CONTROLLERS

Programmable Controllers MELSEC

Servo System Controller

Adaptable to a wide range of operations,
from miniaturized machines to
large-scale infrastructure monitoring

MELSEC

Programmable Controllers MELSEC

MELSEC Series; Innovating technology

The MELSEC Series continued to respond to the demands of production sites and made refinements.
Our highly reliable and extensive lineup offers new possibilities to advanced production sites.

Product details P.4

Servo System Controller

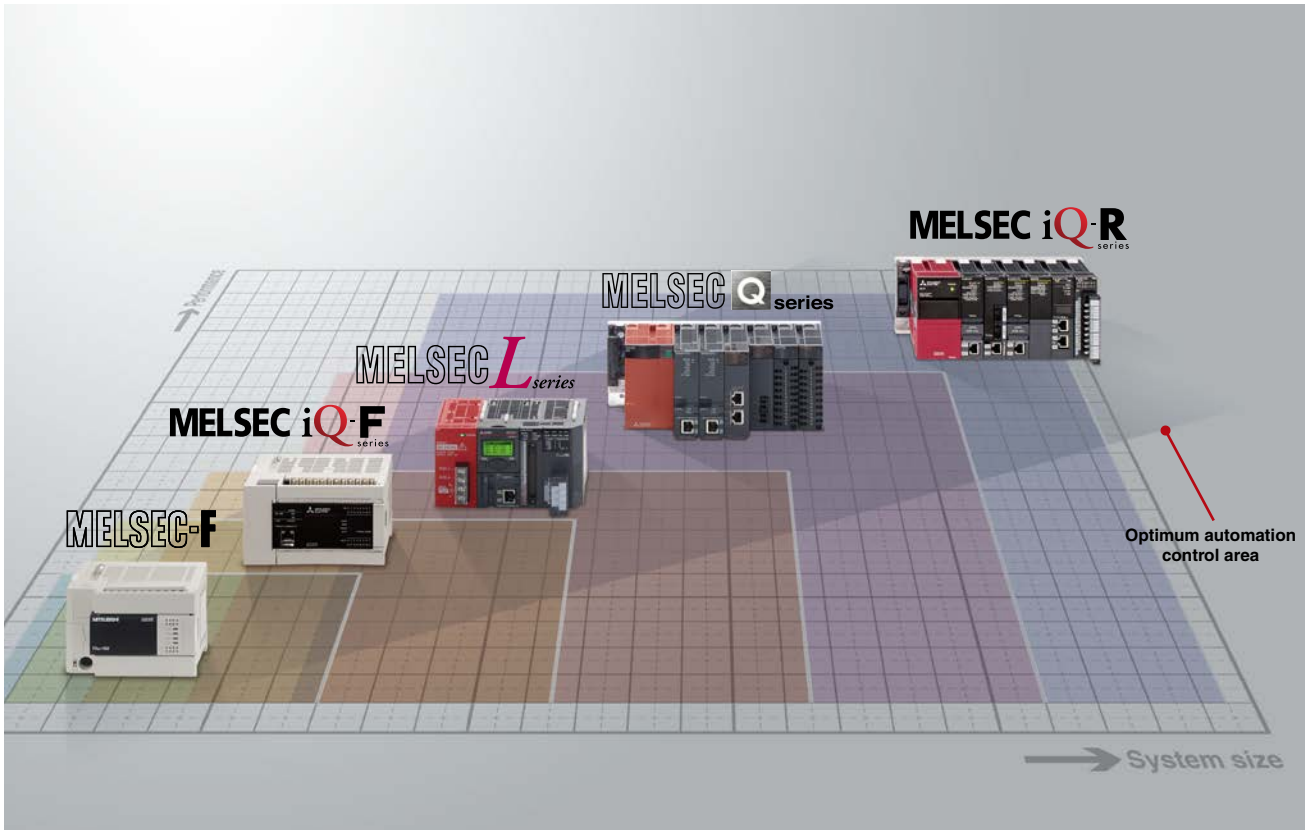
Capable of high-speed, high-accuracy drive control of various industrial machines.
Our lineup of motion controllers and simple motion units allow you to make the best choice for your control needs.

Product details P.240

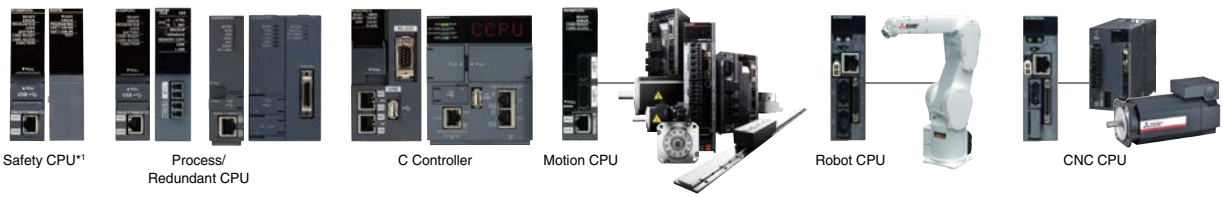
Programmable Controllers

MELSEC Series; Innovating technology

The MELSEC Series continued to respond to the demands of production sites and made refinements.
Our highly reliable and extensive lineup offers new possibilities to advanced production sites.



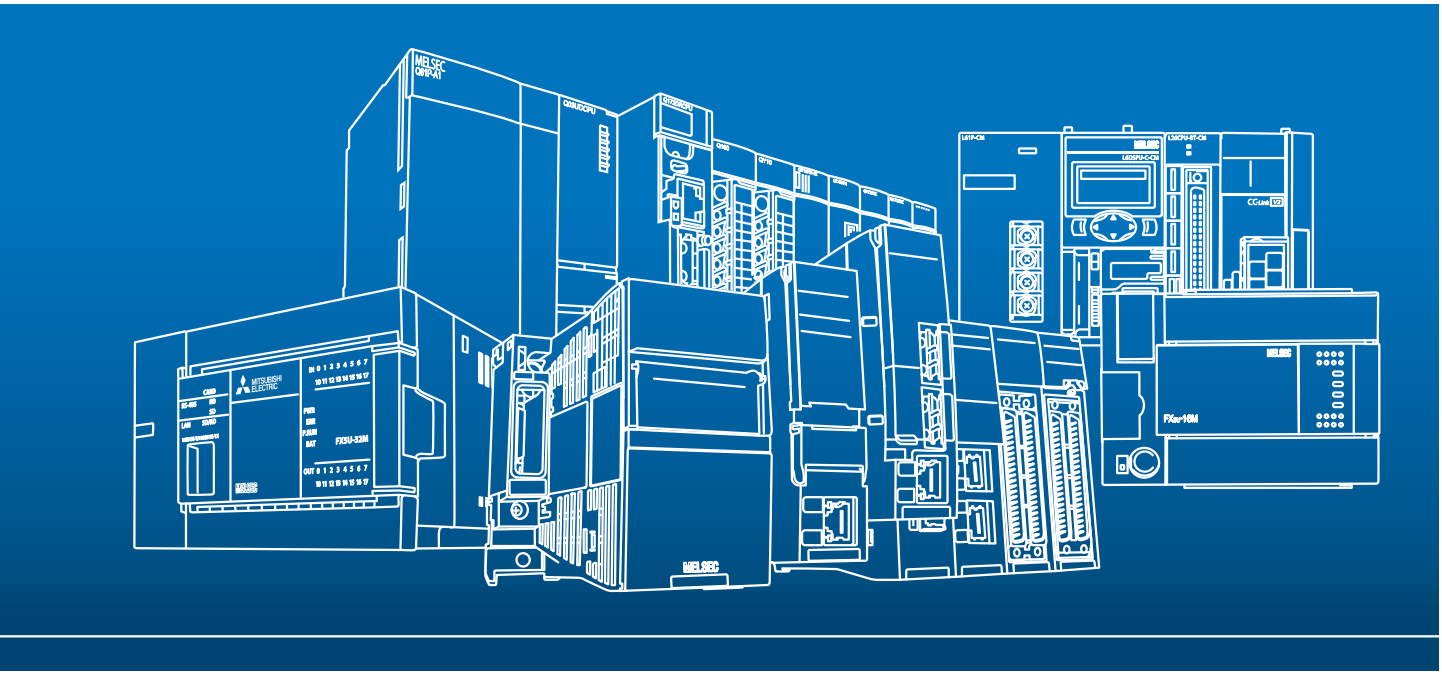
Application-specific CPUs



iQ Platform

These best-in-class CPUs, integrated into the iQ Platform, are designed for specific needs across various different industry areas.

*1: R□SFCPU-SET includes both a safety CPU and safety function module



Medium- to large-scale control

P.10

MELSEC iQ-R Series

A next-generation programmable automation controller (PAC), the MELSEC iQ-R Series incorporates a revolutionary high-speed system bus that improves productivity through advanced performance and functionality.

P.88

MELSEC-Q Series

The first to incorporate the multiple CPU architecture, the MELSEC-Q Series wide-range of CPUs enables control of multiple operations, improving the performance and scalability of the overall production system.

Small- to medium-scale control

P.118

MELSEC-L Series

The MELSEC-L Series is a baseless highly scalable controller ideal for applications having limited space. With various I/O functionality embedded into the CPU head, exceptional cost versus performance is achieved in a compact body.

Small-scale and stand-alone

P.48

MELSEC iQ-F Series

Designed to provide outstanding performance and superior drive control, the MELSEC iQ-F Series is a high-performance compact-class controller with a rich assortment of integrated functions.

P.134

MELSEC-F Series

Incorporating abundant features with a flexible system configuration, the MELSEC-F Series has a power supply, CPU and I/Os into a single compact body. Furthermore, a diverse range of options are available to further expand its capabilities.

Safety control

MELSEC-WS Series

P.150

MELSEC-QS Series

“MELSEC Safety”, the Total Safety Solution delivers safety control while securing compatibility with the MELSEC programmable controllers. Our extensive lineup offers safety equipment best suited to your system configuration.

Network related products

P.160

CC-Link IE CC-Link

Supports seamless network construction from office to production sites, based on the platform of a consistent design approach. Built to deliver seamless collaboration from lower field system to higher information system to realize an optimized network according to purpose and use.

Engineering software

MELSOFT

P.184

GX Works3 GX Works2

MELSOFT iQ Works

Lineup of engineering software for comprehensive support of programmable controller design and maintenance work. By sharing system design such as system configuration and programing among the overall system, it makes possible to enhance the efficiency of system design and programing.

iQ Sensor Solution

P.202

iQSS

iQSS (iQ Sensor Solution) simplifies sensor setting and maintenance process. Linkage among sensors, indicators, and engineering environment is strengthened further to reduce TCO (Total Cost of Ownership) of individual customers.

MELSEC Designed with automation in mind

Mitsubishi Electric offers a wide range of controllers capable of satisfying the diversified application needs in various industries. The high-speed, high-accuracy controllers in the MELSEC series covers them all, providing highly flexible cost-effective solutions.

iQ-R : MELSEC iQ-R Series
Q : MELSEC-Q Series
L : MELSEC-L Series
iQ-F : MELSEC iQ-F Series
F : MELSEC-F Series
S : Safety
P : Process/Redundant system
C : C Controller
M : Servo system controller
R : Robot controller
N : CNC CPU

Automotive

iQ-R Q S M R N

Improve productivity and realize flexibility in different automotive assembly lines with high-accuracy motion control, including linear/circular interpolation and electric cam profile.

Automated warehouse

iQ-R Q iQ-F F C M R

Realize advanced logistics coordination and eliminate errors in repetitive processes. Servo-based high-speed material handling and highly accurate positioning improving productivity and reduce energy consumption.

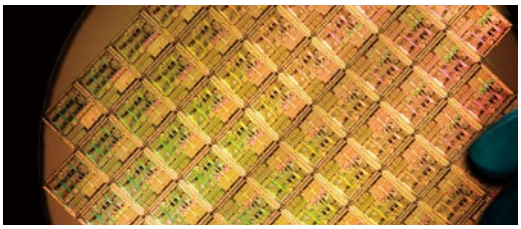
Food and beverage, CPG

iQ-R Q L iQ-F F P M

Realize improvements in various packaging applications such as high-speed filling, which requires a highly accurate, continuous feed rate and precision.

Semiconductor

iQ-R Q S C M



Reduce maintenance costs using the high-durability MELSEC Series. Having the compact, robust design desired for semiconductor manufacturing, MELSEC products solve the small footprint, high-performance requirements.

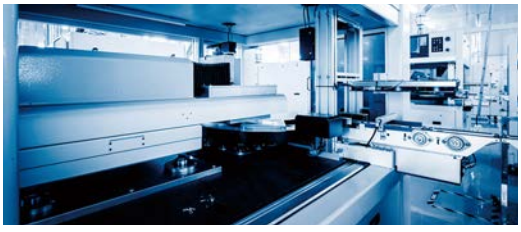
Pick-and-place

iQ-R M

Achieve highly precise, fast and accurate placement of components in various sizes and shapes such as that required by SMT pick-and-place equipment, further improving productivity.

Flat panel display (FPD)

iQ-R Q S C M R



Improve the large data bandwidth and high performance requirements common in FPD manufacturing processes using MELSEC's integrated control platform. The integrated controller and network solution offer increased flexibility and enhanced performance.

Chemical

iQ-R Q P

Improve control of processes involving chemical manufacturing using highly scalable solutions that integrate process control and factory automation.

Inspection machines

iQ-R C

Easily integrate Inspection machine control into automated systems, thereby reducing maintenance and overall operational costs.

Renewable energy

iQ-R P C

Easily integrate renewable energy plant management utilizing plant-wide data acquisition and extensive real-time control, thereby reducing overall investment and maintenance costs.

Building automation

iQ-R Q L iQ-F F C

Increase security and ensure effective use of energy management capabilities by supporting various building automation protocols, resulting in a reduced carbon footprint.

Printing and packaging machinery

iQ-R Q C M

We provide system solutions enabling high-precision synchronization of roll-up and roll-out operations as part of the printing and packaging process. This allows flexible realization of high-speed, high-grade converting applications.

Injection molding

iQ-R Q iQ-F F M

Achieve reductions in machine operation costs and improve productivity by integrating MELSEC controllers that utilize an easy-to-use control platform combined with highly accurate motion control.

Machine tool

iQ-R Q L iQ-F F N

Improve productivity, operating efficiency and overall equipment effectiveness using the scalable control of MELSEC products, supporting tasks such as drilling, grinding, and milling.

General automation

iQ-R Q L iQ-F F C

Alternative automation applications such as automatic car washes and automated hydroponic farming require a high-level of automation similar to industrial solutions.

Controller lineup

Series	Modular type	Modular type	Baseless type
			
	MELSEC iQ-R	MELSEC-Q	MELSEC-L
	PAC (Programmable automation controller)	Programmable controller CPU	Programmable controller CPU
Lineup	・Programmable controller CPU: 5 models ・CC-Link IE embedded CPU: 5 models ・Safety CPU: 4 models ・Process CPU*1: 4 models ・C Controller: 1 model ・Motion CPU: 3 models	・Programmable controller CPU (Universal model): 25 models ・Process CPU: 4 models ・Redundant CPU: 2 models ・C Controller: 4 models ・Motion controller: 2 models ・Robot controller: 1 model ・CNC CPU: 1 model	・Programmable controller CPU ・Sink type: 5 models ・Source type: 5 models
Control method	Stored program cyclic operation	Stored program cyclic operation	Stored program cyclic operation
I/O control mode	Refresh mode	Refresh mode	Refresh mode
Programming language	・Ladder diagram ・Structured text (ST) ・Sequential function chart (SFC)*2 ・Function block diagram (FBD/LD) ・Function block (FB) ・C/C++*4	・Ladder diagram ・Structured text (ST) ・Instruction list ・MELSAP3 (SFC), MELSAP-L ・Function block diagram (FBD) ・Function block (FB) ・C/C++*4	・Ladder diagram ・Structured text (ST) ・Instruction list ・MELSAP3 (SFC), MELSAP-L ・Function block (FB)
Safety standard conformance level	・ISO 13849-1 PL e ・IEC 61508 SIL 3*18	—	—
Engineering environment	MELSOFT GX Works3 MELSOFT MT Works2 CW Workbench	MELSOFT GX Works2 MELSOFT PX Developer CW Workbench MELSOFT MT Works2	MELSOFT GX Works2
Program size (K step)	1200	1000	260
Number of I/O points [X/Y] (point)	4096	4096	4096
Device/label memory/ standard RAM (K byte)	3380	1792	768
Data memory/ standard ROM (byte)	40M	16M	2M
Processing speed			
LD instruction (ns)	0.98	1.9	9.5
MOV instruction (ns)	1.96	3.9	19
Floating point addition (μs)	0.01	0.014	0.057
Memory interface			
Extended SRAM cassette	●	●*3	—
SD memory card	●	●*3	●*6
SRAM card, FLASH card, ATA card	—	●*5	—
External interface			
USB	●	●	●
Ethernet (1000BASE-T*7/ 100BASE-TX/10BASE-T)	●	●*8	●*6
RS-232	—	●*9	●*10
RS-422/485	—	—	—
Display unit	—	—	●
CC-Link IE connection port			
Ethernet (1000BASE-T/100BASE-TX/10BASE-T)	●*12	—	—
Network connectivity (adapter/module)			
Ethernet (1000BASE-T*13/100BASE-TX/10BASE-T)	●	●	●
CC-Link IE Control	●	●	—
CC-Link IE Field	●	●*15	●
CC-Link	●	●	●
CC-Link Safety	—	—	—
CC-Link/LT	—	●	●
SSCNET Ⅲ/H	●	●	●
AnyWire	●	●	●
BACnet™	●	●	●
MODBUS®/TCP	●	●	●
MODBUS®	●	●	●
General specifications/conformed standards			
Operating ambient temperature	0...55℃ (60℃*17)	0...55℃	0...55℃
International safety standards (ISO 13849-1 PL e, IEC 61508 SIL 3)	●*18	—	—
Standard on corrosive atmosphere (JIS C 60721-3-3/ IEC 60721-3-3 3C2)	●*19	—	—
CE: Council Directive of the European Communities	●	●	●
UL: Underwriters Laboratories Listing	●	●	●
LR: Lloyd's Register of Shipping approval	●	●	—
DNV: Norwegian Maritime approval	●	●	—
RINA: Italian Maritime approval	●	●	—
NK: ClassNK approval	●	●	—
ABS: American Bureau of Shipping approval	●	●	—
BV: Bureau Veritas approval	●	●	—
GL: Germanischer Lloyd approval	●	●	—
Key features/functions	・Line manufacturing ・Distributed control ・Large-scale I/O control ・Security ・Inter-modular sync ・Built-in database ・Integrated network ・Multiple CPU ・Process control ・High-reliability control ・C programming ・Data logging ・IT gateway ・Advanced motion ・Safety ・Real-time monitor	・Line manufacturing ・Distributed control ・Large-scale I/O control ・Integrated network ・Multiple CPU ・Process control ・High-reliability control ・C programming ・Data logging ・IT gateway ・Advanced motion	・Machine control ・Distributed control ・Small-scale I/O control ・Large-scale I/O control ・Space/cost saving ・Integrated network ・Extensive built-in functions ・Data logging ・Motion control ・Real-time monitor

*1: Supports redundant system when paired with R6RFM
*2: SFC is not supported in redundant mode and by safety CPU
*3: Q□UDVCPU only.
*4: When using CW Workbench
*5: Does not support QnUDVCPU and certain models
*6: Does not support L02SCPU(-P)
*7: Supports the user Ethernet port of Q24DHCCPU-V/VG/LS and Q26DHCCPU-LS only
*8: Supports Q□UDE(H)CPU and Q□UDVCPU only
*9: Does not support Q□UDE(H)CPU and Q□UDVCPU
*10: Supports L02SCPU(-P) only
*11: Supports FX3G only
*12: R□ENCPU only.
*13: Supports the MELSEC iQ-R Series only
*14: Supported by expansion board

Compact type	Compact type			Modular type	Baseless type
					
MELSEC iQ-F	MELSEC-F			MELSEC-QS	MELSEC-WS
Programmable controller CPU	Programmable controller CPU			Safety programmable controller	Safety controller
FX5U/FX5UC	FX_{3S}	FX_{3G}/FX_{3GC}	FX_{3U}/FX_{3UC}		
・FX5U: 12 models ・FX5UC: 6 models	・FX_{3S}: 27 models	・FX_{3G}: 24 models ・FX_{3GC}: 2 models	・FX_{3U}: 37 models ・FX_{3UC}: 12 models	・CPU: 1 models	・CPU: 3 models
Stored program cyclic operation	Stored program cyclic operation			Stored program cyclic operation	—
Refresh mode	Refresh mode			Refresh mode	—
・Ladder diagram ・Structured text (ST) ・Function block diagram (FBD/LD) ・Function block (FB)	・Ladder diagram ・Structured text (ST) ・SFC for FX Series ・Function block (FB)			・Ladder diagram ・Function block (FB)	・Function block (FB)
—	—	—	—	・ISO 13849-1 PL e ・IEC 61508 SIL3	・ISO 13849-1 PL e ・IEC 61508 SIL3
MELSOFT GX Works3	MELSOFT GX Works2			MELSOFT GX Developer Ver.8	Setting/monitoring tool (free)
64	4	32	64	14	—
256	30	128	256	1024	144
120	—	—	—	—	—
5M	—	—	—	128K	—
34	210	210	65	100	—
34	520	520	640	350	—
3.06	11.96	11.96	14.2	—	—
—	●	●*11	●	—	—
●	—	—	—	—	—
—	—	—	—	—	—
—	●	●	●*14	●	●*21
●	—	—	—	—	—
—	●	●	●	—	●
●	●	●	●	—	—
—	●	●*11	●	—	—
—	—	—	—	—	—
●	●	●	●	●	●
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—	—	—	—	●	—
—	—	●	●	—	—
●	—	—	●*16	—	—
●	—	●	●	—	—
—	—	—	—	—	—
●	—	—	—	—	—
●	●	●	●	—	—
−20...55℃*20	0...55℃	0...55℃	0...55℃	0...55℃	−25...55℃
—	—	—	—	●	●
—	—	—	—	—	—
●	●	●	●	●	●
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—	●	●	●	—	—
—	●	●	●	—	—
—	●	●	●	—	—
・Machine control ・Distributed control ・Small-scale I/O control ・Space/cost saving ・Security ・Integrated network ・Extensive built-in functions ・Motion control	・Machine control ・Small-scale I/O control ・Space/cost saving ・Motion control			・Line manufacturing ・Large-scale I/O control ・Safety	・Line manufacturing ・Small-scale I/O control ・Safety

*15: Does not support Q□(P)(H)CPU and Q□PRHCPU
*16: Supports SSCNET Ⅲ
*17: Only supported when used together with extended temperature range main/extension base units
*18: R□SFCPU-SET only.
*19: For protection against aggressive atmosphere and gases, products with a conformal coating (JIS C 60721-3-3/IEC 60721-3-3 Class 3C2) are available on request
*20: Operating ambient temperature from −20°C is supported by products produced from June 2016 (serial number "166" or later). For details, on supported products, please refer to the relevant product manual.
*21: Supports WS0-CPU3 only

MELSEC iQ-R Series

Revolutionary, next-generation controllers building a new era in automation

As the core for next-generation automation environment,
realizing an automation controller with added value while reducing TCO*

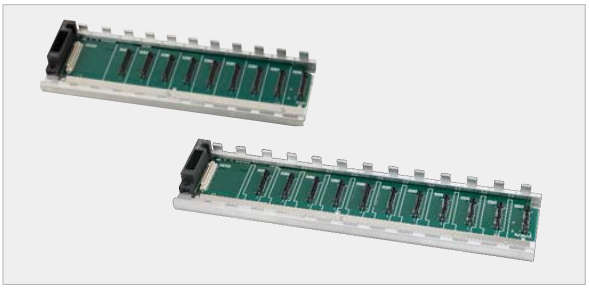
*TCO: Total cost of ownership

CPU Module

Designed to control programmable controller systems. Lineup of CPUs to address various control demands.

Base Unit

Enable to mount power supply module, CPU module, I/O module. Our lineup of base units are designed to meet your system needs.



Power Supply Module

Supplies power to CPU module, I/O module and other modules.

I/O Module

Connects input and output devices.
Wide lineup of I/O modules for various system configurations.

Analog I/O Module

Inputs and outputs data in analog form and built for process control needs as well. Lineup of analog modules for high-speed, high-precision control.

Simple Motion Module/ Positioning Module

Delivers high-speed, high-precision positioning control. Lineup of positioning modules to suit various uses.

High-Speed Counter Module

Compatible with high resolution devices. High-speed counter module for high-speed, high-precision control.

Information Coordination Module

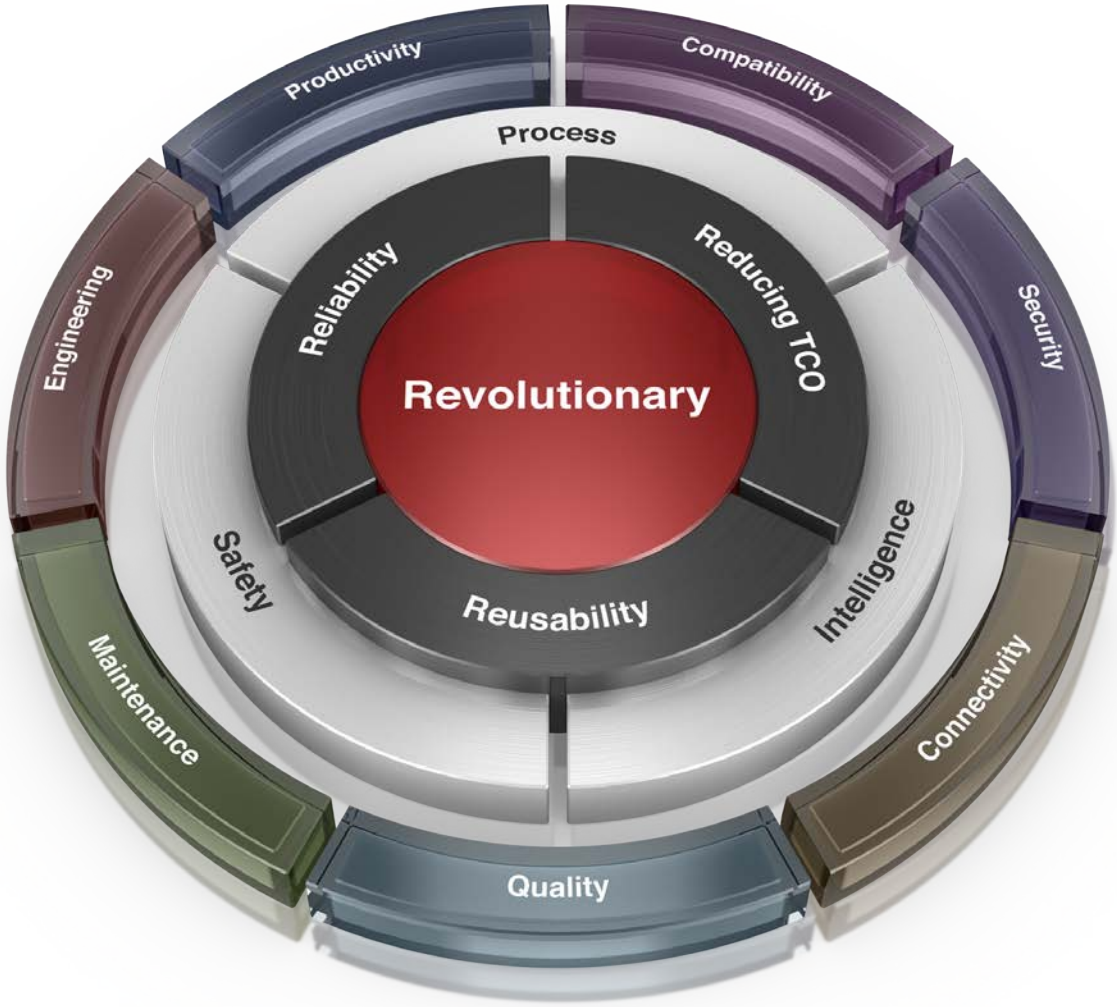
Enables information communication with upper management system. Lineup of modules designed for production efficiency through sampling and management of various production information.

Network Module

Control system network interface module.
Delivers seamless integration of individual FA hierarchies through wide network.

To succeed in highly competitive markets, it's important to build automation systems that ensure high productivity and consistent product quality. The MELSEC iQ-R Series has been developed from the ground up based on common problems faced by customers and rationalizing them into seven key areas: Productivity, Engineering, Maintenance, Quality, Connectivity, Security and Compatibility. Mitsubishi Electric is taking a three-point approach to solving these problems: **Reducing TCO***, increasing **Reliability** and **Reusability** of existing assets.

As a bridge to the next generation in automation, the MELSEC iQ-R Series is a driving force behind **revolutionary** progress in the future of manufacturing.



Mitsubishi Electric PAC MELSEC iQ-R "Promotion" Movie

Process

High availability process control in a scalable automation solution

- Extensive visualization and data acquisition
- High availability across multiple levels
- Integrated process control software simplifies engineering

Safety

System design flexibility with integrated safety control

- Integrated generic and safety control
- Consolidated network topology
- Complies with international safety standards

Intelligence

Extensive data handling from shop floor to business process systems

- Direct data collection and analysis
- C/C++ based programming
- Collect factory data in real-time
- Expand features using third party partner applications

Productivity

Improve productivity through advanced performance/functionality

- New high-speed system bus realizing shorter production cycle
- Super-high-accuracy motion control utilizing advanced multiple CPU features
- Inter-modular synchronization resulting in increased processing accuracy

Connectivity

Seamless network reduces system costs

- Seamless connectivity within all levels of manufacturing
- High-speed and large data bandwidth ideal for large-scale control systems
- Easy connection of third-party components utilizing device library

Engineering

Reducing development costs through intuitive engineering

- Intuitive engineering environment covering the product development cycle
- Simple point-and-click programming architecture
- Understanding globalization by multiple language support

Security

Robust security that can be relied on

- Protect intellectual property
- Unauthorized access protection across distributed control network

Maintenance

Reduce maintenance costs and downtime utilizing easier maintenance features

- Visualize entire plant data in real-time
- Extensive preventative maintenance functions embedded into modules

Compatibility

Extensive compatibility with existing products

- Utilize existing assets while taking advantage of cutting-edge technology
- Compatible with most existing MELSEC-Q Series I/O

Quality

Reliable and trusted MELSEC product quality

- Robust design ideal for harsh industrial environments
- Improve and maintain actual manufacturing quality
- Conforms to main international standards

Mitsubishi Electric PAC MELSEC iQ-R "Process" Movie

Process

High-available process control in a scalable automation solution

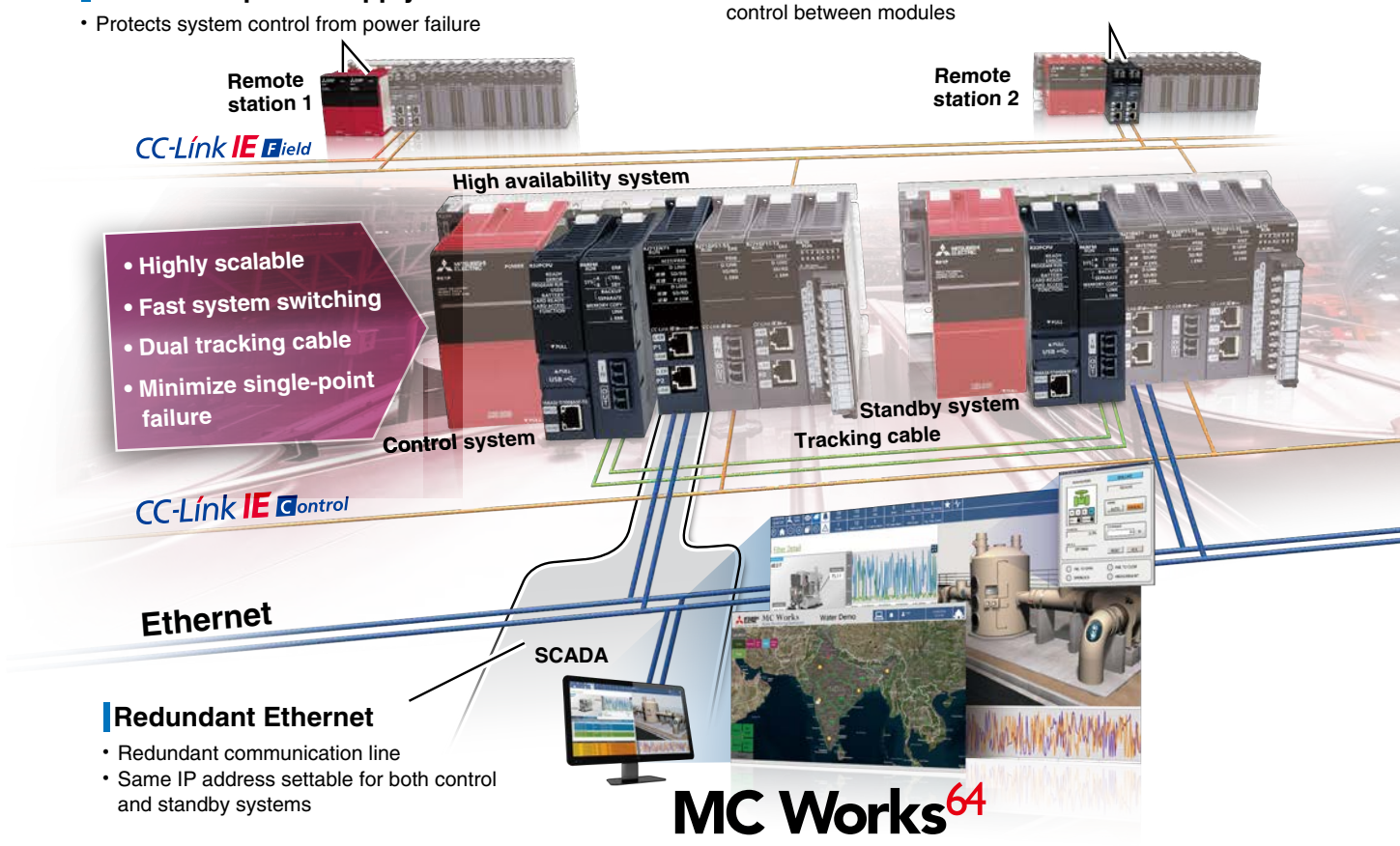
MELSEC iQ-R Series process CPU modules are designed to cover wide-ranging process control applications, from small- to large-scale. All models provide high-speed performance coupled with the ability to handle large PID loops utilizing embedded PID control algorithms; integrating both general and process control into one module. When paired with a redundant function module, a redundant control system ideal for applications that require highly reliable control can be easily realized at a low cost.

Redundant power supply module

- Protects system control from power failure

Remote station
Redundant remote network head module

- Enables continuous data communications by switching control between modules



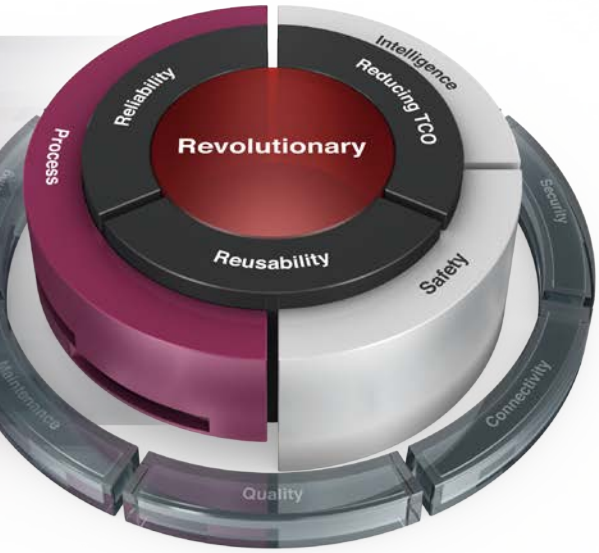
Redundant Ethernet

- Redundant communication line
- Same IP address settable for both control and standby systems

Extensive visualization and data acquisition

SCADA

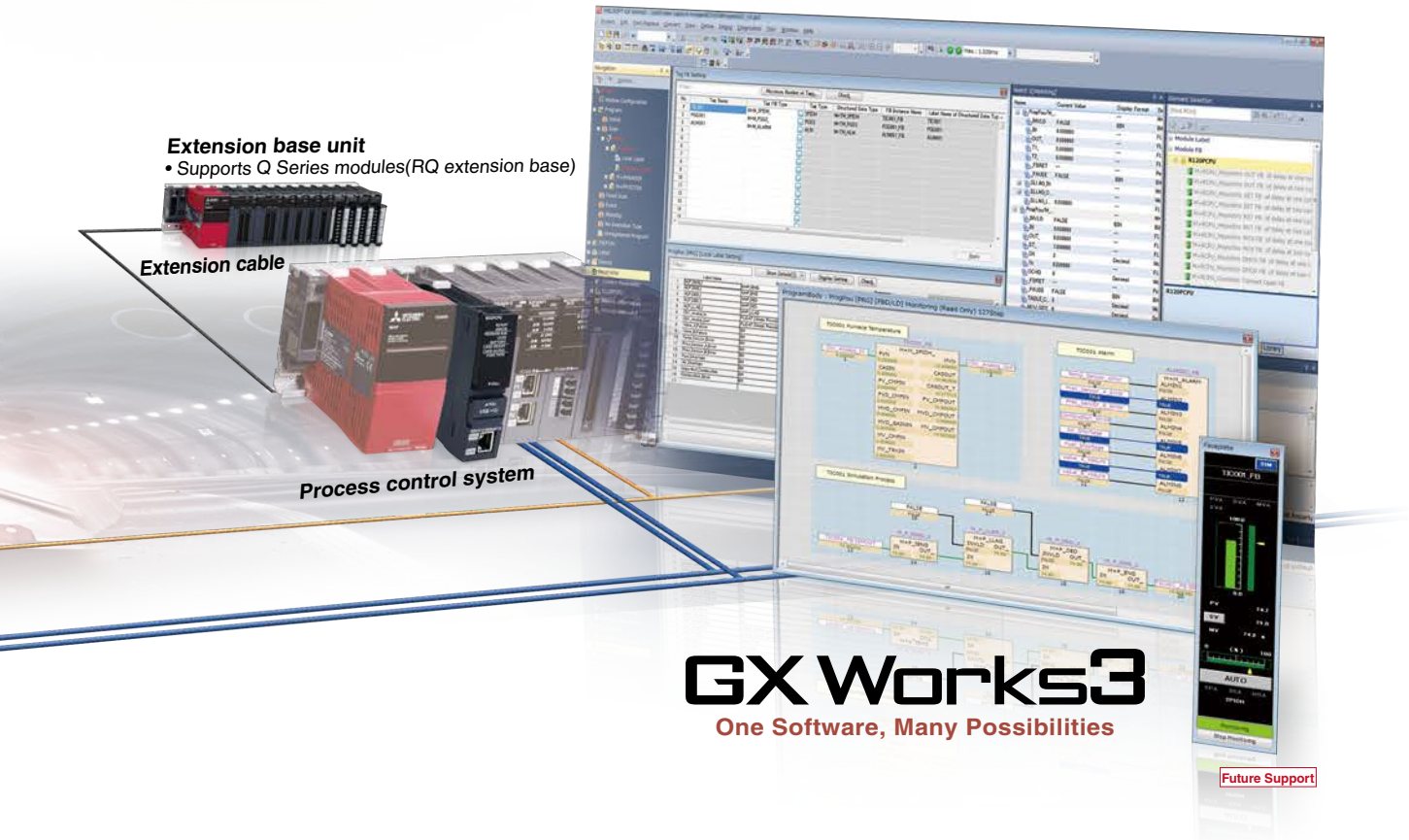
Mitsubishi SCADA MC Works64*1 is a next generation supervisory control and data acquisition (SCADA) software providing extensive visualization with its enhanced interconnectivity with the MELSEC iQ-R Series. Advanced features such as energy management, scheduling, alarm and event management, trending, reporting, historian, and Geo-SCADA monitoring realize intuitive factory-wide control.



Embedded PID algorithms

PID control

The process CPU includes dedicated algorithms such as two-degree-of-freedom PID, sample PI, and auto-tuning support advanced process control.



Multi-level redundancy ensuring continuous control

High availability

Highly reliable control systems can be easily realized minimizing the possibility of single-point failure at the visualization (SCADA), control, and network levels, thereby avoiding system downtime and ensuring continuous control and operation of critical systems.

One package process control software

Integrated engineering

GX Works3*2, the standard integrated engineering software for the MELSEC iQ-R Series, makes programming redundant process control systems relatively easy. The program editor uses function block diagram (FBD) language for process control and simplifies system configuration with its intuitive features such as process tag label (variables) sharing, simple program structure, and easy project upload/download to the process CPU.

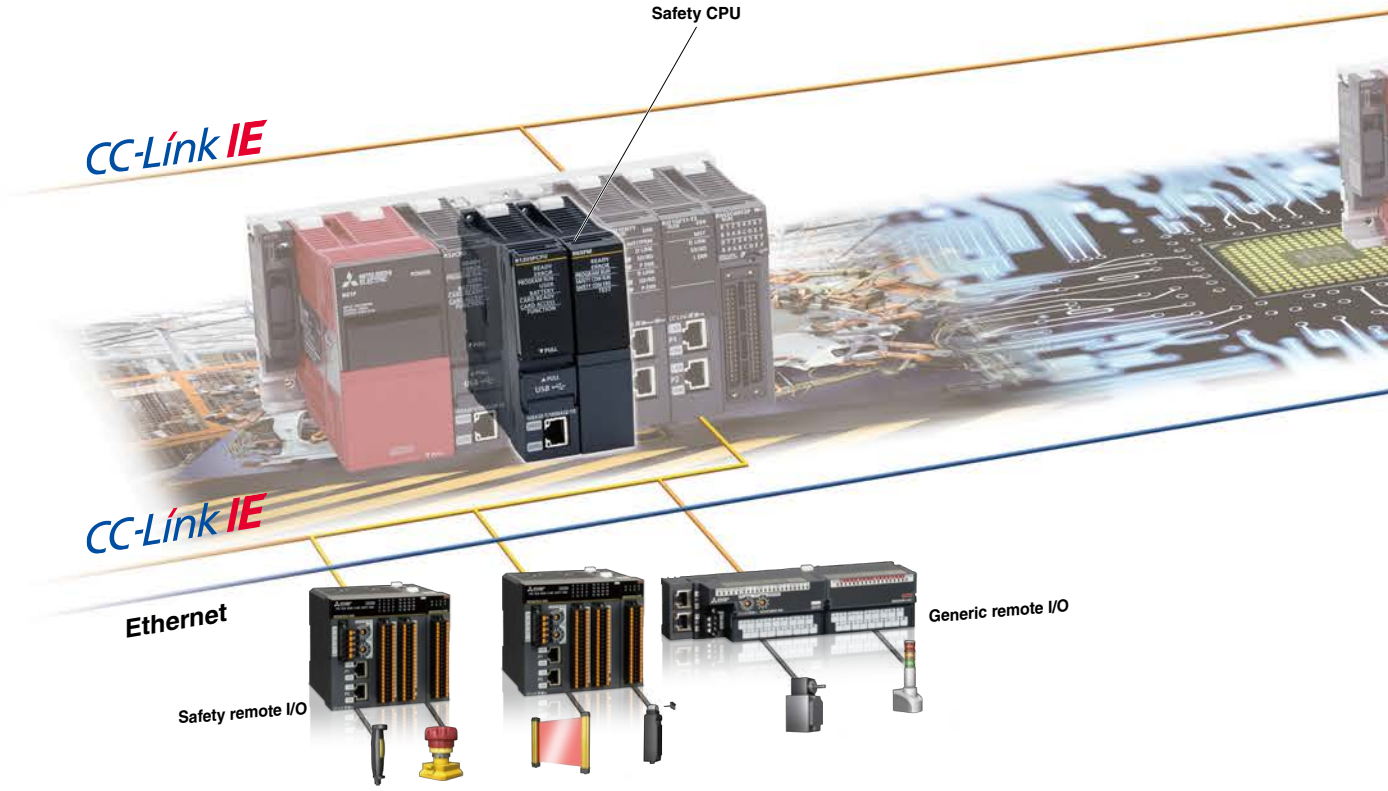
*1. MC Works64 redundant Ethernet connection will be supported in the future.
*2. Process features such as process tag and faceplate will be supported in the future.

Mitsubishi Electric PAC MELSEC iQ-R "Safety" Movie

Safety

Integrated safety control offering a total system solution

Ensuring the safety of personnel on the factory floor is a fundamental requirement of manufacturing plants and requires stringent safety regulations. To adhere to this safety code for control systems, the MELSEC iQ-R Series is equipped with a safety CPU that is compliant with international safety standards, enabling safety devices to be connected via the CC-Link IE Field network. The entire system can be programmed using GX Works3 programming software as standard.



Compliant with international safety standards

Quality

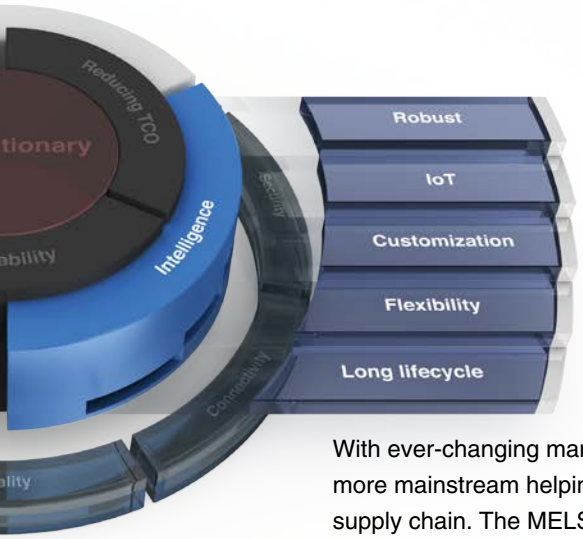
The Safety CPU is compliant with ISO 13849-1 PL e and IEC 61508 SIL 3 and is certified by TÜV Rheinland®.

Generic and safety control in one CPU

Space-saving

Can be installed directly on the MELSEC iQ-R base rack, and is easily integrated into an existing or new control system.

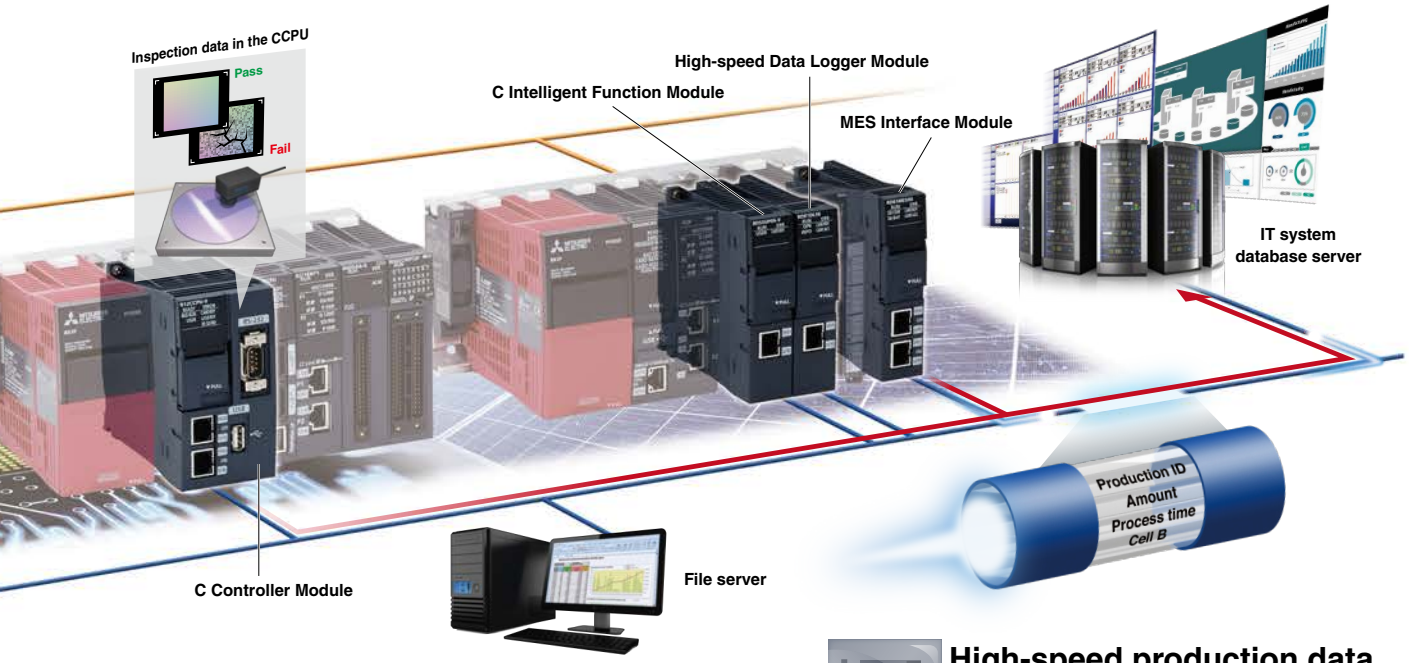
Mitsubishi Electric PAC MELSEC iQ-R "Intelligence" Movie



Intelligence

Extensive data handling from shop floor to business process systems

With ever-changing manufacturing trends, production data management, analysis, and planning are more mainstream helping to realize leaner operations, improve yield, and create a more efficient supply chain. The MELSEC iQ-R Series includes the MES Interface, C Controller and C Intelligent function, and High-speed data logger modules as part of the “Intelligence” lineup of interconnected advanced information products.



C/C++ based programming

Flexibility

Based on the ARM® dual-core Cortex A9 processor, the real-time OS VxWorks® C Controller CPU is ideal for high-end analytical requirements where raw data has to be processed, such as for in-line manufacturing quality testing. The C Intelligent Function Module, based on the same processor, is a versatile programmable module that can be used for installing industryspecific communications protocols; for example, plant-wide monitoring of wind power generation farms, building automation and industrial open fieldbus networks.

High-speed production data collection

Data logging

Enables high-speed data logging that can be synchronized with the controller scan time, as an alternative to a dedicated logging client computer. Includes features such as triggering and reporting that improve troubleshooting of the manufacturing process.

Direct access to IT system database servers

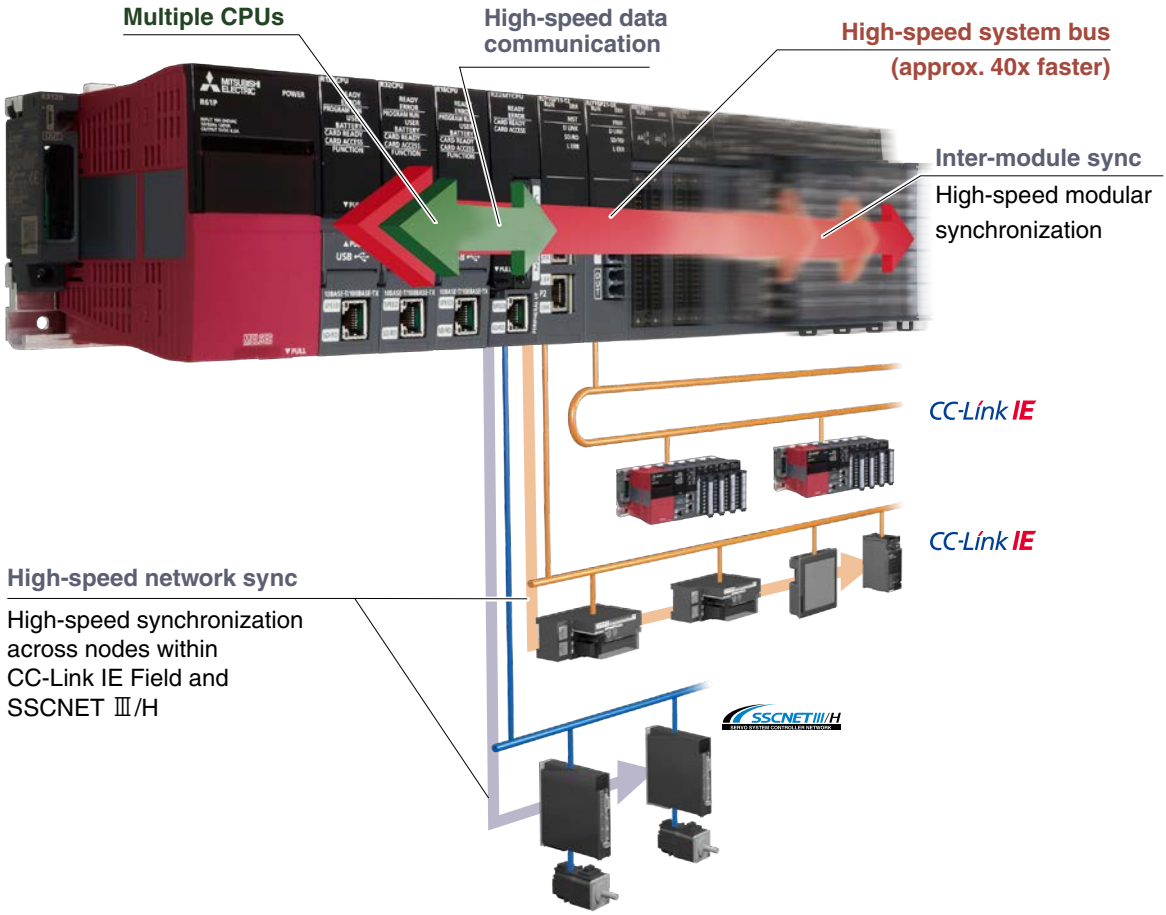
Information connection

Improve production management and recipe data handling via real-time direct access to IT system database servers such as Oracle® and Microsoft® (SQL Server®, Access®). Overall system cost is also reduced as additional programming, which can increase engineering time, and gateway computers are no longer required.

Productivity

Improve productivity through advanced performance/functionality

Integrating high-performance capabilities based on the high-end iQ-R system bus, high-speed network, and an advanced motion control system; applications requiring these characteristics can be easily realized using the MELSEC iQ-R Series as the core of the automation system.



New high-speed system bus realizes improved production cycle

The newly developed high-speed system bus is 40-times faster compared to existing models, realizing very fast and large-capacity data processing between modules (network, I/O, multi-CPU, etc.), enabling the optimum utilization of MELSEC iQ-R Series performance and functionality.

High-speed system bus
40x faster*1

Multi-CPU system realizes very accurate motion control

By supporting synchronized data communications between the programmable controller CPU and motion CPU via the high-speed system bus, performance is improved by up to four times compared to existing models, easily realizing super-high motion control accuracy.

Synchronized data exchange with motion CPU
4x faster*2

*1: Compared to MELSEC-Q Series.
*2: Compared to Q173DSCPU/Q172DSCPU.

Mitsubishi Electric PAC MELSEC iQ-R "Productivity" Movie

Inter-modular synchronization realizes increased processing accuracy

More flexible control over performance

Realizing high processing accuracy could not be any simpler when utilizing the inter-modular synchronization feature, which enables precise data synchronization between controller CPUs and various interface modules via the high-speed system bus (backplane). In addition, network level synchronization (both CC-Link IE Field and SSCNET Ⅲ/H) is now possible, realizing deterministic performance by ensuring synchronization between nodes without being influenced by varying network transmission delays.

New controller performance architecture further reduces H/W costs

High-speed processing of structured programs

The processing performance of the controller CPU has been substantially enhanced thanks to the newly designed CPU engine. The memory consumption for program and internal devices used in function block (FB) and structured text (ST) programs have been improved. This results in one CPU being able to do the job that used to require several CPUs in order to achieve the expected performance level and memory capacity.

Built-in database eliminates the need for a PC-based database server

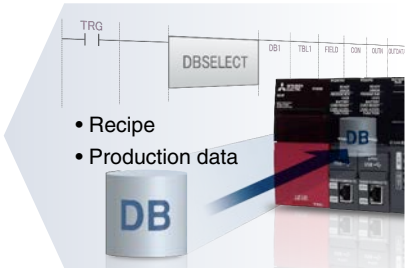
Recipe data and production results data, previously managed using a database server, can now be managed via the database in the programmable controller. Use of dedicated commands for the built-in database makes it easy to search, add and update data on the fly. Furthermore, the import/export correlation with spreadsheet software is made easier.

Realize high-speed system performance

Approx. 8X faster than QCPU*3

- Realizes high-speed control performance
- Inherits MELSEC-Q Series functions
- Large-capacity memory ideal for large-scale control

Data management realized with built-in database



- Easy to switch between recipes
- Realize product batch control
- Efficiently switch between systems

LD instruction speed	PC MIX*4 (instructions/µs)	Fixed-cycle interrupt program	ST instruction (IF text, bit condition)	Program capacity
0.98 ns	419	50 µs	8 ns	1200K steps

*3: Based on a typical application example, the system benchmark test measures the CPU scan time, taking into consideration the network refresh time and monitoring processing time with external devices as compared to Universal model QCPU (QnUDEHCPU).
*4: Average number of instructions such as for basic instructions and data processing executed in 1µs (the larger the value, the faster the processing speed).

Engineering

Reducing development costs through intuitive engineering

The engineering software is sometimes considered a fundamental part of the control system in addition to the hardware components. The core of the system, it includes various steps of the product life cycle, from the design stage all the way to commissioning and maintenance of the control system. Today, intuitive, easy-to-use software suites are expected as a standard for modern manufacturing needs. GX Works3 is the latest generation of programming and maintenance software offered by Mitsubishi Electric specifically designed for the MELSEC iQ-R Series control system. It includes many new features and technologies to ensure a trouble-free engineering environment solution.

Intuitive engineering software covering the product development cycle

Graphic-based configuration realizing easier programming

Various intuitive features such as graphic-based system configuration and an extensive module library (module label/FB) provided as standard.

Integrated motion-control system configuration

From setting simple motion module parameters and positioning data setup to servo amplifier configuration, everything is packaged into an easy-to-use engineering environment.

Conforms to IEC 61131-3

GX Works3 realizes structured programming such as ladder and ST, making project standardization across multiple users even easier.

Simple point and click programming architecture

System design | Programming | Debug/maintenance

Straightforward graphic based system configuration design

- Simply drag and drop from the module list to easily create system configuration
- Directly setup parameters for each module
- Automatically reflect changes in the layout to the module parameters

System design | **Programming** | Debug/maintenance

MELSOFT library enables efficient programming through “Module Label/FB”

- Assign convenient label names to internal devices, rather than manually entering a device name every time
- Simply drag & drop module FBs from the MELSOFT Library directly into the ladder program, making programming even easier

System design | Programming | **Debug/maintenance**

Extensive version control features

- Flexibly register program change (historical) save points
- Easily visualize and confirm program changes

Simple motion setting tool

Easily configure the simple motion module with this convenient integrated tool.

Tab view multiple editors

Conveniently work on multiple editors without having to switch between software screens.

Navigation window

Easily access project components
Organize program file list.

Module configuration

Easily parameterize each module directly from the configuration editor.

Module list

Simply drag & drop modules directly into the module configuration.

Mitsubishi Electric PAC MELSEC iQ-R "Engineering" Movie

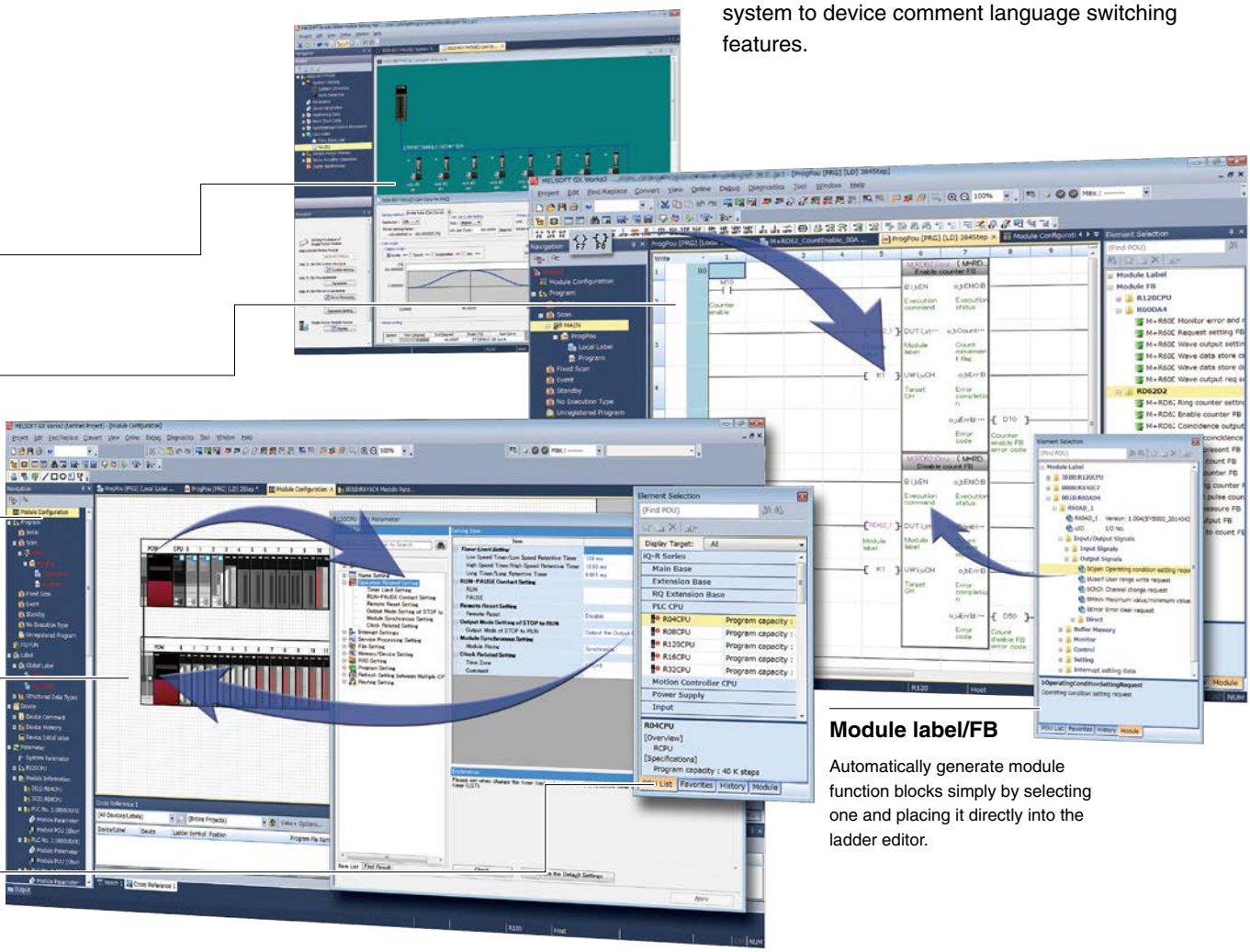
GX Works3

One Software, Many Possibilities

Reduce engineering time by 60%*1

Global realization by multi-language support

To adhere to today's global production needs, GX Works3 supports multi-language features at various levels, from the multiple language software menu system to device comment language switching features.



Module label/FB

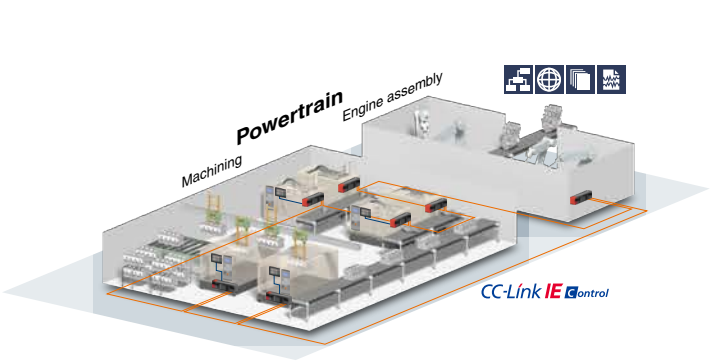
Automatically generate module function blocks simply by selecting one and placing it directly into the ladder editor.

