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TECHNICAL BULLETIN

FA-A-0279-C

Features of the MELSEC iQ-R Series Safety Programmable Controllers and Differences from the MELSEC-QS Series

■Date of Issue

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■Relevant Models

MELSEC iQ-R series safety programmable controllers, MELSEC-QS series

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Thank you for your continued support of Mitsubishi Electric programmable controllers, MELSEC iQ-R series and MELSEC-QS series.

This bulletin describes the features of the MELSEC iQ-R series safety programmable controllers and differences from the MELSEC-QS series.

Note that the descriptions in this bulletin provide information of August 2020.

CONTENTS

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FA-A-0279-C

1 TERMS

Term	Description
Safety control	Machine control by safety programs and safety data communications. When an error occurs, the machine in operation is securely stopped.
Safety communications	Communication service that performs send/receive processing in the safety layer of the safety communication protocol
Safety program	A program that performs safety control
Standard control	Machine control by standard programs and standard data communications. Programmable controllers other than the safety programmable controller perform only standard control. (This term is used to distinguish from safety control.)
Standard communications	Communications other than safety communications, such as cyclic transmission and transient transmission of CC-Link IE TSN or CC-Link IE Field Network
Standard program	A program that performs sequence control (Safety programs are excluded.) (This term is used to distinguish from a safety program.)

2 GENERIC TERMS AND ABBREVIATIONS

Generic term	Description
RnSFCPU	A generic term for R08SFCPU, R16SFCPU, R32SFCPU, R120SFCPU
QSCPU	A generic term for QS001CPU

FA-A-0279-C

3 FEATURES OF MELSEC iQ-R SERIES SAFETY PROGRAMMABLE CONTROLLERS

This section describes the features of MELSEC iQ-R series safety programmable controllers.

Integration of standard control and safety control

The MELSEC-QS series required two systems for standard control and safety control. The MELSEC iQ-R series safety programmable controllers integrate the standard control and safety control into one system.
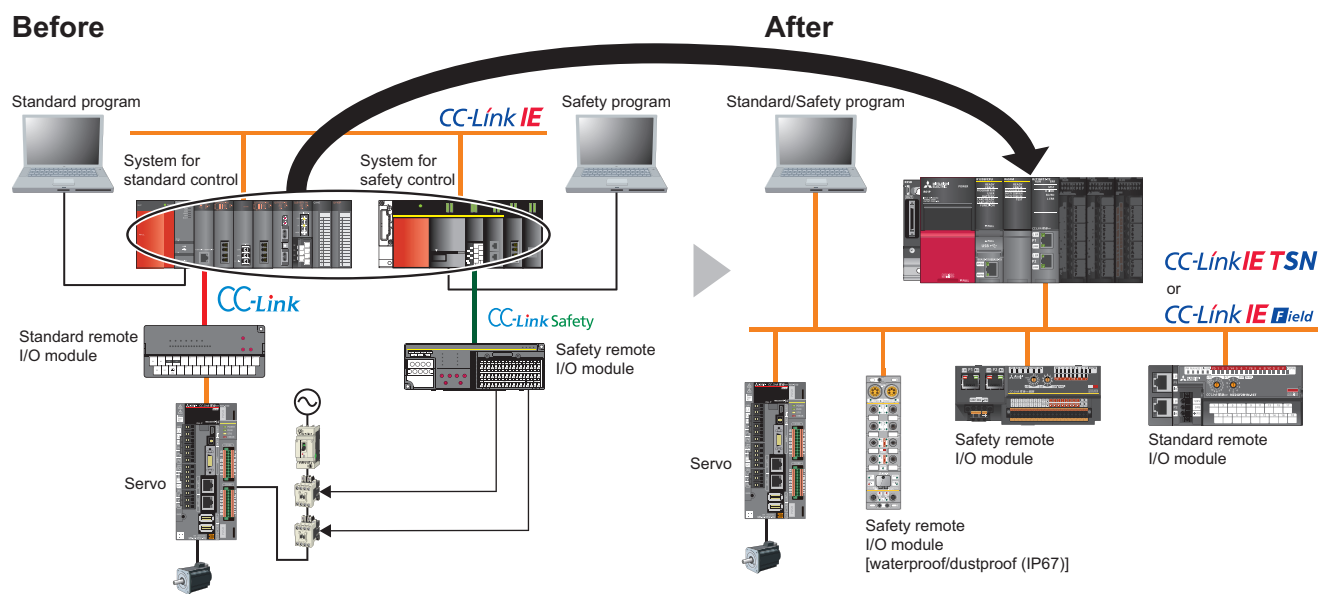
The MELSEC iQ-R series safety programmable controllers use the modules for standard control and safety control in the same base unit to save space.

