

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [1 / 74]

[Issue No.]	SSC-A-0004-A
[Title]	Migration Guide from QD77MS Simple Motion Module to
	RD78G Motion Module (Simple Motion Mode)
[Date of Issue]	October 2021
[Relevant Models]	RD78G4, RD78G8, RD78G16,
	QD77MS2, QD77MS4, QD77MS16

Thank you for your continued support of Mitsubishi Electric servo system controllers. This technical bulletin provides precautions when migrating the existing system using QD77MS2/QD77MS4/QD77MS16 (hereinafter called QD77MS) to a new system using RD78G4/RD78G8/RD78G16 (hereinafter called RD78G).

The new system uses RD78G Simple Motion mode (hereinafter called RD78G(S)). RD78G(S) is a function that provides the same usability as the previous models (Simple Motion modules) when RD78G is used with MR-J5-G. This function is supported by RD78G4/RD78G8/RD78G16.



MELSEC-Q series modules, which do not have alternatives in the MELSEC iQ-R series, can be used by mounting them on the RQ extension base unit. When replacing the existing modules, the terminals and connectors may have to be changed. Refer to the "MELSEC iQ-R Module Configuration Manual" (SH-081262ENG) and the user's manual of the module for details.

The contents in this document are based on the product lines and the specifications of the modules and engineering software as of April 2021. The contents are subject to change without notice due to a product line expansion or a specification improvement. Please refer to the latest edition at the time of considering the migration.

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[Issue No.] SSC-A-0004-A

1. WHEN MIGRATING MR-J4 SERIES TO MR-J5 SERIES

Prepare modules, servo amplifiers, and an engineering environment according to the following tables in this chapter.

1.1. Correspondence Table for System Components

When using RD78G, use MELSEC iQ-R series compatible system components.

ltem			When using QD77MS	When using RD78G	
			Model	Model	
Main base unit			Q3_B	R3_B	
Power supply m			Q6_P	R6_P	
Extension base unit			Q6_B	R6_B	
Extension cable			QC_B	RC_B	
CPU module		PLC CPU	Q_CPU	R_CPU	
		C Controller	Q06CCPU-V, Q12DCCPU-V	-	
		module	Q24/26DHCCPU	-	
Simple Motion m	nodule/Motion module		QD77MS2	RD78G4 *1	
			QD77MS4	RD78G4	
		-	QD77MS16	RD78G16	
Input module	AC input	100 to 120 V AC	QX10(-TS)	RX10(-TS)	
		100 to 240 V AC	QX28	RX28	
	DC input	24 V DC	QX40(-S1)(-TS)	RX40C7(-TS)*2	
	(positive common)		QX41(-S1)	RX41C4 ^{*2}	
			QX42(-S1)	RX42C4 ^{*2}	
			QX41-S2	RX41C6HS*2	
	DC input	24 V DC	QX80(-TS)	RX40C7(-TS)*2	
	(negative common)		QX81	RX41C4 ^{*2}	
			QX82(-S1)	RX42C4 ^{*2}	
			QX81-S2	RX41C6HS*2	
	DC input	5/12 V DC	QX70	-	
	(positive/negative		QX71		
	common shared)		QX72		
	DC high-speed input	24 V DC	QX40H	RX40PC6H	
	(positive common)	5 V DC	QX70H	RX61C6HS*2	
	DC high-speed input	24 V DC	QX80H	RX40NC6H	
	(negative common)	5 V DC	QX90H	RX61C6HS*2	
	DC input/AC input	48 V DC/AC	QX50	-	
Output module	Relay output	24 V DC,	QY10(-TS)	RY10R2(-TS)	
		240 V AC	QY18A	RY18R2A	
	Triac output	100 to 240 V AC	QY22	RY20S6	
	Transistor output	12 to 24 V DC	QY40P(-TS)	RY40NT5P(-TS)	
	(sink type)		QY41P	RY41NT2P	
			QY42P	RY42NT2P	
			QY50	RY40NT5P	
		5 to 12 V DC	QY70	-	
			QY71	RY41NT2H	
	Transistor output	12 to 24 V DC	QY80(-TS)	RY40PT5P(-TS)	
	(source type)		QY81P	RY41PT1P	
			QY82P	RY42PT1P	
	Transistor high- speed output (sink type)	5 to 24 V DC	QY41H	RY41NT2H	
	(all points independent)	5 to 24 V DC	QY68A	-	

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ltem			When using QD77MS	When using RD78G		
			Model	Model		
I/O combined	DC input/transistor	Input: 24 V DC	QH42P	RH42C4NT2P		
module	output	Output: 12 to 24 V	QX41Y41P	-		
		DC	QX48Y57			
Interrupt module)		QI60	RX40C7 *2		
Analog input mo	odule	Voltage/current input	Q64AD(H)	R60AD(H)4		
		Voltage input	Q68ADV	R60ADV8		
		Current input	Q68ADI	R60ADI8		
Channel isolate	d analog input module	Voltage/current	Q64AD-GH	-		
		input	Q64ADH	R60AD8-G		
		Current input	Q62AD-DGH	-		
			Q66AD-DG	-		
Analog output m	nodule	Voltage/current	Q62DA(N)	R60DA4		
		output	Q64DA(N)			
			Q64DAH	R60DAH4		
		Voltage output	Q68DAV(N)	R60DAV8		
		Current output	Q68DAI(N)	R60DAI8		
Channel isolate	d analog output module	Voltage/current	Q62DA-FG	-		
		output	Q66DA-G	R60DA8-G		
Analog I/O mod	ule	Voltage and current input/output	Q64AD2DA	-		
External signal i	nput module		QD77MS	RX41C4		
INC synchronou	is encoder input module		QD77MS	RD62D2 (differential-input type		
Manual pulse generator input module			QD77MS	 2ch) *³ RD62P2 (DC input, 2ch) *³ RD62P2E (DC input, 2ch) *³ 		
Serial absolute synchronous encoder			Q171ENC-W8	- *4		
Manual pulse generator		MR-HDP01	MR-HDP01			
Servo system n	etwork cable		MR-J3BUS_	Ethernet cable		
-			MR-J3BUS_M-A	Category 5e or higher,		
			MR-J3BUS_M-B	(double shielded/STP)		
4. The second second				straight cable		

*1. The maximum number of control axes is increased from 2 to 4.

*2. This module is positive/negative common shared type.

*3. Connect this module to an external power supply separately.

*4. The encoder of HK-KT series servo motor can be used as a synchronous encoder when connected to MR-J5-_G-RJ.

Point *P*

- Select the power supply module after estimating the system current consumption.
- RD78G has larger current consumption than QD77MS, and therefore the number of modules connected per power supply module is fewer.
- If the current capacity of the power supply module becomes insufficient as a result of migration, separate the system by using the extension base unit (R6_B).
- Refer to the latest version of "Alternative model lists and project conversion procedure for the replacement of MELSEC-Q series models with MELSEC iQ-R series" (FA-A-0239) for details of the alternative models.

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1.2. Servo Amplifiers/Servo Motors/Servo System Network/Servo Motor Cables

The servo system network is changed from SSCNET III/H to CC-Link IE TSN.

Select a CC-Link IE TSN-compatible servo amplifier and servo motors/servo motor cables for the selected servo amplifier.

(1) Servo amplifiers/rotary servo motors/servo motor cables

	QD77MS			RD78G	
Servo amplifier			Servo amplifier		
MR-J4 series	MR-J4B MR-J4W2B MR-J4W3B MR-J4B-RJ	\rightarrow	MR-J5 series	MR-J5G MR-J5W2G MR-J5W3G MR-J5G-RJ	

	QD77MS			RD78G					
Rotary servo motor				Rotary servo motor					
Features	Capacity	Model	1	Features	Capacity	Model			
Ultra-compact size	Ultra-small capacity	HG-AK_		Ultra-compact size	Ultra-small capacity	-			
Ultra-low	Small capacity	HG-MR_	1	Ultra-low	Small capacity	-			
inertia	Medium capacity	HG-RR_	\rightarrow	inertia	Medium capacity	HK-RT_			
Low inertia	Small capacity	HG-KR_	1	Low inertia	Small capacity	НК-КТ_			
	Medium/large/ultra- large capacity	HG-JR_			Medium/large/ultra- large capacity	HK-KT_ HK-ST_*1			
Medium inertia	Medium capacity	HG-SR_	1	Medium inertia	Medium capacity	HK-ST_			
Flat type	Medium capacity	HG-UR_	1	Flat type	Medium capacity	-			

*1. The medium capacity range of HG-JR (3.3 kW to 5.0 kW) can be replaced with HK-ST_.

Rotary serv	vo motor		Servo amplifier power supply	0.0	D1 kW	0.	.1 kW			1 kV	v				10	kW	200 k
Ultra	MR-J4 series	HG-AK_	DC48 V/24 V		0.01 to 0.03 kW										i		
compact	MR-J5 series	N/A	-				ļ										!
	MR-J4 series	HG-MR_	200 V		i	0.05	to 0.75 I	kW							ī		i
	MR-J5 series	N/A	-														
Ultra-low inertia	MR-J4 series	HG-RR_	200 V		i		i				1 to	o 5 kW	1		i		i
	MR-J5 series	HK-RT_	200 V				!					1 to 7	kW		ļ		ļ
	MR-JD series	HK-RT_4	400 V								1 to 3.5	kW					l
	MR-J4 series	HG-KR_	200 V			0.05	to 0.75 I	kW									
		HK-KT_	200 V				0.0	5 to 2	kW						ľ		l
	MR-J5 series	HK-KT_4	200 V				1	0	.2 to 1	kW					ļ		ļ
	WR-JD series	HK-KT_	400 V			0.05 to 0.15	kV										
		HK-KT_4	400 V		l		I		0.4	to 2 kW					ļ		ļ
Low	MR-J4 series	HG-JR_	200 V				I				0.5	to 37	kW				i
inertia		нк-кт_	200 V		l		!		(0.6 to 2 kW							ļ
	MR-J5 series	HK-KT_4	200 V				I		(0.75 to 1 kW							I I
		HK-ST_	200 V				ļ					2.6 to	5 kW		I		ļ
	MR-J4 series	HG-JR_4	400 V		I		1					0.5 t	o 220 I	kW			
	MR-J5 series	HK-KT_4	400 V				I		(0.6 to 2 kW					ļ		!
	MR-Jo series	HK-ST_4	400 V				 				1	2.6 to	5 kW				
	MR-J4 series	HG-SR_	200 V				l			0.5	to 7 kW						i
	MR-J5 series	HK-ST_	200 V				 			0.5	to 7 kW						
Medium inertia	MR-JD series	HK-ST_4	200 V				i 🗌			0.3 to 4.2 k	W				Ì		i
in and a	MR-J4 series	HG-SR_4	400 V		I					0.5	to 7 kW				I		Ī
	MR-J5 series	HK-ST_4	400 V		[Ī			0.5 to 3.5	W				Ī		l
Flat type	MR-J4 series	HG-UR_	200 V		l		1			0.7	'5 to 5 k\	N			I		Ī
riat type	MR-J5 series	N/A	-		l		Ì				l III				I		l

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	QD	077MS				RD78G
MR-J4 series	Rotary servo motor	Encoder cable/connector		MR-J5 series	Rotary servo motor	Encoder cable/connector
	HG-RR_	MR-J3ENSCBL_M-H/L	→		HK-RT_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP2J20CBL03M-AL MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL MR-AENSCBL_M-H/L ^{*1} MR-AENSCBL_M-H/L ^{*1} MR-J3ENSCBL_M-H/L ^{*1}
	HG-KR_	MR-EKCBL_M-H/L MR-J3ENCBL_M-AH/L MR-J3ENSCBL_M-H/L MR-J3JCBL03M-AL MR-J3JSCBL03M-AL MR-ENECBL_M-H-MTH MR-ENE4CBL_M-H-MTH MR-J3ENSCBL_M-H/L			нк-кт_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP2J20CBL03M-AL
	HG-JR_				MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL	
	HG-SR_	MR-J3ENSCBL_M-H/L			HK-ST_	MR-AENSCBL_M-H/L MR-ENCNS2_ MR-J3ENSCBL_M-H/L MR-J3SCNS_

*1. This is used for HK-RT (3.5 kW to 7.0 kW).

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	(QD77MS		RD78G				
MR-J4 series	Rotary servo motor	Servo motor power cable/connector		MR-J5 series	Rotary servo motor	Servo motor power cable/connector		
	HG-RR_	MR-PWCNS1/2	→ 		HK-RT_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP81CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL MR-AEPB2J20CBL03M-AL MR-APWCNS5 ⁻¹		
	HG-KR_	MR-PWS1CBL_M-AH MR-PWS2CBL03M-AL MR-PWCNS3/4/5		-		НК-КТ_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP2J20CBL03M-AL MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL	
						MR-AEPB2J20CBL03M-AL		
	HG-SR_	MR-PWCNS3/4/5			HK-ST_	MR-APWCNS4/5		

*1. This is used for HK-RT (3.5 kW to 7.0 kW).

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		QD77MS				RD78G
MR-J4 series	Rotary servo motor	Electromagnetic brake cable/connector		MR-J5 series	Rotary servo motor	Electromagnetic brake cable/connector
	HG-RR_	*1	→		HK-RT_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L ^{'2} MR-AEP2CBL_M-AH/L ^{'2} MR-AEP2J10CBL03M-AL ^{'2} MR-AEP81CBL_M-AH/L MR-AEP82CBL_M-AH/L MR-AEP82J10CBL03M-AL MR-AEP82J20CBL03M-AL MR-AEP82J20CBL03M-AL MR-BKCNS1_' ³ MR-BKCNS2_' ³
	HG-KR_ HG-JR_	MR-BKS1CBL_M-AH/L MR-BKS2CBL03M-AL MR-BKCNS1/2			НК-КТ_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L ^{*2} MR-AEP2CBL_M-AH/L ^{*2} MR-AEP2J10CBL03M-AL ^{*2} MR-AEP2J20CBL03M-AL ^{*2} MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L
		MR-BKCNS1A/2A MR-BKCN				MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL
	HG-SR_	MR-BKCNS1/2 MR-BKCNS1A/2A			HK-ST_	MR-BKCNS1_ MR-BKCNS2_

*1. The power connector of HG-RR series has electromagnetic brake terminals.

*2. This cable does not include electromagnetic brake wires.

*3. This is used for HK-RT (3.5 kW to 7.0 kW).

Point *P*

The cable for the HK-KT series and the HK-RT series (1.0 kW to 2.0 kW) has a single connector combining the motor power supply, encoder, and electromagnetic brake.

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(2) Servo amplifiers/linear servo motors

	QD77MS			RD78G			
	Servo amplifier Linear servo motor			Servo amplifier		Linear servo motor	
MR-J4 series	MR-J4B MR-J4W2B MR-J4W3B	LM-H3_ LM-F_ LM-K2_ LM-U2_	\rightarrow	MR-J5 series	MR-J5G MR-J5W2G MR-J5W3G	LM-H3_ LM-F_ LM-K2_ LM-U2_	

(3) Servo amplifiers/direct drive motors

	QD77MS				RD78G	
	Servo amplifier Direct driv			:	Servo amplifier	Direct drive motor
MR-J4 series	MR-J4B MR-J4W2B MR-J4W3B	TM-RFM_ TM-RG2M_ TM-RU2M_	\rightarrow	MR-J5 series	MR-J5G MR-J5W2G MR-J5W3G	TM-RFM_ TM-RG2M_ TM-RU2M_

Point P

When configuring an absolute position detection system with the MR-J5 series and a direct drive motor, a battery (MR-BAT6V1SET or MR-BAT6V1SET-A) and an absolute position storage unit (MR-BTAS01) are required.

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(4) Comparison of servo system network

Item			CC-Línk IE TSN
Communication medium	Optical fiber cable		Ethernet cable Category 5e or higher, (double shielded/STP) straight cable
Communication speed	150 Mbps	\rightarrow	1 Gbps
Maximum distance between stations	[Standard code for inside panel and standard cable for outside panel] 20 m [Long distance cable] 100 m		100 m

1.3. Engineering Environment

Product name	Model	Version
MELSOFT GX Works3	SW1DND-GXW3-E	Ver.1.075D or later
Simple Motion module setting function (included in MELSOFT GX Works3)	-	Ver.1.165X or later
MELSOFT MR Configurator2 (included in MELSOFT GX Works3)	SW1DNC-MRC2-E	Ver.1.100E or later



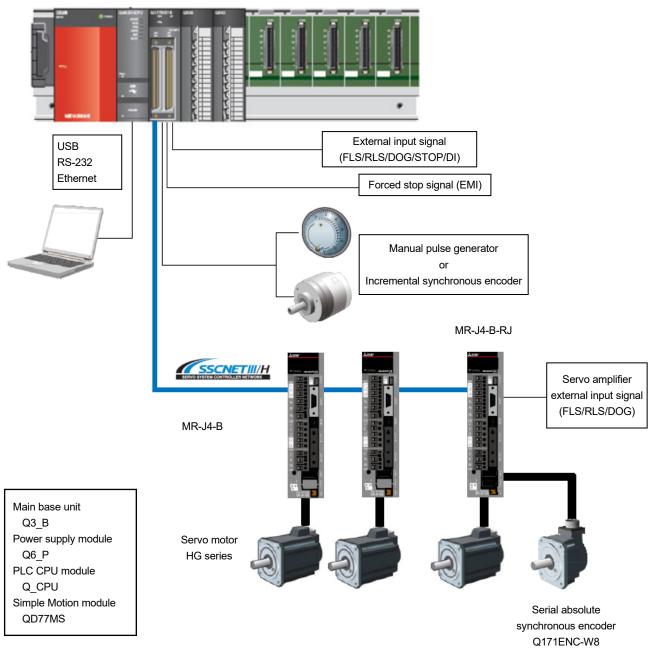
Supported servo amplifier functions and servo motor types vary by the version of MELSOFT MR Configurator2. Use the version which supports the devices to be used.

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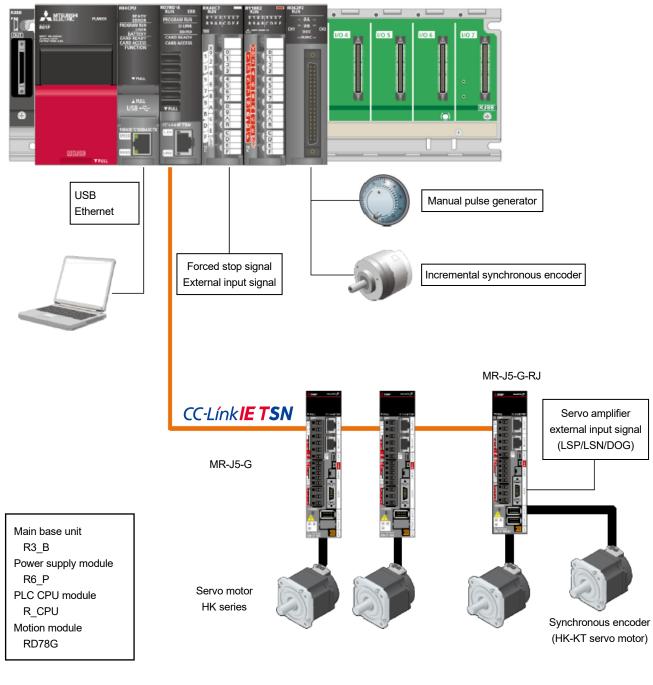
1.4. System Configuration

1.4.1. System configuration before migration (QD77MS and MR-J4 series)



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1.4.2. System configuration after migration (RD78G and MR-J5 series)

Point

When using an absolute position detection system, change [Pr. PC29.5 [AL. 0E3 Absolute position counter warning] selection] from [1: Enabled (initial value)] to [0: Disabled].