*1 Based on new project test benchmarks between GX Works2 and GX Works3.

Maintenance

Reduce maintenance costs and downtime utilizing easier maintenance features

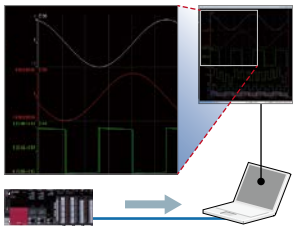
A manufacturing plant is seldom stopped or taken offline and continuously produces the desired product or component. However, the control system occasionally requires maintenance; for example, at the time of a faulty product or system upgrade for manufacturing a new or updated component. At that time, thanks to the extensive maintenance functions embedded in the hardware and software, the user can trust the control system to handle transition into/out of the maintenance period for both preventive and post maintenance.



Preventive maintenance CPU module

Visualize manufacturing data in real-time

- Monitor live manufacturing process data across the plant
- Very easy setup using the dedicated GX LogViewer monitoring tool

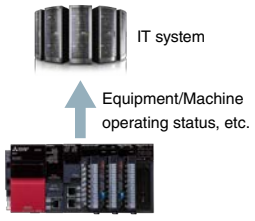


Real-time monitor

Preventive maintenance MES interface module

Direct access to enterprise level

- Registers device values directly into database
- Visible shop floor data enables actions before event occurs



Preventive maintenance Output module

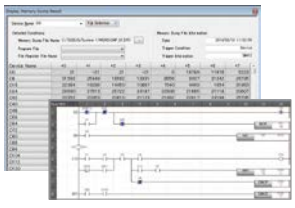
Prevent system downtime with relay monitoring

- Monitors relay switching amount
- Check relay condition from GOT (HMI)
- Plan module maintenance prior to malfunction of relay

Corrective maintenance CPU module

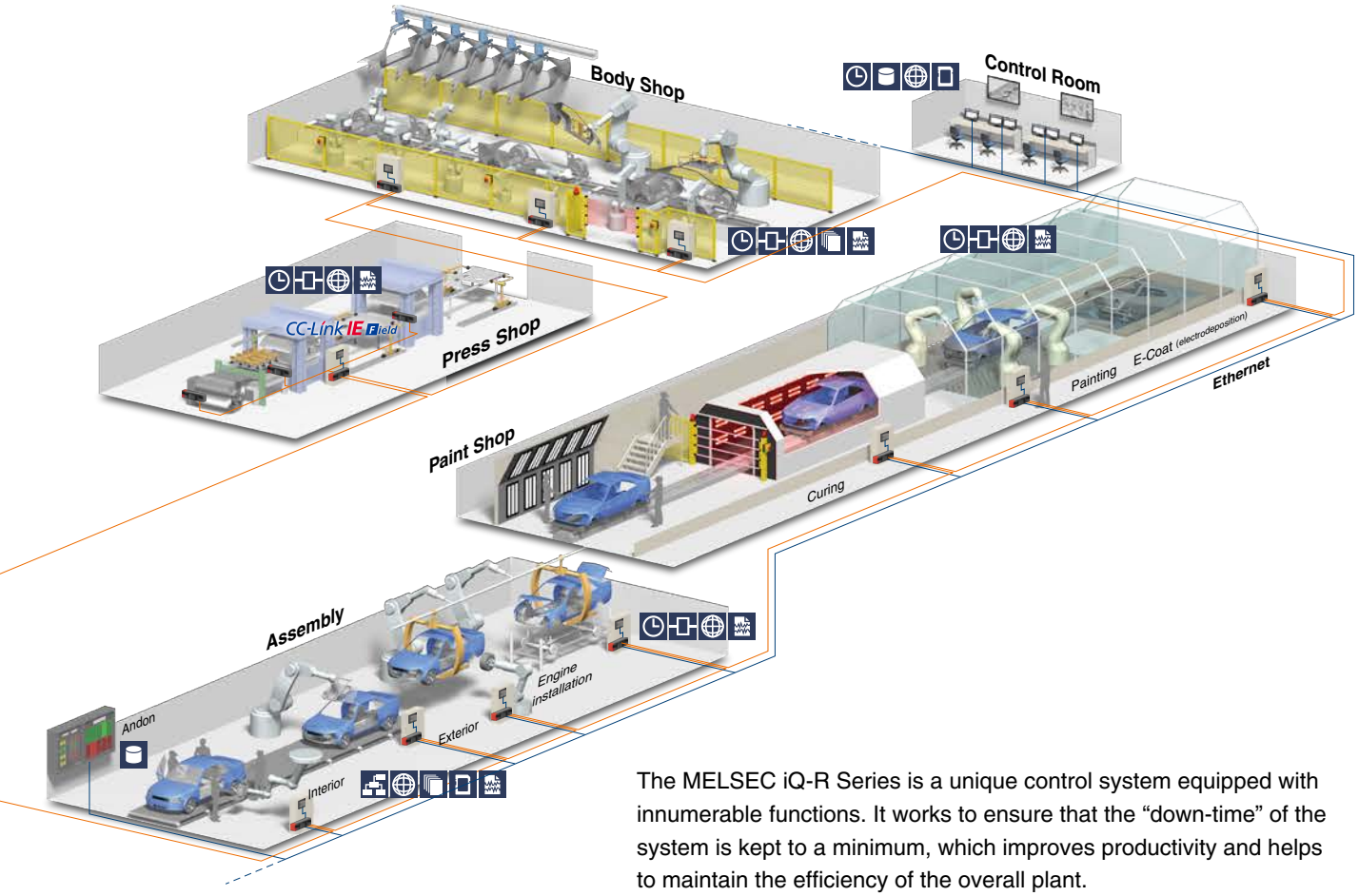
Memory dump enables confirmation of operation problems

- Saves block of device data when error occurs
- Root cause analysis by confirming data on device monitor screen and offline via program editing window



Memory dump results
(Program editor)

Mitsubishi Electric PAC MELSEC iQ-R "Maintenance" Movie

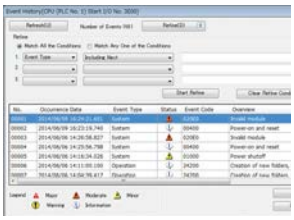


The MELSEC iQ-R Series is a unique control system equipped with innumerable functions. It works to ensure that the “down-time” of the system is kept to a minimum, which improves productivity and helps to maintain the efficiency of the overall plant.

Corrective maintenance **CPU module**

Efficient diagnostics with extensive event logging

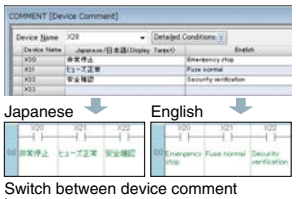
- Logging of program change events, errors and when the power is turned off
- Event logging displayed in list form
- Quickly detect problems due to operating mistakes by multiple users


Event log list

Corrective maintenance **GX Works3**

Multi-language software improves global support

- Comment/label names can be registered in multiple languages
- Easy to switch between languages
- No need for multiple programs to satisfy regional requirements

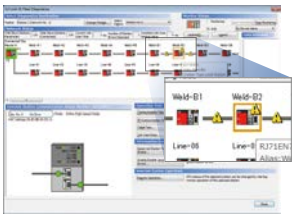


Switch between device comment languages

Corrective maintenance **GX Works3**

Quickly find network errors

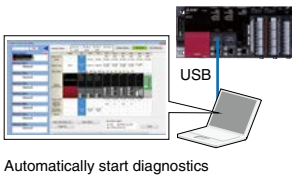
- Visualize error location from network system image
- Easy network error corrective measures


CC-Link IE Field diagnosis window

Corrective maintenance **GX Works3**

Simple troubleshooting, even for novice users

- Start diagnostics screen on GX Works3 just by connecting via USB
- Display detailed error information and corrective procedures



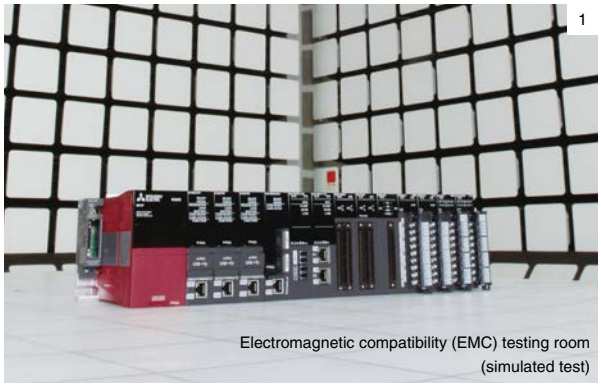
Automatically start diagnostics

Quality

Reliable and trusted MELSEC product quality

The MELSEC iQ-R Series is based on two fundamental aspects of quality.
“Quality of product”
“Quality for application”
These two characteristics are part of the main principle behind the MELSEC iQ-R Series. This new control system includes various features designed-in to provide a solution that not only improves the overall manufacturing productivity, but also maintains a high level of industrial quality that is ideal for the harsh and rugged environments that it is subjected to on a daily basis.

1



Electromagnetic compatibility (EMC) testing room (simulated test)

2

3

4

5

Robust design ideal for harsh industrial environments

Synonymous with the Mitsubishi Electric name, the MELSEC iQ-R Series is designed with high quality and reliability, which is a prerequisite for industrial applications. In addition, the overall aesthetics and usability enable easier maintenance that customers routinely expect.

Classification according to IEC 60721-3-3 Class 3C2

For protection against aggressive atmosphere and gases, products with a conformal coating (IEC 60721-3-3 Class 3C2) are available on request*1

*1: Please contact your local Mitsubishi Electric office or representative for further details.

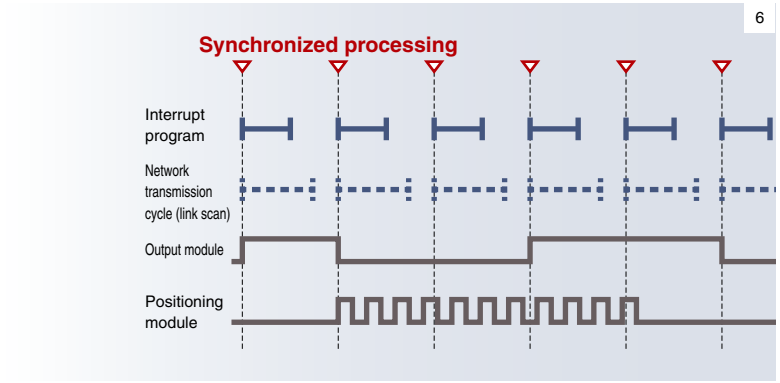
1. Conforms to stringent quality evaluations and tests that are based on robust industrial environments including EMC, LSI, temperature, vibration and HALT tests.
2. High manufacturing quality control through QR code based quality management system.
3. The front face has a wide and open design with an easy-to-use front cover.
4. High-quality CPU module manufacturing with in-line high-low temperature testing.
5. The base rack design includes a dedicated earth rail to prevent noise interference in low power supply conditions and a robust structure that enables easy installation without extensive damage to bus connectors.

Mitsubishi Electric PAC MELSEC iQ-R "Quality" Movie

Conforms to main international quality standards

The MELSEC iQ-R Series conforms to most of the main international standards that realizes applications requiring multiple global locations.

6



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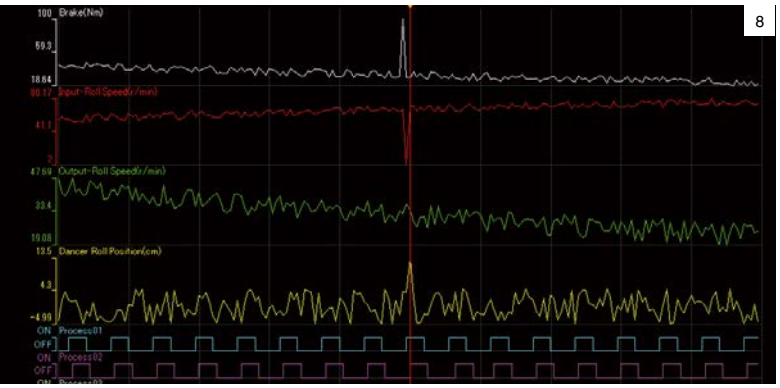

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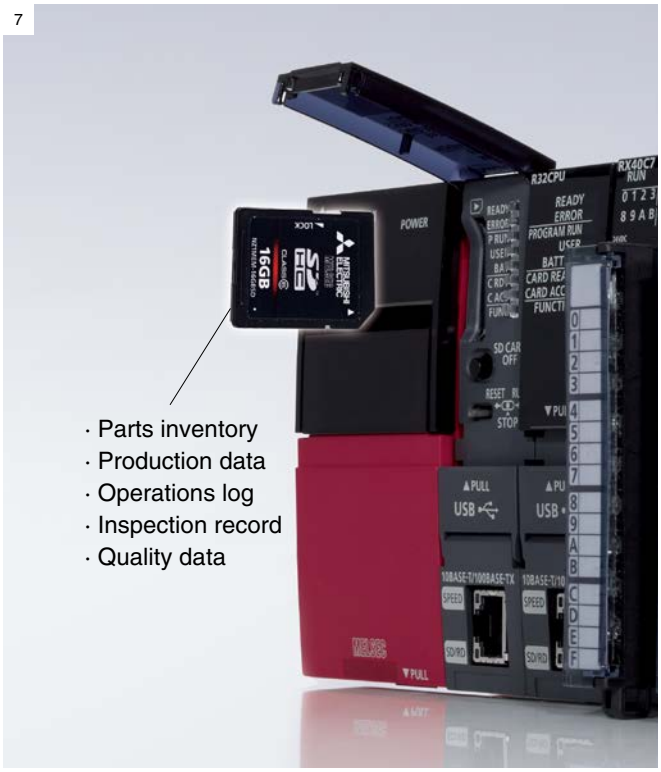


6. Graph showing the signal synchronization between several modules.
7. Data required for traceability is collected on the SD memory card.
8. Collected data is analyzed using a dedicated viewer.

Improve and maintain actual manufacturing quality

Maintains product quality during manufacturing

With inter-module synchronization, it is now possible to precisely synchronize interrupt programs with the network communications cycle (link scan). Any variations in data transmission response time (network transmission delay time) between the controller and other devices on the network are eliminated, realizing high integrity between manufacturing processes that are dependent on each other, ensuring high performance and processing.

Realizes traceability through data logging

Simple settings enable the collection of production data needed for traceability. Furthermore, collected data can be analyzed easily using a dedicated viewer. Analyzing various data on production processes provides an indicator for quality improvements and manufacturing cost reductions, thereby supporting optimization of the production system.

Connectivity

Seamless network reduces system costs

The MELSEC iQ-R Series is part of a family of products all interconnected across various levels of automation. Based on the seamless message protocol (SLMP*1), data flows transparently between the sensor level and the management level across multiple industry-standard automation networks. CC-Link IE, Asia's No. 1 industrial network, realizes fast gigabit data transmission speeds, further optimizing the manufacturing cycle. In addition, the SSCNET Ⅲ/H high-speed motion control network further enhance the factory-wide connectivity solution.

CC-Link IE embedded CPU

CC-Link IE Field Network compatible Simple Motion module

Cost-saving integrated network CPU module

The MELSEC iQ-R Series includes a lineup of CPUs with embedded industrial network connection ports (CC-Link IE and Ethernet). System costs can be further reduced by approximately 50% using the embedded network CPU module, which realizes the same features as a generic network interface module.

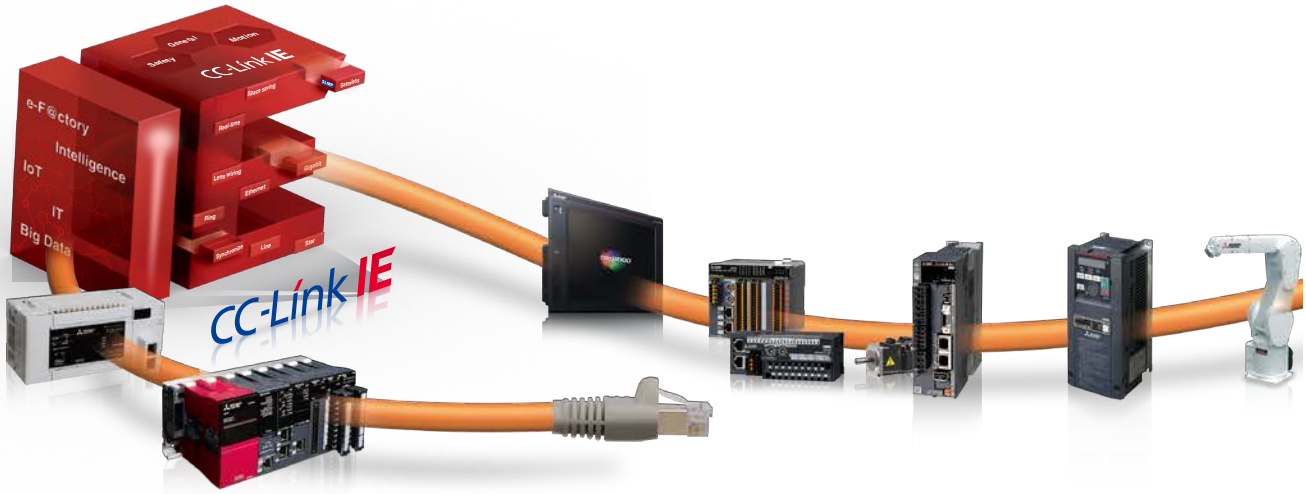
System hardware costs **Reduced 50%** *2

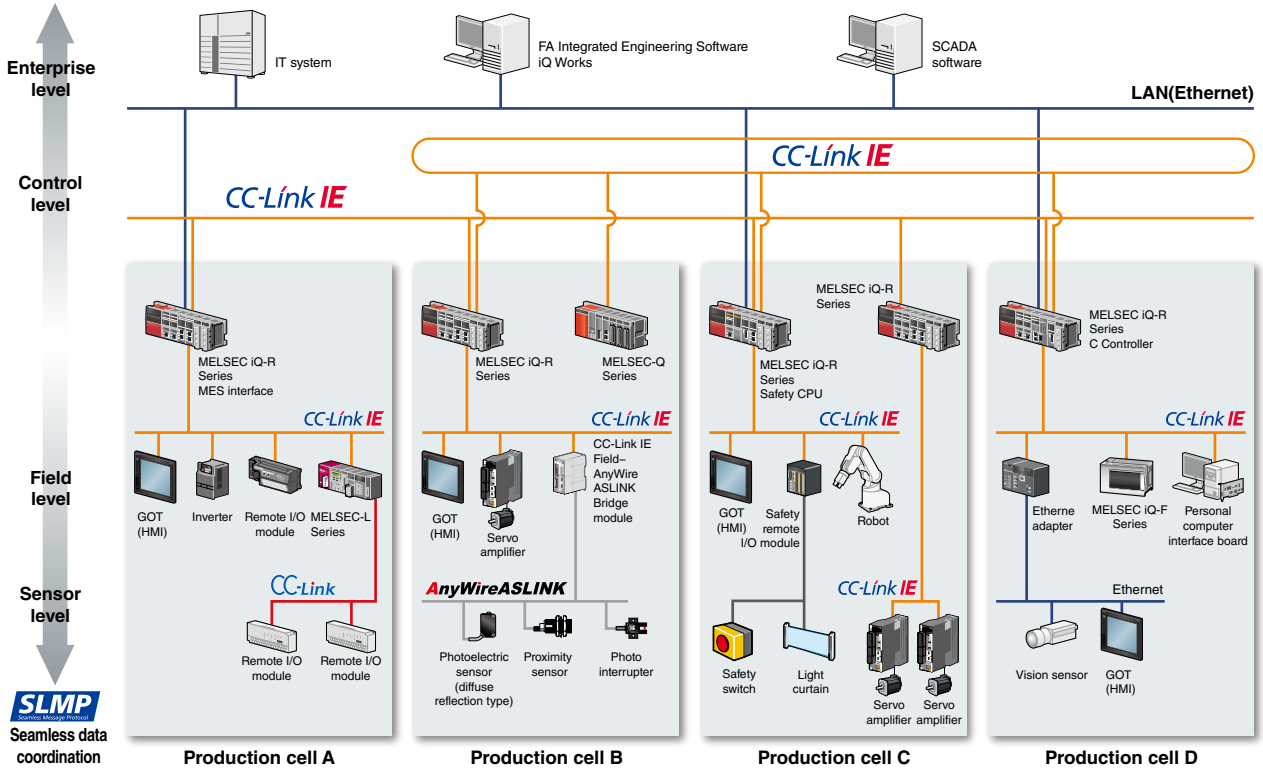
Integrate motion control into one network

The CC-Link IE Field Network compatible Simple Motion module can be used as a master station*3 on the network. System configuration cost can be reduced as only one module is required for both Motion control and network connectivity.

*1: Seamless Message Protocol (SLMP): A simple client-server common protocol that enables communication between Ethernet products and CC-Link IE-compatible machines.
*2: Cost comparison of using the MELSEC iQ-R Series R04CPU + RJ71EN71 modules.
*3: The sub-master and safety communication functions are not supported.

Mitsubishi Electric PAC MELSEC iQ-R "Connectivity" Movie





High-speed and large bandwidth ideal for large-scale control systems

The Ethernet-based open network CC-Link IE is an industry-leading 1 Gbps high-speed, large-capacity network. The division of 1 Gbps broadband into uses for distributed control and field data communications secures the reliability of control communications and realizes real-time data collection, which can be difficult with standard Ethernet.

CC-Link IE Control (twisted-pair cable)

Utilizing a system architecture that has no constraints and enables one to choose freely such as star/line/ring topologies, adding and removing equipment is easier. Moreover, compatibility with standard twisted-pair cabling means that wiring costs can be reduced.

Connect to two different types of networks with the same module

Ethernet and CC-Link IE network communications can be realized with the same network module. Since multiple network types can use one module, equipment costs can be further reduced.

Security

Robust security that can be relied on

As technology becomes more complex and the distribution of manufacturing systems more global, the protection of intellectual property is even more significant. When shipping a finished product overseas, the last thing an OEM needs to consider is unauthorized copying or changing of the original project data. In addition to this, unauthorized access to the control system can have very serious implications to the control system and the end user, which can compromise the overall safety of the plant.

The MELSEC iQ-R Series has a number of embedded features that help to maintain these requirements, such as hardware and software keys to protect intellectual property, and multi-level user access password hierarchy to protect the project at the design stage.

Mitsubishi Electric PAC MELSEC iQ-R "Security" Movie

Powerful security features protecting intellectual property

Security key authentication protecting project data

The security key authentication prevents programs from being opened on personal computers where the security key has not been registered. Furthermore, because programs cannot be executed by CPU modules where the security key has not been registered, the integrity of customer technologies and other intellectual property is not compromised. The security key can also be registered on an extended SRAM cassette. Therefore, when replacing the CPU module, there is no need to re-register the security key, making replacement very simple.

Prevent unauthorized access across the network

Device with registered IP address (access permitted)

Device without registered IP address (access denied)

The IP filter can be used to register the IP addresses of devices permitted to access the CPU module. As a result, access from non-registered devices can be blocked, thereby lowering the risk of program hacking and unauthorized access by a third party.
Another feature is a remote password function for password-based security. Passwords of up to 32 characters can be set to prevent unauthorized access to the CPU module via networks such as Ethernet.

Compatibility

Extensive compatibility with existing products

Whenever introducing a new system or technology into an existing manufacturing plant or control system, utilization of existing assets as much as feasibly possible is a mandatory requirement with today's manufacturing needs. The MELSEC iQ-R Series addresses these subtle but substantial needs with various system hardware support and engineering project compatibility to achieve an easy path to higher technology and improved performance capabilities.

Mitsubishi Electric PAC MELSEC iQ-R "Compatibility" Movie

Utilize existing MELSEC-Q Series assets

Current programs can be fully utilized

A simply conversion process*1 is all it takes to enable the use of MELSEC-Q Series programs with the MELSEC iQ-R Series. Customers can effectively use the program assets they have accumulated, thereby reducing the overall engineering time.

*1: For detailed information about converting to GX Works3 programs, please refer to the "GX Works3 Operating Manual".

Variety of compatible modules

By utilizing the dedicated extension base, most MELSEC-Q Series modules*2 can be re-used. This makes it possible to introduce the high-performance MELSEC iQ-R Series while controlling the cost of supplementary equipment.

*2: For further details, please refer to the "MELSEC iQ-R Module Configuration Manual".

Possible to divert external device wiring

The MELSEC iQ-R Series I/O module, analog module, and counter module pin layouts and connectors are the same as those of the MELSEC-Q Series. Accordingly, existing external device wiring (connectors, terminal blocks) can be diverted without changes and wiring costs can be reduced.

CPU

Programmable Controller CPU Module

Select the most suitable CPU based on the size of your program, CC-Link IE built-in functions and other requirements.

Model	LD instruction speed	Program capacity	Number of I/O points [X/Y]	Interface connection port	Compatible memory card	Others
R04CPU	0.98 ns	40K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, MULTI CPU
R08CPU	0.98 ns	80K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, MULTI CPU
R16CPU	0.98 ns	160K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, MULTI CPU
R32CPU	0.98 ns	320K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, MULTI CPU
R120CPU	0.98 ns	1200K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, MULTI CPU
R04ENCPU	0.98 ns	40K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, CC-Link IE
R08ENCPU	0.98 ns	80K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, CC-Link IE
R16ENCPU	0.98 ns	160K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, CC-Link IE
R32ENCPU	0.98 ns	320K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, CC-Link IE
R120ENCPU	0.98 ns	1200K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DB, DATA LOG, MEM DUMP, RT MON, SYNCHRO, CC-Link IE

SD SD memory card
Extended SRAM Extended SRAM cassette
DB Data base function
DATA LOG Data logging function
MEM DUMP Memory dump function
RT MON Real-time monitor function
SYNCHRO Inter-modular synchronization function
MULTI CPU Multi-CPU system functions
CC-Link IE CC-Link IE Field Network function (For more information, please refer to the CC-Link IE Field Network master/local module.)

Process CPU Module

The process CPU module is capable of both loop control and sequence control on a single module, and is suitable for process control systems in which PID loop control is primarily required. Four CPUs are available with memory sizes from 80K to 1200K steps to suit specific control requirements (number of loop control).

Model	LD instruction speed	Program capacity	Number of I/O points [X/Y]	Interface connection port	Compatible memory card	Others
R08PCPU	0.98 ns	80K steps	4096 points	USB Ethernet	SD Extended SRAM	DATA LOG, SYNCHRO *1, MULTI CPU *1, PROCESS, OC
R16PCPU	0.98 ns	160K steps	4096 points	USB Ethernet	SD Extended SRAM	DATA LOG, SYNCHRO *1, MULTI CPU *1, PROCESS, OC
R32PCPU	0.98 ns	320K steps	4096 points	USB Ethernet	SD Extended SRAM	DATA LOG, SYNCHRO *1, MULTI CPU *1, PROCESS, OC
R120PCPU	0.98 ns	1200K steps	4096 points	USB Ethernet	SD Extended SRAM	DATA LOG, SYNCHRO *1, MULTI CPU *1, PROCESS, OC

SD SD memory card Extended SRAM Extended SRAM cassette DATA LOG Data logging function SYNCHRO Inter-modular synchronization function MULTI CPU Multi-CPU system function
PROCESS Process control function OC Online module change

*1: Inter-modular synchronization is not supported when used in redundant mode.

Redundant Function Module

A redundant system can be configured by combining this module with the process CPU. Various redundancy compatible network modules (Ethernet, CC-Link IE) can cover customer requirements, greatly improving reliability.

Model	Communication cable	Max. distance	Tracking cable data capacity
R6RFM	Multi-mode optical cable	550 m (when the core outer diameter is 50 µm)	1M word

Safety CPU


R□SFCPU R6SFM

The safety CPU module enables control of both generic and safety programs in the same module and is easily programmed utilizing the intuitive features of GX Works3. Compliant with internationally recognized safety standards, the safety CPU enables safety devices such as safety light curtains, emergency switches, and door switches to be connected via the CC-Link IE Field Network without requiring a separate dedicated network line. Safety CPUs are certified as being compliant with ISO 13849-1 PL e and IEC 61508 SIL 3 by TÜV Rheinland®, the world-leading third party testing institution. As such, they can be trusted for use in safety control applications.

Model	LD instruction speed	Program capacity	Number of I/O points [X/Y]	Interface connection port	Compatible memory card	Others
R08SFCPU-SET*1	0.98 ns	80K steps (40K steps for safety programs)	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, MULTI CPU, SAFETY
R16SFCPU-SET*1	0.98 ns	160K steps (40K steps for safety programs)	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, MULTI CPU, SAFETY
R32SFCPU-SET*1	0.98 ns	320K steps (40K steps for safety programs)	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, MULTI CPU, SAFETY
R120SFCPU-SET*1	0.98 ns	1200K steps (40K steps for safety programs)	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, MULTI CPU, SAFETY

SD SD memory card Extended SRAM Extended SRAM cassette DATA LOG Data logging function MULTI CPU Multi-CPU system function SAFETY Safety function

*1: Product package includes a safety CPU(R□SFCPU) and safety function module (R6SFM).

C Controller Module

The multi-core ARM®-based controller pre-installed with VxWorks® Version 6.9, realizes the simultaneous execution of programs.

Model	OS	Endian format	Number of I/O points [X/Y]	Communication interface	Compatible memory card
R12CCPU-V	VxWorks® Version 6.9	Little endian	4096 points	USB, RS-232, Ethernet	SD

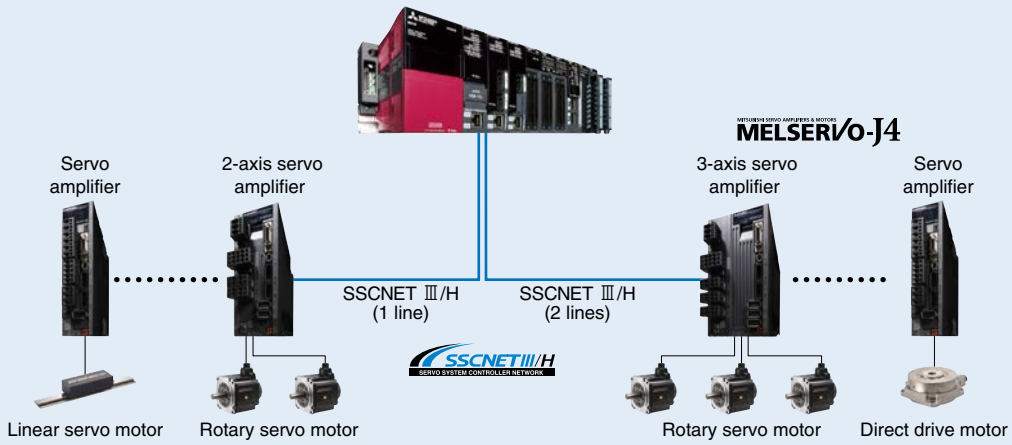
SD SD memory card

Motion CPU Module

Our motion controllers are designed for high-speed control, capable of delivering a maximum of 64 axes per single CPU, or up to 192 axes using 3 CPUs by a multi-CPU system. Compact and small footprint, the new-generation motion controllers are packed with the latest features that deserves.

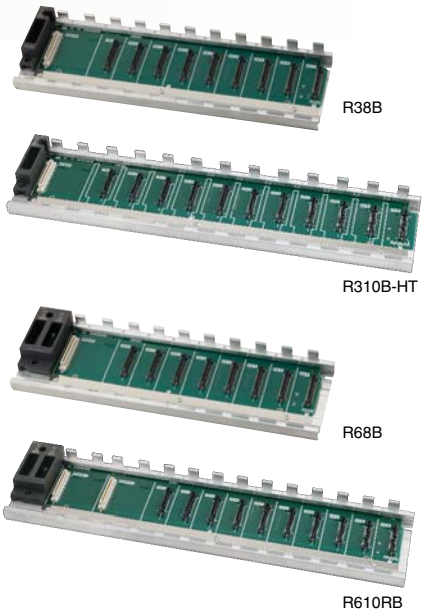
Model	Number of control axes	Servo amplifier network	
R16MTCPU	16 axes	SSCNET Ⅲ/H	1 line
R32MTCPU	32 axes	SSCNET Ⅲ/H	2 lines
R64MTCPU	64 axes	SSCNET Ⅲ/H	2 lines

Programmable Controller CPU Modules + Motion CPU Modules



Base Unit

Product modules of the MELSEC iQ-R Series can be mounted. Select the most suitable base unit for your configuration system.



Type	Model	Number of module installed	Power supply module
Main base unit	R35B	CPU + 5 slots	Mounting required
	R38B	CPU + 8 slots	Mounting required
	R312B	CPU + 12 slots	Mounting required
Redundant power supply main base	R310RB	CPU + 10 slots	2 redundant modules
Extended temperature range main base	R310B-HT	CPU + 10 slots	Mounting required
Extended temperature range redundant power supply main base	R38RB-HT	CPU + 8 slots	2 redundant modules
Extension base unit	R65B	5 slots	Mounting required
	R68B	8 slots	Mounting required
	R612B	12 slots	Mounting required
Redundant power supply extension base	R610RB	10 slots	2 redundant modules
Extended temperature range extension base	R610B-HT	10 slots	Mounting required
Extended temperature range redundant power supply extension base	R68RB-HT	8 slots	2 redundant modules
RQ extension base unit*1	RQ65B	5 slots	Mounting required*2
	RQ68B	8 slots	Mounting required*2
	RQ612B	12 slots	Mounting required*2

2 redundant modules 2 redundant power supply modules required

*1: For mounting the MELSEC-Q Series modules.
*2: Mount the power supply module of the MELSEC-Q Series.

Power Supply Module

Power supply modules for the MELSEC iQ-R Series.

Power supply module Redundant power supply module

Type	Model	Input voltage	Output voltage	Output current
Power supply	R61P	100...240 V AC	5 V DC	6.5 A
	R62P	100...240 V AC	5/24 V DC	3 A/0.6 A
	R63P	24 V DC	5 V DC	6.5 A
	R64P	100...240V AC	5 V DC	9 A
Redundant power supply module	R64RP	100...240V AC	5 V DC	9 A

I/O Module

Input Module

Our lineup of input modules covers various control situations. Select the appropriate model according to voltage, input format, input points, wiring method, etc.

Type	Model	Number of input points	Rated input voltage	Rated input current	Common terminal arrangement	Response time	External interface
AC input	RX10	16 points	100...120 V AC	8.2 mA (100 V AC, 60Hz) / 6.8 mA (100 V AC, 50Hz)	16 points/common	20 ms	Screw terminal block
DC input (positive common)	RX40PC6H	16 points	24 V DC	6.0 mA	8 points/common	5 µs...70 ms	Screw terminal block
DC input (positive/negative shared common)	RX40C7	16 points	24 V DC	7.0 mA	16 points/common	0.2...70 ms	Screw terminal block
	RX41C4	32 points	24 V DC	4.0 mA	32 points/common	0.2...70 ms	40-pin connector
	RX42C4	64 points	24 V DC	4.0 mA	32 points/common	0.2...70 ms	40-pin connector (2×)
	RX41C6HS	32 points	24 V DC	6.0 mA	32 points/common	1 µs...70 ms	40-pin connector
	RX61C6HS	32 points	5 V DC	6.0 mA	32 points/common	1 µs...70 ms	40-pin connector
DC input (negative common)	RX40NC6H	16 points	24 V DC	6.0 mA	8 points/common	5 µs...70 ms	Screw terminal block
DC (with diagnostic functions) input (negative common)*1	RX40NC6B	16 points	24 V DC	6.0 mA	16 points/common	1...70 ms	Screw terminal block

*1: For more information about diagnostic functions, please refer to the relevant product manual.

Output Module

Select the appropriate module according to application such as transistor output or relay and number of outputs.

Type	Model	Number of output points	Rated load voltage	Max. load current (Rated switching current)	Common terminal arrangement	Response time	External interface
Relay output	RY10R2	16 points	24 V DC/240 V AC	2 A/points 8 A/common	16 points/common	12 ms	Screw terminal block
Transistor (sink) output	RY40NT5P	16 points	12...24 V DC	0.5 A/points 5 A/common	16 points/common	1 ms	Screw terminal block
	RY41NT2P	32 points	12...24 V DC	0.2 A/points 2 A/common	32 points/common	1 ms	40-pin connector
	RY42NT2P	64 points	12...24 V DC	0.2 A/points 2 A/common	32 points/common	1 ms	40-pin connector (2×)
	RY41NT2H	32 points	5...24 V DC	0.2 A/points 2 A/common	32 points/common	2 µs	40-pin connector
Transistor (source) output	RY40PT5P	16 points	12...24 V DC	0.5 A/points 5 A/common	16 points/common	1 ms	Screw terminal block
	RY41PT1P	32 points	12...24 V DC	0.1 A/points 2 A/common	32 points/common	1 ms	40-pin connector
	RY42PT1P	64 points	12...24 V DC	0.1 A/points 2 A/common	32 points/common	1 ms	40-pin connector (2×)
	RY41PT2H	32 points	5...24 V DC	0.2 A/points 2 A/common	32 points/common	2 µs	40-pin connector
Transistor (with diagnostic functions) output*1	RY40PT5B	16 points	24 V DC	0.5 A/points 5 A/common	16 points/common	1.5 ms	Screw terminal block

*1: For more information about diagnostic functions, please refer to the relevant product manual.

I/O Combined Module

The combined module is capable of both input and output controls by a single module.

Type	Model	Number of I/O points	Rated input voltage/ Rated load voltage	Rated input current	Max. load current	Common terminal arrangement	Response time	External interface
DC input/Transistor output	RH42C4NT2P	Input 32 points	24 V DC	4.0 mA	–	32 points/common	0.2...70 ms	40-pin connector (2×)
		Output 32 points	12...24 V DC	–	0.2 A/points 2 A/common	32 points/common	1 ms	

Analog Module

Analog Input/Analog Output

Our wide range of analog modules incorporates a variety of functions for supporting site control situations.
The lineup also includes modules that support channel isolated, which is ideal for process control.

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed (Sampling cycle)	External interface	Others
Voltage input	R60ADV8	8 ch	-10...10 V DC	-32000...32000	80 µs/ch	Screw terminal block	–
Current input	R60ADI8	8 ch	0...20 mA DC	0...32000	80 µs/ch	Screw terminal block	–
Voltage, current input	R60AD4	4 ch	-10...10 V DC 0...20 mA DC	-32000...32000 0...32000	80 µs/ch	Screw terminal block	–
	R60ADH4	4 ch	-10...10 V DC 0...20 mA DC	-32000...32000 0...32000	10 µs/ch 20 µs/ch 5 µs/4 ch	Screw terminal block	–
	R60AD8-G	8 ch	-10...10 V DC 0...20 mA DC	-32000...32000 0...32000	10 ms/ch	40-pin connector	Channel isolated
	R60AD16-G	16 ch	-10...10 V DC 0...20 mA DC	-32000...32000 0...32000	10 ms/ch	40-pin connector (2×)	Channel isolated
Voltage output	R60DAV8	8 ch	-10...10 V DC	-32000...32000	80 µs/ch	Screw terminal block	–
Current output	R60DAI8	8 ch	0...20 mA DC	0...32000	80 µs/ch	Screw terminal block	–
Voltage, current output	R60DA4	4 ch	-10...10 V DC 0...20 mA DC	-32000...32000 0...32000	80 µs/ch	Screw terminal block	–
	R60DA8-G	8 ch	-12...12 V DC 0...20 mA DC	-32000...32000 0...32000	1 ms/ch	40-pin connector	Channel isolated
	R60DA16-G	16 ch	-12...12 V DC 0...20 mA DC	-32000...32000 0...32000	1 ms/ch	40-pin connector (2×)	Channel isolated

Temperature Input Module, Temperature Control Module

Available are a lineup of temperature input modules compatible with various temperature sensors and a lineup of temperature controllers that ensure standard control, heating-cooling control and optimum temperature control by detecting heater disconnection.

Temperature input module

Temperature control module

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed (Sampling cycle)	External interface	Others
Temperature input	Thermocouple	R60TD8-G	8 ch	Thermocouple (B,R,S,K,E,J,T,N)	30 ms/ch	40-pin connector	Channel isolated Disconnection detected
	RTD	R60RD8-G	8 ch	Platinum RTD (Pt100,JPt100,Pt50) Niokel RTD (Ni100)	10 ms/ch	40-pin connector	Channel isolated Disconnection detected
Temperature control	Thermocouple/ RTD	R60TCTRT2TT2	4 ch	Thermocouple (B,R,S,K,E,J,T,N,U,L,PLⅡ,W5Re/W26Re) Platinum RTD *1 (Pt100,JPt100)	250 ms / 4 ch 500 ms / 4 ch	Screw terminal block	Channel isolated Standard control heating and cooling control
		R60TCTRT2TT2BW	4 ch	Thermocouple (B,R,S,K,E,J,T,N,U,L,PLⅡ,W5Re/W26Re) Platinum RTD *1 (Pt100,JPt100)	250 ms / 4 ch 500 ms / 4 ch	Screw terminal block (2×)	Channel isolated Standard control heating and cooling control Heater disconnection detection
	RTD	R60TCRT4	4 ch	Platinum RTD (Pt100,JPt100)	250 ms / 4 ch 500 ms / 4 ch	Screw terminal block	Channel isolated Standard control heating and cooling control
		R60TCRT4BW	4 ch	Platinum RTD (Pt100,JPt100)	250 ms / 4 ch 500 ms / 4 ch	Screw terminal block (2×)	Channel isolated Standard control heating and cooling control Heater disconnection detection

*1: Only for executing 4 ch in 2 ch (ch1 and ch2)

Motion, Positioning

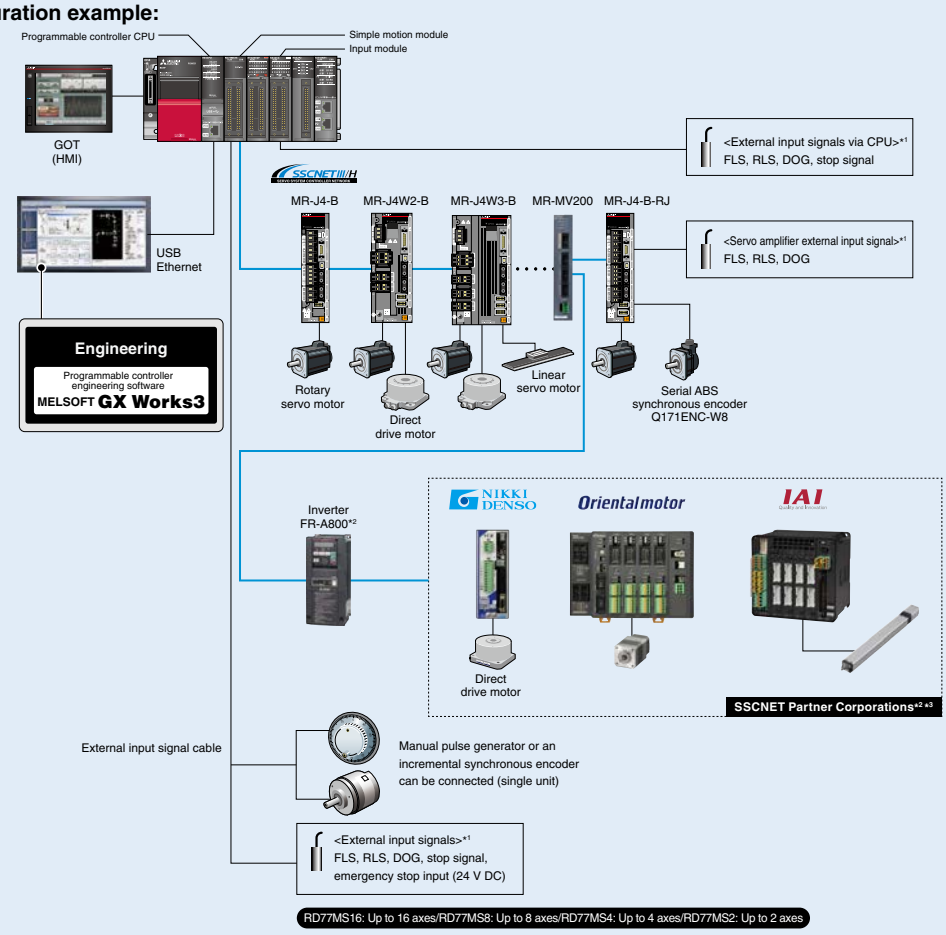
Simple Motion Module

Various controls can be made similar to positioning modules. The sequence program handles highly-advanced and wide range of motion controls, including the synchronous control, cam control, speed and torque (pressing control) and others. Synchronous encoder, mark detection function, and other necessary features are equipped as standard.

Servo amplifier network	Model	Maximum number of control axes	Control unit	Operation cycle	Positioning data
CC-Link IE Field Network	RD77GF4	4 axes	mm, inch, degree, pulse	0.5 ms, 1.0 ms, 2.0 ms, 4.0 ms	600
	RD77GF8	8 axes	mm, inch, degree, pulse	0.5 ms, 1.0 ms, 2.0 ms, 4.0 ms	600
	RD77GF16	16 axes	mm, inch, degree, pulse	0.5 ms, 1.0 ms, 2.0 ms, 4.0 ms	600
SSCNET Ⅲ/H	RD77MS2	2 axes	mm, inch, degree, pulse	0.444 ms, 0.888 ms, 1.777 ms, 3.555 ms	600
	RD77MS4	4 axes	mm, inch, degree, pulse	0.444 ms, 0.888 ms, 1.777 ms, 3.555 ms	600
	RD77MS8	8 axes	mm, inch, degree, pulse	0.444 ms, 0.888 ms, 1.777 ms, 3.555 ms	600
	RD77MS16	16 axes	mm, inch, degree, pulse	0.444 ms, 0.888 ms, 1.777 ms, 3.555 ms	600

600 600 data/axis

System configuration example:



*1: Destination of the external input signals (FLS, RLS, DOG, stop signal) can be changed with parameters.
*2: Use versions of partner products and inverter FR-A800 that are compatible with simple motion modules. (Refer to the "MELSEC iQ-R Simple Motion Module User's Manual (Application).")
*3: For details about partner products, refer to the servo system partner product catalog.

Positioning Module

High-speed, high-precision positioning modules support various positioning controls, including 2 - 4-axis linear interpolation, 2-axis circular interpolation, 3-axis helical interpolation, and trajectory control.

Type	Model	Maximum number of control axes	Control unit	Positioning data	Max. output pulse	External interface
Open collector output	RD75P2	2 axes	mm inch degree pulse	600	200 kpps	40-pin connector
	RD75P4	4 axes	mm inch degree pulse	600	200 kpps	40-pin connector (2×)
Differential output	RD75D2	2 axes	mm inch degree pulse	600	5 Mpps	40-pin connector (2×)
	RD75D4	4 axes	mm inch degree pulse	600	5 Mpps	40-pin connector (2×)

600 600 data/axis

High-speed Counter Module

Positioning and other controls are available by combining with external encoders. The maximum counting speed can be switched for counting, from a high-speed pulse to a gentle rise/fall low-frequency pulse.

Model	Number of channels	Counting speed switch	Count input signal	External input	Coincidence output	External interface
RD62P2	2 ch	200 kpps 100 kpps 10 kpps	5 V DC 12 V DC 24 V DC	5 V DC 12 V DC 24 V DC	Transistor (sink) 12/24 V DC, 0.5 A/point 2 A/common	40-pin connector
RD62P2E	2 ch	200 kpps 100 kpps 10 kpps	5 V DC 12 V DC 24 V DC	5 V DC 12 V DC 24 V DC	Transistor (source) 12/24 V DC, 0.1 A/point 0.4 A/common	40-pin connector
RD62D2	2 ch	8 Mpps 4 Mpps 2 Mpps 1 Mpps 500 kpps 200 kpps 100 kpps 10 kpps	Differential line driver	5 V DC 12 V DC 24 V DC	Transistor (sink) 12/24 V DC, 0.5 A/point 2 A/common	40-pin connector

Advanced Information Module

MES Interface Module

Realize improved production management and reduce overall system costs through real-time direct access to IT system database servers without requiring additional programming and gateway computers.

Model	Number of database connections	Connectable database	Max. No. of job settings	Data sampling interval	Amount of sampled data	Function
RD81MES96	16 server	Oracle® 11g, Oracle® 12c, Microsoft® SQL Server® 2008 R2, Microsoft® SQL Server® 2012, Microsoft® SQL Server® 2014, Microsoft® Access® 2010, Microsoft® Access® 2013, MySQL®, PostgreSQL	Max. 64	General data sampling 0.1...0.9 s, 1...3600 s High speed data sampling 1...900 ms, 1...60 s, per scan	Max. 65536	DB record read/write function Device memory read/write function Trigger condition monitoring function Data operation and processing function Program execution function DB buffering function Trigger buffering function Variable I/O function Job execution monitoring function One-shot execution function

High-speed Data Logger Module

High-speed data logger module enables logging of various data without using a computer. High-speed accurate data logging is easily realized at a low cost. The sophisticated data collection rules can be easily created using wizard-like High-speed Data Logger Module Configuration Tool. Logged data are viewable using the logging data display and analysis tool, GX LogViewer, and can be used for data analysis.

Model	Data sampling interval	Amount of sampled data	Save file format	Function
RD81DL96	General data sampling Time specification:0.1...32767 s Time interval specification (specify hour/minute/second)	General data sampling Overall amount of data: 65536 (per setting: 1024) Overall number of device points: 262144 (per setting: 4096)	TXT file CSV file EXCEL format BIN file	High-speed data sampling function FTP server function File transfer function Recipe function Email function Trigger logging function Event-logging function Auto logging function
	High-speed data sampling Sequence scan time synchronization Time specification:0.5...32767 s (for trigger logging)/ 2...32767 ms (for continuous logging)	High-speed data sampling Overall amount of data: 32768 (per setting: 1024) Overall number of device points: 32768 (per setting: 4096)		

C Intelligent Function Module

The C Intelligent function module is available with a multi-core ARM®-based controller pre-installed with VxWorks® Version 6.9, which realizes simultaneous execution of programs, thereby providing a robust and deterministic alternative to computer-based systems.

Model	OS	Endian format	Communication interface	Compatible memory card
RD55UP06-V	VxWorks® Version 6.9	Little endian	Ethernet	SD

SD SD memory card

Network Module

Ethernet Interface Module

The Ethernet interface module offers the best choice for the system and other devices. The engineering tool setting enables to use the Ethernet port (P1 and P2) in Ethernet and CC-Link IE networks.

Model	Ethernet standard	Number of channels	Transmission speed	Others
RJ71EN71	1000BASE-T 100BASE-TX 10BASE-T	2 ch	1 Gbps 100 Mbps 10 Mbps	MELSOFT connection SLMP communication Communication protocol CC-Link IE Field
RnENCPU*1	1000BASE-T 100BASE-TX 10BASE-T	2 ch	1 Gbps 100 Mbps 10 Mbps	MELSOFT connection SLMP communication Communication protocol CC-Link IE Field

Communication protocol Predefined Protocol support function

CC-Link IE Field CC-Link IE function (For more information, please refer to the CC-Link IE Control Network module, CC-Link IE Field Network master/local module.)

CC-Link IE Control Network Module

The CC-Link IE Control Network control/normal stations are designed for a large-scale controller-distributed control and to link with individual field networks. This high-reliability distributed control network can handle very large data communications (128K word) over a high-speed (1 Gbps) dual-loop optical cable topology.

CC-Link IE

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Max. number of link points per network
RJ71GP21-SX	Optical fiber cable (multi-mode optical fiber)	1 Gbps	Duplex loop	66000 m (When 120 stations are connected)	120 stations
RJ71EN71*1	Ethernet cable that meets 1000 BASE-T standard: Category 5e or higher, straight cable (double shielded, STP)	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 11,900 m (When 120 stations are connected) Star topology: Depends on the system configuration Ring topology: 12,000 m (When 120 stations are connected)	120 stations
RnENCPU*1*2	Ethernet cable that meets 1000 BASE-T standard: Category 5e or higher, straight cable (double shielded, STP)	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 11,900m (When 120 stations are connected) Star topology: Depends on the system configuration Ring topology: 12,000m (When 120 stations are connected)	120 stations

*1: When using the CC-Link IE Field Network device.

CC-Link IE Field Network Master/Local Module

The CC-Link IE Field Network master/local station for an all-round field network system that integrates the controller distributed control, I/O control, safety control, and motion control. Its high-speed (1Gbps) and enhanced communication responsiveness brings significant reduction of tact time.

CC-Link IE

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Compatible station	Max. number of link points per network
RJ71GF11-T2	Ethernet cable that meets 1000 BASE-T standard: Category 5e or higher, straight cable (double shielded, STP)	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 12,000 m (master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (master station: 1, slave station: 120)	Master station Local station (including safety station)	121 stations (master station: 1, slave station: 120)
RJ71EN71*1	Ethernet cable that meets 1000 BASE-T standard: Category 5e or higher, straight cable (double shielded, STP)	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 12,000 m (master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (master station: 1, slave station: 120)	Master station Local station (except for safety station)	121 stations (master station: 1, slave station: 120)
RnENCPU*1*2	Ethernet cable that meets 1000 BASE-T standard: Category 5e or higher, straight cable (double shielded, STP)	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 12,000 m (master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (master station: 1, slave station: 120)	Master station Local station (except for safety station)	121 stations (master station: 1, slave station: 120)

*1: When using the CC-Link IE Field Network device.

CC-Link IE Field Network Remote Head Module

The CC-Link IE Field head module can control the I/O and intelligent function modules directly when installed on the same base unit, and can operate as a network remote station. Network system reliability can be improved by installing redundant head modules and redundant network cables.

CC-Link IE

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Compatible station	Max. number of link points per network
RJ72GF15-T2	Ethernet cable (Category 5e or higher, double shielded, STP)	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 12,000 m (master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (master station: 1, slave station: 120)	Remote station	121 stations (master station: 1, slave station: 120)

CC-Link System Master/Local Module

Field network module which delivers outstanding cost-performance of I/O control, and can be used as either a CC-Link Ver.1 or Ver.2 compatible master/local station.

CC-Link

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Compatible station	Max. number of link points per network
RJ61BT11	Ver.1.10-compatible CC-Link dedicated cable	156 kbps	Bus (RS-485)	1200 m	Ver.2 Master station Ver.2 Local station Ver.1 Master station Ver.1 Local station	65 stations (master station: 1, slave station: 64)
		625 kbps		900 m		
		2.5 Mbps		400 m		
		5 Mbps		160 m		
		10 Mbps		100 m		

AnyWireASLINK Master Module DB

AnyWireASLINK is a sensor-level network that realizes a smaller installation space and reduces wiring owing to its easy wiring topology. This master module allows miniature sensors to be freely arranged on the network and can control 512 I/O points maximum.

AnyWireASLINK
DB Co-developed with other companies

Model	Connection cable	Transmission path	Overall cable distance	Max. number of link points per network
RJ51AW12AL	Universal 2-wire/4-wire cable, universal cable, dedicated flat cable	Bus (multi-drop, T-branch, tree branch)	200 m	128 stations (varies according to each slave module's current consumption)

Serial Communication Module

This module communicates with various external devices (PC, GOT(HMI), bar code reader, measuring equipment, etc.) for data sampling/change, monitoring/management, and measurement data sampling of the programmable controller.

Model	Transmission interface	Number of channels	Transmission speed	Overall transmission distance (Overall cable distance)	Others
RJ71C24	RS-232 RS-422/485	2 ch CH1:RS-232, CH2:RS-422/485	1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps 230400 bps	RS-232: Max. 15 m RS-422/485: Max. 1200 m	MELSOFT connection MC protocol communication Communication protocol
RJ71C24-R2	RS-232	2 ch	1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps 230400 bps	Max. 15 m	MELSOFT connection MC protocol communication Communication protocol
RJ71C24-R4	RS-422/485	2 ch	1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps 230400 bps	Max. 1200 m	MELSOFT connection MC protocol communication Communication protocol

Communication protocol Predefined Protocol support function

Programmable Controller CPU Module Specifications

Programmable controller CPU modules, Process CPU: Hardware specifications

Item		R04CPU R04ENCPU	R08CPU R08ENCPU R08PCPU	R16CPU R16ENCPU R16PCPU	R32CPU R32ENCPU R32PCPU	R120CPU R120ENCPU R120PCPU
Control method		Stored program cyclic operation				
I/O control mode		Refresh mode (Direct access I/O is available by specifying direct access I/O (DX, DY).)				
Instruction processing time	LD instruction	0.98 ns				
	MOV instruction	1.96 ns				
Instruction processing time (ST language)	IF statement	1.96 ns				
	CASE statement	1.96 ns				
	FOR statement	1.96 ns				
Memory size	Program size	40K steps (160K bytes)	80K steps (320K bytes)	160K steps (640K bytes)	320K steps (1280K bytes)	1200K steps (4800K bytes)
	Program memory	160K bytes	320K bytes	640K bytes	1280K bytes	4800K bytes
	SD memory card	SD memory card capacity level (SD/SDHC memory cards up to 32GB)				
	Device/label memory*1	400K bytes	1188K bytes	1720K bytes	2316K bytes	3380K bytes
	Data memory	2M bytes	5M bytes	10M bytes	20M bytes	40M bytes
	CPU buffer memory	1072K bytes (536K word) (includes periodic communication area (24K word))				
	Refresh memory	2048K bytes*2				
Maximum number of files for storage	Program memory (P: Number of program files, FB: Number of FB files)	188 files (P: 124 files, FB: 64 files (up to 64 can be stored to 1 file))	380 files (P: 252 files, FB: 128 files (up to 64 can be stored to 1 file))			
	Device/label memory	324 files (regardless of the extended SRAM cassette use)*3				
	Data memory*4	256 files	512 files			
	SD memory card*4	• NZ1MEM-2GBSD: 256 files • NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD: 32767 files				
Maximum number of folders	Data memory*4	256 files	512 files			
	SD memory card*4	• NZ1MEM-2GBSD: 256 files • NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD: 32767 files*4				
USB port		USB2.0 High Speed (miniB) ×1				
Ethernet port		10BASE-T/100BASE-TX×1				
CC-Link IE communication port		Ethernet (1000BASE-T/100BASE-TX/10BASE-T)*5*6				

*1: Total capacity for the device area, label area, latch label area, the local device area, and the file storage area. Capacity of each area can be changed from the parameter setting. Extended SRAM cassette can be mounted to increase the device/label memory capacity.
*2: Total capacity of the device and the unit label areas.
*3: Number including system files.
*4: This is the total number (including system files and system folder) that can be created in the root folder when the file name and folder name are 13 characters (including extension) or less. When creating in a sub folder, up to 32767 files can be created. Note, however, that the number decreases when a file and folder having a name longer than 13 characters (including extension) are created.
*5: Available with R□ENCPU.
*6: The following networks are supported, Ethernet, CC-Link IE Control (twisted pair cable), and CC-Link IE Field (two simultaneous Ethernet networks and combined CC-Link IE Field and CC-Link IE Control networks are not supported).

Programmable controller CPU modules, Process CPU: Programming specifications

Item			R04CPU R04ENCPU	R08CPU R08ENCPU R08PCPU	R16CPU R16ENCPU R16PCPU	R32CPU R32ENCPU R32PCPU	R120CPU R120ENCPU R120PCPU
Program language			• Ladder Diagram (LD) • Sequential Function Chart (SFC)*1*2 • Structured Text (ST) • Function Block Diagram (FBD/LD)				
Programming extensions			Function block (FB), label programming (system/local/global)				
Program operation	Execution type		Initial execution type, scan execution type, periodic execution type, event execution type, wait type				
	Interrupt type		Internal timer interrupt (I28...I31), high-speed internal timer interrupt 1 (I49), high-speed internal timer interrupt 2 (I48), interrupt from the unit, synchronous interrupt between units (I44)*2, synchronous interrupt between multi-CPUs (I45)*2*3				
Number of program execution			124 programs	252 programs			
Number of FB files			64 programs	128 programs			
Tact performance	Constant scanning		0.1...2000 ms (setting can be made in 0.1 ms increments)				
	Periodic interrupt		0.5...1000 ms (setting can be made in 0.5 ms increments)				
	High-speed internal timer interrupt		0.05...1000 ms (setting can be made in 0.05 ms increments)				
	Synchronous interrupt between units*2		0.1...10.00 ms (setting can be made in 0.05 ms increments)				
	Synchronous interrupt between multi-CPUs*2*3		0.1...10.00 ms (setting can be made in 0.05 ms increments)				
Timer performance	Low-speed timer		1...1000 ms (default is 100 ms)				
	High-speed timer		0.01...100 ms (default is 10 ms)				
	Long timer		0.001...1000 ms (default is 0.001 ms)				
Input/output points			4096 points				
User device points	Input (X)		12288 points (fixed)				
	Output (Y)		12288 points (fixed)				
	Internal relay (M)		12288 points (changeable with use of a parameter)*4				
	Latching relay (L)		8192 points (changeable with use of a parameter)*4				
	Link relay (B)		8192 points (changeable with use of a parameter)*4				
	Link special relay (SB)		2048 points (changeable with use of a parameter)*4				
	Annunciator (F)		2048 points (changeable with use of a parameter)*4				
	Edge relay (V)		2048 points (changeable with use of a parameter)*4				
	Step relay (S)*1*2*5		0 points (changeable with use of a parameter)*4				
	Timer system	Timer (T)	1024 points (changeable with use of a parameter)*4				
		Long timer (LT)	1024 points (changeable with use of a parameter)*4				
	Integrating timer system	Integrating timer (ST)	0 points (changeable with use of a parameter)*4				
		Long integrating timer (LST)	0 points (changeable with use of a parameter)*4				
	Counter system	Counter (C)	512 points (changeable with use of a parameter)*4				
		Long counter (LC)	512 points (changeable with use of a parameter)*4				
	Data register (D)		18432 points (changeable with use of a parameter)*4				
	Link register (W)		8192 points (changeable with use of a parameter)*4				
	Link special register (SW)		2048 points (changeable with use of a parameter)*4				
System device points	Special relay (SM)		4096 points (fixed)				
	Special register (SD)		4096 points (fixed)				
	Function input (FX)		16 points (fixed)				
	Function output (FY)		16 points (fixed)				
	Function register (FD)		5 points × 4 words (fixed)				
File register points	File register (R/ZR)		0 points (changeable with use of a parameter)*4				
Index register points	Index register (Z)		20 points (Maximum 24 points changeable with use of a parameter)				
	Long index register (LZ)		2 points (Maximum 12 points changeable with use of a parameter)				
Pointer points	Pointer (P) (Global/local)		8192 points (Maximum 16384 points changeable with use of a parameter)				8192 points (Maximum 32768 points changeable with use of a parameter)
	Interrupt pointer (I)		1024 points (fixed)				
Link direct device points	Link input (J□¥X□)		Maximum 16384 points*6				
	Link output (J□¥Y□)		Maximum 16384 points*6				
	Link relay (J□¥B□)		Maximum 32768 points*6				
	Link register (J□¥W□)		Maximum 131072 points*6				
	Link special relay (J□¥SB□)		Maximum 512 points*6				
	Link special register (J□¥SW□)		Maximum 512 points*6				
Unit access device points	Intelligent function unit device (U□¥G□)		Maximum 268435456 points*6				
CPU buffer memory access device points	Buffer memory (U3E□¥G□)		Maximum 524288 points*6				
	Buffer memory periodic communication area (U3E□¥HG□)*2		Maximum 12288 points*7				
Refresh data register points	Refresh data register (RD)		524288 points (Maximum 1048576 points)				
Nesting points	Nesting (N)		15 points				

*1: When using on the RnCPU or process CPU, check the version of the CPU module and engineering tool.
*2: Cannot be used on a process CPU (redundancy mode).
*3: Cannot be used on the RnENCPU.
*4: Changeable from the parameter setting and within the capacity scope of the CPU built-in memory and the extended SRAM cassette.
*5: Used in the SFC program. For details on the SFC program, refer to the manual.
*6: Indicate the maximum value that CPU can handle, and the actual points differ among units.
*7: The maximum value differs according to parameter setting (multi-CPU setting).

