [unsigned]	Start for synchronous encoder axis control 101 to 116: High-speed input start for synchronous encoder axis control (axis 1 to axis 16)	When 1 is set, synchronous encoder axis control is started. When 101 to 116 is set, the synchronous encoder axis control starts based on the high-speed input request (external command signal). The setting range differs depending on the module used.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that enabling the synchronous encoder axis counter has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

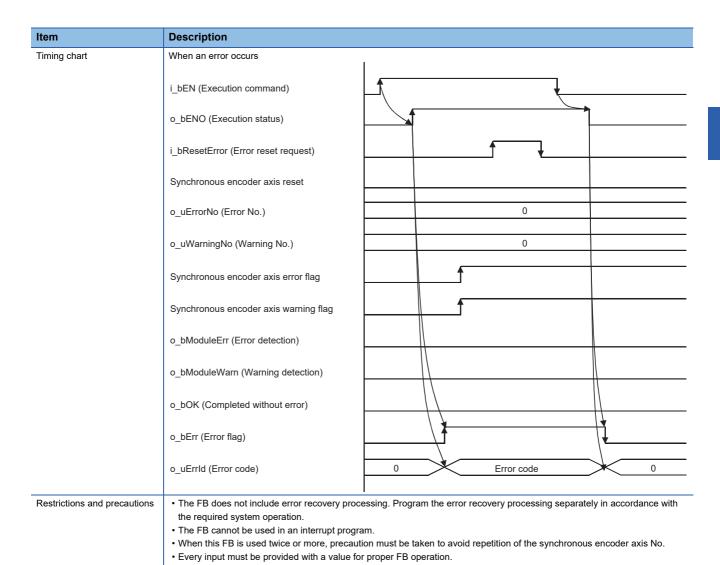
2.22 M+RD77_ResetSyncEncoderError

Name

M+RD77_ResetSyncEncoderError

lke-m-						
Item	Description					
Function overview	Reads error information from the synchronous encoder axis, and resets the error.					
Symbol				1		
			M+RD//_Reset	SyncEncoderError		
	Execution command ———	B : i_bEN		o_bENO : B	Execution status	
	Module label ———	DUT : i_st	Module	o_bOK : B	Completed without error	
	Synchronous ——— encoder axis No.	-UW : i_uS	yncEncAxis	o_bModuleErr : B	Error detection	
	Error reset request ———	B : i_bRes	setError	o_uErrorNo : UW	Error No.	
				o_bModuleWarn : B	—— Warning detection	
				o_uWarningNo : UW	—— Warning No.	
				o_bErr : B	—— Error flag	
				o_uErrld : UW	Error code	
Applicable hardware and	Applicable module		RD77MS16, RD77MS8, RD77MS4, RD77MS2			
software	Applicable CPU		MELSEC iQ-R series			
	Applicable engineering softw	/are	GX Works3			
Programming language	Ladder					
Number of steps (maximum)	360 steps					
Function description	 By turning ON i_bEN (Execution command), the synchronous encoder axis error and warning information of the synchronous encoder axis No. are read. When the error reset request is ON, the error and warning are reset. When the setting value of the synchronous encoder axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). 					
Compiling method	Macro type	Macro type				
FB operation type	Real-time execution					

Item	Description	
Timing chart	When operation completes without an error (er	ror reset)
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	i_bResetError (Error reset request)	
	Synchronous encoder axis reset	
	o_uErrorNo (Error No.)	0 Error No. 0
	Synchronous encoder axis error flag	
	o_bModuleErr (Error detection)	
	o_bOK (Completed without error)	
	o_bErr (Error flag)	_
	o_uErrld (Error code)	0
	When operation completes without an error (w	arning reset)
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	i_bResetError (Error reset request)	
	Synchronous encoder axis reset	
	o_uWarningNo (Warning No.)	0 Warning No. 0
	Synchronous encoder axis warning flag	
	o_bModuleWarn (Warning detection)	
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrId (Error code)	0



Error code	Description	Action
100 (Hexadecimal)	The synchronous encoder axis No. is not within the setting range.	Please try again after confirming the setting.

