MITSUBISHI ELECTRIC

Mitsubishi Programmable Controller

MELSEC iQ-R series

MELSEC iQ-R Positioning Module Function Block Reference

CONTENTS

1 FUNCTION BLOCK (FB) LIST

This chapter lists the FBs for the MELSEC iQ-R series positioning module.

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M+RD75_StartPositioning	Starts the positioning operation.
M+RD75_JOG	Performs the JOG operation or inching operation.
M+RD75_MPG	Performs the manual pulse generator operation.
M+RD75_ChangeSpeed	Changes the speed.
M+RD75_ChangeAccDecTime	Changes the acceleration/deceleration time at the speed change.
M+RD75_ChangePosition	Changes the target position.
M+RD75_Restart	Restarts the axis being stopped.
M+RD75_OperateError	Monitors errors and warnings, and resets errors.
M+RD75_InitializeParameter	Initializes parameters.
M+RD75_WriteFlash	Writes parameters, positioning data, and block start data in the buffer memory to the flash ROM.
M+RD75_ABRST	Restores the absolute position.

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

MEMO

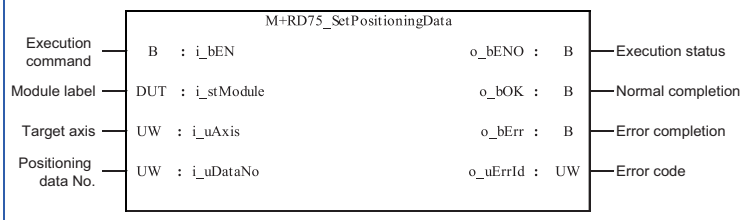
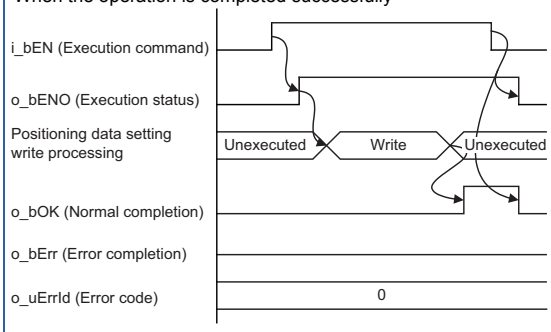
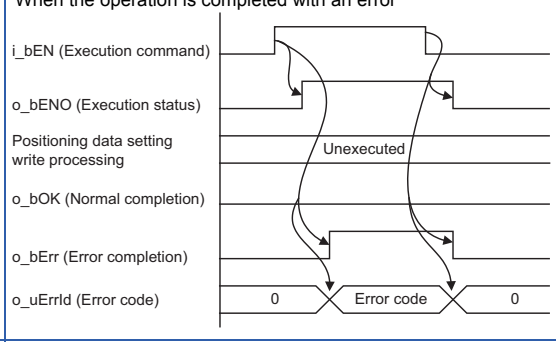
2 POSITIONING MODULE FB

2.1 M+RD75_SetPositioningData

Name

M+RD75_SetPositioningData

FB details

Item	Description	
Overview	Sets positioning data (Da.1 to Da.10, Da.27 to Da.29).	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	174 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• By turning on i_bEN (Execution command), the set positioning data is written to the buffer memory. • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. • If the setting value of the positioning data No. is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 101 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulsed execution (single scan execution type)	
Timing chart of I/O signals	When the operation is completed successfully  When the operation is completed with an error 	

Item	Description
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Every input must be provided with a value for proper FB operation. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.
101 (hexadecimal)	The set value of i_uDataNo (Positioning data No.) is out of the range. The positioning data No. is not within the range of 1 to 600.	Try again after checking the setting.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Positioning data No.	i_uDataNo	Word [Unsigned]	1 to 600	Specify the positioning data No.

■Output label

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.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that the positioning data setting has been completed.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

■Disclosed label

Name	Variable name	Data type	Range	Description
Da.1: Operation pattern	pb_uOpePattern	Word [Unsigned]	0: 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 method	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 run) 05H: VR1 1-axis speed control (reverse run) 06H: VPF Speed-position switching control (forward run) 07H: VPR Speed-position switching control (reverse run) 08H: PVF Speed-position switching control (forward run) 09H: PVR Speed-position switching control (reverse run) 0AH: ABS2 2-axis linear interpolation control (ABS) 0BH: INC2 2-axis linear interpolation control (INC) 0CH: FEED2 Fixed-feed control by 2-axis linear interpolation 0DH: ABS⌒; Circular interpolation control with sub point specified (ABS) 0EH: INC⌒; Circular interpolation control with sub point specified (INC) 0FH: ABS. Circular interpolation control with center point specified (ABS, CW) 10H: ABS. Circular interpolation control with center point specified (ABS, CCW) 11H: INC. Circular interpolation control with center point specified (INC, CW) 12H: INC. Circular interpolation control with center point specified (INC, CCW) 13H: VF2 2-axis speed control (forward run) 14H: VR2 2-axis speed control (reverse run) 15H: ABS2 3-axis linear interpolation control (ABS) 16H: INC2 3-axis linear interpolation control (INC) 17H: FEED3 Fixed-feed control by 3-axis linear interpolation 18H: VF3 3-axis speed control (forward run) 19H: VR3 3-axis speed control (reverse run) 20H: ABSH⌒; Helical interpolation control with sub point specified (ABS) 21H: INCH⌒; Helical interpolation control with sub point specified (INC) 22H: ABSH. Helical interpolation control with center point specified (ABS, CW) 23H: ABSH. Helical interpolation control with center point specified (ABS, CCW) 24H: INCH. Helical interpolation control with center point specified (INC, CW) 25H: INCH. Helical interpolation control with center point specified (INC, CCW) 1AH: ABS4 4-axis linear interpolation control (ABS) 1BH: INC4 4-axis linear interpolation control (INC) 1CH: FEED4 Fixed-feed control by 4-axis linear interpolation 1DH: VF4 4-axis speed control (forward run) 1EH: VR4 4-axis speed control (reverse run) 80H: NOP NOP instruction 81H: POS Current value change 82H: JUMP JUMP instruction 83H: LOOP Beginning of LOOP-to-LEND processing 84H: LEND End of LOOP-to-LEND processing	Set the control method for performing the positioning control.