Safety CPU: Hardware specifications

Item		R08SFCPU	R16SFCPU	R32SFCPU	R120SFCPU
Control method		Stored program cyclic operation			
I/O control mode		Refresh mode (Direct access I/O is available by specifying direct access I/O (DX, DY).)			
Instruction processing time	LD instruction SA¥X0	0.98 ns			
	MOV instruction SA¥D0 SA¥D1	1.96 ns			
Memory size	Program size	80K steps (320K bytes) (40K steps for safety programs (160K bytes))	160K steps (640K bytes) (40K steps for safety programs (160K bytes))	320K steps (1280K bytes) (40K steps for safety programs (160K bytes))	1200K steps (4800K bytes) (40K steps for safety programs (160K bytes))
	Program memory	320K bytes (160K bytes for safety programs)	640K bytes (160K bytes for safety programs)	1280K bytes (160K bytes for safety programs)	4800K bytes (160K bytes for safety programs)
	Device/label memory*1	1178K bytes	1710K bytes	2306K bytes	3370K bytes
	Data memory	5M bytes	10M bytes	20M bytes	40M bytes
	CPU buffer memory	1024K bytes (512K word) (includes built-in function information area size 4M bytes (2K word))			
	Refresh memory	2048K bytes*2			
Maximum number of files for storage	Program memory (P: Number of program files, FB: Number of FB files)	380 files (including those for the safety program) (P: 252 files, FB: 128 files (up to 64 can be stored to 1 file))			
	Program memory (P: Number of safety program files, FB: Number of safety FB files)	48 files (P: 32 files, FB: 16 files (up to 64 can be stored to 1 file))			
	Device/label memory	323 files (regardless of the extended SRAM cassette use)*3			
	Data memory	512 files*4			
	SD memory card	• NZ1MEM-2GBSD: 256 files*4 • NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD: 32767 files*4			
Maximum number of folders	Data memory	512 files*4			
	SD memory card	• NZ1MEM-2GBSD: 256 files*4 • NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD: 32767 files*4			
USB port		USB2.0 High Speed (miniB) ×1			
Ethernet port		100BASE-TX/10BASE-T×1			

*1: The size of device area, label area, latch label area, and file storage are can be changed by parameter settings. Device/label memory size can be increased by mounting the extended SRAM cassette.
*2: This is the total size of device area and unit label area.
*3: Number including system files.
*4: This is the total number (including system files and system folder) that can be created in the root folder when the file name and folder name are 13 characters (including extension) or less. When creating in a sub folder, up to 32767 files can be created. Note, however, that the number decreases when a file and folder having a name longer than 13 characters (including extension) are created.

Safety CPU: Programming specifications

Item			R08SFCPU	R16SFCPU	R32SFCPU	R120SFCPU
Program language			• Ladder Diagram (LD) • Structured Text (ST)*1 • Function Block Diagram (FBD/LD)*1			
Programming extensions			Function block (FB), label programming (system/local/global)			
Program operation	Execution type	General program	Initial execution type, scan execution type, periodic execution type, event execution type, wait type			
		Safety program	periodic execution type			
	Interrupt type	General program	Internal timer interrupt (I28...I31), interrupt from the unit			
Number of program execution		General program	252 programs (including those for safety program)			
		Safety program	32 programs			
Number of FB files		FB file	128 programs (up to 64 can be stored to 1 file) (including those for safety FB files)			
		Safety FB file	16 programs (up to 64 can be stored to 1 file)			
Tact performance	Constant scanning		0.2...2000 ms (setting can be made in 0.1 ms increments)			
	Periodic interrupt		0.5...1000 ms (setting can be made in 0.5 ms increments)			
Timer performance	Low-speed timer		1...1000 ms (default is 100 ms)			
	High-speed timer		0.01...100 ms (default is 10ms)			
	Long timer*1		0.001...1000 ms (default is 0.001 ms)			
Input/output points			4096 points			
User device points	Input (X)*1		12288 points (fixed)			
	Output (Y)*1		12288 points (fixed)			
	Internal relay (M)*1		12288 points (changeable with use of a parameter)*2			
	Latching relay (L)*1		8192 points (changeable with use of a parameter)*2			
	Link relay (B)*1		8192 points (changeable with use of a parameter)*2			
	Link special relay (SB)*1		2048 points (changeable with use of a parameter)*2			
	Annunciator (F)*1		2048 points (changeable with use of a parameter)*2			
	Edge relay (V)*1		2048 points (changeable with use of a parameter)*2			
	Timer system	Timer (T)*1	1024 points (changeable with use of a parameter)*2			
		Long timer (LT)*1	1024 points (changeable with use of a parameter)*2			
	Integrating timer system	Integrating timer (ST)*1	0 points (changeable with use of a parameter)*2			
		Long integrating timer (LST)*1	0 points (changeable with use of a parameter)*2			
	Counter system	Counter (C)*1	512 points (changeable with use of a parameter)*2			
		Long counter (LC)*1	512 points (changeable with use of a parameter)*2			
	Data register (D)*1		18432 points (changeable with use of a parameter)*2			
	Link register (W)*1		8192 points (changeable with use of a parameter)*2			
	Link special register (SW)*1		2048 points (changeable with use of a parameter)*2			
Number of safety user device points	Safety input (SA¥X)*3		8192 points (either 8192 or 12288 points can be selected with use of a parameter)*4			
	Safety output (SA¥Y)*3		8192 points (either 8192 or 12288 points can be selected with use of a parameter)*4			
	Safety internal relay (SA¥M)*3		6144 points (changeable with use of a parameter)*2			
	Safety link relay (SA¥B)*3		4096 points (changeable with use of a parameter)*2			
	Safety timer (SA¥T)*3		512 points (changeable with use of a parameter)*2			
	Safety integrating timer (SA¥ST)*3		0 points (changeable with use of a parameter)*2			
	Safety counter (SA¥C)*3		512 points (changeable with use of a parameter)*2			
	Safety data register (SA¥D)*3		12288 points (changeable with use of a parameter)*2			
	Safety link register (SA¥W)*3		4096 points (changeable with use of a parameter)*2			
System device points	Special relay (SM)*1		4096 points (fixed)			
	Special register (SD)*1		4096 points (fixed)			
	Function input (FX)*1		16 points (fixed)			
	Function output (FY)*1		16 points (fixed)			
	Function register (FD)*1		5 points × 4 words (fixed)			
Safety system device points	Safety special relay (SA¥SM)*3		4096 points (fixed)			
	Safety special register (SA¥SD)*3		4096 points (fixed)			
File register points	File register (R/ZR)*1		0 points (changeable with use of a parameter)*2			
Index register points	Index register (Z)*1		20 points (Maximum 24 points changeable with use of a parameter)			
	Long index register (LZ)*1		2 points (Maximum 12 points changeable with use of a parameter)			
Pointer points	Pointer (P)*1 (Global/local)		8192 points (Maximum 16384 points changeable with use of a parameter)			16384 points (Maximum 32768 points changeable with use of a parameter)
	Interrupt pointer (I)*1		1024 points (fixed)			
Link direct device points	Link input (J□¥X□)*1		Maximum 16384 points*5			
	Link output (J□¥Y□)*1		Maximum 16384 points*5			
	Link relay (J□¥B□)*1		Maximum 32768 points*5			
	Link register (J□¥W□)*1		Maximum 131072 points*5			
	Link special relay (J□¥SB□)*1		Maximum 512 points*5			
	Link special register (J□¥SW□)*1		Maximum 512 points*5			
Unit access device points	Intelligent function unit device (U□¥G□)*1		Maximum 268435456 points*5			
CPU buffer memory access device points	Buffer memory (U3E□¥G□)*1		Maximum 268435456 points*5			
Refresh data register points	Refresh data register (RD)*1		524288 points (Maximum 1048576)			
Nesting points	Nesting (N)		15 points			

*1: Cannot be used in safety programs.
*2: For details about the permissible range, refer to the manual.
*3: Cannot be used in general programs.
*4: When 12288 points is selected, check the version of the CPU module and engineering tool.
*5: Indicate the maximum value that CPU can handle, and the actual points differ among units.

MELSEC iQ-F Series

Designed on the concepts of outstanding performance, superior drive control and user centric programming, Mitsubishi's MELSEC-F Series has been reborn as the MELSEC iQ-F Series.

From stand alone use to networked system applications, MELSEC iQ-F Series brings your business to the next level of industry.

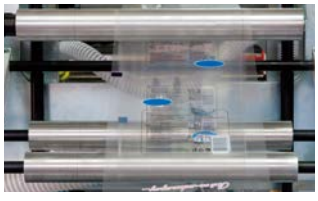
MELSEC iQ-F series

The next level of industry

Further extending the range of applications through improved fundamental performance, cooperation with drive devices and improved programming environment.


Conveyance


Food & Beverage


Packaging


Air-conditioning

New micro PLC designed on the concepts of ...

- *High-speed system bus*
- *Extensive built-in functions*
- *Enhanced security functions*
- *Battery-less*

- *Easy built-in positioning (4-axis 200 kpps)*
- *Simple interpolation functions*
- *4-axis synchronous control with simple motion module (dedicated positioning software not needed)*

- *Easy programming by drag and drop*
- *Reduced development time with module FB*
- *Parameterized setup for a variety of functions*

GX Works3

MELSEC iQ-F series The next level of industry

iQ Platform

Taking the iQ Platform to the next level.

iQ platform minimizes TCO* by providing innovative solutions for :

Building a stable production system with enhanced productivity

Reducing the time from system development to startup for shorter product cycles

Efficiently managing and servicing the system to reduce down time and maintain productivity

Ensuring product quality by swiftly processing large volumes of control data and production data and establishing traceability

*TCO: Total Cost of Ownership

PLC & HMI

1. High-speed bus performance greatly enhances the total system performance with the high-speed system bus performance (150× conventional speed*1)
2. Standardize programs with pre-defined module function blocks and module labels
3. Uniform and powerful security functions

Network

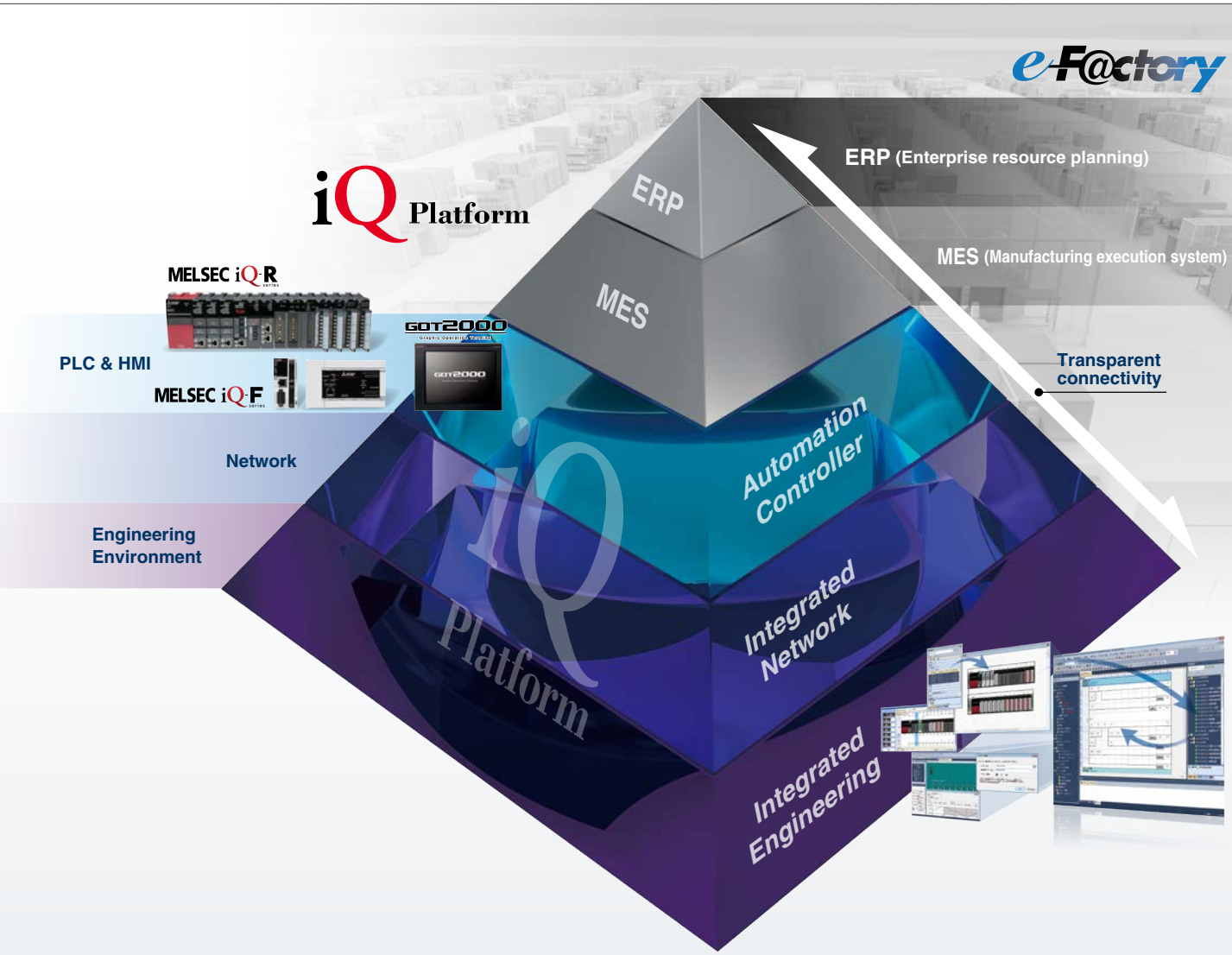
1. Achieve loss-less retrieval with CC-Link IE Field 1 Gbps high-speed communication (link refresh performance 40× conventional levels*1)
2. Seamless connectivity with each device using SLMP*

*SLMP: SeamLess Message Protocol

Engineering Environment

1. The intuitive programming environment of GX Works3 reduces development cost.
2. Module configuration drawings can be generated through direct reading from actual hardware.
3. Share parameters across multiple engineering software via MELSOFT Navigator.

*1: Comparison with FX3U


e-F@ctory
iQ Platform
ERP (Enterprise resource planning)
MES (Manufacturing execution system)
ERP
MES
MELSEC iQ-R
GOT2000
PLC & HMI
MELSEC iQ-F
Transparent connectivity
Network
Automation Controller
Engineering Environment
Integrated Network
Integrated Engineering
iQ Platform


MITSUBISHI ELECTRIC
GOT2000
USB
Ethernet

Advanced Built-in Functions

CPU Performance

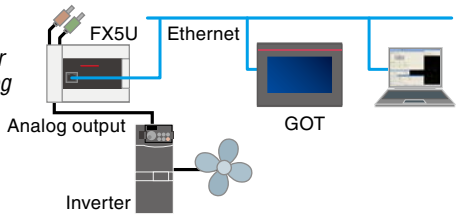
MELSEC iQ-F is powered by a high speed CPU that can execute the LD instruction in 34 ns.
Furthermore, MELSEC iQ-F can execute structured programs, execute multiple programs and handle ST language and function blocks.

Program capacity 64 k Step	Instruction execution speed (LD, MOV instruction) 34 ns
PC MIX value 14.6 instructions/μs	Fixed Cycle Interrupt Program Min. 1 ms

Built-in Analog Input/Output (with alarm output) FX5U

FX5U is equipped with 12-bit 2ch analog input and 1ch analog output. With parameter setup, no programming is required. Value shifting, scaling and alarm output can also be set easily with parameters.

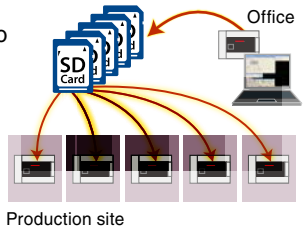
›› *Example of inverter control using analog output*



Built-in SD Memory Card Slot

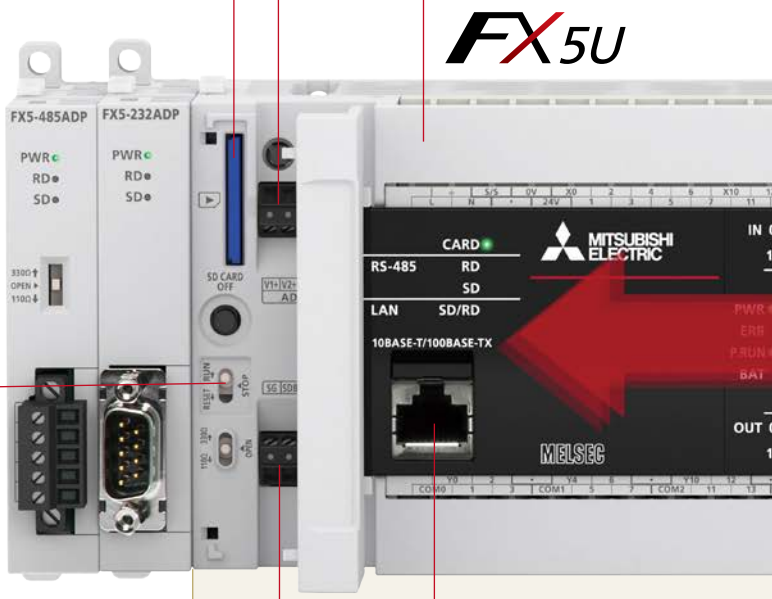
A built-in SD memory card slot is convenient for updating the program and mass production of equipment. Data can be logged in SD memory card (future support), making it easy to analyze the system status and production state, etc.

›› *Example of mass-production of equipment using SD memory card*



RUN/STOP/RESET Switch

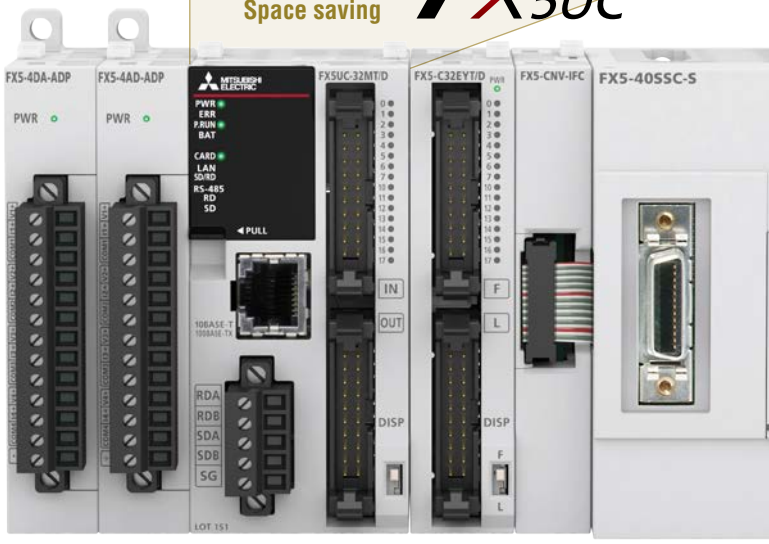
RUN/STOP/RESET switch is built in.
PLC can be rebooted without turning off the main power for efficient debugging.



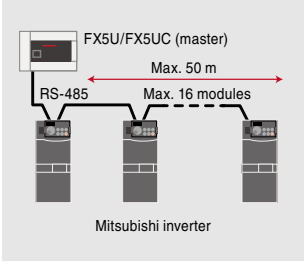
Built-in RS-485 Port (with MODBUS® function)

Connect to serial devices up to 50 m away with built-in RS-485 port. Control for up to 16 Mitsubishi inverters is possible with dedicated inverter communication instructions. MODBUS is also supported and can connect up to 32 MODBUS devices such as PLCs, sensors and temperature controllers.

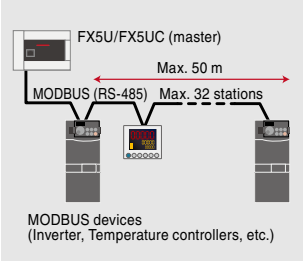
Space saving



›› Inverter Communication



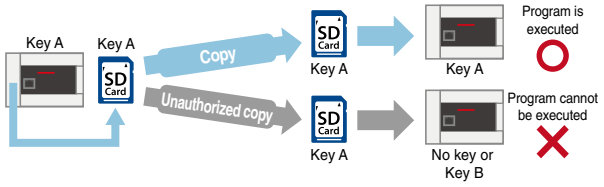
›› MODBUS Communication



Security

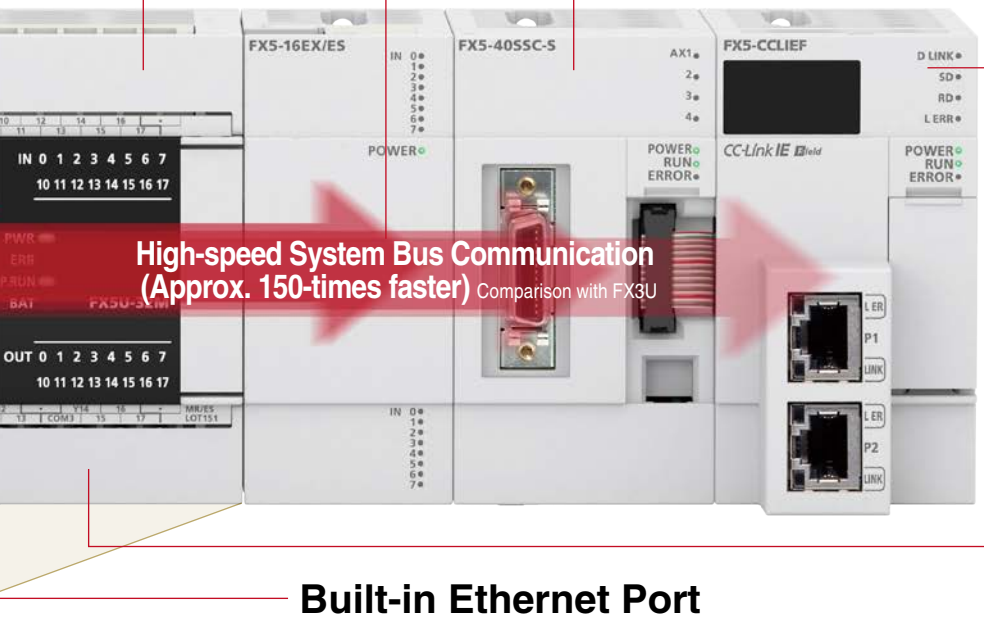
MELSEC iQ-F has advanced security functions (file password, remote password, security key) to prevent data theft and illegal operations by unauthorized persons.

›› *Example of security key function*



High-speed System Bus Communication

High-speed system bus communication at 1.5 K words/ms (approximately 150 times faster compared with FX3U), together with high speed CPU, allows MELSEC iQ-F to output maximum performance even when heavy data communication intelligent function modules are used.



SSCNET III/H
SERVO SYSTEM CONTROLLER NETWORK

CC-Link IE Field

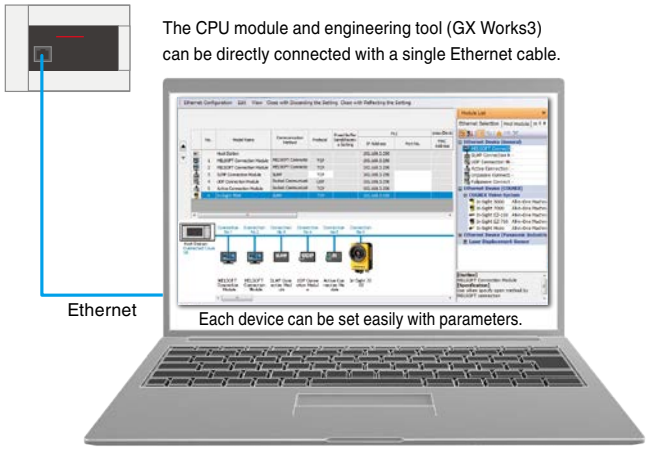
Battery-less and Maintenance-free

MELSEC iQ-F series holds programs and devices in nonvolatile memory such as flash ROM, and does not require a battery.

*: It is possible to increase the capacity of held devices by using an optional battery.

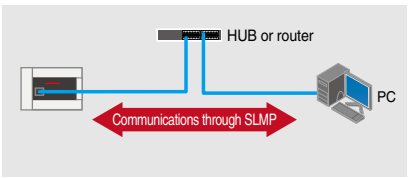
Built-in Ethernet Port

The Ethernet communication port can handle communication of up to 8 connections on the network, and can support multiple connections with personal computer and other devices. In addition, the Ethernet communication port can handle seamless SLMP communication with the upper-level device.



›› SLMP Communication

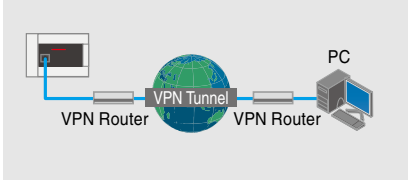
PC and other devices can read/write to the CPU module via the open protocol SLMP*.



*: SeamLess Message Protocol

›› Remote Maintenance

Program read/write can be made by GX Works3 connected via VPN.

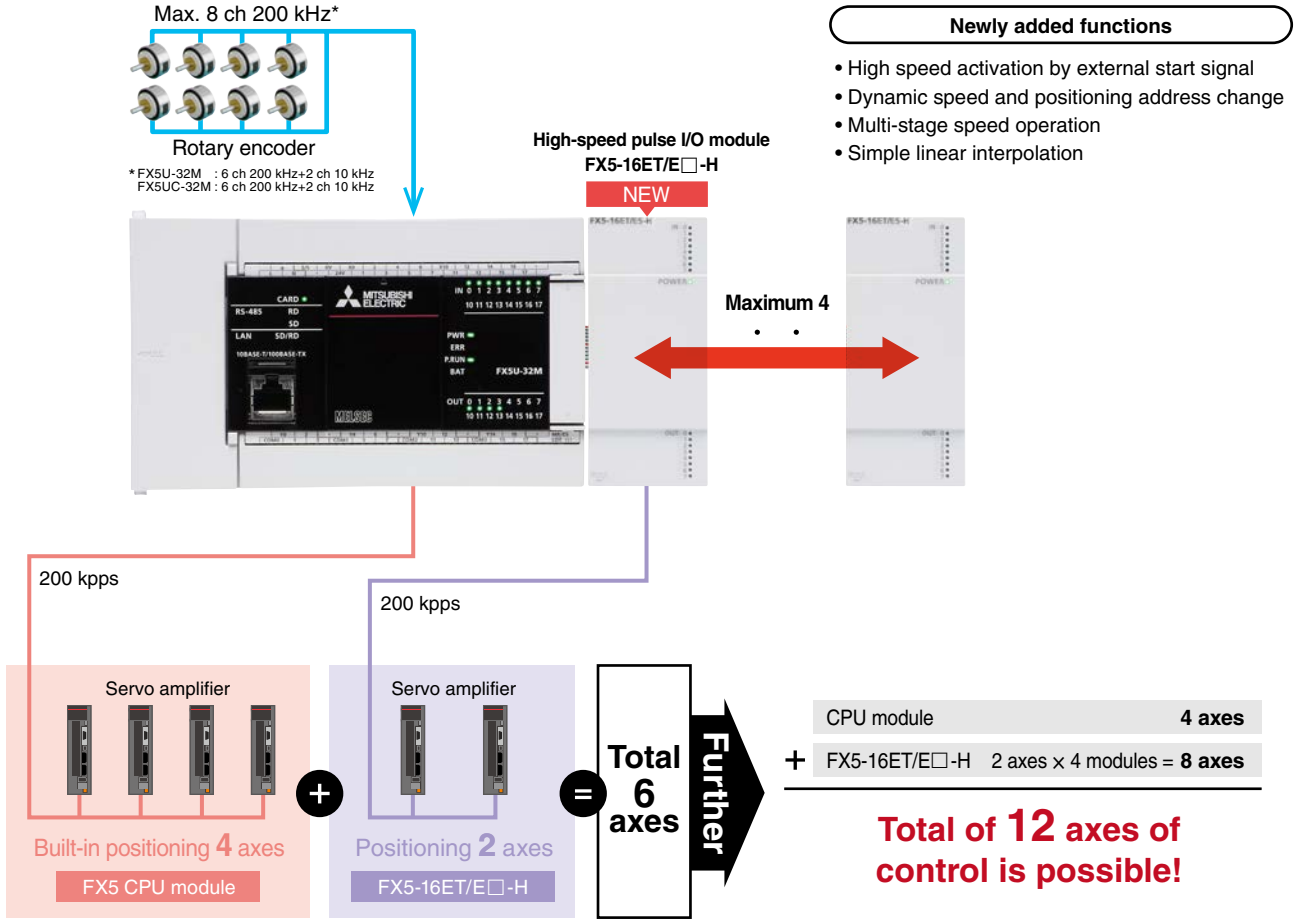


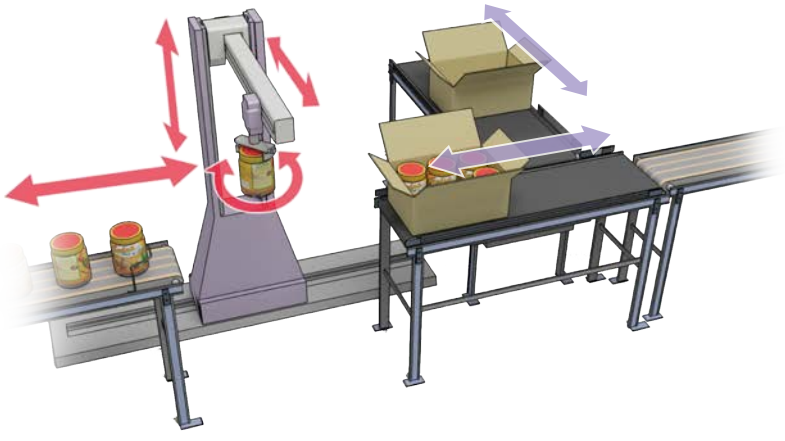
Advanced Positioning Function

Built-in Positioning (200 kpps, 4 axes built in) + Positioning 2 axes (200 kpps, 2 axes)

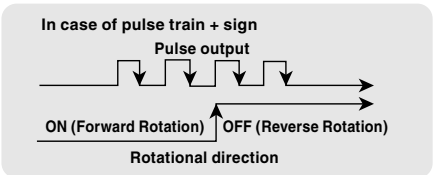
Positioning capable of 20 µs high-speed start

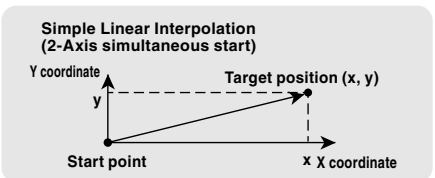
FX5U/FX5UC is equipped with built-in positioning functions that can utilize 8 ch high speed counter function and 4 axes pulse output.
In addition to the existing interrupt stop operation and variable speed operation, new functions have been added and made even easier to use. Furthermore, up to four high-speed pulse I/O modules can be connected for affordable multi-axis control.





[Example of carton packing system]



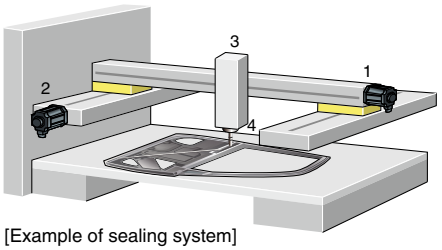


Simple Motion Module <4-axis control module>

SSCNETIII/H
SERVO SYSTEM CONTROLLER NETWORK
FX5-40SSC-S

Positioning control with SSCNETIII/H

FX5-40SSC-S is equipped with a 4-axis positioning function compatible with SSCNETIII/H. By combining linear interpolation, 2-axis circular interpolation and continuous trajectory control in the program set with a table, a smooth trajectory can be easily drawn.



1. X axis
2. Y axis
3. Z axis
4. Paint

[Example of sealing system]

Main functions

- Linear interpolation
- Circular interpolation
- Continuous trajectory control
- S-curve acceleration/deceleration

Application examples

- Sealing system
- Palletizer
- Grinding system

Advanced Motion Control

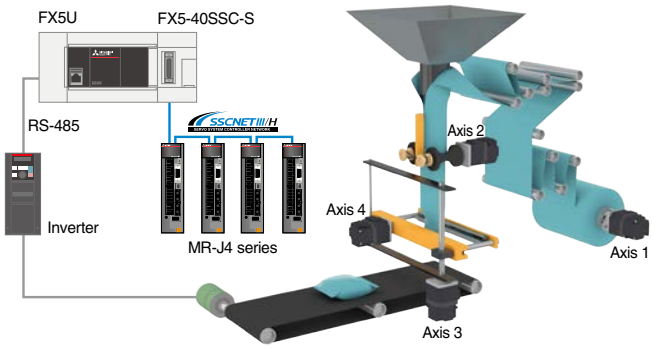
Making simple motion with compactly packed extra functions

By starting with parameter settings and the sequence program, the simple motion modules can realize a variety of motion control including positioning control, advanced synchronous control, cam control and speed-torque control.

Synchronous control

In addition to synchronous control that replaces physical machine mechanisms such as gears, shaft, transmission and cam with software, functions such as cam control, clutch and cam auto-generation are easily realized. Since synchronous control can be started and stopped for each axis, programs can contain both synchronous control axes and positioning control axes.

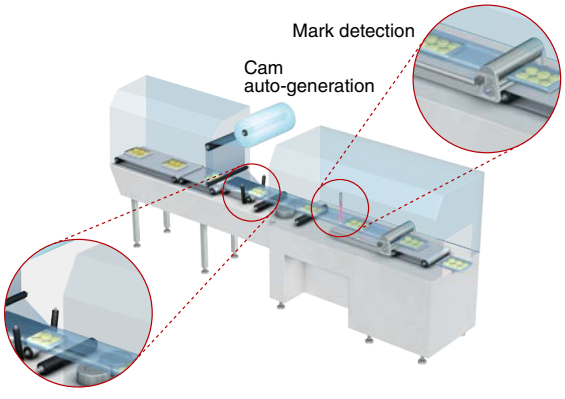
Up to four axes can be synchronized to the synchronous encoder axis, enabling use with a variety of systems.



- Use synchronous control and cam control to build a system perfect for your equipment.
- Register up to 64 types of cam patterns to respond to any type of packaging needs.
- Perform continuous operation without stopping the workpiece operation.

Mark detection function

The cutter axis deviation can be compensated by detecting a mark on the workpiece so the workpiece can be cut at a constant position.



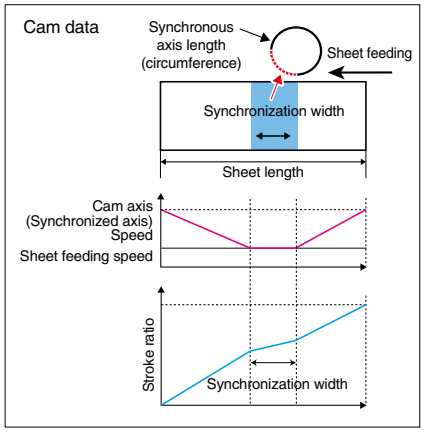
[Example of rotary cutter control with mark detection and cam data]

Cam data auto-generation

Easily program and automatically generate difficult cam data for rotary cutters just by inputting the sheet length, synchronization width, and cam resolution, etc.

User-created GOT screen

Parameter settings, including items like sheet length, etc.

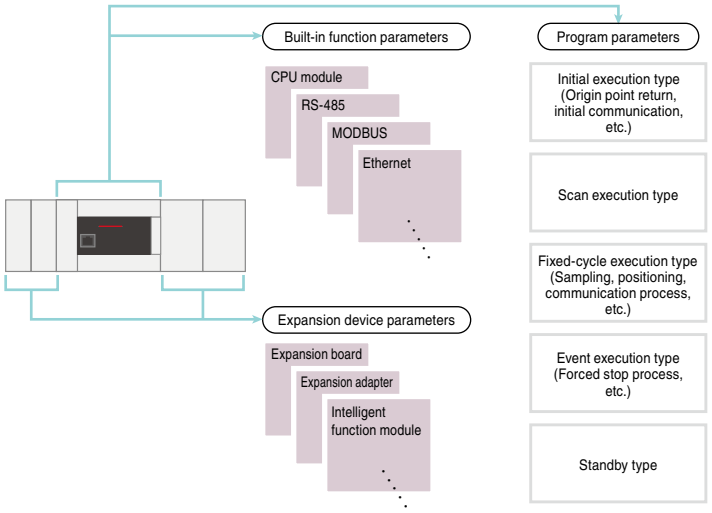


Advanced MELSEC iQ-F Series

Simple and convenient parameter settings

With MELSEQ iQ-F, various device settings that conventionally had to be programmed can be input in table format.
Easily set the built-in functions as well as expansion devices just by inputting values into the parameters.
The program's execution trigger can also be set with the parameters.

[Functions set with parameters]
- Settings for CPU parameters, Ethernet port, RS-485 communication port, input response time, expansion board, memory card, security, etc.
- Settings for expansion adapters and intelligent function module and program parameters

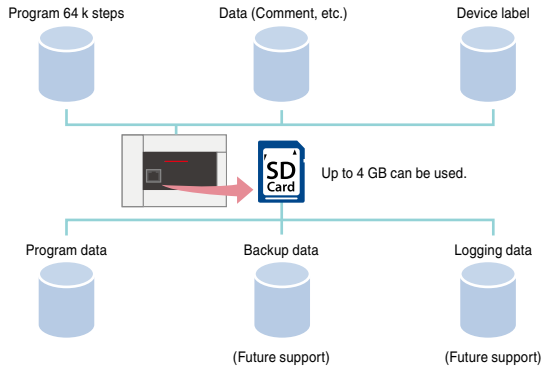


Memory area for each application

The CPU module has 64 k steps of program memory capacity, but the MELSEC iQ-F has a memory data area for each application, so all 64 k steps can be used as the program area.
Comments and statements can be written freely without affecting the program area.

[Maximum number of characters]
Comment: 1024 characters Statement: 5000 characters

MELSEC iQ-F Series stores the program and devices in non-volatile memory such as Flash ROM, so no battery is required.



Flexible internal devices

A variety of devices including new latch relays and link relays, and expanded timers and counters are available.
The number of device points can be reassigned and used in the internal memory.

Providing the convenience of special devices

In addition to the conventional special devices, up to 12000 points of convenient system devices compatible with upper level devices are added.

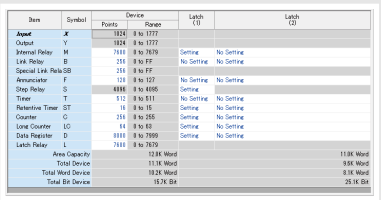
New upper level compatible system devices
- SM/SD0 to 4099 Compatible with MELSEC iQ-R

Conventional convenient devices
- Conventional M8000 or later devices →Has changed to SM8000 or later devices
- Conventional D8000 or later devices →Has changed to SD8000 or later devices

(When migrating an FX3U/FX3UC program created using GX Works2 to MELSEC iQ-F Series, the devices are automatically converted.)

Freely customize the latch range setting

The latch range can be set for each device, so the latch clear range can be selected during the clearing operation.



Handy timer and counter settings

The timer and counter properties are determined by data type and how instruction is written, so programs can be created regardless of the device number.

Timers:
OUT T0.....100 ms timer
OUTH T0.....10 ms timer
OUTHS T0.....1 ms timer
OUT ST0.....Retentive timer

Counters:
OUT C0.....16 bit counter
OUT LC0.....32 bit counter

Software

Dramatically more dedicated instructions

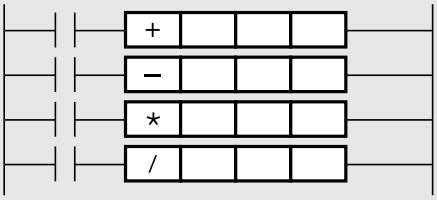
A great number of dedicated instructions have been added since the FX3.

[FX3] 510 types → **[FX5]** 1014 types

The newly added instructions include convenient ones that are interchangeable with the MELSEC iQ-R and dedicated instructions for built-in functions. (Only FX3U and FX3UC programs can be imported)

Intuitive and easy-to-understand arithmetic operations

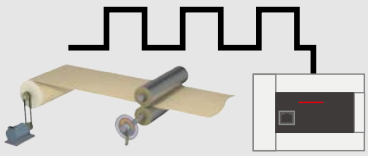
Symbols can be input in the arithmetic operations making it easy and intuitive to describe programs.



High-performance built-in high-speed counter function

Input and measure three modes by setting the parameters.

- Normal mode
- Pulse density measurement mode
- Rotation speed measurement mode

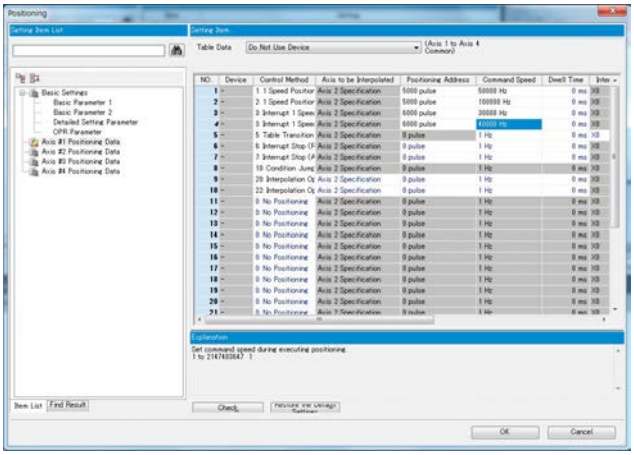


Up to 32 tables can be set for the high-speed comparison table and up to 128 tables for the multi-point output high-speed comparison table. The DHCMOV instruction can be used to read the latest values from the special registers.

Reinforced built-in positioning function

Positioning can be easily performed with table operation instructions. Even advanced positioning like simple linear interpolation is possible with the multi-table operation (DRVTBL) instruction and multi-axis table operation (DRVMUL) instruction.

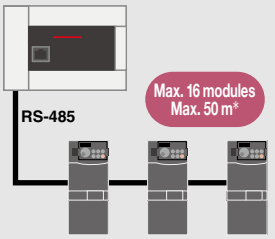
Diverse table operation settings for multi-speed and interrupt positioning, etc.



Inverter communication command function

The built-in Mitsubishi inverter protocol makes it possible to use inverter communication instructions to control a Mitsubishi inverter connected with RS-485 communication.

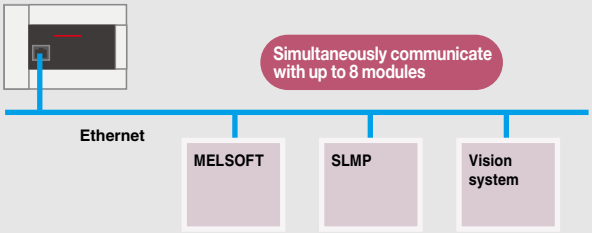
- IVCK : Operation monitor
- IVDR : Operation control
- IVRD : Parameter read
- IVWR : Parameter write
- IVBWR: Parameter batch write
- IVMC : Multiple command (2 types of settings and 2 types of read)



*: For built-in RS-485 and RS-485 expansion boards

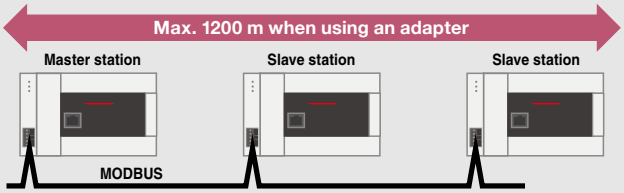
Built-in Ethernet function

Communication is set with parameters easily.
Functions include the diagnosis function from GX Works3, SLMP function, socket communication function and IP address change function, and unauthorized access from an external source can be prevented with remote password.



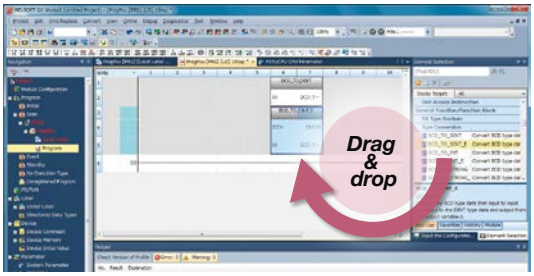
MODBUS function

The MODBUS function can be used with parameter settings and ADPRW (MODBUS master communication instruction [data read/write.]) Communicate with devices up to 1200 m away using the RS-485 communication adapter.



Standard function/function block function

110 types of basic standard function and function blocks are provided. These can be used as parts by dragging and dropping, so when used together with dedicated instructions, programming time can be greatly reduced.



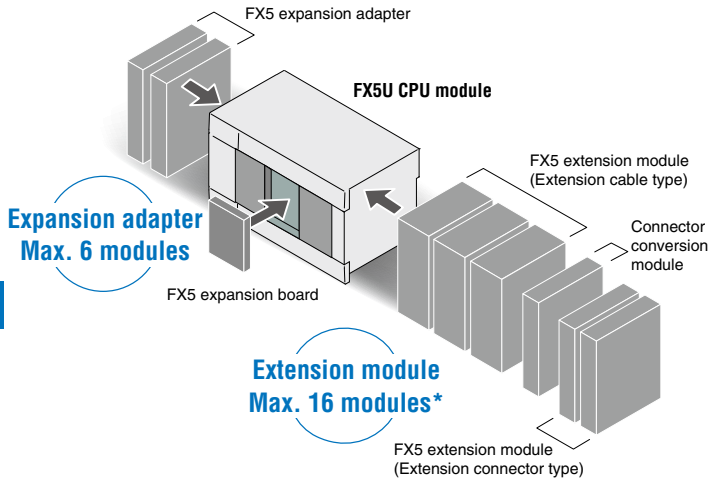
System Configuration

FX5U

Flagship model equipped with advanced built-in functions and diverse expandability

Simplifying use with renewed extension modules!

FX5U is equipped with analog functions, communication and high-speed I/O, and can easily be expanded with expansion boards and adapters. The high-speed system bus communication brings out the maximum performance of extension devices equipped with intelligent functions.



*: Up to 12 modules can be directly connected to CPU module. Up to 16 modules can be connected by connecting a powered I/O module or an extension power supply module. Extension power supply modules and connector conversion modules are not included in the number of connected modules.

FX5 expansion adapters

Max. 2 modules

For Communication

FX5-232ADP	For RS-232C communication
FX5-485ADP	For RS-485 communication

Max. 4 modules

Analog

FX5-4AD-ADP	For analog input
FX5-4DA-ADP	For analog output

FX5 expansion boards

Max. 1 module

For Communication

FX5-232-BD	For RS-232C communication
FX5-485-BD	For RS-485 communication
FX5-422-BD-GOT	For RS-422 communication (For GOT connection)

Peripheral device

HMI

GOT2000, GOT1000

FX5U CPU module

	FX5U-32MR/ES	AC D2	R
	FX5U-32MT/ES	AC D2	T1
	FX5U-32MT/ESS	AC D2	T2
NEW	FX5U-32MR/DS	DC D2	R
NEW	FX5U-32MT/DS	DC D2	T1
NEW	FX5U-32MT/DSS	DC D2	T2

Input: 16 points/Output: 16 points

	FX5U-64MR/ES	AC D2	R
	FX5U-64MT/ES	AC D2	T1
	FX5U-64MT/ESS	AC D2	T2
Available soon	FX5U-64MR/DS	DC D2	R
Available soon	FX5U-64MT/DS	DC D2	T1
Available soon	FX5U-64MT/DSS	DC D2	T2

Input: 32 points/Output: 32 points

	FX5U-80MR/ES	AC D2	R
	FX5U-80MT/ES	AC D2	T1
	FX5U-80MT/ESS	AC D2	T2
Available soon	FX5U-80MR/DS	DC D2	R
Available soon	FX5U-80MT/DS	DC D2	T1
Available soon	FX5U-80MT/DSS	DC D2	T2

Input: 40 points/Output: 40 points

AC AC power supply
DC DC power supply
D2 DC input (sink/source)
T1 Transistor output (sink)
T2 Transistor output (source)
R Relay output

Connector connection
Cable connection

Option

Terminal module

FX-16E-TB	FX-16E-TB/UL
FX-32E-TB	FX-32E-TB/UL
FX-16EYR-TB	FX-16EYR-ES-TB/UL
FX-16EYS-TB	FX-16EYS-ES-TB/UL
FX-16EYT-TB	FX-16EYT-ES-TB/UL
	FX-16EYT-ESS-TB/UL

I/O cable

●General-purpose I/O cable
FX-16E-500CAB-S (5 m, 20-pin)

●For terminal modules
FX-16E-□CAB (Both end, 20-pin)
□: 150 (1.5 m)/300 (3 m) /500 (5 m)

●For terminal modules
FX-16E-□CAB-R (20-pin)
□: 150 (1.5 m)/300 (3 m)/500 (5 m)

Battery

FX3U-32BL

SD memory card

NZ1MEM-2GBSD (2 GB)
NZ1MEM-4GBSD (4 GB)

Engineering tool

GX Works3

Power supply cable

●Power supply cable
FX2NC-100BPCB (1 m)
●Power crossover cable
FX2NC-10BPCB1 (0.1 m)

Extended extension cable

●Extended extension cable
NEW FX5-30EC*2
NEW FX5-65EC*2

●Connector conversion adapter
NEW FX5-CNV-BC

Generic Specifications

Item		Generic Specifications
Power supply	Rated voltage	AC power supply type: 100 to 240 V AC, 50/60 Hz DC power supply type: 24 V DC
	Power consumption*1	AC power supply type: 30 W (32M), 40 W (64M), 45 W (80M) DC power supply type: 30 W
	Rush current	AC power supply type: 32M: max. 25 A for 5 ms or less/100 V AC, max. 50 A for 5 ms or less/200 V AC 64M/80M: max. 30 A for 5 ms or less/100 V AC, max. 60 A for 5 ms or less/200 V AC DC power supply type: max. 50 A for 0.5 ms or less/24 V DC
	5 V DC internal power supply capacity	AC power supply type: 900 mA (32M), 1100 mA (64M/80M) DC power supply type: 900 mA (775 mA)*2
	24 V DC service power supply capacity	AC power supply type: 400 mA [300 mA*3] (32M), 600 mA [300 mA*3] (64M/80M) When an external power supply is used for the input circuit of the CPU module: 480 mA [380 mA*3] (32M), 740mA [440 mA*3] (64M), 770 mA [470 mA*3] (80M)
	24 V DC internal power supply capacity	DC power supply type: 480 mA (360 mA)*2
Input/output	Input specifications	5.3 mA/24 V DC (X020 and later: 4.0 mA/24 V DC)
	Output specifications	Relay output type: 2 A/1 point, 8 A or less/4 points common, 8 A or less/8 points common, 30 V DC or less, 240 V AC or less (250 V AC or less in case of noncompliance with CE, UL/cUL Standards) Transistor output type: 0.5 A/1 point, 0.8 A or less/4 points common, 1.6 A or less/8 points common, 5 to 30 V DC
	Input/output extension	Extension devices for FX5 can be connected: when adding an extension connector type, the connector conversion module (FX5-CNV-IF) is required.
Built-in communication port		Ethernet (100BASE-TX/10BASE-T), RS-485 1 ch each
Built-in memory card slot		1 slot for SD memory card
Built-in analog input/output		Input 2 ch, output 1 ch

*1: The values show the state where the service power of 24 V DC is consumed to the maximum level in case that its configuration has the max. no. of connections provided to CPU module. (Including the current in the input circuit)
*2: The values in the parentheses ( ) indicate the power supply capacity to be resulted when the power supply voltage falls in the range from 16.8 to 19.2 V DC.
*3: The values in the brackets [ ] will result when the ambient temperature is less than 0°C during operations.

Please choose the I/O type of CPU module or I/O module suited for your equipment.
Refer to the page below for the details of I/O type of each product.

FX5 extension module

I/O module

Powered I/O module

Powered I/O module
FX5-32ER/ES
FX5-32ET/ES
FX5-32ET/ESS
NEW FX5-32ER/DS
NEW FX5-32ET/DS
NEW FX5-32ET/DSS

I/O module

Input module
FX5-8EX/ES
FX5-16EX/ES

High-speed pulse input/output module
NEW FX5-16ET/ES-H
NEW FX5-16ET/ESS-H

Output modules
FX5-8EYR/ES
FX5-8EYT/ES
FX5-8EYT/ESS
FX5-16EYR/ES
FX5-16EYT/ES
FX5-16EYT/ESS

Intelligent function module

SSCNET III/H
Simple motion
FX5-40SSC-S

CC-Link IE Field
Network
NEW FX5-CCLIEF

Extension power supply module

Extension power supply module
FX5-1PSU-5V*3

FX5 extension module (Extension cable type)

Connector conversion module

Connector conversion module
NEW FX5-CNV-IF

FX5 extension module (Extension connector type)

I/O module

Input module
FX5-C16EX/D
FX5-C16EX/DS
FX5-C32EX/D
FX5-C32EX/DS

Output module
FX5-C16EYT/D
FX5-C16EYT/DSS
FX5-C32EYT/D
FX5-C32EYT/DSS

Input/output module
FX5-C32ET/D
FX5-C32ET/DSS

Extension power supply module

Extension power supply module
FX5-C1PS-5V*1*4

Bus conversion module

Bus conversion module
FX5-CNV-BUSC

Bus conversion module
FX5-CNV-BUS

FX3 extension module

Intelligent function module

Analog	
FX3U-4AD	For input
FX3U-4DA	For output
Temperature control	
FX3U-4LC	Temperature control
Positioning	
FX3U-1PG	For pulse output
High speed counter	
FX3U-2HC	For high-speed input
Communication/Network	
FX3U-64CCL	CC-Link slave
FX3U-16CCL-M	CC-Link master
FX3U-128ASL-M	AnyWireASLINK master

For the module requiring parameter in FX3 extension module, parameter settings by program are necessary. When connecting the FX3 extension module, the bus speed for FX3 applies for access.

Extension power supply module

Extension power supply module
FX3U-1PSU-5V*1

*1: When adding the extension module, it is necessary to connect it to the front stage of extension module in case of a shortage of internal power supply in CPU module.
*2: Attach when connecting an extension cable type module to a distant location or when making two-tier connections. The connector conversion adapter (FX5-CNV-BC) is required when connected with an input/output module (extension cable type), high-speed pulse input/output module, or an intelligent function module. When using also the bus conversion module in the same system, connect the FX5 extension power supply module or the powered I/O module right after the extended extension cable.
*3: Can be connected only to the AC power type system.
*4: Can be connected only to the DC power type system.

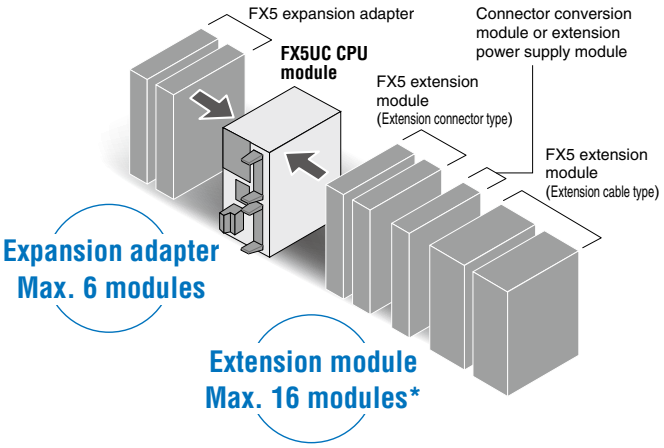
System Configuration

FX5UC

Compact body packed with diverse functions.

Simplifying use with renewed extension modules!

The extension module compatible with FX5UC is compact and easy-to-use, and helps to downsize your system. Easily connect to the FX5 and FX3 extension modules with the variety of conversion modules available.



*: Up to 12 modules can be directly connected to the CPU module. Up to 16 modules can be connected by connecting a powered I/O module or an extension power supply module. Extension power supply modules and connector conversion modules are not included in the number of connected modules.

FX5 expansion adapter

Max. 2 modules

For Communication

FX5-232ADP For RS-232C communication
FX5-485ADP For RS-485 communication

Max. 4 modules

Analog

FX5-4AD-ADP For analog input
FX5-4DA-ADP For analog output

FX5UC CPU module

FX5UC-32MT/D DC D1 T1
FX5UC-32MT/DSS DC D2 T2
Input: 16 points/Output: 16 points

FX5UC-64MT/D DC D1 T1
FX5UC-64MT/DSS DC D2 T2
Input: 32 points/Output: 32 points

FX5UC-96MT/D DC D1 T1
FX5UC-96MT/DSS DC D2 T2
Input: 48 points/Output: 48 points

DC DC power supply
D1 DC input (sink)
D2 DC input (sink/source)
T1 Transistor output (sink)
T2 Transistor output (source)

Connector connection
Cable connection

FX5 extension module (extension connector type)

I/O module

Input module

FX5-C16EX/D
FX5-C16EX/DS
FX5-C32EX/D
FX5-C32EX/DS

Output module

FX5-C16EYT/D
FX5-C16EYT/DSS
FX5-C32EYT/D
FX5-C32EYT/DSS

I/O module

FX5-C32ET/D
FX5-C32ET/DSS

Peripheral device

HMI

GOT2000, GOT1000

Option

Battery

FX3U-32BL

SD memory card

NZ1MEM-2GBSD (2 GB)
NZ1MEM-4GBSD (4 GB)

Engineering tool

GX Works3

I/O cable

●General-purpose I/O cable
FX-16E-500CAB-S (5 m, 20-pin)

●For terminal modules
FX-16E-□CAB (Both end, 20-pin)
□: 150 (1.5 m)/300 (3 m) /500 (5 m)

●For terminal modules
FX-16E-□CAB-R (20-pin)
□: 150 (1.5 m)/300 (3 m)/500 (5 m)

Terminal module

FX-16E-TB FX-16E-TB/UL
FX-32E-TB FX-32E-TB/UL
FX-16EYR-TB FX-16EYR-ES-TB/UL
FX-16EYS-TB FX-16EYS-ES-TB/UL
FX-16EYT-TB FX-16EYT-ES-TB/UL
FX-16EYT-ESS-TB/UL

Power supply cable

●CPU module power supply cable
FX2NC-100MPCB (1 m)
(attached to CPU module)

●Power supply cable
FX2NC-100BPCB (1 m)
(attached to FX5UC-□MT/D)

●Power supply crossover cable
FX2NC-10BPCB1 (0.1 m)
(attached to FX5-C□EX/D, FX5-C32ET/D)

Extended extension cable

●Extended extension cable
NEW FX5-30EC*3
NEW FX5-65EC*3

●Connector conversion adapter
NEW FX5-CNV-BC

Generic Specifications

Item		Generic Specifications
Power supply	Rated supply voltage	24 V DC
	Power consumption*1	5 W (32M), 8 W (64M), 11 W (96M)
	Rush current	32M: Max. 35 A 0.5 ms or less/24 V DC 64M/96M: Max. 40 A 0.5 ms or less/24 V DC
	5 V DC power supply capacity	720 mA
	24 V DC power supply capacity	500 mA
Input/output	Input specifications	5.3 mA/24 V DC (X020 and later: 4.0 mA/24 V DC)
	Output specifications	Transistor output type: Y000 to Y003 0.3 A/1 point, Y004 and later 0.1 A/1 point, 0.8 A/8 points common*2 5 to 30 V DC
	Input/output extension	Extension device for FX5 can be connected (extension power supply module (FX5-C1PS-5V) or connector conversion module (FX5-CNV-IFC) is required when connecting an extension cable type)
Built-in communication port		Ethernet (100BASE-TX/10BASE-T), RS-485 1 ch each
Built-in memory card slot		1 slot for SD memory card

*1: The values show the state where the power of 24 V DC is consumed to the maximum level in case that its configuration has the max. no. of connections provided to CPU module. (Including the current in an input circuit)
*2: 1.6 A or less when two common terminals are connected to the external part.

Please choose the I/O type of CPU module or I/O module suited for your equipment.
Refer to the page below for the details of I/O type of each product.

FX5 extension module (extension connector type)

Extension power supply module

Extension power supply module
FX5-C1PS-5V*1 *2

or

Connector conversion module

Connector conversion module
FX5-CNV-IFC

FX5 extension module (extension cable type)

I/O module

Powered I/O module

Powered I/O module
NEW FX5-32ER/DS
NEW FX5-32ET/DS
NEW FX5-32ET/DSS

Input/output module

Input module
FX5-8EX/ES
FX5-16EX/ES

High-speed pulse input/output module
NEW FX5-16ET/ES-H
NEW FX5-16ET/ESS-H

Output module
FX5-8EYR/ES
FX5-8EYT/ES
FX5-8EYT/ESS
FX5-16EYR/ES
FX5-16EYT/ES
FX5-16EYT/ESS

Intelligent function module

SSCNET III/H

Simple motion
FX5-40SSC-S

CC-Link IE Field

Network
NEW FX5-CCLIEF

Bus conversion module

Bus conversion module
FX5-CNV-BUS

Bus conversion module
FX5-CNV-BUSC

FX3 extension module

Intelligent function module

Analog
FX3U-4AD For input
FX3U-4DA For output

Positioning
FX3U-1PG For pulse output

Communication/Network
FX3U-64CCL CC-Link slave
FX3U-16CCL-M CC-Link master
FX3U-128ASL-M AnyWireASLINK master

Temperature control
FX3U-4LC Temperature control

High speed counter
FX3U-2HC For high-speed input

For the module requiring parameter in FX3 extension module, parameter settings by program are necessary.
When connecting the FX3 extension module, the bus speed for FX3 applies for access.

*1: When adding the extension module, it is necessary to connect it to the front stage of extension module in case of a shortage of internal power supply in CPU module.
*2: Next-stage extension connector of an extension power supply module can be used only for either connector connection or cable connection. In case of connector connection, an extension connector type module can be connected.
*3: Attach when connecting an extension cable type module to a distant location or when making two-tier connections. The connector conversion adapter (FX5-CNV-BC) is required when connected with an input/output module (extension cable type) or an intelligent function module. When using also the bus conversion module in the same system, connect the powered I/O module right after the extended extension cable.

Selecting the FX5U Model

Product Configuration

- Control scale: 32 to 256 points (CPU module: 32/64/80 points)
- Control points up to 512 input/output points, including remote I/O*

*: For CC-Link and AnyWireASLINK

For details about the connection positions, refer to the manual.