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Synchronous encoder axis No.	i_uSyncEncAxis	Word [unsigned]	1 to 4	Set the synchronous encoder axis No. from which the error No. and warning No. are read.
Error reset request	i_bResetError	Bit	ON, OFF	Turn ON this label to reset errors. Turn OFF this label after the error reset is completed.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that the error detection flag and warning detection flag of the synchronous encoder axis status have been turned OFF.
Error detection	o_bModuleErr	Bit	OFF	When ON, it indicates that the synchronous encoder axis error has occurred.
Error No.	o_uErrorNo	Word [unsigned]	0	When the synchronous encoder axis error is detected, the error code corresponding to the error is stored.
Warning detection	o_bModuleWarn	Bit	OFF	When ON, it indicates that the synchronous encoder axis warning has occurred.
Warning No.	o_uWarningNo	Word [unsigned]	0	When the synchronous encoder axis warning is detected, the warning code corresponding to the warning is stored.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.23 M+RD77_ConnectSyncEncoder

Name

M+RD77_ConnectSyncEncoder

Item	Description				
	·				
Function overview	Connects a synchronous encoder via CPU.				
Symbol					
			M+RD77_ConnectSyno	cEncoder	
	Execution command ———	B : i_bEN		o_bENO : B	—— Execution status
	Module label ———	DUT : i_st	Module	o_bOK : B -	—— Completed without error
	Synchronous encoder axis No.	UW : i_uS	syncEncAxis	o_bErr : B -	—— Error flag
				o_uErrld : UW -	—— Error code
Applicable hardware and	Applicable module RD77MS16,		RD77MS16, RD77MS8, RD	077MS4, RD77MS2	
software	Applicable CPU		MELSEC iQ-R series		
	Applicable engineering softw	are	GX Works3		
Programming language	Ladder				
Number of steps (maximum)	176 steps				
Function description	 By turning ON i_bEN (Execution command), the synchronous encoder of the synchronous encoder axis No. is connected via CPU. When the setting value of the synchronous encoder axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When this FB is executed for the synchronous encoder axis for which the synchronous encoder axis enabled flag is OFF, o bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 301 (Hexadecimal) is stored in o uErrld 				
Compiling method	(Error code).				
Compiling method	**	Macro type			
FB operation type	Pulsed execution (multiple so	can executi	ion type)		

Item	Description	
Timing chart	When operation completes without an error	1
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	[Cd.324] Connection command of synchronous encoder via CPU	No processing 1: Connect synchronous encoder via CPU
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0
	When an error occurs	
	i_bEN (Execution command)	
	o_bENO (Execution status)	
	[Cd.324] Connection command of synchronous encoder via CPU	No processing
	o_bOK (Completed without error)	
	o_bErr (Error flag)	
	o_uErrld (Error code)	0 Error code 0
Restrictions and precaution	the required system operation. • The FB cannot be used in an interrupt progra	ion must be taken to avoid repetition of the synchronous encoder axis No.

Error code	Description	Action
100 (Hexadecimal)	The synchronous encoder axis No. is not within the setting range.	Please try again after confirming the setting.
301 (Hexadecimal)	The synchronous encoder axis enabled flag of the synchronous encoder axis No. is OFF.	Execute the FB again after turning ON the synchronous encoder axis setting enabled flag.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Synchronous encoder axis No.	i_uSyncEncAxis	Word [unsigned]	1 to 4	Set the synchronous encoder axis No. for which the connection command of the synchronous encoder via CPU is executed.

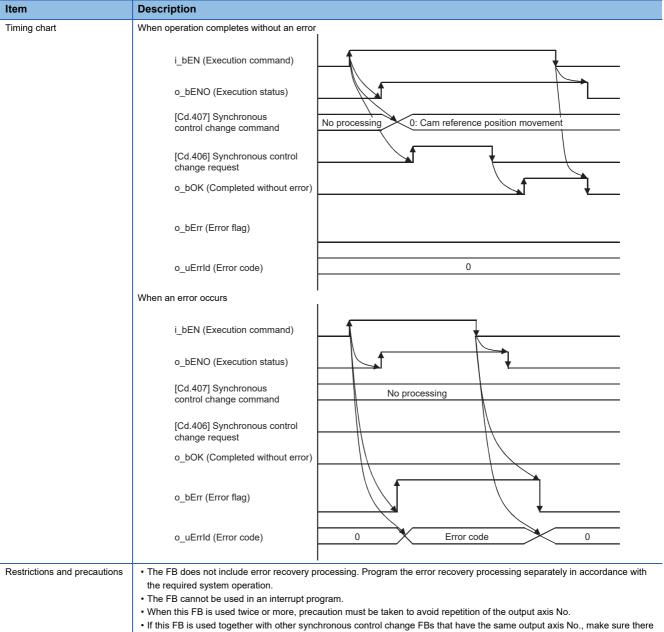
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that the connecting valid flag of the synchronous encoder axis status has been turned ON.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErr_ld	Word [unsigned]	0	The error code generated in the FB is stored.