Name	Variable name	Data type	Range	Description
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 which of Acceleration time 0 to 3 to use for the acceleration time during 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.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 which of Deceleration time 0 to 3 to use for the deceleration time during 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.5: Axis to be interpolated	pb_uInterpolatedAx	Word [Unsigned]	0: Axis 1 specification 1: Axis 2 specification 2: Axis 3 specification 3: Axis 4 specification	Set the axis to be interpolated for performing the 2-axis interpolation operation. Values out of the setting range or the self-axis cannot be set as the axis to be interpolated. Set 0 to disable the interpolation or to perform the 3-axis interpolation control or 4-axis interpolation control.
Da.10: M code	pb_uMcode	Word [Unsigned]	Da.2: Control method = 82H: JUMP instruction • 0 to 10 Da.2: Control method = 83H: LOOP • 1 to 65,535 Da.2: Control method = 20H to 25H: Helical interpolation • 0 to 999 Da.2: Control method = Other than above • 0 to 65,535	Set the condition data No., number of repetitions, or M code for the control method.
Da.9: Dwell time	pb_uDwellTime	Word [Unsigned]	Da.2: Control method = 82H: JUMP instruction • 1 to 600 Da.2: Control method = 82H: Other than JUMP instruction • 0 to 65,535	Set the positioning data No. or dwell time for the control method.
Da.27: M code ON signal output timing	pb_uMcodeOnTiming	Word [Unsigned]	0: Setting value of Pr.18 M code ON signal output timing 1: WITH mode 2: AFTER mode	Set the timing of outputting the M code ON signal. When 4 or higher is set, 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 clockwise 2: ABS counterclockwise 3: Shortcut (the direction setting is invalid)	Set the ABS movement direction for the position control when the unit is degree. 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 specification method	pb_uInterpolateSpd	Word [Unsigned]	0: Setting value of Pr.20 Interpolation speed specification method 1: Composite speed 2: Reference axis speed	When performing linear interpolation/circular interpolation, set whether to specify the composite speed or the speed for the reference axis. When 8 or higher is set, bit 0, 1, and 2 are enabled. For example, when 8 is set, 0 is applied.

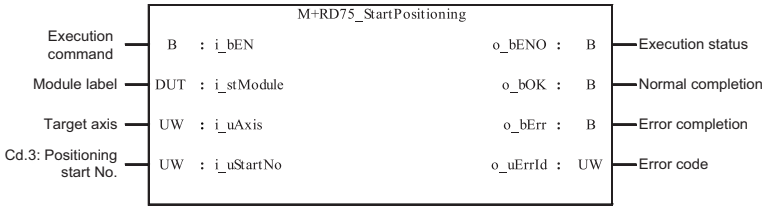
Name	Variable name	Data type	Range	Description
Da.8: Command speed	pb_udCmdSpd	Double Word [Unsigned]	Pr.1: Unit setting = 0, 1 • 1 to 2,000,000,000 Pr.1: Unit setting = 2 • 1 to 3,000,000,000 Pr.1: Unit setting = 3 • 1 to 5,000,000	Set the command speed for positioning.
			FFFFFFFFH: Current speed (Speed set for the previous positioning data No.)	The speed set for the previous positioning data No. is used for the positioning control.
Da.6: Positioning address	pb_dPositAdr	Double word [signed]	Pr.1: Unit setting = 0, 1, 3 • Da.2: Control method = 06H to 09H: 0 to 2147483647 • Da.2: Control method = Other than 06H to 09H: -2147483648 to 2147483647 Pr.1: Unit setting = 2 • Da.2: Control method = 01H, 0AH, 15H, 1AH, 81H, 20H, 22H, 23H: 0 to 35,999,999 • Da.2: Control method =02H, 0BH, 16H, 1BH, 03H, 0CH, 17H, 1CH, 20H, 22H, 23H: -2,147,483,648 to 2,147,483,647 • Da.2: Control method = 06H, 07H: 0 to 2147483647 (INC mode), 0 to 35999999 (ABS mode) • Da.2: Control method = 08H, 09H: 0 to 2147483647	Specify the target position or movement amount for the positioning control. The setting value differs depending on the control method.
Da.7: Arc address	pb_dArcAdr	Double word [signed]	Pr.1: Unit setting = 0, 1, 3 • -2,147,483,648 to 2,147,483,647 Pr.1: Unit setting = 2 • Not used (Set 0.)	Use this label only when performing the circular interpolation control. For the sub point specification, set the sub point address. For the center point specification, set the center point address of the arc.

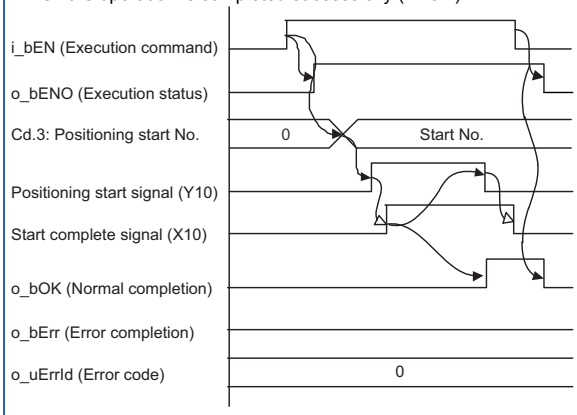
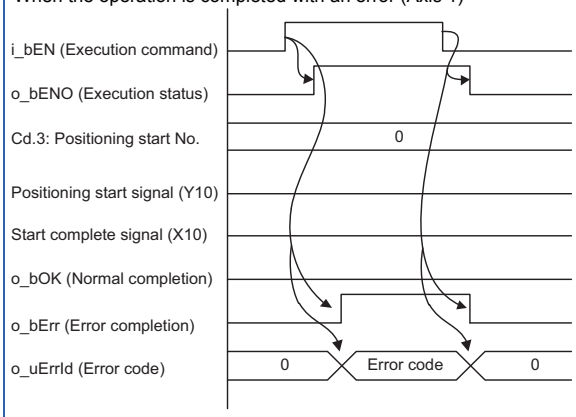
2.2 M+RD75_StartPositioning

Name

M+RD75_StartPositioning

FB details

Item	Description	
Overview	Starts the positioning operation.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	407 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• 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 Positioning start signal (Y10, Y11, Y12, Y13). • Only when the following conditions are satisfied, Positioning start signal (Y10, Y11, Y12, Y13) is turned on by turning on i_bEN (Execution command). If any of the conditions is not satisfied, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 200 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (The conditions are the following: RD75 READY (X0) is on, Positioning start signal (Y10, Y11, Y12, Y13) is off, Start complete signal (X10, X11, X12, X13) is off, BUSY signal (XC, XD, XE, XF) is off.) • When Start complete signal (X10, X11, X12, X13) turns on or i_bEN (Execution command) is turned off, Positioning start signal (Y10, Y11, Y12, Y13) is turned off. • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. • If the setting value of the positioning start No. is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 102 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	

Item	Description
Timing chart of I/O signals	When the operation is completed successfully (Axis 1)  When the operation is completed with an error (Axis 1) 
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • This FB turns on and off Positioning start signal (Y10, Y11, Y12, Y13). Thus, do not turn on and off Positioning start signal (Y10, Y11, Y12, Y13) by other means while this FB is being executed. • When this FB is used twice or more, or when other FB that operates the Y signal same as the signal this FB does, create an interlock to prevent the FBs from being activated at the same time. • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • 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. • This FB does not set the data when started. Data required for controlling the start No. must be set on the parameter or buffer memory. • Every input must be provided with a value for proper FB operation. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.
102 (hexadecimal)	The set 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.	Try again after checking the setting.
200 (hexadecimal)	The conditions for positioning start are not satisfied. Any of the following conditions is not satisfied. • RD75 READY: On • Positioning start signal: Off • Start complete signal: Off • BUSY signal: Off	Execute the FB again when all of the following conditions are satisfied. • RD75 READY: On • Positioning start signal: Off • Start complete signal: Off • BUSY signal: Off

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Cd.3: Positioning start No.	i_uStartNo	Word [Unsigned]	1 to 600: Positioning data No. 7000 to 7004: Block start specification 9001: Machine OPR 9002: Fast OPR 9003: Current value change 9004: Multiple axes simultaneous start	Set the positioning start No. corresponding to the control to be started in Cd.3: Positioning start No.