Type	Details	Connection details, model selection
1 CPU module	PLC with built-in CPU, power supply, input/output and program memory.	Various extension devices can be connected.
2 4 I/O module (extension cable type)	Product for extending I/O of extension cable type. Some products are powered.	Input/output can be extended to up to 256 points. Up to 16 extension modules can be connected. (Extension power supply modules and connector conversion modules are not included in the number of connected modules.) Up to 4 high-speed pulse I/O modules can be connected. For details, refer to “Rules for System Configuration” on p. 66.
3 FX5 Extension power supply module	Module for extending power supply if CPU module's internal power supply is insufficient. Extension cable is enclosed.	Power can be supplied to I/O module, intelligent function module, and bus conversion module. Up to 2 modules can be connected.
5 FX5 intelligent function module	Module with functions other than input/output.	Up to 16 extension modules including the I/O module can be connected (Extension power supply modules and connector conversion modules are not included in the number of connected modules.)
6 Connector conversion module	Module for connecting FX5 Series (extension connector type) extension module.	An extension module (extension connector type) for FX5 can be connected.
7 I/O module (extension connector type)	Product for adding extension connector type inputs/outputs.	The maximum number of points for input/output extension is 256. Up to 16 extension modules can be connected. (Extension power supply modules and connector conversion modules are not included in the number of connected modules.) Using this type of I/O module requires the connector conversion module.
8 Bus conversion module	Conversion module for connecting FX3 Series extension module.	FX3 extension module can be connected only to the right side of the bus conversion module. When using FX5-CNV-BUSC, a connector conversion module is required.
9 FX5 Expansion board	Board connected to front of CPU module to expand functions.	Up to 1 module can be connected to the front of the CPU module. (Expansion adapter can also be used.)
10 FX5 Expansion adapter	Adapter connected to left side of CPU module to expand functions.	Up to 6 modules can be connected to the left side of the CPU module.
11 FX3 Extension power supply module	Module for extending power supply if CPU module's internal power supply is insufficient. Extension cable is enclosed.	Up to 2 modules can be connected. The bus conversion module is required for use.
12 FX3 intelligent function module	Module with functions other than input/output.	When using the FX3 extension power supply module, up to 8 modules* can be used. When not using the FX3 extension power supply module, up to 6 modules* can be used. The bus conversion module is required for use.

*: Excluding some models

1 -1) CPU module (AC power supply, DC input type)

Model	Function	Number of occupied input/output points	Power supply capacity		I/O type	No. of input points	No. of output points
			5 V DC power supply	24 V DC service power supply			
FX5U-32MR/ES	CPU module (24 V DC service power built-in)	32 points	900 mA	400 mA (480 mA*1) [300 mA (380 mA*1)]*2	DC input (sink/source)/relay output	16 points	16 points
FX5U-32MT/ES					DC input (sink/source)/transistor (sink)		
FX5U-32MT/ESS					DC input (sink/source)/transistor (source)		
FX5U-64MR/ES		64 points	1100 mA	600 mA (740 mA*1) [300 mA (440 mA*1)]*2	DC input (sink/source)/relay output	32 points	32 points
FX5U-64MT/ES					DC input (sink/source)/transistor (sink)		
FX5U-64MT/ESS					DC input (sink/source)/transistor (source)		
FX5U-80MR/ES		80 points	1100 mA	600 mA (770 mA*1) [300 mA (470 mA*1)]*2	DC input (sink/source)/relay output	40 points	40 points
FX5U-80MT/ES					DC input (sink/source)/transistor (sink)		
FX5U-80MT/ESS					DC input (sink/source)/transistor (source)		

*1: Power supply capacity when an external power supply is used for input circuits
*2: Value inside [ ] indicates the power supply capacity when the CPU module is used at the operating ambient temperature of less than 0°C.

1 -2) CPU module (DC power supply/DC input type)

Model	Function	Number of occupied input/output points	Power supply capacity		I/O type	No. of input points	No. of output points
			5 V DC power supply	24 V DC power supply			
FX5U-32MR/DS	CPU module	32 points	900 mA [775 mA]*	480 mA [360 mA]*	DC input (sink/source)/relay output	16 points	16 points
FX5U-32MT/DS					DC input (sink/source)/transistor output (sink)		
FX5U-32MT/DSS					DC input (sink/source)/transistor output (source)		

*: Value inside [ ] indicates the power supply capacity when the supply voltage is 16.8 to 19.2 V DC.

2 -1) I/O module (AC power supply/DC input type) (extension cable type)

Model	Function	Number of occupied input/output points	Power supply capacity		I/O type	No. of input points	No. of output points
			5 V DC power supply	24 V DC service power supply			
FX5-32ER/ES*1	I/O module (24 V DC service power built-in)	32 points	965 mA	250 mA (310 mA*2)	DC input (sink/source)/relay output	16 points	16 points
FX5-32ET/ES*1					DC input (sink/source)/transistor (sink)		
FX5-32ET/ESS*1					DC input (sink/source)/transistor (source)		

*1: Can be connected only to the AC power type system
*2: Power supply capacity when an external power supply is used for input circuits

2 -2) I/O module (DC power supply/DC input type) (extension cable type)

Model	Function	Number of occupied input/output points	Power supply capacity		I/O type	No. of input points	No. of output points
			5 V DC power supply	24 V DC power supply			
FX5-32ER/DS*	I/O module	32 points	965 mA	310 mA	DC input (sink/source)/relay output	16 points	16 points
FX5-32ET/DS*					DC input (sink/source)/transistor output (sink)		
FX5-32ET/DSS*					DC input (sink/source)/transistor output (source)		

*: Can be connected only to the DC power type system

3 FX5 Extension power supply module

Model	Function	Number of occupied input/output points	Power supply capacity	
			5 V DC power supply	24 V DC power supply
FX5-1PSU-5V*1	Extension power supply	—	1200 mA*3	300 mA*3
FX5-C1PS-5V*2	Extension power supply	—	1200 mA*3	625 mA*3

*1: Can be connected only to the AC power type system
*2: Can be connected only to the DC power type system
*3: Derating occurs when the ambient temperature exceeds 40°C. For details, refer to manuals of each product.

4 I/O module (extension cable type)

Model	I/O type	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-8EX/ES	DC input (sink/source)	8 points	75 mA	50 mA*2	—
FX5-16EX/ES	DC input (sink/source)	16 points	100 mA	85 mA*2	
FX5-8EYR/ES	Relay output	8 points	75 mA	75 mA	
FX5-8EYT/ES	Transistor output (sink)				
FX5-8EYT/ESS	Transistor output (source)				
FX5-16EYR/ES	Relay output	16 points	100 mA	125 mA	
FX5-16EYT/ES	Transistor output (sink)				
FX5-16EYT/ESS	Transistor output (source)				
FX5-16ET/ES-H*1	DC input (sink/source)/transistor output (sink)	16 points	100 mA	125 mA (85 mA)*3	
FX5-16ET/ESS-H*1	DC input (sink/source)/transistor output (source)				

*1: Compatible with FX5U CPU modules from Ver. 1.030 (Serial number: 165****(May 2016))
*2: Adopt "0 mA" in the current consumption calculation for the system configuration when an external power supply is used for input circuits.
*3: Current consumption when an external power supply is used for input circuits (not including the input circuit current)

5 FX5 intelligent function module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-40SSC-S	Simple motion 4-axis control (SSCNETIII/H compatible)	8 points	—	—	250 mA
FX5-CCLIEF*	CC-Link IE field network intelligent device station	8 points	10 mA	—	230 mA

*: Compatible with FX5U CPU modules from Ver. 1.030 (Serial number: 165**** (May 2016))

6 Connector conversion module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-CNV-IF	Connector conversion (FX5 (Extension cable type) →FX5 (Extension connector type))	—	—	—	—

7 I/O module (extension connector type)

Model	I/O type	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-C16EX/D	DC input (sink)	16 points	100 mA	—	65 mA*
FX5-C32EX/D		32 points	120 mA		130 mA*
FX5-C16EX/DS	DC input (sink/source)	16 points	100 mA		65 mA*
FX5-C32EX/DS		32 points	120 mA		130 mA*
FX5-C16EYT/D	Transistor output (sink)	16 points	100 mA	100 mA	—
FX5-C32EYT/D		32 points	120 mA	200 mA	
FX5-C16EYT/DSS	Transistor output (source)	16 points	100 mA	100 mA	
FX5-C32EYT/DSS		32 points	120 mA	200 mA	
FX5-C32ET/D	DC input (sink)/transistor output (sink)	32 points (16 input points, 16 output points)	120 mA	100 mA	65 mA*
FX5-C32ET/DSS	DC input (sink/source)/transistor output (source)				

*: Current consumption when a service power supply is used for the input circuit.

8 Bus conversion module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-CNV-BUSC	Bus conversion FX5 (extension connector type) →FX3 extension	8 points	150 mA	—	—
FX5-CNV-BUS	Bus conversion FX5 (extension cable type) →FX3 extension				

9 FX5 Expansion board

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-232-BD	RS-232C communication	—	20 mA	—	—
FX5-485-BD	RS-485 communication				
FX5-422-BD-GOT	RS-422 communication (for GOT connection)		20 mA*		

*: The current consumption will increase when the 5 V type GOT is connected.

10 FX5 Expansion adapter

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-232ADP	RS-232C communication	—	30 mA	30 mA	—
FX5-485ADP	RS-485 communication		20 mA		
FX5-4AD-ADP	4 ch voltage input/current input		10 mA	20 mA	
FX5-4DA-ADP	4 ch voltage output/current output			—	160 mA

11 FX3 Extension power supply module

Model	Function	Number of occupied input/output points	Power supply capacity		
			5 V DC power supply	24 V DC power supply	24 V DC external power supply
FX3U-1PSU-5V	Extension power supply	—	1000 mA*	300 mA*	—

*: Derating occurs when the ambient temperature exceeds 40°C. For details, refer to manuals of each product.

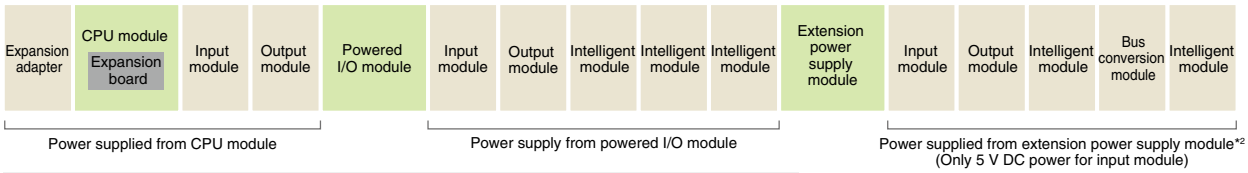
12 FX3 intelligent function module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX3U-4AD	4 ch voltage input/current input	8 points	110 mA	—	90 mA
FX3U-4DA	4 ch voltage output/current output		120 mA		160 mA
FX3U-4LC	4-loop temperature control (resistance thermometer/thermocouple/low voltage)		160 mA		50 mA
FX3U-1PG	Pulse output for 1-axis control		150 mA		40 mA
FX3U-2HC	2 ch high-speed counter		245 mA		—
FX3U-16CCL-M	CC-Link master	*	—		240 mA
FX3U-64CCL	CC-Link intelligent device station	8 points			220 mA
FX3U-128ASL-M	AnyWireASLINK master	*	130 mA		—

*: Varies according to settings.

Calculation of current consumed by extension modules (For the AC power supply type)*1

The power required for the expansion adapter, expansion board and extension module is supplied from the CPU module or extension power supply module. Use the following calculations to confirm whether the required power can be supplied. (All calculations must be satisfied.)



■ Power supply from CPU module

[5 V DC power supply]

5 V DC power supply capacity (CPU module) — (Total current consumption (Total no. of extension devices to be connected)) = Calculation results ≥ **0 mA**

[24 V DC power supply]

24 V DC service power supply capacity (CPU module) — (Total current consumption (Total no. of extension devices to be connected)) = Calculation results ≥ **0 mA*3**

■ Power supply from powered I/O module

[5 V DC power supply]

5 V DC power supply capacity (Powered I/O module) — (Total current consumption (Total no. of extension devices to be connected)) = Calculation results ≥ **0 mA**

[24 V DC power supply]

24 V DC service power supply capacity (Powered I/O module) — (Total current consumption (Total no. of extension devices to be connected)) = Calculation results ≥ **0 mA*3**

■ Power supply from extension power supply module (When using FX3 extension power supply module, another calculation is required. Refer to manuals for more details.)

[5 V DC power supply]

5 V DC power supply capacity (Extension power supply module) — (Total current consumption (Total no. of extension devices to be connected)) = Calculation results ≥ **0 mA**

[24 V DC power supply]

24 V DC power supply capacity (Extension power supply module) — (Total current consumption (Total no. of extension devices to be connected)) = Calculation results ≥ **0 mA**

<Cautions>

If the calculation results are negative, the power capacity is exceeded so review the system configuration.

*1: For calculation for the DC power supply type, refer to the manual.

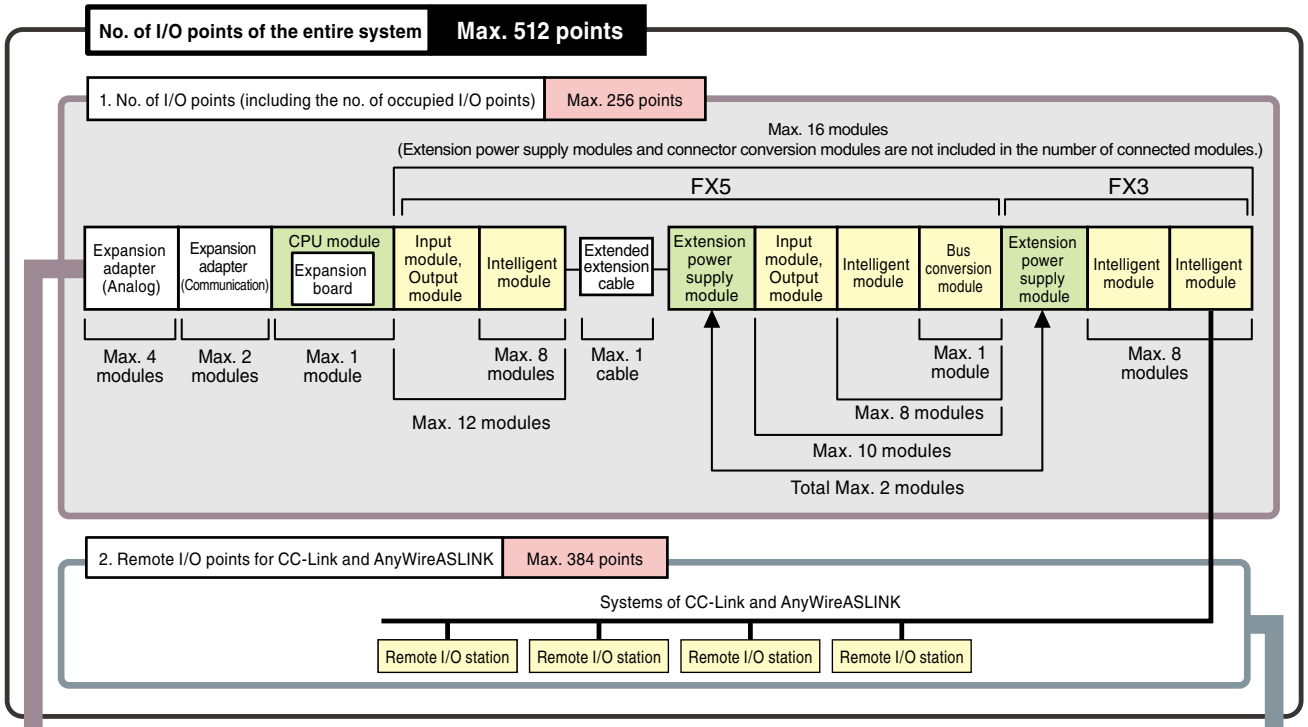
*2: When connecting an input module to the back stage (right side) of the extension power supply module , power will be supplied from the CPU module or a powered I/O module.
5V DC power is supplied from an extension power supply module.

*3: The 24 V DC service power calculation results value (when positive) indicates the 24 V DC service power supply's remaining capacity, and can be used as an external load power.

Refer to the next section for the details of some products since the number of connected modules may be limited.

Rules for System Configuration

The total number of I/O points and remote I/O points for the CPU module and extension devices controllable in FX5U CPU module is 512 points or less.



■No. of I/O points

The max. no. of I/O points configurable in FX5U is as follows:

Max. no. of I/O points: 256 points ≥ No. of occupied I/O points: CPU module (A) points + I/O module Total (B) points + Intelligent module (C) modules × 8 points

The no. of occupied I/O points does not include those of the expansion adapter, expansion board, connector conversion module and extension power supply module.

(A): I/O points of CPU module (B): Total I/O points of I/O module (C): Total no. of intelligent modules

Total 512 points or less

■No. of I/O points when using a network master module

The max. no. of I/O points when using a network master module is as follows:

Max. no. of I/O points: 384 points ≥ No. of occupied remote I/O points: AnyWireASLINK*1 (D) points + CC-Link*2 (E) stations × 32 points

As for CC-Link, the no. of remote I/O points x 32 points.
(calculated as 32 points regardless of the no. of remote I/O points)

(D): Remote I/O points of AnyWireASLINK (E): No. of CC-Link Remote I/O stations (no. of modules)

*1: Please recognize the no. of I/O points set by the rotary switch of AnyWireASLINK master as the no. of remote I/O points.
*2: When simultaneously using CC-Link master and AnyWireASLINK master, please connect AnyWireASLINK master to the front stage (left side). FX5U CPU occupies the max. 256 points of remote I/O points including the no. of those not occupied since CC-Link master parameters are set by PLC program. Therefore, when connecting CC-Link master to the front stage (left side), the no. of remote I/O points of AnyWireASLINK master may be less than 128. Refer to the "FX3U-128ASL-M and FX3U-16CCL-M user's manual" for simultaneous use.

Limitation on power supply type when connecting

It is not possible to install both the AC type and the DC type in one system.
The power supply type is limited for extension modules connectable to the following CPU modules. For details, refer to the manual of each product.

Type/model/power supply type	Connectable extension module	
	Type	Model/power supply type
FX5U CPU module FX5U-□M□/E□ (AC power supply type)	Powered I/O module	FX5-32E□/E□ (AC power supply type)
	Extension power supply module	FX5-1PSU-5V (AC power supply type)
FX5U CPU module FX5U-□M□/D□ (DC power supply type)	Powered I/O module	FX5-32E□/D□ (DC power supply type)
	Extension power supply module	FX5-C1PS-5V (DC power supply type)

Limitation on number of modules when extending

The number of connectable modules is limited for the following products. For details, refer to manuals of each product.

Type	Model/type	Setting method/precautions
I/O module (Extension cable type)	FX5-16ET/ES-H	Up to 4 modules can be connected for the entire system.
	FX5-16ET/ESS-H	
FX5 intelligent function module	FX5-CCLIEF	Only 1 module can be connected in the whole system.
FX3 intelligent function module	FX3U-4AD	■When using FX3U-1PSU-5V: Up to 8 modules can be connected per system. ■When not using FX3U-1PSU-5V: Up to 6 modules can be connected per system.
	FX3U-4DA	
	FX3U-1PG	
	FX3U-4LC	
	FX3U-128ASL-M	Up to 1 module of each model type can be connected in the whole system.
	FX3U-16CCL-M	
	FX3U-64CCL	
	FX3U-2HC	Up to 2 modules can be connected for the entire system. When not using the FX3U-1PSU-5V, connect immediately after the bus conversion module.

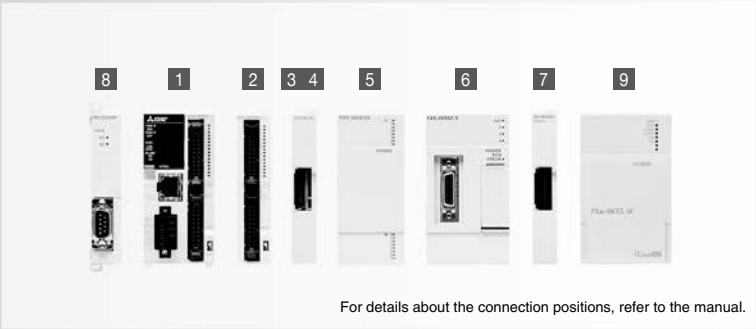
*Refer to the manual for details on each model.

Selecting the FX5UC Model

Product Configuration

- Control scale: 32 to 256 points (CPU module: 32/64/96 points)
- Control points up to 512 input/output points, including remote I/O*

*: For CC-Link and AnyWireASLINK



For details about the connection positions, refer to the manual.

Type	Details	Connection details, model selection
1 CPU module	PLC with built-in CPU, power supply, input/output and program memory.	Various extension devices can be connected.
2 I/O module (extension connector type)	Product for extension I/O of extension connector type.	Input/output can be extended to up to 256 points. Up to 16 extension modules can be connected. (Extension power supply modules and connector conversion modules are not included in the number of connected modules.) For details, refer to “Rules for System Configuration” on p. 71.
3 FX5 Extension power supply module	Module for extension power supply if CPU module's internal power supply is insufficient. Connector conversion function is also provided.	Power can be supplied to I/O module, intelligent function module, and bus conversion module. Up to 2 modules can be connected.
4 Connector conversion module	Module for connecting FX5 Series (extension cable type) extension module.	Extension devices (extension cable type) for FX5 can be connected.
5 I/O module (extension cable type)	Product for extending I/O of extension cable type.	Input/output can be extended to up to 256 points. Up to 16 extension modules can be connected. (Connector conversion modules are not included in the number of connected modules.) Up to 4 high-speed pulse I/O modules can be connected. Using this type of I/O module requires the connector conversion module.
6 FX5 intelligent function module	Module with functions other than input/output.	Up to 16 extension modules including I/O modules can be connected. (Connector conversion modules are not included in the number of connected modules.) Using this type of module requires the connector conversion module.
7 Bus conversion module	Conversion module for connecting FX3 extension module.	FX3 Series extension modules can be connected only to the right side of the bus conversion module. Using the FX5-CNV-BUS requires the connector conversion module or extension power supply module.
8 FX5 Expansion adapter	Adapter connected to left side of CPU module to expand functions.	Up to 6 modules can be connected to the left side of the CPU module.
9 FX3 intelligent function module	Module with functions other than input/output.	Up to 6 modules* can be connected to the right side of the bus conversion module. The bus conversion module is required for use.

*: Excluding some models

1 CPU module

Model	Function	Number of occupied input/output points	Power supply capacity		I/O type	No. of input points	No. of output points
			5 V DC power supply	24 V DC power supply			
FX5UC-32MT/D	CPU module	32 points	720 mA	500 mA	DC input (sink)/transistor (sink)	16 points	16 points
FX5UC-32MT/DSS					DC input (sink/source)/transistor (source)		
FX5UC-64MT/D		64 points			DC input (sink)/transistor (sink)	32 points	32 points
FX5UC-64MT/DSS					DC input (sink/source)/transistor (source)		
FX5UC-96MT/D		96 points			DC input (sink)/transistor (sink)	48 points	48 points
FX5UC-96MT/DSS					DC input (sink/source)/transistor (source)		

2 I/O module (extension connector type)

Model	I/O type	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-C16EX/D	DC input (sink)	16 points	100 mA	—	65 mA*
FX5-C32EX/D		32 points	120 mA		130 mA*
FX5-C16EX/DS	DC input (sink/source)	16 points	100 mA		65 mA*
FX5-C32EX/DS		32 points	120 mA		130 mA*
FX5-C16EYT/D	Transistor output (sink)	16 points	100 mA	100 mA	—
FX5-C32EYT/D		32 points	120 mA	200 mA	
FX5-C16EYT/DSS	Transistor output (source)	16 points	100 mA	100 mA	
FX5-C32EYT/DSS		32 points	120 mA	200 mA	
FX5-C32ET/D	DC input (sink)/transistor output (sink)	32 points (16 input points, 16 output points)	120 mA	100 mA	65 mA*
FX5-C32ET/DSS	DC input (sink/source)/transistor output (source)				

*: Adopt "0 mA" in the current consumption calculation for the system configuration when an external power supply is used for input circuits.

3 FX5 Extension power supply module

Model	Function	Number of occupied input/output points	Power supply capacity	
			5 V DC power supply	24 V DC power supply
FX5-C1PS-5V	Extension power supply	—	1200 mA*	625 mA*

*: Derating occurs when the ambient temperature exceeds 40°C. For details, refer to the manual.

4 Connector conversion module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-CNV-IFC	Connector conversion (FX5 (Extension connector type) →FX5 (Extension cable type))	—	—	—	—

5 -1) I/O module (DC power supply/DC input type) (extension cable type)

Model	Function	Number of occupied input/output points	Power supply capacity		I/O type	No. of input points	No. of output points
			5 V DC power supply	24 V DC power supply			
FX5-32ER/DS	Input/output module	32 points	965 mA	310 mA	DC input (sink/source)/relay output	16 points	16 points
FX5-32ET/DS					DC input (sink/source)/transistor output (sink)		
FX5-32ET/DSS					DC input (sink/source)/transistor output (source)		

5 -2) I/O module (extension cable type)

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-8EX/ES	DC input (sink/source)	8 points	75 mA	50 mA*1	—
FX5-16EX/ES	DC input (sink/source)	16 points	100 mA	85 mA*1	
FX5-8EYR/ES	Relay output	8 points	75 mA	75 mA	
FX5-8EYT/ES	Transistor output (sink)				
FX5-8EYT/ESS	Transistor output (source)				
FX5-16EYR/ES	Relay output	16 points	100 mA	125 mA	
FX5-16EYT/ES	Transistor output (sink)				
FX5-16EYT/ESS	Transistor output (source)				
FX5-16ET/ES-H*2	DC input (sink/source)/transistor output (sink)	16 points	100 mA	125 mA (85 mA)*3	
FX5-16ET/ESS-H*2	DC input (sink/source)/transistor output (source)				

*1: Adopt "0 mA" in the current consumption calculation for the system configuration when an external power supply is used for input circuits.
*2: Compatible with FX5UC CPU modules from Ver. 1.030 (Serial number: 165**** (May 2016))
*3: Current consumption when an external power supply is used for input circuits (not including the input circuit current)

6 FX5 intelligent function module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-40SSC-S	Simple motion 4-axis control (SSCNETIII/H compatible)	8 points	—	—	250 mA
FX5-CCLIEF*	CC-Link IE field network intelligent device station	8 points	10 mA	—	230 mA

*: Compatible with FX5UC CPU modules from Ver. 1.030 (Serial number: 165**** (May 2016))

7 Bus conversion module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-CNV-BUSC	Bus conversion FX5 (extension connector type) →FX3 extension	8 points	150 mA	—	—
FX5-CNV-BUS	Bus conversion FX5 (extension cable type) →FX3 extension				

8 FX5 Expansion adapter

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX5-232ADP	RS-232C communication	—	30 mA	30 mA	—
FX5-485ADP	RS-485 communication		20 mA		
FX5-4AD-ADP	4 ch voltage input/current input		10 mA	20 mA	
FX5-4DA-ADP	4 ch voltage output/current output			—	160 mA

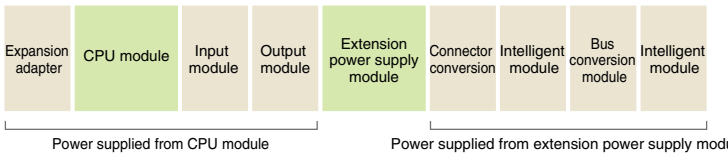
9 FX3 intelligent function module

Model	Function	Number of occupied input/output points	Current consumption		
			5 V DC internal current consumption	24 V DC internal current consumption	24 V DC external power supply
FX3U-4AD	4 ch voltage input/current input	8 points	110 mA	—	90 mA
FX3U-4DA	4 ch voltage output/current output		120 mA		160 mA
FX3U-4LC	4-loop temperature control (resistance thermometer/thermocouple/low voltage)		160 mA		50 mA
FX3U-1PG	Pulse output for 1-axis control		150 mA		40 mA
FX3U-2HC	2 ch high-speed counter		245 mA		—
FX3U-16CCL-M	CC-Link master	*	—		240 mA
FX3U-64CCL	CC-Link intelligent device station	8 points			220 mA
FX3U-128ASL-M	AnyWireASLINK master	*	130 mA		—

*: Varies according to settings.

Calculation of current consumed by extension modules

The power required for the expansion adapter and extension module is supplied from the CPU module.
Use the following calculations to confirm whether the required power can be supplied. (All calculations must be satisfied.)



■ **Power supply from CPU module**

[5 V DC power supply]

5 V DC power supply capacity (CPU module) — Total current consumption (Total no. of extension devices to be connected) = Calculation results ≥ **0 mA**

[24 V DC power supply]

24 V DC power supply capacity (CPU module) — Total current consumption (Total no. of extension devices to be connected) = Calculation results ≥ **0 mA**

■ **Power supply from extension power supply module**

[5 V DC power supply]

5 V DC power supply capacity (Extension power supply module) — Total current consumption (Total no. of extension devices to be connected) = Calculation results ≥ **0 mA**

[24 V DC power supply]

24 V DC power supply capacity (Extension power supply module) — Total current consumption (Total no. of extension devices to be connected) = Calculation results ≥ **0 mA**

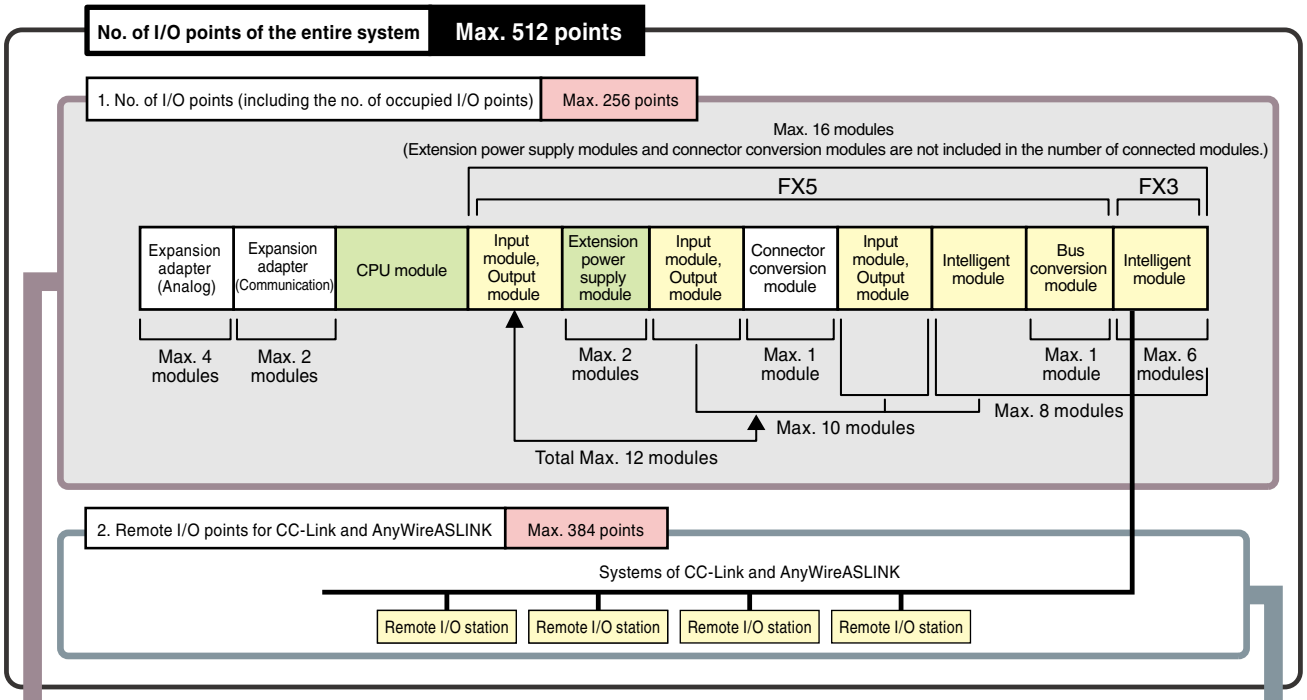
<Cautions>

If the calculation results are negative, the power capacity is exceeded so review the system configuration.

Refer to the next section for the details of some products since the number of connected modules may be limited.

Rules for System Configuration

The total number of I/O points and remote I/O points for the CPU module and extension devices controllable in FX5UC CPU module is 512 points or less.



■No. of I/O points

The max. no. of I/O points configurable in FX5UC is as follows:

Max. no. of I/O points		No. of occupied I/O points
256 points	≥	CPU module (A) points + I/O module Total (B) points + Intelligent module (C) modules × 8 points

The number of occupied I/O points does not include those of the expansion adapter, connector conversion module, extension power supply module.

(A): I/O points of CPU module (B): Total I/O points of I/O module (C): Total no. of intelligent modules

Total 512 points or less

■No. of I/O points when using a network master module

The max. no. of I/O points when using a network master module is as follows:

Max. no. of I/O points		No. of occupied remote I/O points
384 points	≥	AnyWireASLINK*1 (D) points + CC-Link*2 (E) stations × 32 points

As for CC-Link, the no. of remote I/O points x 32 points.
(calculated as 32 points regardless of the no. of remote I/O points)

(D): Remote I/O points of AnyWireASLINK (E): No. of CC-Link Remote I/O stations (no. of modules)

*1: Please recognize the no. of I/O points set by the rotary switch of AnyWireASLINK master as the no. of remote I/O points.
*2: When simultaneously using CC-Link master and AnyWireASLINK master, please connect AnyWireASLINK master to the front stage (left side). FX5UC CPU occupies the max. 256 points of remote I/O points including the no. of those not occupied since CC-Link master parameters are set by PLC program. Therefore, when connecting CC-Link master to the front stage (left side), the no. of remote I/O points of AnyWireASLINK master may be less than 128. Refer to the "FX3U-128ASL-M and FX3U-16CCL-M user's manual" for simultaneous use.

Limitation on power supply type when connecting

It is not possible to install both the AC type and the DC type in one system.
The power supply type is limited for extension modules connectable to the following CPU modules. For details, refer to the manual of each product.

Type/model/power supply type	Connectable extension module	
	Type	Model/power supply type
FX5U CPU module FX5U-□M□/D□ (DC power supply type)	Powered I/O module	FX5-32E□/D□ (DC power supply type)
	Extension power supply module	FX5-C1PS-5V (DC power supply type)

Limitation on number of modules when extending

The number of connectable modules is limited for the following products. For details, refer to manuals of each product.

Type	Model/type	Setting method/precautions
I/O module (Extension cable type)	FX5-16ET/ES-H	Up to 4 modules can be connected for the entire system.
	FX5-16ET/ESS-H	
FX5 intelligent function module	FX5-CCLIEF	Only 1 module can be connected in the whole system.
FX3 intelligent function module	FX3U-4AD	Up to 6 modules can be connected for the entire system.
	FX3U-4DA	
	FX3U-1PG	
	FX3U-4LC	
	FX3U-128ASL-M	Up to 1 module of each model type can be connected in the whole system.
	FX3U-16CCL-M	
	FX3U-64CCL	
	FX3U-2HC	Up to 2 modules can be connected for the entire system. Connect immediately after the bus conversion module.

*Refer to the manual for details on each model.

Product Specifications

General, power supply, input/output specifications

General specifications

Item	Specifications								
	FX5U					FX5UC			
Operating ambient temperature*1	-20 to 55°C (-4 to 131°F), non-freezing*2 *3								
Storage ambient temperature	-25 to 75°C (-13 to 167°F), non-freezing								
Operating ambient humidity	5 to 95%RH, non-condensation*4								
Storage ambient humidity	5 to 95%RH, non-condensation								
Vibration resistance*5 *6		Frequency	Acceleration	Half amplitude	Sweep count	Frequency	Acceleration	Half amplitude	Sweep count
	Installed on DIN rail	5 to 8.4 Hz	—	1.75 mm	10 times each in X, Y, Z directions (80 min in each direction)	5 to 8.4 Hz	—	1.75 mm	10 times each in X, Y, Z directions (80 min in each direction)
		8.4 to 150 Hz	4.9 m/s²	—		8.4 to 150 Hz	4.9 m/s²	—	
	Direct installing	5 to 8.4 Hz	—	3.5 mm		—			
		8.4 to 150 Hz	9.8 m/s²	—					
Shock resistance*5	147 m/s², Action time: 11 ms, 3 times by half-sine pulse in each direction X, Y, and Z								
Noise durability	By noise simulator at noise voltage of 1000 Vp-p, noise width of 1 ms and period of 30 to 100 Hz								
Grounding	Class D grounding (grounding resistance: 100 Ω or less) <Common grounding with a heavy electrical system is not allowed.>*7								
Working atmosphere	Free from corrosive or flammable gas and excessive conductive dust								
Operating altitude*8	0 to 2000 m								
Installation location	Inside a control panel								
Overvoltage category*8	II or less								
Pollution degree*10	2 or less								
Equipment class	Class 2								

*1: The simultaneous ON ratio of available PLC inputs or outputs changes with respect to the ambient temperature. For details, refer to manuals of each product.
*2: 0 to 55°C for products manufactured before June 2016. For intelligent function modules, refer to the manual of each product.
The following products cannot be used when the ambient temperature is less than 0°C:
FX5-40SSC-S, FX5-CNV-BUS, FX5-CNV-BUSC, battery (FX3U-32BL), SD memory cards (NZ1MEM-2GBSD, NZ1MEM-4GBSD, L1MEM-2GBSD and L1MEM-4GBSD),
FX3 extension modules, terminal modules and I/O cables (FX-16E-500CAB-S, FX-16E-□CAB and FX-16E-□CAB-R)
*3: The specifications are different in the use at less than 0°C. For details, refer to the manual of each product.
*4: When used in a low-temperature environment, use in an environment with no sudden temperature changes. If there are sudden temperature changes because of opening/closing of the control panel or other reasons, condensation may occur, which may cause a fire, fault, or malfunction. Furthermore, use an air conditioner in dehumidifier mode to prevent condensation.
*5: The criterion is shown in IEC61131-2.
*6: When the system has equipment which specification values are lower than above mentioned vibration resistance specification values, the vibration resistance specification of the whole system is corresponding to the lower specification.
*7: For grounding, refer to manuals of each product.
*8: The PLC cannot be used at a pressure higher than the atmospheric pressure to avoid damage.
*9: This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.
*10: This index indicates the degree to which conductive material is generated in the environment in which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. Temporary conductivity caused by condensation must be expected occasionally.

Power supply specifications

FX5U CPU module, AC power supply type

Item		Specifications		
		FX5U-32M□/E□	FX5U-64M□/E□	FX5U-80M□/E□
Rated voltage		100 to 240 V AC		
Allowable supply voltage range		85 to 264 V AC		
Voltage fluctuation range		—		
Frequency rating		50/60 Hz		
Allowable instantaneous power failure time		Operation can be continued upon occurrence of instantaneous power failure for 10 ms or less. If the supply voltage is 200 V AC system, change in the range from 10 to 100 ms can be made by the user program.		
Power fuse		250 V 3.15 A Time-lag Fuse	250 V 5 A Time-lag Fuse	
In-rush current		25 A Max. 5 ms or less/100 V AC 50 A Max. 5 ms or less/200 V AC	30 A Max. 5 ms or less/100 V AC 60 A Max. 5 ms or less/100 V AC	
Power consumption*1		30 W	40 W	45 W
5 V DC internal power supply capacity*3		900 mA	1100 mA	1100 mA
24 V DC service power supply*2	Supply capacity when service power supply is used for input circuit of the CPU module*4	400 mA (300 mA)	600 mA (300 mA)	600 mA (300mA)
	Supply capacity when external power supply is used for input circuit of the CPU module*4	480 mA (380 mA)	740 mA (440 mA)	770 mA (470mA)

*1: The values show the state where the service power of 24 V DC is consumed to the maximum level in case that its configuration has the max. no. of connections provided to CPU module. (Including the current in an input circuit)
*2: When I/O modules are connected, they consume current from the 24 V DC service power supply, resulting in decrease of usable current. For details about the service power supply, refer to the manual.
*3: The values designate power supply capacity for an intelligent function module, expansion adapter, and expansion board.
*4: The values in the parentheses ( ) will result when the ambient temperature is less than 0°C during operations.

FX5U CPU module, DC power supply type

Item	Specifications
	FX5U-32M□/D□
Rated voltage	24 V DC
Allowable supply voltage range	16.8 to 28.8 V DC
Allowable instantaneous power failure time	Operation can be continued upon occurrence of instantaneous power failure for 5 ms or less.
Power fuse	250 V 3.15 A Time-lag Fuse
In-rush current	50 A Max. 0.5 ms or less/24 V DC
Power consumption*1	30 W
5 V DC internal power supply capacity*2 *3	900 mA (775 mA)
24 V DC internal power supply capacity*2	480 mA (360 mA)

*1: The values show the state where power is consumed to the maximum level in case that the configuration has the max. no. of connections provided to CPU module.
*2: The values in the parentheses ( ) indicate the power supply capacity to be resulted when the power supply voltage falls in the range from 16.8 to 19.2 V DC.
*3: The values designate power supply capacity for an intelligent function module, expansion adapter, and expansion board.

FX5UC CPU module

Item	Specifications		
	FX5UC-32MT/□	FX5UC-64MT/□	FX5UC-96MT/□
Rated voltage	24 V DC		
Allowable supply voltage range	+20%, -15%		
Allowable instantaneous power failure time	Operation can be continued upon occurrence of instantaneous power failure for 5 ms or less.		
Power fuse	125 V 3.15 A Time-lag Fuse		
In-rush current	35 A Max. 0.5 ms or less/24 V DC	40 A Max. 0.5 ms or less/24 V DC	
Power consumption*	5 W/24 V DC (30 W/24 V DC +20%, -15%)	8 W/24 V DC (33 W/24 V DC +20%, -15%)	11 W/24 V DC (36 W/24 V DC +20%, -15%)
5 V DC internal power supply capacity	720 mA		
24 V DC internal power supply capacity	500 mA		

*: The value results when the CPU module is used alone.
The values in the parentheses ( ) result when the maximum no. of connections have been made to the CPU module. (External DC 24 V power supplies of extension modules are not included.)

FX5-4AD-ADP

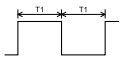
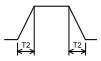
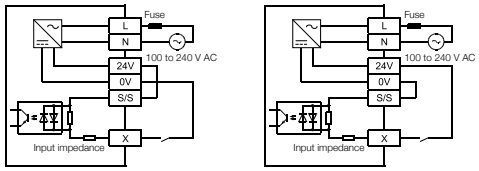
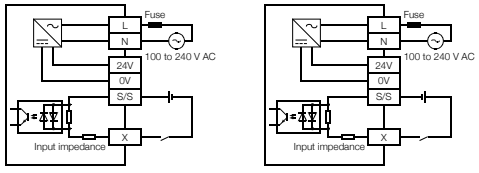
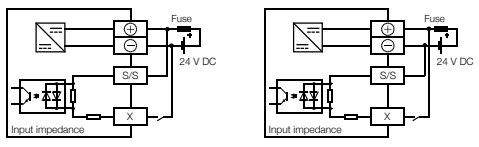
Item	Specifications
Internal power feed (A/D conversion circuit)	24 V DC 20 mA Power is internally fed from the 24 V DC power supply of the CPU module.
Internal power feed (interface)	5 V DC 10 mA Power is internally fed from the 5 V DC power supply of the CPU module.

FX5-4DA-ADP

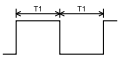
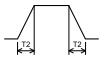
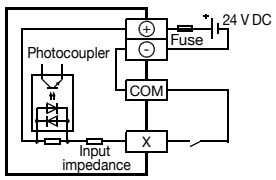
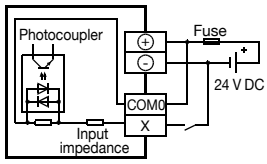
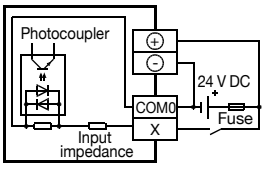
Item	Specifications
External power feed (D/A conversion circuit)	24 V DC +20%/-15% 160 mA Power is externally fed from the power supply connector of the adapter.
Internal power feed (interface)	5 V DC 10 mA Power is internally fed from the 5 V DC power supply of the CPU module.

Input specifications

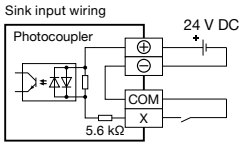
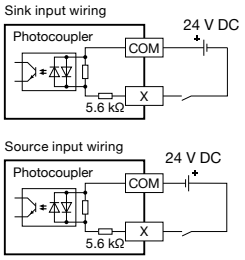
FX5U CPU module

Item		Specifications		
		FX5U-32M□	FX5U-64M□	FX5U-80M□
No. of input points		16 points	32 points	40 points
Connection type		Removable terminal block (M3 screws)		
Input type		Sink/source		
Input signal voltage		24 V DC +20%, -15%		
Input signal current	X000 to X017	5.3 mA/24 V DC		
	X020 and subsequent	4.0 mA/24 V DC		
Input impedance	X000 to X017	4.3 kΩ		
	X020 and subsequent	5.6 kΩ		
ON input sensitive current	X000 to X017	3.5 mA or more		
	X020 and subsequent	3.0 mA or more		
OFF input sensitivity current		1.5 mA or less		
Input response frequency	X000 to X005	200 kHz	—	
	X000 to X007	—	200 kHz	
	X006 to X017	10 kHz	—	
	X010 to X017	—	10 kHz	
Pulse waveform	Waveform	 T1 (pulse width)	 T2 (rise/fall time)	
	X000 to X005	T1: 2.5 µs or more, T2: 1.25 µs or less	—	
	X000 to X007	—	T1: 2.5 µs or more, T2: 1.25 µs or less	
	X006 to X017	T1: 50 µs or more, T2: 25 µs or less	—	
	X010 to X017	—	T1: 50 µs or more, T2: 25 µs or less	
Input response time (H/W filter delay)	X000 to X005	ON: 2.5 µs or less, OFF: 2.5 µs or less	—	
	X000 to X007	—	ON: 2.5 µs or less, OFF: 2.5 µs or less	
	X006 to X017	ON: 30 µs or less, OFF: 50 µs or less	—	
	X010 to X017	—	ON: 30 µs or less, OFF: 50 µs or less	
	X020 and subsequent	—	ON: 50 µs or less, OFF: 150 µs or less	
Input response time (Digital filter setting value)		None, 10 µs, 50 µs, 0.1 ms, 0.2 ms, 0.4 ms, 0.6 ms, 1 ms, 5 ms, 10 ms (initial values), 20 ms, 70 ms When using this product in an environment with much noise, set the digital filter.		
Input signal format		No-voltage contact input Sink: NPN open collector transistor Source: PNP open collector transistor		
Input circuit isolation		Photo-coupler isolation		
Input operation display		LED is lit when input is on		
Input circuit configuration	AC power supply type	- When using service power supply Sink input wiring / Source input wiring 		
		- When using external power supply Sink input wiring / Source input wiring 		
	DC power supply type	Sink input wiring / Source input wiring 		

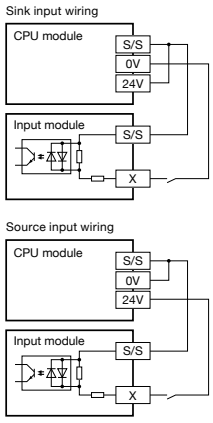
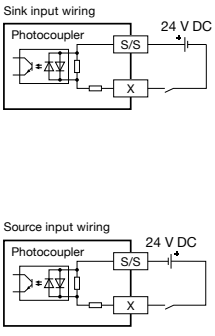
FX5UC CPU module

Item		Specifications		
		FX5UC-32MT/□	FX5UC-64MT/□	FX5UC-96MT/□
No. of input points		16 points	32 points	48 points
Connection type		Connector		
Input type		FX5UC-□MT/D: Sink FX5UC-□MT/DSS: Sink/source		
Input signal voltage		24 V DC +20%, -15%		
Input signal current	X000 to X017	5.3 mA/24 V DC		
	X020 and subsequent	4.0 mA/24 V DC		
Input impedance	X000 to X017	4.3 kΩ		
	X020 and subsequent	5.6 kΩ		
ON input sensitivity current	X000 to X017	3.5 mA or more		
	X020 and subsequent	3.0 mA or more		
OFF input sensitivity current		1.5 mA or less		
Input response frequency	X000 to X005	200 kHz	—	
	X000 to X007	—	200 kHz	
	X006 to X017	10 kHz	—	
	X010 to X017	—	10 kHz	
Pulse waveform	Waveform	 T1 (pulse width)	 T2 (rise/fall time)	
	X000 to X005	T1: 2.5 µs or more, T2: 1.25 µs or less	—	
	X000 to X007	—	T1: 2.5 µs or more, T2: 1.25 µs or less	
	X006 to X017	T1: 50 µs or more, T2: 25 µs or less	—	
	X010 to X017	—	T1: 50 µs or more, T2: 25 µs or less	
Input response time (H/W filter delay)	X000 to X005	ON: 2.5 µs or less, OFF: 2.5 µs or less	—	
	X000 to X007	—	ON: 2.5 µs or less, OFF: 2.5 µs or less	
	X006 to X017	ON: 30 µs or less, OFF: 50 µs or less	—	
	X010 to X017	—	ON: 30 µs or less, OFF: 50 µs or less	
	X020 and subsequent	—	ON: 50 µs or less, OFF: 150 µs or less	
Input response time (Digital filter setting value)		None, 10 µs, 50 µs, 0.1 ms, 0.2 ms, 0.4 ms, 0.6 ms, 1 ms, 5 ms, 10 ms (initial values), 20 ms, 70 ms When using this product in an environment with much noise, set the digital filter.		
Input signal format		FX5UC-□MT/D No-voltage contact input NPN open collector transistor		
		FX5UC-□MT/DSS No-voltage contact input Sink: NPN open collector transistor Source: PNP open collector transistor		
Input circuit isolation		Photo-coupler isolation		
Input operation display		LED is lit when input is on (DISP switch: IN)		
Input circuit configuration		FX5UC-□MT/D Sink input wiring 		
		FX5UC-□MT/DSS Sink input wiring  Source input wiring 		

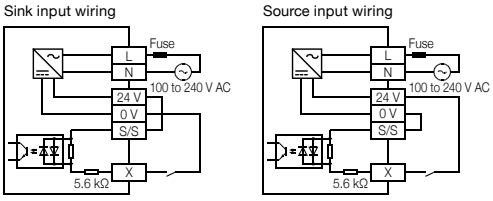
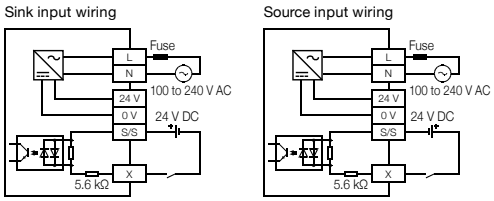
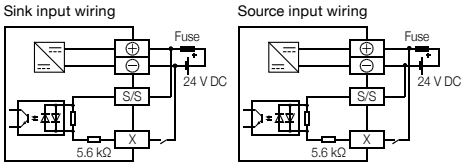
Extension module (extension connector type), input, input/output module

Item		Specifications					
		FX5-C16EX/D	FX5-C32EX/D	FX5-C32ET/D	FX5-C16EX/DS	FX5-C32EX/DS	FX5-C32ET/DSS
Connection type		Connector					
Input type		Sink			Sink/source		
Input signal voltage		24 V DC +20%, -15%					
Input signal current		4.0 mA/24 V DC					
Input impedance		5.6 kΩ					
Input sensitivity current	ON	3.0 mA or more					
	OFF	1.5 mA or less					
Input response time		ON: 50 µs or less OFF: 150 µs or less					
Input signal format		No-voltage contact input Sink: NPN open collector transistor			No-voltage contact input Sink: NPN open collector transistor Source: PNP open collector transistor		
Input circuit isolation		Photo-coupler isolation					
Input operation display		LED is lit when input is on.	LED is lit when input is on. (F/L of DISP switch is used to change between lower and higher numbers.)	LED is lit when input is on. (DISP switch: IN)	LED is lit when input is on.	LED is lit when input is on. (F/L of DISP switch is used to change between lower and higher numbers.)	LED is lit when input is on. (DISP switch: IN)
Input circuit configuration							

Extension module (extension cable type), input, input/output module

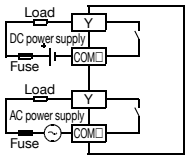
Item		Specifications			
		FX5-8EX/ES	FX5-16EX/ES	FX5-16ET/ES-H	FX5-16ET/ESS-H
Connection type		Terminal block (M3 screws)			
Input type		Sink/source			
Input signal voltage		24 V DC +20%, -15%			
Input signal current		4.0 mA/24 V DC		5.3 mA/24 V DC	
Input impedance		5.6 kΩ		4.3 kΩ	
Input sensitivity current	ON	3.0 mA or more		3.5 mA or more	
	OFF	1.5 mA or less			
Input response time		ON: 50 µs or less OFF: 150 µs or less		X0 to 5 ON: 2.5 µs or less OFF: 2.5 µs or less X6, 7 ON: 30 µs or less OFF: 50 µs or less	
Input signal format		No-voltage contact input Sink: NPN open collector transistor Source: PNP open collector transistor			
Input circuit isolation		Photo-coupler isolation			
Input operation display		LED is lit when input is on.			
Input circuit configuration		When using service power supply 		When using external power supply 	

Extension module powered input/output module

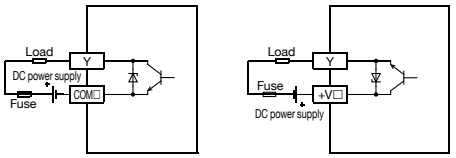
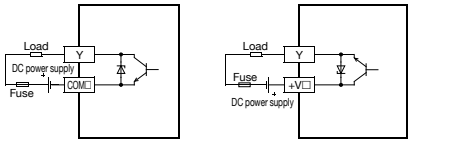
Item		Specifications					
		FX5-32ER/ES	FX5-32ET/ES	FX5-32ET/ESS	FX5-32ER/DS	FX5-32ET/DS	FX5-32ET/DSS
Connection type		Terminal block (M3 screws)					
Input type		Sink/source					
Input signal voltage		24 V DC +20%, -15%					
Input signal current		4.0 mA/24 V DC					
Input impedance		5.6 kΩ					
Input sensitivity current	ON	3.0 mA or more					
	OFF	1.5 mA or less					
Input response time		ON: 50 μs or less OFF: 150 μs or less					
Input signal format		No-voltage contact input Sink: NPN open collector transistor Source: PNP open collector transistor					
Input circuit isolation		Photo-coupler isolation					
Input operation display		LED is lit when input is on.					
Input circuit configuration		When using service power supply Sink input wiring / Source input wiring  When using external power supply Sink input wiring / Source input wiring 		When using service power supply Sink input wiring / Source input wiring 		

Output specifications

Relay output (FX5U CPU module)

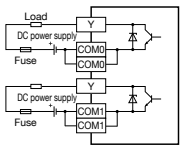
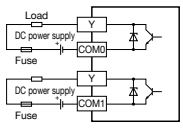
Item		Specifications		
		FX5U-32MR/☐	FX5U-64MR/☐	FX5U-80MR/☐
No. of output points		16 points	32 points	40 points
Connection type		Removable terminal block (M3 screws)		
Output type		Relay		
External power supply		30 V DC or less 240 V AC or less ("250 V AC or less" if not a CE, UL, cUL compliant item)		
Max. load		2 A/point The total load current per common terminal should be the following value. · 4 output points/common terminal: 8 A or less · 8 output points/common terminal: 8 A or less		
Min. load		5 V DC, 2 mA (reference values)		
Open circuit leakage current		—		
Response time	OFF→ON	Approx. 10 ms		
	ON→OFF	Approx. 10 ms		
Isolation of circuit		Mechanical isolation		
Indication of output operation		LED is lit when output is on		
Output circuit configuration		 A number is entered in the ☐ of [COM☐].		

Transistor output (FX5U/FX5UC CPU module)

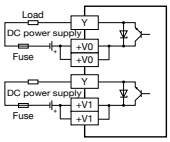
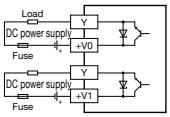
Item		Specifications					
		FX5U-32MT/□	FX5U-64MT/□	FX5U-80MT/□	FX5UC-32MT/□	FX5UC-64MT/□	FX5UC-96MT/□
No. of output points		16 points	32 points	40 points	16 points	32 points	48 points
Connection type		Removable terminal block (M3 screws)			Connector		
Output type		Transistor/sink output (FX5U-□MT/ES, FX5U-32MT/DS) Transistor/source output (FX5U-□MT/ESS, FX5U-32MT/DSS)			Transistor/sink output (FX5UC-□MT/D) Transistor/source output (FX5UC-□MT/DSS)		
External power supply		5 to 30 V DC					
Max. load		0.5 A/point The total load current per common terminal should be the following value. · 4 output points/common terminal: 0.8 A or less · 8 output points/common terminal: 1.6 A or less			Y000 to Y003: 0.3 A/1 point Y004 and subsequent: 0.1 A/1 point The total load current per common terminal should be the following value. · 8 output points/common terminal: 0.8 A or less*		
Open circuit leakage current		0.1 mA or less/30 V DC					
Voltage drop when ON	Y000 to Y003	1.0 V or less					
	Y004 and subsequent	1.5 V or less					
Response time	Y000 to Y003	2.5 µs or less/10 mA or more (5 to 24 V DC)					
	Y004 and subsequent	0.2 ms or less/200 mA or more (24 V DC)			0.2 ms or less/100 mA (24 V DC)		
Isolation of circuit		Photo-coupler isolation			Photo-coupler isolation		
Indication of output operation		LED is lit when output is on			LED is lit when output is on (DISP switch set to OUT)		
Output circuit configuration		Sink output wiring / Source output wiring  A number is entered in the □ of [COM□]. A number is entered in the □ of [+V□].			Sink output wiring / Source output wiring  A number is entered in the □ of [COM□]. A number is entered in the □ of [+V□].		

*: 1.6 A or less when two common terminals are connected outside.

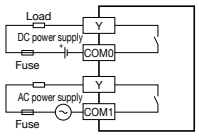
Transistor output (sink output, extension module)

Item		Specifications							
		FX5-C16EYT/D	FX5-C32EYT/D	FX5-C32ET/D	FX5-8EYT/ES	FX5-16EYT/ES	FX5-32ET/ES	FX5-32ET/DS	FX5-16ET/ES-H
Connection type		Connector			Terminal block (M3 screws)				
Output type		Transistor output/sink output							
External power supply		5 to 30 V DC							
Max. load		0.1 A/1 point The total load current per common terminal should be the following value. · 8 output points/common terminal: 0.8 A or less			0.5 A/1 point The total load current per common terminal should be the following value. · 4 output points/common terminal: 0.8 A or less · 8 output points/common terminal: 1.6 A or less				
Open circuit leakage current		0.1 mA/30 V DC							
Voltage drop when ON		1.5 V or less							
Response time	OFF→ON	0.2 ms or less/100 mA (at 24 V DC)			0.2 ms or less/200 mA (at 24 V DC)				Y0, Y1, Y4, Y5: 2.5 µs or less/10 mA (at 5 to 24 V DC) Y2, Y3, Y6, Y7: 0.2 ms or less / 200 mA (at 24 V DC)
	ON→OFF	0.2 ms or less/100 mA (at 24 V DC)			0.2 ms or less/200 mA (at 24 V DC)				Y0, Y1, Y4, Y5: 2.5 µs or less/10 mA (at 5 to 24 V DC) Y2, Y3, Y6, Y7: 0.2 ms or less / 200 mA (at 24 V DC)
Isolation of circuit		Photo-coupler isolation							
Isolation of output operation		LED is lit when output is on.	LED is lit when output is on. (F/L of DISP switch is used to change between lower and higher numbers.)	LED is lit when output is on. (DISP switch set to OUT)	LED is lit when output is on.				
Output circuit configuration									

Transistor output (source output, extension module)

Item		Specifications							
		FX5-C16EYT/DSS	FX5-C32EYT/DSS	FX5-C32ET/DSS	FX5-8EYT/ESS	FX5-16EYT/ESS	FX5-32ET/ESS	FX5-32ET/DSS	FX5-16ET/ESS-H
Connection type		Connector			Terminal block (M3 screws)				
Output type		Transistor/source output							
External power supply		5 to 30 V DC							
Max. load		0.1 A/1 point The total load current per common terminal should be the following value. · 8 output points/common terminal: 0.8 A or less			0.5 A/1 point The total load current per common terminal should be the following value. · 4 output points/common terminal: 0.8 A or less · 8 output points/common terminal: 1.6 A or less				
Open circuit leakage current		0.1 mA/30 V DC							
Voltage drop when ON		1.5 V or less							
Response time	OFF→ON	0.2 ms or less/100 mA (at 24 V DC)			0.2 ms or less/200 mA (at 24 V DC)				Y0, Y1, Y4, Y5: 2.5 µs or less/10 mA (at 5 to 24 V DC) Y2, Y3, Y6, Y7: 0.2 ms or less / 200 mA (at 24 V DC)
	ON→OFF	0.2 ms or less/100 mA (at 24 V DC)			0.2 ms or less/200 mA (at 24 V DC)				Y0, Y1, Y4, Y5: 2.5 µs or less/10 mA (at 5 to 24 V DC) Y2, Y3, Y6, Y7: 0.2 ms or less / 200 mA (at 24 V DC)
Isolation of circuit		Photo-coupler isolation							
Indication of output operation		LED is lit when output is on.	LED is lit when output is on. (F/L of DISP switch is used to change between lower and higher numbers.)	LED is lit when output is on. (DISP switch set to OUT)	LED is lit when output is on.				
Output circuit configuration									

Relay output (extension module)

Item		Specifications			
		FX5-8EYR/ES	FX5-16EYR/ES	FX5-32ER/ES	FX5-32ER/DS
Connection type		Terminal block (M3 screws)			
Output type		Relay			
External power supply		30 V DC or less 240 V AC or less ("250 V AC or less" if not a CE, UL, cUL compliant item)			
Max. load		2 A/1 point The total load current per common terminal should be the following value. · 4 output points/common terminal: 8 A or less · 8 output points/common terminal: 8 A or less			
Min. load		5 V DC, 2 mA (reference values)			
Response time	OFF→ON	Approx. 10 ms			
	ON→OFF	Approx. 10 ms			
Isolation of circuit		Mechanical isolation			
Indication of output operation					

Built-in analog input

Item		Specifications
		FX5U CPU module
Analog input points		2 points (2 channels)
Analog input	Voltage	0 to 10 V DC (input resistance 115.7 kΩ)
Digital output		Unsigned 12-bit binary
Input characteristics, maximum resolution	Digital output value	0 to 4000
	Maximum resolution	2.5 mV
Precision (Accuracy in respect to full-scale digital output value)	Ambient temperature 25 ±5°C (77±41°F)	Within ±0.5% (±20 digit*2)
	Ambient temperature 0 to 55°C (32±131°F)	Within ±1.0% (±40 digit*2)
	Ambient temperature -20 to 0°C (32±131°F)*1	Within ±1.5% (±60 digit*2)
Conversion speed		30 µs/channels (data refreshed every operation cycle)
Absolute maximum input		-0.5 V, +15 V
Isolation		No isolation from the CPU module internal circuit, no isolation between the input terminals (channels)
Number of occupied input/output points		0 points (No concern with the maximum no. of input/output points of the CPU module)
Terminal block used		European-type terminal block

*1: Products manufactured earlier than June 2016 do not support this specification.
*2: The term "digit" refers to "digital value".

Built-in analog output

Item		Specifications
		FX5U CPU module
Analog output points		1 point (1 channel)
Digital input		Unsigned 12-bit binary
Analog output	Voltage	0 to 10 V DC (external load resistance 2 kΩ to 1 MΩ)
Output characteristics, maximum resolution	Digital input value	0 to 4000
	Maximum resolution	2.5 mV
Accuracy (Accuracy in respect to full-scale analog output value)	Ambient temperature 25 ±5°C (77±41°F)	Within ±0.5% (±20 digit*2)
	Ambient temperature 0 to 55°C (32±131°F)	Within ±1.0% (±40 digit*2)
	Ambient temperature -20 to 0°C (32±131°F)*1	Within ±1.5% (±60 digit*2)
Conversion speed		30 µs (data refreshed every operation cycle)
Isolation		No isolation from the CPU module internal circuit
Number of occupied input/output points		0 points (No concern with the maximum no. of input/output points of the CPU module)
Terminal block used		European-type terminal block

*1: Products manufactured earlier than June 2016 do not support this specification.
*2: The term "digit" refers to "digital value".