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2. WHEN MIGRATING MR-J3 SERIES TO MR-J5 SERIES

Prepare modules, servo amplifiers, and an engineering environment according to the following tables in this chapter.

2.1. Correspondence Table for System Components

When using RD78G, use MELSEC iQ-R series compatible system components.

ltem			When using QD77MS	When using RD78G
			Model	Model
Main base unit			Q3_B	R3_B
Power supply me	odule		Q6_P	R6_P
Extension base unit		Q6_B	R6_B	
Extension cable	Extension cable		QC_B	RC_B
CPU module		PLC CPU	Q_CPU	R_CPU
		C Controller	Q06CCPU-V, Q12DCCPU-V	-
		module	Q24/26DHCCPU	-
Simple Motion m	nodule		QD77MS2	RD78G4 *1
			QD77MS4	RD78G4
			QD77MS16	RD78G16
Input module	AC input	100 to 120 V AC	QX10(-TS)	RX10(-TS)
		100 to 240 V AC	QX28	RX28
	DC input	24 V DC	QX40(-S1)(-TS)	RX40C7(-TS)*2
	(positive common)		QX41(-S1)	RX41C4*2
			QX42(-S1)	RX42C4 *2
			QX41-S2	RX41C6HS*2
	DC input	24 V DC	QX80(-TS)	RX40C7(-TS)*2
	(negative common)		QX81	RX41C4*2
			QX82(-S1)	RX42C4 *2
			QX81-S2	RX41C6HS*2
	DC input	5/12 V DC	QX70	-
	(positive/negative		QX71	
	common shared)		QX72	
	DC high-speed input	24 V DC	QX40H	RX40PC6H
	(positive common)	5 V DC	QX70H	RX61C6HS ^{*2}
	DC high-speed input	24 V DC	QX80H	RX40NC6H
	(negative common)	5 V DC	QX90H	RX61C6HS*2
	DC input/AC input	48 V DC/AC	QX50	-
Output module	Relay output	24 V DC,	QY10(-TS)	RY10R2(-TS)
		240 V AC	QY18A	RY18R2A
	Triac output	100 to 240 V AC	QY22	RY20S6
	Transistor output	12 to 24 V DC	QY40P(-TS)	RY40NT5P(-TS)
	(sink type)		QY41P	RY41NT2P
			QY42P	RY42NT2P
			QY50	RY40NT5P
		5 to 12 V DC	QY70	-
			QY71	RY41NT2H
	Transistor output	12 to 24 V DC	QY80(-TS)	RY40PT5P(-TS)
	(source type)		QY81P	RY41PT1P
			QY82P	RY42PT1P
	Transistor high- speed output (sink type)	5 to 24 V DC	QY41H	RY41NT2H
	Transistor output (all points independent)	5 to 24 V DC	QY68A	-

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ltem			When using QD77MS	When using RD78G	
			Model	Model	
I/O combined	DC input/transistor	Input: 24 V DC	QH42P	RH42C4NT2P	
module	output	Output: 12 to 24 V	QX41Y41P	-	
		DC	QX48Y57		
Interrupt module)		Q160	RX40C7 *2	
Analog input mo		Voltage/current input	Q64AD(H)	R60AD(H)4	
		Voltage input	Q68ADV	R60ADV8	
		Current input	Q68ADI	R60ADI8	
Channel isolated	d analog input module	Voltage/current	Q64AD-GH	-	
		input	Q64ADH	R60AD8-G	
		Current input	Q62AD-DGH	-	
			Q66AD-DG	-	
Analog output m	nodule	Voltage/current	Q62DA(N)	R60DA4	
		output	Q64DA(N)		
			Q64DAH	R60DAH4	
		Voltage output	Q68DAV(N)	R60DAV8	
		Current output	Q68DAI(N)	R60DAI8	
Channel isolated	d analog output module	Voltage/current	Q62DA-FG	-	
		output	Q66DA-G	R60DA8-G	
Analog I/O mod	ule	Voltage and current input/output	Q64AD2DA	-	
External signal i	nput module		QD77MS	RX41C4	
INC synchronous encoder input module		QD77MS	RD62D2 (differential-input type, 2ch) *3		
Manual pulse generator input module		QD77MS	RD62P2 (DC input, 2ch)*3 RD62P2E (DC input, 2ch)*3		
Manual pulse ge	enerator		MR-HDP01	MR-HDP01	
Servo system ne	etwork cable		MR-J3BUS_	Ethernet cable	
			MR-J3BUS_M-A MR-J3BUS M-B	Category 5e or higher,	
				(double shielded/STP) straight cable	

*1. The maximum number of control axes is increased from 2 to 4.

*2. This module is positive/negative common shared type.

*3. Connect this module to an external power supply separately.

Point P

• Select the power supply module after estimating the system current consumption.

- RD78G has larger current consumption than QD77MS, and therefore the number of modules connected per power supply module is fewer.
- If the current capacity of the power supply module becomes insufficient as a result of migration, separate the system by using the extension base unit (R6_B).
- Refer to the latest version of "Alternative model lists and project conversion procedure for the replacement of MELSEC-Q series models with MELSEC iQ-R series" (FA-A-0239) for details of the alternative models.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [14 / 74]

[Issue No.] SSC-A-0004-A

2.2. Servo Amplifiers/Servo Motors/Servo System Network/Servo Motor Cables

The servo system network is changed from SSCNET III to CC-Link IE TSN.

Select a CC-Link IE TSN-compatible servo amplifier and servo motors/servo motor cables for the selected servo amplifier.

(1) Servo amplifiers/rotary servo motors/servo motor cables

	QD77MS			RD78G
	Servo amplifier			Servo amplifier
MR-J3 series	MR-J3B MR-J3WB MR-J3BS MR-J3B-RJ006	\rightarrow	MR-J5 series	MR-J5G MR-J5W2G MR-J5W3G MR-J5G-RJ

	QD77MS			RD78G			
	Rotary servo mo	tor			Rotary servo mo	tor	
Features	Capacity	Series		Features	Capacity	Series	
Ultra-low inertia	Small capacity	HF-MP_		Ultra-low inertia	Small capacity	-	
	Medium capacity	HC-RP_	1		Medium capacity	HK-RT_	
Low inertia	Small capacity	HF-KP_		Low inertia	Small capacity	НК-КТ_	
	Medium capacity	HC-LP_			Medium capacity	-	
	Medium/large capacity	HF-JP_			Medium/large capacity	HK-KT_ HK-ST_ ^{*1}	
		HA-LP_				-	
Medium inertia	Medium capacity	HF-SP_]	Medium inertia	Medium capacity	HK-ST_	
Flat type	Medium capacity	HC-UP_]	Flat type	Medium capacity	-	

*1. The medium capacity range of HF-JP (3.3 kW to 5.0 kW) can be replaced with HK-ST_.

	Rotary servo mot	or	Servo amplifier power supply	0.01 kW	0.1 kW		1 k	Ŵ			10 kW	70
	MR-J3 series	HF-MP_	200 V		0.05 to 0	.75 kW						
	MR-J5 series	N/A	-					1				
Jltra-Iow nertia	MR-J3 series	HC-RP_	200 V	i	i			1 to	5 kW		I	
lielua	MR-J5 series	HK-RT_	200 V	l	l				1 to 7 kW			
	MR-J5 series	HK-RT_4	400 V		l			1 to 3.5	kW			
	MR-J3 series	HF-KP_	200 V	I	0.05 to 0	.75 kW		ļ			!	
		HK-KT_	200 V			0.05 to 2	(W					
		HK-KT_4	200 V			0.3	2 to 1 kW					
	MR-J5 series	НК-КТ_	400 V	Ì	0.05 to 0.15 kW						1	
		HK-KT_4	400 V		i		0.4 to 2 kW	-				
	MR-J3 series	HC-LP_	200 V	i	i		0.5 to 3 kW	1			1	
	MR-J5 series	N/A	-									
	MR-J3 series	HF-JP_	200 V	1	1		0.5 to 2 kW		3.3 to 9	kW	11 to 15 kW	
ow inertia		НК-КТ_	200 V		ļ		0.6 to 2 kW					
	MR-J5 series	HK-KT_4	200 V				0.75 to 1 kW					
		HK-ST_	200 V	1	T I			1	2.6 to 5 kW		1	
	MR-J3 series	HF-JP_4	400 V	1			0.5 to 2 kW		3.3 to 9	kW	11 to 15 kW	
		HK-KT_4	400 V	ļ			0.6 to 2 kW					
	MR-J5 series	HK-ST_4	400 V	1				1	2.6 to 5 kW			
			200 V					1			5 to 37 kW	
	MR-J3 series	HA-LP_	400 V	1	[[6 to 55 kW	
	MR-J5 series	N/A	-		1							
	MR-J3 series	HF-SP_	200 V		I		0.	.5 to 7 kW			i	
		HK-ST_	200 V	l I	Ĭ		0.	.5 to 7 kW				
ledium nertia	MR-J5 series	HK-ST_4	200 V				0.3 to 4.2	kW				
Iciua	MR-J3 series	HF-SP_4	400 V	i	i		0.	.5 to 7 kW			1	
	MR-J5 series	HK-ST_4	400 V		1		0.5 to 3.5	kW				
1	MR-J3 series	HC-UP_	200 V				0.	75 to 5 kW	1			
lat type	MR-J5 series	N/A	-	1	1			i			l	

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [15 / 74]

[Issue No.] SSC-A-0004-A

		QD77MS			I	RD78G
MR-J3 series	Rotary servo motor	Encoder cable/connector		MR-J5 series	Rotary servo motor	Encoder cable/connector
	HC-RP_	MR-J3ENSCBL_M-H/L MR-J3SCNS_	→		HK-RT_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP2J20CBL03M-AL MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL MR-AENSCBL_M-H/L ^{*1} MR-AENSCBL_M-H/L ^{*1} MR-J3ENSCBL_M-H/L ^{*1}
	HF-KP_	MR-EKCBL_M-H/L MR-J3ENCBL_M-AH/L MR-J3ENSCBL_M-H/L MR-J3JCBL03M-AL MR-J3JSCBL03M-AL MR-J3SCNS			НК-КТ_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP2J20CBL03M-AL
	HF-JP_	MR-ENECNS MR-ENECBL_M-H MR-J3ENSCBL_M-H/L MR-J3SCNS_				MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL
	HF-SP_	MR-J3ENSCBL_M-H/L MR-J3SCNS_			HK-ST_	MR-AENSCBL_M-H/L MR-ENCNS2_ MR-J3ENSCBL_M-H/L MR-J3SCNS_

*1. This is used for HK-RT (3.5 kW to 7.0 kW).

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [16 / 74]

[Issue No.] SSC-A-0004-A

	(QD77MS			i	RD78G
MR-J3 series	Rotary servo motor	Servo motor power cable/connector		MR-J5 series	Rotary servo motor	Servo motor power cable/connector
	HC-RP_	MR-PWCNS1/2	_ →		HK-RT_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL MR-AEPB2J20CBL03M-AL MR-APWCNS5 ¹¹
	HF-KP_ HF-JP_	MR-PWS1CBL_M-AH/L MR-PWS2CBL03M-AL MR-PWCNS3/4/5			НК-КТ_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L MR-AEP2CBL_M-AH/L MR-AEP2J10CBL03M-AL MR-AEP2J20CBL03M-AL MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL
	HF-SP_	MR-PWCNS3/4/5			HK-ST_	MR-APWCNS4/5

*1. This is used for HK-RT (3.5 kW to 7.0 kW).

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [17 / 74]

[Issue No.] SSC-A-0004-A

		QD77MS			I	RD78G
MR-J3 series	Rotary servo motor	Electromagnetic brake cable/connector		MR-J5 series	Rotary servo motor	Electromagnetic brake cable/connector
	HC-RP_	-			HK-RT_	MR-AEKCBL_M-H/L MR-AENSCBL_M-H/L MR-AEP1CBL_M-AH/L ^{*1} MR-AEP2CBL_M-AH/L ^{*1} MR-AEP2J10CBL03M-AL ^{*1} MR-AEP2J20CBL03M-AL ^{*1} MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL MR-BKCNS1_ ^{*2} MR-BKCNS2_ ^{*2}
	HF-KP_	MR-BKS1CBL_M-AH/L MR-BKS2CBL03M-AL MR-BKCNS1_ MR-BKCN	_		НК-КТ_	MR-AEKCBL_M-H/L MR-AEPSCBL_M-H/L MR-AEP1CBL_M-AH/L ^{*1} MR-AEP2CBL_M-AH/L ^{*1} MR-AEP2J10CBL03M-AL ^{*1} MR-AEP2J20CBL03M-AL ^{*1} MR-AEPB1CBL_M-AH/L MR-AEPB2CBL_M-AH/L MR-AEPB2J10CBL03M-AL MR-AEPB2J20CBL03M-AL
	HF-SP_	MR-BKCNS1_	-		HK-ST_	MR-BKCNS1_ MR-BKCNS2_

*1. This cable does not include electromagnetic brake wires.

*2. This is used for HK-RT (3.5 kW to 7.0 kW).

Point *P*

The cable for the HK-KT series and the HK-RT series (1.0 kW to 2.0 kW) has a single connector combining the motor power supply, encoder, and electromagnetic brake.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [18 / 74]

[Issue No.] SSC-A-0004-A

(2) Servo amplifiers/linear servo motors

	QD77MS				RD78G	
	Servo amplifier	Linear servo motor		S	Servo amplifier	Linear servo motor
MR-J3 series	MR-J3B-RJ004	LM-H2_ LM-F_ LM-K2_ LM-U2_	\rightarrow	MR-J5 series	MR-J5G MR-J5W2G MR-J5W3G	LM-H3_ LM-F_ LM-K2_ LM-U2_

(3) Servo amplifiers/direct drive motors

	QD77MS			RD78G			
	Servo amplifier	Direct drive motor			Servo amplifier	Direct drive motor	
MR-J3 series	MR-J3B-RJ080W	TM-RFM_	\rightarrow	MR-J5 series	MR-J5G MR-J5W2G MR-J5W3G	TM-RFM_	

Point **P**

When configuring an absolute position detection system with the MR-J5 series and a direct drive motor, a battery (MR-BAT6V1SET or MR-BAT6V1SET-A) and an absolute position storage unit (MR-BTAS01) are required.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [19 / 74]

[Issue No.] SSC-A-0004-A

(4) Comparison of servo system network

Item			CC-Línk IE TSN
Communication medium	Optical fiber cable		Ethernet cable Category 5e or higher, (double shielded/STP) straight cable
Communication speed	50 Mbps	\rightarrow	1 Gbps
Maximum distance between stations	[Standard code for inside panel and standard cable for outside panel] 20 m [Long distance cable] 50 m		100 m

2.3. Engineering Environment

The engineering environment that supports RD78G(S) is as follows.

Product name	Model	Version
MELSOFT GX Works3	SW1DND-GXW3-E	Ver.1.075D or later
Simple Motion module setting function (included in MELSOFT GX Works3)	-	Ver.1.165X or later
MELSOFT MR Configurator2 (included in MELSOFT GX Works3)	SW1DNC-MRC2-E	Ver.1.100E or later

Point *P*

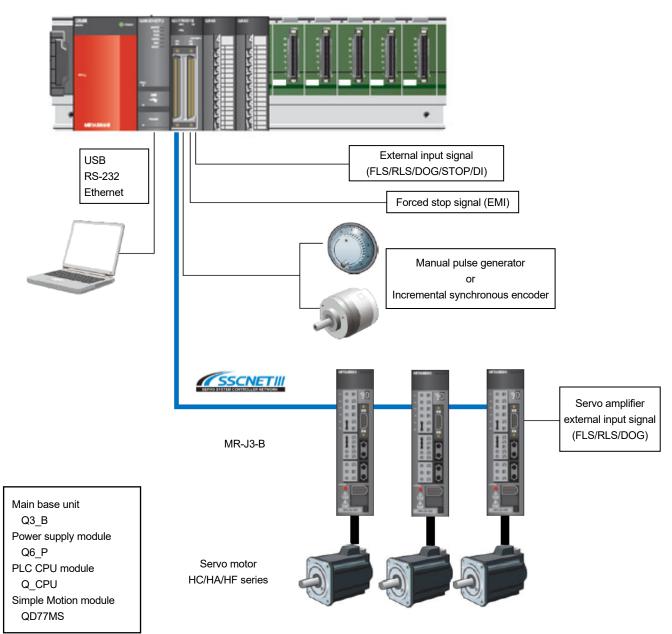
Supported servo amplifier functions and servo motor types vary by the version of MELSOFT MR Configurator2. Use the version which supports the devices to be used.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [20 / 74]

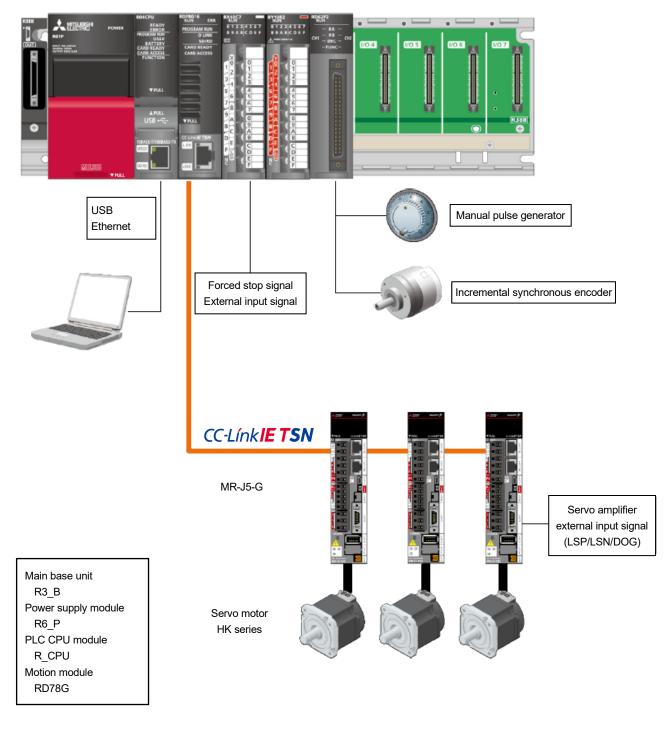
[Issue No.] SSC-A-0004-A

2.4. System Configuration

2.4.1. System configuration before migration (QD77MS and MR-J3 series)



[Issue No.] SSC-A-0004-A



2.4.2. System configuration after migration (RD78G and MR-J5 series)

Point

When using an absolute position detection system, change [Pr. PC29.5 [AL. 0E3 Absolute position counter warning] selection] from [1: Enabled (initial value)] to [0: Disabled].