■Output label

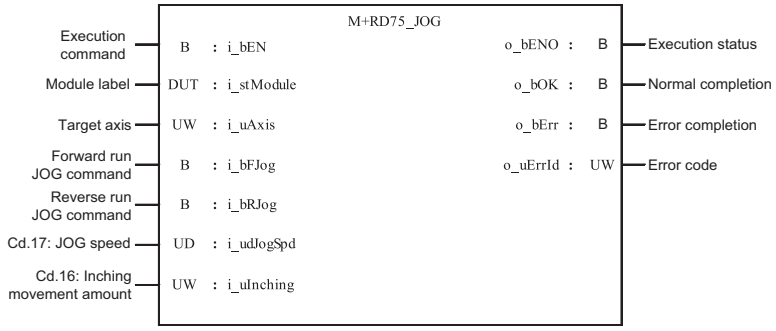
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that the positioning operation has been completed. However, this label does not turn ON when a module error occurs at the start.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

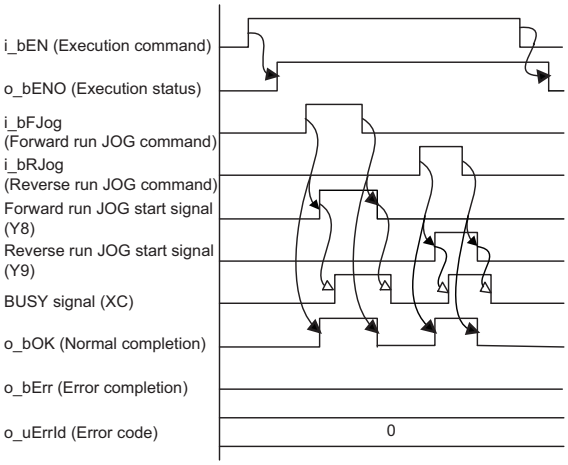
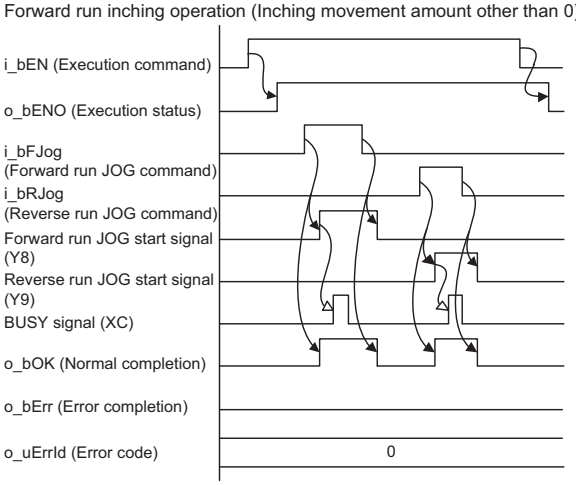
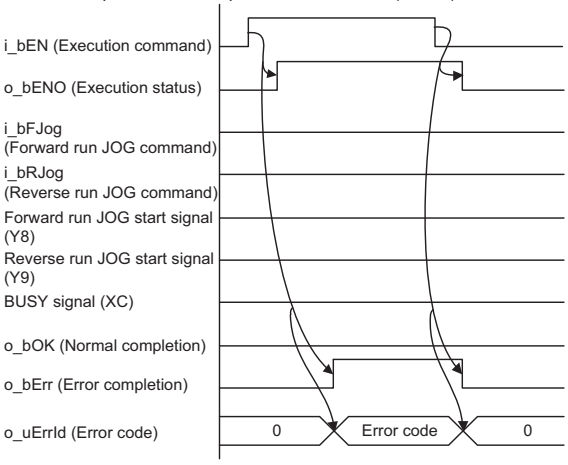
2.3 M+RD75_JOG

Name

M+RD75_JOG

FB details

Item	Description	
Overview	Performs the JOG operation or inching operation.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	363 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• 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 during the 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 the forward run JOG operation, the operation stops. However, when i_bRJog (Reverse run JOG command) is turned on and off, the forward JOG operation restarts (This relation is also applied to the reverse run JOG operation and i_bFJog (Forward run JOG command). • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Always executed	

Item	Description
Timing chart of I/O signals	When the operation is completed successfully (Axis 1) Forward run JOG operation (Inching movement amount 0)  Forward run inching operation (Inching movement amount other than 0)  When the operation is completed with an error (Axis 1) 

Item	Description
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • This FB turns on and off Forward run JOG start signal (Y8, YA, YC, YE) and Reverse run JOG start signal (Y9, YB, YD, YF). Thus, do not turn on or off Forward run JOG start signal (Y8, YA, YC, YE) and Reverse run JOG start signal (Y9, YB, YD, YF) by the other means while this FB is being executed. • When this FB is used twice or more, or when other FB that operates the Y signal same as the signal this FB does, create an interlock to prevent the FBs from being activated at the same time. • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Setting a large value for the JOG speed from the beginning is dangerous. For safety, set a small value first, and increase the value gradually while checking the operation to determine the value optimal for the control. • When values other than 0 are set in both i_uInching (Cd.16: Inching movement amount) and i_udJogSpd (Cd.17: JOG speed), the inching operation is performed. • 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. • Every input must be provided with a value for proper FB operation. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting. Turn OFF the forward run JOG command or reverse run JOG command, turn ON i_bEN from OFF, and turn ON the forward run JOG command or reverse run JOG command again.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Forward run JOG command	i_bFJog	Bit	On or off	Turn on this label to perform the forward run JOG operation or forward inching operation.
Reverse run JOG command	i_bRJog	Bit	On or off	Turn on this label to perform the reverse run JOG operation or reverse inching operation.
Cd.17: JOG speed	i_udJogSpd	Double Word [Unsigned]	Pr.1: Unit setting = 0, 1 • 1 to 2,000,000,000 Pr.1: Unit setting = 2 • 1 to 3,000,000,000 Pr.1: Unit setting = 3 • 1 to 5,000,000	Specify the JOG speed. Set 0 for the inching operation.
Cd.16: Inching movement amount	i_uInching	Word [Unsigned]	0 to 65,535 0: JOG operation	Specify the inching movement amount. Set 0 for the JOG operation.