In addition, the modules for standard control and safety control share the power supply module, base unit, and network module to reduce cost.

Integration of standard communication and safety communication

The MELSEC-QS series required two networks for standard communication (CC-Link) and safety communication (CC-Link Safety). The MELSEC iQ-R series safety programmable controllers use both standard communication and safety communication on the CC-Link IE TSN or CC-Link IE Field Network.

The MELSEC iQ-R series safety programmable controllers integrate standard communication and safety communication on the CC-Link IE TSN or CC-Link IE Field Network. Both the standard remote I/O module and safety remote I/O module can be used. Standard Ethernet cables can be used. Dedicated cables are not required.

Productivity improvement

Using both the high-performance MELSEC iQ-R series safety programmable controllers and the CC-Link IE TSN or CC-Link IE Field Network reduces response time. (Safety response time is approximately one-third that of the MELSEC-QS series.)

The program capacity for safety control of the MELSEC iQ-R series safety programmable controllers increases to 40K steps. (Approximately three times that of the MELSEC-QS series)

Therefore, large-capacity programs can be processed at high speed, which improves the productivity of your system.

Safety response time	Program capacity
MELSEC iQ-R series Approx. one-third MELSEC-QS series Condition: 42 slave stations (when based on that of the MELSEC-QS series)	MELSEC iQ-R series MELSEC-QS series Approx. 3 times

4 DIFFERENCES FROM MELSEC-QS SERIES

4.1 System Configuration Differences

System differences

This section describes the differences in systems between the MELSEC iQ-R series safety programmable controllers and the MELSEC-QS series.

The MELSEC iQ-R series safety programmable controllers use both standard communication and safety communication on the CC-Link IE TSN or CC-Link IE Field Network. (☞ Page 3 Integration of standard communication and safety communication)

In addition, the network for standard communication can be connected to more networks than the MELSEC-QS series.

Item		MELSEC iQ-R series	MELSEC-QS series
Overall Configuration		• Single CPU system • Multiple CPU system[*1]	Single CPU system
Applicable modules		• MELSEC iQ-R series • MELSEC-Q series[*2]	• MELSEC-QS series • MELSEC-Q series (only part)
Maximum number of mountable modules		63	4
Connectable networks	Networks for safety communication	• CC-Link IE TSN[*3*6] (master station ⇔ (remote station, local station)) • CC-Link IE Field Network[*3] (master station ⇔ (remote station, local station))	• CC-Link Safety system (master station ⇔ remote station) • CC-Link IE Field Network (master station ⇔ local station)
	Networks for standard communication	• Ethernet • CC-Link IE TSN[*3] • CC-Link IE Controller Network • CC-Link IE Field Network[*3] • CC-Link • MELSECNET/H[*4*5] • Serial communication • AnyWireASLINK • BACnet • DeviceNet[*6] • PROFIBUS-DP[*6] • EtherNet/IP • CANopen[*6]	• Ethernet • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H
Engineering software		GX Works3	GX Developer