[Issue No.] SSC-A-0004-A

3. DIFFERENCES BETWEEN QD77MS AND RD78G

3.1. Performance Specifications

Item		QD77MS		RD7	8G(S)	Points for migration	
	QD77MS2	QD77MS4	QD77MS16	RD78G4(S)	RD78G16(S)	, J	
Maximum number	2	4	16	4	16		
of control axes			-		-		
Network	SSCNET III			CC-Linl	(IE TSN		
		SSCNET III/I	4				
Buffer memory	:	×	0	-	-		
assignment							
compatibility							
Operation cycle	(0.88 ms/1.77 r	ns	0.25 ms/0.5	0 ms/1.00 ms		
					/4.00 ms		
Number of		Up to 64		- 1	to 32		
applicable					can be controlled		
modules					e CPU.)		
Machine home		5 types			уре	Set the parameters related to	
position return		og method, co		(driver home posit	tion return method)	home position return with the	
function		od2, data set i				positioning control parameters	
Llama position	nome positi	on signal dete	cuon method)		×	(PT) of servo parameters. To use this function, set	
Home position return retry		0			*	PC19.0 ([AL. 099 Stroke limit	
return retry						warning] selection]) to "1:	
						Disabled".	
Home position shift	ne position shift o ×		×	Set this function with the			
rionio poolion onin					positioning control parameters		
						(PT) of servo parameters.	
Speed-position	[Cd.45]		[Cd.45]		• The signal is fetched at		
switching control	Speed-posit	ion switching	device	Speed-position sw	itching device	operation cycle.	
-	selection	-		selection	-		
		external comn			al command signal		
	for switc position	hing from spe	ed control to	for switching fr to position con	om speed control		
		proximity dog	signal for	cycle accuracy			
		g from speed		1: Use the proxim	ity dog signal for		
	position				speed control to		
		. 46] Speed-p g command" f		position contro 2: Use "[Cd. 46] S			
		ed control to		switching com	mand" for		
	control.				speed control to		
—				position contro			
Torque limit		1 % unit		-	6 unit		
Motor rotation speed		0.1 r/min uni	C	0.01 M	min unit		
Forced stop	0 [.] Valid (e	external input)		_			
	1: Invalid			1: Invalid			
		ouffer memory)	2: Valid (buffer memory)			
Speed change		er memory, bu	,		external signal of		
-		•		-	amplifier		
Skip	Buffe	er memory, bu	ilt-in DI	Buffer memory,	external signal of		
				servo a	amplifier		
Servo parameter	Transm	nission during	initialized	Parameter tran	smission during	When changing servo	
operation		cation, transm			mmunication,	parameters during RUN time,	
		ADY is turned		•	ng with specified	use the servo transient	
	wri	ting, 2-word w	riting	size, parameter w	riting with specified	transmission function.	
				s	ze		

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [23 / 74]

[Issue No.] SSC-A-0004-A

Item	QD77MS		RD	78G(S)	Points for migration	
	QD77MS2	QD77MS4	QD77MS16	RD78G4(S)	RD78G16(S)	
Servo parameter management	Managed by a Simple Motion module (possible to change using the buffer memory) PA, PB, PC, PD, PE, PS, PF, Po, PL, PT			PU module/a servo he parameters are		
			parameters changed by a servo amplifier is baked up. The backup is performed periodically following the setting of [Pr. PN20 Parameter automatic backup update interval].)			
External input		Module	5,		-	
signal setting	serve	o amplifier (F buffer mer	,		(LSP, LSN, DOG), memory	
Amplifier-less operation		0			×	Use the virtual servo amplifier function as an alternative.
Servo amplifier command value error check function	0				×	
Error history		0		×		Check the error/warning
Warning history	0			×	histories with the event history of the CPU module	
Error code Warning code	MELSEC-Q series code system		MELSEC iQ-R s	series code system		
Mark detection	4 s	ettings	16 settings	16 s	ettings	
Mark detection accuracy	10 us (built-in DI)		Opera	tion cycle		
Driver communication		0			×	
Changing the cam axis length per cycle		×			0	
Servo input axis	2 axes	4 axe	es 16 axes	4 axes	16 axes	
Command generation axis	2 axes	4 axe		4 axes	8 axes	
Number of synchronous encoder axes		4 axes		4 axes	16 axes	
Synchronous encoder axis type	Built-in, vi	a a CPU or a	a servo amplifier	Via a CPU or	a servo amplifier	
Synchronous encoder axis start	Buff	er memory,	built-in DI	servo	, external signal of amplifier	
Clutch smoothing	0: Direct 1: Time constant method (Exponent) 2: Time constant method (Linear) 3: Slippage method (Exponent) 4: Slippage method (Linear)			3: Slippage me 4: Slippage me	nt method (Linear) ethod (Exponent) ethod (Linear) ethod (Linear: Input	

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [24 / 74]

[Issue No.] SSC-A-0004-A

Item		QD77MS		RD78	RD78G(S)	
	QD77MS2	QD77MS4	QD77MS16	RD78G4(S)	RD78G16(S)	_
Clutch	2: Clutch 3: Clutch 4: Addres 5: High sp OFF control 0: OFF co 1: One-sh 2: Clutch 3: Clutch 4: Addres	ch command ON command lea command trai s mode beed input req mode ontrol invalid tot OFF command lea command trai	ding edge ing edge uest ding edge ing edge	3: Clutch comma 4: Address mode 5: High speed in (operation cyc OFF control mode 0: OFF control ir 1: One-shot OFF 2: Clutch comma	and leading edge and trailing edge e uput request cle accuracy) nvalid = and leading edge and trailing edge e put request	The signal is fetched at the operation cycle for "5: The high speed input request".
Dedicated instruction		 (1 to 4 axes) 	only)		×	Use the module FB as an alternative.

3.2. Replacement of I/O Signals and Buffer Memory 3.2.1. Two-axis/Four-axis module

(1) I/O signal

I/O	signal	Change/revision
QD77MS2/QD77MS4	RD78G4(S)	- Change/revision
"Synchronization flag"	"Synchronization flag"	Create an interlock in the program that allows access to the
(X1)	(X1)	buffer memory after the synchronization flag [X1] is turned
		on.
"BUSY"	"BUSY"	Change the device No.
(XC, XD, XE, XF)	(X10 to X13)	
"M code ON"	"[Md.31] Status"	Change the input signals to PLC CPU (device X) in the
"Error detection"	(2417+100n)	program to the indicated buffer memory.
"Start complete"	· b12: M code ON	
"Positioning complete"	 b13: Error detection 	
(X4 to X7, X8 to XB, X10 to X13,	 b14: Start complete 	
X14 to X17)	b15: Positioning complete	
"Axis stop"	"[Cd.180] Axis stop"	Change the output signals from PLC CPU (device Y) in the
(Y4 to Y7)	(30100+10n)	program to the indicated buffer memory.
"Forward run JOG start"	"[Cd.181] Forward run JOG start"	
(Y8, YA, YC, YE)	(30101+10n)	
"Reverse run JOG start"	"[Cd.182] Reverse run JOG start"	
(Y9, YB, YD, YF)	(30102+10n)	
"Execution prohibition flag"	"[Cd.183] Execution prohibition	
(Y14 to Y17)	flag"	
	(30103+10n)	

n: Axis No. -1

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [25 / 74]

[Issue No.] SSC-A-0004-A

(2) Parameter area

Buffer me		Change/revision	
QD77MS2/QD77MS4	RD78G4(S)		
[Pr.22] Input signal logic selection" 31+150n)	"[Pr.22] Input signal logic selection" (31+150n)	Refer to 3.2.1.(1) for details.	
[Pr.89] Manual pulse generator/Incremental synchronous encoder input type selection". 67)	-	The manual pulse generator/incremental synchronous encoder input type selection function has been removed.	
[Pr.24] Manual pulse lenerator/incremental synchronous incoder input selection" 33)	-	The manual pulse generator/incremental synchronous encoder input selection function has been removed.	
[Pr.43] Home position return method" [70+150n) [Pr.46] Home position return speed" (74+150n, 75+150n) [Pr.51] Home position return acceleration time selection" (82+150n) [Pr.52] Home position return deceleration time selection" (83+150n) [Pr.47] Creep speed" (76+150n, 77+150n)	"[Pr.43] Home position return method" (70+150n) "[Pr.46] Home position return speed" (74+150n, 75+150n) "[Pr.51] Home position return acceleration time selection" (82+150n) "[Pr.52] Home position return deceleration time selection" (83+150n) -	 The settings of these parameters are as follows because the servo system network has been changed to CC-Link IE TSN. Home position return method Briver home position return method Home position return speed The high-speed home position return is executed with the home position return speed. Home position return acceleration time selection and home position return deceleration time selection These parameters are valid only when the high-speed home position return is executed. The settings of these parameters are not necessary because only "8: Driver home position return method" is 	
 [Pr.48] Home position return retry" [Pr.48] Home position return retry" [Pr.50] Setting for the movement amount fiter proximity dog ON" 80+150n, 81+150n) [Pr.53] Home position shift mount" 84+150n, 85+150n) [Pr.54] Home position return prograe limit value" 83+150n) 	-	selectable for "[Pr.43] Home position return method".	
Pr.56] Speed designation during ome position shift" 38+150n) Pr.57] Dwell time during home osition return retry" 39+150n)	-		
[Pr.97] SSCNET setting" 106)	-	The setting of this parameter is not necessary because the servo system network has been changed to CC-Link IE TSN.	
[Pr.82] Forced stop valid/invalid election" 35) [Pr.87] Pulso convorsion unit:	"[Pr.82] Forced stop valid/invalid selection" (35)	The setting value "0: Valid (external input signal)" has beer removed in RD78G(S). Refer to the description of "[Pr.82] Forced stop valid/invalid selection" for details.	
Pr.87] Pulse conversion unit: Vaiting time after clear signal utput" 91+150n) [Pr.86] Pulse conversion unit: lome position return request etting"	-	The waiting time after the pulse conversion unit clear signal output function has been removed. The pulse conversion unit home position return request setting function has been removed.	

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [26 / 74]

[Issue No.] SSC-A-0004-A

Buffer me	emory No.	Change/revision	
QD77MS2/QD77MS4	RD78G4(S)	Change/revision	
"[Pr.80] External input signal selection" (32+150n)	"[Pr.116] FLS signal selection" "[Pr.117] RLS signal selection" "[Pr.118] DOG signal selection" "[Pr.119] STOP signal selection" (116+150n, 117+150n, 118+150n, 119+150n)	Refer to 3.2.1.(1) for details.	
"[Pr.17] Torque limit setting value" (26+150n)	"[Pr.17] Torque limit setting value" (26+150n)	The unit for the torque limit value has been changed. Multiply the setting value by 10. QD77MS: [%] RD78G(S): [0.1 %] In addition, the initial value has been changed. QD77MS: 300 [%] RD78G(S): 3000 [0.1 %] [Example] 100 % ("100" is set in the buffer memory.) \rightarrow 100.0 % (set "1000" in the buffer memory.)	
"[Pr.90] Operation setting for speed-torque control mode" (68+150n)	"[Pr.90] Operation setting for speed-torque control mode" (68+150n)	 The setting value "b12 to b15: Condition selection at mode switching" has been changed as follows. O: Check the switching conditions in Simple Motion module. 1: According to the servo amplifier specification [Additional information] When this parameter is set to "0: Check the switching conditions in Simple Motion module.", and the mode switching condition is not satisfied, a warning occurs and the mode switching is disabled. When this parameter is set to "1: According to the servo amplifier specification", the mode switching condition is not satisfied. When this parameter is set to "1: According to the servo amplifier specification", the mode switching condition is judged following the parameter [PC76] of the servo amplifier (refer to [PC76] of the servo amplifier.). [When switching the control mode without waiting for the motor stop] Set "b12 to b15: Condition selection at mode switching" of "[Pr.90] Operation setting for speed-torque control mode" to "1: According to the servo amplifier specification". Set "ZSP disabled selection at control switching" of "Function selection C-E (PC76)" to "Disabled". * With the setting above, note that the mode switching may exercise discussion. 	
"[Pr.91] Optional data monitor: Data type setting 1" (100+150n)	"[Pr.91] Optional data monitor: Data type setting 1" (100+150n) "[Pr.591] Optional data monitor: Data type expansion setting 1" (92+150n)	cause vibrations and shock. Set the index of the corresponding object of the slave device in "Optional data monitor: Data type setting". Set the sub index and size of the corresponding object of the slave device in "Optional data monitor: Data type expansion setting".	
"[Pr.92] Optional data monitor: Data type setting 2" (101+150n)	"[Pr.92] Optional data monitor: Data type setting 2" (101+150n) "[Pr.592] Optional data monitor: Data type expansion setting 2" (93+150n)	Refer to the manuals of the slave devices to be used for details.	
"[Pr.93] Optional data monitor: Data type setting 3" (102+150n)	"[Pr.93] Optional data monitor: Data type setting 3" (102+150n) "[Pr.593] Optional data monitor: Data type expansion setting 3" (94+150n)	-	

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [27 / 74]

[Issue No.] SSC-A-0004-A

Buffer me	emory No.	Change/muision
QD77MS2/QD77MS4	RD78G4(S)	Change/revision
"[Pr.94] Optional data monitor: Data type setting 4" (103+150n)	"[Pr.94] Optional data monitor: Data type setting 4" (103+150n) "[Pr.594] Optional data monitor: Data type expansion setting 4" (95+150n)	
"[Pr.114] External command signal compensation valid/invalid setting" (114)	-	The external command signal compensation valid/invalid setting function has been removed. (Always valid)
"[Pr.96] Operation cycle setting" (147)	-	In RD78G(S), the operation cycle is set as the network communication cycle. The following shows the settable communication cycle. Communications cycle: 0.25 ms 0.5 ms 1 ms 2 ms 4 ms
"[Pr.100] Connected device" (30100+200n)	"[Pr.141] IP address (the third and fourth octets), (the first and second octets)" (58024+150n, 58025+150n) "[Pr.142] Multidrop number" (58028+150n)	 The setting has been changed as follows because the servo system network has been changed to CC-Link IE TSN. The setting of "[Pr.100] Connected device" is not necessary. Set "[Pr.141] IP address" and "[Pr.142] Multidrop number". [Additional information] "[Pr.141] IP address": the IP address of the real servo amplifier to be used "[Pr.142] Multidrop number": the identification No. for each servo motor connected to a multi-axis servo amplifier

n: Axis No. -1

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [28 / 74]

[Issue No.] SSC-A-0004-A

(3) Monitor data area

Buffer me	emory No.	Change/revision	
QD77MS2/QD77MS4	RD78G4(S)		
"[Md.35] Torque limit stored value/forward torque limit stored value" (826+100n)	"[Md.35] Torque limit stored value/forward torque limit stored value" (2426+100n)	 This monitor data has been changed as follows (1) Note that the unit for the torque limit value has been changed. QD77MS: [%] RD78G(S): [0.1 %] [Example] 100 % ("100" is set in the buffer memory.) → 100.0 % (set "1000" in the buffer memory.) (2) "[Pr.54] Home position return torque limit value" is not stored. (3) "[Pr.17] Torque limit setting value" or "[Cd.101] Torque output setting value" is not stored when a home position 	
		return is executed.	
"[Md.120] Reverse torque limit	"[Md.120] Reverse torque limit	This monitor data has been changed as follows	
(891+100n)	stored value" (2491+100n)	 "[Pr.54] Home position return torque limit value" is not stored. "[Pr.17] Torque limit setting value" or "[Cd.101] Torque output setting value" is not stored when a home position return is executed. 	
"[Md.103] Motor rotation speed" (854+100n, 855+100n)	"[Md.103] Motor rotation speed" (2454+100n, 2455+100n)	Note that the unit for the motor rotation speed has been changed. QD77MS: [0.1 r/min] RD78G(S): [0.01 r/min] [Example] 60.0 r/min ("6000" is stored in the buffer memory.) → 60.00 r/min ("6000" is stored in the buffer memory.) [Additional information] The unit is "pulse/s" when the servo parameter PT01.1 (speed/acceleration/deceleration unit selection) is set to "1 Command unit/s". (The same applies to linear servo motors.)	
"[Md.107] Parameter error No." (870+100n)	-	The parameter error No. monitor function has been removed.	
"[Md.109] Regenerative load ratio/Optional data monitor output 1" (878+100n)	"[Md.109] Regenerative load ratio/Optional data monitor output 1" (2478+100n)	 The monitor data has been changed as follows. The contents set in "[Pr.91] Optional data monitor: Data type setting 1" and "[Pr.591] Optional data monitor: Data type expansion setting 1" are stored. 	
'[Md.110] Effective load orque/Optional data monitor output 2" (879+100n)	"[Md.110] Effective load torque/Optional data monitor output 2" (2479+100n)	 This monitor data has been changed as follows The contents set in "[Pr.92] Optional data monitor: Data type setting 2" and "[Pr.592] Optional data monitor: Data type expansion setting 2" are stored. 	
'[Md.111] Peak torque 'atio/Optional data monitor output 3" '880+100n)	"[Md.111] Peak torque ratio/Optional data monitor output 3" (2480+100n)	 This monitor data has been changed as follows The contents set in "[Pr.93] Optional data monitor: Data type setting 3" and "[Pr.593] Optional data monitor: Data type expansion setting 3" are stored. 	
[Md.112] Optional data monitor output 4" 881+100n)	"[Md.112] Optional data monitor output 4" (2481+100n)	This monitor data has been changed as follows • The contents set in "[Pr.94] Optional data monitor: Data type setting 4" and "[Pr.594] Optional data monitor: Data type expansion setting 4" are stored.	
'[Md.502] Driver operation alarm No." (59302+100n)	-	The driver alarm No. monitor function has been removed because the driver communication function has been removed.	

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[Issue No.] SSC-A-0004-A

Buffer me	emory No.	
QD77MS2/QD77MS4	RD78G4(S)	Change/revision
The axis monitor data other than above (800+100n to 899+100n)	The axis monitor data other than above (2400+100n to 2499+100n)	Change the buffer memory address by adding 1600.
"[Md.8] Start history pointer" (1292) "[Md.3] Start information" "[Md.4] Start No." "[Md.5] Start Day: hour" "[Md.6] Start Minute: second" "[Md.7] Error judgment" "[Md.54] Start Year: month" (1212+5p, 1213+5p, 1214+5p 1215+5p, 1216+5p, 1440+1p)	"[Md.8] Start history pointer" (87000) "[Md.3] Start information" "[Md.4] Start No." "[Md.5] Start Day: hour" "[Md.6] Start Minute: second" "[Md.7] Error judgment" "[Md.54] Start Year: month" (87010+10p, 87011+10p, 87013+10p, 87014+10p, 87016+10p, 87012+10p)	 (1) Change the buffer memory address. (2) The storage range has been changed since the number of records has been expanded from 16 to 64. QD77MS: 0 to 15 RD78G(S): 0 to 63
"[Md.51] Amplifier-less operation mode status" (1432)	-	The amplifier-less operation mode status has been removed in RD78G(S). Use the virtual servo amplifier.
"[Md.53] SSCNET control status" (1433)	-	The SSCNET control status monitor function has been removed because the servo system network has been changed to CC-Link IE TSN.
"[Md.52] Communication between amplifiers axes searching flag" (1434)	-	The communication between amplifiers axes searching flag monitor function has been removed because the driver communication function has been removed.
"[Md.132] Operation cycle setting" (1438)	"[Md.132] Operation cycle setting" (4238)	In RD78G(S), the operation cycle is set as the network communication cycle. The following shows the settable communication cycle. Communications cycle: 0.25 ms 0.5 ms 1 ms 2 ms 4 ms
Error history/warning history (1293 to 1422, 1456 to 1487, 31300 to 31331)	-	The error and warning histories have been integrated into the event history. A buffer memory address is not assigned to the event history.
The system monitor data other than above (1200 to 1499)	The system monitor data other than above (4000 to 4299)	Change the buffer memory address by adding 2800.

p: Point No. -1

n: Axis No. -1

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [30 / 74]