■Output label

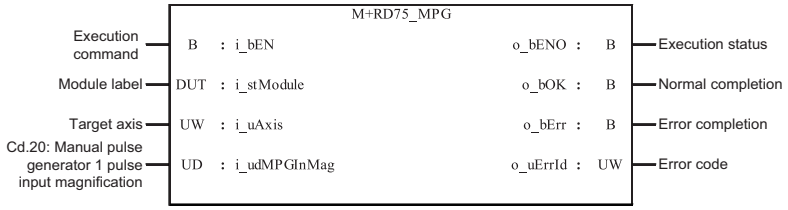
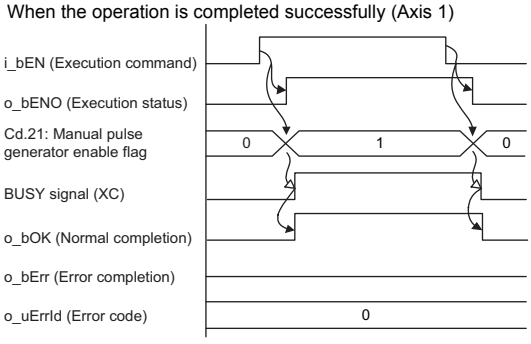
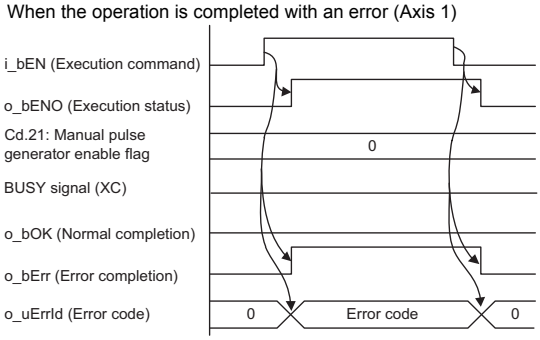
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	On: The JOG command is on. Off: The JOG command is off.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

2.4 M+RD75_MPG

Name

M+RD75_MPG

FB details

Item	Description	
Overview	Performs the manual pulse generator operation.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	331 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• 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 for the number of pulses input from the manual pulse generator while o_bOK (Normal completion) is on. • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Always executed	
Timing chart of I/O signals	When the operation is completed successfully (Axis 1)  When the operation is completed with an error (Axis 1) 	

Item	Description
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • 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 duplication of the target axis. • Every input must be provided with a value for proper FB operation. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Cd.20: Manual pulse generator 1 pulse input magnification	i_udMPGInMag	Double Word [Unsigned]	1 to 10,000	Set the input magnification of the manual pulse generator 1 pulse. • When the set value is 0, the magnification is 1. • When the set value is 10001 or higher, the magnification is 10000.

■Output label

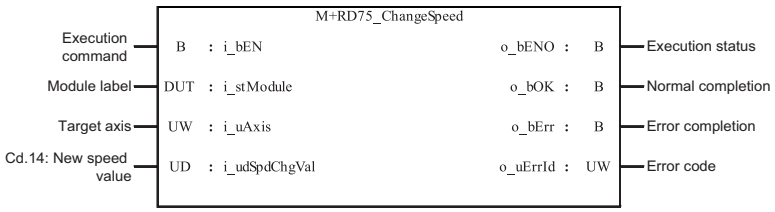
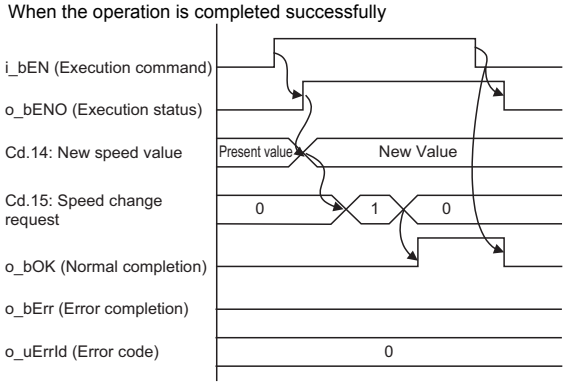
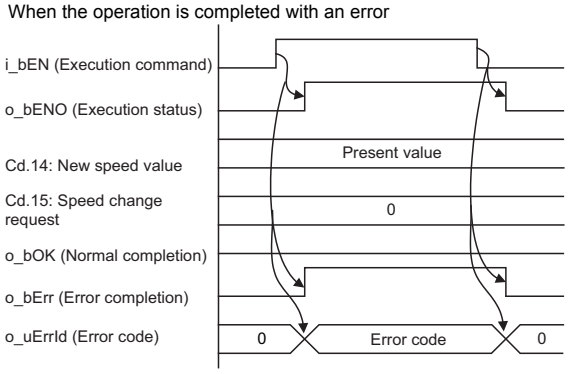
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that the manual pulse generator operation has been enabled.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

2.5 M+RD75_ChangeSpeed

Name

M+RD75_ChangeSpeed

FB details

Item	Description	
Overview	Changes the speed.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	211 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• By turning on i_bEN (Execution command), the speed used for the control is changed to a new speed. • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	
Timing chart of I/O signals	When the operation is completed successfully  When the operation is completed with an error 	

Item	Description
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Every input must be provided with a value for proper FB operation. • When i_bEN (Execution command) is turned on while BUSY signal (XC, XD, XE, XF) is off, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 201 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.
201 (hexadecimal)	This FB is executed before the positioning operation starts.	Please try again during the positioning operation.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Cd.14: New speed value	i_udSpdChgVal	Double Word [Unsigned]	Pr.1: Unit setting = 0, 1 • 0 to 2,000,000,000 Pr.1: Unit setting = 2 • 0 to 3,000,000,000 Pr.1: Unit setting = 3 • 0 to 5,000,000	Set a new speed.