2.24 M+RD77_MoveCamReferencePosition

Name

M+RD77_MoveCamReferencePosition

Function overview					Description				
	Adds the movement amount set in the synchronous control change value to the cam reference position to move the cam reference position.								
Symbol									
			M+RD77_MoveCamReferenceP	osition					
	Execution command ———E	3 : i_bE	N	o_bENO : B —	— Execution status				
	Module label ———	DUT : i_	stModule	o_bOK : B —	Completed without error				
	Output axis No. —— L	UW : i_uOutputAxis		o_bErr : B	— Error flag				
	Cd.408: Synchronous ————————————————————————————————————	D : i_dSyncCtrlChangeValue		o_uErrld : UW —	— Error code				
	Cd.409: Synchronous ———L control reflection time	JW : i_u	uSyncCtrlReflectionTime						
Applicable hardware and	Applicable module		RD77MS16, RD77MS8, RD77MS4,	RD77MS2					
software	Applicable CPU		MELSEC iQ-R series						
	Applicable engineering software		GX Works3						
Programming language	Ladder								
Number of steps (maximum)	355 steps								
Function description	 By turning ON i_bEN (Execution command), the cam reference position of the output axis No. is moved. If i_bEN (Execution command) is turned OFF during movement of the cam reference position, the operation stops during the movement and o_bOK (Completed without error) does not turn ON. When the setting value of the output axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrId (Error code). When this FB is executed for an output axis No. for which synchronous control is not executed, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 300 (Hexadecimal) is stored in o_uErrId (Error code). 								
Compiling method	Macro type								
FB operation type	Pulsed execution (multiple scan e	execution	on type)						



- If this FB is used together with other synchronous control change FBs that have the same output axis No., make sure there
 is one operation cycle or more after o_bOK (Completed without error) of this FB turns ON before the execution of the other
 FBs.
- Every input must be provided with a value for proper FB operation.

Error code	Description	Action
100 (Hexadecimal)	The output axis No. is not within the setting range.	Please try again after confirming the setting.
300 (Hexadecimal)	The FB is executed for an output axis No. for which synchronous control is not executed.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Output axis No.	i_uOutputAxis	Word [unsigned]	1 to 16	Set the axis No. whose cam reference position is to be moved. The setting range differs depending on the module used.
Cd.408: Synchronous control change value	i_dSyncCtrlChangeValue	Double word [signed]	-2147483648 to 2147483647	Set the amount of the cam reference position movement.
Cd.409: Synchronous control reflection time	i_uSyncCtrlReflectionTime	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the reflection time for the synchronous control change.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that moving the cam reference position has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErr_ld	Word [unsigned]	0	The error code generated in the FB is stored.

2.25 M+RD77_ChangeCamPositionPerCycle

Name

M+RD77_ChangeCamPositionPerCycle

Item	Description				
Function overview	Changes the cam axis current value per cycle to a synchronous control change value.				
Symbol					
		M+RD77_ChangeCamPositionPe	ionPerCycle		
	Execution command —— B : i_bEN	I	o_bENO : B	— Execution status	
	Module label —— DUT : i_s	etModule	o_bOK : B —	Completed without error	
	Output axis No. ——UW : i_u	OutputAxis	o_bErr : B	— Error flag	
	Cd.408: Synchronous D : i_dSy	ncCtrlChangeValue	o_uErrld : UW —	— Error code	
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4	, RD77MS2		
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	213 steps				
Function description	 By turning ON i_bEN (Execution command), the cam axis current value per cycle of the output axis No. is changed. When the setting value of the output axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When this FB is executed for an output axis No. for which synchronous control is not executed, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 300 (Hexadecimal) is stored in o_uErrld (Error code). 				
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan executi	on type)			

Item	Description
Timing chart	When operation completes without an error
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.407] Synchronous control change command 1: Change cam axis current value per cycle
	[Cd.406] Synchronous control change request
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code)
	When an error occurs
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.407] Synchronous control No processing
	[Cd.406] Synchronous control change request
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code) 0 Error code 0
Restrictions and precautions	 The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program. When this FB is used twice or more, precaution must be taken to avoid repetition of the output axis No. If this FB is used together with other synchronous control change FBs that have the same output axis No., make sure there is one operation cycle or more after o_bOK (Completed without error) of this FB turns ON before the execution of the other

Error code	Description	Action
100 (Hexadecimal)	The output axis No. is not within the setting range.	Please try again after confirming the setting.
300 (Hexadecimal)	The FB is executed for an output axis No. for which synchronous control is not executed.	Please try again after confirming the setting.