[Issue No.] SSC-A-0004-A

(4) Control data area

	emory No.	Change/revision
QD77MS2/QD77MS4	RD78G4(S)	
"[Cd.13] Positioning operation speed override" (1513+100n)	"[Cd.13] Positioning operation speed override" (4313+100n)	This control data has been changed as follows.Setting range:0 to 300 [%]When "0" is set, no warning occurs after the speed becomes zero and the speed change 0 flag turns on.The override function is invalid during the driver home
		position return.
"[Cd.14] New speed value" (1514+100n, 1515+100n)	"[Cd.14] New speed value" (4314+100n, 4315+100n)	The speed change function is invalid during the driver home position return.
"[Cd.22] New torque value/	"[Cd.22] New torque value/	The unit for the torque limit value has been changed.
forward new torque value" (1525+100n)	forward new torque value" (4325+100n)	Multiply the setting value by 10. QD77MS: [%]
"[Cd.101] Torque output setting value"	"[Cd.101] Torque output setting value"	RD78G(S): [0.1 %] [Example]
(1552+100n)	(4352+100n)	100 % ("100" is set in the buffer memory.)
"[Cd.113] New reverse torque value"	"[Cd.113] New reverse torque value"	\rightarrow 100.0 % (set "1000" in the buffer memory.)
(1564+100n)	(4364+100n)	
-	"[Cd.43] Simultaneous starting axis" (4368+100n, 4369+100n)	Refer to 3.2.1.(2) for details.
[Cd.30] Simultaneous starting axis	"[Cd.30]	
start data No. (axis 1 start data	Simultaneous starting own axis	
No.)"	start data No."	
(1540+100n)	(4340+100n)	
"[Cd.31] Simultaneous starting axis	"[Cd.31]	
start data No. (axis 2 start data	Simultaneous starting axis start	
No.)"	data No.1	
(1541+100n)	(4341+100n)	
"[Cd.32] Simultaneous starting axis	"[Cd.32]	
start data No. (axis 3 start data	Simultaneous starting axis start data No.2	
No.)" (1542+100n)	(4342+100n)	
[Cd.33] Simultaneous starting axis	"[Cd.33]	
start data No. (axis 4 start data	Simultaneous starting axis start	
No.)"	data No.3	
(1543+100n)	(4343+100n)	
[Cd.130] Servo parameter write	-	When changing servo parameters with RD78G(S), use the
request"		servo transient transmission function.
(1554+100n)		
'[Cd.131] Parameter No. (settings	-	
or servo parameters to be		
changed)"		
(1555+100n)		_
"[Cd.132] Change data"	-	
(1556+100n, 1557+100n)		The endly method and a first the second seco
"[Cd.147] Speed limit value at	"[Cd.147] Speed limit value at	The setting value varies as follows depending on the setting
continuous operation to torque	continuous operation to torque control mode"	value of [Pr. 1].
control mode" (1586+100n, 1587+100n)	(4386+100n, 4387+100n)	0: mm 0 to 200000000 (× 10 ⁻² mm/min) 1: inch 0 to 2000000000 (× 10 ⁻³ inch/min)
$(1000 \pm 1001), 1007 \pm 10011)$	(+500+1001, 4507+1001)	2: degree 0 to 2000000000 (× 10° incrimin)
		3: pulse 0 to 1000000000 (x 10 degree/min)
The axis control data other than	The axis control data other than	Change the buffer memory address by adding 2800.
above	above	
(1500+100n to 1599+100n)	(4300+100n to 4399+100n)	

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[Issue No.] SSC-A-0004-A

Buffer memory No.		Change/revision
QD77MS2/QD77MS4	RD78G4(S)	- Change/revision
"[Cd.47] QD75MH initial value setting request" (1909)	-	The QD75MH initial value setting function has been removed.
"[Cd.137] Amplifier-less operation mode switching request" (1926)	-	The amplifier-less operation mode has been removed in RD78G(S). Use the virtual servo amplifier.
"[Cd.102] SSCNET control command" (1932)	-	The SSCNET control command function has been removed because the servo system network has been changed to CC-Link IE TSN.
The system control data other than	The system control data other than	Change the buffer memory address by adding 4000.
above	above	
(1900 to 1999)	(5900 to 5999)	

(5) Positioning data area

Buffer m	emory No.	Change/revision
QD77MS2/QD77MS4	RD78G4(S)	Change/revision
[Da.5] Axis to be interpolated (2000+6000n, 2010+6000n,, 2990+6000n)	"[Da.20] Axis to be interpolated No.1" "[Da.21] Axis to be interpolated No.2" "[Da.22] Axis to be interpolated No.3" (71000+1000n,71001+1000n,, 71990+1000n, 71991+1000n)	Refer to 3.2.1.(3) for details.
The positioning data other than	The positioning data other than	Change the buffer memory address.
above (2000+6000n to 2999+6000n)	above (6000+1000n to 6999+1000n)	
Positioning data No. 101 to 600 (3000+6000n to 7999+6000n)	Positioning data No. 101 to 600 (200000+5000n to 204999+5000n)	Change the buffer memory address.
[Da.16] Condition operator (26100+1000n,, 26390+1000n)	[Da.16] Condition operator (22100+400n,, 22390+400n)	Refer to 3.2.1.(2) for details.
[Da.18] Parameter 1 (26104+1000n, 26105+1000n,, 26394+1000n, 26395+1000n)	[Da.18] Parameter 1 (22104+400n, 22105+400n,, 22394+4000n, 22395+400n)	
[Da.19] Parameter 2 (26106+1000n, 26107+1000n,, 26396+1000n, 26397+1000n)	[Da.19] Parameter 2 (22106+400n, 22107+400n,, 22396+400n, 22397+400n)	
-	[Da.23] Number of simultaneous starting axes [Da.24] Simultaneous starting axis No.1	
	[Da.25] Simultaneous starting axis No.2 [Da.26] Simultaneous starting axis	
	No.3 (22108+400n, 22109+400n,, 22398+400n, 22399+400n)	
The block start data other than above (26000+1000n to 26397+1000n)	The block start data other than above (22000+400n to 22397+400n)	Change the buffer memory address.
Block start data No.2 to 4 (26400+1000n to 26997+1000n)	Block start data No.2 to 4 (36000+600n to 360599+600n)	Change the buffer memory address.

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(6) Servo parameter area

Buffer	memory No.	Change/revision
QD77MS2/QD77MS4	RD78G4(S)	Change/revision
PA01 to PA18		RD78G(S) does not support the servo parameter writing
(30101+200n to 30118+200n)	-	from the buffer memory.
PA19		Set the parameters with the engineering tool.
(30932+50n)	-	
PA20 to PA32		
(64400+250n to 64412+250n)	-	
PB01 to PB45		
(30119+200n to 30163+200n)	-	
PB46 to PB64		
(64413+250n to 64431+250n)	-	
PC01 to PC32		
(30164+200n to 30195+200n)	-	
PC33 to PC64		
(64432+250n to 64463+250n)	-	
PD01 to PD32		
(30196+200n to 30227+200n)	-	
PD33 to PD48		
(64464+250n to 64479+250n)	-	
PE01 to PE40		
(30228+200n to 30267+200n)	-	
PE41 to PE64		
(64480+250n to 64503+250n)	-	
PS01 to PS32		
(30268+200n to 30299+200n)	-	
PF01 to PF16		
(30900+50n to 30915+50n)	-	
PF17 to PF48		
(64504+250n to 64535+250n)	-	
Po01 to Po16		
(30916+50n to 30931+50n)	-	
Po17 to Po32		
(64536+250n to 64551+250n)	-	
PL01 to PL48		
(64552+250n to 64599+250n)	-	
PT01 to PT48		
(64600+250n to 64647+250n)	-	

n: Axis No. -1

(7) Synchronous control area

Buffer m	emory No.	Change/revision					
QD77MS2/QD77MS4	RD78G4(S)	Changenevision					
"[Pr.320] Synchronous encoder axis type" (34720+20i)	"[Pr.320] Synchronous encoder axis type" (34720+20j)	The setting value "1: Incremental synchronous encoder" has been removed.					

j: Synchronous encoder axis No. -1

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[Issue No.] SSC-A-0004-A

(8) Mark detection area

Buffer n	nemory No.	Change/revision
QD77MS2/QD77MS4	RD78G4(S)	Change/revision
"[Pr.800] Mark detection signal setting" (54000+20k)	"[Pr.800] Mark detection signal setting" (54000+20k)	Set "[Pr.95] External command signal selection" together with this parameter. [Setting example] When [Pr.95] of axis 4 is set to "101: Axis 1 Dog signal" and [Pr.800] is set to "4: Axis 4 external command signal [DI]", the mark detection is executed using the DOG signal of the servo amplifier connecting axis 1.

k: Mark detection setting No. -1

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [34 / 74]

[Issue No.] SSC-A-0004-A

(1) External input signals of Simple Motion modules

This section explains the replacement method for external input signals.

The replacement method for FLS/RLS/DOG/STOP signals varies depending on the setting values in "[Pr.80] External input signal selection" of QD77MS_.

The DI signal must be replaced regardless of the setting values in "[Pr.80] External input signal selection" of QD77MS_.

(a) Replacement of FLS/RLS/DOG/STOP

There has been no change in the setting value of the external input signal logic.

- 1. When "[Pr.80] External input signal selection" is set to "0: External input signal of QD77MS"
 - → The external input signals of Simple Motion modules are not available in RD78G(S). Replace the external signal setting with either of the following cases.
 - (1) Using the external input signal of the servo amplifier (STOP signal cannot be set.)

Axis No.	Parameter (buffer memory)	Setting value
	[Pr.116] FLS signal selection (116+150n)	0001H
Axis 1 to Axis 4	[Pr.117] RLS signal selection (117+150n)	0001H
	[Pr.118] DOG signal selection (118+150n)	0001H

(2) Using the buffer memory of RD78G(S)

Axis No.	Parameter (buffer memory)	Setting value
	[Pr.116] FLS signal selection (116+150n)	0002H
Axis 1 to Axis 4	[Pr.117] RLS signal selection (117+150n)	0002H
AXIS I IO AXIS 4	[Pr.118] DOG signal selection (118+150n)	0002H
	[Pr.119] STOP signal selection (119+150n)	0002H

2. When "[Pr.80] External input signal selection" is set to "1: External input signal of servo amplifier" → Set the signals as shown in the table below. STOP signal cannot be set.

Axis No.	Parameter (buffer memory)	Setting value
	[Pr.116] FLS signal selection (116+150n)	0001H
Axis 1 to Axis 4	[Pr.117] RLS signal selection (117+150n)	0001H
	[Pr.118] DOG signal selection (118+150n)	0001H

3. When "[Pr.80] External input signal selection" is set to "2: Buffer memory of QD77MS" \rightarrow Set the signals as shown in the table below.

	Axis No. Parameter (buffer memory)							
	Axis 1 to Axis 4	[Pr.116] FLS signal selection (116+150n)	0002H					
		[Pr.117] RLS signal selection (117+150n)	0002H					
		[Pr.118] DOG signal selection (118+150n)	0002H					
		[Pr.119] STOP signal selection (119+150n)	0002H					

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(b) Replacement of DI signal

The DI signal is not available in RD78G(S).

Therefore, assign DOG signals as shown in the table below.

Parameter (buffer memory)	Setting value	Description				
	0	The external command signal is not used.				
	101: Dog signal of axis1	The DOG signal of axis 1 is used as an external				
		command signal.				
[Pr.95] External command signal	102: Dog signal of axis 2	The DOG signal of axis 2 is used as an external				
selection		command signal.				
(69+150n)	103: Dog signal of axis 3	The DOG signal of axis 3 is used as an external				
		command signal.				
	104: Dog signal of axis 4	The DOG signal of axis 4 is used as an external				
		command signal.				

(2) Simultaneous start

(a) Replacement of simultaneous start by block start

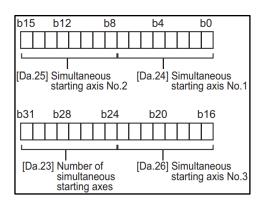
In QD77MS, the target axes for simultaneous start are set with "[Da.16] Condition operator". In RD78G(S), the target axes are set with "[Da.23] Number of simultaneous starting axes", "[Da.24] Simultaneous starting axis No.1", "[Da.25] Simultaneous starting axis No.2", and "[Da.26] Simultaneous starting axis No.3".

			Simultaneous starting axis												
		Axis 1	Axis 2	Axis 3	Axis 4	Axis 1 Axis 2	Axis 1 Axis 3	Axis 2 Axis 3	Axis 1 Axis 4	Axis 2 Axis 4	Axis 3 Axis 4	Axis 1 Axis 2 Axis 3	Axis 1 Axis 2 Axis 4	Axis 1 Axis 3 Axis 4	Axis 2 Axis 3 Axis 4
QD77MS	[Da.16] Condition operator (26100+1000n b8 to 15)	10H	20H	40H	80H	30H	50H	60H	90H	A0H	СОН	70H	B0H	D0H	E0H

	[Da.23] Number of simultaneous starting		2			3						4				
	axes (22108+400n b24 to b31)	-					J						-			
RD78G(S)	[Da.24] Simultaneous starting axis No.1 (22108+400n b0 to b7)	00H	01H	02H	03H	00H	00H	01H	00H	01H	02H	00H	00H	00H	01H	
RD	[Da.25] Simultaneous starting axis No.2 (22108+400n b8 to b15)		01H	02H	02H	03H	03H	03H	01H	01H	02H	02H				
	[Da.26] Simultaneous starting axis No.3 (22108+400n b16 to b23)			<u>.</u>		<u>.</u>		<u>.</u>	02H	03H	03H	03H				

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Set the positioning data with "[Da.18] Parameter 1" and "[Da.19] Parameter 2" for the simultaneous starting axes specified with "[Da.24] Simultaneous starting axis No.1", "[Da.25] Simultaneous starting axis No.2", and "[Da.26] Simultaneous starting axis No.3".

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[Issue No.] SSC-A-0004-A

(b) Replacement of simultaneous start by multi-axis simultaneous start control (positioning start No. 9004)

 How to specify the target axis No. for simultaneous start In QD77MS, the target axes for simultaneous start are indirectly specified by setting the start data No. (positioning data No. for each of the simultaneous starting axes). In RD78G(S), set the axis No. directly with "[Cd.43] Simultaneous starting axis".

• How to set the start data No.

In QD77MS, the buffer memory address of the start data No. is fixed by axis No. In RD78G(S), the start data No. is set with the following parameters.

•The start data No. of the own axis

"[Cd.30] Simultaneous starting own axis start data No."

- The start data No. of the target axis 1 to 3
 - "[Cd.31] Simultaneous starting axis start data No.1"
 - "[Cd.32] Simultaneous starting axis start data No.2"
 - "[Cd.33] Simultaneous starting axis start data No.3".

2-axis simultaneous start (the following shows some specific examples.)

			Simultaneous	start patterns	;
			Axis 1 Axis 3 n = 0	Axis 1 Axis 4 n = 0	Axis 2 Axis 4 n = 1
	[Cd.30] Simultaneous starting axis start data No. (axis 1 start data No.) (1540+100n)	Own axis	Own axis	Own axis	0
2D77MS	[Cd.31] Simultaneous starting axis start data No. (axis 2 start data No.) (1541+100n)	Target axis	0	0	Own axis
QD7	[Cd.32] Simultaneous starting axis start data No. (axis 3 start data No.) (1542+100n)	0	Target axis	0	0
	[Cd.33] Simultaneous starting axis start data No. (axis 4 start data No.) (1543+100n)	0	0	Target axis	Target axis
				Ļ	
	[Cd.43] Simultaneous starting axis (4368+100n, 4469+100n)	0200H 0001H	0200H 0002H	0200H 0003H	0200H 0003H
RD78G(S)	(0) [Cd.30] [Cd.30] Simultaneous starting own axis start data No. (4340+100n)		Own axis st	art data No.	
R	[Cd.31] Simultaneous starting axis start data No.1 (4341+100n)	Simultaneous starting axis start data No.			

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[Issue No.] SSC-A-0004-A

			Simulta	neous start	patterns	
			Axis 1 Axis 3 Axis 4 n = 0	Axis 2 Axis 3 Axis 4 n = 1	Axis 2 Axis 3 Axis 4 n = 2	Axis 2 Axis 3 Axis 4 n = 3
	[Cd.30] Simultaneous starting axis start data No. (axis 1 start data No.) (1540+100n)	Own axis	Own axis	0	0	0
QD77MS	[Cd.31] Simultaneous starting axis start data No. (axis 2 start data No.) (1541+100n)	Target axis 1	0	Own axis	Target axis 1	Target axis 1
QD7	[Cd.32] Simultaneous starting axis start data No. (axis 3 start data No.) (1542+100n)	Target axis 2	Target axis 1	Target axis 1	Own axis	Target axis 2
	[Cd.33] Simultaneous starting axis start data No. (axis 4 start data No.) (1543+100n)	0	Target axis 2	Target axis 2	Target axis 2	Own axis
				Ļ		
	[Cd.43] Simultaneous starting axis (4368+100n, 4469+100n)	0300H 0201H	0300H 0302H	0300H 0302H	0300H 0301H	0300H 0201H
(S)	Image: Cd.30] Simultaneous starting own axis start data No. Image: Cd.30] Simultaneous starting own axis start data No. Image: Cd.31] Image: Cd.31] Image: Cd.31] Simultaneous starting axis start data No.1 Image: Cd.31] Simultaneous starting axis start data No.1 Image: Cd.31+100n) Image: Cd.31+100n		Own axis start data No.			
RD78G			Simultaneous starting axis start data No.1			
	[Cd.32] Simultaneous starting axis start data No.2 (4342+100n)	Si	multaneous	starting axis	start data No	o.2

3-axis simultaneous start (the following shows some specific examples.)

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4-axis simultaneous start

4-axis	4-axis simultaneous start					
			Simultaneous	start patterns	5	
			Axis 1 Axis 2 Axis 3 Axis 4 n = 1	Axis 1 Axis 2 Axis 3 Axis 4 n = 2	Axis 1 Axis 2 Axis 3 Axis 4 n = 3	
	[Cd.30] Simultaneous starting axis start data No. (axis 1 start data No.) (1540+100n)	n = 0 Own axis	Target axis 1	Target axis 1	Target axis 1	
QD77MS	[Cd.31] Simultaneous starting axis start data No. (axis 2 start data No.) (1541+100n)	Target axis 1	Own axis	Target axis 2	Target axis 2	
QD7	[Cd.32] Simultaneous starting axis start data No. (axis 3 start data No.) (1542+100n)	Target axis 2	Target axis 2	Own axis	Target axis 3	
	[Cd.33] Simultaneous starting axis start data No. (axis 4 start data No.) (1543+100n)	Target axis 3	Target axis 3	Target axis 3	Own axis	
				Ļ		
	[Cd.43] Simultaneous starting axis (4368+100n, 4469+100n)	0403H 0201H	0403H 0200H	0403H 0100H	0402H 0100H	
	[Cd.30] Simultaneous starting own axis start data No. (4340+100n)		Own axis start data No.			
078G(S)	Image: Optimized startImage: Opti		Simultaneous starting axis start data No.1			
R			ltaneous startin	ıg axis start dat	a No.2	
	[Cd.33] Simultaneous starting axis start data No.3 (4343+100n)	Simu	ltaneous startin	g axis start dat	a No.3	

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[Issue No.] SSC-A-0004-A

(3) Interpolation control replacement

(a) 2-axis interpolation control replacement

Set "[Da.20] Axis to be interpolated No.1" of RD78G(S) according to the values currently set in "[Da.5] Axis to be interpolated" of QD77MS.

			Interpolatio	on axis No.	
		Axis 1	Axis 2	Axis 3	Axis 4
QD77MS	[Da.5] Axis to be interpolated (2000+6000n b2,b3)	00	01	10	11
			ļ	Ļ	
RD78G(S)	[Da.20] Axis to be interpolated No.1 (71000+1000n b0 to b7)	00H	01H	02H	03H

(b) 3-axis, 4-axis interpolation control replacement

In QD77MS, the axes to be interpolated are fixed by the reference axis.

In RD78G(S), set the axes to be interpolated with "[Da.20] Axis to be interpolated No.1", "[Da.21] Axis to be interpolated No.2", and "[Da.22] Axis to be interpolated No.3".