■Output label

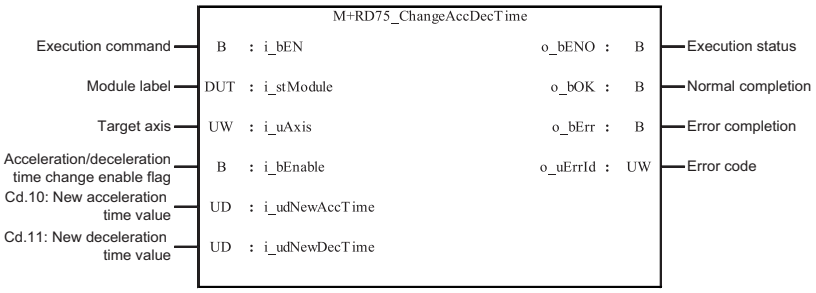
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that changing the speed has been completed.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

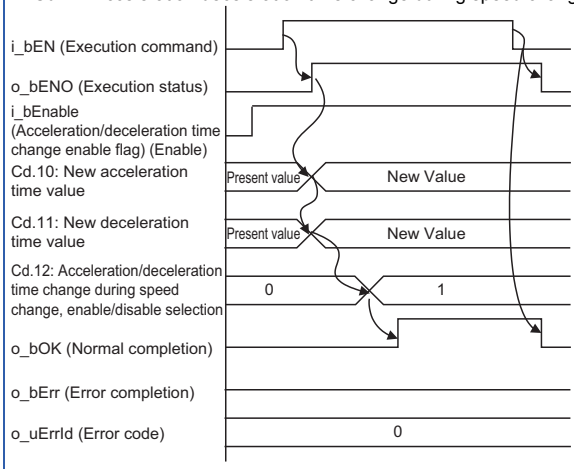
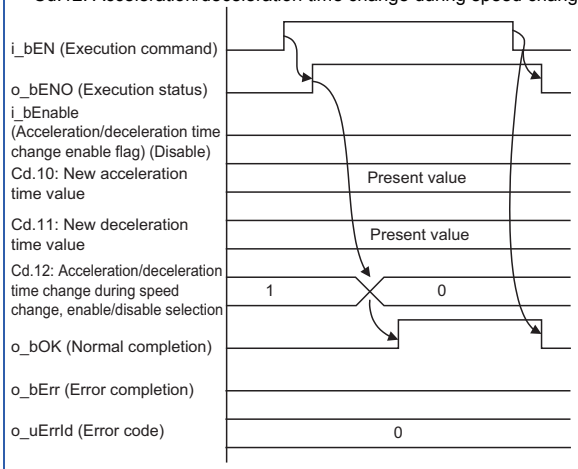
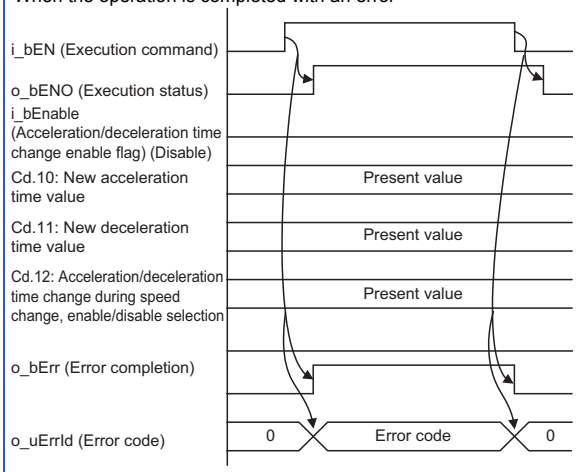
2.6 M+RD75_ChangeAccDecTime

Name

M+RD75_ChangeAccDecTime

FB details

Item	Description	
Overview	Changes the acceleration/deceleration time at the speed change.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	204 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• By turning on i_bEN (Execution command), the setting of 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_udNewAccTime (Cd.10: New acceleration time value) and i_udNewDecTime (Cd.11: New deceleration time value) are set and Cd.12: Acceleration/deceleration time change during speed change, enable/disable selection is changed to 1: Acceleration/deceleration time change enabled. When i_bEnable (Acceleration/deceleration time change enabled flag) is off, i_udNewAccTime (Cd.10: New acceleration time value) and i_udNewDecTime (Cd.11: New deceleration time value) are not changed and Cd.12: Acceleration/deceleration time change during speed change, enable/disable selection is changed to 0: Acceleration/deceleration time change disabled. • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulsed execution (single scan execution type)	

Item	Description
Timing chart of I/O signals	When the operation is completed successfully • Cd.12: Acceleration/deceleration time change during speed change, enable/disable selection is enabled  • Cd.12: Acceleration/deceleration time change during speed change, enable/disable selection is disabled  When the operation is completed with an error 
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • A duplicated coil warning may occur during the 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. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Acceleration/ deceleration time change enabled flag	i_bEnable	Bit	On: Enabled Off: Disabled	Set this label to enable or disable the acceleration/deceleration time change.
Cd.10: New acceleration time value	i_udNewAccTime	Double Word [Unsigned]	0 to 8388608 (ms)	Set a new acceleration time. When 0 is set, the acceleration time is not changed after the speed is changed. In this case, the operation is controlled at the previously set acceleration time.
Cd.11: New deceleration time value	i_udNewDecTime	Double Word [Unsigned]	0 to 8388608 (ms)	Set a new deceleration time. When 0 is set, the deceleration time is not changed after the speed is changed. In this case, the operation is controlled at the previously set deceleration time.

■Output label

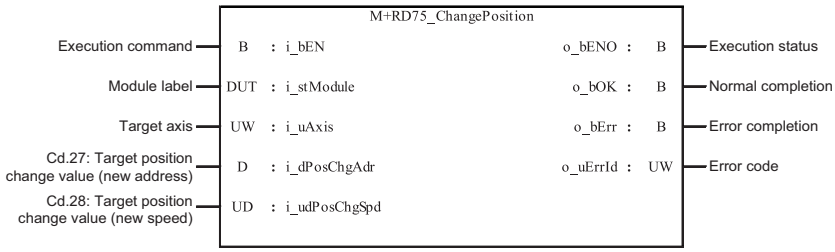
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that setting the acceleration/ deceleration time change has been completed.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

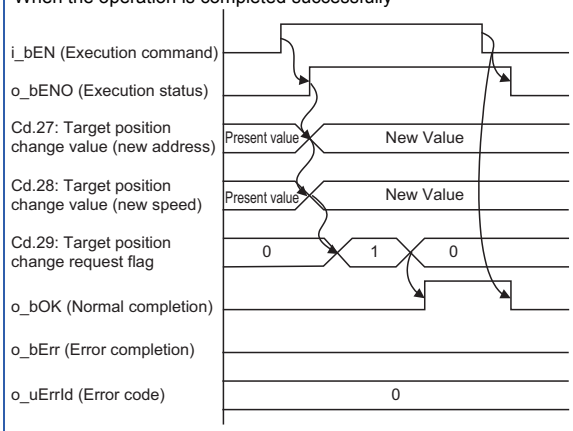
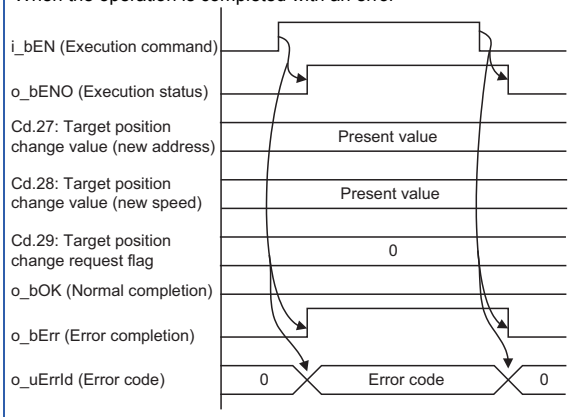
2.7 M+RD75_ChangePosition