• Every input must be provided with a value for proper FB operation.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Output axis No.	i_uOutputAxis	Word [unsigned]	1 to 16	Set the axis No. whose cam axis current value per cycle is to be changed. The setting range differs depending on the module used.
Cd.408: Synchronous control change value	i_dSyncCtrlChange Value	Double word [signed]	-2147483648 to 2147483647	Set the cam axis current value per cycle to be changed. The setting value is converted within the range from 0 to (Cam axis length per cycle - 1).

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing the cam axis current value per cycle has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErr_ld	Word [unsigned]	0	The error code generated in the FB is stored.

2.26 M+RD77_ChangeMainShaftGearPositionPerCycle

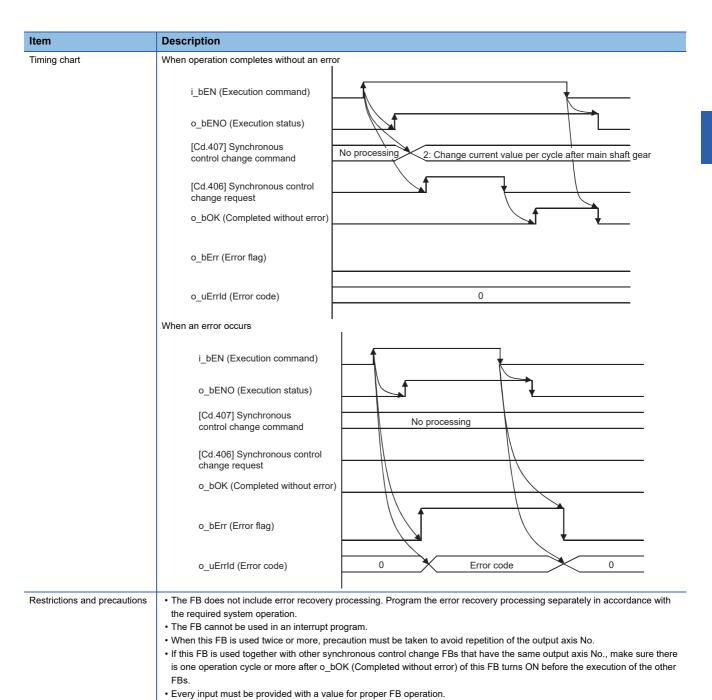
Name

FB operation type

M+RD77_ChangeMainShaftGearPositionPerCycle

Function overview Item **Description** Function overview Changes the current value per cycle after main shaft gear to a synchronous control change value. Symbol M+RD77_ChangeMainShaftGearPositionPerCycle B:i_bEN **Execution command** o_bENO : B Execution status Module label DUT: i_stModule Completed without error o_bOK : B UW: i_uOutputAxis Output axis No. o_bErr : B Error flag D : i_dSyncCtrlChangeValue o_uErrId: UW Error code Cd.408: Synchronous control change value RD77MS16, RD77MS8, RD77MS4, RD77MS2 Applicable hardware and Applicable module software Applicable CPU MELSEC iQ-R series Applicable engineering software GX Works3 Programming language Number of steps (maximum) 213 steps Function description • By turning ON i_bEN (Execution command), the current value per cycle after main shaft gear of the output axis No. is changed • When the setting value of the output axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). • When this FB is executed for an output axis No. for which synchronous control is not executed, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 300 (Hexadecimal) is stored in o_uErrId (Error code). Compiling method

Pulsed execution (multiple scan execution type)



Error code	Description	Action
100 (Hexadecimal)	The output axis No. is not within the setting range.	Please try again after confirming the setting.
300 (Hexadecimal)	The FB is executed for an output axis No. for which synchronous control is not executed.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Output axis No.	i_uOutputAxis	Word [unsigned]	1 to 16	Set the axis No. whose current value per cycle after main shaft gear is to be changed. The setting range differs depending on the module used.
Cd.408: Synchronous control change value	i_dSyncCtrlChangeValue	Double word [signed]	-2147483648 to 2147483647	Set the current value per cycle after main shaft gear to be changed. The setting value is converted within the range from 0 to (Cam axis length per cycle - 1).

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing the current value per cycle after main shaft gear has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErr_ld	Word [unsigned]	0	The error code generated in the FB is stored.