		Interpolation control settings								
		Reference axis No.	Axis 1	Axis 2	Axis 3	Axis 4	Axis 1	Axis 2	Axis 3	Axis 4
		Interpolation axis No.	Axis 2 Axis 3	Axis 3 Axis 4	Axis 4 Axis 1	Axis 1 Axis 2	Axis 2 Axis 3 Axis 4	Axis 3 Axis 4 Axis 1	Axis 4 Axis 1 Axis 2	Axis 1 Axis 2 Axis 3
QD77MS	[Da.2] Control method (2000+6000n b8 to b15)		3-axis linear interpolation control 3-axis fixed-feed control 3-axis speed control				4-axis linear interpolationcontrol4-axis fixed-feed control4-axis speed control			ו
							Ļ			
	[Da.2] Contro (6000+1000)		3-axis linear interpolation control 3-axis fixed-feed control			4-axis linear interpolation control 4-axis fixed-feed control				
	3-axis speed control					4-axis	speed co	ontrol		
RD78G(S)	[Da.20] Axis to be interpolated No.1 (71000+1000n b0 to b7)		01H	02H	03H	00H	01H	02H	03H	00H
	[Da.21] Axis to be interpolated No.2 (71000+1000n b8 to b15)		02H	03H	00H	01H	02H	03H	00H	01H
	[Da.22] Axis to be interpolated No.3 (71000+1000n b16 to b23)			-			03H	00H	01H	02H

(c) Monitoring of axes to be interpolated

The axes to be interpolated specified in (a) and (b) can be monitored with "[Md.47] Positioning data being executed".

"[Da.20] Axis to be interpolated $1" \rightarrow$ "[Md.47] Positioning data being executed" (2496 + 100n b0 to b7)

"[Da.21] Axis to be interpolated 2" \rightarrow "[Md.47] Positioning data being executed" (2496 + 100n b8 to b15)

"[Da.22] Axis to be interpolated $3" \rightarrow$ "[Md.47] Positioning data being executed" (2497 + 100n b0 to b7)

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3.2.2. 16-axis module

(1) I/O signal

I/O signal		Change/revision
QD77MS16	RD78G16(S)	Change/revision
"Synchronization flag"	"Synchronization flag"	Create an interlock in the program that allows access to the
(X1)	(X1)	buffer memory after the synchronization flag [X1] is turned
		on.

(2) Parameter area

CD77MS16 R07821[pnut signal logic selection" "[Pr.22] Input signal logic selection" Refer to 3.2.2.(1) for details. (31+150n) "[Pr.23] Manual pulse - generator/incremental synchronous encoder input type selection". - The manual pulse generator/incremental synchronous encoder input selection (67) - The manual pulse generator/incremental synchronous encoder input selection" - (7) - The settings of these parameters are as follows the servo system network has been changed to TSN. "[Pr.43] Home position return method" "[Pr.46] Home position return speed" The settings of these parameters are as follows the servo system network has been changed to TSN. "[Pr.46] Home position return speed" [Pr.46] Home position return acceleration time selection" 62/test fon, 72+150n) "[Pr.51] Home position return deceleration time selection" [22+150n] "Home position return method" the home position return method" "[Pr.48] Home position return deceleration time selection" - The settings of these parameters are not necess the home position return method "[Pr.51] Home position return deceleration time selection" [22+150n] "Home position return method" "[Pr.52] Home position return deceleration time selection" - The settings of these parameters	Buffer memory No.		Change/revision		
(31+150n) (31+150n) "[Pr.89] Manual pulse generator/incremental synchronous encoder input type selection". - The manual pulse generator/incremental synchronous encoder input type selection function has been remoenceder input selection. (37) "[Pr.43] Home position return method" - The manual pulse generator/incremental synchronous encoder input selection function has been remoenceder input selection. (30) "[Pr.43] Home position return method" - The settings of these parameters are as follows the servo system network has been changed to TSN. (70+150n) (70+150n) "[Pr.46] Home position return method" - (72+150n) "[Pr.47] Home position return acceleration time selection" - (82+150n) "[Pr.52] Home position return acceleration time selection" - (82+150n) "[Pr.42] Home position return deceleration time selection" - (82+150n) "[Pr.42] Home position return deceleration time selection" - (82+150n) "[Pr.43] Home position return method" - (76+150n) - - - "[Pr.43] Home position return terty" - - - (76+150n) - - - - "[Pr.43] Home position return mety" - -	QD77MS16	RD78G16(S)	Change/revision		
generator/Incremental synchronous encoder input type selection*. encoder input type selection function has been in encoder input selection*. (7) "Pr.24] Manual pulse generator/incremental synchronous encoder input selection" - (3) "Pr.43] Home position return method" The settings of these parameters are as follows the servo system network has been changed to TSN. (70+150n) "(Pr.46] Home position return speed" The settings of these parameters are as follows the servo system network has been changed to TSN. (74+150n) "(Pr.47] Home position return acceleration time selection" - (82+150n) "(Pr.51] Home position return acceleration time selection" - (82+150n) "(Pr.52] Home position return acceleration time selection" - (82+150n) "(Pr.52] Home position return acceleration time selection" - (82+150n) "(Pr.52] Home position return deceleration time selection" - (83+150n) - The settings of these parameters are not necess because only "8: Driver home position return met because only "8: Driver home position return selectable for "[Pr.43] Home position return met because only "8: Driver home position return selectable for "[Pr.43] Home position re			Refer to 3.2.2.(1) for details.		
ancoder input type selection". - (7) - </td <td>'[Pr.89] Manual pulse</td> <td>-</td> <td>The manual pulse generator/incremental synchronous</td>	'[Pr.89] Manual pulse	-	The manual pulse generator/incremental synchronous		
generator/incremental synchronous encoder input selection function has been remonance input selection function has been remonance input selection 33) "(Pr.43) Home position return method" The settings of these parameters are as follows the serve system network has been changed to TSN. 170+150n) (70+150n) "(Pr.46) Home position return speed" The settings of these parameters are as follows the serve system network has been changed to TSN. 170+150n) (70+150n, 75+150n) "Home position return method setting" 170+151 mem position return speed "Home position return method setting" 170+150n) (70+150n, 75+150n) "Home position return method setting" 170+150n) "IPr.52] Home position return acceleration time selection" "Home position return method setting settings of these parameters are valid only when the ishome position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver home position return method settings of these parameters are not necessary because only "8: Driver h	encoder input type selection". (67)		encoder input type selection function has been removed.		
method"method" (70+150n)the servo system network has been changed to TSN.[Pr.46] Home position return speed""[Pr.46] Home position return speed"· Home position return method 8: Driver home position return method 9: Driver home pos	generator/incremental synchronous encoder input selection"	-	The manual pulse generator/incremental synchronous encoder input selection function has been removed.		
(70+150n) (70+150n) TSN. [Pr.46] Home position return speed" "[Pr.46] Home position return speed" * Home position return method speed" (74+150n) (74+150n) * Home position return speed [Pr.51] Home position return acceleration time selection" "[Pr.52] Home position return acceleration time selection" * Home position return speed [Br.52] Home position return acceleration time selection" "[Pr.52] Home position return deceleration time selection" * Home position return deceleration time selection [Br.52] Home position return "[Pr.52] Home position return * Home position return deceleration time selection" [Br.47] Creep speed" - The settings of these parameters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are valid only when the 1 home position return meters are	[Pr.43] Home position return	"[Pr.43] Home position return	The settings of these parameters are as follows because		
[Pr.46] Home position return speed" "[Pr.46] Home position return speed" "[Pr.46] Home position return speed" Home position return method (74+150n) (74+150n, 75+150n) Home position return method Bit Driver home position return method (82+150n) "[Pr.51] Home position return acceleration time selection" Bit Pirs 51] Home position return acceleration time selection" (82+150n) "[Pr.52] Home position return decleration time selection" "Home position return acceleration time selection" (82+150n) "[Pr.52] Home position return decleration time selection" Home position return acceleration time selection" (82+150n) "[Pr.51] Home position return tessecuted." The settings of these parameters are valid only when the home position return mets (Pr.47] Creep speed" - The settings of these parameters are valid only when the home position return mets (Pr.48] Home position return retry" - - (Pr.48] Home position return mets - (Pr.48] Home position return mets - (Pr.48] Home position shift amount" - (Pr.50] Ston garation shift amount" - (Pr.54] Home position return orque limit value" - (Pr.57] Dwell time during home position return retry" (89+150n) - (Pr.57] SSCNET setting" (106)<	nethod"	method"	the servo system network has been changed to CC-Link II		
speed" Speed"<	(70+150n)	(70+150n)	TSN.		
74+150n)(74+150n, 75+150n)· Home position return speed The high-speed home position return is exceleration time selection" (82+150n)· Home position return speed The high-speed home position return is exceleration time selection" (82+150n)(7F.52) Home position return deceleration time selection" (83+150n)"(Pr.52) Home position return deceleration time selection" (83+150n)· Home position return acceleration time selection me position return deceleration time selection" (83+150n)(7F.42) Creep speed" (7F.45) Home position return retry" (78+150n, 77+150n)-The settings of these parameters are not necess: because only "8: Driver home position return met selectable for "[Pr.43] Home position return met (Pr.54] Home position shift amount" (84+150n, 85+150n)-[Pr.56] Speed designation during nome position shift" (88+150n)-[Pr.57] Dwell time during home position return retry" (89+150n)-[Pr.57] SocNET setting" (106)-	[Pr.46] Home position return	"[Pr.46] Home position return	Home position return method		
[Pr.51] Home position return acceleration time selection" "[Pr.51] Home position return acceleration time selection" The high-speed home position return speed. (B2+150n) "[Pr.52] Home position return deceleration time selection" Home position return acceleration time selection (B2+150n) "[Pr.52] Home position return deceleration time selection" Home position return acceleration time selection (B3+150n) "[Pr.47] Creep speed" - The settings of these parameters are valid only when the home position return is executed. (Pr.47] Creep speed" - - - (Pr.48] Home position return retry" - - (Pr.50) - - - (Pr.51] Home position return metry" - - - (Pr.50) - - - - (Pr.51] Home position shift amount" - - - - (Pr.53] Home position shift amount" - - - - - (Pr.54] Home position return orque limit value" - - - - - (Pr.57] Dwell time during home position return retry" - - - - - - (Pr.57] Dwell time during home position	speed"	speed"	8: Driver home position return method		
acceleration time selection" (82+150n)acceleration time selection" (82+150n)the home position return speed. Home position return acceleration time select home position return is executed.(Pr.47] Creep speed" (Pr.48] Home position return retry" (Pr.48] Home position return retry" attrip return is executed.The settings of these parameters are not necess because only "8: Driver home position return met selectable for "[Pr.43] Home position return selectable for "[Pr.43] Home position return met selectable for "[Pr.43] Home position return met selectable for "[Pr.43] Home position return selectable for "[Pr.43] Home position return selectable for "[Pr.43] Home position return selectable for "[Pr.54] Home position return selectable for "[Pr.57] Dwell time during home position return retry" selectable for "[Pr.57] Dwell t	74+150n)	(74+150n, 75+150n)	Home position return speed		
82+150n)(82+150n)Home position return acceleration time select home position return deceleration time selection" (83+150n)Home position return deceleration time select home position return deceleration time select home position return deceleration time select meeposition return sexeuted.(B7-47] Creep speed" (74+150n)76+150n, 77+150n)(Pr.48] Home position return retry" r8+150n)(Pr.50] Setting for the movement amount after proximity dog ON" 80+150n, 81+150n)(Pr.53] Home position return orque limit value" 83+150n)(Pr.54] Home position return orque limit value" 83+150n)(Pr.57] Dwell time during home position return retry" 89+150n)(Pr.57] Dwell time during home position return retry" 89+150n)(Pr.57] SSCNET setting" 106)The setting of this parameter is not necessary b servo system network has been changed to CC TSN	[Pr.51] Home position return	"[Pr.51] Home position return	The high-speed home position return is executed with		
Pr.52] Home position return "[Pr.52] Home position return teceleration time selection" deceleration time selection" 83+150n) (83+150n) [Pr.47] Creep speed" - 76+150n, 77+150n) - [Pr.48] Home position return retry" - 78+150n) - [Pr.48] Home position return retry" - 78+150n) - [Pr.40] Home position return retry" - 78+150n) - [Pr.40] Home position return retry" - 78+150n) - [Pr.50] - Setting for the movement amount - ffer proximity dog ON" - 80+150n, 81+150n) - [Pr.54] Home position return - [Pr.55] Speed designation during nome position return retry" - 83+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.57] SSCNET setting" - 106) - -	acceleration time selection"	acceleration time selection"			
Leceleration time selection" deceleration time selection" These parameters are valid only when the home position return is executed. [Pr.47] Creep speed" - The settings of these parameters are not necess because only "8: Driver home position return met 78+150n) [Pr.48] Home position return retry" - - Setting for the movement amount after proximity dog ON" - 80+150n, 81+150n) - [Pr.53] Home position return orgue limit value" - 83+150n) - [Pr.56] Speed designation during nome position return retry" - [Pr.57] Dwell time during home position return retry" - [Pr.57] SSCNET setting" - 106) - The setting of this parameter is not necessary b serve system network has been changed to CC TSN.	82+150n)	(82+150n)	\cdot Home position return acceleration time selection and		
83+150n)(83+150n)home position return is executed.[Pr.47] Creep speed" 76+150n, 77+150n)-The settings of these parameters are not necess because only "8: Driver home position return met selectable for "[Pr.43] Home position for the position return position return met selectable for "[Pr.54] Home position return position return met selectable for "[Pr.57] Dwell time during home nosition return retr" selectable for "[Pr.57] ScNET setting" for home position for the parameter is not necessary b servo system network has been changed to CC TSN.<	[Pr.52] Home position return	"[Pr.52] Home position return	home position return deceleration time selection		
[Pr.47] Creep speed" - 76+150n, 77+150n) - [Pr.48] Home position return retry" - [Pr.48] Home position return retry" - 78+150n) - [Pr.50] - Setting for the movement amount fifter proximity dog ON" - 80+150n, 81+150n) - [Pr.53] Home position shift - mount" - 84+150n, 85+150n) - [Pr.54] Home position return orgunation during organization during one position shift" - 83+150n) - [Pr.56] Speed designation during oscilon return retry" - 83+150n) - [Pr.57] Dwell time during home oscilon return retry" - 89+150n) - [Pr.57] Dwell time during home oscilon return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) - The setting of this parameter is not necessary b servo system network has been changed to CC TSN.	leceleration time selection"	deceleration time selection"	These parameters are valid only when the high-spee		
76+150n, 77+150n) because only "8: Driver home position return met [Pr.48] Home position return retry" - 78+150n) - [Pr.50] - Setting for the movement amount ifter proximity dog ON" - 80+150n, 81+150n) - [Pr.53] Home position shift - mount" - 84+150n, 85+150n) - [Pr.54] Home position return - orque limit value" - 83+150n) - [Pr.57] Dwell time during home position return retry" - osition return retry" - 89+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) -	83+150n)	(83+150n)	home position return is executed.		
[Pr.48] Home position return retry" - 78+150n) - [Pr.50] - Setting for the movement amount after proximity dog ON" - 80+150n, 81+150n) - [Pr.53] Home position shift amount" - 84+150n, 85+150n) - [Pr.54] Home position return orgue limit value" - 83+150n) - [Pr.57] Dwell time during home position shift" - sh150n) - [Pr.57] Dwell time during home position return retry" - sh150n) - [Pr.57] Dwell time during home position return retry" - sh150n) - [Pr.57] Dwell time during home position return retry" - sh150n) - [Pr.97] SSCNET setting" - 106) - -	[Pr.47] Creep speed"	-	The settings of these parameters are not necessary		
78+150n) - [Pr.50] - Setting for the movement amount after proximity dog ON" - 80+150n, 81+150n) - [Pr.53] Home position shift - amount" - 84+150n, 85+150n) - [Pr.54] Home position return orque limit value" - 83+150n) - [Pr.57] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home oscition return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) -	76+150n, 77+150n)		because only "8: Driver home position return method" is		
[Pr.50] - Setting for the movement amount - after proximity dog ON" - 80+150n, 81+150n) - [Pr.53] Home position shift - amount" - 84+150n, 85+150n) - [Pr.54] Home position return - orque limit value" - 83+150n) - [Pr.56] Speed designation during - nome position shift" - 88+150n) - [Pr.57] Dwell time during home - position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) - The setting of this parameter is not necessary b servo system network has been changed to CC TSN.		-	selectable for "[Pr.43] Home position return method".		
Setting for the movement amount after proximity dog ON" 80+150n, 81+150n) - [Pr.53] Home position shift amount" - 84+150n, 85+150n) - [Pr.54] Home position return orque limit value" - 83+150n) - [Pr.56] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) -	78+150n)				
after proximity dog ON" after proximity dog ON" 80+150n, 81+150n) - [Pr.53] Home position shift - amount" - 84+150n, 85+150n) - [Pr.54] Home position return - orque limit value" - 83+150n) - [Pr.56] Speed designation during - nome position shift" - 88+150n) - [Pr.57] Dwell time during home - position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) -		-			
80+150n, 81+150n) Image: space s	-				
[Pr.53] Home position shift - amount" - 84+150n, 85+150n) - [Pr.54] Home position return - orque limit value" - 83+150n) - [Pr.56] Speed designation during - nome position shift" - 88+150n) - [Pr.57] Dwell time during home - position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) - The setting of this parameter is not necessary b servo system network has been changed to CC TSN.					
amount" 84+150n, 85+150n) [Pr.54] Home position return orque limit value" - 83+150n) - [Pr.56] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.			-		
84+150n, 85+150n) - [Pr.54] Home position return orque limit value" - 83+150n) - [Pr.56] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.		-			
[Pr.54] Home position return orque limit value" - 83+150n) - [Pr.56] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.					
orque limit value" 83+150n) [Pr.56] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.			4		
83+150n) [Pr.56] Speed designation during nome position shift" 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.		-			
[Pr.56] Speed designation during nome position shift" - 88+150n) - [Pr.57] Dwell time during home position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) -	•				
nome position shift" 88+150n) [Pr.57] Dwell time during home - position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.			-		
88+150n) Image: Pr.57] Dwell time during home position return retry" 89+150n) - [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.		-			
[Pr.57] Dwell time during home - position return retry" - 89+150n) - [Pr.97] SSCNET setting" - 106) - The setting of this parameter is not necessary b servo system network has been changed to CC TSN.					
bosition return retry" 89+150n) [Pr.97] SSCNET setting" - 106) The setting of this parameter is not necessary b servo system network has been changed to CC TSN.			-		
89+150n) Image: The setting of this parameter is not necessary b 106) Servo system network has been changed to CC TSN.		-			
[Pr.97] SSCNET setting" - The setting of this parameter is not necessary b servo system network has been changed to CC TSN.	-				
106) servo system network has been changed to CC TSN.		-	The setting of this parameter is not necessary because the		
IPr 82] Forced stop valid/invalid "IPr 82] Forced stop valid/invalid The setting value "0: Valid (external input signal			servo system network has been changed to CC-Link IE		
selection" selection" removed in RD78G(S). (35+150n)			The setting value "0: Valid (external input signal)" has bee removed in RD78G(S).		