Name

M+RD75_ChangePosition

FB details

Item	Description	
Overview	Changes the target position.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	253 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• By turning on i_bEN (Execution command), the target position is changed according to the value set in i_dPosChgAdr (Cd.27: Target position change value (new address)) and the command speed is changed according to the value set in i_udPosChgSpd (Cd.28: Target position change value (new speed)) during the position control. • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	

Item	Description
Timing chart of I/O signals	When the operation is completed successfully  When the operation is completed with an error 
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Every input must be provided with a value for proper FB operation. • When i_bEN (Execution command) is turned on while BUSY signal (XC, XD, XE, XF) is off, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 201 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.
201 (hexadecimal)	This FB is executed before the positioning operation starts.	Please try again during the positioning operation.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Cd.27: Target position change value (new address)	i_dPosChgAdr	Double word [signed]	Pr.1: Unit setting = 2 • In ABS mode: 0 to 35999999 • In INC mode: -2147483648 to 2147483647 Pr.1: Unit setting = Other than 2 • -2,147,483,648 to 2,147,483,647	Set a new positioning address to change the target position during positioning.
Cd.28: Target position change value (new speed)	i_udPosChgSpd	Double Word [Unsigned]	Pr.1: Unit setting = 0, 1 • 0 to 2,000,000,000 Pr.1: Unit setting = 2 • 0 to 3,000,000,000 Pr.1: Unit setting = 4 • 0 to 5,000,000	Set a new speed to change the target position during positioning. When 0 is set, the speed is not changed.

■Output label

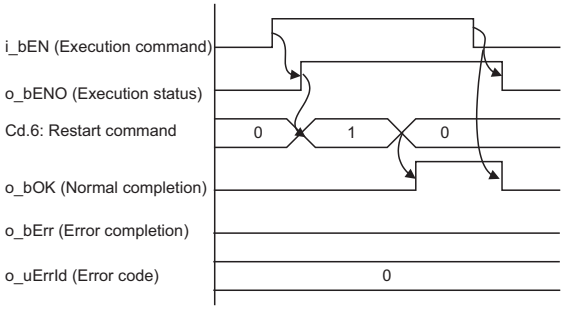
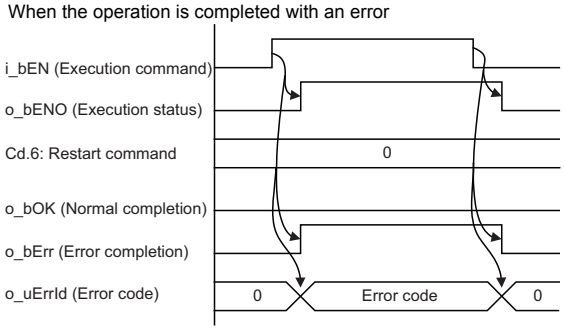
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that the module has accepted the target position change request values.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

2.8 M+RD75_Restart

Name

M+RD75_Restart

FB details

Item	Description	
Overview	Restarts the axis being stopped.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	215 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• Only when the following conditions are satisfied, the positioning operation that is stopped due to an error is restarted by turning on i_bEN (Execution command). If any of the conditions is not satisfied, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 202 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (The conditions are the following: Positioning complete signal (X14, X15, X16, X17) is off and the axis operation status is stopped.) • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	
Timing chart of I/O signals	When the operation is completed successfully  When the operation is completed with an error 	

Item	Description
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Every input must be provided with a value for proper FB operation. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.
202 (hexadecimal)	The conditions for positioning restart are not satisfied. Any of the following conditions is not satisfied. • Positioning complete signal: Off • Axis operation status: Stopped	Execute the FB again when all of the following conditions are satisfied. • Positioning complete signal: Off • Axis operation status: Stopped

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.

■Output label

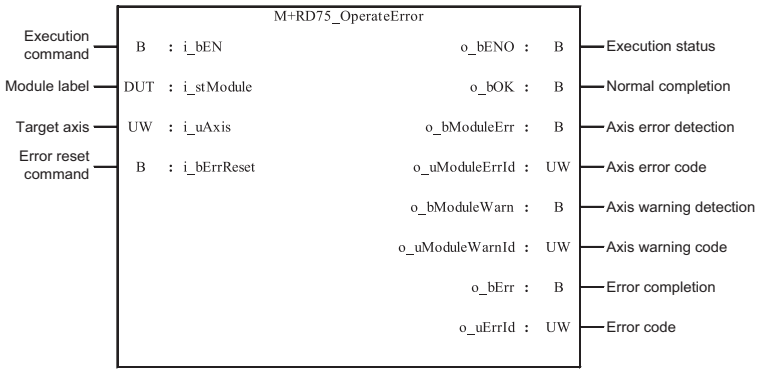
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that the module has accepted the restart command request.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

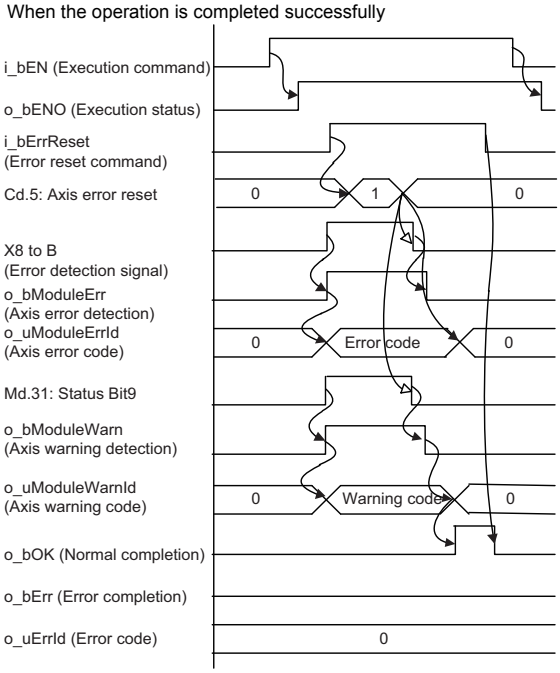
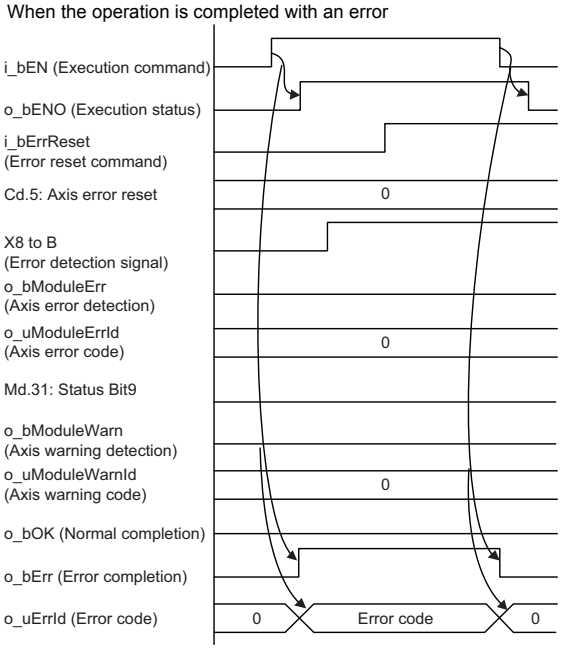
2.9 M+RD75_OperateError