2.27 M+RD77_ChangeAuxiliaryShaftGearPositionPerCycl

е

Name

 $M+RD77_Change Auxiliary Shaft Gear Position Per Cycle$

Item	Description					
Function overview	Changes the current value per cycle after auxiliary shaft gear to a synchronous control change value.					
Symbol						
	M+RI	D77_ChangeAuxiliaryShaftGearPosi	tionPerCycle			
	Execution command ——B:i_bEN		o_bENO : B Execution	status		
	Module label ——DUT : i_s	tModule	o_bOK : B ——— Completed	l without error		
	Output axis No. ——UW : i_u0	DutputAxis	o_bErr : B ——— Error flag			
	Cd.408: Synchronous D : i_dSynchrol change value	ncCtrlChangeValue	o_uErrId : UW ——— Error code			
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2				
software	Applicable CPU	MELSEC iQ-R series				
	Applicable engineering software	GX Works3				
Programming language	Ladder					
Number of steps (maximum)	213 steps					
Function description	 By turning ON i_bEN (Execution command), the current value per cycle after auxiliary shaft gear of the output axis No. is changed. When the setting value of the output axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When this FB is executed for an output axis No. for which synchronous control is not executed, o_bErr (Error flag) turns ON the FB processing is interrupted, and the error code 300 (Hexadecimal) is stored in o_uErrld (Error code). 					
Compiling method	Macro type					
FB operation type	Pulsed execution (multiple scan execu	tion type)				

Item	Description
Timing chart	When operation completes without an error
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.407] Synchronous control change command No processing 3: Change current value per cycle after auxiliary shaft gear
	[Cd.406] Synchronous control change request
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrld (Error code)
	When an error occurs
	i_bEN (Execution command)
	o_bENO (Execution status)
	[Cd.407] Synchronous control change command No processing
	[Cd.406] Synchronous control change request
	o_bOK (Completed without error)
	o_bErr (Error flag)
	o_uErrId (Error code) 0 Error code 0
Restrictions and precautions	The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation. The FB cannot be used in an interrupt program. When this FB is used twice or more, precaution must be taken to avoid repetition of the output axis No. If this FB is used together with other synchronous control change FBs that have the same output axis No., make sure there is one operation cycle or more after o_bOK (Completed without error) of this FB turns ON before the execution of the other FBs.
	Every input must be provided with a value for proper FB operation.

Error code	Description	Action
100 (Hexadecimal)	The output axis No. is not within the setting range.	Please try again after confirming the setting.
300 (Hexadecimal)	The FB is executed for an output axis No. for which synchronous control is not executed.	Please try again after confirming the setting.

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Output axis No.	i_uOutputAxis	Word [unsigned]	1 to 16	Set the axis No. whose current value per cycle after auxiliary shaft gear is to be changed. The setting range differs depending on the module used.
Cd.408: Synchronous control change value	i_dSyncCtrlChange Value	Double word [signed]	-2147483648 to 2147483647	Set the current value per cycle after auxiliary shaft gear to be changed. The setting value is converted within the range from 0 to (Cam axis length per cycle - 1).

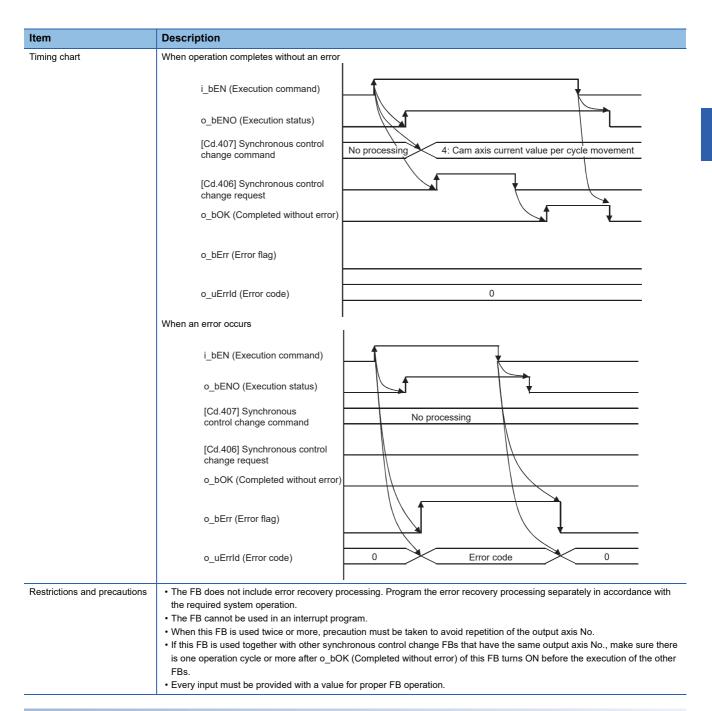
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that changing the current value per cycle after auxiliary shaft gear has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.28 M+RD77_MoveCamPositionPerCycle