Built-in RS-485 communication

Item	Specifications
	FX5U / FX5UC CPU module
Transmission standards	Conforms to RS-485/RS-422 specifications
Data transmission speed	Max. 115.2 kbps
Communication method	Full-duplex (FDX) / Half-duplex (HDX)
Maximum transmission distance	50 m
Protocol type	MELSOFT connection
	MELSEC Communication protocol (3C/4C frames)
	Non-protocol communication
	MODBUS RTU communication
	Inverter communication
	N:N network
	Predefined protocol support
Isolation of circuit	Not isolated
Terminal resistors	Built-in (OPEN/110 Ω/330 Ω)
Terminal block used	European-type terminal block

Built-in Ethernet communication

Item		Specifications
		FX5U / FX5UC CPU module
Data transmission speed		100/10 Mbps
Communication method		Full-duplex (FDX) / Half-duplex (HDX)*1
Interface		RJ45 connector
Transmission method		Base band
Maximum segment length (The distance between hub and node)		100 m
Cascade connection	100BASE-TX	Cascade connection max. 2 stages*3
	10BASE-T	Cascade connection max. 4 stages*3
Protocol type		MELSOFT connection
		SLMP (3E frame)
		Socket communication
		Predefined protocol support
Number of connections		Total of 8 for MELSOFT connection, SLMP, socket communication and predefined protocol support (Up to 8 external devices can access one CPU module at the same time.)
Hub*1		Hubs with 100BASE-TX or 10BASE-T ports*4 are available.
IP address		Initial value: 192.168.3.250
Isolation of circuit		Pulse transformer isolation
Cable used*2	For 100BASE-TX connection	Ethernet standard-compatible cable, category 5 or higher (STP cable)
	For 10BASE-T connection	Ethernet standard-compatible cable, category 3 or higher (STP cable)

*1: IEEE802.3x flow control is not supported.
*2: Straight cables can be used. When connecting a CPU module with GOTs directly through Ethernet cables, crossover cables (category 5e or less) can also be used.
*3: No. of connectable stages when using a repeater hub. For the no. of connectable stages when a switching hub is in use, check with the manufacturer of the switching hub.
*4: The ports must comply with the IEEE802.3 100BASE-TX or IEEE802.3 10BASE-T standards.

Built-in positioning function

Item	Specifications
	FX5U / FX5UC CPU module
Number of control axes	4 axes* (Simple linear interpolation by 2-axis simultaneous start)
Maximum frequency	2147483647 (200 kpps in pulses)
Positioning program	Sequence program, Table operation
Pulse output instruction	PLSY and DPLSY instructions
Positioning instruction	DSZR, DDSZR, DVIT, DDVIT, TBL, DRVTBL, DRVMUL, DABS, PLSV, DPLSV, DRVI, DDRVI, DRVA, and DDRVA instructions

*: The number of control axes is 2 when the pulse output mode is CW/CCW mode.

Built-in high speed counter function

Item	Specifications	
	FX5U / FX5UC CPU module	
Types of high-speed counters	Input specifications	Maximum frequency
	1 phase, 1 input counter (S/W)	200 kHz
	1 phase, 1 input counter (H/W)	200 kHz
	1 phase, 2 input counter	200 kHz
	2 phase, 2 input counter [1 edge count]	200 kHz
	2 phase, 2 input counter [2 edge count]	100 kHz
	2 phase, 2 input counter [4 edge count]	50 kHz
Input allocation	Parameter setup*	
High-speed counter instruction	[High-speed processing instruction] - Setting 32-bit data comparison (DHSCS) - Resetting 32-bit data comparison (DHSCR) - Comparison of 32-bit data band (DHSZ) - Start/stop of the 16-bit data high-speed I/O function (HIOEN) - Start/stop of the 32-bit data high-speed I/O function (DHIOEN) [High-speed transfer instruction of current value] - High-speed current value transfer of 16-bit data (HCMOV) - High-speed current value transfer of 32-bit data (DHCMOV)	

*: For details, refer to manuals of each product.

Extension Device Specifications

I/O Modules

Powered input/output modules

Model	Total No. of points	No. of input/output points & Input/output type				Connection type
		Input			Output	
FX5-32ER/ES	32 points	16 points	24 V DC (Sink/source)	16 points	Relay	Terminal block
FX5-32ET/ES					Transistor (Sink)	
FX5-32ET/ESS					Transistor (Source)	
FX5-32ER/DS					Relay	
FX5-32ET/DS					Transistor (Sink)	
FX5-32ET/DSS					Transistor (Source)	

Input module

Model	Total No. of points	No. of input/output points & Input/output type				Connection type
		Input		Output		
FX5-8EX/ES	8 points	8 points	24 V DC (Sink/source)	–	–	Terminal block
FX5-16EX/ES	16 points	16 points	24 V DC (Sink/source)			Connector
FX5-C16EX/D			24 V DC (Sink)			
FX5-C16EX/DS			24 V DC (Sink/source)			
FX5-C32EX/D	32 points	32 points	24 V DC (Sink)			
FX5-C32EX/DS			24 V DC (Sink/source)			

Output module

Model	Total No. of points	No. of input/output points & Input/output type				Connection type
		Input		Output		
FX5-8EYR/ES	8 points	–	–	8 points	Relay	Terminal block
FX5-8EYT/ES					Transistor (Sink)	
FX5-8EYT/ESS					Transistor (Source)	
FX5-16EYR/ES	16 points			16 points	Relay	
FX5-16EYT/ES					Transistor (Sink)	
FX5-16EYT/ESS					Transistor (Source)	
FX5-C16EYT/D					Transistor (Sink)	Connector
FX5-C16EYT/DSS					Transistor (Source)	
FX5-C32EYT/D	32 points			32 points	Transistor (Sink)	
FX5-C32EYT/DSS					Transistor (Source)	

I/O module

Model	Total No. of points	No. of input/output points & Input/output type				Connection type
		Input		Output		
FX5-C32ET/D	32 points	16 points	24 V DC (Sink)	16 points	Transistor (Sink)	Connector
FX5-C32ET/DSS			24 V DC (Sink/source)		Transistor (Source)	

High-speed pulse input/output module

Model	Total No. of points	No. of input/output points & Input/output type				Connection type
		Input		Output		
FX5-16ET/ES-H*	16 points	8 points	24 V DC (Sink/source)	8 points	Transistor (Sink)	Terminal block
FX5-16ET/ESS-H*					Transistor (Source)	

*: Compatible with FX5U/FX5UC CPU modules from Ver. 1.030 (Serial number: 165**** (May 2016))

Expansion adapter

FX5-232ADP

Item	Specifications
Transmission standard/ Maximum transmission distance/Isolation	Conforming to RS-232C/15 m/Photo-coupler isolation (Between communication line and CPU module)
External device connection method	9-pin D-sub, male
Communication method	Half-duplex bidirectional/Full-duplex bidirectional
Baud rate	300/600/1200/2400/4800/9600/19200/38400/57600/115200 (bps)*
Compatible CPU module	FX5U, FX5UC
Number of occupied input/output points	0 point (no points occupied)
Control power (supplied from CPU module)	5 V DC, 30 mA / 24 V DC, 30 mA

*: The communication method and baud rate vary depending on the type of communication.

FX5-485ADP

Item	Specifications
Transmission standard/ Maximum transmission distance/Isolation	Conforming to RS-485, RS-422/1200 m/Photo-coupler isolation (Between communication line and CPU module)
External device connection method	European terminal block
Communication method	Half-duplex bidirectional/Full-duplex bidirectional
Baud rate	300/600/1200/2400/4800/9600/19200/38400/57600/115200 (bps)*
Terminal resistor	Built-in (OPEN/110 Ω/330 Ω)
Compatible CPU module	FX5U, FX5UC
Number of occupied input/output points	0 point (no points occupied)
Control power (supplied from CPU module)	5 V DC, 20 mA / 24 V DC, 30 mA

*: The communication method and baud rate vary depending on the type of communication.

FX5-4AD-ADP

Item	Specifications			
Analog input points	4 points (4 channels)			
Analog input voltage	-10 to +10 V DC (input resistance 1 MΩ)			
Analog input current	-20 to +20 mA DC (input resistance 250 Ω)			
Digital output value	14-bit binary value			
Input characteristics, resolution*1	Analog input range		Digital output value	Resolution
	Voltage	0 to 10 V	0 to 16000	625 μV
		0 to 5 V	0 to 16000	312.5 μV
		1 to 5 V	0 to 12800	312.5 μV
		-10 to +10V	-8000 to +8000	1250 μV
	Current	0 to 20 mA	0 to 16000	1.25 μA
		4 to 20 mA	0 to 12800	1.25 μA
		-20 to +20 mA	-8000 to +8000	2.5 μA
Accuracy (Accuracy in respect to full-scale digital output value)	Ambient temperature 25±5°C: within ±0.1% (±16 digit) Ambient temperature 0 to 55°C: within ±0.2% (±32 digit) Ambient temperature -20 to 0°C*2: within ±0.3% (±48 digit)			
Absolute maximum input	Voltage: ±15 V, Current: ±30 mA			
Isolation	Between input terminal and PLC: Photo-coupler isolation Between input channels: No isolation			
Compatible CPU module	FX5U,FX5UC			
Number of occupied input/output points	0 point (no points occupied)			

*1: For the input conversion characteristic, refer to manuals of each product.
*2: Products manufactured earlier than June 2016 do not support this specification.

FX5-4DA-ADP

Item	Specifications			
Analog output points	4 points (4 channels)			
Analog output voltage	-10 to +10 V DC (external load resistance value 1 kΩ to 1 MΩ)			
Analog output current	0 to 20 mA DC (external load resistance value 0 to 500 Ω)			
Digital input	14-bit binary value			
Output characteristics, resolution*1	Analog output range		Digital value	Resolution
	Voltage	0 to 10 V	0 to 16000	625 μV
		0 to 5 V	0 to 16000	312.5 μV
		1 to 5 V	0 to 16000	250 μV
		-10 to +10V	-8000 to +8000	1250 μV
	Current	0 to 20 mA	0 to 16000	1.25 μA
		4 to 20 mA	0 to 16000	1 μA
Accuracy (Accuracy in respect to full-scale analog output value)	Ambient temperature 25±5°C: within ±0.1% (Voltage ±20 mV, Current ±20 μA) Ambient temperature -20 to 55°C*2: within ±0.2% (Voltage ±40 mV, Current ±40 μA)			
Isolation	Between output terminal and PLC: Photo-coupler isolation Between output channels: No isolation			
Compatible CPU module	FX5U, FX5UC			
Number of occupied input/output points	0 point (no points occupied)			

*1: For details on the output conversion characteristic, refer to manuals of each product.
*2: The ambient temperature specification is 0 to 55°C for products manufactured earlier than June 2016.

Expansion board

Item	Specifications		
	FX5-232-BD	FX5-485-BD	FX5-422-BD-GOT
Transmission standards	Conforming to RS-232C	Conforming to RS-485, RS-422	Conforming to RS-422
Maximum transmission distance	15 m	50 m	According to the specification of the GOT
External device connection method	9-pin D-sub, male	European-type terminal block	8-pin MINI-DIN, female
Isolation	Not isolation (Between communication line and CPU module)	Not isolation (Between communication line and CPU module)	Not isolation (Between communication line and CPU module)
Communication method	Half-duplex bidirectional/ Full-duplex bidirectional*	Half-duplex bidirectional/ Full-duplex bidirectional*	Half-duplex bidirectional
Baud rate	300/600/1200/2400/ 4800/9600/19200/ 38400/57600/115200 (bps)*	300/600/1200/2400/ 4800/9600/19200/ 38400/57600/115200 (bps)*	9600/19200/38400/ 57600/115200 (bps)
Terminal resistor	–	Built-in (OPEN/110 Ω/330 Ω)	–
Compatible CPU module	FX5U	FX5U	FX5U
Number of occupied input/output points	0 point (no points occupied)	0 point (no points occupied)	0 point (no points occupied)

*: The communication method and baud rate vary depending on the type of communication.

Extension power supply module

FX5-1PSU-5V

Item		Specifications
Rated supply voltage		100 to 240 V AC
Allowable range of supply voltage		85 to 264 V AC
Frequency rating		50/60 Hz
Allowable instantaneous power failure time		Operation can be continued upon occurrence of instantaneous power failure for 10 ms or less.
Power fuse		250 V, 3.15 A time-lag fuse
In-rush current		25 A Max. 5 ms or less/ 100 V AC 50 A Max. 5 ms or less/ 200 V AC
Power consumption		20 W Max.
Output current* (For power supply to rear stage)	24 V DC	300 mA (Maximum output current depends on the ambient temperature.)
	5 V DC	1200 mA (Maximum output current depends on the ambient temperature.)
Compatible CPU module		FX5U (AC power supply type)
Number of occupied input/output points		0 points (no points occupied)

*: For details on the current conversion characteristic, refer to manuals of each product.

FX5-C1PS-5V

Item		Specifications
Supply voltage		24 V DC
Voltage fluctuation range		+20%, -15%
Allowable time of momentary power failure		Operation can be continued upon occurrence of instantaneous power failure for 5 ms or less.
Power fuse		125 V, 3.15 A time-lag fuse
In-rush current		35 A Max. 0.5 ms or less/24 V DC
Power consumption		30 W Max.
Output current* (For power supply to rear stage)	24 V DC	625 mA (Maximum output current depends on the ambient temperature.)
	5 V DC	1200 mA (Maximum output current depends on the ambient temperature.)
Compatible CPU module		FX5U (DC power supply type) FX5UC
Number of occupied input/output points		0 points (no points occupied)

*: For details on the current conversion characteristic, refer to manuals of each product.

Bus conversion module

FX5-CNV-BUS (FX5 (extension cable type)→FX3 extension)

Item	Specifications
Compatible CPU module	FX5U, FX5UC
Number of occupied input/output points	8 points (Either input or output is available for counting)
Control power (supplied from PLC)	5 V DC 150 mA

FX5-CNV-BUSC (FX5 (extension connector type)→FX3 extension)

Item	Specifications
Compatible CPU module	FX5U, FX5UC
Number of occupied input/output points	8 points (Either input or output is available for counting)
Control power (supplied from PLC)	5 V DC 150 mA

Connector conversion module

FX5-CNV-IF (FX5 (extension cable type)→ FX5 (extension connector type) extension)

Item	Specifications
Compatible CPU module	FX5U
Number of occupied input/output points	0 points (no points occupied)
Control power (supplied from PLC)	0 mA (no power consumed)

FX5-CNV-IFC (FX5 (extension connector type)→ FX5 (extension cable type) extension)

Item	Specifications
Compatible CPU module	FX5U
Number of occupied input/output points	0 points (no points occupied)
Control power (supplied from PLC)	0 mA (no power consumed)

Intelligent function module

FX5-CCLIEF

Item		Specifications
Station type		Intelligent device station
Station number		1 to 120 (sets by parameter or program)
Communication speed		1 Gbps
Network topology		Line topology, star topology (coexistence of line topology and star topology is also possible), and ring topology
Maximum station-to-station distance		Max. 100 m (Conforming to ANSI/TIA/EIA-568-B (Category 5e))
Cascade connection		Max. 20 stages
Communication method		Token passing
Maximum number of link points*1	RX	384 points, 48 bytes
	RY	384 points, 48 bytes
	RWr	1024 points, 2048 bytes*2
	RWw	1024 points, 2048 bytes*2
Compatible CPU module		FX5U, FX5UC from Ver. 1.030 (Serial number: 165**** (May 2016))
Number of occupied input/output points		8 points (Either input or output is available for counting)
Control power (supplied from PLC)		5 V DC 10 mA
Control power (supplied from outside)		24 V DC 230 mA

*1: The maximum number of link points that a master station can assign to one FX5-CCLIEF module.
*2: 256 points (512 bytes) when the mode of the master station is online (High-Speed Mode).

Simple Motion Module

FX5-40SSC-S

Control specification

Item		Specifications
Number of control axes (Virtual servo amplifier axis included)		Max. 4 axes
Operation cycle (Operation cycle settings)		1.777 ms
Interpolation function		Linear interpolation (Up to 4 axes)
Control system		PTP (Point To Point) control, Trajectory control (both linear and arc), Speed control, Speed-position switching control, Position-speed switching control, Speed-torque control
Acceleration/deceleration process		Trapezoidal acceleration/deceleration, S-curve acceleration/ deceleration
Compensation function		Backlash compensation, Electronic gear, Near pass function
Synchronous control		Synchronous encoder input, Cam, Phase compensation, Cam auto-generation
Control unit		mm, inch, degree, pulse
Number of positioning data		600 data (positioning data No. 1 to 600)/axis (Can be set with MELSOFT GX Works3 or a sequence program.)
Backup		Parameters, positioning data, and block start data can be saved on flash ROM (battery-less backup)
Home position return	Home position return method	Proximity dog method, Count method 1, Count method 2, Data set method, Scale home position signal detection method
	Fast home position return control	Provided
	Auxiliary functions	Home position return retry, Home position shift
Positioning control	Linear control	Linear interpolation control (Up to 4 axes)*1 (Vector speed, Reference axis speed)
	Fixed-pitch feed control	Fixed-pitch feed control (Up to 4 axes)
	2-axis circular interpolation	Auxiliary point-specified circular interpolation, Central point-specified circular interpolation
	Speed control	Speed control (Up to 4 axes)
	Speed-position switching control	INC mode, ABS mode
	Position-speed switching control	INC mode
	Current value change	Positioning data, Start No. for a current value changing
	NOP instruction	Provided
	JUMP instruction	Unconditional JUMP, Conditional JUMP
	LOOP, LEND	Provided
	High-level positioning control	Block start, Condition start, Wait start, Simultaneous start, Repeated start
Manual control	JOG operation	Provided
	Inching operation	Provided
	Manual pulse generator	Possible to connect 1 module (Incremental), Unit magnification (1 to 10000 times)
Expansion control	Speed-torque control	Speed control without positioning loops, Torque control, Tightening & press-fit control
Absolute position system		Made compatible by setting a battery to servo amplifier
Synchronous encoder interface		Up to 4 channels (Total of the internal interface, via PLC CPU interface, and servo amplifier interface)
	Internal interface	1 ch (Incremental)
Functions that limit control	Speed limit function	Speed limit value, JOG speed limit value
	Torque limit function	Torque limit value same setting, torque limit value individual setting
	Forced stop	Valid/Invalid setting
	Software stroke limit function	Movable range check with current feed value, movable range check with machine feed value
	Hardware stroke limit function	Provided
Functions that change control details	Speed change function	Provided
	Override function	1 to 300 [%]
	Acceleration/deceleration time change function	Provided
	Torque change function	Provided
	Target position change function	Target position address and speed are changeable
Other functions	M-code output function	WITH mode/AFTER mode
	Step function	Deceleration unit step, Data No. unit step
	Skip function	Via PLC CPU, Via external command signal
	Teaching function	Provided
Parameter initialization function		Provided
External input signal setting function		Via CPU
Amplifier-less operation function		Provided
Mark detection function		Continuous Detection mode, Specified Number of Detections mode, Ring Buffer mode
	Mark detection signal	Up to 4 points
	Mark detection setting	4 settings
Optional data monitor function		4 points/axis
Driver communication function		Provided
SSCNET connect/disconnect function		Provided
Digital oscilloscope function*2	Bit data	16 ch
	Word data	16 ch

*1: 4-axis linear interpolation control is enabled only at the reference axis speed.
*2: 8 ch word data and 8 ch bit data can be displayed in real time.

Module specification

Item			Specifications
Servo amplifier connection method			SSCNETIII/H
Maximum overall cable distance [m]			400
Maximum distance between stations [m]			100
Peripheral I/F			Via CPU module (Ethernet)
Manual pulse generator operation function			Possible to connect 1 module
Synchronous encoder operation function			Possible to connect 4 modules (Total of the internal interface, via PLC CPU interface, and servo amplifier interface)
Input signals (DI)		No. of input points	4 points
		Input method	Positive common/Negative common shared (Photocoupler isolation)
		Rated input voltage/current	24 V DC/Approx. 5 mA
		Operating voltage range	19.2 to 26.4 V DC (24 V DC +10%/-20%, ripple ratio 5% or less)
		ON voltage/current	17.5 V DC or more/3.5 mA or more
		OFF voltage/current	7 V DC or less/1.0 mA or less
		Input resistance	Approx. 6.8 kΩ
		Response time	1 ms or less (OFF→ON, ON→OFF)
		Recommended wire size	AWG24 (0.2 mm²)
Forced stop input signal (EMI)		No. of input points	1 point
		Input method	Positive common/Negative common shared (Photocoupler isolation)
		Rated input voltage/current	24 V DC/Approx. 5 mA
		Operating voltage range	19.2 to 26.4 V DC (24 V DC +10%/-20%, ripple ratio 5% or less)
		ON voltage/current	17.5 V DC or more/3.5 mA or more
		OFF voltage/current	7 V DC or less/1.0 mA or less
		Input resistance	Approx. 6.8 kΩ
		Response time	4 ms or less (OFF→ON, ON→OFF)
		Recommended wire size	AWG24 (0.2 mm²)
Manual pulse generator/Incremental synchronous encoder signal	Signal input form		Phase A/Phase B (magnification by 4/ magnification by 2/magnification by 1), PULSE/SIGN
	Differential output type (26LS31 or equivalent)	Input pulse frequency	Max. 1 Mpulse/s (After magnification by 4, up to 4 Mpulse/s)
		Pulse width	1 µs or more
		Leading edge/trailing edge time	0.25 µs or less
		Phase difference	0.25 µs or more
		Rated input voltage	5.5 V DC or less
		High/Low-voltage	2.0 to 5.25 V DC/0 to 0.8 V DC
		Differential voltage	±0.2 V
		Cable length	Up to 30 m
	Voltageoutput/ Opencollector type (5 V DC)	Input pulse frequency	Max. 200 kpulse/s (After magnification by 4, up to 800 kpulse/s)
		Pulse width	5 µs or more
		Leading edge/trailing edge time	1.2 µs or less
		Phase difference	1.2 µs or more
		Rated input voltage	5.5 V DC or less
		High/Low-voltage	3.0 to 5.25 V DC/2 mA or less, 0 to 1.0 V DC/5 mA or more
		Cable length	Up to 10 m
Compatible CPU module			FX5U, FX5UC
Number of occupied input/output points			8 points (Either input or output is available for counting)
24 V DC internal current consumption			0.25 A

Standards

List of Compatible Products

Model	CE		UL cUL	KC	Ship approvals							
	EMC	LVD			ABS	DNV	LR	GL	BV	RINA	NK	KR
◆ FX5U CPU modules												
FX5U-32MR/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-32MT/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-32MT/ESS	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-64MR/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-64MT/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-64MT/ESS	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-80MR/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-80MT/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-80MT/ESS	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-32MR/DS	○	○	○	○	—	—	—	—	—	—	—	—
FX5U-32MT/DS	○	□	○	○	—	—	—	—	—	—	—	—
FX5U-32MT/DSS	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5UC CPU modules												
FX5UC-32MT/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5UC-32MT/DSS	○	□	○	○	—	—	—	—	—	—	—	—
FX5UC-64MT/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5UC-64MT/DSS	○	□	○	○	—	—	—	—	—	—	—	—
FX5UC-96MT/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5UC-96MT/DSS	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5 I/O modules (extension cable type)												
FX5-8EX/ES	○	□	○	○	—	—	—	—	—	—	—	—
FX5-16EX/ES	○	□	○	○	—	—	—	—	—	—	—	—
FX5-8EYR/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5-8EYT/ES	○	□	○	○	—	—	—	—	—	—	—	—
FX5-8EYT/ESS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-16EYR/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5-16EYT/ES	○	□	○	○	—	—	—	—	—	—	—	—
FX5-16EYT/ESS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-16ET/ES-H	○	□	○	○	—	—	—	—	—	—	—	—
FX5-16ET/ESS-H	○	□	○	○	—	—	—	—	—	—	—	—
FX5-32ER/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5-32ET/ES	○	○	○	○	—	—	—	—	—	—	—	—
FX5-32ET/ESS	○	○	○	○	—	—	—	—	—	—	—	—
FX5-32ER/DS	○	○	○	○	—	—	—	—	—	—	—	—
FX5-32ET/DS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-32ET/DSS	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5 I/O module (extension connector type)												
FX5-C16EX/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C16EX/DS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C32EX/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C32EX/DS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C16EYT/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C16EYT/DSS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C32EYT/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C32EYT/DSS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C32ET/D	○	□	○	○	—	—	—	—	—	—	—	—
FX5-C32ET/DSS	○	□	○	○	—	—	—	—	—	—	—	—

Model	CE		UL cUL	KC	Ship approvals							
	EMC	LVD			ABS	DNV	LR	GL	BV	RINA	NK	KR
◆ FX5 intelligent function module												
FX5-40SSC-S	○	□	○	○	—	—	—	—	—	—	—	—
FX5-CCLIEF	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5 extension power supply module												
FX5-1PSU-5V	○	○	○	○	—	—	—	—	—	—	—	—
FX5-C1PS-5V	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5 bus conversion module												
FX5-CNV-BUS	○	□	○	○	—	—	—	—	—	—	—	—
FX5-CNV-BUSC	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5 connector conversion module												
FX5-CNV-IF	○	□	○	○	—	—	—	—	—	—	—	—
FX5-CNV-IFC	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5 expansion adapter												
FX5-4AD-ADP	○	□	○	○	—	—	—	—	—	—	—	—
FX5-4DA-ADP	○	□	○*1	○	—	—	—	—	—	—	—	—
FX5-232ADP	○	□	○	○	—	—	—	—	—	—	—	—
FX5-485ADP	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX5U expansion board												
FX5-232-BD	○	□	—	○	—	—	—	—	—	—	—	—
FX5-485-BD	○	□	—	○	—	—	—	—	—	—	—	—
FX5-422-BD-GOT	○	□	—	○	—	—	—	—	—	—	—	—
◆ Terminal module												
FX-16E-TB	—	—	○	□	—	—	—	—	—	—	—	—
FX-32E-TB	—	—	○	□	—	—	—	—	—	—	—	—
FX-16EYR-TB	—	—	○	□	—	—	—	—	—	—	—	—
FX-16EYS-TB	—	—	—	—	—	—	—	—	—	—	—	—
FX-16EYT-TB	—	—	○	□	—	—	—	—	—	—	—	—
FX-16E-TB/UL	—	—	○	□	—	—	—	—	—	—	—	—
FX-32E-TB/UL	—	—	○	□	—	—	—	—	—	—	—	—
FX-16EYR-ES-TB/UL	—	—	○	□	—	—	—	—	—	—	—	—
FX-16EYS-ES-TB/UL	—	—	○	□	—	—	—	—	—	—	—	—
FX-16EYT-ES-TB/UL	—	—	○	□	—	—	—	—	—	—	—	—
FX-16EYT-ESS-TB/UL	—	—	○	□	—	—	—	—	—	—	—	—
◆ Extended extension cable												
FX5-30EC	○	□	○	○	—	—	—	—	—	—	—	—
FX5-65EC	○	□	○	○	—	—	—	—	—	—	—	—
◆ Connector conversion adapter												
FX5-CNV-BC	○	□	○	○	—	—	—	—	—	—	—	—
◆ FX3 intelligent function module												
FX3U-4AD	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-4DA	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-4LC	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-1PG	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-2HC	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-16CCL-M	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-64CCL	○	□	○	○	—	—	—	—	—	—	—	—
FX3U-128ASL-M	○*2	□	○	—	—	—	—	—	—	—	—	—
◆ FX3 extension power supply module												
FX3U-1PSU-5V	○	○	○	○	—	—	—	—	—	—	—	—

○: Compliant with standards or self-declaration □: No need to comply
*1: Supported by manufacturing serial number 1660001 and later
*2: Zone A

■EN Standards: Compliance with EC Directives/CE marking

EC Directives were issued by the European Council of Ministers to unify standards in the EU Community, and to ensure smooth distribution of products for which safety is ensured. Approximately 20 types of EC Directives for product safety have been issued.
Attachment of a CE mark (CE marking) is mandatory on specific products before they may be distributed in the EU.
The EMC Directive (Electromagnetic Compatibility Directive) and LVD Directive (Low Voltage Directive) apply to the programmable controller, which is labeled as an electrical part of a machine product under the EC Directives.

1) EMC Directive

The EMC Directive is a directive that requires products to have "Capacity to prevent output of obstructive noise that adversely affects external devices: Emission damage" and "Capacity to not malfunction due to obstructive noise from external source: Immunity".

2) LVD Directive (Low Voltage Directive)

The LVD Directive is enforced to distribute safe products that will not harm or damage people, objects or assets, etc. With the programmable controller, this means a product that does not pose a risk of electric shock, fire or injury, etc.

CE

■"ISO 9001" international standard for quality-assurance system

Mitsubishi Electric Corporation Nagoya Works has acquired "ISO 9001" international standard for quality-assurance system for the development/ manufacture on the whole from order reception to shipment of all series of micro sequencer.
Of the ISO 9000 series by which the International Organization for Standardization (ISO) defines the standards of quality-assurance systems, "ISO 9001" assumes a wide range of quality-assurance systems related to development, manufacture, materials, quality and sales. The MELSEC iQ-F Series is manufactured under the control system based on an internationally recognized quality-assurance system.
It is also used as a registration site of "ISO 14001" environmental management system.

■UL/cUL Standards

UL is the United State's main private safety testing and certification agency for ensuring public safety.
UL sets the safety standards for a variety of fields. Strict reviews and testing are performed following the standards set forth by UL. Only products which pass these tests are allowed to carry the UL Mark.
As opposed to the EN Standards, the UL Standards do not have a legally binding effect. However, they are broadly used as the U.S. safety standards, and are an essential condition for selling products into the U.S.
UL is recognized as a certifying and testing agency by the Canadian Standards Association (CSA). Products evaluated and certified by UL in accordance with Canadian standards are permitted to carry the cUL Mark.

c UL® US LISTED

MEMO

MELSEC-Q Series

Improved Productivity.
All-round models for all kinds of use.

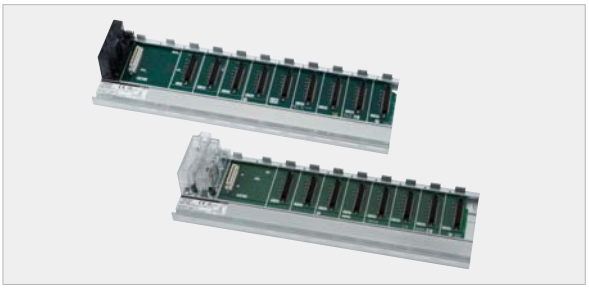
The “MELSEC-Q Series” Programmable Controller with nano-order basic instruction processing at high-speed can significantly enhance the performance of devices and machines.
Its fast-speed, high-precision, and high-volume data processing and machine control are ideal for ever-advancing production and manufacturing facilities.

CPU Module

Designed to control programmable controller systems. Lineup of CPUs to address various control demands.

Base Unit

Enable to mount power supply module, CPU module, I/O module. Our lineup of base units are designed to meet your system needs.



Power Supply Module

Supplies power to CPU module, I/O module and other modules.

I/O Module

Connects input and output devices.
Wide lineup of I/O modules for various system configurations.

Analog I/O Module

Inputs and outputs data in analog form and built for process control needs as well. Lineup of analog modules for high-speed, high-precision control.

Simple Motion Module/ Positioning Module

Delivers high-speed, high-precision positioning control. Lineup of positioning modules to suit various uses.

High-speed Counter/ Pulse Input Module

Compatible with high resolution devices. Pulse-input and high-speed counter modules for high-speed, high-precision control.

Energy Measuring Module

Measures and monitors various energy information.

Information Collaborative Module

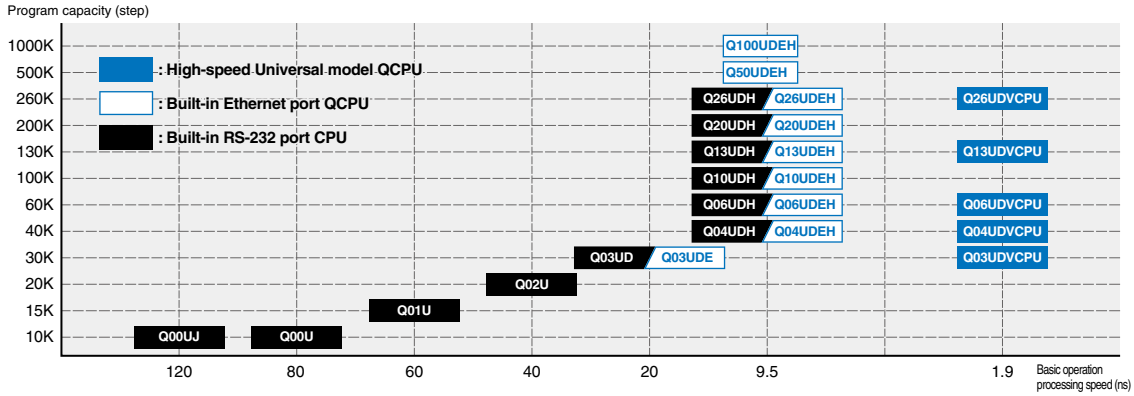
Enables information communication with upper management system. Lineup of modules designed for production efficiency through sampling and management of various production information.

Network Module

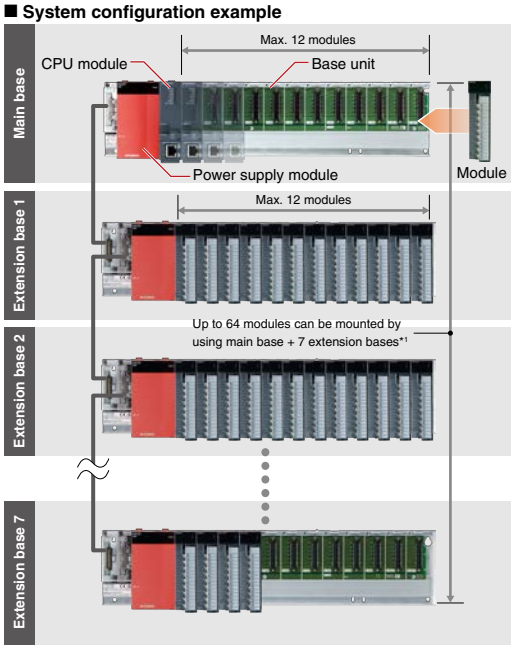
Control system network interface module.
Delivers seamless integration of individual FA hierarchies through wide network.

Performance on a different level brought to you with the programmable controller

Current production requirements are calling for an increase in productivity and carrying out production processes even faster due to an increase in production information such as production results and traceability. The MELSEC-Q Series programmable controller “Universal model QnU” is a leader for these market needs. High-speed basic instruction processing on a micro scale dramatically increases your system and machine performance.



■ System configuration example



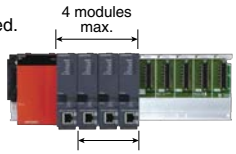
*1: Maximum number of mounting varies with CPU configuration.

■ CPU module

Up to 4 CPU modules can be mounted.

- Programmable controller CPU
- Motion CPU
- C Controller CPU
- Robot controller
- CNC CPU

iQ Platform



2nd module onward can be mounted in 0 to 2 slots

■ Base unit*2

- Main base unit (3, 5, 8, 12)
- Multiple CPU high speed main base unit (5, 8, 12)
- Slim type main base unit (2, 3, 5)
- Redundant power main base unit (8)
- Extension base (2, 3, 5, 8, 12)
- Redundant power extension base (8)
- Redundant type extension base (5)

*2: Value in brackets indicates the slot number.

■ Power supply module

- Power supply
- Power supply with life detection
- Slim type power supply
- Redundant power supply

■ I/O module/Intelligent function module

- I/O module
- Interrupt module
- Relay terminal module
- Analog I/O module
- Load cell input module
- CT input module
- Temperature input module
- Temperature control module
- Loop control module
- Simple motion module
- Positioning module
- High-speed counter module
- Channel isolated pulse input module
- Energy measuring module
- Isolation monitoring module
- MES interface module
- High-speed data logger module
- Intelligent communication module
- Network module

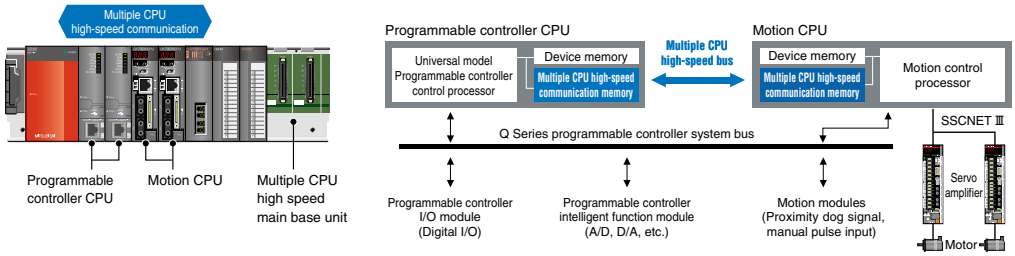
■ Options

- Battery
- Extended SRAM cassette
- SD/SDHC memory card
- Memory card (SRAM, FLASH, ATA)

High-speed, high-accuracy machine control

To achieve high-speed synchronized control between multiple CPUs, a dedicated bus is used, independent of control operation. (0.88 ms operation cycle)*1

This multiple CPU high-speed communication is synchronized with motion control to maximize efficiency. Additionally, the performance of the latest motion control CPU is twice as fast as the previous model, ensuring high-speed, high-accuracy machine control.



*1: Not supported by Q00UJ, Q00U, Q01U, Q02U.

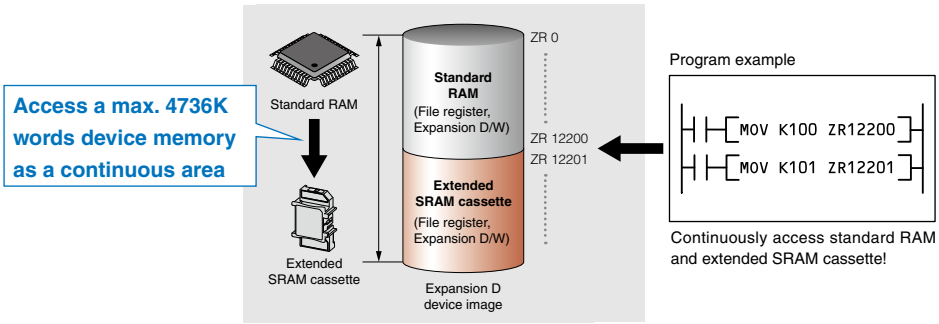
Large data volume at high-speed

Conventionally, continuous access to the standard RAM and SRAM card's file register area could not be achieved which had to be reflected in the user program.

When an 8 MB extended SRAM cassette*2 is installed in the High-speed Universal model QCPU, the standard RAM can be as one continuous file register with up to 4736K words capacity, simplifying the user program.

Even if the device memory is insufficient, the file register area can be expanded easily by installing the extended SRAM cassette.

High-speed Universal model QCPU



*2: Only supported by Q03UDV, Q04UDV, Q06UDV, Q13UDV, Q26UDV.

Easy logging without a program*3

Save collected data in CSV format on a SD memory card just by completing easy settings with the dedicated setting tool wizard. Various reference materials including daily reports, form creation and general reports can be created easily within the saved CSV file. This data can be used for a wide variety of applications requiring traceability, production data, etc.

Logging data display and analysis tool
GX LogViewer

GOT(HMI) log viewer function

*3: Only supported by Q03UDV, Q04UDV, Q06UDV, Q13UDV, Q26UDV.

CPU Module

User-friendly programmable controllers based on requirement of production sites; Mitsubishi Electric takes this approach in its manufacturing process. The MELSEC-Q Series offers programmable controller, process, redundant, C language, motion, robot and CNC CPUs to cover various different control requirements.

Programmable Controller CPU

Our full lineup delivers CPU modules suitable to your particular use.

Type		Model	Basic operation processing speed (LD instruction)	Program memory capacity	No. of I/O points [X/Y]	Peripheral connection ports	Compatible memory card	Others
High-speed Universal model QCPU		Q03UDVCPU	1.9 ns	30K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, Communication protocol
		Q04UDVCPU	1.9 ns	40K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, Communication protocol
		Q06UDVCPU	1.9 ns	60K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, Communication protocol
		Q13UDVCPU	1.9 ns	130K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, Communication protocol
		Q26UDVCPU	1.9 ns	260K steps	4096 points	USB, Ethernet	SD, Extended SRAM	DATA LOG, Communication protocol
Universal model QCPU		Q00UJCPU	120 ns	10K steps	256 points	USB, RS-232	–	Integrated power supply and base
		Q00UCPU	80 ns	10K steps	1024 points	USB, RS-232	–	–
		Q01UCPU	60 ns	15K steps	1024 points	USB, RS-232	–	–
		Q02UCPU	40 ns	20K steps	2048 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q03UDCPU	20 ns	30K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q04UDHCPU	9.5 ns	40K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q06UDHCPU	9.5 ns	60K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q10UDHCPU	9.5 ns	100K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q13UDHCPU	9.5 ns	130K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q20UDHCPU	9.5 ns	200K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
		Q26UDHCPU	9.5 ns	260K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA	–
	Built-in Ethernet type	Q03UDECPU	20 ns	30K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q04UDEHCPU	9.5 ns	40K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q06UDEHCPU	9.5 ns	60K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q10UDEHCPU	9.5 ns	100K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q13UDEHCPU	9.5 ns	130K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q20UDEHCPU	9.5 ns	200K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q26UDEHCPU	9.5 ns	260K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q50UDEHCPU	9.5 ns	500K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–
		Q100UDEHCPU	9.5 ns	1000K steps	4096 points	USB, Ethernet	SRAM, FLASH, ATA	–

SD SD memory card Extended SRAM Extended SRAM cassette SRAM SRAM card FLASH Flash card ATA ATA card
DATA LOG Data logging function Communication protocol Predefined protocol support function Integrated power supply and base 5-slot base, with 100 to 240 V AC input/5 V DC/3 A output power supply

Q Series process controllers offer features that rival those of costly DCS systems at a fraction of the cost. A single CPU can control a large number of PID loops while simultaneously performing standard sequence control. MELSEC process control is a flexible, highly reliable platform with advanced functionality designed to cost-effectively meet the needs of a wide range of industries.

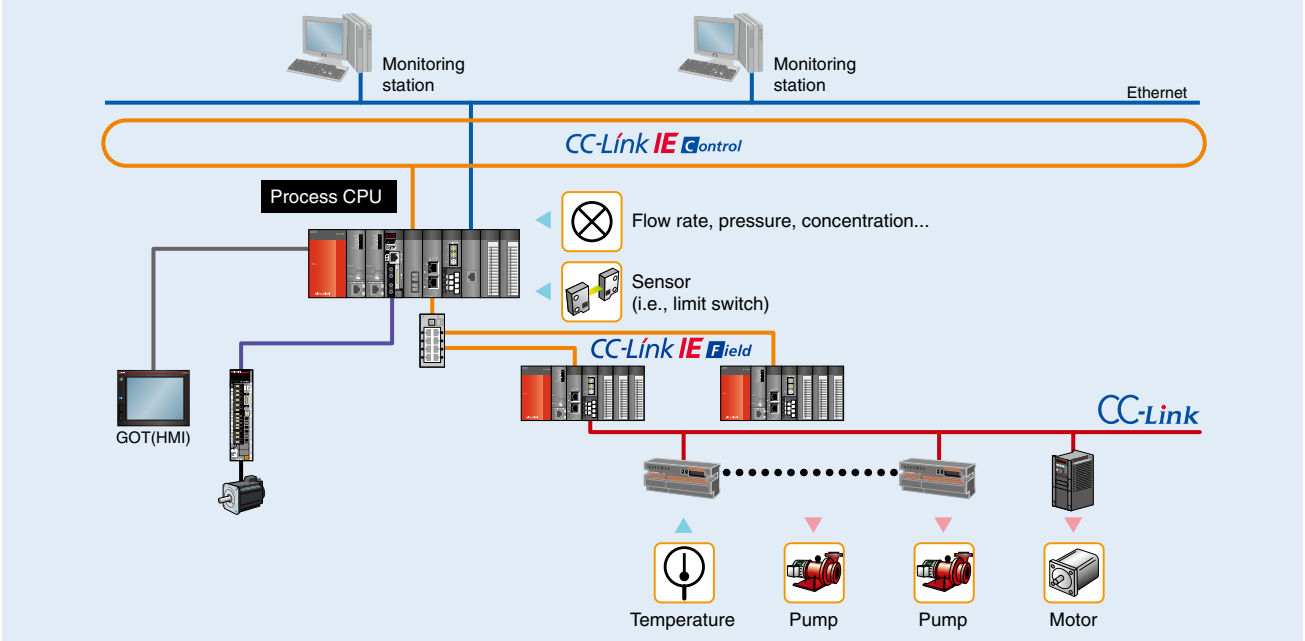
MELSEC PROCESS CONTROL

Process CPU

The process CPUs are complemented by a range of channel isolated high resolution analog I/O modules with online change (hot-swap) capability, and the function block programming and engineering software environment, PX Developer.

Type	Model	Basic operation processing speed (LD instruction)	Program memory capacity	No. of I/O points [X/Y]	Peripheral connection ports	Compatible memory card
Process CPU	Q02PHCPU	34 ns	28K steps	4096 points	USB RS-232	SRAM FLASH ATA
	Q06PHCPU	34 ns	60K steps	4096 points	USB RS-232	SRAM FLASH ATA
	Q12PHCPU	34 ns	124K steps	4096 points	USB RS-232	SRAM FLASH ATA
	Q25PHCPU	34 ns	252K steps	4096 points	USB RS-232	SRAM FLASH ATA

SRAM SRAM card FLASH Flash card ATA ATA card



Redundant CPU

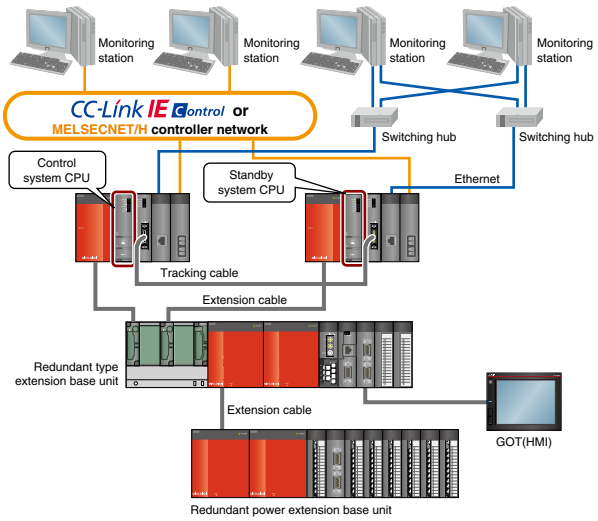
The redundant systems are designed to provide the users with systems that have the properties of Q Series and are not affected by sudden failures. The basic system including CPU module, power supply module, main base unit and network module is redundant to prevent system down. Programming can be performed without consciousness of redundancy.

Model	Basic operation processing speed (LD instruction)	Program memory capacity	No. of I/O points [X/Y]	Peripheral connection ports	Compatible memory card
Q12PRHCPU	34 ns	124K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA
Q25PRHCPU	34 ns	252K steps	4096 points	USB, RS-232	SRAM, FLASH, ATA

SRAM SRAM card FLASH Flash card ATA ATA card

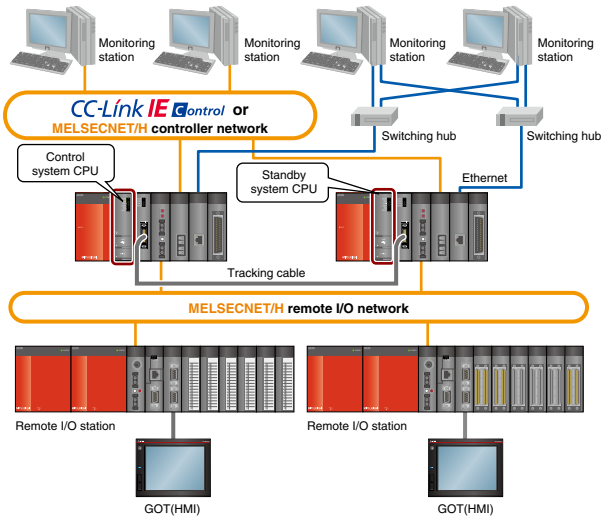
Redundant local I/O system

The CPU directly accesses I/O modules.
Ideal for systems requiring high-speed response.



Redundant remote I/O system

Ideal for distributed systems with multiple remote I/O stations.

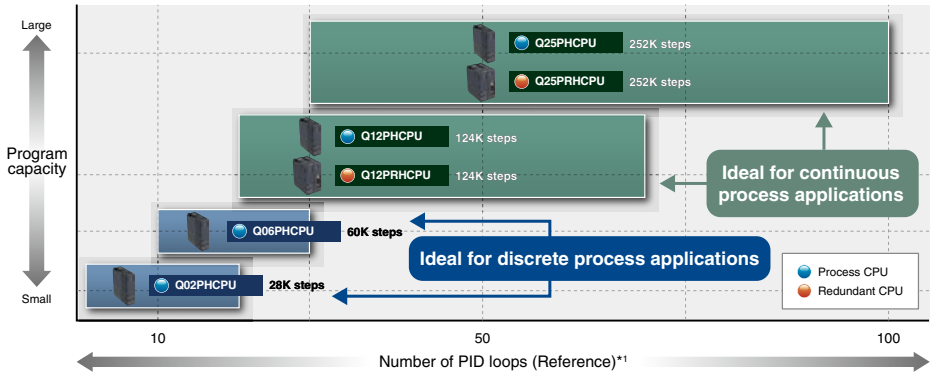


Discrete process control

Food processing equipment, semiconductor systems, air-conditioning equipment, industrial furnaces, etc.

Continuous process control

Chemical, steel, environmental and water treatment plants, DCS replacement, etc.



*1: The number of PID loops may change if programs (other than loop control) are large.
Refer to the PX Developer Version 1 Programming Manual or Process Technical Guide for details.

C Controller

The C Controller is a generic open platform controller that can execute C language type programs, based on the MELSEC system architecture. It utilizes industrial performance such as long term parts supply, high availability, and advanced functionality. The high-end model Q24DHCCPU-V/-VG comes pre-installed with VxWorks®, and supports advanced information processing and control system I/O. The standard model Q12DCCPU-V is a space saving controller that realizes high-speed I/O control. The Q24DHCCPU-LS and Q26DHCCPU-LS are an OS independent controller. Linux® based control can be easily realized by installing 3rd Party partner OS, supporting advanced information processing with a user interface environment close to conventional PCs. Wide scope of applications are realized with the availability of these C Controllers, used together with MELSEC-Q Series I/O modules, 3rd Party products, open source, and customized applications/programs.

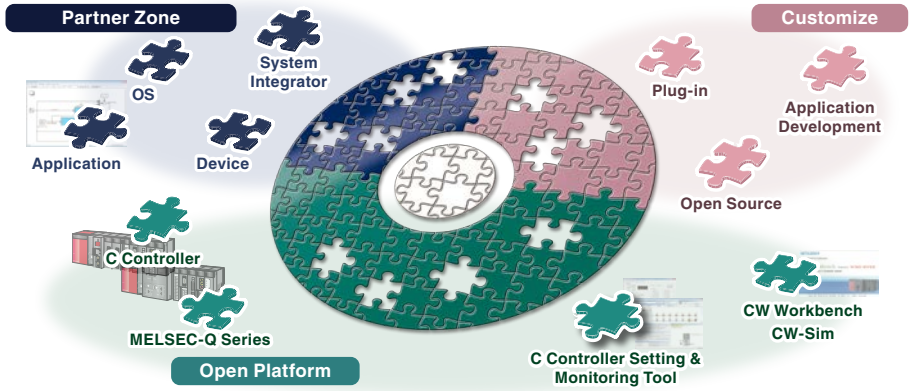
Model	OS	Endian	No. of I/O points [X/Y]	Peripheral connection ports	Compatible memory card
Q24DHCCPU-V	VxWorks® Version 6.8.1	Little Endian	4096 points	USB × 2, RS-232, Ethernet × 3	SD
Q24DHCCPU-VG-□*1	VxWorks® Version 6.8.1	Little Endian	4096 points	USB × 2, RS-232, Ethernet × 3, Analog RGB	SD
Q26DHCCPU-LS	No pre-installed operating system (Operating system installed by user)	Little Endian	4096 points	USB × 2, RS-232, Ethernet × 3, Analog RGB	SD
Q24DHCCPU-LS	No pre-installed operating system (Operating system installed by user)	Little Endian	4096 points	USB × 2, RS-232, Ethernet × 3, Analog RGB	SD
Q12DCCPU-V	VxWorks® Version 6.4	Little Endian	4096 points	USB, RS-232, Ethernet × 2	CF

SD SD memory card CF CF card

*1: Set product (Q24DHCCPU-VG-B000/B002) with GENWARE® 3-VG by International Laboratory Corporation.

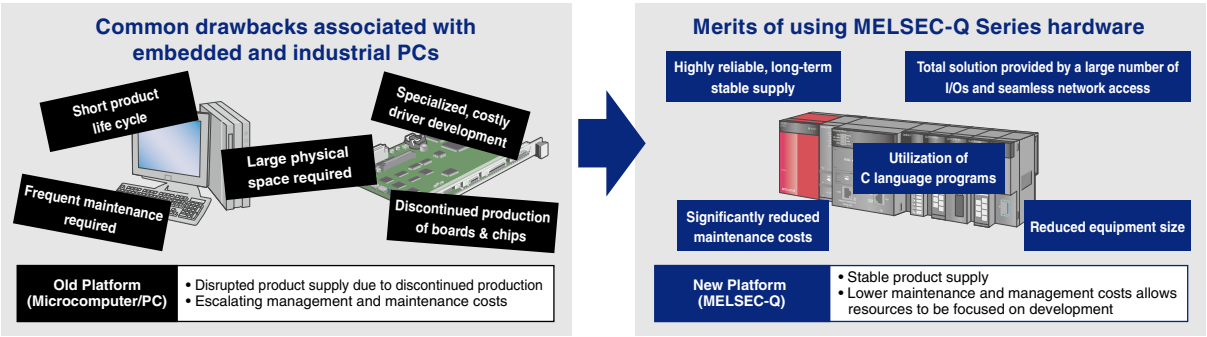
Ideal for a diverse range of systems, based on a generic platform architecture

Leveraging the C Controller to realizing customized systems, by utilization of 3rd Party applications, installation of 3rd Party partner OS, utilization of programs, and open source applications.



The C Controller overcomes the overheads associated with maintaining embedded PCs (micro boards, etc.) and industrial PCs realizing a cost effective solution.

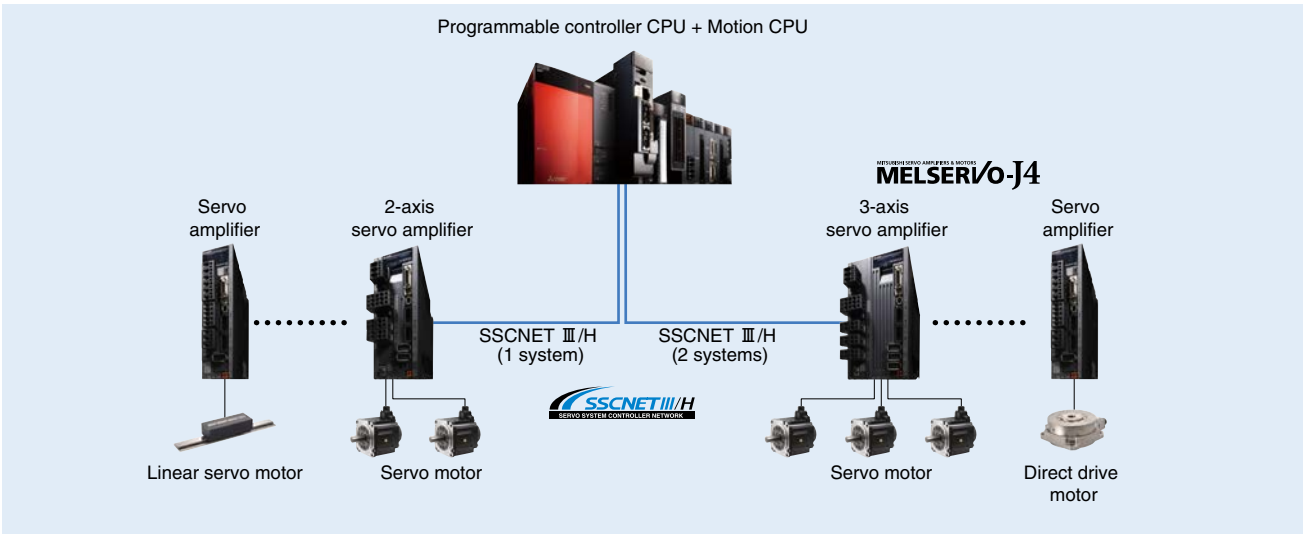
The C Controller platform is a solution that realizes PC level functionality without the burden of high maintenance costs usually associated with PCs. In addition, it includes a robust design that is ideal for industrial environments by being based on the high quality MELSEC control system.



Motion CPU

Each MELSEC-Q Series Motion controller is capable of high-speed control of up to 32 axes (96 axes when using three CPUs together). The new generation Motion controller is packed with advanced functions while saving space with its smaller size.

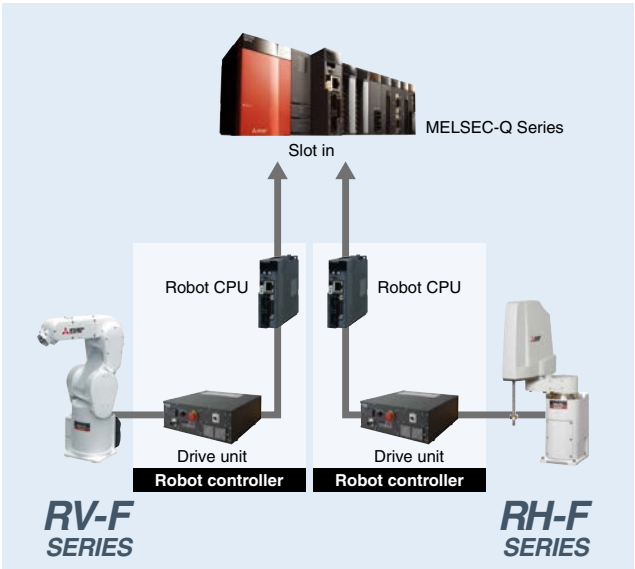
Model	Number of control axes	Servo amplifier connection method	
Q172DSCPU	16 axes	SSCNET III/H	1 system
Q173DSCPU	32 axes	SSCNET III/H	2 systems



Robot Controller

The iQ Platform compatible robot controller increases the speed of data communications between CPUs and dramatically reduces I/O processing times using a high-speed standard base between multiple CPUs.

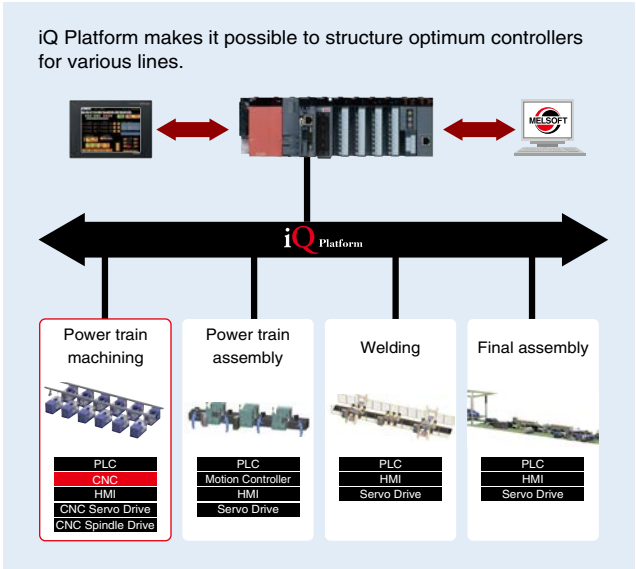
Controller model	CPU model	Route control method	Number of control axes	Others
CR750-Q	Q172DRCPU	PTP control CP control	Up to 6 axes + 8 additional axes can be added	Conventional compatible type
CR751-Q				Simple and thin type



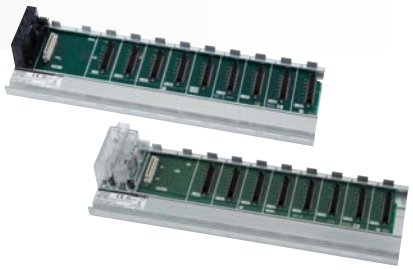
CNC CPU

This CNC controller is part of the Mitsubishi FA integration solution "iQ Platform". The integration of the high-performance CNC and high-speed programmable controller helps reduce the total operation cycle time. Supporting a wide range of interface and I/O modules flexible to many different applications.

CNC	CPU model	Maximum number of control axes
C70 Series	Q173NCCPU-S01	7 systems, 16 axes



Base Unit



The MELSEC-Q Series model modules can be mounted. Our full lineup offers the right base unit that meets your configuration system needs.

Type	Model	No. of module mounting slots	Power supply module
Main base	Q33B	CPU+3 slots	Required
	Q35B	CPU+5 slots	Required
	Q38B	CPU+8 slots	Required
	Q312B	CPU+12 slots	Required
Multiple CPU high-speed main base	Q35DB	CPU+5 slots	Required
	Q38DB	CPU+8 slots	Required
	Q312DB	CPU+12 slots	Required
Slim type main base	Q32SB	CPU+2 slots	Sllim type
	Q33SB	CPU+3 slots	Sllim type
	Q35SB	CPU+5 slots	Sllim type
Redundant power main base	Q38RB	CPU+8 slots	2 redundant modules
Extension base	Q63B	3 slots	Required
	Q65B	5 slots	Required
	Q68B	8 slots	Required
	Q612B	12 slots	Required
	Q52B	2 slots	Not required
	Q55B	5 slots	Not required
Redundant power extension base	Q68RB	8 slots	2 redundant modules
Redundant type extension base (Only compatible with redundant CPU system.)	Q65WRB	5 slots	2 redundant modules

Sllim type Slim type power supply module required 2 redundant modules 2 redundant power supply modules required

Power Supply Module

The MELSEC-Q Series power supply modules lineup offers four types; normal, life detection, slim, and redundant power supply types.

Type	Model	Input voltage	Output voltage	Output current
Power supply	Q61P	100 ... 240 V AC	5 V DC	6 A
	Q62P	100 ... 240 V AC	5/24 V DC	3/0.6 A
	Q63P	24 V DC	5 V DC	6 A
	Q64PN	100 ... 240 V AC	5 V DC	8.5 A
Power supply with life detection	Q61P-D	100 ... 240 V AC	5 V DC	6 A
Slim type power supply	Q61SP	100 ... 240 V AC	5 V DC	2 A
Redundant power supply	Q63RP	24 V DC	5 V DC	8.5 A
	Q64RP	100 ... 240 V AC	5 V DC	8.5 A

I/O Module

Input Module

Our lineup of input modules covers various control situations.
Select the appropriate model according to voltage, input format, input points, wiring method, etc.