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [42 / 74]

[Issue No.] SSC-A-0004-A

Buffer m	emory No.	Change /muisian		
QD77MS16	RD78G16(S)	Change/revision		
"[Pr.87] Pulse conversion unit: Waiting time after clear signal output" (91+150n)	-	The waiting time after the pulse conversion unit clear signal output function has been removed.		
"[Pr.86] Pulse conversion unit: Home position return request setting" (90+150n)	-	The pulse conversion unit home position return request setting function has been removed.		
"[Pr.80] External input signal selection" (32+150n)	"[Pr.116] FLS signal selection" "[Pr.117] RLS signal selection" "[Pr.118] DOG signal selection" "[Pr.119] STOP signal selection" (116+150n, 117+150n, 118+150n, 119+150n)	Refer to 3.2.2.(1) for details.		
"[Pr.95] External command signal selection" (69+150n)	"[Pr.95] External command signal selection" (69+150n)	Refer to 3.2.2.(1) for details.		
"[Pr.17] Torque limit setting value" (26+150n)	"[Pr.17] Torque limit setting value" (26+150n)	The unit for the torque limit value has been changed. Multiply the setting value by 10. QD77MS: [%] RD78G(S): [0.1 %] In addition, the initial value has been changed. QD77MS: 300 [%] RD78G(S): 3000 [0.1 %] [Example] 100 % ("100" is set in the buffer memory.) \rightarrow 100.0 % (set "1000" in the buffer memory.)		

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [43 / 74]

[Issue No.] SSC-A-0004-A

Buffer me	emory No.	Change/revision		
QD77MS16	RD78G16(S)			
"[Pr.90] Operation setting for speed-torque control mode" (68+150n)	"[Pr.90] Operation setting for speed-torque control mode" (68+150n)	 The setting value "b12 to b15: Condition selection at mode switching" has been changed as follows. 0: Check the switching conditions in Simple Motion module. 1: According to the servo amplifier specification [Additional information] When this parameter is set to "0: Check the switching conditions in Simple Motion module.", and the mode switching condition is not satisfied, a warning occurs and the mode switching is disabled. When this parameter is set to "1: According to the servo amplifier specification", the mode switching condition is judged following the parameter [PC76] of the servo amplifier (refer to [PC76] of the servo amplifier.). [When switching the control mode without waiting for the motor stop] Set "b12 to b15: Condition selection at mode switching" of "[Pr.90] Operation setting for speed-torque control mode" to "1: According to the servo amplifier specification". When using MR-J4-GF and MR-J5-G, set "ZSP disabled selection at control switching" of "Function selection C-E (PC76)" to "Disabled". * With the setting above, note that the mode switching may cause vibrations and shock. 		
"[Pr.91] Optional data monitor: Data type setting 1" (100+150n)	"[Pr.91] Optional data monitor: Data type setting 1" (100+150n) "[Pr.591] Optional data monitor: Data type expansion setting 1" (92+150n)	Set the index of the corresponding object of the slave device in "Optional data monitor: Data type setting". Set the sub index and size of the corresponding object of the slave device in "Optional data monitor: Data type expansion setting".		
"[Pr.92] Optional data monitor: Data type setting 2" (101+150n)	"[Pr.92] Optional data monitor: Data type setting 2" (101+150n) "[Pr.592] Optional data monitor: Data type expansion setting 2" (93+150n)	Refer to the manuals of the slave devices to be used for details.		
"[Pr.93] Optional data monitor: Data type setting 3" (102+150n)	"[Pr.93] Optional data monitor: Data type setting 3" (102+150n) "[Pr.593] Optional data monitor: Data type expansion setting 3" (94+150n)			
"[Pr.94] Optional data monitor: Data type setting 4" (103+150n)	"[Pr.94] Optional data monitor: Data type setting 4" (103+150n) "[Pr.594] Optional data monitor: Data type expansion setting 4" (95+150n)			

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [44 / 74]

[Issue No.] SSC-A-0004-A

Buffer m	emory No.			
QD77MS16	RD78G16(S)	- Change/revision		
"[Pr.96] Operation cycle setting" (105)	-	In RD78G(S), the operation cycle is set as the network communication cycle. The following shows the settable communication cycle: Communications cycle: 0.25 ms 0.5 ms 1 ms 2 ms 4 ms		
"[Pr.114] External command signal compensation valid/invalid setting" (114)	-	The external command signal compensation valid/invalid setting function has been removed. (Always valid)		
"[Pr.320] Synchronous encoder axis type" (34720+20n)	"[Pr.320] Synchronous encoder axis type" (34720+20n)	The setting value "1: Incremental synchronous encoder" has been removed.		
"[Pr.800] Mark detection signal setting" (54000+20n)	"[Pr.800] Mark detection signal setting" (54000+20n)	Set "[Pr.95] External command signal selection" together with this parameter. [Setting example] When [Pr.95] of axis 8 is set to "101: Axis 1 Dog signal" and [Pr.800] is set to "8: Axis 8 external command signal [DI]", the mark detection is executed using the DOG signal of the servo amplifier connecting axis 1.		
"[Pr.100] Connected device" (28400+100n)	"[Pr.141] IP address (the third and fourth octets), (the first and second octets)" (58024+150n, 58025+150n)	The setting has been changed as follows because the servo system network has been changed to CC-Link IE TSN. The setting of "[Pr.100] Connected device" is not necessary. Set "[Pr.141] IP address" and "[Pr.142] Multidrop number".		
	"[Pr.142] Multidrop number" (58028+150n)	 [Additional information] "[Pr.141] IP address": the IP address of the real servo amplifier to be used "[Pr.142] Multidrop number": the identification No. for each servo motor connected to a multi-axis servo amplifier 		

(3) Monitor data area

Buffer m	emory No.	Change/revision
QD77MS16	RD78G16(S)	Changerevision
"[Md.47] Positioning data being executed: Axis to be interpolated" (2441+100n)	"[Md.47] Positioning data being executed: Axis to be interpolated" (2496+100n, 2497+100n)	Refer to 3.2.2.(4) for details.
"[Md.35] Torque limit stored value/forward torque limit stored value" (2426+100n)	"[Md.35] Torque limit stored value/forward torque limit stored value" (2426+100n)	 This monitor data has been changed as follows. (1) Note that the unit for the torque limit value has been changed. QD77MS: [%] RD78G(S): [0.1 %] [Example] 100 % ("100" is set in the buffer memory.) → 100.0 % (set "1000" in the buffer memory.) (2) "[Pr.54] Home position return torque limit value" is not stored. (3) "[Pr.17] Torque limit setting value" or "[Cd.101] Torque output setting value" is not stored when a home position return is executed.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [45 / 74]

[Issue No.] SSC-A-0004-A

Buffer me	emory No.	Change/revision	
QD77MS16	RD78G16(S)	Change/revision	
"[Md.120] Reverse torque limit stored value" (2491+100n)	"[Md.120] Reverse torque limit stored value" (2491+100n)	 This monitor data has been changed as follows. "[Pr.54] Home position return torque limit value" is not stored. "[Pr.17] Torque limit setting value" or "[Cd.101] Torque output setting value" is not stored when a home position return is executed. 	
"[Md.103] Motor rotation speed" (2454+100n, 2455+100n)	"[Md.103] Motor rotation speed" (2454+100n, 2455+100n)	Note that the unit for the motor rotation speed has been changed. QD77MS: [0.1 r/min] RD78G(S): [0.01 r/min] [Example] 60.0 r/min ("600" is stored in the buffer memory.) → 60.00 r/min ("6000" is stored in the buffer memory.) [Additional information] The unit is "pulse/s" when the servo parameter PT01.1 (speed/acceleration/deceleration unit selection) is set to "1: Command unit/s". (The same applies to linear servo motors.)	
"[Md.107] Parameter error No." (2470+100n)	-	The parameter error No. monitor function has been removed.	
"[Md.109] Regenerative load ratio/Optional data monitor output 1" (2478+100n)	"[Md.109] Regenerative load ratio/Optional data monitor output 1" (2478+100n)	 This monitor data has been changed as follows. The contents set in "[Pr.91] Optional data monitor: Data type setting 1" and "[Pr.591] Optional data monitor: Data type expansion setting 1" are stored. 	
"[Md.110] Effective load torque/Optional data monitor output 2" (2479+100n)	"[Md.110] Effective load torque/Optional data monitor output 2" (2479+100n)	 This monitor data has been changed as follows. The contents set in "[Pr.92] Optional data monitor: Data type setting 2" and "[Pr.592] Optional data monitor: Data type expansion setting 2" are stored. 	
"[Md.111] Peak torque ratio/Optional data monitor output 3"	"[Md.111] Peak torque ratio/Optional data monitor output 3"	 This monitor data has been changed as follows. The contents set in "[Pr.93] Optional data monitor: Data type setting 3" and "[Pr.593] Optional data monitor: Data 	
(2480+100n) "[Md.112] Optional data monitor output 4" (2481+100n)	(2480+100n) "[Md.112] Optional data monitor output 4" (2481+100n)	 type expansion setting 3" are stored. This monitor data has been changed as follows. The contents set in "[Pr.94] Optional data monitor: Data type setting 4" and "[Pr.594] Optional data monitor: Data type expansion setting 4" are stored. 	
"[Md.502] Driver operation alarm No." (59302+100n)	-	The driver alarm No. monitor function has been removed.	
"[Md.8] Start history pointer" (4092) "[Md.3] Start information" "[Md.4] Start No." "[Md.5] Start Day: hour" "[Md.6] Start Minute: second" "[Md.7] Error judgment" "[Md.54] Start Year: month" (4012+5p, 4013+5p, 4014+5p 4015+5p, 4016+5p, 4240+1p)	"[Md.8] Start history pointer" (87000) "[Md.3] Start information" "[Md.4] Start No." "[Md.5] Start Day: hour" "[Md.6] Start Minute: second" "[Md.7] Error judgment" "[Md.54] Start Year: month" (87010+10p, 87011+10p, 87013+10p, 87014+10p, 87016+10p, 87012+10p)	 (1) Change the buffer memory address. (2) The storage range has been changed since the number of records has been expanded from 16 to 64. QD77MS: 0 to 15 RD78G(S): 0 to 63 	
"[Md.51] Amplifier-less operation mode status" (4232)	-	The amplifier-less mode status monitor function has been removed.	
"[Md.53] SSCNET control status" (4233)	-	The SSCNET control status monitor function has been removed.	

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [46 / 74]

[Issue No.] SSC-A-0004-A

Buffer me	Suffer memory No.	
QD77MS16	RD78G16(S)	Change/revision
"[Md.52] Communication between amplifiers axes searching flag" (4234)	-	The communication between amplifiers axes searching flag monitor function has been removed.
"[Md.132] Operation cycle setting" (4238)	"[Md.132] Operation cycle setting" (4238)	In RD78G(S), the operation cycle is set as the network communication cycle. The following shows the settable communication cycle. Communications cycle: 0.25 ms 0.5 ms 1 ms 2 ms 4 ms
Error history/warning history (4093 to 4222, 4256 to 4287, 31300 to 31331)	-	The error and warning histories have been integrated into the event history. A buffer memory address is not assigned to the event history.

(4) Control data area

Buffer memory No.		Channalmuisian	
QD77MS16	RD78G16(S)	Change/revision	
"[Cd.13] Positioning operation speed override" (4313+100n)	"[Cd.13] Positioning operation speed override" (4313+100n)	This control data has been changed as follows. Setting range: 0 to 300 [%] When "0" is set, no warning occurs after the speed becomes zero and the speed change 0 flag turns on. The override function is invalid during the driver home	
"[Cd.14] New speed value" (4314+100n, 4315+100n)	"[Cd.14] New speed value" (4314+100n, 4315+100n)	position return. The speed change function is invalid during the driver home position return.	
"[Cd.22] New torque value/ forward new torque value" (4325+100n) "[Cd.101] Torque output setting value"	"[Cd.22] New torque value/ forward new torque value" (4325+100n) "[Cd.101] Torque output setting value"	The unit for the torque limit value has been changed. Multiply the setting value by 10. QD77MS: [%] RD78G(S): [0.1 %] [Example]	
(4352+100n) "[Cd.113] New reverse torque value" (4364+100n)	(4352+100n) "[Cd.113] New reverse torque value" (4364+100n)	100 % ("100" is set in the buffer memory.) → 100.0 % (set "1000" in the buffer memory.)	
"[Cd.43] Simultaneous starting axis" (4339+100n) "[Cd.30] Simultaneous starting axis	"[Cd.43] Simultaneous starting axis" (4368+100n, 4369+100n) "[Cd.30]	Refer to 3.2.2.(2) for details.	
start data No. (axis 1 start data No.)" (4340+100n) "[Cd.31] Simultaneous starting axis	Simultaneous starting own axis start data No." (4340+100n) "[Cd.31] Simultaneous starting axis		
start data No. (axis 2 start data No.)" (4341+100n)	start data No.1" (4341+100n)		
"[Cd.32] Simultaneous starting axis start data No. (axis 3 start data No.)" (4342+100n)	"[Cd.32] Simultaneous starting axis start data No.2 (4342+100n)		
"[Cd.33] Simultaneous starting axis start data No. (axis 4 start data No.)" (4343+100n)	"[Cd.33] Simultaneous starting axis start data No.3 (4343+100n)		

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [47 / 74]

[Issue No.] SSC-A-0004-A

Buffer m	emory No.	Channalmatician
QD77MS16	RD78G16(S)	Change/revision
"[Cd.147] Speed limit value at continuous operation to torque control mode" (4386+100n, 4387+100n)	"[Cd.147] Speed limit value at continuous operation to torque control mode" (4386+100n, 4387+100n)	The setting value varies as follows depending on the setting value of [Pr. 1]0: mm0 to 2000000001: inch0 to 2000000002: degree0 to 2000000003: pulse0 to 100000000
"[Cd.130] Servo parameter write request" (4354+100n)	-	When changing servo parameters with RD78G(S), use the servo transient transmission function.
"[Cd.131] Parameter No. (settings for servo parameters to be changed)" (4355+100n)	-	
"[Cd.132] Change data" (4356+100n, 4357+100n)	-	
"[Cd.47] QD75MH initial value setting request" (5909)	-	The QD75MH initial value setting function has been removed.
"[Cd.137] Amplifier-less operation mode switching request" (5926)	-	The amplifier-less operation mode switching request function has been removed.
"[Cd.102] SSCNET control command" (5932)	-	The SSCNET control command function has been removed because the servo system network has been changed to CC-Link IE TSN.

(5) Positioning data area

Buffer memory No.		Change/revision
QD77MS16	RD78G16(S)	Change/revision
"[Da.20] Axis to be interpolated	"[Da.20] Axis to be interpolated	Refer to 3.2.2.(3) for details.
No.1"	No.1"	
"[Da.21] Axis to be interpolated	"[Da.21] Axis to be interpolated	
No.2"	No.2"	
"[Da.22] Axis to be interpolated	"[Da.22] Axis to be interpolated	
No.3"	No.3"	
(6003+1000n,, 6993+1000n)	(71000+1000n, 71001+1000n,,	
	71990+1000n, 71991+1000n)	
[Da.23] Number of simultaneous	[Da.23] Number of simultaneous	Refer to 3.2.2.(2) for details.
starting axes	starting axes	
[Da.24] Simultaneous starting axis	[Da.24] Simultaneous starting axis	
No.1	No.1	
[Da.25] Simultaneous starting axis	[Da.25] Simultaneous starting axis	
No.2	No.2	
[Da.26] Simultaneous starting axis	[Da.26] Simultaneous starting axis	
No.3	No.3	
(22101+400n,, 22391+400n)	(22108+400n, 22109+400n,,	
	22398+400n, 22399+400n)	

(6) Servo parameter area

Buffer memory No.		Change/revision
QD77MS16	RD78G16(S)	
Servo parameter	-	RD78G(S) does not support the servo parameter writing
(28401+100n to 28495+100n,		from the buffer memory.
64400+70n to 64463+70n)		Set the parameters with the engineering tool.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [48 / 74]

[Issue No.] SSC-A-0004-A

(7) Synchronous control area

Buffer memory No.		Change/revision
QD77MS16	RD78G16(S)	Change/revision
"[Pr.320] Synchronous encoder	"[Pr.320] Synchronous encoder	The setting value "1: Incremental synchronous encoder"
axis type"	axis type"	has been removed.
(34720+20j)	(34720+20j)	

j: Synchronous encoder axis No. -1

(8) Mark detection area

Buffer memory No.		Change/revision
QD77MS16	RD78G16(S)	Change/revision
"[Pr.800] Mark detection signal setting" (54000+20k)	"[Pr.800] Mark detection signal setting" (54000+20k)	Set "[Pr.95] External command signal selection" together with this parameter. [Setting example] When [Pr.95] of axis 8 is set to "101: Axis 1 Dog signal" and [Pr.800] is set to "8: Axis 8 external command signal [DI]", the mark detection is executed using the DOG signal of the servo amplifier connecting axis 1.

k: Mark detection setting No. -1

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [49 / 74]

[Issue No.] SSC-A-0004-A

(1) External input signals of Simple Motion modules

This section explains the replacement method for external input signals.

The replacement method for FLS/RLS/DOG/STOP signals varies depending on the setting values in "[Pr.80] External input signal selection" of QD77MS_.

The DI signal must be replaced regardless of the setting values in "[Pr.80] External input signal selection" of QD77MS_.

(a) Replacement of FLS/RLS/DOG/STOP

There has been no change in the setting value of the external input signal logic.

- 1. When "[Pr.80] External input signal selection" is set to "0: External input signal of QD77MS"
 - → The external input signals of Simple Motion modules are not available in RD78G(S). Replace the external signal setting with either of the following cases.
 - (1) Using the external input signal of the servo amplifier (STOP signal cannot be set.)

Axis No.	Parameter (buffer memory)	Setting value
	[Pr.116] FLS signal selection (116+150n)	0001H
Axis 1 to Axis 16	[Pr.117] RLS signal selection (117+150n)	0001H
	[Pr.118] DOG signal selection (118+150n)	0001H

(2) Using the buffer memory of RD78G(S)

Axis No.	Axis No. Parameter (buffer memory)	
	[Pr.116] FLS signal selection (116+150n)	0002H
Axis 1 to Axis 16	[Pr.117] RLS signal selection (117+150n)	0002H
AXIS I TO AXIS TO	[Pr.118] DOG signal selection (118+150n)	0002H
	[Pr.119] STOP signal selection (119+150n)	0002H

2. When "[Pr.80] External input signal selection" is set to "1: External input signal of servo amplifier" → Set the signals as shown in the table below. STOP signal cannot be set.

nai	als as shown in the table below. Or Or "signal carnot be set.		
A	Axis No.	Parameter (buffer memory)	Setting value
	Axis 1 to Axis 16	[Pr.116] FLS signal selection (116+150n)	0001H
A		[Pr.117] RLS signal selection (117+150n)	0001H
		[Pr.118] DOG signal selection (118+150n)	0001H

3. When "[Pr.80] External input signal selection" is set to "2: Buffer memory of QD77MS" \rightarrow Set the signals as shown in the table below.

Axis No.	Parameter (buffer memory)	Setting value 0002H 0002H	
Axis 1 to Axis 16	[Pr.116] FLS signal selection (116+150n)	0002H	
	[Pr.117] RLS signal selection (117+150n)	0002H	
	[Pr.118] DOG signal selection (118+150n)	0002H	
	[Pr.119] STOP signal selection (119+150n)	0002H	

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(b) Replacement of DI signal

The DI signal is not available in RD78G(S).

Therefore, assign DOG signals as shown in the table below.