*1 The MELSEC iQ-R series configures the multiple CPU system using other CPU modules. For details, refer to the following.
   📖 MELSEC iQ-R Module Configuration Manual (SH-081262ENG)
*2 Using the RQ extension base unit enables the use of the existing MELSEC-Q series system. For details, refer to the following.
   📖 MELSEC iQ-R Module Configuration Manual (SH-081262ENG)
*3 The CC-Link IE TSN and CC-Link IE Field Network can use both a remote station (standard station, safety station) and local station (standard station, safety station).
*4 When a coaxial bus system or twisted bus system is used with the MELSECNET/H network module of MELSEC-Q series mounted to the RQ extension base unit, the MELSEC iQ-R series can be connected to the MELSECNET/H. The MELSECNET/H network module is available when the firmware version of RnSFCPU is "18" or later and the version of GX Works3 is "1.057K" or later.
*5 When an optical loop system is used, the RJ71LP21-25 (available for the MELSEC iQ-R series) can be used. The products, however, are not available for the RnSFCPU. When using a safety CPU, configure a multiple CPU system. For details, refer to the following.
   📖 MELSEC iQ-R Module Configuration Manual (SH-081262ENG)
*6 There are some restrictions for the firmware version of the CPU modules. For details, refer to the following.
   📖 MELSEC iQ-R Module Configuration Manual (SH-081262ENG)

Applicable modules

This section describes the differences in applicable modules between the MELSEC iQ-R series safety programmable controllers and MELSEC-QS series. For details on the applicable modules for the MELSEC iQ-R series, refer to the following.

📖 MELSEC iQ-R Module Configuration Manual (SH-081262ENG)

Base unit

Item	MELSEC iQ-R series	MELSEC-QS series
Main base unit	R33B, R35B, R38B, R312B, R310B-HT	QS034B
Extension base unit	R65B, R68B, R612B, R610B-HT, RQ65B, RQ68B, RQ612B	—

The MELSEC iQ-R series supports the main base units of the 3rd to 12th slot and extension base units.

Power supply module

Item		MELSEC iQ-R series	MELSEC-QS series
Power supply module	AC input	R61P, R62P, R64P	QS061P-A1, QS061P-A2
	DC input	R63P	—

The MELSEC iQ-R series can be used with AC input and DC input power supply modules.

CPU module

Item	MELSEC iQ-R series	MELSEC-QS series
CPU module	R08SFCPU-SET[*1] (80K steps (for safety program: 40K steps))	QS001CPU (14K steps)
	R16SFCPU-SET[*1] (160K steps (for safety program: 40K steps))	
	R32SFCPU-SET[*1] (320K steps (for safety program: 40K steps))	
	R120SFCPU-SET[*1] (1200K steps (for safety program: 40K steps))	

The MELSEC iQ-R series supports CPU modules of 80K to 1200K steps according to the program capacity necessary for control.

*1 The RnSFCPU-SET consists of the RnSFCPU and safety function module (R6SFM).
Use the RnSFCPU and safety function module in combination.

Memory extension

Item	MELSEC iQ-R series	MELSEC-QS series
SD Memory Card	NZ1MEM-2GBSD, NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD	—
Extended SRAM cassette	NZ2MC-1MBS, NZ2MC-2MBS, NZ2MC-4MBS, NZ2MC-8MBS, NZ2MC-2MBSE, NZ2MC-8MBSE	—

The MELSEC iQ-R series supports to extend the device/label memory.

Network module

Item	MELSEC iQ-R series	MELSEC-QS series
Ethernet module	RJ71EN71	QJ71E71-B2[*1], QJ71E71-B5[*1], QJ71E71-100
CC-Link IE TSN module	RJ71GN11-T2	—
CC-Link IE Controller Network module	RJ71GP21-SX, RJ71GP21S-SX, RJ71EN71[*2]	QJ71GP21-SX, QJ71GP21S-SX
CC-Link IE Field Network master/local module	RJ71GF11-T2, RJ71EN71[*2]	QS0J71GF11-T2
CC-Link Safety system master module	—[*3]	QS0J61BT12
CC-Link system master/local module	RJ61BT11	—
MELSECNET/H network module	RJ71LP21-25, QJ71LP21-25[*4], QJ71LP21S-25[*4], QJ71LP21G[*4], QJ71BR11[*4], QJ71NT11B[*4]	QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, QJ71LP21GE, QJ71BR11
Serial communication module	RJ71C24, RJ71C24-R2, RJ71C24-R4	—
AnyWireASLINK master module	RJ51AW12AL	—
BACnet module	RJ71BAC96	—
DeviceNet master/slave module	RJ71DN91	—
PROFIBUS-DP module	RJ71PB91V	—
EtherNet/IP module	RJ71EIP91	—
CANopen module	RJ71CN91	—

The MELSEC iQ-R series can be connected to information sharing devices including the MES interface module in addition to the above network modules.