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	External interface
AC input	QX10	16 points	100 ... 120 V AC	8 mA (100 V AC, 60 Hz) 7 mA (100 V AC, 50 Hz)	16 points/common	20 ms	Screw terminal block
	QX10-TS	16 points	100 ... 120 V AC	8 mA (100 V AC, 60 Hz) 7 mA (100 V AC, 50 Hz)	16 points/common	20 ms	SC terminal block
	QX28	8 points	100 ... 240 V AC	17 mA (200 V AC, 60 Hz) 14 mA (200 V AC, 50 Hz) 8 mA (100 V AC, 60 Hz) 7 mA (100 V AC, 50 Hz)	8 points/common	20 ms	Screw terminal block
DC input (Positive common)	QX40	16 points	24 V DC	4 mA	16 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	Screw terminal block
	QX40-TS	16 points	24 V DC	4 mA	16 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	SC terminal block
	QX40-S1	16 points	24 V DC	6 mA	16 points/common	0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	Screw terminal block
	QX40H	16 points	24 V DC	6 mA	8 points/common	0 ms 0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	Screw terminal block
	QX41	32 points	24 V DC	4 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C
	QX41-S1	32 points	24 V DC	4 mA	32 points/common	0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	40-pin C
	QX41-S2	32 points	24 V DC	6 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C
	QX42	64 points	24 V DC	4 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C x 2
	QX42-S1	64 points	24 V DC	4 mA	32 points/common	0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	40-pin C x 2
DC/AC input (Positive common/ Negative common)	QX50	16 points	48 V DC/AC	4 mA	16 points/common	20 ms	Screw terminal block
DC input (Positive common/ Negative common)	QX70	16 points	5/12 V DC	1.2 mA (5 V DC) 3.3 mA (12 V DC)	16 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	Screw terminal block
High-speed DC input module (Positive common)	QX70H	16 points	5 V DC	6 mA	8 points/common	0 ms 0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	Screw terminal block
DC input (Positive common/ Negative common)	QX71	32 points	5/12 V DC	1.2 mA (5 V DC) 3.3 mA (12 V DC)	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C
	QX72	64 points	5/12 V DC	1.2 mA (5 V DC) 3.3 mA (12 V DC)	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C x 2
DC input (Negative common)	QX80	16 points	24 V DC	4 mA	16 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	Screw terminal block
	QX80-TS	16 points	24 V DC	4 mA	16 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	SC terminal block
	QX80H	16 points	24 V DC	6 mA	8 points/common	0 ms 0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	Screw terminal block
	QX81	32 points	24 V DC	4 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	37-pin D-sub C
	QX81-S2	32 points	24 V DC	6 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	37-pin D-sub C
	QX82	64 points	24 V DC	4 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C x 2
	QX82-S1	64 points	24 V DC	4 mA	32 points/common	0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	40-pin C x 2
	QX90H	16 points	5 V DC	6 mA	8 points/common	0 ms 0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	Screw terminal block

SC terminal block Spring clamp terminal block 40-pin C 40-pin connector 40-pin C x 2 40-pin connector x 2 37-pin D-sub C 37-pin D-sub connector

Interrupt Module

This module inputs the starting conditions of the interrupt program while the main routine program is in execution mode.

Type	Model	No. of I/O points	Rated input voltage	Rated input current	Common type	Response time	External interface
DC input (Positive common)	QI60	16 points	24 V DC	6 mA	16 points/common	0.1 ms 0.2 ms 0.4 ms 0.6 ms 1.0 ms	Screw terminal block

Output Module

Our full lineup of transistor output, relay, and triac will meet your needs according to intended the use and number of outputs.

Type	Model	Output points	Rated load voltage	Maximum load current (Rated switching current)	Common type	Response time	External interface
Relay output	QY10	16 points	24 V DC/240 V AC	2 A/point, 8 A/common	16 points/common	12 ms	Screw terminal block
	QY10-TS	16 points	24 V DC/240 V AC	2 A/point, 8 A/common	16 points/common	12 ms	SC terminal block
	QY18A	8 points	24 V DC/240 V AC	2 A/point, 8 A/unit	all points independent	12 ms	Screw terminal block
Triac output	QY22	16 points	100 ... 240 V AC	0.6 A/point, 4.8 A/common	16 points/common	1 ms + 0.5 cycle	Screw terminal block
Transistor (Sink) output	QY40P	16 points	12 ... 24 V DC	0.1 A/point, 1.6 A/common	16 points/common	1 ms	Screw terminal block
	QY40P-TS	16 points	12 ... 24 V DC	0.1 A/point, 1.6 A/common	16 points/common	1 ms	SC terminal block
	QY41H	32 points	5 ... 24 V DC	0.2 A/point, 2 A/common	32 points/common	2µs	40-pin C
	QY41P	32 points	12 ... 24 V DC	0.1 A/point, 2 A/common	32 points/common	1 ms	40-pin C
	QY42P	64 points	12 ... 24 V DC	0.1 A/point, 2 A/common	32 points/common	1 ms	40-pin C × 2
	QY50	16 points	12 ... 24 V DC	0.5 A/point, 4 A/common	16 points/common	1 ms	Screw terminal block
Transistor (Independent) output	QY68A	8 points	5 ... 24 V DC	2 A/point, 8 A/unit	all points independent	10 ms	Screw terminal block
TTL CMOS output	QY70	16 points	5 ... 12 V DC	16 mA/point, 256 mA/common	16 points/common	0.5 ms	Screw terminal block
	QY71	32 points	5 ... 12 V DC	16 mA/point, 512 mA/common	32 points/common	0.5 ms	40-pin C
Transistor (Source) output	QY80	16 points	12 ... 24 V DC	0.5 A/point, 4 A/common	16 points/common	1 ms	Screw terminal block
	QY80-TS	16 points	12 ... 24 V DC	0.5 A/point, 4 A/common	16 points/common	1 ms	SC terminal block
	QY81P	32 points	12 ... 24 V DC	0.1 A/point, 2 A/common	32 points/common	1 ms	37-pin D-sub C
	QY82P	64 points	12 ... 24 V DC	0.1 A/point, 2 A/common	32 points/common	1 ms	40-pin C × 2

SC terminal block: Spring clamp terminal block
40-pin C: 40-pin connector
40-pin C × 2: 40-pin connector × 2
37-pin D-sub C: 37-pin D-sub connector

I/O Combined Module

This is an I/O combination module that controls input and output with a single unit.

Type	Model	I/O points	Rated input voltage/ Rated load voltage	Rated input current	Maximum load current	Common type	Response time	External interface
DC input/transistor output	QH42P*1	Input 32 points	24 V DC	4 mA	–	32 points/common	1 ms, 5 ms, 10 ms, 20 ms, 70 ms	40-pin C × 2
		Output 32 points	12 ... 24 V DC	–	0.1 A/point, 2 A/common	32 points/common	1 ms	
	QX41Y41P*2	Input 32 points	24 V DC	4 mA	–	32 points/common	1 ms, 5 ms, 10 ms, 20 ms, 70 ms	40-pin C × 2
		Output 32 points	12 ... 24 V DC	–	0.1 A/point, 2 A/common	32 points/common	1 ms	
	QX48Y57	Input 8 points	24 V DC	4 mA	–	8 points/common	1 ms, 5 ms, 10 ms, 20 ms, 70 ms	Screw terminal block
		Output 7 points	12 ... 24 V DC	–	0.5 A/point, 2 A/common	7 points/common	1 ms	

40-pin C × 2: 40-pin connector × 2

*1: The number of occupied input/output points are 32 points.
*2: The number of occupied input/output points are 64 points.

Analog I/O Module

Analog Input/Analog Output/Analog I/O Module, Load Cell Input, CT Input Module

Lineup of analog input/output, load cell, and CT input module equipped with various functions are ready to support various site control needs. Modules for channel-to-channel isolation, which are most suited to process control, are available as well.

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed (Sampling cycle)	External interface	Others
Voltage input	Q68ADV	8 ch	-10 ... 10 V DC	-4000 ... 4000 -16000 ... 16000	80 µs/ch	Screw terminal block	–
Current input	Q62AD-DGH	2 ch	4 ... 20 mA DC	0 ... 32000 / 0 ... 64000	10 ms/2 ch	Screw terminal block	Channel isolated, supplies power to 2-wire transmitter
	Q66AD-DG	6 ch	4 ... 20 mA DC 0 ... 20 mA DC	0 ... 4000 / 0 ... 12000	10 ms/ch	40-pin C	Channel isolated, supplies power to 2-wire transmitter
	Q68ADI	8 ch	0 ... 20 mA DC	0 ... 4000 / 0 ... 12000	80 µs/ch	Screw terminal block	–
Voltage/current input	Q64ADH	4 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 20000 / -20000 ... 20000	20 µs/ch 80 µs/ch 1 ms/ch	Screw terminal block	–
	Q64AD	4 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000	80 µs/ch	Screw terminal block	–
	Q64AD-GH	4 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 32000 / -32000 ... 32000 0 ... 64000 / -64000 ... 64000	10 ms/4 ch	Screw terminal block	Channel isolated
	Q68AD-G	8 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000	10 ms/ch	40-pin C	Channel isolated
Voltage output	Q68DAVN	8 ch	-10 ... 10 V DC	-4000 ... 4000 -16000 ... 16000	80 µs/ch	Screw terminal block	–
Current output	Q68DAIN	8 ch	0 ... 20 mA DC	0 ... 4000 / 0 ... 12000	80 µs/ch	Screw terminal block	–
Voltage/current output	Q64DAH	4 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 20000 / -20000 ... 20000	20 µs/ch	Screw terminal block	–
	Q62DAN	2 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000	80 µs/ch	Screw terminal block	–
	Q62DA-FG	2 ch	-12 ... 12 V DC 0 ... 22 mA DC	0 ... 12000 / -16000 ... 16000	10 ms/2 ch	Screw terminal block	Channel isolated
	Q64DAN	4 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000	80 µs/ch	Screw terminal block	–
	Q66DA-G	6 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000	6 ms/ch	40-pin C	Channel isolated
Voltage and current input/output	Q64AD2DA	Input 4 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000	500 µs/ch	Screw terminal block	–
		Output 2 ch	-10 ... 10 V DC 0 ... 20 mA DC	0 ... 4000 / -4000 ... 4000 0 ... 12000 / -16000 ... 16000			
Load cell input	Q61LD	1 ch	0.0 ... 3.3 mV/V	0 ... 10000	10 ms	Screw terminal block	–
CT input module	Q68CT	8 ch	0 ... 5 A AC 0 ... 50 A AC 0 ... 100 A AC 0 ... 200 A AC 0 ... 400 A AC 0 ... 600 A AC	0 ... 10000	10 ms/8 ch 20 ms/8 ch 50 ms/8 ch 100 ms/8 ch	Screw terminal block	–

40-pin C 40-pin connector

Temperature Input, Temperature Control, Loop Control Module

Available are a lineup of temperature input modules compatible with various temperature sensors and a lineup of temperature controllers that ensure standard control, heating-cooling control and optimum temperature control by detecting heater disconnection, loop control module ideal for temperature and flow rate control environments which require fast response.


Temperature input module


Temperature control module


Loop control module

Type		Model	Number of channels	Input/Output	Conversion speed (Sampling cycle)	External interface	Others
Temperature input	Thermocouple	Q64TD	4 ch	Thermocouple (B,R,S,K,E,J,T,N)	40 ms/ch	Screw terminal block	Channel isolated Disconnection detection
		Q64TDV-GH	4 ch	Thermocouple (B,R,S,K,E,J,T,N) -100 ... 100 mV DC	20 ms/ch (Sampling cycle × 3)	Screw terminal block	Channel isolated Disconnection detection
		Q68TD-G-H01	8 ch	Thermocouple (B,R,S,K,E,J,T,N)	320 ms/8 ch	40-pin C	Channel isolated Disconnection monitor
		Q68TD-G-H02	8 ch	Thermocouple (B,R,S,K,E,J,T,N)	640 ms/8 ch	40-pin C	Channel isolated Disconnection detection
	RTD	Q64RD	4 ch	Platinum RTD (Pt100,JPt100)	40 ms/ch	Screw terminal block	Disconnection detection
		Q64RD-G	4 ch	Platinum RTD (Pt100,JPt100) Nickel RTD (Ni100)	40 ms/ch	Screw terminal block	Channel isolated Disconnection detection
		Q68RD3-G	8 ch	Platinum RTD (Pt100,JPt100) Nickel RTD (Ni100)	320 ms/8 ch	40-pin C	Channel isolated Disconnection detection
Temperature control	Thermocouple	Q64TCTTN	4 ch	Thermocouple (K,J,T,B,S,E,R,N,U,L,PLII,W5Re/W26Re)	500 ms/4 ch	Screw terminal block	Channel isolated Standard control Heating-cooling control *1
		Q64TCTTBWN	4 ch	Thermocouple (K,J,T,B,S,E,R,N,U,L,PLII,W5Re/W26Re)	500 ms/4 ch	Screw terminal block × 2	Channel isolated Standard control Heating-cooling control *1 Heater disconnection detection
	RTD	Q64TCRTN	4 ch	Platinum RTD (Pt100,JPt100)	500 ms/4 ch	Screw terminal block	Channel isolated Standard control Heating-cooling control *1
		Q64TCRTBWN	4 ch	Platinum RTD (Pt100,JPt100)	500 ms/4 ch	Screw terminal block × 2	Channel isolated Standard control Heating-cooling control *1 Heater disconnection detection
Loop control		Q62HLC	Input 2 ch	Thermocouple (K,J,T,B,S,E,R,N,PLII,W5Re/W26Re) -100 ... 100 mV DC -10 ... 10V DC 0 ... 20 mA DC	25 ms/2 ch	Screw terminal block	Channel isolated
			Output 2 ch	4 ... 20 mA DC	25 ms/2 ch		

40-pin C 40-pin connector

*1: 4-channel (loop) heating/cooling control can be made by using other output modules.

Simple Motion Module/Positioning Module

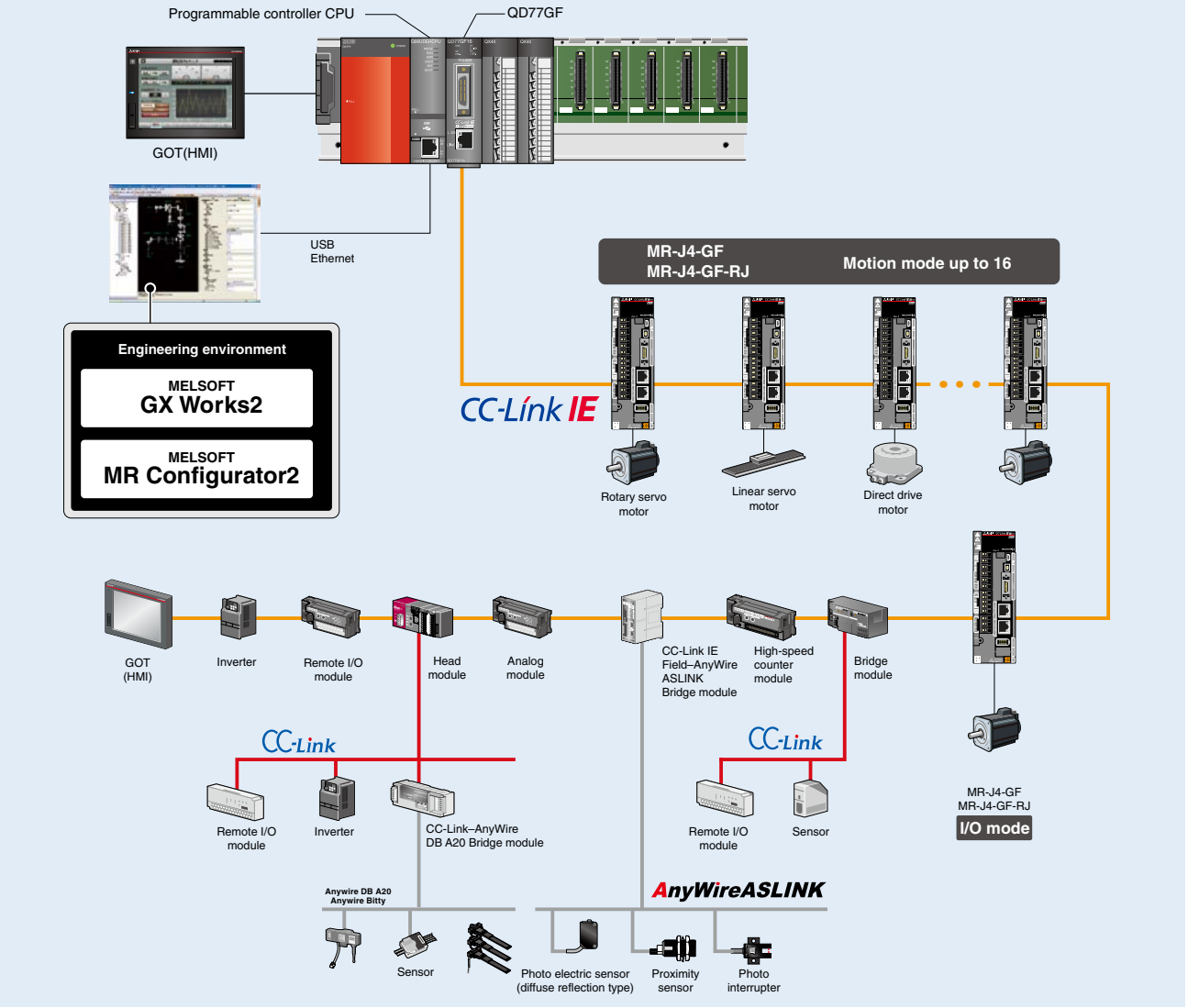
Simple Motion Module

Offers a wide variety of controls with an intuitive approach of a positioning module. Control is all you need for simple setup of highly-advanced and wide range of motion controls including synchronous control, cam control, speed/torque control, and others. Essential functions such as synchronous encoder and mark detection are provided as standard features.

Servo amplifier connection method	Model	Maximum number of control axes	Control unit	Operation cycle	No. of positioning data
CC-Link IE Field network	QD77GF4	4 axes	mm, inch, degree, pulse	1.0 ms, 2.0 ms, 4.0 ms	600
	QD77GF8	8 axes	mm, inch, degree, pulse	1.0 ms, 2.0 ms, 4.0 ms	600
	QD77GF16	16 axes	mm, inch, degree, pulse	0.88 ms, 1.77 ms, 3.55 ms	600
SSCNET III/H	QD77MS2	2 axes	mm, inch, degree, pulse	0.88 ms	600
	QD77MS4	4 axes	mm, inch, degree, pulse	0.88 ms	600
	QD77MS16	16 axes	mm, inch, degree, pulse	0.88 ms, 1.77 ms	600

600 600 data/axis

System configuration example



Slave station: 120 (motion mode compatible servo amplifier 16 modules + 104 I/O modules)

Note: In the case of a star topology, a switching hub is required.

Positioning Module

High-speed, high-precision positioning modules support various positioning controls, including 2 - 4-axis linear interpolation, 2-axis circular interpolation, 3-axis helical interpolation, and trajectory control.

Type		Model	Maximum number of control axes	Control unit	No. of positioning data	Max. output pulse	External interface	Others
Specialised functionality type	Open collector output	QD75P1N	1 axis	mm inch degree pulse	600	200 kpps	40-pin C	–
		QD75P1	1 axis	mm inch degree pulse	600	200 kpps	40-pin C	–
		QD75P2N	2 axes	mm inch degree pulse	600	200 kpps	40-pin C	–
		QD75P2	2 axes	mm inch degree pulse	600	200 kpps	40-pin C	–
		QD75P4N	4 axes	mm inch degree pulse	600	200 kpps	40-pin C × 2	–
		QD75P4	4 axes	mm inch degree pulse	600	200 kpps	40-pin C × 2	–
	Differential output	QD75D1N	1 axis	mm inch degree pulse	600	4 Mpps	40-pin C	–
		QD75D1	1 axis	mm inch degree pulse	600	1 Mpps	40-pin C	–
		QD75D2N	2 axes	mm inch degree pulse	600	4 Mpps	40-pin C	–
		QD75D2	2 axes	mm inch degree pulse	600	1 Mpps	40-pin C	–
		QD75D4N	4 axes	mm inch degree pulse	600	4 Mpps	40-pin C × 2	–
		QD75D4	4 axes	mm inch degree pulse	600	1 Mpps	40-pin C × 2	–
	With SSCNET Ⅲ connectivity	QD75MH1	1 axis	mm inch degree pulse	600	–	40-pin C SSCNET Ⅲ connectivity	–
		QD75MH2	2 axes	mm inch degree pulse	600	–	40-pin C SSCNET Ⅲ connectivity	–
		QD75MH4	4 axes	mm inch degree pulse	600	–	40-pin C × 2 SSCNET Ⅲ connectivity	–
Simple control and fast-response type	Open collector output	QD70P4	4 axes	pulse	10	200 kpps	40-pin C	–
		QD70P8	8 axes	pulse	10	200 kpps	40-pin C × 2	–
	Differential output	QD70D4	4 axes	pulse	10	4 Mpps	40-pin C × 2	–
		QD70D8	8 axes	pulse	10	4 Mpps	40-pin C × 4	–
	With SSCNET Ⅲ connectivity	QD74MH8	8 axes	pulse	32	–	SSCNET Ⅲ connectivity	–
		QD74MH16	16 axes	pulse	32	–	SSCNET Ⅲ connectivity	–
Built-in counter function type	Open collector output	QD72P3C3	3 axes	pulse	1	100 kpps	40-pin C × 2	Counter: 3 channels, 100 kpps, count input signal: 5/24 V DC

600 600 data/axis 10 10 data/axis 32 32 data/axis 1 1 data/axis
40-pin C 40-pin connector 40-pin C × 2 40-pin connector × 2 40-pin C × 4 40-pin connector × 4

High-speed Counter/Pulse Input Module

High-speed Counter Module

Inputs may be connected to a variety of devices for positioning control, precision measurement, etc. The maximum counting speed may be adjusted via parameter (excluding QD64D2) for more reliable counting at lower frequencies.

Model	Number of channels	Counting speed switch	Count input signal	External input	Coincidence output	External interface
QD62	2 ch	200 kpps, 100 kpps, 10 kpps	5 V DC, 12 V DC, 24 V DC	5 V DC, 12 V DC, 24 V DC	Transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common	40-pin C
QD62E	2 ch	200 kpps, 100 kpps, 10 kpps	5 V DC, 12 V DC, 24 V DC	5 V DC, 12 V DC, 24 V DC	Transistor (source), 12/24 V DC, 0.1 A/point, 0.4 A/common	40-pin C
QD62D	2 ch	500 kpps, 200 kpps, 100 kpps, 10 kpps	Differential line driver	5 V DC, 12 V DC, 24 V DC	Transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common	40-pin C
QD63P6	6 ch	200 kpps, 100 kpps, 10 kpps	5 V DC	–	–	40-pin C
QD64D2	2 ch	4 Mpps	Differential line driver	24 V DC	Transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common	40-pin C
QD65PD2	2 ch	Differential input: 8 Mpps, 4 Mpps, 2 Mpps, 1 Mpps, 500 kpps, 200 kpps, 100 kpps, 10 kpps; DC input: 200 kpps, 100 kpps, 10 kpps	Differential input: Differential line driver; DC input: 5 V DC, 12 V DC, 24 V DC	24 V DC	Transistor (sink) output, 12/24 V DC 0.1 A/point, 0.8 A/common	40-pin C

40-pin C: 40-pin connector

Channel Isolated Pulse Input Module

This module is appropriate for the measurement of input pulse counts (related to speed, revolution, instantaneous flow rate, etc.) and the measurement of quantities (length, cumulative flow, and so forth). The QD60P8-G operates on a 10 ms control cycle, thus the minimum value refresh time is 10 ms.

Model	Number of channels	Counting speed switch	Count input signal	External interface	Others
QD60P8-G	8 ch	30 kpps, 10 kpps, 1 kpps, 100 pps, 50 pps, 10 pps, 1 pps, 0.1 pps	5/12 ... 24 V DC	Screw terminal block	Channel isolated

Energy Measuring Module

Energy Measuring Module

Using only one module, highly detailed information about electric energy (consumption and regeneration), reactive energy, current, voltage, electric power, power factor, and frequency can be measured.

Model	Phase wire system	Number of channels	Measurement items
QE81WH	Three-phase 3-wire type	1 ch	Power rate (consumption, regenerative) / Current / Voltage / Power / Reactive power / Power factor / Frequency
QE84WH	Three-phase 3-wire type	4 ch	Power rate (consumption, regenerative) / Current / Voltage / Power / Reactive power / Power factor / Frequency
QE81WH4W	Three-phase 4-wire type	1 ch	Power rate (consumption, regenerative) / Current / Voltage / Power / Reactive power / Apparent / Power factor / Frequency
QE83WH4W	Three-phase 4-wire type	3 ch	Power rate (consumption, regenerative) / Current / Voltage / Power / Reactive power / Apparent / Power factor / Frequency

Isolation Monitoring Module

The isolation monitoring module measures leakage current on its own.

Model	Number of channels	Measurement items
QE82LG	2 ch	Leakage current (Io) / Resistive component leakage current (Ior)

Information Collaborative Module

MES Interface Module

Make the jump from shop floor data to valuable information in real time.
Configuration of the module is easy, and does not require any programming.

Model	Number of database connection	Connectable database	Max. No. of job settings	Data sampling intervals	No. of sampling data	Key functions
QJ71MES96	Max. 32 DB per project	Oracle® 8i (32bit), Oracle® 9i (32bit), Oracle® 10g (32bit), Oracle® 11g (32bit, x64), Oracle® 12c (x64), Microsoft® SQL Server® 2000 (32bit), Microsoft® SQL Server® 2005 (32bit), Microsoft® SQL Server® 2008 (32bit, x64), Microsoft® SQL Server® 2012 (32bit, x64), Microsoft® SQL Server® 2014 (32bit, x64), Microsoft® SQL Server® 2000 Desktop Engine (MSDE2000), Microsoft® Access® 2000, Microsoft® Access® 2003, Microsoft® Access® 2007, Microsoft® Access® 2010 (32bit), Microsoft® Access® 2013 (32bit), Wonderware® Historian 9.0 (Industrial SQL Server®)	Up to 64	Normal sampling 1 ... 32767s Fast-speed sampling 100ms ... 60s (max. 96 points)	Up to 4096	Tag function Trigger monitoring function SQL statement transmission function Arithmetic processing function Program execution function DB buffering function Trigger buffering function Stored procedure call function

High-speed Data Logger Module

Fulfill the need for traceability and discover a powerful troubleshooting tool.
The high-speed data sampling function has the power to synchronize with the sequence program scan, ensuring that every value available to the program is logged for analysis.
The high-speed data logger module configuration tool enables the user to create sophisticated data collection rules using an intuitive step-by-step process. The wizard like interface is beginner-friendly and includes features like importing global labels and device comments.
The logging data display and analysis tool, GX LogViewer, has a simple and effective interface that is user customizable and includes features to maximize the efficiency of analyzing collected data.

Model	Data sampling intervals	No. of sampling data	Save file format	Key functions
QD81DL96	General-purpose sampling Timing specification: 0.1 ... 32767s Time interval designation (hour/minute/second)	General-purpose sampling Up to 16384 (256 per single setting)	CSV file EXCEL format Binary file	High-speed data sampling function FTP function Recipe function Email function Trigger logging function Event-logging function Auto logging function
	High-speed data sampling Sequence scan timing synchronization Timing specification: 1 ... 32767ms (trigger logging timing) / 3 ... 32767ms (sequential logging timing)	High-speed data sampling Up to 8192 (256 per single setting)		

High-Speed Data Communication Module

This module can transfer high-precision data synchronized with sequence scan to a PC. Its capability to transfer detailed control data supports real-time control data analysis by user application and enhances productivity and device value. Class libraries for user application can be used as well.

Model	Programming language	Data sampling intervals	Transfer intervals	No. of sampling data	Key functions
QJ71DC96	Visual C#(Microsoft® Visual Studio® 2010 Visual C#®, Microsoft® Visual Studio® 2012 Visual C#®), Java(Text Editor)	General-purpose sampling Timing specification: 0.1 ... 32767s	General-purpose sampling Sampling synchronization	General-purpose sampling Up to 65536 (16384 per single connection)	Streaming transfer function Label function Data writing function
		High-speed data sampling Per sequence scan Timing specification: 1 ... 32767 ms	High-speed data sampling Sampling synchronization: bundle transfer of multiple records enabled Timing specification: 2 ... 100ms	High-speed data sampling Up to 8192	

Network Module

Ethernet Interface Module

Interface module connectable with multiple Ethernet devices.

Model	Transmission interface	Number of channels	Transmission rates	Others	
QJ71E71-100	100 BASE-TX 10 BASE-T	1 ch	100 Mbps 10 Mbps	MELSOFT connection MC protocol	SLMP Communication protocol

Communication protocol Predefined protocol support function

CC-Link IE Control Network Module

CC-Link IE Control is a high-reliability distributed control network designed to handle very large data communications (128K word) over a high-speed (1 Gbps) dual loop optical cable topology.

CC-Link IE

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Supported station	Number of stations per network	Others
QJ71GP21-SX	Optical fiber cable (Multi-mode fiber)	1 Gbps	Dual loop	66000 m (When 120 stations are connected)	Control station Normal station	120 *1	–
QJ71GP21S-SX	Optical fiber cable (Multi-mode fiber)	1 Gbps	Dual loop	66000 m (When 120 stations are connected)	Control station Normal station	120 *1	With external power supply function

*1: When the control station is a Universal model QCPU. 64 modules if control station is other than the Universal model QCPU.

CC-Link IE Field Network Module

CC-Link IE Field Network master station/local station is an all-round field network that integrates the controller distributed control, I/O control, safety control, and motion control. High-speed (1Gbps) and enhanced communication responsiveness greatly reduces cycle time as well.

CC-Link IE

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Supported station	Number of stations per network
QJ71GF11-T2	Ethernet cable of category 5e or higher (Double shielded cable) which satisfies 1000BASE-T standard	1 Gbps	Line Star Ring (Line and star mixed)	Line topology: 12000m (with 1 master and 120 slaves connected) Star topology:Depends on the system configuration Ring topology:12100m (with 1 master and 120 slaves connected)	Master station Local station	121 stations (with 1 master and 120 slaves connected)

CC-Link Network Module

Field network module which delivers outstanding cost-performance in I/O control.
The QJ61BT11N module supports CC-Link version 1 and 2, and may be used as a local or master module.

CC-Link

Model	Connection cable	Communication speed	Transmission path	Maximum cable distance (CC-Link Ver. 1.10-compatible cable)	Supported station	Number of stations per network
QJ61BT11N	CC-Link Ver. 1.00/1.10-compatible cable	156 kbps 625 kbps 2.5 Mbps 5 Mbps 10 Mbps	Bus (RS-485)	1200 m 900 m 400 m 160 m 100 m	Ver.2 master station Ver.2 local station Ver.1 master station Ver.1 local station	65 stations (with 1 master and 64 slaves connected)

CC-Link/LT Network Module

This device prevent miswiring by complicate system in the control box.

CC-Link/LT

Model	Connection cable	Communication speed	Transmission path	Length of trunk line	Max. length drop line	Overall length drop lines	Supported station	Number of stations per network
QJ61CL12	Dedicated flat cable (0.75 mm² × 4), VCTF cable, Movable cable	156 kbps	T-branch topology	500 m	60 m	200 m	Master station	65 stations (with 1 master and 64 remote I/O stations connected)
		625 kbps		100 m	16 m	50 m		
		2.5 Mbps		35 m	4 m	15 m		

MELSECNET/H Network Module

A control network module capable of a large-scale and flexible network system configuration.

Model	Connection cable	Communication speed	Transmission path	Overall cable distance	Supported station	Number of stations per network	Others
QJ71LP21-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable	25 Mbps 10 Mbps	Dual loop	30 km	PLC to PLC network control station PLC to PLC network normal station	64 stations (Control station: 1, Normal station: 63)	–
					Remote master station	65 stations (Remote Master station: 1, Remote I/O station: 64)	
QJ71LP21S-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable	25 Mbps 10 Mbps	Dual loop	30 km	PLC to PLC network control station PLC to PLC network normal station	64 stations (Control station: 1, Normal station: 63)	With external power supply function
					Remote master station	65 stations (Remote Master station: 1, Remote I/O station: 64)	
QJ72LP25-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable	25 Mbps 10 Mbps	Dual loop	30 km	Remote I/O station	65 stations (Remote Master station: 1, Remote I/O station: 64)	–
QJ71LP21G	GI-50/125 fiber optic cable	10 Mbps	Dual loop	30 km	PLC to PLC network control station PLC to PLC network normal station	64 stations (Control station: 1, Normal station: 63)	–
					Remote master station	65 stations (Remote Master station: 1, Remote I/O station: 64)	
QJ72LP25G	GI-50/125 fiber optic cable	10 Mbps	Dual loop	30 km	Remote I/O station	65 stations (Remote Master station: 1, Remote I/O station: 64)	–
QJ71BR11	3C-2V/5C-2V coaxial cable	10 Mbps	Single bus	300 m (3C-2V) 500 m (5C-2V)	PLC to PLC network control station PLC to PLC network normal station	32 stations (Control station: 1, Normal station: 31)	–
					Remote master station	33 stations (Remote Master station: 1, Remote I/O station: 32)	
QJ72BR15	3C-2V/5C-2V coaxial cable	10 Mbps	Single bus	300 m (3C-2V) 500 m (5C-2V)	Remote I/O station	33 stations (Remote Master station: 1, Remote I/O station: 32)	–
QJ71NT11B	Twisted pair cable, CC-Link Ver. 1.10-compatible cable	156 kbps	Single bus (RS-485)	1200 m *1	PLC to PLC network control station PLC to PLC network normal station	32 stations (Control station: 1, Normal station: 31)	–
		312 kbps		900 m *1			
		625 kbps		600 m *1			
		1.25 Mbps		400 m *1			
		2.5 Mbps		200 m *1			
		5 Mbps		150 m *1			
		10 Mbps		100 m *1			

*1: When using a CC-Link Ver. 1.10-compatible cable.

AnyWireASLINK Master Module DB

This AnyWireASLINK master module links sensor I/O with programmable controller.
It freely arranges ultra-compact sensors to control the 512 I/O points.

AnyWireASLINK
DB Co-developed with other companies

Model	Transmission cable	Transmission path	Overall cable distance	Max. connected modules
QJ51AW12AL	Universal 2-wire/4-wire cable, universal cable, dedicated flat cable	Bus type (Multi-drop method, T-branch method, tree branch method)	200 m	128 modules

FL-net (OPCN-2) Interface Module

This interface module can be connected to the FL-net (OPCN-2) network.

Type	Model	Transmission interface	Transmission rates	Max. segment length
FL-net (OPCN-2) Version 2.00	QJ71FL71-T-F01	100 BASE-TX 10 BASE-T	100 Mbps 10 Mbps	100 m (Length between hub and node)
FL-net (OPCN-2) Version 1.00	QJ71FL71-T	10 BASE-T	10 Mbps	100 m (Length between hub and node)

MODBUS®, MODBUS®/TCP Interface Module

Connect with a large variety of devices using the MODBUS® interface module.
QJ71MB91 can communicate with various MODBUS® master/slave devices from other manufacturers.
QJ71MT91 can communicate with various MODBUS®/TCP master/slave devices from other manufacturers.

Type	Model	Transmission interface	Transmission rates	Maximum transmission distance (overall length)
MODBUS®	QJ71MB91	RS-232 RS-422/485	300 bps 600 bps 1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps	RS-232: Max.15 m RS-422/485: Max.1200 m
MODBUS®/TCP	QJ71MT91	100 BASE-TX 10 BASE-T	100 Mbps 10 Mbps	100 m Max. segment length

As-i Master Module

AS-i Ver.2.11-compatible, AS-i system master module.

Model	Connection cable	Communication speed	Transmission path	Transmission distance	Maximum number of slaves
QJ71AS92	AS-i cable	167 kbps	Bus network type (star, line, tree, or ring)	Max. 100m (or up to 300m with two repeaters)	62 (A Series: 31, B Series: 31)

Serial Communication Module

Communicates with various external devices (PC, GOT(HMI), bar code reader, measuring instrument, etc.) for data sampling/change, monitoring/management, and measurement data sampling of the programmable controller.

Model	Transmission interface	Number of channels	Transmission rates	Maximum transmission distance (overall length)	Others
QJ71C24N	RS-232 RS-422/485	2 ch CH1: RS-232, CH2: RS-422/485	50 bps 300 bps 600 bps 1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps 230400 bps (Total transmission speed of 2 channels: 230.4 kbps)	RS-232: Max.15 m RS-422/485 Max.1200 m	MELSOFT connection MC protocol Communication protocol
QJ71C24N-R2	RS-232	2 ch	50 bps 300 bps 600 bps 1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps 230400 bps (Total transmission speed of 2 channels: 230.4 kbps)	Max.15 m	MELSOFT connection MC protocol Communication protocol
QJ71C24N-R4	RS-422/485	2 ch	50 bps 300 bps 600 bps 1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 28800 bps 38400 bps 57600 bps 115200 bps 230400 bps (Total transmission speed of 2 channels: 230.4 kbps)	Max.1200 m	MELSOFT connection MC protocol Communication protocol

Communication protocol Predefined protocol support function

CPU Module Performance Specifications

Universal model QCPU

Item		Q03UDVCPU	Q04UDVCPU	Q06UDVCPU	Q13UDVCPU	Q26UDVCPU	Q00UJCPU	Q00UCPU	Q01UCPU
Control method		Sequence program control method							
I/O control mode		Refresh							
Program language (sequence control language)		• Relay symbol language (ladder) • Logic symbolic language (list) • MELSAP3 (SFC), MELSAP-L • Function block • Structured text (ST)							
Peripheral connection port	USB*1	●							
	Ethernet (100BASE-TX/10BASE-T)	●					—		
	RS-232	—					●		
Memory card interface		● (SD memory card, SDHC memory card)*2					—		
Extended SRAM cassette port		●					—		
Processing speed*3	LD instruction	1.9 ns					120 ns	80 ns	60 ns
	MOV instruction	3.9 ns					240 ns	160 ns	120 ns
	PC MIX value*4 (instruction/μs)	227					4.92	7.36	9.79
	Floating point addition	0.014 μs					0.42 μs	0.30 μs	0.24 μs
Total number of instructions*5		859					821	855	
Floating point instruction		●							
Character string processing instruction		●							
PID instruction		●							
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		●							
Constant scan (Function for keeping regular scan time)		0.5 ... 2000 ms (setting available in units of 0.1 ms)					0.5 ... 2000 ms (setting available in units of 0.5 ms)		
Program capacity*6		30K steps	40K steps	60K steps	130K steps	260K steps	10K steps		15K steps
Number of I/O device points [X/Y]		8192 points							
Number of I/O points [X/Y]		4096 points					256 points	1024 points	
Internal relay [M]*7		9216 points	15360 points		28672 points		8192 points		
Latch relay [L]*7		8192 points							
Link relay [B]*7		8192 points							
Timer [T]*7		2048 points							
Retentive timer [ST]*7		0 point							
Counter [C]*7		1024 points							
Data register [D]*7		13312 points	22528 points		41984 points		12288 points		
Extended data register [D]*7		0 point					—	0 point	
Link register [W]		8192 points							
Extended link register [W]*7		0 point					—	0 point	
Annunciator [F]*7		2048 points							
Edge relay [V]*7		2048 points							
Link special relay [SB]*7		2048 points							
Link special register [SW]*7		2048 points							
File register [R, ZR]		98304 points*8	131072 points*8	393216 points*8	524288 points*8	655360 points*8	—	65536 points	
Step relay [S]*7		8192 points							
Index register/standard device register [Z]		Max. 20 points							
Index register [Z] (32-bit ZR indexing)		Max. 10 points (Index register [Z] is used in double words.)					—	Max. 10 points (Index register [Z] is used in double words.)	
Pointer [P]		4096 points					512 points		
Interrupt pointer [I]		256 points					128 points		
Special relay [SM]		2048 points							
Special register [SD]		2048 points							
Function input [FX]		16 points							
Function output [FY]		16 points							
Function register [FD]		5 points							
Local device		●					—	●	
Device initial values		●							

*1: The USB port terminal is mini-B.
*2: The operation of devices that are not manufactured or recommended as compatible products by Mitsubishi Electric cannot be guaranteed.
*3: The processing speed is the same even when the device is indexed.
*4: The PC MIX value is the average number of instructions such as the basic and data processing instructions executed in 1μs. A larger value indicates a higher processing speed.
*5: Intelligent function module dedicated instructions are not included.
*6: When the QnUD(H)CPU or QnUDE(H)CPU is replaced with the QnUDVCPU, the number of steps in the program may change (increase or decrease). For more information, refer to the relevant manual.
*7: Indicates the number of points in the default state. This can be changed with the parameter.
*8: Indicates the number of points when using the built-in memory (standard RAM). This can be increased with the extended SRAM cassette.
When using together with the extended SRAM cassette, the value obtained by totaling the number of points in the following table is the number of file registers that can be used.

With Q4MCA-1MBS (1 MB)	With Q4MCA-2MBS (2 MB)	With Q4MCA-4MBS (4 MB)	With Q4MCA-8MBS (8 MB)
524288 points	1048576 points	2097152 points	4194304 points

*9: Indicates the number of points when using the built-in memory (standard RAM). This can be expanded with the SRAM card or Flash card. (Writing from the program is not possible with the Flash card.)
Up to 4184064 points can be used with the SRAM card.

	Q02UCPU	Q03UDECPU Q03UDCPU	Q04UDEHCPU Q04UDHCPU	Q06UDEHCPU Q06UDHCPU	Q10UDEHCPU Q10UDHCPU	Q13UDEHCPU Q13UDHCPU	Q20UDEHCPU Q20UDHCPU	Q26UDEHCPU Q26UDHCPU	Q50UDEHCPU	Q100UDEHCPU
	Sequence program control method									
	Refresh									
	• Relay symbol language (ladder) • Logic symbolic language (list) • MELSAP3 (SFC), MELSAP-L • Function block • Structured text (ST)									
	●									
	—	Q03UDECPU	Q04UDEHCPU	Q06UDEHCPU	Q10UDEHCPU	Q13UDEHCPU	Q20UDEHCPU	Q26UDEHCPU	●	
	●	Q03UDCPU	Q04UDHCPU	Q06UDHCPU	Q10UDHCPU	Q13UDHCPU	Q20UDHCPU	Q26UDHCPU	—	
	● (SRAM card, Flash card, ATA card)									
	—									
	40 ns	20 ns	9.5 ns							
	80 ns	40 ns	19 ns							
	14	28	60							
	0.18 µs	0.12 µs	0.057 µs							
	857	Q03 ... Q26UDE(H)CPU: 865 Q03 ... 26UD(H)CPU: 855							865	
	●									
	●									
	●									
	●									
	0.5 ... 2000 ms (setting available in units of 0.5 ms)									
	20K steps	30K steps	40K steps	60K steps	100K steps	130K steps	200K steps	260K steps	500K steps	1000K steps
	8192 points									
	2048 points	4096 points								
	8192 points									
	8192 points									
	8192 points									
	2048 points									
	0 point									
	1024 points									
	12288 points									
	0 point								131072 points	
	8192 points									
	0 point									
	2048 points									
	2048 points									
	2048 points									
	2048 points									
	65536 points*9	98304 points*9	131072 points*9	393216 points*9	524288 points*9		655360 points*9		786432 points*9	917504 points*9
	8192 points									
	Max. 20 points									
	Max. 10 points (Index register [Z] is used in double words.)									
	4096 points								8192 points	
	256 points									
	2048 points									
	2048 points									
	16 points									
	16 points									
	5 points									
	●									
	●									

Basic model QCPU

Item		Q00JCPU	Q00CPU	Q01CPU
Control method		Sequence program control method		
I/O control mode		Refresh		
Program language (sequence control language)		• Relay symbol language (ladder) • Logic symbolic language (list) • MELSAP3 (SFC), MELSAP-L • Function block • Structured text (ST)		
Peripheral connection port	USB	—		
	RS-232	●		
Memory card interface		—		
Processing speed*1	LD instruction	200 ns	160 ns	100 ns
	MOV instruction	700 ns	560 ns	350 ns
	PC MIX value (instruction/μs)*2	1.6	2.0	2.7
	Floating point addition	65.5 μs	60.5 μs	49.5 μs
Total number of instructions*3		534	564	
Floating point instruction		●		
Character string processing instruction		●*4		
PID instruction		●		
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		●		
Constant scan (Function for keeping regular scan time)		1 ... 2000 ms (setting available in units of 1 ms)		
Program capacity		8K steps		14K steps
Number of I/O device points [X/Y]		2048 points		
Number of I/O points [X/Y]		256 points	1024 points	
Internal relay [M]*5		8192 points		
Latch relay [L]*5		2048 points		
Link relay [B]*5		2048 points		
Timer [T]*5		512 points		
Retentive timer [ST]*5		0 point		
Counter [C]*5		512 points		
Data register [D]*5		11136 points		
Link register [W]*5		2048 points		
Annunciator [F]*5		1024 points		
Edge relay [V]*5		1024 points		
Link special relay [SB]		1024 points		
Link special register [SW]		1024 points		
File register [R, ZR]		—	65536 points	
Step relay [S]		2048 points		
Index register [Z]		10 points		
Pointer [P]		300 points		
Interrupt pointer [I]		128 points		
Special relay [SM]		1024 points		
Special register [SD]		1024 points		
Function input [FX]		16 points		
Function output [FY]		16 points		
Function register [FD]		5 points		
Local device		—		
Device initial values		●		

*1: The processing speed is the same even when the device is indexed.
*2: The PC MIX value is the average number of instructions such as the basic and data processing instructions executed in 1 μs. A larger value indicates a higher processing speed.
*3: Intelligent function module dedicated instructions are not included.
*4: Character strings can be used only when using the character string transfer command ($MOV).
*5: Indicates the number of points in the default state. This can be changed with the parameter.

High Performance QCPU

Item		Q02CPU	Q02HCPU	Q06HCPU	Q12HCPU	Q25HCPU
Control method		Sequence program control method				
I/O control mode		Refresh				
Program language (sequence control language)		• Relay symbol language (ladder) • Logic symbolic language (list) • MELSAP3 (SFC), MELSAP-L • Function block • Structured text (ST)				
Peripheral connection port	USB	—	●			
	RS-232	●				
Memory card interface		● (SRAM card, Flash card, ATA card)				
Processing speed*1	LD instruction	79 ns	34 ns			
	MOV instruction	237 ns	102 ns			
	PC MIX value (instruction/μs)*2	4.4	10.3			
	Floating point addition	1.8 μs	0.78 μs			
Total number of instructions*3		725				
Floating point instruction		●				
Character string processing instruction		●				
PID instruction		●				
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		●				
Constant scan (Function for keeping regular scan time)		0.5 ... 2000 ms (setting available in units of 0.5 ms)				
Program capacity		28K steps		60K steps	124K steps	252K steps
Number of I/O device points [X/Y]		8192 points				
Number of I/O points [X/Y]		4096 points				
Internal relay [M]*4		8192 points				
Latch relay [L]*4		8192 points				
Link relay [B]*4		8192 points				
Timer [T]*4		2048 points				
Retentive timer [ST]*4		0 point				
Counter [C]*4		1024 points				
Data register [D]*4		12288 points				
Link register [W]*4		8192 points				
Annunciator [F]*4		2048 points				
Edge relay [V]*4		2048 points				
Link special relay [SB]		2048 points				
Link special register [SW]		2048 points				
File register [R, ZR]		32768 points*5	65536 points*5		131072 points*5	
Step relay [S]		8192 points				
Index register [Z]		16 points				
Pointer [P]		4096 points				
Interrupt pointer [I]		256 points				
Special relay [SM]		2048 points				
Special register [SD]		2048 points				
Function input [FX]		16 points				
Function output [FY]		16 points				
Function register [FD]		5 points				
Local device		●				
Device initial values		●				

*1: The processing speed is the same even when the device is indexed.
*2: The PC MIX value is the average number of instructions such as the basic and data processing instructions executed in 1 μs. A larger value indicates a higher processing speed.
*3: Intelligent function module dedicated instructions are not included.
*4: Indicates the number of points in the default state. This can be changed with the parameter.
*5: Indicates the number of points when the built-in memory (standard RAM) is used. Capacity can be expanded by using an SRAM card or a Flash card. (Writing from a program is not possible with a Flash card.) With an SRAM card, up to 1041408 points can be used.

Process CPU

Item		Q02PHCPU	Q06PHCPU	Q12PHCPU	Q25PHCPU
Control method		Sequence program control method			
I/O control mode		Refresh			
Program language	Sequence control language	• Relay symbol language (ladder) • Logic symbolic language (list) • MELSAP3 (SFC), MELSAP-L • Function block • Structured text (ST)			
	Process control language	• Process control FBD*1			
Peripheral connection port	USB	●			
	RS-232	●			
Memory card interface		● (SRAM card, Flash card, ATA card)			
Processing speed*2	LD instruction	34 ns			
	MOV instruction	102 ns			
	PC MIX value (instruction/μs)*3	10.3			
	Floating point addition	0.78 μs			
Total number of instructions*4		757			
Floating point instruction		●			
Character string processing instruction		●			
PID instruction		—			
Process control instruction		●			
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		●			
Constant scan (Function for keeping regular scan time)		0.5 ... 2000 ms (setting available in units of 0.5 ms)			
Program capacity		28K steps	60K steps	124K steps	252K steps
Number of I/O device points [X/Y]		8192 points			
Number of I/O points [X/Y]		4096 points			
Internal relay [M]*5		8192 points			
Latch relay [L]*5		8192 points			
Link relay [B]*5		8192 points			
Timer [T]*5		2048 points			
Retentive timer [ST]*5		0 point			
Counter [C]*5		1024 points			
Data register [D]*5		12288 points			
Link register [W]*5		8192 points			
Annunciator [F]*5		2048 points			
Edge relay [V]*5		2048 points			
Link special relay [SB]		2048 points			
Link special register [SW]		2048 points			
File register [R, ZR]		65536 points*6		131072 points*6	
Step relay [S]		8192 points			
Index register [Z]		16 points			
Pointer [P]		4096 points			
Interrupt pointer [I]		256 points			
Special relay [SM]		2048 points			
Special register [SD]		2048 points			
Function input [FX]		16 points			
Function output [FY]		16 points			
Function register [FD]		5 points			
Local device		●			
Device initial values		●			

*1: PX Developer is required for programming by FBD.
*2: The processing speed is the same even when the device is indexed.
*3: The PC MIX value is the average number of instructions such as the basic and data processing instructions executed in 1 μs. A larger value indicates a higher processing speed.
*4: Intelligent function module dedicated instructions are not included.
*5: Indicates the number of points in the default state. This can be changed with the parameter.
*6: Indicates the number of points when the built-in memory (standard RAM) is used. Capacity can be expanded by using an SRAM card or a Flash card. (Writing from a program is not possible with a Flash card.) With an SRAM card, up to 1041408 points can be used.

Redundant CPU

Item		Q12PRHCPU	Q25PRHCPU
Control method		Sequence program control method	
I/O control mode		Refresh	
Program language	Sequence control language	• Relay symbol language (ladder) • Logic symbolic language (list) • MELSAP3 (SFC), MELSAP-L • Function block • Structured text (ST)	
	Process control language	• Process control FBD*1	
Peripheral connection port	USB	●	
	RS-232	●	
Memory card interface		● (SRAM card, Flash card, ATA card)	
Processing speed*2	LD instruction	34 ns	
	MOV instruction	102 ns	
	PC MIX value (instruction/μs)*3	10.3	
	Floating point addition	0.78 μs	
Total number of instructions*4		778	
Floating point instruction		●	
Character string processing instruction		●	
PID instruction		●	
Process control instruction		●	
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		●	
Constant scan (Function for keeping regular scan time)		0.5 ... 2000 ms (setting available in units of 0.5 ms)	
Program capacity		124K steps	252K steps
Number of I/O device points [X/Y]		8192 points	
Number of I/O points [X/Y]		4096 points	
Internal relay [M]*5		8192 points	
Latch relay [L]*5		8192 points	
Link relay [B]*5		8192 points	
Timer [T]*5		2048 points	
Retentive timer [ST]*5		0 point	
Counter [C]*5		1024 points	
Data register [D]*5		12288 points	
Link register [W]*5		8192 points	
Annunciator [F]*5		2048 points	
Edge relay [V]*5		2048 points	
Link special relay [SB]		2048 points	
Link special register [SW]		2048 points	
File register [R, ZR]		131072 points*6	
Step relay [S]		8192 points	
Index register [Z]		16 points	
Pointer [P]		4096 points	
Interrupt pointer [I]		256 points	
Special relay [SM]		2048 points	
Special register [SD]		2048 points	
Function input [FX]		16 points	
Function output [FY]		16 points	
Function register [FD]		5 points	
Local device		●	
Device initial values		●	

*1: PX Developer is required for programming by FBD.
*2: The processing speed is the same even when the device is indexed.
*3: The PC MIX value is the average number of instructions such as the basic and data processing instructions executed in 1 μs. A larger value indicates a higher processing speed.
*4: Intelligent function module dedicated instructions are not included.
*5: Indicates the number of points in the default state. This can be changed with the parameter.
*6: Indicates the number of points when the built-in memory (standard RAM) is used. Capacity can be expanded by using an SRAM card or a Flash card. (Writing from a program is not possible with a Flash card.) With an SRAM card, up to 1041408 points can be used.

MELSEC-L Series

The L Series advances the production sites. Offers ease of use thanks to its job-site oriented design.

Design concept based on passion for manufacturing, reliable technology and reliability, and forethought on deployment and operation.
Equipped with various I/O functions. The L Series improves on-site efficiency by realizing “simplicity,” “ease of use,” and “diverse ease of use controls.”

CPU Module

Designed to control programmable controller systems.
The L Series CPU is equipped with various I/O functions.

Power Supply Module

Supplies power to CPU, I/O, and other modules.

Branch/Extension Module

System expandable according to production equipment scale.

I/O Module

Connects input and output devices.
Various lineup of I/O modules according to your system configuration needs.

Analog I/O Module

Inputs and outputs analog data.
Enables high-speed, high-precision, high-resolution controls.

Simple Motion Module/ Positioning Module

Enable high-speed, high-precision positioning control.

High-Speed Counter Module/ Flexible High-Speed I/O Control Module

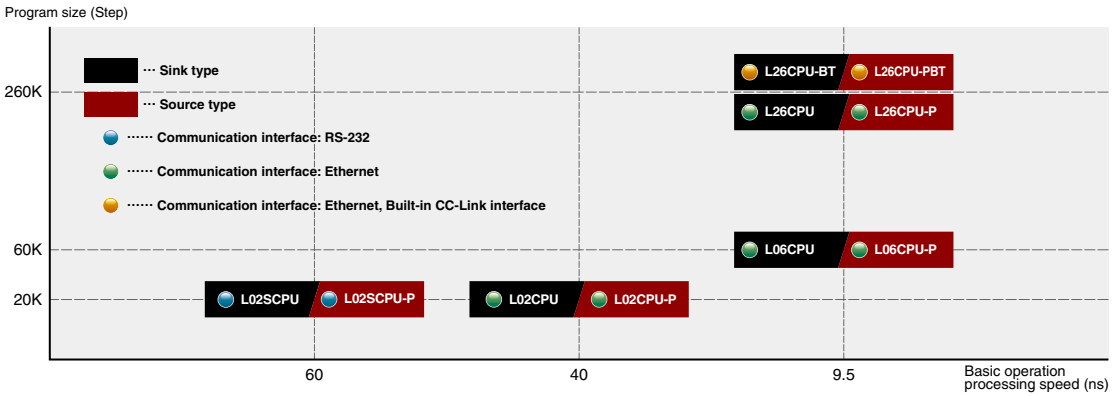
Counts high-speed pulse easily and accurately.

Network Module

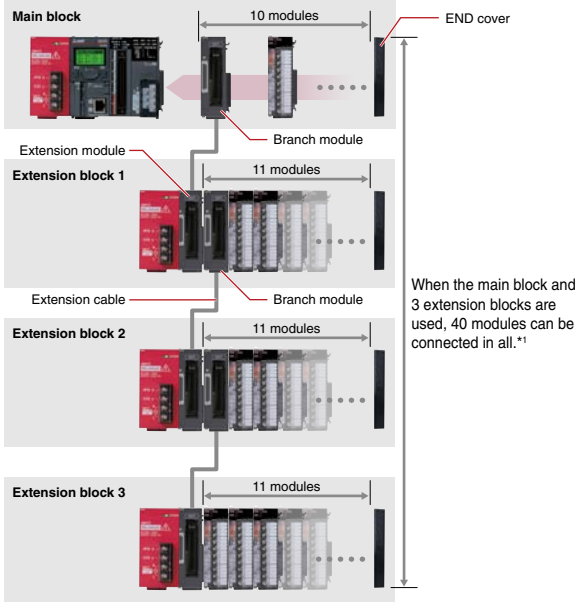
Interfaces with control-system network and modules that enable to communicate information with upper management systems.
Built with diverse network to seamlessly connect each FA layers.

Convenience that fits in the palm of your hand

The L Series is a compact-class controller, part of the MELSEC products renowned for exceptional cost verses performance and strong reliability. It provides the performance, functions, and capabilities required for today's demanding applications in a small package. MELSEC-L Series greatly expands the range of functionality traditionally associated with compact programmable controllers and through user-centric design, pushes the limits of ease of use.



■ Example of largest system configuration of L26CPU-BT



■ CPU Module

- PLC CPU (Sink type/Source type) built-in communication interface
  - ►RS232
  - ►Ethernet
  - ►Ethernet + CC-Link

■ Options

- Display unit
- RS-232 adapter
- RS-422/485 adapter
- Battery
- SD/SDHC memory card

■ Power Supply Module

- Power supply module
- Power supply module (Slim type)

■ Branch/Extension Module

- Branch module
- Extension module

■ Module

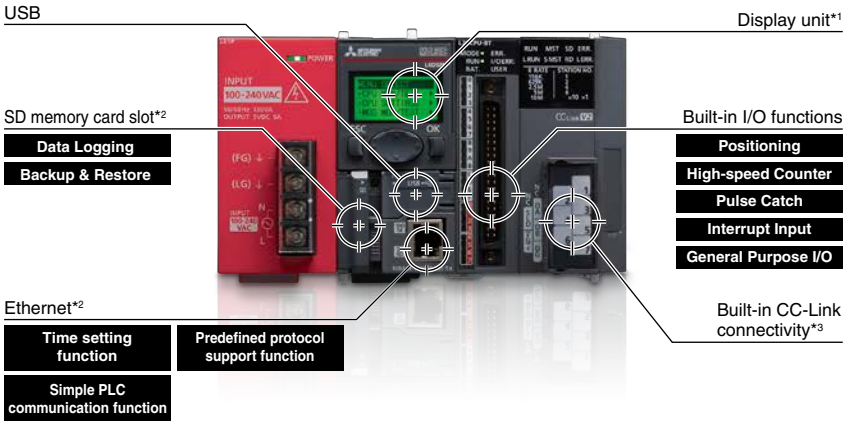
- I/O modules
- Analog module
- Temperature control module
- Simple motion module
- Positioning module
- High-speed counter module
- Flexible high-speed I/O control module
- Network module

CPU module	Number of extension blocks	Number of connectable modules*2
L02SCPU(-P) L02CPU(-P)	Up to 2 blocks	Main block: 10 modules Extension block: 11 modules
L06CPU(-P) L26CPU(-P) L26CPU-(P)BT	Up to 3 blocks	

*1: Total number of I/O modules, intelligent function modules and network modules, excluding branch modules.
*2: Total number of I/O modules, intelligent function modules, network modules and branch modules.
This does not include the following: Power supply, CPU, display units, extension modules, RS-232 adapter, RS-422/485 adapter, and END covers.

Equipped with various built-in I/O functions and interfaces

Compact in size yet built with extensive I/O functions. Due to an abundance of advanced functionality, L Series CPUs are flexible enough to meet a wide variety of needs. The user-friendly display unit enables routine operations without a computer. An SD memory card slot is included as standard for data logging and program storage. Upload programs and manage L Series controllers using GX Works2 and iQ Works, the most advanced and effective software for Mitsubishi controllers yet.



*1: Option (sold separately). Not available for L02SCPU(-P).
*2: Included with L02CPU(-P), L06CPU(-P), L26CPU(-P), L26CPU-(P)BT
*3: Included with L26CPU-(P)BT

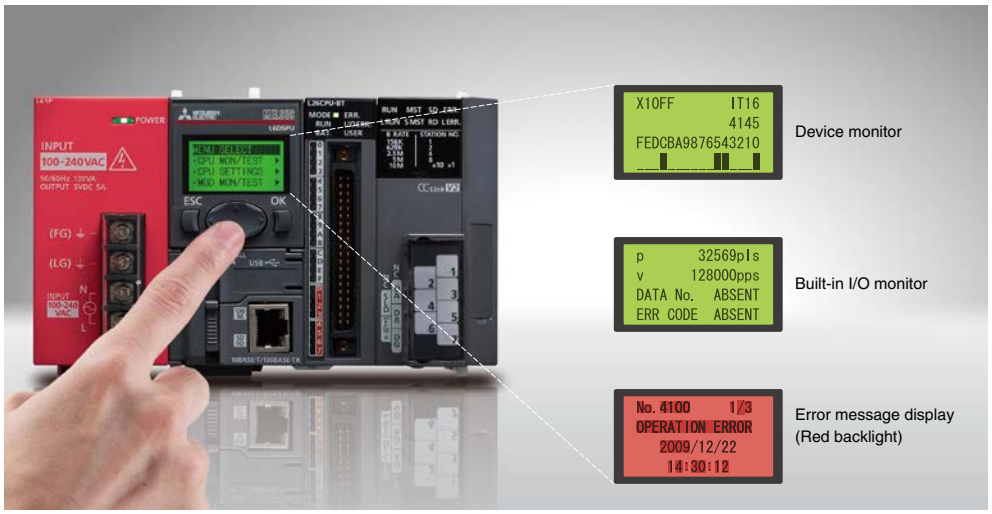
Gain more flexibility with an integrated system bus structure

The L Series do not require a base; simply attach directly to the DIN rail. The installation space is not restricted by base size, and the system can be installed with minimal required space.
Furthermore, the addition of modules to the system is not restricted by the number of available base unit slots and costs may be reduced due to the elimination of extension base units.

Easy to use display

Check the system status and make setting changes directly from the display*4. Error status is clearly identified and troubleshooting and error investigation can be performed all without the need for any connections or engineering software.

*4: Not available for L02SCPU(-P).



CPU Module

Our extensive lineup offers the best CPU module suited to your use.

Type	Model	Basic operation processing speed (LD instruction)	Program capacity	Number of I/O points [X/Y]	Peripheral connection ports	Compatible memory card	Others
Output: Sink type	L02SCPU	60 ns	20K steps	1024 points	USB, RS-232	–	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L02CPU	40 ns	20K steps	1024 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L06CPU	9.5 ns	60K steps	4096 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L26CPU	9.5 ns	260K steps	4096 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L26CPU-BT	9.5 ns	260K steps	4096 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
Output: Source type	L02SCPU-P	60 ns	20K steps	1024 points	USB, RS-232	–	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L02CPU-P	40 ns	20K steps	1024 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L06CPU-P	9.5 ns	60K steps	4096 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L26CPU-P	9.5 ns	260K steps	4096 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter)
	L26CPU-PBT	9.5 ns	260K steps	4096 points	USB, Ethernet	SD	Communication protocol, Built-in I/O functions (Input: 16 points, Output: 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), CC-Link

SD SD Memory Card
Communication protocol Predefined protocol support function
CC-Link CC-Link master/local station function

*Bundled products including CPU module, display module (L6DSPU), power supply module (L61P) are also available. Please refer to the product list for more details.