Parameter	rameter Setting value Description	
(buffer memory)		
	0	An external command signal is not used.
	101: Dog signal of axis 1	The DOG signal of axis 1 is used as an external command signal.
	102: Dog signal of axis 2	The DOG signal of axis 2 is used as an external command signal.
	103: Dog signal of axis 3	The DOG signal of axis 3 is used as an external command signal.
	104: Dog signal of axis 4	The DOG signal of axis 4 is used as an external command signal.
	105: Dog signal of axis 5	The DOG signal of axis 5 is used as an external command signal.
	106: Dog signal of axis 6	The DOG signal of axis 6 is used as an external command signal.
[Pr.95] External	107: Dog signal of axis 7	The DOG signal of axis 7 is used as an external command signal.
command signal selection	108: Dog signal of axis 8	The DOG signal of axis 8 is used as an external command signal.
(69+150n)	109: Dog signal of axis 9	The DOG signal of axis 9 is used as an external command signal.
(03+1301)	110: Dog signal of axis 10	The DOG signal of axis 10 is used as an external command signal.
	111: Dog signal of axis 11	The DOG signal of axis 11 is used as an external command signal.
	112: Dog signal of axis 12	The DOG signal of axis 12 is used as an external command signal.
	113: Dog signal of axis 13	The DOG signal of axis 13 is used as an external command signal.
	114: Dog signal of axis 14	The DOG signal of axis 14 is used as an external command signal.
	115: Dog signal of axis 15	The DOG signal of axis 15 is used as an external command signal.
	116: Dog signal of axis 16	The DOG signal of axis 16 is used as an external command signal.

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [51 / 74]

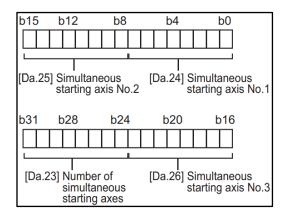
[Issue No.] SSC-A-0004-A

- (2) Replacement of the simultaneous starting axes specification method, Replacement of the simultaneous starting axes start data No.
 - (a) Replacement of simultaneous start by block start

In QD77MS, the following parameters are set with 4 bits: [Da.23] Number of simultaneous starting axes, [Da.24] Simultaneous starting axis No.1, [Da.25] Simultaneous starting axis No.2, and [Da.26] Simultaneous starting axis No.3. In RD78G(S), set these parameters with 8 bits, whose high-order bits are zero. The setting values of 00 to 0F are for axis 1 to 16.

		The number of simultaneous starting axes		
		2	3	4
QD77MS	[Da.23] Number of simultaneous starting axes (22101+400n b12 to b15)	2H	ЗН	4H
			\downarrow	
RD78G(S)	[Da.23] Number of simultaneous starting axes (22108+400n b24 to b31)	02H	03H	04H

		Sim	ultaneous s	starting axis	No.
		Axis 1	Axis 2		Axis 16
	[Da.24] Simultaneous starting axis No.1 (22101+400n b0 to b3)	0H	1H		FH
QD77MS	[Da.25] Simultaneous starting axis No.2 (22101+400n b4 to b7)	0H	1H		FH
	[Da.26] Simultaneous starting axis No.3 (22101+400n b8 to b11)	0H	1H		FH
				l	
	[Da.24] Simultaneous starting axis No.1 (22108+400n b0 to b7)	00H	01H		0FH
RD78G(S)	[Da.25] Simultaneous starting axis No.2 (22108+400n b8 to b15)	00H	01H		0FH
	[Da.26] Simultaneous starting axis No.3 (22108+400n b16 to b23)	00H	01H		0FH



SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [52 / 74]

[Issue No.] SSC-A-0004-A

(b) Replacement of simultaneous start by multi-axis simultaneous start control (positioning start No. 9004) "[Cd.43] Simultaneous starting axis" has been changed to a 2-word data in the buffer memory.

In QD77MS, "[Cd.43] Simultaneous starting axis" is set with 4 bits for each axis. In RD78G(S), set these parameters with 8 bits, whose high-order bits are zero.

The setting values of 00 to 0F are for axis 1 to 16.

(4368+100n b24 to b31)

			nber of simu starting axe	
		2	3	4
QD77MS	[Cd.43] Simultaneous starting axis (4339+100n b12 to b15)	2H	3H	4H
			\downarrow	
RD78G(S)	[Cd.43] Simultaneous starting axis	02H	03H	04H

		Simu	ultaneous s	starting axis	s No.
		Axis 1	Axis 2		Axis 16
	[Cd.43] Simultaneous starting axis (4339+100n b0 to b3)	ОН	1H		FH
QD77MS	[Cd.43] Simultaneous starting axis (4339+100n b4 to b7)	0H	1H		FH
	[Cd.43] Simultaneous starting axis (4339+100n b8 to b11)	0H	1H		FH
				Ļ	
	[Cd.43] Simultaneous starting axis (4368+100n b0 to b7)	00H	01H		0FH
RD78G(S)	[Cd.43] Simultaneous starting axis (4368+100n b8 to b15)	00H	01H		0FH
	[Cd.43] Simultaneous starting axis (4368+100n b16 to b23)	00H	01H		0FH

SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [53 / 74]

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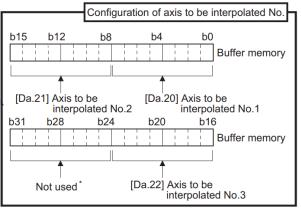
(3) Replacement of specification method of axes to be interpolated

In QD77MS, the following parameters are set with 4 bits: "[Da.20] Axis to be interpolated No.1", "[Da.21] Axis to be interpolated No.2", and "[Da.22] Axis to be interpolated No.3". In RD78G(S), set these parameters with 8 bits, whose high-order bits are zero.

The setting values of 00 to 0F are for axis 1 to 16.

	A	kis to be int	erpolated N	о.
	Axis 1	Axis 2		Axis 16
[Da.20] Axis to be interpolated No.1 (6003+1000n b0 to b3)	ОH	1H		FH
[Da.21] Axis to be interpolated No.2 (6003+1000n b4 to b7)	ОH	1H		FH
[Da.22] Axis to be interpolated No.3 (6003+1000n b8 to b11)	ОH	1H		FH
	No.1 (6003+1000n b0 to b3) [Da.21] Axis to be interpolated No.2 (6003+1000n b4 to b7) [Da.22] Axis to be interpolated No.3	Axis 1 [Da.20] Axis to be interpolated 0H No.1 0H (6003+1000n b0 to b3) 0H [Da.21] Axis to be interpolated 0H No.2 0H (6003+1000n b4 to b7) 0H [Da.22] Axis to be interpolated 0H No.3 0H	Axis 1 Axis 2 [Da.20] Axis to be interpolated No.1 0H 1H (6003+1000n b0 to b3) 0H 1H [Da.21] Axis to be interpolated No.2 0H 1H (6003+1000n b4 to b7) 0H 1H [Da.22] Axis to be interpolated No.3 0H 1H	[Da.20] Axis to be interpolated 0H 1H No.1 0H 1H (6003+1000n b0 to b3) 0H 1H [Da.21] Axis to be interpolated 0H 1H No.2 0H 1H (6003+1000n b4 to b7) 0H 1H [Da.22] Axis to be interpolated 0H 1H No.3 0H 1H

	[Da.20] Axis to be interpolated No.1 (71000+1000n b0 to b7)	00H	01H	 0FH
RD78G(S)	[Da.21] Axis to be interpolated No.2 (71000+1000n b8 to b15)	00H	01H	 0FH
	[Da.22] Axis to be interpolated No.3 (71000+1000n b16 to b23)	00H	01H	 0FH



*Always "0" is set to the part not used.

"[Md.47] Positioning data being executed" is monitored using 8 bits.

"[Da.20] Axis to be interpolated 1" \rightarrow "[Md.47] Positioning data being executed" (2496 + 100n b0 to b7) "[Da.21] Axis to be interpolated 2" \rightarrow "[Md.47] Positioning data being executed" (2496 + 100n b8 to b15) "[Da.22] Axis to be interpolated 3" \rightarrow "[Md.47] Positioning data being executed" (2497 + 100n b0 to b7) SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [54 / 74]

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3.3. External Dimensions/Mass/Installation

Item	QD77MS	RD78G
External dimensions		
External dimensions [mm]	98.0[H] × 27.4[W] × 90.0[D]	106.0[H] × 27.8[W] × 110.0[D]
Mass [kg]	0.15 (MS2), 0.16 (MS4/MS16)	0.26
Internal current consumption (5 VDC) [A]	0.60	1.93

Standard base unit dimensions (H×W×D [mm])

series	_33B	_35B	_38B	_312B
MELSEC-Q	98.0×189×44.1	98.0×245×44.1	98.0×328×44.1	98.0×439×44.1
MELSEC iQ-R	101×189×32.5	101×245×32.5	101×328×32.5	101×439×32.5

Point P

- RD78G is equipped with a module fixing screw on its case. Tighten the module fixing screw to fix the module on the base unit.
- Select the power supply module after estimating the system current consumption.
- RD78G has larger current consumption than QD77MS, and therefore the number of modules connected per power supply module is fewer.
- If the current capacity of the power supply module becomes insufficient as a result of migration, separate the system by using the extension base unit (R6_B).
- Refer to the latest version of "Alternative model lists and project conversion procedure for the replacement of MELSEC-Q series models with MELSEC iQ-R series" (FA-A-0239) for details of the alternative models.
- When the new and existing base units have the same number of slots, the screw mounting holes are located at the same position.

Refer to the "MELSEC iQ-R Module Configuration Manual" (SH-081262ENG) for details on the installation method.

When the machine should comply with the EMC and Low Voltage Directives, refer to Appendix 7 "EMC and Low Voltage Directives".

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4. PROJECT CREATION PROCEDURE

4.1. Project Conversion Procedure by an Engineering Environment

The following shows how to convert the existing project.

4.1.1. How to convert an existing project for the PLC CPU by MELSOFT GX Works3

A project created in MELSOFT GX Works2 can be converted into the one that can be used in MELSOFT GX Works3.

For the models other than the following, note that the PLC type needs to be changed to a universal model.

- · Universal model QCPU
- · Universal model high-speed type QCPU
- · Universal model process CPU

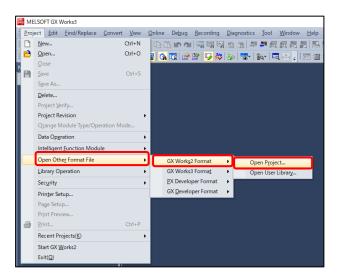
Refer to "GX Works2 Version 1 Operating Manual (Common)" for the restrictions on changing the PLC type. For details on changing the PLC type, refer to the following technical bulletins as well.

- · Method of replacing Basic model QCPU with Universal model QCPU (FA-A-0054-E)
- · Method of replacing Process CPU with Universal model Process CPU (FA-A-0155-A)
- Method of replacing High Performance model QCPU with Universal model QCPU (Introduction) (FA-A-0209-C)
- Method of replacing High Performance model QCPU with Universal model QCPU (FA-A-0001-N)

[How to convert a GX Works2 project, whose PLC type has been changed to the universal model QCPU, into a MELSOFT GX Works3 project]

Refer to "GX Works3 Operating Manual" for details on converting a GX Works2 project to a GX Works3 project.

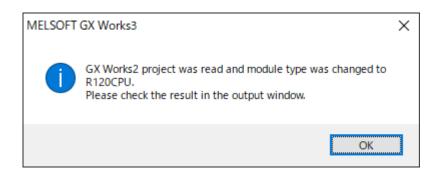
 Start MELSOFT GX Works3, and select "Open Other Format File" → "GX Works2 Format" → "Open Project" from the "Project" menu.



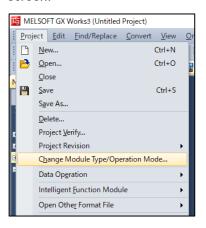
SERVO SYSTEM CONTROLLER TECHNICAL BULLETIN [56 / 74]

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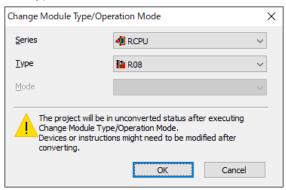
- Select the target project to be opened on the "Open GX Works2 Format Project" screen, and click "Open".
- 3) Read the precautions when converting a project, and click "OK".
- 4) When the reading of the MELSOFT GX Works2 format project is completed, click "OK". (Check the model change result in the output window.)



5) Select "Change Module Type/Operation Mode" from the "Project" menu to open the model change screen.



6) Select RCPU for "Series" and the PLC CPU module model to be used (the setting example: R08CPU) for "Type". Click "OK".



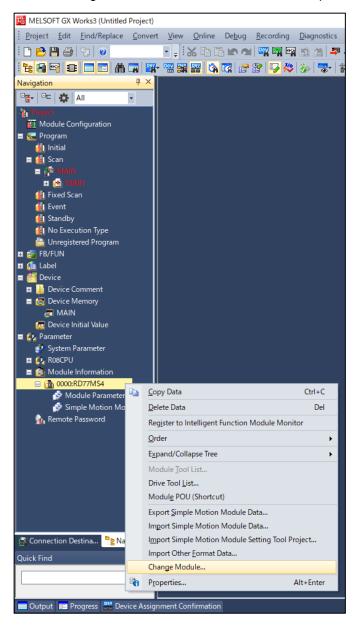
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Read the precautions when changing a model, and click "OK".
 The details of the model change will be displayed in the output window of MELSOFT GX Works3.
 (Check the model change result in the output window)

When "QD77MS" is set in a MELSOFT GX Works2 project, it is automatically converted to "RD77MS" that can control the same number of axes. Change "RD77MS" to "RD78G(S)" manually. The procedure for changing RD77MS to RD78G(S) is explained in 8) and later.

8) Select and right-click "RD77MS" (the setting example: RD77MS4) in the navigation tree. Select "Change Module" from the context menu to open the "Change Module" screen.



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9) Select the Motion Module for "Module Type" and the Motion module model to be used (setting example: RD78G4(S)) for "Module Name" on the "Change Module" screen. Click "OK".

Mod	ule Selection		
Mod	ule Type	🚵 Motion Module	-
Mod	ule Name	RD78G4(S)	-
Statio	on Type		
Adva	nced Settings		
M	ounting Position		
M	ounting Base	Main Base	
M	ounting Slot No.	0	
Sta	art I/O No. Specification	Set	
Sta	art I/O No.	0000 H	
Nu	umber of Occupied Points per 1	S 32Point	
Module	e Type nodule type.		

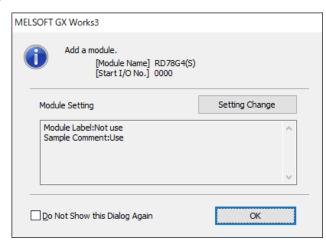
10) Read the precautions when changing the module, and click "OK". After changing the module, check the data on each screen of the extended parameters.

MELSOFT	GX Works3	\times
	Change the module. Are you sure you want to continue? Parameters of selected module shown below are not imported. - Module Parameter - System Configuration Data - Servo Parameter Please check data in each window of module extended parameter after changing. Please refer to the Help for the simple motion module setting function for more details.	
	<u>Y</u> es <u>N</u> o	

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11) When the confirmation screen of the module label setting appears, click "OK".



12) When the confirmation screen of changing the link direct device setting of a CPU parameter appears, click "Yes".



The conversion of the project for the PLC CPU is completed.

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4.1.2. How to import QD77MS format data

The following shows how to import the Simple Motion module setting tool format data to RD78G(S).

- 1) Start MELSOFT GX Works3, and open the project data converted in "4.1.1 How to convert an existing project for the PLC CPU by MELSOFT GX Works3".
- Select and right-click RD78G(S) in "Module Information" in the navigation tree. Select "Import Simple Motion Module Setting Tool Project" from the context menu to open the "Import Simple Motion Module Setting Tool Project" screen.



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 Select the QD77MS project data created in the MELSOFT Simple Motion module setting tool, and click "Open".

🔢 Import the S	mple Motion Module Setting Tool Project		×
Look in:	vol10_screw_a_QD77MS4 ~	🧿 🏂 📂 🛄 -	
Cuick access	Name Alignment Name Name Name Name	Date modified 7/15/2014 8:34 PM	Type PCW
Desktop			
Libraries			
This PC			
Interview Network	< File name: Vol10_Screw_Motion.pcw	~ 0	>
	Volito_sciew_wotion.pcw	Car	
Ogen	a Workspace Format Project		

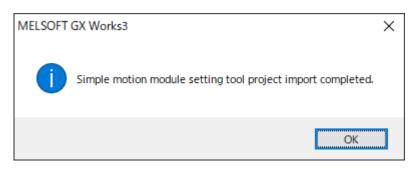
4) The import data selection window appears. Select the target module and data to be imported, and click "Execute".

Select Data	a to Import		\times
The select	ect the module and data to import. ed module data will be overwritten. ata to Import		
		Trunt	
- 10- 1	Module Name/Detail Setting Item Name /ol10 Screw Motion	Target	
	0000:0D77M54		
	Positioning Data		
	Block Start Data		
	Parameter		
	Mark Detection		
	Synchronous Control Parameter	\checkmark	
	Cam Data	\checkmark	
<u>^</u>	The following data cannot be diverted. - System Configuration Data - Servo Parameter Please check the data in each screen of Simple Setting after diverting. For details, refer to the help of the simple motion function.		
	Exec	Cancel	

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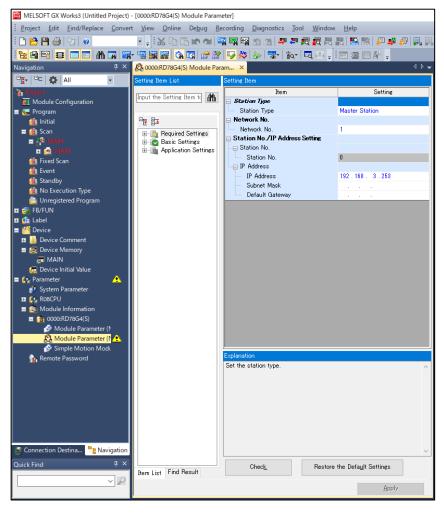
5) Click "OK" when the import completion message appears.



4.1.3. How to migrate the servo amplifier system configuration and servo parameters

The settings of the servo amplifier system configuration and servo parameters are not automatically migrated. Set them manually.

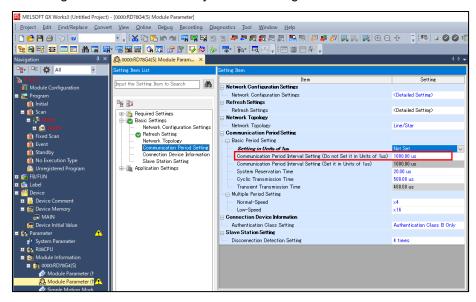
1) Double-click "Module Parameter (Network)" of RD78G(S) to open the module parameters related to the network.



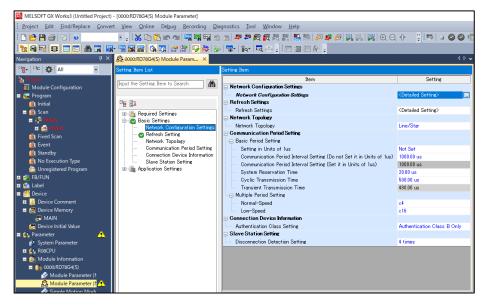
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2) In RD78G(S), the operation cycle is set as the network communication cycle. Set the communication cycle according to your system in the Communication Period Interval Setting. Refer to 3.2 "Replacement of I/O Signals and Buffer Memory" for the setting values.



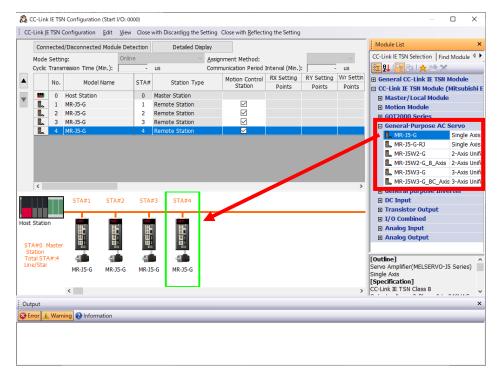
3) In the module parameter setting window, double-click "<Detailed Setting>" of "Network Configuration Settings" in "Basic Settings" to open the CC-Link IE TSN configuration.