Name

M+RD77_MoveCamPositionPerCycle

Description				
Adds the movement amount set in the synchronous control change value to a cam axis current value per cycle to move the cam axis current value per cycle.				
Execution command ——B : i	_bEN	o_bENO : B Exe	cution status	
Module label ——DUT	: i_stModule	o_bOK : B Com	npleted without error	
Output axis No. ——UW	: i_uOutputAxis	o_bErr : B —— Erro	or flag	
Cd.408: Synchronous ——— D : i	_dSyncCtrlChangeValue	o_uErrld : UW —— Erro	or code	
Cd.409: Synchronous —— UW control reflection time	: i_uSyncCtrlReflectionTime			
Applicable module	RD77MS16, RD77MS8, RD	RD77MS16, RD77MS8, RD77MS4, RD77MS2		
Applicable CPU	MELSEC iQ-R series			
Applicable engineering software	GX Works3			
Ladder	'			
355 steps				
 By turning ON i_bEN (Execution command), the cam axis current value per cycle of the output axis No. is moved. If i_bEN (Execution command) is turned OFF during movement of the cam axis current value per cycle, the operation stops during the movement and o_bOK (Completed without error) does not turn ON. When the setting value of the output axis No. is out of the range, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 100 (Hexadecimal) is stored in o_uErrld (Error code). When this FB is executed for an output axis No. for which synchronous control is not executed, o_bErr (Error flag) turns ON, the FB processing is interrupted, and the error code 300 (Hexadecimal) is stored in o_uErrld (Error code). 				
Macro type				
Pulsed execution (multiple scan ex	ecution type)			
	Adds the movement amount set in to cam axis current value per cycle. Execution command ————————————————————————————————————	Adds the movement amount set in the synchronous control change of cam axis current value per cycle. M+RD77_MoveCamPosition	Adds the movement amount set in the synchronous control change value to a cam axis current value per cam axis current value per cycle. M+RD77_MoveCamPositionPerCycle	



Error code	Description	Action			
100 (Hexadecimal)	The output axis No. is not within the setting range.	Please try again after confirming the setting.			
300 (Hexadecimal)	The FB is executed for an output axis No. for which synchronous control is not executed.	Please try again after confirming the setting.			

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Output axis No.	i_uOutputAxis	Word [unsigned]	1 to 16	Set the axis No. whose cam axis current value per cycle is to be moved. The setting range differs depending on the module used.
Cd.408: Synchronous control change value	i_dSyncCtrlChange Value	Double word [signed]	-2147483648 to 2147483647	Set the amount of the cam axis current value per cycle movement.
Cd.409: Synchronous control reflection time	i_uSyncCtrlReflecti onTime	Word [unsigned]	0 to 65535 (0 to 32767: Set by decimal number. 32768 to 65535: Convert the number to hexadecimal number and set.)	Set the reflection time for the synchronous control change.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that moving the cam axis current value per cycle has been completed.
Error flag	o_bErr	Bit	OFF	When ON, it indicates that an error has occurred in the FB.
Error code	o_uErrld	Word [unsigned]	0	The error code generated in the FB is stored.

2.29 M+RD77_MakeRotaryCutterCam

Name

M+RD77_MakeRotaryCutterCam

Item	Description				
Function overview	Automatically generates the cam for	r a ro	otary cutter.		
Symbol					
	M+RD77_MakeRotaryCu		M+RD77_MakeRotaryCutterCar	n	
	Execution command —— B :	B:i_bEN		o_bENO : B	Execution status
	Module label —— DU	T : i_	stModule	o_bOK : B	Completed without error
	Cd.609: Cam auto-generation cam No.	/ : i_	uCamNo	o_bErr : B	— Error flag
	Cd.611: Cam resolution ——UW	/ : i_	uResolution	o_uErrld : U	— Error code
	Cd.611: Sheet length ——UD	: i_u	dSheetLength		
	Sneet synchronous width	: i_u	dSheetSyncWidth		
	Cd.611: UD	: i_u	dSyncAxisLength		
	Cd.611: SynchronizationUD	: i_u	dSyncStartPoint		
	Cd.611: SynchronousW : i_wSyncSectionAccelerationRatio				
Applicable hardware and	Applicable module		RD77MS16, RD77MS8, RD77MS4, RI	D77MS2	
software	Applicable CPU		MELSEC iQ-R series		
	Applicable engineering software		GX Works3		
Programming language	Ladder				
Number of steps (maximum)	66 steps				
Function description	By turning ON i_bEN (Execution cor	mma	nd), the cam for a rotary cutter is autom	atically generated.	
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan exe	ecuti	on type)		
Timing chart	i_bEN (Execution commar	nd)			_
	o_bENO (Execution status	s)			
	[Cd.608] Cam auto-genera request	ation	0 1: Cam auto-generat request	ion 0	
	o_bOK (Completed withou	ut err	or)		
Restrictions and precautions	the required system operation.	xecu errup			in accordance with