Power Supply Module

MELSEC-L Series power supply module comes in normal and slim types.

Type	Model	Input voltage	Output voltage	Output current	Others
Power supply	L61P	100...240 V AC	5 V DC	5 A	–
	L63P	24 V DC	5 V DC	5 A	–
Slim type power supply	L63SP	24 V DC	5 V DC	5 A	No isolation

Branch Module/Extension Module

Branch and extension modules can be used for block extension.

Type	Model	Internal current consumption	Others
Branch module	L6EXB	0.08 A	–
Extension module	L6EXE	0.08 A	END cover included

RS-232 Adapter, RS-422/485 Adapter

Adapter unit to connect RS-232 and RS-422/485 compatible peripheral devices. GOT(HMI) and other RS-232, RS-422/485 compatible peripheral devices can be connected.

Type	Model	Interface	Max. communication speed	Number of channels	Transmission distance (Overall distance)	Others
RS-232 adapter	L6ADP-R2	RS-232	115200 bps Maximum data transmission speed	1 ch	15 m	GOT(HMI) connection MELSOFT connection Communication protocol
RS-422/485 adapter	L6ADP-R4	RS-422/485	1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps	1 ch	1200 m	GOT(HMI) connection Communication protocol

Communication protocol Predefined protocol support function

I/O Module

Input Module

Our lineup of input modules covers various control situations.
Select the appropriate model according to voltage, input format, input points, wiring method, etc.

Type	Model	Points	Rated input voltage	Rated input current	Common terminal arrangement	Response time	External interface
AC input	LX10	16 points	100...120 V AC	8.2 mA (100 V AC, 60 Hz) 6.8 mA (100 V AC, 50 Hz)	16 points/common	20 ms	Screw terminal block
	LX28	8 points	100...240 V AC	16.4 mA (200 V AC, 60 Hz) 13.7 mA (200 V AC, 50 Hz) 8.2 mA (100 V AC, 60 Hz) 6.8 mA (100 V AC, 50 Hz)	8 points/common	20 ms	Screw terminal block
DC input (positive/negative shared common)	LX40C6	16 points	24 V DC	6.0 mA	16 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	Screw terminal block
	LX41C4	32 points	24 V DC	4.0 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70ms	40-pin C
	LX42C4	64 points	24 V DC	4.0 mA	32 points/common	1 ms 5 ms 10 ms 20 ms 70 ms	40-pin C × 2

40-pin C 40-pin connector 40-pin C × 2 40-pin connector × 2

Output Module

Our full lineup of transistor output, relay, and triac will meet your needs according to intended use and number of outputs.

Type	Model	Number of output points	Rated load voltage	Max. load current (Rated switching current)	Common terminal arrangement	Response time	External interface
Relay output	LY10R2	16 points	24 V DC/240 V AC	2 A/point 8 A/common	16 points/common	12 ms	Screw terminal block
	LY18R2A	8 points	24 V DC/240 V AC	2 A/point 8 A/module	All points independent	12 ms	Screw terminal block
Triac output	LY20S6	16 points	100...240 V AC	0.6 A/point 4.8 A/common	16 points/common	1 ms and 0.5 cycles	Screw terminal block
	LY28S1A	8 points	100...240 V AC	1 A/point 8 A/module	All points independent	1 ms and 0.5 cycles	Screw terminal block
Transistor output (Sink type)	LY40NT5P	16 points	12...24 V DC	0.5 A/point 5 A/common	16 points/common	1 ms	Screw terminal block
	LY41NT1P	32 points	12...24 V DC	0.1 A/point 2 A/common	32 points/common	1 ms	40-pin C
	LY42NT1P	64 points	12...24 V DC	0.1 A/point 2 A/common	32 points/common	1 ms	40-pin C × 2
Transistor output (Source type)	LY40PT5P	16 points	12...24 V DC	0.5 A/point 5 A/common	16 points/common	1 ms	Screw terminal block
	LY41PT1P	32 points	12...24 V DC	0.1 A/point 2 A/common	32 points/common	1 ms	40-pin C
	LY42PT1P	64 points	12...24 V DC	0.1 A/point 2 A/common	32 points/common	1 ms	40-pin C × 2

40-pin C 40-pin connector 40-pin C × 2 40-pin connector × 2

I/O Combined Module

I/O module that can control both input and output in one unit.

Type	Model	Points/ Number of output points	Rated input voltage/Rated load voltage	Rated input current	Max. load current	Common terminal arrangement	Response time	External interface
DC input/ Transistor output (Sink type)	LH42C4NT1P	Input 32 points	24 V DC	4.0 mA	–	32 points/common	1 ms, 5 ms, 10 ms, 20 ms, 70 ms	40-pin C × 2
		Output 32 points	12...24 V DC	–	0.1 A/point, 2 A/common	32 points/common	1 ms	
DC input/ Transistor output (Source type)	LH42C4PT1P	Input 32 points	24 V DC	4.0 mA	–	32 points/common	1 ms, 5 ms, 10 ms, 20 ms, 70 ms	40-pin C × 2
		Output 32 points	12...24 V DC	–	0.1 A/point, 2 A/common	32 points/common	1 ms	

40-pin C × 2 40-pin connector × 2

Analog I/O Module

Multiple Input (voltage/current/temperature) Module

Module that can handle various analog and temperature sensor signal inputs such as “voltage,” “current,” “micro voltage,” “thermocouple,” and “resistance temperature detector” in one unit. Its ability to handle various inputs can reduce the number of installed analog modules and save space.

Type	Model	Number of channels	Input	Conversion speed	Resolution	External interface	Others
Multiple input (voltage/current/ temperature)	L60MD4-G	4 ch	-10...10 V DC 0...20 mA DC -100...100 mV DC Thermocouple K,J,T,E,N,R,S,B,U,L,PLⅡ, W5Re/W26Re Resistive thermal device Pt1000,Pt100,JPt100,Pt50	50 ms/ch	0...20000 -20000...20000 0...20000 -20000...20000 Thermocouple B,R,S,N,PLⅡ,W5Re/W26Re:0.3°C K,E,J,T,U,L:0.1°C Resistive thermal device Pt100(-20...120°C),JPt100(-20...120°C):0.03°C Pt100(-200...850°C),JPt100(-200...600°C), Pt1000,Pt50:0.1°C	Screw terminal block	Channel isolated

Analog Input Module/Analog Output Module/Analog I/O Module

Our wide range of analog units is built with various functions to support the control needs of your site.

Type	Model	Number of channels	Input/Output	Conversion speed	Resolution	External interface	Others
Voltage input	L60ADVL8	8 ch	-10...10 V DC	1 ms/ch	-16000...16000	Screw terminal block	–
Current input	L60ADIL8	8 ch	0...20 mA DC	1 ms/ch	0...8000	Screw terminal block	–
Voltage, current input	L60AD4	4 ch	-10...10 V DC 0...20 mA DC	20 µs/ch 80 µs/ch 1 ms/ch	0...20000 -20000...20000	Screw terminal block	–
	L60AD4-2GH	4 ch	-10...10 V DC 0...20 mA DC	40 µs/2ch	0...32000 -32000...32000	Screw terminal block	Dual channel isolation
Voltage input	L60DAVL8	8 ch	-10...10 V DC	200 µs/ch	-16000...16000	Screw terminal block	–
Current input	L60DAIL8	8 ch	0...20 mA DC	200 µs/ch	0...8000	Screw terminal block	–
Voltage, current output	L60DA4	4 ch	-10...10 V DC 0...20 mA DC	20 µs/ch	0...20000 -20000...20000	Screw terminal block	–
Voltage, current I/O	L60AD2DA2	Input 2 channels	-10...10 V DC 0...20 mA DC	80 µs/ch	-16000...16000 0...12000	Screw terminal block	–
		Output 2 channels	-10...10 V DC 0...20 mA DC	80 µs/ch	-16000...16000 0...12000		

Temperature Input Module/Temperature Control Module

Available are a temperature input module compatible with various temperature sensors and a lineup of temperature controllers that ensure standard control, heating-cooling control and optimum temperature control by detecting heater disconnection.


Temperature input module


Temperature control module

Type		Model	Number of channels	Input/Output	Conversion speed (Sampling cycle)	External interface	Others
Temperature input	Resistive thermal device	L60RD8	8 ch	RTD Pt1000, Pt100, JPt100, Pt50, Ni500, Ni120, Ni100, Cu100, Cu50	40 ms/ch	SC terminal block	–
Temperature control	Thermocouple	L60TCTT4	4 ch	Thermocouple K,J,T,B,S,E,R,N,U,L,PL Ⅱ, W5Re/W26Re	250 ms/4ch 500 ms/4ch	Screw terminal block	Channel isolated Standard control Heating and cooling control *1
		L60TCTT4BW	4 ch	Thermocouple K,J,T,B,S,E,R,N,U,L,PL Ⅱ, W5Re/W26Re	250 ms/4ch 500 ms/4ch	Screw terminal block × 2	Channel isolated Standard control Heating and cooling control *1 Heater disconnection detection function
	Resistive thermal device	L60TCRT4	4 ch	Platinum type resistive temperature device Pt100,JPt100	250 ms/4ch 500 ms/4ch	Screw terminal block	Channel isolated Standard control Heating and cooling control *1
		L60TCRT4BW	4 ch	Platinum type resistive temperature device Pt100,JPt100	250 ms/4ch 500 ms/4ch	Screw terminal block × 2	Channel isolated Standard control Heating and cooling control *1 Heater disconnection detection function

SC terminal block: Spring clamp terminal block

*1: 4-channel (loop) heating/cooling can be controlled by using other output modules.

Simple Motion Module/Positioning Module

Simple Motion Module

Offers a wide variety of controls with an intuitive approach of a positioning module. Sequence program is all you need for simple setup of highly-advanced and wide range of motion controls including synchronous control, cam control, speed-torque control, and others. Essential functions such as synchronous encoder and mark detection are provided as standard features.

Type	Model	Maximum number of control axes	Control unit	Operation cycle	Positioning data
Servo amplifier connection system: SSCNETⅢ/H	LD77MS2	2 axes	mm inch degree pulse	0.88 ms 1.77 ms	600
	LD77MS4	4 axes	mm inch degree pulse	0.88 ms 1.77 ms	600
	LD77MS16	16 axes	mm inch degree pulse	0.88 ms 1.77 ms	600

600: 600 data/axis

Positioning Module

High-speed, high-precision positioning modules support various positioning controls, including 2 - 4-axis linear interpolation, 2-axis circular interpolation, 3-axis helical interpolation and trajectory control.

Type	Model	Maximum number of control axes	Control unit	Positioning data	Maximum output pulse	External interface
Open collector output	LD75P1	1 axis	mm inch degree pulse	600	200 kpulse/s	40-pin C
	LD75P2	2 axes	mm inch degree pulse	600	200 kpulse/s	40-pin C
	LD75P4	4 axes	mm inch degree pulse	600	200 kpulse/s	40-pin C × 2
Differential driver	LD75D1	1 axis	mm inch degree pulse	600	4 Mpulse/s	40-pin C
	LD75D2	2 axes	mm inch degree pulse	600	4 Mpulse/s	40-pin C
	LD75D4	4 axes	mm inch degree pulse	600	4 Mpulse/s	40-pin C × 2

600: 600 data/axis
40-pin C: 40-pin connector
40-pin C × 2: 40-pin connector × 2

High-Speed Counter Module/Flexible High-Speed I/O Control Module

High-Speed Counter Module

Inputs may be connected to a variety of devices for positioning control, precision measurement, etc. The maximum counting speed may be adjusted via parameter for more reliable counting at lower frequencies.

Model	Number of channels	Counting speed switch setting	Count input signal	External input	Coincidence output	External interface
LD62	2 ch	200 kpps 100 kpps 10 kpps	5 V DC 12 V DC 24 V DC	5 V DC 12 V DC 24 V DC	Transistor (Sink), 12/24 V DC, 0.5 A/point, 2 A/common	40-pin C
LD62D	2 ch	500 kpps 200 kpps 100 kpps 10 kpps	Differential line driver	5 V DC 12 V DC 24 V DC	Transistor (Sink), 12/24 V DC, 0.5 A/point, 2 A/common	40-pin C

40-pin C 40-pin connector

Flexible High-Speed I/O Control Module

Hardware processing enables high-speed response asynchronous to CPU and control bus, realizing stable input/output performance. FPGA setup can be performed easily by simply “selecting,” “linking” and “setting parameters” with the dedicated tool.

Model	Number of input points	Number of output points	Number of interrupts	I/O response time	Pulse input speed	Pulse output speed	Main blocks
LD40PD01	12 points 5/24 V DC/ differential	8 points DC / 6 points Differential	8 interrupts	≤ 1 µs	Max. 200 kpulse/s DC / Max. 8 Mpulse/s Differential	Max. 200 kpulse/s DC / Max. 8 Mpulse/s Differential	External input block, Parallel encoder block, SSI encoder block, Multi function counter block, Logical operation block, External output block

Network Module

Ethernet Interface Module

Ethernet interface module offers users to make the best choice for the system and target devices.

Model	Transmission interface	Number of channels	Max. communication speed	Others
LJ71E71-100	100 BASE-TX 10 BASE-T	1 ch	100 Mbps 10 Mbps	MELSOFT connection SLMP communication MC protocol communication Communication protocol

Communication protocol Predefined protocol support function

CC-Link IE Field Network Module

CC-Link IE Field Network master station/local station is an all-round field network that integrates the controller distributed control, I/O control, safety control, and motion control. High-speed (1Gbps) and enhanced communication responsiveness greatly reduces cycle time as well.

CC-Link IE

Model	Connection cable	Transmission speed	Network topology	Overall distance	Compatible station	Maximum connectable stations per network
LJ71GF11-T2	Ethernet cable of category 5e or higher (Double shielded cable) which satisfies 1000BASE-T standard	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 12 km (with 1 master and 120 slaves connected) Star topology: Depends on the system configuration. Ring topology: 12.1 km (with 1 master and 120 slaves connected)	Master station Local station	121 stations (1 master, 120 slaves)
LJ72GF15-T2	Ethernet cable of category 5e or higher (Double shielded cable) which satisfies 1000BASE-T standard	1 Gbps	Line topology Star topology Ring topology Coexistence of line topology and star topology is possible.	Line topology: 12 km (with 1 master and 120 slaves connected) Star topology: Depends on the system configuration. Ring topology: 12.1 km (with 1 master and 120 slaves connected)	Remote station	121 stations (1 master, 120 slaves)

CC-Link Master/Local Module

Field network module which delivers outstanding cost-performance in I/O control.
The LJ61BT11 module supports CC-Link version 1 and 2, and can be used as either a local or master station.

CC-Link

Model	Connection cable	Transmission speed	Network topology	Overall distance	Compatible station	Maximum connectable stations per network
LJ61BT11	CC-Link dedicated cables compatible with Ver.1.10	156 kbps 625 kbps 2.5 Mbps 5 Mbps 10 Mbps	Bus (RS-485)	1200 m 900 m 400 m 160 m 100 m	Ver.2.0 Master station Ver.2.0 Local station Ver.1.0 Master station Ver.1.0 Local station	65 stations (1 master, 64 slaves)

CC-Link/LT Master Module

CC-Link/LT is a wire-saving sensor level network which is designed for use in panels between simple discrete devices.

CC-Link/LT

Model	Connection cable	Transmission speed	Network topology	Length of trunk line	Max. length drop line	Overall length drop line	Compatible station	Maximum connectable stations per network
LJ61CL12	Dedicated flat cable (0.75 mm² × 4), VCTF cable, flexible cable	156 kbps	T-branch type	500 m	60 m	200 m	Master station	65 stations (Remote master station: 1, Remote I/O station: 64)
		625 kbps		100 m	16 m	50 m		
		2.5 Mbps		35 m	4 m	15 m		

AnyWireASLINK Master Module DB

This AnyWireASLINK master module links sensor I/O with programmable controller. It freely arranges ultra-compact sensors to control the 512 I/O points.

AnyWireASLINK

DB Co-developed with other companies

Model	Connection cable	Network topology	Overall distance	Number of connected modules
LJ51AW12AL	Universal 2-wire/4-wire cable, universal cable, dedicated flat cable	Bus type (multi-drop method, T-branch method, tree branch method)	200 m	Max. 128 modules

SSCNET Ⅲ/H Head Module

Compatible with high-speed synchronous SSCNET Ⅲ/H that accelerates the response speed of motion control system.

Model	Connection cable	Transmission speed	Connection method	Maximum station-to-station distance	Communication cycle	Maximum connectable stations per network
LJ72MS15	SSCNET Ⅲ cable (optical fiber cable)	150 Mbps	Daisy chain connection	POF type: 20 m H-PCF type: 50 m	222 μs	1 station
					444 μs	2 stations
					888 μs	4 stations

Serial Communication Module

Communicates with various external devices (PC, GOT(HMI), bar code reader, measuring instrument, etc.) for data sampling/change, monitoring/management, and measurement data sampling of the programmable controller.

Model	Interface	Number of channels	Max. communication speed	Overall distance	Others
LJ71C24	RS-232 RS-422/485	2 ch CH1:RS-232, CH2:RS-422/485	50 bps, 300 bps, 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 14400 bps, 19200 bps, 28800 bps, 38400 bps, 57600 bps, 115200 bps, 230400 bps (2 channels total: 230.4kbps)	RS-232 Max. 15 m RS-422/485 Max. 1200 m	MELSOFT connection MC protocol communication Communication protocol
LJ71C24-R2	RS-232	2 ch	50 bps, 300 bps, 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 14400 bps, 19200 bps, 28800 bps, 38400 bps, 57600 bps, 115200 bps, 230400 bps (2 channels total: 230.4kbps)	Max. 15 m	MELSOFT connection MC protocol communication Communication protocol

Communication protocol Predefined protocol support function

Specifications

CPU module specifications

Item			L02SCPU L02SCPU-P	L02CPU L02CPU-P	L06CPU L06CPU-P	L26CPU L26CPU-P	L26CPU-BT L26CPU-PBT
Control method			Stored program cyclic operation				
I/O control mode			Refresh mode (The direct access input/output is available by specifying the direct access input/output (DX, DY).)				
Programming language (sequence control language)			Function block, relay symbol language, MELSAP3 (SFC), MELSAP-L, structured text (ST), logic symbolic language				
Processing speed*1 (sequence instruction)	LD X0		60 ns	40 ns	9.5 ns		
	MOV D0 D1		120 ns	80 ns	19 ns		
Constant scan			0.5...2000 ms (Setting is available in increments of 0.5 ms by parameter.)				
Program size			20K steps (80K bytes)		60K steps (240K bytes)	260K steps (1040K bytes)	
Memory capacity	Program memory (drive 0)		80K bytes		240K bytes	1040K bytes	
	Memory card (RAM) (drive 1)		–				
	Memory card (ROM) (drive 2)		–	Depends on the SD/SDHC memory card used.*2			
	Standard RAM (drive 3)		128K bytes		768K bytes		
	Standard ROM (drive 4)		512K bytes		1024K bytes	2048K bytes	
Maximum number of files stored	Program memory		64 files		124 files	252 files	
	Memory card (RAM)		–				
	Memory card (ROM)	SD	–	Root directory: 511 files (maximum) Subdirectory: 65533 files (maximum)			
		SDHC	–	Root directory: 65534 files (maximum) Subdirectory: 65533 files (maximum)			
	Standard RAM		4 files (each one of the following files: file register file, local device file, sampling trace file, and module error collection file)				
	Standard ROM		128 files		256 files		
Maximum number of intelligent function module parameters		Initial setting	2048 parameters		4096 parameters		
		Refresh	1024 parameters		2048 parameters		
Maximum number of modules specification*3			30		40		
Built-in I/O function			○				
Data logging function			–	○			
Built-in Ethernet function			–	○			
Built-in serial communication function			○	–			
Built-in CC-Link function			–				○
Clock function	Displayed information		Year, month, date, hour, minute, second, and day of the week (automatic leap year detection)				
	Accuracy		0°C: -2.96...+3.74 s (TYP. +1.42 s) per day 25°C: -3.18...+3.74 s (TYP. +1.50 s) per day 55°C: -13.20...+2.12 s (TYP. -3.54 s) per day				

*1: Indexing devices does not delay processing time.
*2: Mitsubishi Electric shall not guarantee the operation of any non-Mitsubishi Electric products.
*3: The total number of modules that can be mounted to a CPU. Refer to the "Maximum number of modules specification" for each module. (Power supply modules, CPU module, display unit, extension module, RS-232 adapter, RS-422/485 adapter, END cover, and END cover with error terminal are not included. Note that only one CPU or head module per system is possible.)

CPU module device specifications

Item		L02SCPU L02SCPU-P	L02CPU L02CPU-P	L06CPU L06CPU-P	L26CPU L26CPU-P	L26CPU-BT L26CPU-PBT
Number of I/O device points (number of points available on a program)		8192 points (X/Y0...X/Y1FFF)				
Number of I/O points		1024 points (X/Y0...X/Y3FF)		4096 points (X/Y0...X/YFFF)		
Internal relay (M)		8192 points (M0...M8191) by default (changeable)				
Latch relay (L)		8192 points (L0...L8191) by default (changeable)				
Link relay (B)		8192 points (B0...B1FFF) by default (changeable)				
Timer (T)		2048 points (T0...T2047) by default (changeable) (Low-speed and high-speed timers available) (Low-speed timer: 1...1000 ms (in increments of 1 ms), default: 100 ms) (High-speed timer: 0.1...100 ms (in increments of 0.1 ms), default: 10 ms)				
Retentive timer (ST)		0 point by default (changeable)(Low-speed and high-speed retentive timers available) (Low-speed retentive timer: 1...1000 ms (in increments of 1 ms), default: 100 ms) (High-speed retentive timer: 0.1...100 ms (in increments of 0.1 ms), default: 10 ms)				
Counter (C)		Normal counter 1024 points (C0...C1023) by default (changeable)				
Data register (D)		12288 points (D0...D12287) by default (changeable)				
Extended data register (D)		32768 points (D12288...D45055) by default (changeable)		131072 points (D12288...D143359) by default (changeable)		
Link register (W)		8192 points (W0...W1FFF) by default (changeable)				
Extended link register (W)		0 point by default (changeable)				
Annunciator (F)		2048 points (F0...F2047) by default (changeable)				
Edge relay (V)		2048 points (V0...V2047) by default (changeable)				
Link special relay (SB)		2048 points (SB0...SB7FF) by default (changeable)				
Link special register (SW)		2048 points (SW0...SW7FF) by default (changeable)				
File register	(R)	32768 points (R0...R32767) (Maximum 65536 points are available by switching blocks.)		32768 points (R0...R32767) (Maximum 393216 points are available by switching blocks.)		
	(ZR)	65536 points (ZR0...ZR65535) (Blocks do not need to be switched.)		393216 points (ZR0...ZR393215) (Blocks do not need to be switched.)		
Step relay (S)		8192 points (S0...S8191) by default				
Index register/standard device register (Z)		20 point (Z0...Z19) (maximum)				
Index register (Z) (32-bit index modification of ZR device)		10 point (Z0...Z18) (maximum) (The index register is used as a double-word device.)				
Pointer (P)		4096 points (P0...P4095) (The local pointer range and the common pointer range can be set by parameter.)				
Interrupt pointer (I)		256 points (I0...I255) (The fixed scan interval for the system interrupt pointer I28 to I31 can be set by parameter.) 0.5...1000 ms (in increments of 0.5 ms) Default I28: 100 ms, I29: 40 ms, I30: 20 ms, I31: 10 ms				
Special relay (SM)		2048 points (SM0...SM2047) (The number of device points is fixed.)				
Special register (SD)		2048 points (SD0...SD2047) (The number of device points is fixed.)				
Function input (FX)		16 points (FX0...FX F) (The number of device points is fixed.)				
Function output (FY)		16 points (FY0...FY F) (The number of device points is fixed.)				
Function register (FD)		5 points (FD0...FD4) (The number of device points is fixed.)				
Intelligent function module device		Device that directly accesses the buffer memory of an intelligent function module Specification format: U□□/G□□				
Latch (data retention during power failure) range		8192 points (L0...L8191) by default (The latch range can be set for the devices, B, F, V, T, ST, C, D, W, and R by parameter.)				

MELSEC-F Series

Push the limits of control.

The Mitsubishi Electric FX PLC Family continues to be successful as a provider of customizable compact control solutions allowing customers to choose the best model to fit their applications.

Entry level Model

Simple and cost effective. Basic model that supports analog and communication expansion.
Perfect for simple automation tasks.

Space-saving and Cost Effective

Standard Model

From automation to network, to more advanced control.
Supports features required for basic control and a variety of applications.

High Speed, Highly Augmentable, Space-saving

High Speed, Space-saving and Cost Effective

High-end Model

Superior speed, power, and flexibility.
Realize high speed control, network support, data logging, and more.

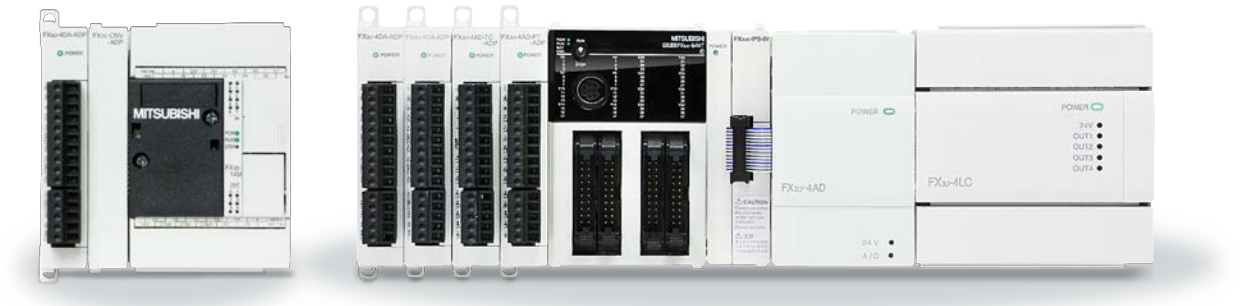
High Speed, High Performance, Highly Augmentable

High speed, Wire-Saving, Space-Saving

Modules Plenty of Additional Equipment

Analog Control

From small-point analog control to PID controlled temperature, we offer various additional equipment.



Motor Control

From control via inverter to AC servo motor control, built-in functions, and options for additional equipment, you can have a wide variety of features, such as network communication.

Network

From RS-232C/RS-422/RS-485 serial communication to a CC-Link FA open-field network, Ethernet, or MODBUS®, additional equipment is available for various connections. Connect with numerous devices.

FX3U

Controllable I/O: 16 - 256 points
Max. 384 with CC-Link remote I/O
(Main Unit I/O: 16/32/48/64/80/128 points)

- 3rd generation compact PLC
- High efficiency with more speed, performance, memory, and new functions
- Built-in high speed processing and positioning
- The FX3U can control a maximum of 256 connected I/O, and up to 384 points with CC-Link remote I/O.

Expansion Boards

2

FX3U-422-BD

Communication
FX3U-232-BD
FX3U-422-BD
FX3U-485-BD
FX3U-USB-BD

OR

Interface Board
FX3U-CNV-BD

Analog Setpoint
FX3U-8AV-BD

FX3U Main Units

1

FX3U-32M

FX3U Main Units 16-128 I/O

FX3U-16MR/ES-A	AC D R	FX3U-48MR/ES-A	AC D R	FX3U-80MR/ES-A	AC D R
FX3U-16MT/ES-A	AC D T1	FX3U-48MT/ES-A	AC D T1	FX3U-80MT/ES-A	AC D T1
FX3U-16MT/ESS	AC D T2	FX3U-48MT/ESS	AC D T2	FX3U-80MT/ESS	AC D T2
FX3U-16MR/DS	DC D R	FX3U-48MR/DS	DC D R	FX3U-80MR/DS	DC D R
FX3U-16MT/DS	DC D T1	FX3U-48MT/DS	DC D T1	FX3U-80MT/DS	DC D T1
FX3U-16MT/DSS	DC D T2	FX3U-48MT/DSS	DC D T2	FX3U-80MT/DSS	DC D T2
FX3U-32MR/ES-A	AC D R	FX3U-64MR/ES-A	AC D R	FX3U-128MR/ES-A	AC D R
FX3U-32MT/ES-A	AC D T1	FX3U-64MT/ES-A	AC D T1	FX3U-128MT/ES-A	AC D T1
FX3U-32MT/ESS	AC D T2	FX3U-64MT/ESS	AC D T2	FX3U-128MT/ESS	AC D T2
FX3U-32MS/ES	AC D TR	FX3U-64MS/ES	AC D TR		
FX3U-32MR/DS	DC D R	FX3U-64MR/DS	DC D R		
FX3U-32MT/DS	DC D T1	FX3U-64MT/DS	DC D T1		
FX3U-32MT/DSS	DC D T2	FX3U-64MT/DSS	DC D T2		
FX3U-32MR/UA1	AC E R	FX3U-64MR/UA1	AC E R		

AC AC Power supply
DC DC Power supply
D DC Input (sink/source)
E AC Input
R Relay output
T1 Transistor (sink)
T2 Transistor (source)
TR Triac output

Special Adapters

5

FX3U-ENET-ADP

Communication
FX3U-232ADP-MB
FX3U-485ADP-MB

Network
FX3U-ENET-ADP*1

Data Logging
FX3U-CF-ADP*2

4

FX3U-4AD-PTW-ADP

Analog
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP*2

Temperature
FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

3

FX3U-4HSX-ADP

High Speed Counter
FX3U-4HSX-ADP

Positioning
FX3U-2HSY-ADP

*1: Firmware version 3.10 or later.
*2: Firmware version 2.61.

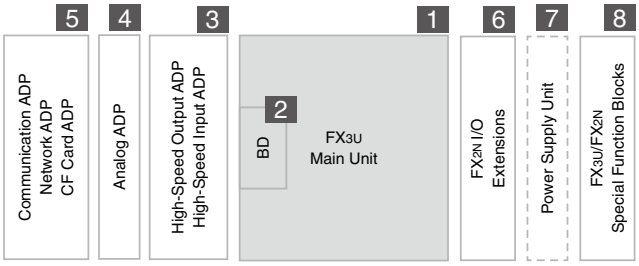
Optional Equipment and Software

GT14

GOT
GOT1000
(GT10/GT12/GT14/GT16)

Interface Converters
FX-USB-AW
FX-232AWC-H

Software
GX Developer
GX Works2



Special Function Modules

I/O Extension Modules

6


FX2N-48ER

Powered Extension Units

Input/Output Extension Units

FX2N-32ER-ES/UL
FX2N-32ET-ESS/UL
FX2N-48ER-DS
FX2N-48ER-ES/UL
FX2N-48ER-UA1/UL
FX2N-48ET-DSS
FX2N-48ET-ESS/UL


FX2N-8EX


FX2N-16EYR

Unpowered Extension Blocks

Input Extension Blocks

FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Output Extension Blocks

FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/Output Extension Block

FX2N-8ER-ES/UL

Power Supply Unit

7


FX3U-1PSU-5V

Power Supply Unit

FX3U-1PSU-5V

Special Function Blocks

8


FX0N-3A


FX3U-20SSC-H


FX3U-64CCL

Analog

FX0N-3A
FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

Positioning

FX2N-1PG-E
FX3U-1PG
FX2N-10PG
FX3U-20SSC-H
FX2N-1RM-E-SET
FX2N-10GM
FX2N-20GM

Network

FX2N-32CCL
FX3U-16CCL-M*1
FX3U-64CCL
FX3U-ENET-L

Temperature

FX2N-2LC
FX3U-4LC
FX2N-4AD-TC
FX2N-4AD-PT

High Speed Counter

FX2N-1HC
FX3U-2HC

Communication

FX2N-232IF

Accessories


FX3U-FLROM-64L

Memory Cassettes

FX3U-FLROM-16
FX3U-FLROM-64
FX3U-FLROM-64L
FX3U-FLROM-1M*3


FX3U-7DM

Display Module

FX3U-7DM

Display Module Holder

FX3U-7DM-HLD


FX0N-65EC

Extension Cables

FX0N-30EC (30cm)
FX0N-65EC (65cm)

Battery

FX3U-32BL

PLC Bus Connector

FX2N-CNV-BC

*3: Firmware version 3.00 or later.

FX3G

Controllable I/O: 14 - 128 points
Max. 256 with CC-Link remote I/O
(Main Unit I/O: 14/24/40/60 points)

- 3rd generation compact PLC
- Highly flexible
- Dual system-bus architecture
- Control of up to 128 directly connected I/O, or up to 256 I/O with CC-Link remote I/O.

Special Adapters

5

FX3U-232ADP-MB

FX3U-485ADP-MB

Communication
FX3U-232ADP-MB
FX3U-485ADP-MB

Network
FX3U-ENET-ADP*

4

FX3U-4AD-ADP

FX3U-4AD-PNK-ADP

Analog
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP

Temperature
FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

3

FX3G-CNV-ADP

Interface Adapter
FX3G-CNV-ADP

*: Firmware version 2.00 or later.

FX3G Main Units

1

FX3G-24M

FX3G-40M

FX3G Main Units 14-60 I/O

FX3G-14MR/ES-A	AC	D	R
FX3G-14MT/ES-A	AC	D	T1
FX3G-14MT/ESS	AC	D	T2
FX3G-14MR/DS	DC	D	R
FX3G-14MT/DS	DC	D	T1
FX3G-14MT/DSS	DC	D	T2
FX3G-24MR/ES-A	AC	D	R
FX3G-24MT/ES-A	AC	D	T1
FX3G-24MT/ESS	AC	D	T2
FX3G-24MR/DS	DC	D	R
FX3G-24MT/DS	DC	D	T1
FX3G-24MT/DSS	DC	D	T2
FX3G-40MR/ES-A	AC	D	R
FX3G-40MT/ES-A	AC	D	T1
FX3G-40MT/ESS	AC	D	T2
FX3G-40MR/DS	DC	D	R
FX3G-40MT/DS	DC	D	T1
FX3G-40MT/DSS	DC	D	T2
FX3G-60MR/ES-A	AC	D	R
FX3G-60MT/ES-A	AC	D	T1
FX3G-60MT/ESS	AC	D	T2
FX3G-60MR/DS	DC	D	R
FX3G-60MT/DS	DC	D	T1
FX3G-60MT/DSS	DC	D	T2

AC AC Power supply
DC DC Power supply
D DC Input (sink/source)
R Relay output
T1 Transistor Output (sink)
T2 Transistor Output (source)

Optional Equipment and Software

GT14

GOT
GOT1000
(GT10/GT12/GT14/GT16)

Interface Converters
FX-232AWC-H

Software
GX Developer
GX Works2

Expansion Boards

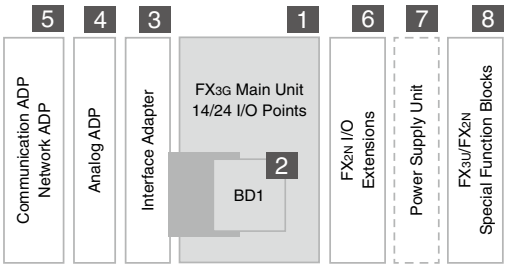
2

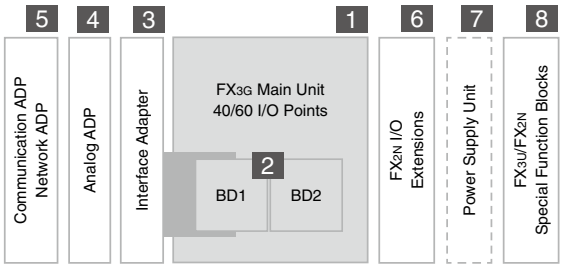
FX3G-232-BD

Communication
FX3G-232-BD
FX3G-422-BD
FX3G-485-BD

Analog
FX3G-2AD-BD
FX3G-1DA-BD

Analog Setpoint
FX3G-8AV-BD





Special Function Modules

I/O Extension Modules

6

FX2N-48ER

Powered Extension Units

Input/Output Extension Units

FX2N-32ER-ES/UL
FX2N-32ET-ESS/UL
FX2N-48ER-ES/UL
FX2N-48ER-DS
FX2N-48ET-DSS
FX2N-48ER-UA1/UL
FX2N-48ET-ESS/UL

FX2N-8EX

Unpowered Extension Blocks

Input Extension Blocks

FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Output Extension Blocks

FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/Output Extension Block

FX2N-8ER-ES/UL

Power Supply Unit

7

FX3U-1PSU-5V

Power Supply Unit

FX3U-1PSU-5V

Special Function Blocks

8

FX3U-4DA

Analog

FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

Temperature

FX2N-2LC
FX3U-4LC
FX2N-4AD-TC
FX2N-4AD-PT

Network

FX2N-32CCL
FX3U-16CCL-M*
FX3U-64CCL

Accessories

FX3G-EEPROM-32L

Memory Cassette

FX3G-EEPROM-32L

FX3G-5DM

Display Module

FX3G-5DM

FX0N-65EC

Extension Cables

FX0N-30EC (30cm)
FX0N-65EC (65cm)

PLC Bus Connector

FX2N-CNV-BC

Battery

FX3U-32BL

FX3GC

Controllable I/O: 32 - 128 points
Max. 256 with CC-Link remote I/O
(Main Unit I/O: 32 points)

- 3rd generation super-compact PLC
- Reduced size and wiring using connector-type I/O
- Dual system-bus architecture
- Control of up to 128 directly connected I/O, or up to 256 I/O with CC-Link remote I/O.

Special Adapters

3


FX3U-ENET-ADP


FX3U-232ADP-MB


FX3U-485ADP-MB

Network
FX3U-ENET-ADP*

Communication
FX3U-232ADP-MB
FX3U-485ADP-MB

2


FX3U-4AD-ADP


FX3U-4AD-PNK-ADP

Analog
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP

Temperature
FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

*: Firmware version 2.00 or later.

FX3GC Main Units

1


FX3GC-32M

FX3GC Main Units 32 I/O

FX3GC-32MT/D	DC	D	T1
FX3GC-32MT/DSS	DC	D	T2

DC DC Power supply
D DC Input (sink/source)
T1 Transistor Output (sink)
T2 Transistor Output (source)

Optional Equipment and Software


GT14

GOT
GOT1000
(GT10/GT12/GT14/GT16)

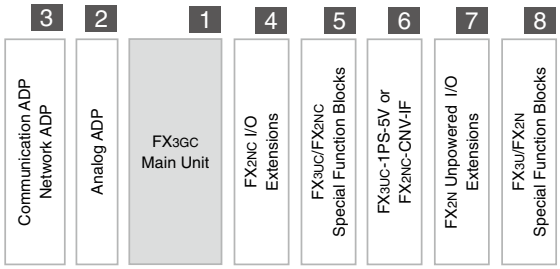
Interface Converters
FX-232AWC-H

Software
GX Developer
GX Works2

Accessories

I/O Cables
General I/O cable
FX-16E-500CAB-S (5m)

Connecting to Terminal Blocks
FX-16E-150CAB (1.5m)
FX-16E-300CAB (3m)
FX-16E-500CAB (5m)
FX-16E-150CAB-R (1.5m)
FX-16E-300CAB-R (3m)
FX-16E-500CAB-R (5m)



Special Function Modules

I/O Extension Blocks

4


FX2NC-32EX


FX2NC-16EYR-T

Input Extension Blocks

FX2NC-16EX-T-DS
FX2NC-16EX-DS
FX2NC-32EX-DS

Output Extension Blocks

FX2NC-16EYR-T-DS
FX2NC-16EYT-DSS
FX2NC-32EYT-DSS

6


FX3UC-1PS-5V

Power Supply Unit

FX3UC-1PS-5V
OR

Interface Converter

FX2NC-CNV-IF

7


FX2N-8EX

Unpowered Extension Blocks

Input Extension Blocks

FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Output Extension Blocks

FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Input/Output Extension Blocks

FX2N-8ER-ES/UL

Special Function Blocks

5


FX3UC-4AD

Analog

FX3UC-4AD
FX2NC-4DA

8


FX3U-4DA

Analog

FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

Temperature

FX2N-2LC
FX3U-4LC
FX2N-4AD-TC
FX2N-4AD-PT

Network

FX2N-32CCL
FX3U-16CCL-M*
FX3U-64CCL

Connector Parts

FX2C-I/O-CON
FX2C-I/O-CON-S
FX2C-I/O-CON-SA


FX-16E-TB

Terminal Blocks

FX-16E-TB/UL
FX-16EYR-ES-TB/UL
FX-16EYS-ES-TB/UL
FX-16EYT-ESS-TB/UL
FX-32E-TB/UL

Input Switches

FX2C-16SW-C
FX2C-16SW-TB

Battery

FX3U-32BL


FX0N-65EC

Extension Cables

FX0N-30EC (30cm)
FX0N-65EC (65cm)

PLC Bus Connector

FX2N-CNV-BC

Power Supply Cables

FX2NC-100MPCB (1m)
FX2NC-100BPCB (1m)
FX2NC-10BPCB1 (0.1m)

FX3S

Controllable I/O: 10 - 30 points
(Main Unit I/O: 10/14/20/30 points)

- **Basic controller for general applications**
- **High performance with minimal size**

Special Adapters

5

FX3U-ENET-ADP

Network

FX3U-ENET-ADP

FX3U-232ADP-MB

Communication

FX3U-232ADP-MB
FX3U-485ADP-MB

4

FX3U-4AD-ADP

Analog

FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP

FX3U-4AD-PNK-ADP

Temperature

FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

3

FX3S-CNV-ADP

Interface Adapter

FX3S-CNV-ADP

Optional Equipment and Software

GT14

GOT

GOT1000
(GT10/GT12/GT14/GT16)

Software

GX Works2

Interface Converters

FX-232AWC-H

Expansion Boards

2

FX3G-232-BD

Communication

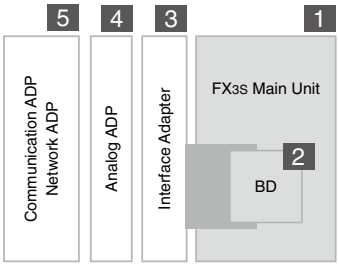
FX3G-232-BD
FX3G-422-BD
FX3G-485-BD

Analog

FX3G-2AD-BD
FX3G-1DA-BD

Analog Setpoint

FX3G-8AV-BD



FX3S Main Units

1

FX3S-10M

■FX3S Main Units 10-30 I/O

FX3S-10MR/ES	AC D R	FX3S-20MR/ES	AC D R
FX3S-10MT/ES	AC D T1	FX3S-20MT/ES	AC D T1
FX3S-10MT/ESS	AC D T2	FX3S-20MT/ESS	AC D T2
FX3S-14MR/ES	AC D R	FX3S-30MR/ES	AC D R
FX3S-14MT/ES	AC D T1	FX3S-30MT/ES	AC D T1
FX3S-14MT/ESS	AC D T2	FX3S-30MT/ESS	AC D T2

- AC AC Power supply
- D DC Input (sink/source)
- R Relay Output
- T1 Transistor Output (sink)
- T2 Transistor Output (source)

Accessories

■Memory Cassette

FX3G-EEPROM-32L

FX3G-EEPROM-32L

FX3UC

Controllable I/O: 16 - 256 points
Max. 384 with CC-Link remote I/O
(Main Unit I/O: 16/32/64/96 points)

- 3rd generation super-compact PLC
- Reduced size and wiring using connector-type I/O
- Built-in high speed processing and positioning
- Even with its ultra-compact size, the FX3UC can be expanded to locally control up to 256 I/O, and up to 384 points with CC-Link remote I/O.

Special Adapters

3

FX3U-ENET-ADP

FX3U-232ADP-MB

Network

FX3U-ENET-ADP*1

Communication

FX3U-232ADP-MB
FX3U-485ADP-MB

FX3U-CF-ADP

Data Logging

FX3U-CF-ADP*2

2

FX3U-4AD-ADP

FX3U-4AD-PNK-ADP

Analog

FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-3A-ADP*2

Temperature

FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4AD-PTW-ADP
FX3U-4AD-PNK-ADP

FX3UC Main Units

1

FX3UC-64M

FX3UC Main Units 16-96 I/O

FX3UC-16MT/D*	DC	D1 T1
FX3UC-16MT/DSS	DC	D2 T2
FX3UC-16MR/D-T*	DC	D1 R
FX3UC-16MR/DS-T	DC	D2 R
FX3UC-32MT/D*	DC	D1 T1
FX3UC-32MT/DSS	DC	D2 T2
FX3UC-64MT/D*	DC	D1 T1
FX3UC-64MT/DSS	DC	D2 T2
FX3UC-96MT/D*	DC	D1 T1
FX3UC-96MT/DSS	DC	D2 T2

DC DC Power supply
D1 DC Input (sink)
D2 DC Input (sink/source)
R Relay Output
T1 Transistor Output (sink)
T2 Transistor Output (source)

*Refer to the HARDWARE MANUAL for system configuration.

Optional Equipment and Software

GT14

GOT

GOT1000
(GT10/GT12/GT14/GT16)

Software

GX Developer
GX Works2

Interface Converters

FX-USB AW
FX-232AWC-H

Accessories

FX3U-FLROM-64L

Memory Cassettes

FX3U-FLROM-16
FX3U-FLROM-64
FX3U-FLROM-64L
FX3U-FLROM-1M*3

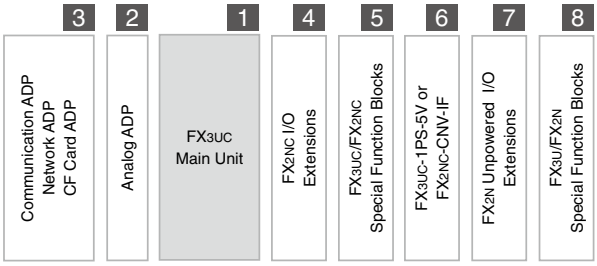
I/O Cables

General I/O cable
FX-16E-500CAB-S (5m)

Connecting to Terminal Blocks

FX-16E-150CAB (1.5m)
FX-16E-300CAB (3m)
FX-16E-500CAB (5m)
FX-16E-150CAB-R (1.5m)
FX-16E-300CAB-R (3m)
FX-16E-500CAB-R (5m)

*1: Firmware version 3.10 or later. *2: Firmware version 2.61. *3: Firmware version 3.00 or later.



Special Function Modules*

I/O Extension Blocks

* The special function Modules of FX3UC-****/DS(S)[].

4


FX2NC-32EX
FX2NC-16EYR-T

Input Extension Blocks
FX2NC-16EX-T-DS
FX2NC-16EX-DS
FX2NC-32EX-DS

Output Extension Blocks
FX2NC-16EYR-T-DS
FX2NC-16EYT-DSS
FX2NC-32EYT-DSS

6


FX3UC-1PS-5V

Power Supply Unit
FX3UC-1PS-5V
OR

Interface Converter
FX2NC-CNV-IF

Unpowered Extension Blocks

7


FX2N-8EX
FX2N-16EYR

Input/Output Extension Block
FX2N-8ER-ES/UL

Input Extension Blocks
FX2N-8EX-ES/UL
FX2N-8EX-UA1/UL
FX2N-16EX-ES/UL

Output Extension Blocks
FX2N-8EYR-ES/UL
FX2N-8EYT-ESS/UL
FX2N-16EYR-ES/UL
FX2N-16EYT-ESS/UL
FX2N-16EYS

Special Function Blocks

5


FX3UC-4AD

Analog
FX3UC-4AD
FX2NC-4DA

High Speed Counter
FX2NC-1HC

8


FX3U-4DA
FX3U-20SSC-H
FX3U-64CCL

Analog
FX0N-3A
FX2N-2AD
FX3U-4AD
FX2N-2DA
FX3U-4DA
FX2N-5A
FX2N-8AD

Positioning
FX2N-1PG-E
FX3U-1PG
FX2N-10PG
FX2N-10GM
FX2N-1RM-E-SET
FX3U-20SSC-H
FX2N-20GM

Network
FX2N-32CCL
FX3U-16CCL-M*1
FX3U-64CCL
FX3U-ENET-L

Temperature
FX2N-2LC
FX3U-4LC
FX2N-4AD-TC
FX2N-4AD-PT

High Speed Counter
FX2N-1HC
FX3U-2HC

Communication
FX2N-232IF

Connector Parts

FX2C-I/O-CON
FX2C-I/O-CON-S
FX2C-I/O-CON-SA


FX-16E-TB

Terminal Blocks

FX-16E-TB/UL
FX-16EYR-ES-TB/UL
FX-16EYS-ES-TB/UL
FX-16EYT-ESS-TB/UL
FX-32E-TB/UL

Input Switches

FX2C-16SW-C
FX2C-16SW-TB

Battery

FX3U-32BL


FX0N-65EC

Extension Cables

FX0N-30EC (30cm)
FX0N-65EC (65cm)

PLC Bus Connector

FX2N-CNV-BC

Power Supply Cables

FX2NC-100MPCB (1m)
FX2NC-100BPCB (1m)
FX2NC-10BPCB1 (0.1m)

Programming Specifications

Programming

System specifications	FX3S	FX3G/FX3GC	FX3U/FX3UC
I/O points	30 total	256 total (combined local and CC-Link remote I/O)	384 total (combined local and CC-Link remote I/O)
Address range	Max. 30 direct addressing	Max. 128 direct addressing and Max. 128 remote I/O	Max. 256 direct addressing and Max. 256 remote I/O
Program memory	16,000 steps EEPROM (Program capacity is 4,000 steps.)	32,000 steps EEPROM (internal), exchangeable EEPROM memory cassette**	64,000 steps RAM (internal), exchangeable FLROM memory cassette
Instruction Time	0.21 µs or 0.5 µs / contact instruction	0.21 µs or 0.42 µs / contact instruction	0.065 µs / contact instruction
Number of instructions	29 sequence instructions, 2 steps ladder instructions, 116 applied instructions	29 sequence instructions, 2 steps ladder instructions, 124 applied instructions	29 sequence instructions, 2 steps ladder instructions, 218 applied instructions
Programming language	Step ladder, instruction list, SFC Step ladder		
Program execution	Cyclical execution, refresh mode processing		
Program protection	2 different keywords, Max password length 16 characters		

* 8-character keyword protection level depends on the keyword registered; 16-character keyword protection level is set within GX-Developer.
** Not for FX3GC

Devices

System specifications	FX3S	FX3G/FX3GC	FX3U/FX3UC
Auxiliary relays	1,536 total, with 1,408 general (M0 - M383 and M512 - M1535) and 128 EEPROM latched (M384 - M511)	7,680 total, with 384 general (M0 - M383), 1,152 EEPROM latched (M384 - M1535), and 6,144 general/optional latched (M1536 - M7679)	7,680 total, with 500 general (M0 - M499), 524 optional latched (M500 - M1023), and 6,656 latched (M1024 - M7679)
Special auxiliary relays	512(M8000 - M8511)		
State relays	256 total, with 128 EEPROM latched (S0 - S127) and 128 general (S128 - S255)	4,096 total, with 1,000 EEPROM latched (S0 - S999) and 3,096 general/optional latched (S1000 - S4095)	4,096 total, with 1,000 optional latched (S0 - S999) and 3,096 latched (S1000 - S4095)
Timers	169 total, with 69 100 ms(T0 - T62 and T132 - T137), 31 100/10 ms (T32 - T62), and 69 1 ms (T63 - T131)	320 total, with 206 100 ms (T0 - T199 and T250 - T255), 46 10 ms (T200 - T245), and 68 1 ms (T246 - T249 and T256 - T319)	512 total, with 206 100 ms (T0 - T191, T192 - T199 and T250 - T255), 46 10 ms (T200 - T245), and 260 1 ms (T246 - T249 and T256 - T511)
External setpoint entry via potentiometer	2*		—
Counters	67 total (16 bit and 32 bit), with 51 general (C0 - C15 and C200 - C234) and 16 EEPROM latched (C16 - C31)	235 total (16 bit and 32 bit), with 36 general (C0 - C15 and C200 - C219) and 199 EEPROM latched (C16 - C199 and C220 - C234)	235 total (16 bit and 32 bit), with 120 general (C0 - C99 and C200 - C219) and 115 latched (C100 - C199 and C220 - C234)
High-speed counters	21 total, with 16 1-phase (C235 - C250) and 5 2-phase (C251 - C255)		
High-speed counter speed	1-phase, 6 points max: 60 kHz / 2 points, 10 kHz / 4 points ; 2-phase, 2 points max: 30 kHz / 1 point, 5 kHz / 1 point	1-phase, 6 points max: 60 kHz / 4 points, 10 kHz / 2 points 2-phase, 3 points max: 30 kHz / 2 points, 5 kHz/1 point	1-phase, 8 points max: 100 kHz / 6 points, 10 kHz / 2 points 2-phase, 2 points max: 50 kHz / 2 points
Real-time clock	Year, month, day, hour, minute, second, day of the week		
Data registers	3,000 total, with 2,872 general (D0 - D127 and D256 - D2999) and 128 EEPROM latched (D128 - D255)	8,000 total, with 128 general (D0 - D127), 972 EEPROM latched (D128 - D1099), and 6,900 general/optional latched (D1100 - D7999)	8,000 total, with 200 general (D0 - D199), 312 optional latched (D200 - D511), and 7,488 latched (D512 - D7999)
Extension registers	—	24,000 (R0 - R23999)	32,768 (R0 - R32767)
Extension file registers	—	24,000 (ER0 - R23999) internal/optional memory	32,768 (ER0 - R32767) optional memory
Index registers	16		
Special data registers	512 (D8000 - D8511)		
Pointers	256	2,048	4,096
Nestings	8		
Interrupt inputs	6		
Constants	16 bit: K: -32,768 to +32,767; H: 0 to FFFF; 32 bit: K: -2,147,483,648 to +2,147,483,647; H: 0 to FFFF FFFF		

* Not for FX3GC

Instruction

FNC No.	Mnemonic	Function	Applicable PLC FX3S	FX3G/FX3GC	FX3U/FX3UC
Program Flow					
0	CJ	Conditional Jump	●	●	●
1	CALL	Call Subroutine	●	●	●
2	SRET	Subroutine Return	●	●	●
3	IRET	Interrupt Return	●	●	●
4	EI	Enable Interrupt	●	●	●
5	DI	Disable Interrupt	●	●	●
6	FEND	Main Routine Program End	●	●	●
7	WDT	Watchdog Timer Refresh	●	●	●
8	FOR	Start a FOR/NEXT Loop	●	●	●
9	NEXT	End a FOR/NEXT Loop	●	●	●
Move and Compare					
10	CMP	Compare	●	●	●
11	ZCP	Zone Compare	●	●	●
12	MOV	Move	●	●	●
13	SMOV	Shift Move	●	●	●
14	CML	Complement	●	●	●
15	BMOV	Block Move	●	●	●
16	FMOV	Fill Move	●	●	●
17	XCH	Exchange	–	–	●
18	BCD	Conversion to Binary Coded Decimal	●	●	●
19	BIN	Conversion to Binary	●	●	●
Arithmetic and Logical Operation (+, –, ×, ÷)					
20	ADD	Addition	●	●	●
21	SUB	Subtraction	●	●	●
22	MUL	Multiplication	●	●	●
23	DIV	Division	●	●	●
24	INC	Increment	●	●	●
25	DEC	Decrement	●	●	●
26	WAND	Logical Word AND	●	●	●
27	WOR	Logical Word OR	●	●	●
28	WXOR	Logical Exclusive OR	●	●	●
29	NEG	Negation	–	–	●
Rotation and Shift Operation					
30	ROR	Rotation Right	●	●	●
31	ROL	Rotation Left	●	●	●
32	RCR	Rotation Right with Carry	–	–	●
33	RCL	Rotation Left with Carry	–	–	●
34	SFTR	Bit Shift Right	●	●	●
35	SFTL	Bit Shift Left	●	●	●
36	WSFR	Word Shift Right	●	●	●
37	WSFL	Word Shift Left	●	●	●
38	SFWR	Shift Write [FIFO/FILO Control]	●	●	●
39	SFRD	Shift Read [FIFO Control]	●	●	●
Data Operation					
40	ZRST	Zone Reset	●	●	●
41	DECO	Decode	●	●	●
42	ENCO	Encode	●	●	●
43	SUM	Sum of Active Bits	●	●	●
44	BON	Check Specified Bit Status	●	●	●
45	MEAN	Mean	●	●	●
46	ANS	Timed Annunciator Set	–	●	●
47	ANR	Annunciator Reset	–	●	●
48	SQR	Square Root	–	–	●
49	FLT	Conversion to Floating Point	●	●	●
High-Speed Processing					
50	REF	Refresh	●	●	●
51	REFF	Refresh and Filter Adjust	–	–	●
52	MTR	Input Matrix	●	●	●
53	HSCS	High-Speed Counter Set	●	●	●
54	HSCR	High-Speed Counter Reset	●	●	●
55	HSZ	High-Speed Counter Zone Compare	●	●	●
56	SPD	Speed Detection	●	●	●
57	PLSY	Pulse Y Output	●	●	●
58	PWM	Pulse Width Modulation	●	●	●
59	PLSR	Acceleration/Deceleration Setup	●	●	●
Handy Instruction					
60	IST	Initial State	●	●	●
61	SER	Search a Data Stack	●	●	●
62	ABSD	Absolute Drum Sequencer	●	●	●
63	INCD	Incremental Drum Sequencer	●	●	●
64	TTMR	Teaching Timer	–	–	●
65	STMR	Special Timer	–	–	●
66	ALT	Alternate State	●	●	●
67	RAMP	Ramp Variable Value	●	●	●
68	ROTC	Rotary Table Control	–	–	●
69	SORT	Sort Tabulated Data	–	–	●
External FX I/O Device					
70	TKY	Ten Key Input	–	–	●
71	HKY	Hexadecimal Input	–	–	●
72	DSW	Digital Switch (Thumbwheel Input)	●	●	●
73	SEGD	Seven Segment Decoder	–	–	●
74	SEGL	Seven Segment With Latch	●	●	●
75	ARWS	Arrow Switch	–	–	●
76	ASC	ASCII Code Data Input	–	–	●
77	PR	Print (ASCII Code)	–	–	●
78	FROM	Read From a Special Function Block	–	●	●
79	TO	Write To a Special Function Block	–	●	●
External FX Device					
80	RS	Serial Communication	●	●	●
81	PRUN	Parallel Run (Octal Mode)	●	●	●
82	ASCI	Hexadecimal to ASCII Conversion	●	●	●
83	HEX	ASCII to Hexadecimal Conversion	●	●	●
84	CCD	Check Code	●	●	●
85	VRRD	Volume Read	●	●*	●
86	VRSC	Volume Scale	●	●*	●
87	RS2	Serial Communication 2	●	●	●
88	PID	PID Control Loop	●	●	●

* Not for FX3GC

FNC No.	Mnemonic	Function	Applicable PLC		
			FX3s	FX3G/FX3GC	FX3U/FX3UC
Data Transfer 2					
102	ZPUSH	Batch Store of Index Register	–	–	●
103	ZPOP	Batch POP of Index Register	–	–	●
Floating Point					
110	ECMP	Floating Point Compare	●	●	●
111	EZCP	Floating Point Zone Compare	–	–	●
112	EMOV	Floating Point Move	●	●	●
116	ESTR	Floating Point to Character String Conversion	–	–	●
117	EVAL	Character String to Floating Point Conversion	–	–	●
118	EBCD	Floating Point to Scientific Notation Conversion	–	–	●
119	EBIN	Scientific Notation to Floating Point Conversion	–	–	●
120	EADD	Floating Point Addition	●	●	●
121	ESUB	Floating Point Subtraction	●	●	●
122	EMUL	Floating Point Multiplication	●	●	●
123	EDIV	Floating Point Division	●	●	●
124	EXP	Floating Point Exponent	–	–	●
125	LOGE	Floating Point Natural Logarithm	–	–	●
126	LOG10	Floating Point Common Logarithm	–	–	●
127	ESQR	Floating Point Square Root	●	●	●
128	ENEG	Floating Point Negation	–	–	●
129	INT	Floating Point to Integer Conversion	●	●	●
130	SIN	Floating Point Sine	–	–	●
131	COS	Floating Point Cosine	–	–	●
132	TAN	Floating Point Tangent	–	–	●
133	ASIN	Floating Point Arc Sine	–	–	●
134	ACOS	Floating Point Arc Cosine	–	–	●
135	ATAN	Floating Point Arc Tangent	–	–	●
136	RAD	Floating Point Degrees to Radian Conversion	–	–	●
137	DEG	Floating Point Radian to Degrees Conversion	–	–	●
Data Operation 2					
140	WSUM	Sum of Word Data	–	–	●
141	WTOB	WORD to BYTE	–	–	●
142	BTOW	BYTE to WORD	–	–	●
143	UNI	4-bit Linking of Word Data	–	–	●
144	DIS	4-bit Grouping of Word Data	–	–	●
147	SWAP	Byte Swap	–	–	●
149	SORT2	Sort Tabulated Data 2	–	–	●
Positioning Control					
150	DSZR	DOG Search Zero Return	●	●	●
151	DVIT	Interrupt Positioning	–	–	●
152	TBL	Batch Data Positioning Mode	–	●	●
155	ABS	Absolute Current Value Read	●	●	●
156	ZRN	Zero Return	●	●	●
157	PLSV	Variable Speed Pulse Output	●	●	●
158	DRVI	Drive to Increment	●	●	●
159	DRVA	Drive to Absolute	●	●	●
Real Time Clock Control					
160	TCMP	RTC Data Compare	●	●	●
161	TZCP	RTC Data Zone Compare	●	●	●
162	TADD	RTC Data Addition	●	●	●

FNC No.	Mnemonic	Function	Applicable PLC		
			FX3s	FX3G/FX3GC	FX3U/FX3UC
163	TSUB	RTC Data Subtraction	●	●	●
164	HTOS	Hour to Second Conversion	–	–	●
165	STOH	Second to Hour Conversion	–	–	●
166	TRD	Read RTC Data	●	●	●
167	TWR	Set RTC Data	●	●	●
169	HOUR	Hour Meter	●	●	●
External Device					
170	GRY	Decimal to Gray Code Conversion	●	●	●
171	GBIN	Gray Code to Decimal Conversion	●	●	●
176	RD3A	Read form Dedicated Analog Block	–	●	●
177	WR3A	Write to Dedicated Analog Block	–	●	●
Other					
182	COMRD	Read Device Comment Data	–	–	●
184	RND	Random Number Generation	–	–	●
186	DUTY	Timing Pulse Generation	–	–	●
188	CRC	Cyclic Redundancy Check	–	–	●
189	HCMOV	High-Speed Counter Move	–	–	●
Block Data Operation					
192	BK+	Block Data Addition	–	–	●
193	BK-	Block Data Subtraction	–	–	●
194	BKCMP=	Block Data Compare (S1) = (S2)	–	–	●
195	BKCMP>	Block Data Compare (S1) > (S2)	–	–	●
196	BKCMP<	Block Data Compare (S1) < (S2)	–	–	●
197	BKCMP< >	Block Data Compare (S1) ≠ (S2)	–	–	●
198	BKCMP<=	Block Data Compare (S1) ≤ (S2)	–	–	●
199	BKCMP>=	Block Data Compare (S1) ≥ (S2)	–	–	●
Character String Control					
200	STR	BIN to Character String Conversion	–	–	●
201	VAL	Character String to BIN Conversion	–	–	●
202	$+	Link Character Strings	–	–	●
203	LEN	Character String Length Detection	–	–	●
204	RIGHT	Extracting Character String Data From the Right	–	–	●
205	LEFT	Extracting Character String Data from the Left	–	–	●
206	MIDR	Random Selection of Character Strings	–	–	●
207	MIDW	Random Replacement of Character Strings	–	–	●
208	INSTR	Character String Search	–	–	●
209	$MOV	Character String Transfer	–	–	●
Data Operation 3					
210	FDEL	Deleting Data from Tables	–	–	●
211	FINS	Inserting Data to Tables	–	–	●
212	POP	Shift Last Data Read [FILO Control]	–	–	●
213	SFR	Bit Shift Right with Carry	–	–	●
214	SFL	Bit Shift Left with Carry	–	–	●
Data Comparison					
224	LD=	Load Compare (S1)=(S2)	●	●	●
225	LD>	Load Compare (S1)>(S2)	●	●	●
226	LD<	Load Compare (S1)<(S2)	●	●	●
228	LD<>	Load Compare (S1)≠(S2)	●	●	●
229	LD<=	Load Compare (S1)≤(S2)	●	●	●
230	LD>=	Load Compare (S1)≥(S2)	●	●	●

FNC No.	Mnemonic	Function	Applicable PLC		
			FX3S	FX3G/FX3GC	FX3U/FX3UC
232	AND=	AND Compare (S1)=(S2)	●	●	●
233	AND>	AND Compare (S1)>(S2)	●	●	●
234	AND<	AND Compare (S1)<(S2)	●	●	●
236	AND<>	AND Compare (S1)≠(S2)	●	●	●
237	AND<=	AND Compare (S1)≤(S2)	●	●	●
238	AND>=	AND Compare (S1)≥(S2)	●	●	●
240	OR=	OR Compare (S1)=(S2)	●	●	●
241	OR>	OR Compare (S1)>(S2)	●	●	●
242	OR<	OR Compare (S1)<(S2)	●	●	●
244	OR<>	OR Compare (S1)≠(S2)	●	●	●
245	OR<=	OR Compare (S1)≤(S2)	●	●	●
246	OR>=	OR Compare (S1)≥(S2)	●	●	●
Data Table Operation					
256	LIMIT	Limit Control	–	–	●
257	BAND	Dead Band Control	–	–	●
258	ZONE	Zone Control	–	–	●
259	SCL	Scaling (Coordinate by Point Data)	–	–	●
260	DABIN	Decimal ASCII to BIN Conversion	–	–	●
261	BINDA	BIN to Decimal ASCII Conversion	–	–	●
269	SCL2	Scaling 2 (Coordinate by X/Y Data)	–	–	●
External Device Communication (Inverter Communication)					
270	IVCK	Inverter Status Check	●	●	●
271	IVDR	Inverter Drive	●	●	●
272	IVRD	Inverter Parameter Read	●	●	●
273	IVWR	Inverter Parameter Write	●	●	●
274	IVBWR	Inverter Parameter Block Write	–	–	●
275	IVMC	Inverter Multi Command	●	●	●
Data Transfer 3					
276	ADPRW	Modbus Read/Write	●	●	●
278	RBFM	Divided BFM Read	–	–	●
279	WBFM	Divided BFM Write	–	–	●
High-Speed Processing 2					
280	HSCT	High-Speed Counter Compare With Data Table	–	–	●
Extension File Register Control					
290	LOADR	Load From ER	–	●	●
291	SAVER	Save to ER	–	–	●
292	INITR	Initialize R and ER	–	–	●
293	LOGR	Logging R and ER	–	–	●
294	RWER	Rewrite to ER	–	●	●
295	INITER	Initialize ER	–	–	●
Data Logging					
300	FLCRT	File Create / Check	–	–	●
301	FLDEL	File Delete / CF Card Format	–	–	●
302	FLWR	Data Write	–	–	●
303	FLRD	Data Read	–	–	●
304	FLCMD	FX3U-CF-ADP Command	–	–	●
305	FLSTRD	FX3U-CF-ADP Status Read	–	–	●

MELSEC-QS/WS Series

The concept of safety is shifting from “zero accidents” to “zero risk.”