Name

M+RD75_OperateError

FB details

Item	Description	
Overview	Monitors errors and warnings, and resets errors.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	387 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• 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). • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Always executed	

Item	Description
Timing chart of I/O signals	When the operation is completed successfully  When the operation is completed with an error 
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Do not change i_uAxis (Target axis) while i_bEN (Execution command) is on. • Every input must be provided with a value for proper FB operation. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
Error reset command	i_bErrReset	Bit	On or off	On: Errors are reset. Off: Errors are not reset.

■Output label

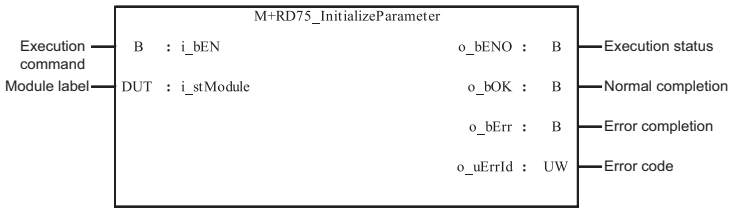
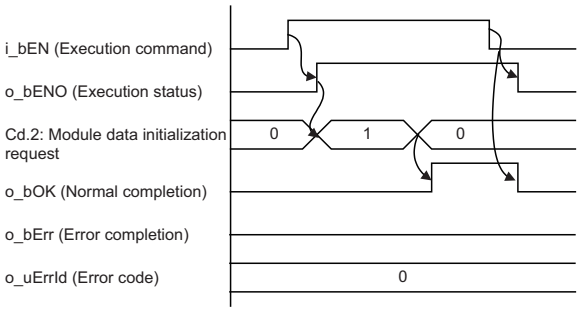
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that resetting the errors has been completed.
Axis error detection	o_bModuleErr	Bit	Off	When this label is on, it indicates that an axis error has occurred.
Axis error code	o_uModuleErrId	Word [Unsigned]	0	The error code of the error that has occurred in the module of the specified axis is stored.
Axis warning detection	o_bModuleWarn	Bit	Off	When this label is on, it indicates that an axis warning has occurred.
Axis warning code	o_uModuleWarnId	Word [Unsigned]	0	The warning code of the warning that has occurred in the module of the specified axis is stored.
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

2.10 M+RD75_InitializeParameter

Name

M+RD75_InitializeParameter

FB details

Item	Description	
Overview	Initializes parameters.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	33 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	By turning on i_bEN (Execution command), the setting data stored in the buffer memory and the flash ROM of the RD75 is reset to the factory setting.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	
Timing chart of I/O signals		
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • Every input must be provided with a value for proper FB operation. • Before using this FB, check that PLC READY signal (Y0) is off. • After the setting data is initialized, reset the CPU module or power on the programmable controller again. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).	

Error code

Error code	Description	Action
None	None	None

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.

■Output label

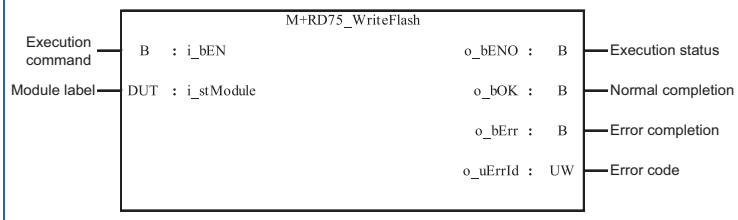
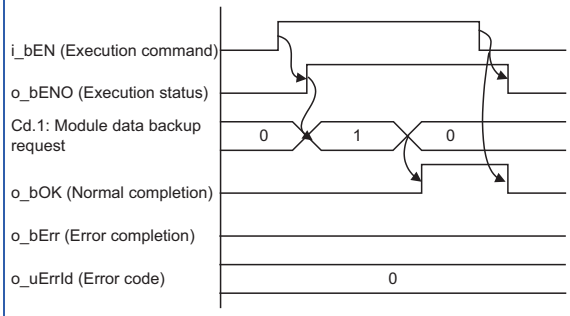
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that initializing parameters has been completed.
Error completion	o_bErr	Bit	Off	Always off
Error code	o_uErrId	Word [Unsigned]	0	Always 0

2.11 M+RD75_WriteFlash

Name

M+RD75_WriteFlash

FB details

Item	Description	
Overview	Writes parameters, positioning data, and block start data in the buffer memory to the flash ROM.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	33 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	By turning on i_bEN (Execution command), the setting data in the buffer memory is written to the flash ROM.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	
Timing chart of I/O signals		
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • Every input must be provided with a value for proper FB operation. • Before using this FB, check that PLC READY signal (Y0) is off. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).	

Error code

Error code	Description	Action
None	None	None

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.

■Output label

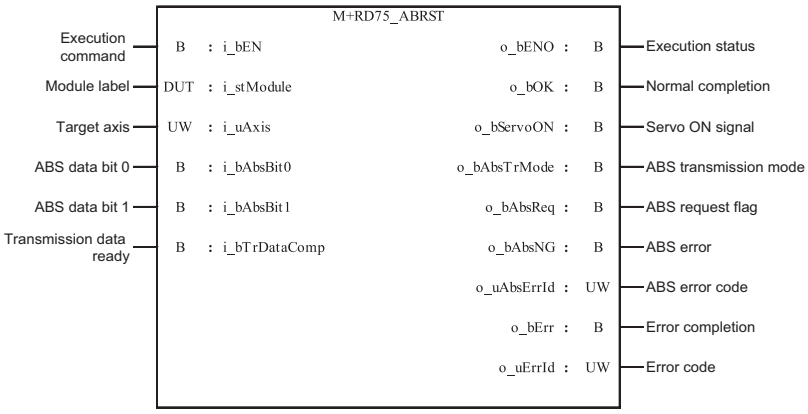
Name	Variable name	Data type	Default value	Description
Execution status	o_bENO	Bit	Off	On: The execution command is on. Off: The execution command is off.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that writing the setting data to the flash ROM has been completed.
Error completion	o_bErr	Bit	Off	Always off
Error code	o_uErrId	Word [Unsigned]	0	Always 0