*1   The QJ71E71-B2 and QJ71E71-B5 have been discontinued.
*2   These modules can be connected to the CC-Link IE Controller Network or CC-Link IE Field Network by setting from GX Works3. For details, refer to the following.
      📖 MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup) (SH-081256ENG)
      📖 MELSEC iQ-R CC-Link IE Field Network User's Manual (Application) (SH-081259ENG)
      📖 MELSEC iQ-R CC-Link IE Controller Network User's Manual (Application) (SH-081258ENG)
*3   The CC-Link IE TSN or CC-Link IE Field Network can be used as a substitute.
*4   With the MELSECNET/H network module of MELSEC-Q series mounted to the RQ extension base unit, the MELSEC iQ-R series can be connected to the MELSECNET/H. The MELSECNET/H network module is available when the firmware version of RnSFCPU is "18" or later and the version of GX Works3 is "1.057K" or later.

Remote I/O module with safety function

Item	MELSEC iQ-R series (CC-Link IE TSN)	MELSEC iQ-R series (CC-Link IE Field Network)	MELSEC-QS series (CC-Link Safety)
I/O module	NZ2GNSS2-16DTE [low-point]	NZ2GFSS2-16DTE [low-point]	QS0J65BTB2-12DT
		NZ2GFSS2-32D + NZ2EXSS2-8TE [high-point]	
		NZ2GFS12A2-16DTE [waterproof/dustproof (IP67)]	
		NZ2GFS12A2-14DT [waterproof/dustproof (IP67)]	
Input module	NZ2GNSS2-8D [low-point]	NZ2GFSS2-8D [low-point]	QS0J65BTS2-8D
		NZ2GFSS2-32D [high-point]	
Output module	NZ2GNSS2-8TE [low-point]	NZ2GFSS2-8TE [low-point]	QS0J65BTS2-4T

For function comparisons, refer to the following.
☞ Page 13 Safety remote I/O module
The MELSEC iQ-R series has three types to support the various applications of the safety system: low-point, high-point, and waterproof/dustproof (IP67).

FA-A-0279-C

Blank cover module

Item	MELSEC iQ-R series	MELSEC-QS series
Blank cover module	RG60	QG60

Battery

Item	MELSEC iQ-R series	MELSEC-QS series
Battery	Q6BAT, Q7BATN, Q7BATN-SET, Q7BAT, Q7BAT-SET	Q6BAT

4.2 Differences in Specifications and Functions

This chapter describes the differences in specifications and function between the MELSEC iQ-R series safety programmable controllers and MELSEC-QS series.

CPU module

This section describes the differences between the RnSFCPU and QSCPU.

The MELSEC iQ-R series safety programmable controllers are not compatible with CC-Link Safety system master modules.

The MELSEC iQ-R series supports other MELSEC-QS series functions/performance.

The standard operation processing speed (LD instruction) of RnSFCPU is approximately 100 times that of QSCPU.

For details on the RnSFCPU instructions, refer to the following.

📖 MELSEC iQ-R Programming Manual (CPU Module Instructions, Standard Functions/Function Blocks) (SH-081266ENG)

For details on the RnSFCPU functions and devices, refer to the following.

📖 MELSEC iQ-R CPU Module User's Manual (Application) (SH-081264ENG)

○: Available, ×: Not available

Item			MELSEC iQ-R series		MELSEC-QS series
			Standard program	**Safety program**	
System configuration	Number of mountable modules	Other than the modules below	64 (Max.)		4 (Max.)
		Ethernet module	No restriction		1 (Max.)
		CC-Link Safety system master module	×		2 (Max.)
		CC-Link module	8 (Max.)		×
		CC-Link IE TSN module (supports the safety communication function.)	8 (Max.)[5]		×
		CC-Link IE Field Network module (supports the safety communication function.)	8 (Max.)[5]		1 (Max.)
		CC-Link IE Controller Network module	8 (Max.)		One of the modules
		MELSECNET/H network module	4 (Max.)[3][4]		
	Number of steps of the extension base unit		7 (Max.)		×
	Extension cable		Extension cable length: 20m		×