Error code	Description	Action
None	None	None

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Cd.609: Cam autogeneration cam No.	i_uCamNo	Word [unsigned]	1 to 256	Set the cam No. to be automatically generated.
Cam resolution	i_uResolution	Word [unsigned]	256/512/1024/2048/ 4096/8192/16384/ 32768	Set the resolution of the cam to be generated.
Sheet length	i_udSheetLength	Double word [unsigned]	1 to 2147483647 [(Optional) same unit (such as 0.1 mm)]	Set the sheet length. Set this value in the cam axis length per cycle.
Sheet synchronous width	i_udSheetSyncWidth	Double word [unsigned]	1 to 2147483647 [(Optional) same unit (such as 0.1 mm)]	Set the sheet length of the synchronous section.
Synchronous axis length	i_udSyncAxisLength	Double word [unsigned]	1 to 2147483647 [(Optional) same unit (such as 0.1 mm)]	Set the cycle length of the rotary cutter shaft.
Synchronization starting point	i_udSyncStartPoint	Double word [unsigned]	1 to 2147483647 [(Optional) same unit (such as 0.1 mm)]	Set the length from the beginning of the sheet to the start of the synchronous section.
Synchronous section acceleration ratio	i_wSyncSectionAcce lerationRatio	Word [signed]	-5000 to 5000 [0.01%]	Set this label when the synchronous speed in the synchronous section needs to be adjusted. The speed is "Synchronous speed × (100% + Acceleration ratio)" in the synchronous section.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that the cam automatic generation has been completed.
Error flag	o_bErr	Bit	OFF	Always OFF
Error code	o_uErrld	Word [unsigned]	0	Always 0

2.30 M+RD77_CalcCamCommandPosition

Name

M+RD77_CalcCamCommandPosition

Item	Description					
unction overview	Calculates a cam axis feed current value, and outputs the calculation result.					
Symbol						
		M+RD77_CalcCamComr	mandPosition			
	Execution command ——— B :	i_bEN	o_bENO : B	— Execution status		
		T : i_stModule	o_bOK : B	Completed withou error		
	calculation: Cam No.	: i_uCamNo	o_dResult : D	 Cam position calculation result 		
	outoutation out one united in	i_dStroke	o_bErr : B —	— Error flag		
	Cd.615: Cam position calculation: Cam axisUD length per cycle	: i_udLengthPerCycle	o_uErrld : UW	— Error code		
	Cd.616: Cam position calculation: Cam reference position	i_dReferencePosition				
	Cd.617: Cam positionUD calculation: Cam axis current value per cycle	: i_udCommandPositionPerCycle				
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS4, RD77MS2				
<u> </u>	Applicable CPU	MELSEC iQ-R series				
	Applicable engineering software	GX Works3				
Programming language	Ladder	'				
Number of steps (maximum)	58 steps					
unction description	By turning ON i_bEN (Execution com	mand), the cam axis feed current	value is calculated.			
Compiling method	Macro type					
B operation type	Pulsed execution (multiple scan exec	ution type)				
Timing chart						
	i_bEN (Execution command)					
	o_bENO (Execution status)					
	[Cd.612] Cam position calcula request	tion 0 1: Cam axis feed	current value calculation request	0		
	o_dResult (Cam position calculation result)		0	Calculation result		
	o_bOK (Completed without en	ror)				
Restrictions and precautions	The FB does not include error reco the required system operation. Even if a warning occurs in the exe The FB cannot be used in an interr Every input must be provided with	cution of this FB, o_bOK (Complet upt program.	,, , , , , ,	ly in accordance with		

Error code Description		Action	
None	None	None	

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Cd.613: Cam position calculation: Cam No.	i_uCamNo	Word [unsigned]	0 to 256	Set the cam No. used for the calculation cam.
Cd.614: Cam position calculation: Stroke amount	i_dStroke	Double word [signed]	-2147483648 to 2147483647	Set the cam stroke amount used for the cam position calculation.
Cd.615: Cam position calculation: Cam axis length per cycle	i_udLengthPerCycle	Double word [unsigned]	1 to 2147483647	Set the cam axis length per cycle used for the cam position calculation.
Cd.616: Cam position calculation: Cam reference position	i_dReferencePosition	Double word [signed]	-2147483648 to 2147483647	Set the cam reference position used for the cam position calculation.
Cd.617: Cam position calculation: Cam axis current value per cycle	i_udCommandPosition PerCycle	Double word [unsigned]	0 to (Cam axis length per cycle)	Set the cam axis current value per cycle used for the cam position calculation.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that calculating the cam axis feed current value has been completed.
Cam position calculation result	o_dResult	Double word [signed]	0	The result of the cam axis feed current value calculation is stored.
Error flag	o_bErr	Bit	OFF	Always OFF
Error code	o_uErrld	Word [unsigned]	0	Always 0