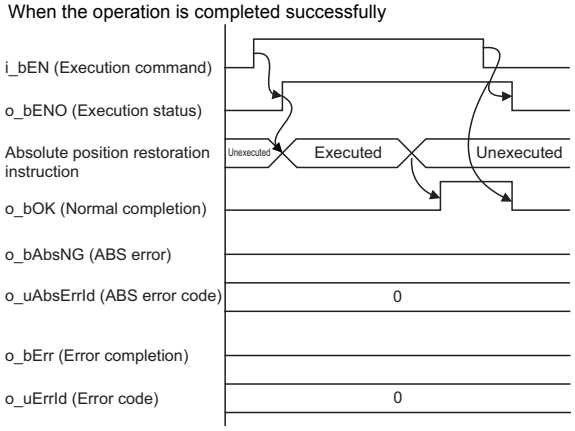
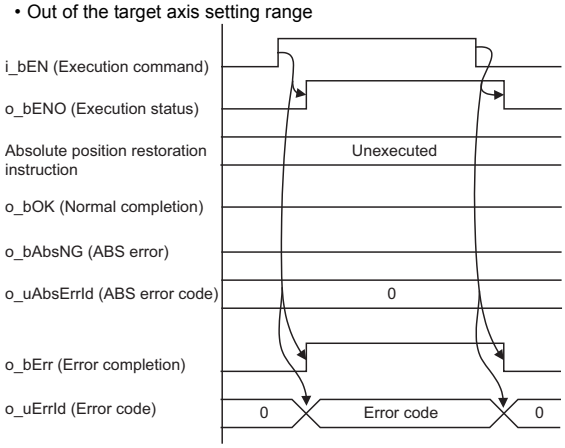
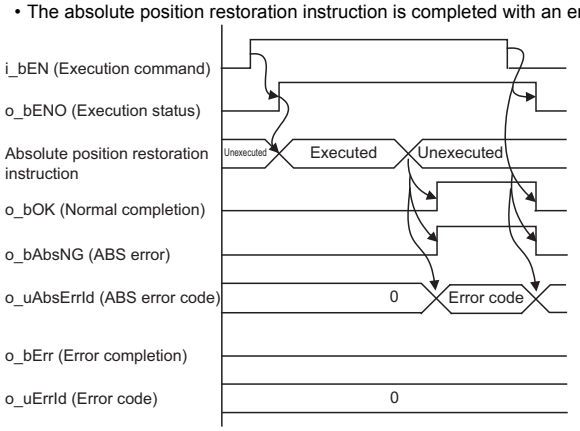
2.12 M+RD75_ABRST

Name

M+RD75_ABRST

FB details

Item	Description	
Overview	Restores the absolute position.	
Symbol		
Available device	Target module	RD75P2, RD75P4, RD75D2, RD75D4
	CPU module	MELSEC iQ-R series CPU modules
	Engineering tool	GX Works3
Language	Ladder diagram	
Number of basic steps	162 steps The number of steps of the FB in a program depends on the CPU model used and input and output definition.	
Processing	• By turning on i_bEN (Execution command), the absolute position is restored. • When the absolute position restoration is completed with an error, o_bAbsNG (ABS error) turns on and an error code is stored in o_uAbsErrId (ABS error code). For the error codes, refer to MELSEC iQ-R Positioning Module User's Manual (Application). • If the setting value of the target axis is out of the setting range, o_bErr (Error completion) turns on and the processing of this FB is interrupted. In addition, the error code 100 (hexadecimal) is stored in o_uErrId (Error code). For the error code, refer to the list of error codes.	
FB compilation method	Macro type	
FB operation	Pulse execution (multiple scan execution type)	

Item	Description
Timing chart of I/O signals	When the operation is completed successfully  When the operation is completed with an error • Out of the target axis setting range  • The absolute position restoration instruction is completed with an error 
Restrictions or precautions	• This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. • This FB cannot be used in an interrupt program. • Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). • When this FB is used twice or more, precaution must be taken to avoid duplication of the target axis. • Every input must be provided with a value for proper FB operation. • Before using this FB, check that PLC READY signal (Y0) is off. • When this FB is used, i_bEN (Execution command) is required to be on even after the absolute position restoration has been completed. • Do not turn off i_bEN (Execution command) during the absolute position restoration. If i_bEN (Execution command) is turned off before the absolute position restoration is completed, an error occurs when i_bEN (Execution command) is turned on, and the error 1861 (Dedicated instruction error) is stored in o_uAbsErrId (ABS error code). When the error 1861 (Dedicated instruction error) has occurred, reset the error and turn off and on i_bEN (Execution command) again. • To operate the RD75, the logics of the pulse output mode and external I/O signals are required to be set according to each device and system connected. Set the module parameter of GX Works3 according to the application. For the setting method of the module parameter, refer to MELSEC iQ-R Positioning Module User's Manual (Application).

Error code

Error code	Description	Action
100 (hexadecimal)	The set value of i_uAxis (Target axis) is out of the range. The target axis is not within the range of 1 to 4.	Try again after checking the setting.

Labels

■Input label

Name	Variable name	Data type	Range	Description
Execution command	i_bEN	Bit	On or 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 positioning module.
Target axis	i_uAxis	Word [Unsigned]	1 to 4	Specify the axis number.
ABS data bit 0	i_bAbsBit0	Bit	On or off	The lower bit of the data received from the servo amplifier
ABS data bit 1	i_bAbsBit1	Bit	On or off	The upper bit of the data received from the servo amplifier
ABS transmission data ready	i_bTrDataComp	Bit	On: Ready Off: In preparation	The ready signal from the servo amplifier

■Output label

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.
Normal completion	o_bOK	Bit	Off	When this label is on, it indicates that the absolute position restoration request has been completed.
Servo ON signal	o_bServoON	Bit	Off	Servo ON signal is on while this label is on.
ABS transmission mode	o_bAbsTrMode	Bit	Off	The servo amplifier is in the ABS transmission mode while this label is on.
ABS request flag	o_bAbsReq	Bit	Off	The ABS data is requested while this label is on.
ABS error	o_bAbsNG	Bit	Off	When this label is on, it indicates that the absolute position restoration has been completed with an error.
ABS error code	o_uAbsErrId	Word [Unsigned]	0	The error code of the absolute position restoration instruction is stored. For the error codes, refer to MELSEC iQ-R Positioning Module User's Manual (Application).
Error completion	o_bErr	Bit	Off	When this label is on, it indicates that an error has occurred in the FB.
Error code	o_uErrId	Word [Unsigned]	0	Stores the abnormal code generated in the FB.

MEMO

REVISIONS

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

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