FA-A-0279-C

Item			MELSEC iQ-R series		MELSEC-QS series
			Standard program	**Safety program**	
Programming	Programming language	Ladder diagram (LD)	○	○	○
		Sequential function chart (SFC)	×	×	×
		Structured text (ST)	○	×	×
		Function block diagram (FBD)/structured ladder	○	×	×
	Function block (FB)		○	○	○
	Program execution type	Initial execution type	○	×	×
		Scan execution type	○	×	○
		Fixed scan execution type	○	○	×
		Standby type	○	×	×
		Event execution type	○	×	×
	Number of I/O device points		• Input: 12288 points • Output: 12288 points	• Safety input: 8192 points • Safety output: 8192 points	• Input: 6144 points • Output: 6144 points
	Number of I/O points		4096 points		1024 points
	User device		○: Device arrangement has been changed.		○
	File register		○	×	×
	System device		○: Arrangement of some SMs/SDs has been changed.		○
	Constant scan		0.2 to 2000ms (in increments of 0.1ms)		1 to 2000ms (in increments of 1ms)
Memory capacity	Program capacity		80K/160K/320K/1200K steps		14K steps
	Program memory		320K/640K/1280K/4800K bytes		128K bytes
	Standard RAM (MELSEC-QS series) Device/label memory (MELSEC iQ-R series)		1178K/1710K/2306K/3370K bytes		×
	Standard RAM (MELSEC-QS series) Data memory (MELSEC iQ-R series)		5M/10M/20M/40M bytes		128K bytes
Processing performance	Instruction Processing Time	LD instruction	0.98ns		0.10µs
		OUT instruction	0.98ns		0.10µs
		MOV instruction	1.96ns		0.35µs
Instruction	Sequence instruction	Other than the instructions below	○	○	○
		Annunciator output	○	×	○
		Setting annunciator	○	×	○
		Resetting annunciator	○	×	○
	Basic instruction	Other than the instructions below	○	○	○
		BIN data → BCD 4-digit conversion	○	×	○
		BIN data → BCD 8-digit conversion	○	×	○
		BCD 4-digit → BIN data conversion	○	×	○
		BCD 8-digit → BIN data conversion	○	×	○
	Application instruction		○	○	○
	QSCPU dedicated instruction	Forced control stop instruction	×[*1]	×[*1]	○: S.QSABORT

Item		MELSEC iQ-R series		MELSEC-QS series
		Standard program	**Safety program**	
Function	Safety CPU operation mode	○		○
	CPU access password	○ (Security function)[*2]		○
	PLC memory initialization	○		○
	Setting for preventing continuous RUN in TEST MODE	×	○	○
	ROM write count check	○		○
	Self-Diagnostic function	○		○
	Operation/error history	○ (Event history function)[*2]		○
	Constant scan	○		○
	Output status selection function for transition from STOP status to RUN status	○		○
	Clock function	○		○
	Remote RUN/STOP	○		○
	Remote RESET	○		○
	Monitor function	○		○
	Online change	○		○
	Watchdog timer	○		○
	Remote password	○		○
	System display	○		○
	LED display	○		○

*1 Generating an operation error and stopping the program can be used as a substitute.
*2 Names in parentheses represent function names in the MELSEC iQ-R series.
*3 With the MELSECNET/H network module of MELSEC-Q series mounted to the RQ extension base unit, the MELSEC iQ-R series can be connected to the MELSECNET/H. The MELSECNET/H network module is available when the firmware version of RnSFCPU is "18" or later and the version of GX Works3 is "1.057K" or later.
*4 Depending on the number of modules mounted to other modules, the number of mountable modules may be less than four. For details, refer to the following.
    📖 MELSEC iQ-R Module Configuration Manual (SH-081262ENG)
*5 The number of modules used for the safety communication function is 8 or less in a total for CC-Link IE TSN modules and CC-Link IE Field Network modules.

FA-A-0279-C

Network

This section describes the differences in the network for safety communication between the MELSEC iQ-R series safety programmable controllers and MELSEC-QS series.

The communication speed of the network for safety communication of the MELSEC iQ-R series is 100 times that of the MELSEC-QS series.