2.31 M+RD77_CalcCamPositionPerCycle

Name

M+RD77_CalcCamPositionPerCycle

Item	Description				
Function overview	Calculates a cam axis current value pe	ent value per cycle, and outputs the calculation result.			
Symbol					
		M+RD77_CalcCamPosition	onPerCycle		
	Execution command ——— B : i	_bEN	o_bENO : B	— Execution status	
	Module label ——— DUT	: i_stModule	o_bOK : B	 Completed withou error 	
	Cd.613: Cam positionUW	: i_uCamNo	o_dResult : D	— Cam position calculation result	
	Calculation: Offore amount	_dStroke	o_bErr : B	— Error flag	
	Cd.615: Cam position calculation: Cam axisUD : length per cycle Cd.616: Cam position	i_udLengthPerCycle	o_uErrld : UW	— Error code	
	calculation: Cam reference D: i	_dReferencePosition			
	calculation: Cam axis current value per cycle Cd.618: Cam position D : i	i_udCommandPositionPerCycle _dCommandPosition			
	feed current value				
Applicable hardware and	Applicable module	RD77MS16, RD77MS8, RD77MS	64, RD77MS2		
software	Applicable CPU	MELSEC iQ-R series			
	Applicable engineering software	GX Works3			
Programming language	Ladder				
Number of steps (maximum)	63 steps				
Function description	By turning ON i_bEN (Execution comm	and), the cam axis current value pe	r cycle is calculated.		
Compiling method	Macro type				
FB operation type	Pulsed execution (multiple scan execution)	tion type)			
Timing chart	i hEN/Escaption command)				
	i_bEN (Execution command) o_bENO (Execution status)				
	[Cd.612] Cam position calculation request	0 2: Cam axis of calculation	current value per cycle	0	
	o_dResult (Cam position calculation result)	0	Tequest	Calculation result	
	o_bOK (Completed without en				
Restrictions and precautions	The FB does not include error recover the required system operation. Even if a warning occurs in the execution. The FB cannot be used in an interrul Every input must be provided with a	ution of this FB, o_bOK (Completed of program.		y in accordance with	

Error code Description		Action	
None	None	None	

Labels

■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	i_bEN	Bit	ON, OFF	ON: The FB is activated. OFF: The FB is not activated.
Module label	i_stModule	Structure	The setting range differs depending on the module label.	Specify the module label of the MELSEC iQ-R simple motion module.
Cd.613: Cam position calculation: Cam No.	i_uCamNo	Word [unsigned]	0 to 256	Set the cam No. used for the calculation cam.
Cd.614: Cam position calculation: Stroke amount	i_dStroke	Double word [signed]	-2147483648 to 2147483647	Set the cam stroke amount used for the cam position calculation.
Cd.615: Cam position calculation: Cam axis length per cycle	i_udLengthPerCycle	Double word [unsigned]	1 to 2147483647	Set the cam axis length per cycle used for the cam position calculation.
Cd.616: Cam position calculation: Cam reference position	i_dReferencePosition	Double word [signed]	-2147483648 to 2147483647	Set the cam reference position used for the cam position calculation.
Cd.617: Cam position calculation: Cam axis current value per cycle	i_udCommandPosition PerCycle	Double word [unsigned]	0 to (Cam axis length per cycle)	Set the current value from which the cam search used for the cam position calculation is started.
Cd.618: Cam position calculation: Cam axis feed current value	i_dCommandPosition	Double word [signed]	-2147483648 to 2147483647	Set the cam axis feed current value used for the cam position calculation.

Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
Completed without error	o_bOK	Bit	OFF	When ON, it indicates that calculating the cam axis current value per cycle has been completed.
Cam position calculation result	o_dResult	Double word [signed]	0	The result of the cam axis current value per cycle calculation is stored.
Error flag	o_bErr	Bit	OFF	Always OFF
Error code	o_uErrld	Word [unsigned]	0	Always 0

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REVISIONS

*The manual number is given on the bottom left of the back cover.

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