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4) Set the servo amplifier to be used according to your system configuration, such as "MR-J5-G", from "General-Purpose AC Servo" in the CC-Link IE TSN configuration setting window.



5) When managing the servo parameters by the PLC CPU/RD78G(S) and distributing the servo parameters to the servo amplifiers, check the box of "Parameter Automatic Setting".

-		e Detection	iscardi <u>n</u> g the Se Detailed Disp		<u>R</u> eflecting the	e Setting			
Mode Setti Cyclic Trans	ng:		Detailed Disp	here a					
Cyclic Trans		0.1		lay				Module List	×
A No.	mission time (Min.):	Online - us	~	Assignment Met		ral (Min.):	↓ US	CC-Link IE TSN Selection Find	
1 . 2	Model Name Host Station MR-J5-G MR-J5-G MR-J5-G MR-J5-G	RY Setting Points	RWr Setting Points	RWw Setting Points	Paramete	er Automatic Setting < Detai Setting> < Detai Setting> < Detai Setting> < Detai Setting>	PDO ing Se ail Set ail Set ail Set ail Set	General CC-Link IE TSN General CC-Link IE TSN Module General-Ducal Module GotZo00 Series General-Purpose AC MR-35-G MR-35-G MR-35-G MR-35-Q-G M	Servo Single Axis Single Axis 2-Axis Unifi 3-Axis Unifi 3-Axis Unifi 3-Axis Unifi
Host Station STA#0 Master Station Total STA#:4 Line/Star	STA#1 STA#		STA#4					DC Input Transistor Output Transistor Output I/O Combined Analog Input Analog Output (Outline) Servo Amplifier(MELSERVO-)	15 Series)
Output	ing @ Information	BUCOM DU	0.00				>	Single Axis [Specification] CC-Link IE TSN Class B	×

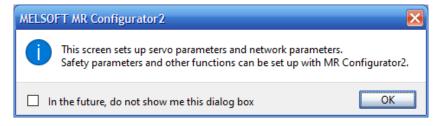
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6) Double-click "<Detailed Setting>" of the "Parameter Automatic Setting" column. Check the stationspecific mode is correctly set, and click "Yes".

Conn	ected	/Disconnected Modu	e Detection		Detailed Disp	lay				Module List	×
Mode	Settin	g:	Online (Unic	ast Mo	de) 🗸 🗸	Assignment Me	thod:			CC-Link IE TSN Selection Fin	nd Module 🏼 🕨
Cyclic '	Fransi	mission Time (Min.):	26.00	us		Communication	Period Int	erval (Min.): 250.00	us	記 乳 宅 部 🗙 🖻 🗡	¢
	No.	Model Name	RY S	etting	RWr Setting	RWw Setting	Param	eter Automatic Setting	PDO	General CC-Link IE TSN	Module
	NO.	Model Name	Po	nts	Points	Points			ing Se	CC-Link IE TSN Module	(Mitsubishi B
-	0	Host Station							_	■ Master/Local Modul	le
۵.	1	MR-J5-G						<detail setting=""></detail>	il Set	Motion Module	
	-	MR-J5-G						<detail setting=""></detail>	il Set	GOT2000 Series	
1.		MR-J5-G					2 2	<detail setting=""></detail>	il Set	General-Purpose AC	Servo
	4	MR-J5-G	_	_				<detail setting=""></detail>	il Set	🖳 MR-J5-G	Single Axis
										👢 MR-J5-G-RJ	Single Axis
				M	ELSOFT GX Wo	rks3		×		MR-JET-G	Single Axis
										MR-J5W2-G	2-Axis Unific
					A Please	confirm that the	configurat	ion of the target slave		MR-J5W2-G_B_Axis	s 2-Axis Unifie
<		_			statio	n and that of the on-specific mode	actual targ	et modules match.	>	MR-J5W3-G	3-Axis Unifie
							-			MR-J5W3-G_BC_Ax	ds 3-Axis Unific
		STA#1 STA	#2 STA:	=3	Do yo	u want to contin	ue the proc	ess?		General purpose Inv	verter
				_					_	DC Input	
tation			i 💼					Yes No		Transistor Output	
										I/O Combined	
				1	Ē.					Analog Input	
≠0 Ma:	ster St									Analog Output	
STA#	4				-30					[Outline]	^
/Star		MR-J5-G MR-J	5-G MR-J	5-G	MR-35-G					Servo Amplifier(MELSERVO-	J5 Series)
										Single Axis [Specification]	
		<							``	CC-Link IE TSN Class B	
		`								la contra de la co	Y
out											×
ror:0	Wa	rning:4 🤣 Informatio	n:0								
rnino*'	The	parameter of slave st	tation is not s	et in m	nodule MR-J5-0	where parame	ter automa	tic setting is enabled. It i	necessary	to set parameter in Parameter	of Slave Statio
										to set parameter in Parameter	

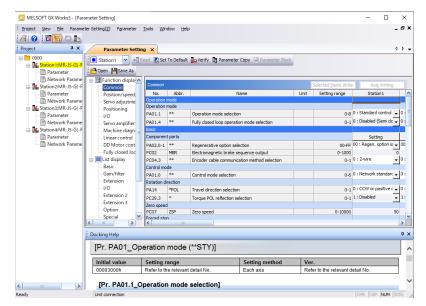
7) When the message regarding parameter settings of MR Configurator2 appears, click "OK".



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8) In the parameter setting window, set the servo parameters by referring to the setting values of the servo parameters of the QD77MS project created in the Simple Motion module setting tool.



Point **P**

You can refer to the parameters of a QD77MS project that have been changed from the default value in MELSOFT Simple Motion module setting tool. On the servo parameter setting screen, click "Verify" for each selected axis, and select "Default".

MELSOFT GX Works3 - [Para	meter Setting]								- 🗆	\times
Eroject View Eile Paramet	ter Setting(<u>Z</u>) P <u>a</u> rameter	Tools Windo	ow <u>H</u> elp						-	. # ×
i 🖪 🔞 i 🖬 😽 🔂 🗈										
Project # ×	Parameter Settin	ng X								1 1 -
	Station 1 Constant Co	tead 💽 Set Ti	o Default	Verify U Parameter	Сору 📄 Ра	arameter Block				
Station2:MR-J5-G(-F	Common	Common						Selected Items Write	Axis Writing	
Parameter	Position/speed	No.	Abbr.	N	ame		Unit	Setting range	Station 1	^
Network Parame	Servo adjustme	Operation mo								
Station3:MR-J5-G(-F Parameter	- Positioning		c8	Operation mode selection	1			0-8	0 : Standard control	0:=
Network Parame	Servo amplifier	PA01.4 *		Fully closed loop operatio	n mode selec	ction		0-1	0 : Disabled (Semi do	. 0 :
Estaton&MR-J5-G(-F	Berto sinjenisti Machine diagn Linear control DD Motor cont Fully closed loc Bizic diplay Basic Gain/filter Extension 2 Extension 3 Option Special Special	Basic Vo Compon PA02.0- PC02 PC04.3 Control PA01.0 Rotatior PA14 PC29.3 Zero speed	Compariso	n Setting n target setting Ifier ② Default ① File	e Cancel			0-1000 0-1 0-6 0-1		0:
										(and a second
	[Pr. PA01_Op	eration n	node ([**STY)]						ф ×
	Initial value	Setting rat			Setting r		Ve			1
	00003000h	Refer to the	relevant	detail No.	Each axis		Re	fer to the relevant de	etail No.	
<	[Pr. PA01.1_0	peration	mode	selection]						~
Ready	Unit connection								OVR CAP NUM S	CRL /

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- 9) When the servo parameter setting is completed, close the "Parameter Setting" screen of the servo parameter.
- 10) Read the displayed message, and click "Yes".

MELSOF	F MR Configurator2	\mathbf{X}
1	To update the slave parameters with the edited content, please click "Close with Reflecting the Setting" on the CC-Link IE TSN Configuration screen.	
	Yes <u>N</u> o Cancel	

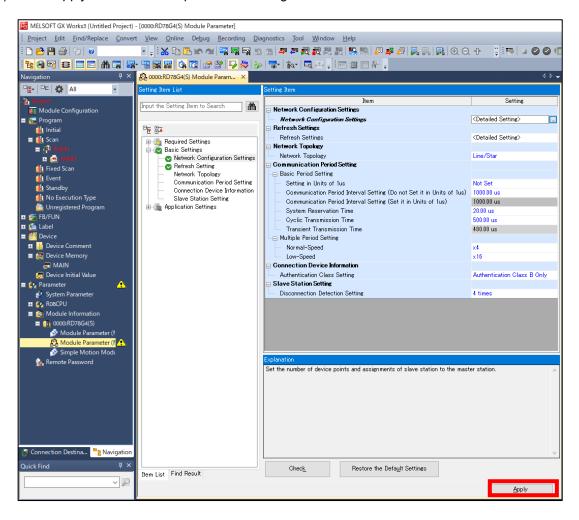
11) Click "Close with Reflecting the Setting" on the CC-Link IE TSN configuration screen. Read the displayed message, and click "Yes".

8	CC-Link	IE TSI	N Configuration	n (Start I/	/O: 000	0)					_		×
i co	-Link <u>I</u> E	E TSN (Configuration	<u>E</u> dit	<u>V</u> iew	Close with	Discardi <u>ng</u> the Se	etting Clo	se with <u>R</u> eflecting the Setting				
	Conr	nected	d/Disconnecte	d Module	e Dete	ction	Detailed Disp	lay			Module List		×
	Mode	Settir	ng:		Online			Assignme	ent Method:	\sim	CC-Link IE TSN Selection	Find Mo	odule 🖣 🕨
	Cyclic	Trans	mission Time (Min.):		- us			ication Period Interval (Min.):	- us	📴 💱 i 🄁 📴 🗠 🖻	×	
		No.	Model	Name			ng RWw Setting	Par	ameter Automatic Setting	PDO Mapping	■ General CC-Link IE T		
		0	Host Station			Points	Points			Setting	CC-Link IE TSN Modu		subishi E
•		1	MR-J5-G						<detail setting=""></detail>	<detail setting=""></detail>	Master/Local Mo Motion Module	Jule	
		2	MR-J5-G						<detail setting=""></detail>	<detail setting=""></detail>	GOT2000 Series		
	8.	3	MR-J5-G					\checkmark	<detail setting=""></detail>	<detail setting=""></detail>	General-Purpose	AC Ser	vo
	.	4	MR-J5-G						<detail setting=""></detail>	<detail setting=""></detail>	MR-J5-G		ngle Axis (
											🔩 MR-J5-G-RJ	Si	ngle Axis I
											MR-J5W2-G		Axis Unific
											MR-J5W2-G_B_/		
											MR-J5W3-G		Axis Unific
	<									>	MR-J5W3-G_BC General purpose		
1			STA#1	STA	±7	STA#3	STA#4				DC Input	inverce	51
			011111	5171	~	5111.0	01110				Transistor Output		
Host	Statio					-					■ I/O Combined		
HUSU	Statio		l∎-	H							Analog Input		
	A#0 I	Master				匷					Analog Output		
To	tal ST/		- (1	-41	b i	- 4 1 0-							
Lin	e/Star		MR-J5-G	MR-J5	5-G	MR-J5-G	MR-J5-G						
			<							>			
i Ou	tput												×
E E	rror 👔	Warr	ning 🧑 Inform	nation									
_													
1													
L													

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12) Click "Apply" on the module parameter setting screen.



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Point

The following table shows the conversion details of a QD77MS project data in MELSOFT Simple Motion module setting tool.

	Data name	Conversion	Description
Item	Sub item	status	
System settings	System configuration	×	Refer to this section.
	Mark detection	o*1	
Parameters	Basic parameters1	0	
	Basic parameters2	0	
	Detailed parameters1	o*1	
	Detailed parameters2	0	
	Home position return basic	Δ	RD78G(S) uses the driver home position
	parameters		return. Set the home position return
	Home position return detailed		method with servo parameters. Refer to
	parameters		this section.
	Extended parameters	Δ	
Servo parameter data		×	
Positioning data		°*1	
Block start data		°*1	
Synchronous control	Servo input axis	0	
data	Synchronous encoder axis	°*1	
	Main input axis	°*1	
	Sub input axis	0 ^{*1}	
	Composite main shaft gear	0	
	Main shaft gear	0	
	Main shaft clutch	O ^{*1}	
	Auxiliary shaft	o*1	
	Composite auxiliary shaft gear	0	
	Auxiliary shaft gear	0	
	Auxiliary shaft clutch	o*1	
Cam data	•	0	

◦: Convertible, △: Partially convertible, ×: Not convertible

*1. Some items will be out of the range after conversion.

The conversion is completed.

Confirm that there is no problem in the converted project.

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4.2. Setting Value Replacement

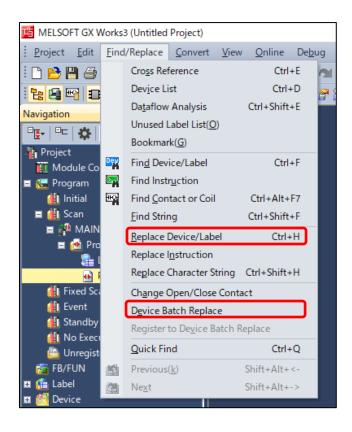
4.2.1. Replacement of buffer memory No./input and output signals in sequence programs

Use the device replacement function of MELSOFT GX Works3 for replacing the buffer memory No. and I/O signals in sequence programs.

The following shows the replacement procedure.

How to replace the buffer memory No. and I/O signals

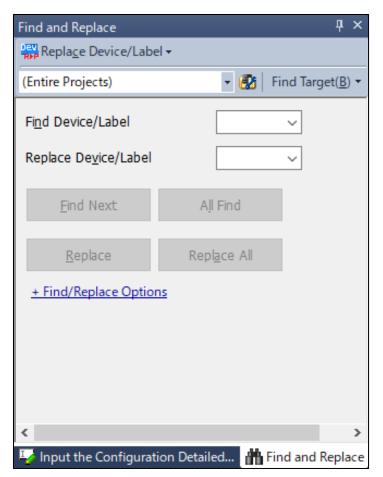
- 1) Start MELSOFT GX Works3, and read the target project data.
- 2) Select "Replace Device/Label" or "Device Batch Replace" from the "Find/Replace" menu.



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3) Set the search location, "Find Device/Label", and "Replace Device Label".



(a) Comparison of buffer memory

Item		QD77MS2/QD77MS4	RD78G(S)	
Axis monitor data (from Md	.20)	800+100n to 899+100n	2400+100n to 2499+100n	
System monitor data		1200 to 1499	4000 to 4299	
Axis control data (from Cd.3	3)	1500+100n to 1599+100n	4300+100n to 4399+100n	
System control data		1900 to 1999	5900 to 5999	
Positioning data (No.1 to 100)		2000+6000n to 2999+6000n	6000+1000n to 6999+1000n	
Positioning data (No. 101 to	o 600)	3000+6000n to 7999+6000n	200000+5000n to 204999+5000n	
Block start area	Block start data	26000+1000n to 26399+1000n	00000 + 100 = 1 = 00000 + 100 =	
(No.7000, 7001)	Condition data	20000+10001110 26399+1000h	22000+400n to 22399+400n	
Block start area Block start data		26400+1000n to 26999+1000n	260000 (600m to 260500 (600m	
(No.7002 to 7004)	Condition data	20400+10001110 20999+10001	360000+600n to 360599+600n	

n: Axis No. -1

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(b) Com	parison	of I/O	signals
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(i) Signal direction: Simple Motion module/Motion module \rightarrow PLC CPU

	QD77MS2/QE)77MS4	RD78G(S)			
Device No.	Signal name		•			
X0	READY		READY			
X1	Synchronizatio	on flag	-			
X2	l la a muchikitaa	I				
X3	 Use prohibited 					
X4	Axis 1					
X5	Axis 2	M and a ON *1				
X6	Axis 3	M code ON ^{*1}				
X7	Axis 4	-				
X8	Axis 1		l la a una hihita d	*2		
X9	Axis 2	From datastion *1	Use prohibited	-		
ХА	Axis 3	Error detection *1				
ХВ	Axis 4	-				
XC	Axis 1					
XD	Axis 2	BUSY				
XE	Axis 3	6031				
XF	Axis 4	-				
X10	Axis 1		Axis 1			
X11	Axis 2	Start complete *1	Axis 2			
X12	Axis 3	Start complete	Axis 3			
X13	Axis 4		Axis 4			
X14	Axis 1		Axis 5			
X15	Axis 2	Positioning complete	Axis 6			
X16	Axis 3	*1	Axis 7			
X17	Axis 4		Axis 8	BUSY		
X18			Axis 9	DUST		
X19			Axis 10			
X1A			Axis 11			
X1B	Lleo probibitor	1	Axis 12			
X1C	Use prohibited	I	Axis 13			
X1D			Axis 14			
X1E			Axis 15			
X1F			Axis 16			

*1: These signals are in "[Md.31] Status" in RD78G(S).

*2: When QD77MS is replaced with RD78G(S), some devices are changed to "Use prohibited". The "use prohibited" devices are used by the system and cannot be used by a customer. If these devices are used, the operation will not be guaranteed.

RD78G(S) buffer memory "[Md.31] Status"						
Buffer memory address		Signal name				
	b12	M code ON				
2417+100n	b13	Error detection				
2417+1001	b14	Start complete				
b15		Positioning complete				
n: Axis No1						

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Device No.		/QD77MS4	RD78G(S)		
	Signal nan	ne			
Y0	PLC REAL				
Y1	All axis se	rvo ON			
Y2		nited			
Y3					
Y4	Axis 1				
Y5	Axis 2	Axis stop *1			
Y6	Axis 3				
Y7	Axis 4				
Y8	— Axis 1	Forward run JOG start signal *1			
Y9	7013 1	Reverse run JOG start signal ^{*1}			
YA	Avia 2	Forward run JOG start signal ^{*1}	Use prohibite	ed *2	
YB	Axis 2	Reverse run JOG start signal ^{*1}			
YC		Forward run JOG start signal *1	signal ^{⁵1} Reverse run JOG start signal ^{⁵1}		
YD	Axis 3	Reverse run JOG start			
YE	Avia 4	Forward run JOG start signal *1			
YF	Axis 4	Reverse run JOG start signal *1			
Y10	Axis 1		Axis 1		
Y11	Axis 2	Desitioning start	Axis 2		
Y12	Axis 3	Positioning start	Axis 3]	
Y13	Axis 4		Axis 4]	
Y14	Axis 1		Axis 5		
Y15	Axis 2	Execution prohibition	Axis 6		
Y16	Axis 3	flag *1	Axis 7		
Y17	Axis 4		Axis 8	Positioning start	
Y18			Axis 9	i ositioning start	
Y19			Axis 10		
Y1A			Axis 11		
Y1B	Use prohit	nited	Axis 12		
Y1C			Axis 13		
Y1D			Axis 14		
Y1E			Axis 15		
Y1F			Axis 16		

(ii) Signal direction: PLC CPU→ Simple Motion module/Motion module

*1: In RD78G(S), these signals are in "[Cd.180] to [Cd.183]" in the buffer memory.

*2: When QD77MS is replaced with RD78G(S), some devices are changed to be "Use prohibited". The "use prohibited" devices are used by the system and cannot be used by a customer. If these devices are used, the operation will not be guaranteed.

RD78G(S) buffer memory [Cd.180] to [Cd	.183]			
Buffer memory address	Signal name			
30100+10n	Axis stop			
30101+10n	Forward run JOG start signal			
30102+10n	Reverse run JOG start signal			
30103+10n	Execution prohibition flag			

n: Axis No. -1

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5. REVISIONS

Version	Revision date	Description
А	October 2021	First edition

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