For details on the network for safety communication of the MELSEC iQ-R series, refer to the following.

📖 MELSEC iQ-R CC-Link IE Field Network User's Manual (Application) (SH-081259ENG)

📖 MELSEC iQ-R CC-Link IE TSN User's Manual (Application) (SH-082129ENG)

Item	MELSEC iQ-R series (CC-Link IE TSN)	MELSEC iQ-R series (CC-Link IE Field Network)	MELSEC-QS series (CC-Link Safety)
Maximum number of connectable stations	121 (master station: 1, slave station: 120)	121 (master station: 1, slave station: 120)	65 (master station: 1, standard remote I/O station: 64) (When a safety remote I/O station is connected, one master station and 42 safety remote I/O stations can be used.)
Maximum number of safety link points per station	• Input: 8 words (128-bit) • Output: 8 words (128-bit)	• Input: 8 words (128-bit) • Output: 8 words (128-bit)	• Input: 32 bits • Output: 32 bits
Network topology	Line topology, star topology, mix of line topology and star topology, ring topology	Line topology, star topology, ring topology	Line topology, tree topology, star topology
Communication cable	1000BASE-T (shielded), 100BASE-TX (shielded)	1000BASE-T (shielded)	CC-Link dedicated cable
Communication speed	1Gbps, 100Mbps	1Gbps	10Mbps (extension cable length: 100m)

Safety remote I/O module

This section describes the differences in the safety remote I/O module between the MELSEC iQ-R series safety programmable controllers and MELSEC-QS series.

The safety remote I/O module for the MELSEC iQ-R series uses a spring clamp terminal block that does not require tightening screws to reduce workload of wiring and maintenance.

For details on available safety remote I/O modules in the MELSEC iQ-R series, refer to the following.

📖 CC-Link IE Field Network Remote I/O Module (With Safety Functions) User's Manual (SH-081449ENG)

📖 CC-Link IE Field Network Waterproof/Dustproof Remote I/O Module (With Safety Functions) User's Manual (SH-082076ENG)

I/O module

Item		MELSEC iQ-R series (CC-Link IE TSN)	MELSEC iQ-R series (CC-Link IE Field Network)				MELSEC-QS series
		NZ2GNSS2-16DTE	NZ2GFSS2-16DTE	NZ2GFSS2-32D + NZ2EXSS2-8TE	NZ2GFS12A2-16DTE	NZ2GFS12A2-14DT	QS0J65BTB2-12DT
Rated input voltage		24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (19.2 to 28.8VDC)
Rated input current		7.3mA TYP. (at 24VDC)	7.0mA TYP. (at 24VDC)	6.0mA TYP. (at 24VDC)	6.0mA TYP. (at 24VDC)	6.0mA TYP. (at 24VDC)	4.6mA TYP. (at 24VDC)
Input ON voltage/ON current		12VDC or higher/ 3mA or higher	12VDC or higher/ 3mA or higher	15VDC or higher/ 2mA or higher	11VDC or higher/ 2mA or higher	11VDC or higher/ 2mA or higher	15VDC or higher/ 2mA or higher
Input OFF voltage/OFF current		5VDC or lower/ 1.3mA or lower	5VDC or lower/ 1.3mA or lower	5VDC or lower/ 0.5mA or lower	5VDC or lower/ 1.5mA or lower	5VDC or lower/ 1.5mA or lower	5VDC or lower/ 0.5mA or lower
Rated load voltage		24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (19.2 to 28.8VDC)
Maximum load current		0.5A/point	0.5A/point	0.5A/point	1A/point	2A/point	0.5A/point
Protection function		Available	Available	Available	Available	Available	Available
Number of input points	Single wiring	8 points	8 points	32 points	12 points	12 points	16 points
	Double wiring	4 points	4 points	16 points	6 points	6 points	8 points
Number of output points	Single wiring	8 points	8 points	8 points	4 points	Not available	—
	Double wiring	4 points (source + source type)	4 points (source + source type)	4 points (source + source type)	2 points (source + source type)	2 points (source + sync type)	• 4 points (when selecting source + sync type) • 2 points (when selecting source + source type)
External wiring connection method (○: Available)	Screw terminal block	—	—	—	—	—	○
	Spring clamp terminal block	○	○	○	—	—	—
	Waterproof connector	—	—	—	○	○	—
Protection degree		IP2X	IP2X	IP2X	IP67	IP67	IP2X
Wiring method for common		• Input 8 points/ common • Output 8 points/ common	• Input 8 points/ common • Output 8 points/ common	• Input 32 points/ common • Output 8 points/ common	• Input 12 points/ common • Output 4 points/ common	• Input 12 points/ common • Output 4 points/ common	• Input 16 points/ common • Output 4 points/ common
External dimensions	Height	54.5mm	54.5mm	108mm	235mm	235mm	98mm
	Width	142mm	142mm	113mm	60mm	60mm	163mm
	Depth	68mm	68mm	113mm	48.5mm	48.5mm	85mm

FA-A-0279-C

Input module

Item		MELSEC iQ-R series (CC-Link IE TSN)	MELSEC iQ-R series (CC-Link IE Field Network)		MELSEC-QS series
		NZ2GNSS2-8D	NZ2GFSS2-8D	NZ2GFSS2-32D	QS0J65BTS2-8D
Rated input voltage		24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (19.2 to 28.8VDC)
Rated input current		7.3mA TYP. (at 24VDC)	7.0mA TYP. (at 24VDC)	6.0mA TYP. (at 24VDC)	5.9mA TYP. (at 24VDC)
Input ON voltage/ON current		12VDC or higher/3mA or higher	12VDC or higher/3mA or higher	15VDC or higher/2mA or higher	15VDC or higher/2mA or higher
Input OFF voltage/OFF current		5VDC or lower/1.3mA or lower	5VDC or lower/1.3mA or lower	5VDC or lower/0.5mA or lower	5VDC or lower/0.5mA or lower
Protection function		Available	Available	Available	Available
Number of points	Single wiring	8 points	8 points	32 points	16 points
	Double wiring	4 points	4 points	16 points	8 points
External wiring connection method (○: Available)	Screw terminal block	—	—	—	○ (Communication part, module power supply part)
	Spring clamp terminal block	○	○	○	○ (Input part, external power supply part)
Protection degree		IP2X	IP2X	IP2X	IP2X
Wiring method for common		Input 8 points/common	Input 8 points/common	Input 32 points/common	Input 16 points/common
External dimensions	Height	54.5mm	54.5mm	103.5mm	65mm
	Width	142mm	142mm	90mm	197mm
	Depth	68mm	68mm	113mm	74.5mm

Output module

Item		MELSEC iQ-R series (CC-Link IE TSN)	MELSEC iQ-R series (CC-Link IE Field Network)	MELSEC-QS series
		NZ2GNSS2-8TE	NZ2GFSS2-8TE	QS0J65BTS2-4T
Rated load voltage		24VDC (20.4 to 28.8VDC)	24VDC (20.4 to 28.8VDC)	24VDC (19.2 to 28.8VDC)
Maximum load current		0.5A/point	0.5A/point	0.5A/point
Protection function		Available	Available	Available
Number of points	Single wiring	8 points	8 points	—
	Double wiring	4 points	4 points	• 4 points (when selecting source + sync type) • 2 points (when selecting source + source type)
External wiring connection method (○: Available)	Screw terminal block	—	—	○ (Communication part, module power supply part)
	Spring clamp terminal block	○	○	○ (Output part, external power supply part)
Protection degree		IP2X	IP2X	IP2X
Wiring method for common		Output 8 points/common	Output 8 points/common	Output 4 points/common
External dimensions	Height	54.5mm	54.5mm	65mm
	Width	142mm	142mm	197mm
	Depth	68mm	68mm	74.5mm

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REVISIONS

Version	Date of Issue	Revision
A	May 2019	First edition
B	December 2019	• Addition of MELSEC-QS series to the relevant models • Correction of the following sections. Section 4.1 and 4.2
C	August 2020	• Additional product information for the safety communication function of the CC-Link IE TSN Chapter 1, Chapter 3, Section 4.1, and Section 4.2 • Updated MELSEC iQ-R series product information Section 4.1