“MELSEC Safety,” the total safety solution from Mitsubishi realizes “visualization” for optimized safety control and enhanced productivity. With our wide range of products, we provide safety equipment that suits your system configuration needs.

MELSEC Safety
MITSUBISHI SAFETY FA SOLUTION

Safety Programmable Controller

CC-Link IE Field and CC-Link Safety enable distributed safety control for medium to large-scale systems.
Ladder programs and function blocks offer flexible programming for safety control.

Safety Controller

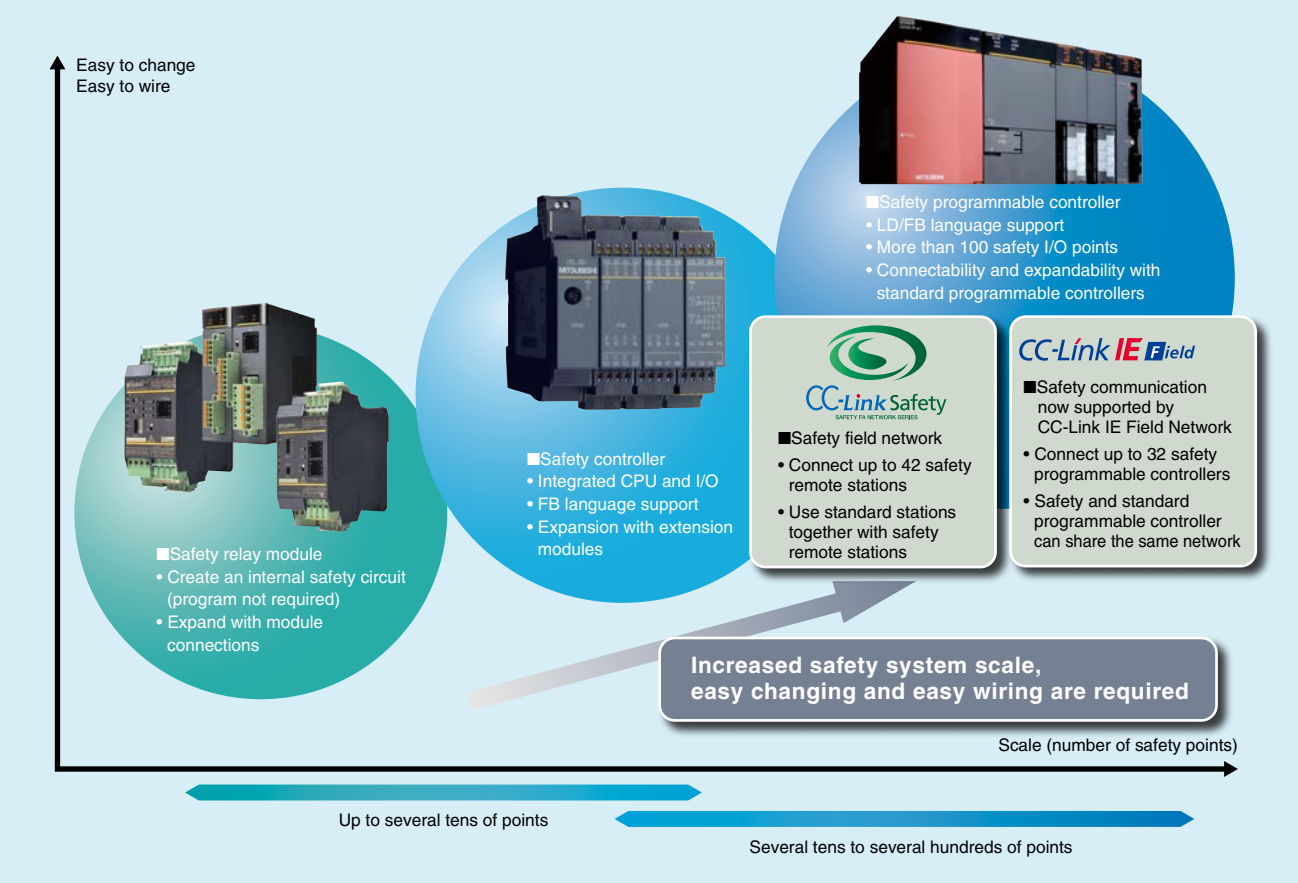
Best suited for small and medium safety systems.
A compact new solution featuring easy to use settings.

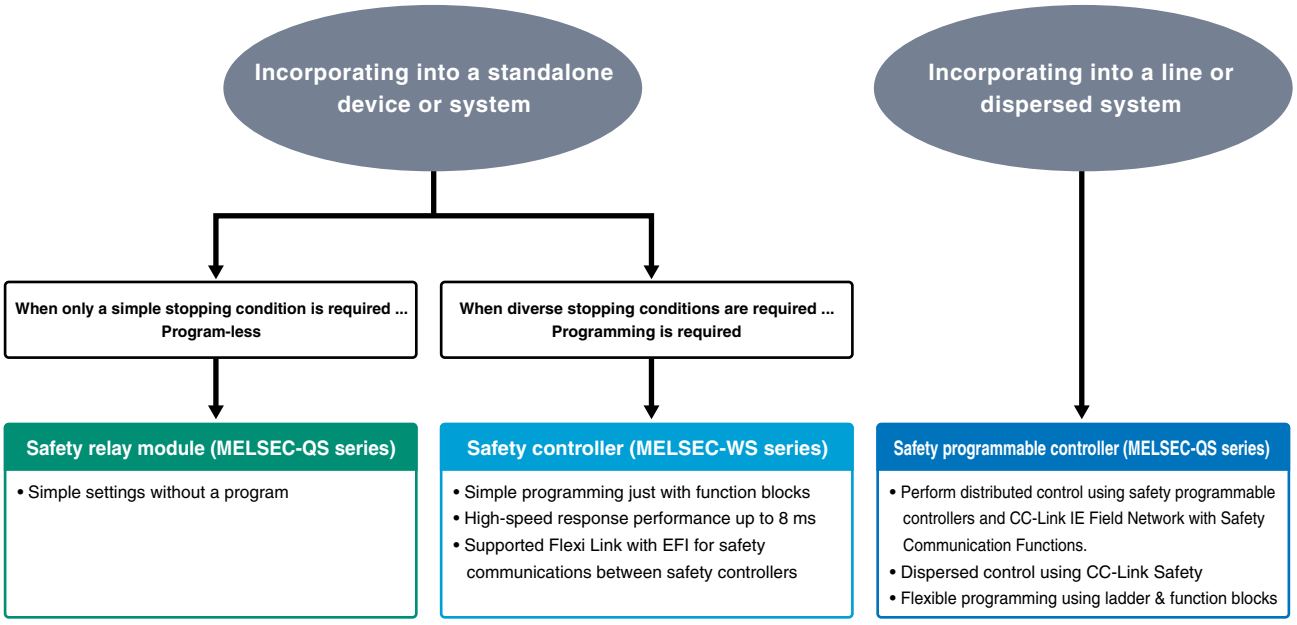
Safety Relay Module

These safety relay modules are easy to install and require no programing for delivering a small-scale safety control.

Points for selection

Select the safety control devices most suitable for your system configuration from the diverse lineup of MELSEC Safety devices.

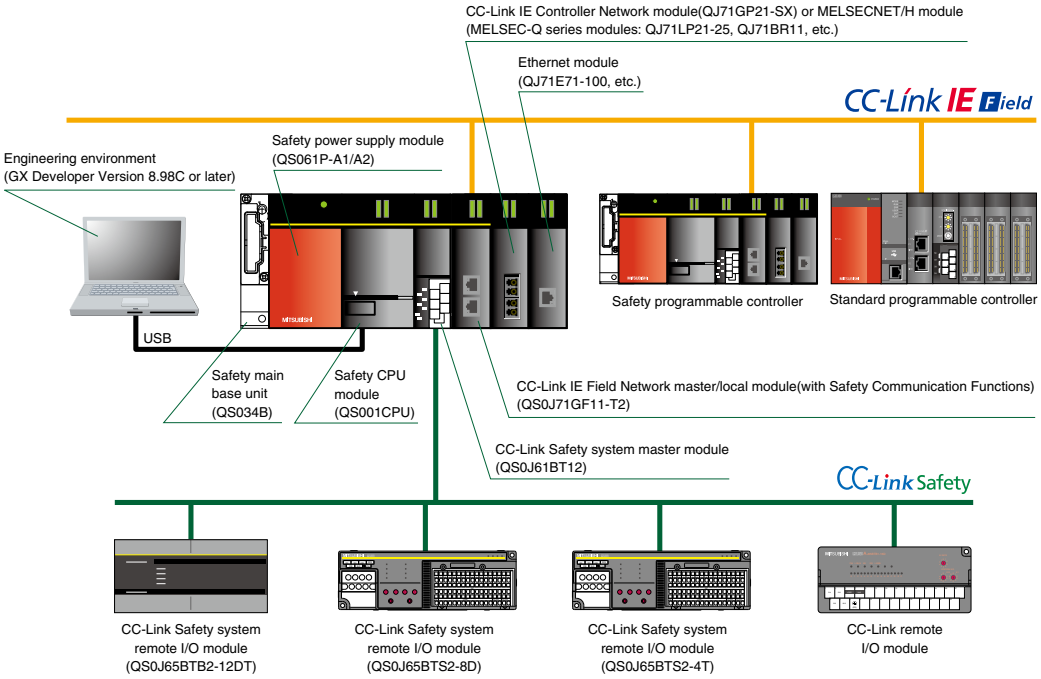




MELSEC-QS Safety programmable controller

The safety programmable controller is an International Safety Standard certified PLC for safety control. When connected with a safety device, such as an emergency stop switch or light curtain, this programmable controller executes safety control by turning the safety output OFF with a user-created sequence program to stop movement toward a source of hazard, such as a robot. With their enhanced connectivity and scalability to general PLC, the MELSEC-QS series are the best choice for factory line and dispersion system installations.

MELSEC-QS Safety programmable controller system configuration



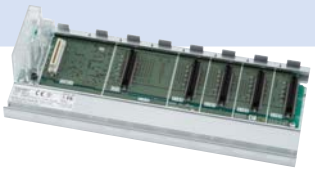
CPU Module

Dedicated CPU unit for the safety system “MELSEC-QS” series.

Model	Basic arithmetic processing speed (LD command)	Program capacity	Number of I/O points [X/Y]	Peripheral device connection port
QS001CPU(-K*1)	0.1 µs	14 K steps	1024 points	USB RS-232

*1: Products that complies to Korea’s KOSHA S-Mark system ends with “-K”.

Safety Nain Base Unit



Dedicated base unit for the safety system “MELSEC-QS” series.

Model	Number of unit mounting slots	Power supply module
QS034B(-K*1)	CPU + 4 slots	Mounting required

*1: Products that complies to Korea’s KOSHA S-Mark system ends with “-K”.

Safety Power Supply Module

Dedicated power supply unit for the safety system “MELSEC-QS” series.

Model	Input voltage	Output voltage	Output current
QS061P-A1(-K*1)	100 to 120 V AC	5 V	6 A
QS061P-A2(-K*1)	200 to 240 V AC	5 V	6 A

*1: Products that complies to Korea’s KOSHA S-Mark system ends with “-K”.

Safety Network Unit

These network units are designed to connect the safety PLC to CC-Link IE field or CC-Link network.

CC-Link IE Field Network master/local module

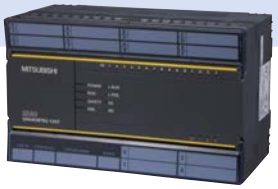
Model	Connection cable	Communication speed	Network topology	Overall cable distance	Compatible station	Maximum number of connectable stations per network
QS0J71GF11-T2	An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable	1 Gbps	Line topology star topology ring topology (Coexistence of line topology and star topology is possible.)	Line topology: 12000 m (when cables are connected to 1 master station and 120 slave stations) Star topology: Depends on the system configuration. Ring topology: 12100 m (when cables are connected to 1 master station and 120 slave stations)	Master station (safety station) Local station (safety station)	121 stations (1 master plus 120 slave stations)

CC-Link Safety system master module

Model	Connection cable	Communication speed	Network topology	Overall cable distance	Compatible station	Maximum number of connectable stations per network
QS0J61BT12(-K*1)	CC-Link dedicated cable (Ver. 1.10 compatible)	156 kbps	Bus (RS-485)	1200 m	Master station	65 stations (1 master plus 84 slave stations)
		625 kbps		900 m		
		2.5 Mbps		400 m		
		5 Mbps		160 m		
		10 Mbps		100 m		

*1: Products that complies to Korea's KOSHA S-Mark system ends with "-K".

CC-Link Safety System Remote I/O Module



These safety input, safety output, and safety input/output mixed-units can be used in the CC-Link Safety system.

Type	Model	Safety input/output points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Wiring method for common	Response time	External connection system
DC input (Negative common)	QS0J65BTS2-8D	Input 8 points Double input Input 16 points Single input	24 V DC	5.9 mA	–	16 points/common	0.4 ms	Two-piece SC terminal block
Transistor output	QS0J65BTS2-4T	Output 4 points Source + sink type Output 2 points Source + source type	24 V DC	–	0.5 A/point	4 points/common	0.4 ms	Two-piece SC terminal block
DC input (Negative common)/ Transistor output	QS0J65BTB2-12DT(-K*1)	Input 8 points Double input Input 16 points Single input	24 V DC	4.6 mA	–	16 points/common	0.4 ms	18-point two-piece terminal block
		Output 4 points Source + sink type Output 2 points Source + source type	24 V DC	–	0.5 A/point	4 points/common	0.4 ms	

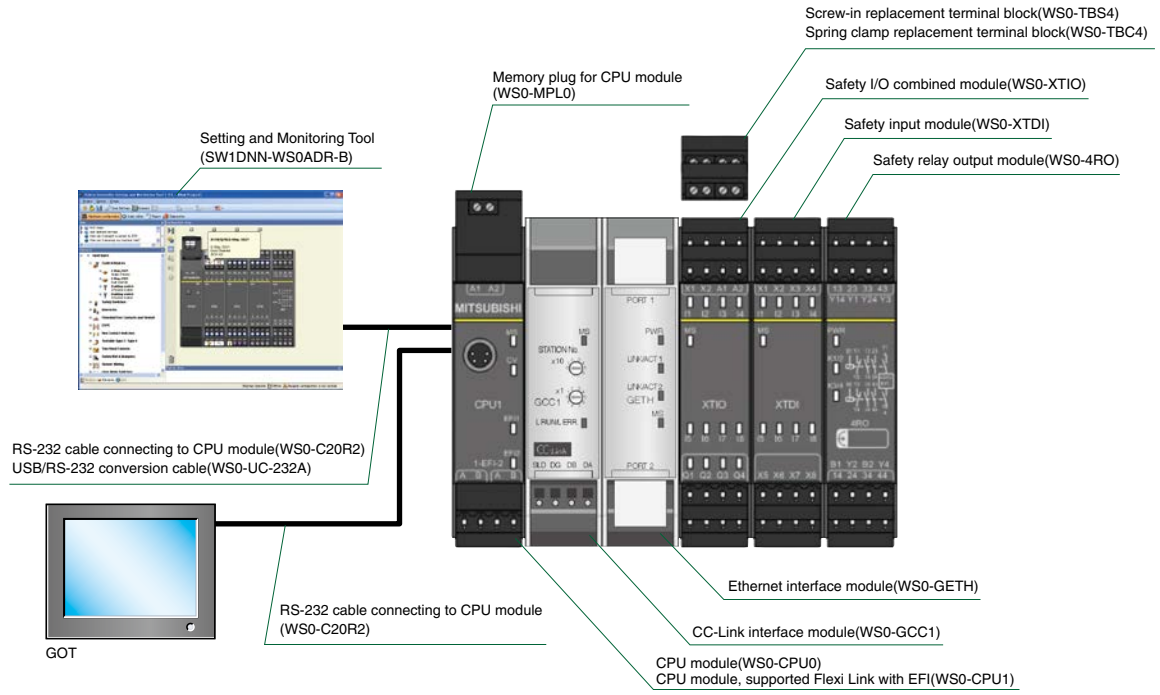
Two-piece SC terminal block Two-piece spring clamp terminal block

*1: Products that complies to Korea's KOSHA S-Mark system ends with "-K".

MELSEC-WS Series-A New Safety Controller

The safety controller MELSEC-WS series are perfect for small-to-mid scale safety controls. The function blocks are all you need for a simple safety circuit programming. Perfect for safety control of stand-alone devices and systems, these can be expanded up to 144 safety input/output points based on system configuration.

MELSEC-WS basic configuration



Powered by SICK

The MELSEC-WS series is jointly developed and manufactured by Mitsubishi Electric and SICK

SICK AG a German company, is a supplier of safety solutions.
SICK designs and manufactures a broad range of safety products including industrial-use sensors and automatic identification systems.

*1: Please note that warranty conditions are different from the MELSEC-Q/QS series.

Safety Controller CPU Module

These CPU modules are designed for the safety controller “MELSEC-WS” series.

Model	Scan cycle	Program capacity	Interfaces	Others
WS0-CPU000200	4 ms	255 FBs	RS-232	–
WS0-CPU130202	4 ms	255 FBs	RS-232	Flexi Link with EFI EFI is the communication interface for setting SICK's safety products.
WS0-CPU320202	4 ms	255 FBs	USB RS-232	Flexi Link Flexi Link with EFI EFI is the communication interface for setting SICK's safety products.

Network Module

These network modules are designed for the safety controller “MELSEC-WS” series.

Ethernet interface module

Type	Model	Transmission interface	Number of channels	Transmission speed
For Ethernet/TCP connection (standard communication)	WS0-GETH00200	100BASE-TX 10BASE-T	2 ch	100 Mbps 10 Mbps

CC-Link interface module

Type	Model	Connection cable	Communication speed	Station type	Number of occupied stations	CC-Link compatible version
For CC-Link communication (standard communication)	WS0-GCC100202	Ver. 1.10 compatible, CC-Link dedicated cable	156kbps 625kbps 2.5Mbps 5Mbps 10Mbps	Remote device station	1 to 4 stations	CC-Link Ver. 1.10

Safety Input Module/Safety I/O Module/Safety Relay Output Module

These safety input, safety input/output, and safety relay output modules are designed for the safety controller “MELSEC-WS” series.

Type	Model	Safety input/ Output points	Rated input voltage/ Rated load voltage	Rated input current	Load current	External connection system	Others
DC input	WS0-XTDI80202	Input 8 points Single input Input 4 points Double input	ON: 13 to 30 V DC OFF: -5 to +5 V DC	ON: 2.4 to 3.8 mA OFF: -2.5 to +2.1 mA	–	SC terminal block	–
DC input/ Transistor output	WS0-XTIO84202	Input 8 points Single input Input 4 points Double input	ON: 13 to 30 V DC OFF: -5 to +5 V DC	ON: 2.4 to 3.8 mA OFF: -2.5 to +2.1 mA	–	SC terminal block	Fast shut off
		Output 4 points Single input Output 2 points Double input	16 to 30 V DC	–	2 A/point Total 3.2 A		
Relay output	WS0-4RO4002	Safety relay output 2 points 2 output EDM contacts 2 points/diagnostic output 2 points	230 V AC 5 to 253 V AC 230 V DC 5 to 253 V DC	–	10 mA to 6 A/point Total 8 A	SC terminal block	–

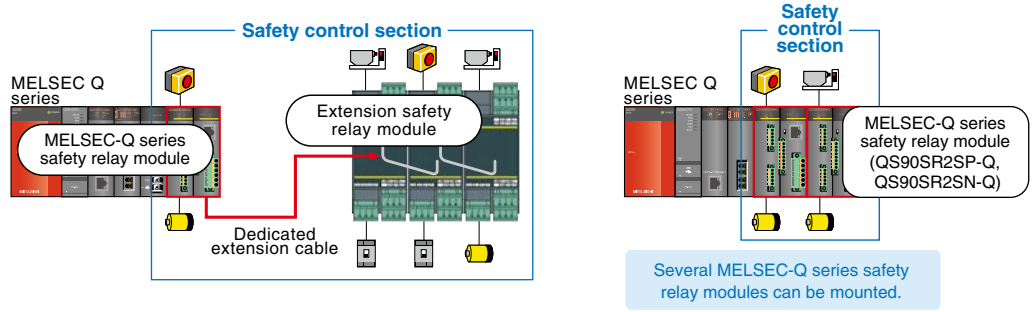
SC terminal block Spring clamp terminal block

Safety Relay Module The MELSEC-QS Series

Small-scale safety control! Easily add safety circuit to the MELSEC-Q series without a program!

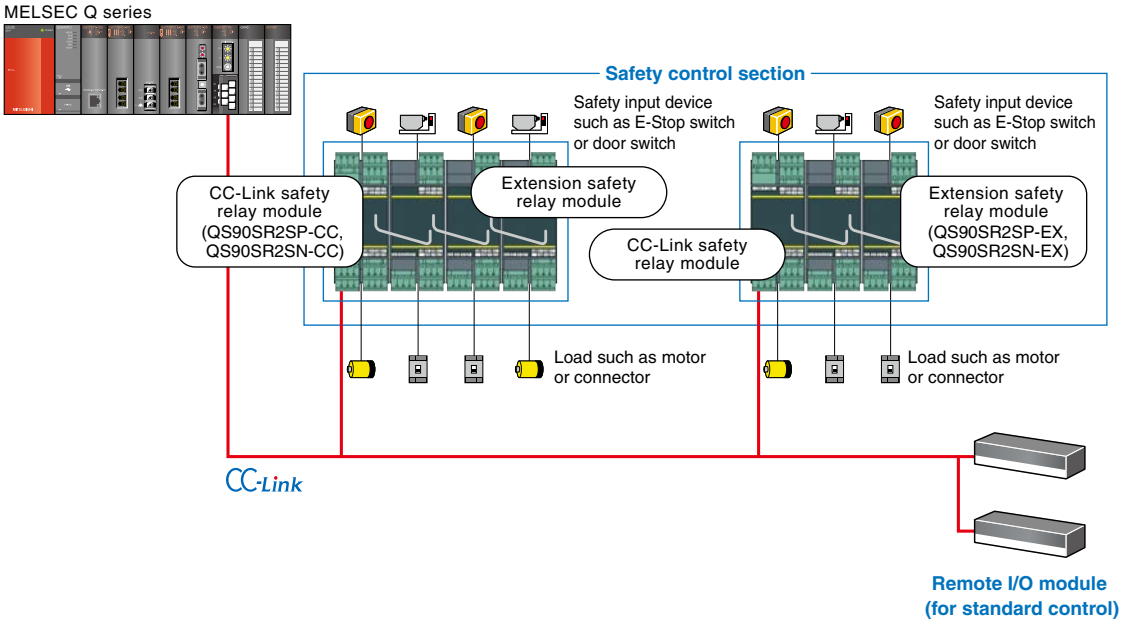
■Safety relay module system configuration drawing

●Mounting on MELSEC-Q series base unit



Several MELSEC-Q series safety relay modules can be mounted.

●Connecting to field network "CC-Link"



Remote I/O module (for standard control)

Q Series Safety Relay Module

These safety relay unit types are mounted to the base unit of the MELSEC-Q series.

Type	Model	Safety input/ Output points	Rated input voltage/ Contact maximum allowable voltage	Rated input current	Rated load current	Number of extension modules	External connection system
P type (dual input with positive commons)	QS90SR2SP-Q	Input 1 point 2 inputs	24 V DC	4.6 mA	–	Max. 3	Two-piece SC terminal block
		Output 1 point 3 outputs	250 V AC 30 V DC	–	5.0 A/point or less Category 3 3.6 A/point or less Category 4		
N type (dual input with positive common and negative common)	QS90SR2SN-Q	Input 1 point 2 inputs	24 V DC	4.6 mA	–	Max. 3	Two-piece SC terminal block
		Output 1 point 3 outputs	250 V AC 30 V DC	–	5.0 A/point or less Category 3 3.6 A/point or less Category 4		

Two-piece SC terminal block Two-piece spring clamp terminal block

CC-Link Safety Relay Module

A safety system can be built by using these CC-Link safety relay units through the CC-Link.

Type	Model	Safety input/ Output points	Rated input voltage/ Contact maximum allowable voltage	Rated input current	Rated load current	Number of extension modules	External connection system
P type (dual input with positive commons)	QS90SR2SP-CC	Input 1 point 2 inputs	24 V DC	4.6 mA	–	Max. 3	Two-piece SC terminal block
		Output 1 point 3 outputs	250 V AC 30 V DC	–	5.0 A/point or less Category 3 3.6 A/point or less Category 4		
N type (dual input with positive common and negative common)	QS90SR2SN-CC	Input 1 point 2 inputs	24 V DC	4.6 mA	–	Max. 3	Two-piece SC terminal block
		Output 1 point 3 outputs	250 V AC 30 V DC	–	5.0 A/point or less Category 3 3.6 A/point or less Category 4		

Two-piece SC terminal block Two-piece spring clamp terminal block

Extension Safety Relay Module

An expansion of up to three units can be configured to MELSEC-Q series or CC-Link basic safety relay unit.

Type	Model	Safety input/ Output points	Rated input voltage/ Contact maximum allowable voltage	Rated input current	Rated load current	External connection system
P type (dual input with positive commons)	QS90SR2SP-EX	1 point 2 inputs	24 V DC	4.6 mA	–	Two-piece SC terminal block
		1 point 3 outputs	250 V AC 30 V DC	–	5.0 A/point or less Category 3 3.6 A/point or less Category 4	
N type (dual input with positive common and negative common)	QS90SR2SN-EX	1 point 2 inputs	24 V DC	4.6 mA	–	Two-piece SC terminal block
		1 point 3 outputs	250 V AC 30 V DC	–	5.0 A/point or less Category 3 3.6 A/point or less Category 4	

Two-piece SC terminal block Two-piece spring clamp terminal block

Programmable Controller CPU Module Specifications

Safety CPU module specifications

Item			QS001CPU
Control method			Repetitive operation of stored program
I/O control mode			Refresh
Program language		Sequence control language	Relay symbol language, function block
Processing speed (sequence instruction)		LD X0	0.10 μs
		MOV D0 D1	0.35 μs
Constant scan (function that keeps scan time constant)			1 to 2,000 ms (setting unit: 1 ms)
Program capacity*1			14 k steps (56 KB)
Memory capacity		Program memory (Drive 0)	128 KB
		Standard ROM (Drive 4)	128 KB
Max. number of stored files		Program memory	3 *2
		Standard ROM	3 *2
Number of writes to standard ROM			Max. 100,000 times
Number of I/O device points			6144 points (X/Y0 to 17FF)
Number of I/O points			1024 points (X/Y0 to 3FF)
Number of device points	Internal relay [M]		Default: 6144 points (M0 to 6143) (changeable)
	Link relay [B]		Default: 2048 points (B0 to 7FF) (changeable)
	Timer [T]		Default: 512 points (T0 to 511) (changeable) (for low-/high-speed timer)
			Low-/high-speed timer is specified by instructions. The low-/high-speed timer measurement unit is set by parameters. (Low-speed timer: 1 to 1000 ms, in increments of 1 ms; default: 100 ms) (High-speed timer: 0.1 to 100 ms, in increments of 0.1 ms; default: 10 ms)
	Retentive timer [ST]		Default: 0 points (for low-/high-speed retentive timer) (changeable) Low-/high-speed retentive timer is specified by instructions. The low-/high-speed retentive timer measurement unit is set by parameters. (Low-speed retentive timer: 1 to 1000 ms, in increments of 1 ms; default: 100 ms) (High-speed retentive timer: 0.1 to 100 ms, in increments of 0.1 ms; default: 10 ms)
	Counter [C]		Normal counter default: 512 points (C0 to 511) (changeable)
	Data register [D]		Default: 6144 points (D0 to 6143) (changeable)
	Link register [W]		Default: 2048 points (W0 to 7FF) (changeable)
	Annunciator [F]		Default: 1024 points (F0 to 1023) (changeable)
	Edge relay [V]		Default: 1024 points (V0 to 1023) (changeable)
	Link special relay [SB]		1536 points (SB0 to 5FF)
	Link special register [SW]		1536 points (SW0 to 5FF)
	Special relay [SM]		5120 points (SM0 to 5119)
	Special register [SD]		5120 points (SD0 to 5119)
RUN/PAUSE contact			RUN contact: 1 point can be set in the range of X0 to 17FF, PAUSE contact: None
Clock function			Year, month, date, hour, minute, second, day (automatic leap-year detection) Accuracy: -3.18 to +5.25 s (TYP. +2.14 s)/d at 0°C Accuracy: -3.18 to +2.59 s (TYP. +2.07 s)/d at 25°C Accuracy: -12.97 to +3.63 s (TYP. +3.16 s)/d at 55°C

*1: The maximum number of executable sequence steps is calculated using the following formula:
(Program capacity) - (File header size [default: 34 steps])
For details of program capacity and file, refer to the following manual.
☞QSCPU User's Manual (Function Explanations, Program Fundamentals).
*2: The memory stores 1 file for each of parameter, sequence program, and device comment.

CPU module specifications

Item		WS0-CPU0	WS0-CPU1	WS0-CPU3 NEW
Category		Category 4 (EN/ISO 13849-1)		
Safety Integrity Level (SIL)		SIL3 (IEC 61508) SILCL3 (IEC 62061)		
Performance level (PL)		PLe (EN/ISO 13849-1)		
PFHd (mean probability of a dangerous failure per hour)		1.07×10^{-9}	1.69×10^{-9}	
Enclosure rating (EN/IEC 60529)		Terminals: IP20, Housing: IP40		
EMC		IEC61131-2(ZONE B), IEC61000-6-2, EN55011(Class A)		
Protection class		Ⅲ		
Number of EFI interfaces		0	2	
EFI connection		By spring clamp terminal block		
Data interface		Backplane bus (FLEX BUS+)		
Configuration interface		RS-232		
Cross-section of connecting wires		Single-core or finely stranded: 1 × 0.14 to 2.5 mm^2 or 2 × 0.14 to 0.75 mm^2 Finely stranded with ferrules to DIN 46228: 1 × 0.25 to 2.5 mm^2 or 2 × 0.25 to 0.5 mm^2		
Weight		0.11 kg	0.12 kg	0.13 kg
External power specs	Supply voltage	24 V DC (16.8 to 30 V DC)		
	Type of supply voltage	PELV or SELV (The current of the power supply unit for the main module has to be limited to a maximum of 4 A - either by the power supply unit itself or by a fuse.)		
	Power consumption	Max. 2.5 W		
	Switch-on time	Max. 18 seconds		

Safety relay module specifications

Item		MELSEC-Q safety relay module QS90SR2SP-Q/QS90SR2SN-Q	CC-Link safety relay module QS90SR2SP-CC/QS90SR2SN-CC	Extension safety relay module QS90SR2SP-EX/QS90SR2SN-EX
Applicable safety standard		EN954-1 Category 4, ISO13849-1 PL e		
Number of safety input points		1 point (2 inputs)		
Number of start-up input points		1 point		
Number of safety output points		1 point (3 outputs)		
Rated load current		Category 4: 3.6 A/point or less, Category 3: 5.0 A/point or less (250 V AC/30 V DC)		
Response time	Time until output OFF	20 ms or less (safety input OFF to safety output OFF)		
	Time until output ON	50 ms or less (safety input ON to safety output ON)		
Module power supply		20.4 to 26.4 V DC (ripple ratio: 5% or less)	20.4 to 26.4 V DC (ripple ratio: 5% or less)	Supplied from MELSEC-Q safety relay module or CC-Link safety relay module.
Safety power supply		20.4 to 26.4 V DC (ripple ratio: 5% or less)	20.4 to 26.4 V DC (ripple ratio: 5% or less)	Supplied from MELSEC-Q safety relay module or CC-Link safety relay module.
Number of extension modules		Max. 3 extension safety relay modules	Max. 3 extension safety relay modules	–
External connections		Two-piece spring clamp terminal block		
Relay life	Mechanical	5,000,000 times or more		
	Electrical	100,000 times or more		

Network Related Products

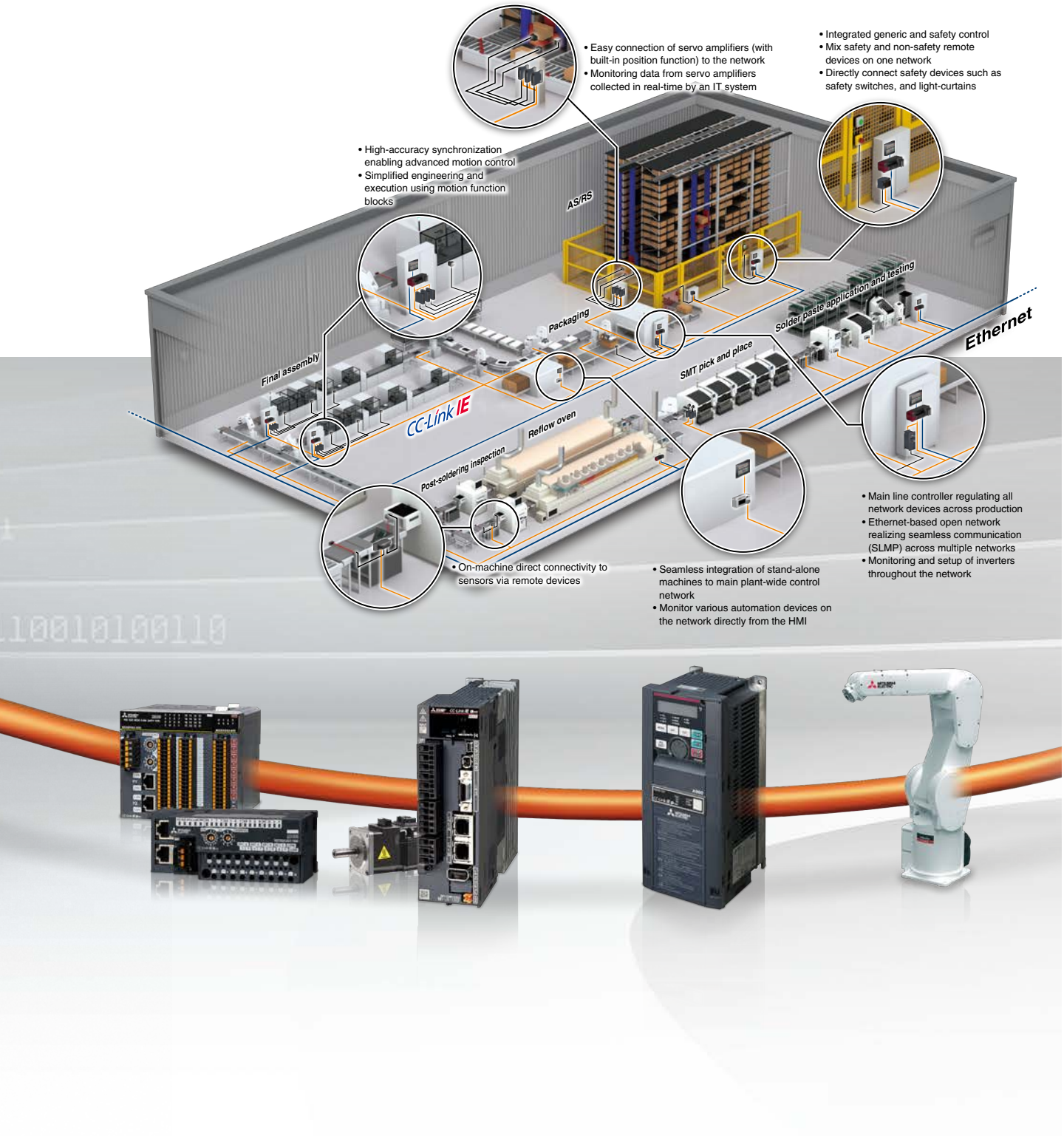
Seamless connectivity within all levels of automation

The backbone of e-F@ctory, leveraging connectivity between the shop floor and IT

Extensive visualization with advanced data connectivity

Big Data analytics requires deterministic data collection, which can be realized by incorporating two key features: SLMP*1 that enables seamless connectivity between devices in the IT layer and on the shop floor; and a high-speed, large-capacity 1 Gbps communications network that enables the handling of large-data, such as production, quality and control data between different production processes.

*1: Seamless Message Protocol



General, motion and safety control integrated into one network

CC-Link IE incorporates generic distributed control, synchronous motion control, and safety control enabling safety communications across multiple safety devices, all on the same network. The topology is quite versatile, based on twisted-pair cables, which enables flexibility in system configuration while helping to keep installation cost low.

Comprehensive diagnosis realizing higher reliability

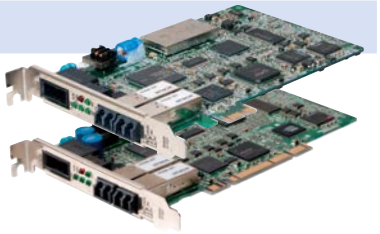
Disruptions to the control system are kept to a minimum via comprehensive diagnostics functions, high communications integrity owing to the noise-resistant characteristics of the optical cable, and communication re-routing capabilities made possible as the result of using a ring topology. Also, network errors can be rectified quickly by visualizing the network system image using the engineering software*2, and remotely from a GOT (HMI) directly on the machine or production line.

*2: MELSEC iQ-R Series is supported by GX Works3.
MELSEC-Q Series and MELSEC-L Series are supported by GX Works2

CC-Link IE Controller Network Compatible Products

CC-Link IE

Network Interface Board



Using these PCI Express®/PCI/PCI-X bus interface boards, PC control systems can be directly connected to CC-Link IE Control Network. This interface board can be used as either a control station or normal station of CC-Link IE Controller Network.

Model	Connection cable	Bus standard	Communication speed	Transmission path	Overall cable distance	Compatible station	Maximum stations per network	Others
Q81BD-J71GP21-SX	Optical fiber cable (Multi-mode fiber)	PCI Express® bus	1 Gbps	Dual loop	66000 m (When 120 stations are connected)	Control station / Normal station	120 stations	–
Q81BD-J71GP21S-SX	Optical fiber cable (Multi-mode fiber)	PCI Express® bus	1 Gbps	Dual loop	66000 m (When 120 stations are connected)	Control station / Normal station	120 stations	With external power supply function
Q80BD-J71GP21-SX	Optical fiber cable (Multi-mode fiber)	PCI bus / PCIX-bus	1 Gbps	Dual loop	66000 m (When 120 stations are connected)	Control station / Normal station	120 stations	–
Q80BD-J71GP21S-SX	Optical fiber cable (Multi-mode fiber)	PCI bus / PCIX-bus	1 Gbps	Dual loop	66000 m (When 120 stations are connected)	Control station / Normal station	120 stations	With external power supply function

CC-Link IE Field Network Compatible Products

CC-Link IE

Remote I/O Module

This I/O module is designed for the CC-Link IE field network. Easily disperse and layout the remote input/output modules to match your equipment.

Screw terminal block type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input (positive/negative shared common)	NZ2GF2B1N1-16D	16 points	24 V DC	6 mA	16 points/common	0 ms / 0.2 ms / 1 ms / 1.5 ms / 5 ms / 10 ms / 20 ms / 70 ms	1-wire	3	Synchronous communication
	NZ2GF2B1N-16D	16 points	24 V DC	6 mA	16 points/common	0 ms / 0.2 ms / 1 ms / 1.5 ms / 5 ms / 10 ms / 20 ms / 70 ms	1-wire	1	Synchronous communication

Output module

Type	Model	Output points	Rated load voltage	Rated load current	Common type	Response time	Wiring method	Max. extension modules	Others
Transistor (sink) output	NZ2GF2B1N1-16T	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	1-wire	3	Synchronous communication
	NZ2GF2B1N-16T	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication
Transistor (source) output	NZ2GF2B1N1-16TE	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	1-wire	3	Synchronous communication
	NZ2GF2B1N-16TE	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication

Spring clamp terminal block type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input (positive/negative shared common)	NZ2GF2S1-16D	16 points	24 V DC	6 mA	16 points/common	0 ms / 0.2 ms / 1 ms / 1.5 ms / 5 ms / 10 ms / 20 ms / 70 ms	1-wire	1	Synchronous communication

Output module

Type	Model	Output points	Rated load voltage	Rated load current	Common type	Response time	Wiring method	Max. extension modules	Others
Transistor (sink) output	NZ2GF2S1-16T	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication
Transistor (source) output	NZ2GF2S1-16TE	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication

Sensor connector (e-CON) type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input (positive common)	NZ2GFCE3-16D	16 points	24 V DC	4 mA	16 points/common	0 ms 0.2 ms 1 ms 1.5 ms 5 ms 10 ms 20 ms 70 ms	3-wire	1	Synchronous communication
	NZ2GFCE3-32D	32 points	24 V DC	4 mA	32 points/common	0 ms 0.2 ms 1 ms 1.5 ms 5 ms 10 ms 20 ms 70 ms	3-wire	1	Synchronous communication
DC input (negative common)	NZ2GFCE3-16DE	16 points	24 V DC	4 mA	16 points/common	0 ms 0.2 ms 1 ms 1.5 ms 5 ms 10 ms 20 ms 70 ms	3-wire	1	Synchronous communication

Output module

Type	Model	Output points	Rated load voltage	Rated load current	Common type	Response time	Wiring method	Max. extension modules	Others
Transistor (sink) output	NZ2GFCE3-16T	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	3-wire	1	Synchronous communication
	NZ2GFCE3-32T	32 points	12/24 V DC	0.5 A/point 6 A/common	32 points/common	1.5 ms	3-wire	1	Synchronous communication
Transistor (source) output	NZ2GFCE3-16TE	16 points	12/24 V DC	0.5 A/point 4 A/common	16 points/common	1.5 ms	3-wire	1	Synchronous communication

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input/ Transistor output	NZ2GFCE3-32DT	Input 16 points	24 V DC	4 mA	–	32 points/common	0 ms 0.2 ms 1 ms 1.5 ms 5 ms 10 ms 20 ms 70 ms	3-wire	1	Synchronous communication
		Output 16 points	12/24 V DC	–	0.5 A/point 4 A/common	32 points/common	1.5 ms	3-wire	1	Synchronous communication

MIL connector type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input (positive common)	NZ2GFCM1-16D	16 points	24 V DC	4 mA	16 points/common	0 ms 0.2 ms 1 ms 1.5 ms 5 ms 10 ms 20 ms 70 ms	1-wire	1	Synchronous communication
DC input (negative common)	NZ2GFCM1-16DE	16 points	24 V DC	4 mA	16 points/common	0 ms 0.2 ms 1 ms 1.5 ms 5 ms 10 ms 20 ms 70 ms	1-wire	1	Synchronous communication

Output module

Type	Model	Output points	Rated load voltage	Rated load current	Common type	Response time	Wiring method	Max. extension modules	Others
Transistor (sink) output	NZ2GFCM1-16T	16 points	12/24 V DC	0.5 A/point 2 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication
Transistor (source) output	NZ2GFCM1-16TE	16 points	12/24 V DC	0.5 A/point 2 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication

40-pin connector type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input (positive/negative shared common)	NZ2GFCF1-32D	32 points	24 V DC	4 mA	32 points/common	0 ms, 0.2 ms, 1 ms, 1.5 ms, 5 ms, 10 ms, 20 ms, 70 ms	1-wire	1	Synchronous communication

Output module

Type	Model	Output points	Rated load voltage	Rated load current	Common type	Response time	Wiring method	Max. extension modules	Others
Transistor (sink) output	NZ2GFCF1-32T	32 points	12/24 V DC	0.1 A/point, 3.2 A/common	32 points/common	1.5 ms	1-wire	1	Synchronous communication

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Wiring method	Max. extension modules	Others
DC input/ Transistor output	NZ2GFCF1-32DT	Input 16 points	24 V DC	4 mA	–	16 points/common	0 ms, 0.2 ms, 1 ms, 1.5 ms, 5 ms, 10 ms, 20 ms, 70 ms	1-wire	1	Synchronous communication
		Output 16 points	12/24 V DC	–	0.1 A/point, 1.6 A/common	16 points/common	1.5 ms	1-wire	1	Synchronous communication

Analog Input/Output Module

The conversion speed of analog input modules can be selected from 100 µs/channel, 400 µs/channel and 1 ms/channel. The conversion speed of analog output modules is 100 µs/channel. By connecting an extension DC input module to the analog input module, it enables more precise A/D conversion speed control. (with the Trigger Conversion Function)

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed	Max. extension modules	Others
Voltage, current input	NZ2GF2BN-60AD4	4 ch	-10 to 10 V DC, 0 to 20 mA DC	0 to 16000, -16000 to 16000	100 µs/ch, 400 µs/ch, 1 ms/ch	1	Synchronous communication
Voltage, current output	NZ2GF2BN-60DA4	4 ch	-10 to 10 V DC, 0 to 20 mA DC	0 to 12000, -16000 to 16000	100 µs/ch	1	Synchronous communication

Temperature Control Module

Operates at the sampling cycle of 250 ms/4 channels. Mixed control mode of standard control and heating/cooling control is equipped. The Simultaneous temperature rise, Peak current suppression, Self-tuning, and Heating/cooling control functions are available.
It can be used as a temperature input module as well.

Model	Number of channels	Input	Sampling cycle	Max. extension modules	Others
NZ2GF2B-60TCTT4	4 ch	Thermocouple R,K,J,T,S,B,E,N,U,L,PLⅡ W5Re/W26Re	250 ms/4 ch, 500 ms/4 ch	–	Channel isolated, Standard control, Heating/cooling control *1
NZ2GF2B-60TCRT4	4 ch	Platinum RTD Pt100,JPt100	250 ms/4 ch, 500 ms/4 ch	–	Channel isolated, Standard control, Heating/cooling control *1

*1: 4-channel (loop) heating/cooling control can be made by using other output modules.

High-Speed Counter Module

Built-in PWM output function of 200 kHz maximum. The Pulse measurement function with 100 ns measurement resolution enables highly accurate pulse width measurement.

Model	Number of channels	Counting speed switch	Count input signal	External input	Coincidence output	Max. extension modules	Others
NZ2GFCF-D62PD2	2 ch	10 kpps, 100 kpps, 200 kpps, 500 kpps, 1 Mpps, 2 Mpps, 4 Mpps, 8 Mpps	Differential line driver	5/24 V DC	Transistor (sink type), 5 to 24 V DC, 0.1 A/point, 0.4 A/common	1	Synchronous communication
	2 ch	10 kpps, 100 kpps, 200 kpps	5 V DC	5/24 V DC		1	Synchronous communication

Extension Input/Output Module

16-point inputs/outputs can be added easily for the remote I/O, analog, and high-speed counter modules. Extend the analog input module, the input signal from an external source with the Trigger conversion function controls the analog-digital conversion value's sampling timing. Extend to the high-speed counter module, the Cam switch function provides ON/OFF control at an accurate cycle.

Screw terminal block type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Multiple modules connectable
DC input (positive/negative shared common)	NZ2EX2B1N-16D	16 points	24 V DC	6 mA	16 points/common	0 ms, 0.2 ms, 1 ms, 1.5 ms, 5 ms, 10 ms, 20 ms, 70 ms	1-wire	Available
	NZ2EX2B1-16D	16 points	24 V DC	6 mA	16 points/common	0 ms, 0.2 ms, 1 ms, 1.5 ms, 5 ms, 10 ms, 20 ms, 70 ms	1-wire	Unavailable

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method	Multiple modules connectable
Transistor (sink) output	NZ2EX2B1N-16T	16 points	12/24 V DC	0.5 A/points, 4 A/common	16 points/common	1.5 ms	1-wire	Available
	NZ2EX2B1-16T	16 points	12/24 V DC	0.5 A/points, 4 A/common	16 points/common	1.5 ms	1-wire	Unavailable
Transistor (source) output	NZ2EX2B1N-16TE	16 points	12/24 V DC	0.5 A/points, 4 A/common	16 points/common	1.5 ms	1-wire	Available
	NZ2EX2B1-16TE	16 points	12/24 V DC	0.5 A/points, 4 A/common	16 points/common	1.5 ms	1-wire	Unavailable

Spring clamp terminal block type

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Multiple modules connectable
DC input (positive/negative shared common)	NZ2EX2S1-16D	16 points	24 V DC	6 mA	16 points/common	0 ms, 0.2 ms, 1 ms, 1.5 ms, 5 ms, 10 ms, 20 ms, 70 ms	1-wire	Unavailable

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method	Multiple modules connectable
Transistor (sink) output	NZ2EX2S1-16T	16 points	12/24 V DC	0.5 A/points, 4 A/common	16 points/common	1.5 ms	1-wire	Unavailable
Transistor (source) output	NZ2EX2S1-16TE	16 points	12/24 V DC	0.5 A/points, 4 A/common	16 points/common	1.5 ms	1-wire	Unavailable

Extension Analog Input/Output Modules

Extends the number of analog channels without any changes required to the network configuration. Enables connection with analog I/O modules.

Input module

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed	Multiple modules connectable
Voltage, current input	NZ2EX2B-60AD4	4 ch	-10 to 10 V DC 0 to 20 mA DC	0 to 16000 -16000 to 16000	100 µs/ch 400 µs/ch 1 ms/ch	Unavailable

Output module

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed	Multiple modules connectable
Voltage, current output	NZ2EX2Bz-60DA4	4 ch	-10 to 10 V DC 0 to 20 mA DC	0 to 12000 -16000 to 16000	100 µs/ch	Unavailable

Safety Remote I/O Module

Remote I/O modules that support safety functions of CC-Link IE Field Network.
Performs safety control when used together with the MELSEC iQ-R Series Safety CPU.

Spring clamp terminal block type

Main safety input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method
DC input (negative common)	NZ2GFSS2-32D	32 points Single wiring 16 points Double wiring	24 V DC	6 mA	32 points/common	0.4 ms	2-wire

Extension safety output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method
Transistor (source + source) output	NZ2EXSS2-8TE	8 points Single wiring 4 points Double wiring	24 V DC	0.5 A/points 4 A/common	8 points/common	0.4 ms	2-wire

Ethernet Adapter Module

Using Seamless Message Protocol (SLMP), a variety of Ethernet devices such as vision sensors and RFID controllers can be connected to CC-Link IE Field Network. Use a web browser to set station numbers, Ethernet options, and view error history. Compatible with 100 Mbps/1 Gbps transmission rates.

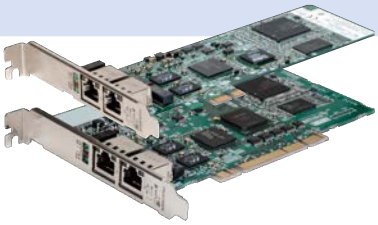
Model	Communication speed	Transmission path	Overall cable distance	Max. simultaneous connections
NZ2GF-ETB	100 Mbps 1 Gbps	Line topology Star topology Ring topology (Coexistence of line topology and star topology is possible.)	Line topology: 12,000 m (Master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (Master station: 1, slave station: 120)	Max. 32 stations

Bridge Module

CC-Link and AnyWireASLINK products can be seamlessly connected to CC-Link IE Field Network.

Type	Model	Others
For CC-Link IE Field Network – CC-Link connection	NZ2GF-CCB	CC-Link master station function
For CC-Link IE Field Network – AnyWireASLINK connection	NZ2AW1GFAL	AnyWireASLINK master station function

Network Interface Board



PCI-X/PCI Express®/ Using these PCI bus interface boards, PC control systems can be directly connected to CC-Link IE Field Network. This interface board can be used as either a master station or local stations of CC-Link IE Field Network.

Model	Bus standard	Communication speed	Transmission path	Overall cable distance	Compatible station	Maximum stations per network
Q81BD-J71GF11-T2	PCI Express® bus	1 Gbps	Line topology Star topology Ring topology (Coexistence of line topology and star topology is possible.)	Line topology: 12,000 m (Master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (Master station: 1, slave station: 120)	Master station Local station	121 stations (Master station: 1, Slave station: 120)
Q80BD-J71GF11-T2	PCI bus PCI-X bus	1 Gbps	Line topology Star topology Ring topology (Coexistence of line topology and star topology is possible.)	Line topology: 12,000 m (Master station: 1, slave station: 120) Star topology: Depends on the system configuration Ring topology: 12,100 m (Master station: 1, slave station: 120)	Master station Local station	121 stations (Master station: 1, Slave station: 120)

CC-Link Compatible Products

Remote I/O Module

Screw terminal block type

Our extensive product lineup fit your various needs of external connection mode and I/O specifications of external devices. A finger-protection design of the terminal block prevents anyone from touching a live part and gives you the option to mount the terminal block type remote I/O module directly to the machine.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
AC input	AJ65SBTB2N-8A	8 points	100 to 120 V AC	7 mA	8 points/common	20 ms	2-wire	Remote I/O station	1 station
	AJ65SBTB2N-16A	16 points	100 to 120 V AC	7 mA	16 points/common	20 ms	2-wire	Remote I/O station	1 station
DC input (positive/negative shared common)	AJ65SBTB1-8D	8 points	24 V DC	7 mA	8 points/common	1.5 ms	1-wire	Remote I/O station	1 station
	AJ65SBTB3-8D	8 points	24 V DC	7 mA	8 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65SBTB1-16D	16 points	24 V DC	7 mA	16 points/common	1.5 ms	1-wire	Remote I/O station	1 station
	AJ65SBTB1-16D1	16 points	24 V DC	5 mA	16 points/common	0.2 ms	1-wire	Remote I/O station	1 station
	AJ65SBTB3-16D	16 points	24 V DC	7 mA	16 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65SBTB3-16D5	16 points	5 V DC	4 mA	16 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65SBTB3-16KD	16 points	24 V DC	7 mA	16 points/common	0.2 ms 1.5 ms 5 ms 10 ms	3-wire	Remote I/O station	1 station
	AJ65SBTB1-32D	32 points	24 V DC	7 mA	32 points/common	1.5 ms	1-wire	Remote I/O station	1 station
	AJ65SBTB1-32D1	32 points	24 V DC	5 mA	32 points/common	0.2 ms	1-wire	Remote I/O station	1 station
	AJ65SBTB1-32D5	32 points	5 V DC	4 mA	32 points/common	1.5 ms	1-wire	Remote I/O station	1 station
	AJ65SBTB1-32KD	32 points	24 V DC	7 mA	32 points/common	0.2 ms 1.5 ms 5 ms 10 ms	1-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current (Rated switching current)	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65SBTB1-8T	8 points	12/24 V DC	0.5 A/points 2.4 A/common	8 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65SBTB1-8T1	8 points	12/24 V DC	0.5 A/points 2.4 A/common	8 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station
	AJ65SBTB2-8T	8 points	12/24 V DC	0.5 A/points 2.4 A/common	8 points/common	1.5 ms	Yes	2-wire	Remote I/O station	1 station
	AJ65SBTB2-8T1	8 points	12/24 V DC	0.5 A/points 2.4 A/common	8 points/common	1.5 ms	No	2-wire	Remote I/O station	1 station
	AJ65SBTB1-16T	16 points	12/24 V DC	0.5 A/points 3.6 A/common	16 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65SBTB1-16T1	16 points	12/24 V DC	0.5 A/points 3.6 A/common	16 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station
	AJ65SBTB2-16T	16 points	12/24 V DC	0.5 A/points 3.6 A/common	16 points/common	1.5 ms	Yes	2-wire	Remote I/O station	1 station
	AJ65SBTB2-16T1	16 points	12/24 V DC	0.5 A/points 3.6 A/common	16 points/common	1.5 ms	No	2-wire	Remote I/O station	1 station
	AJ65SBTB1-32T	32 points	12/24 V DC	0.5 A/points 4.8 A/common	32 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65SBTB1-32T1	32 points	12/24 V DC	0.5 A/points 4.8 A/common	32 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station
Transistor (source) output	AJ65SBTB1-8TE	8 points	12/24 V DC	0.1 A/points 0.8 A/common	8 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65SBTB1-16TE	16 points	12/24 V DC	0.1 A/points 1.6 A/common	16 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65SBTB1B-16TE1	16 points	12/24 V DC	0.5 A/points 4 A/common	8 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station
	AJ65SBTB1-32TE1	16 points	12/24 V DC	0.5 A/points 4.8 A/common	32 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station
Relay output	AJ65SBTB2N-8R	8 points	24 V DC 240 V AC	2 A/points 4 A/common	8 points/common	12 ms	No	2-wire	Remote I/O station	1 station
	AJ65SBTB2N-16R	16 points	24 V DC 240 V AC	2 A/points 8 A/common	16 points/common	12 ms	No	2-wire	Remote I/O station	1 station
Triac output	AJ65SBTB2N-8S	8 points	100 to 240 V AC	0.6 A/points 2.4 A/common	8 points/common	1 ms +0.5 cycle	No	2-wire	Remote I/O station	1 station
	AJ65SBTB2N-16S	16 points	100 to 240 V AC	0.6 A/points 4.8 A/common	16 points/common	1 ms +0.5 cycle	No	2-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/ Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65SBTB32-8DT	Input 4 points	24 V DC	7 mA	–	8 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 4 points	24 V DC	–	0.5 A/points 1.2 A/common		1.5 ms	Yes	2-wire		
	AJ65SBTB32-8DT2	Input 4 points	24 V DC	7 mA	–	8 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 4 points	24 V DC	–	0.5 A/points 1.2 A/common		1.5 ms	No	2-wire		
	AJ65SBTB1-16DT	Input 8 points	24 V DC	7 mA	–	16 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	Yes	1-wire		
	AJ65SBTB1-16DT1	Input 8 points	24 V DC	5 mA	–	16 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	Yes	1-wire		
	AJ65SBTB1-16DT2	Input 8 points	24 V DC	7 mA	–	16 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	No	1-wire		
	AJ65SBTB1-16DT3	Input 8 points	24 V DC	5 mA	–	16 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	No	1-wire		
	AJ65SBTB32-16DT	Input 8 points	24 V DC	7 mA	–	16 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	Yes	2-wire		
	AJ65SBTB32-16DT2	Input 8 points	24 V DC	7 mA	–	16 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	No	2-wire		
	AJ65SBTB32-16KDT2	Input 8 points	24 V DC	7 mA	–	16 points/common	0.2 ms 1.5 ms 5 ms 10 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	No	2-wire		
	AJ65SBTB32-16KDT8	Input 8 points	12 V DC	11 mA	–	16 points/common	0.2 ms 1.5 ms 5 ms 10 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	12 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	No	2-wire		
	AJ65SBTB1-32DT	Input 16 points	24 V DC	7 mA	–	32 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	Yes	1-wire		
	AJ65SBTB1-32DT1	Input 16 points	24 V DC	5 mA	–	32 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	Yes	1-wire		
	AJ65SBTB1-32DT2	Input 16 points	24 V DC	7 mA	–	32 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	No	1-wire		
	AJ65SBTB1-32DT3	Input 16 points	24 V DC	5 mA	–	32 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	No	1-wire		
	AJ65SBTB1-32KDT2	Input 16 points	24 V DC	7 mA	–	32 points/common	0.2 ms 1.5 ms 5 ms 10 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	No	1-wire		
	AJ65SBTB1-32KDT8	Input 16 points	12 V DC	11 mA	–	32 points/common	0.2 ms 1.5 ms 5 ms 10 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	12 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	No	1-wire		
DC input (negative common)/ Transistor (source) output	AJ65SBTB1-32DTE1	Input 16 points	24 V DC	7 mA	–	32 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.5 A/points 3.6 A/common		1.5 ms	No	1-wire		
DC input (positive/negative shared common)/ Relay output	AJ65SBTB32-16DR	Input 8 points	24 V DC	7 mA	–	8 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC 240 V AC	–	2 A/points 4 A/common	4 points/common	12 ms	No	2-wire		
	AJ65SBTB32-16KDR	Input 8 points	24 V DC	7 mA	–	8 points/common	0.2 ms 1.5 ms 5 ms 10 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC 240 V AC	–	2 A/points 4 A/common	4 points/common	12 ms	No	2-wire		

Two-piece screw terminal block type

Removable I/O terminal block type. This two-piece structure terminal block allows easy maintenance of replacing modules without rewiring.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive/negative shared common)	AJ65BTB1-16D	16 points	24 V DC	7 mA	16 points/common	10 ms	1-wire	Remote I/O station	1 station
	AJ65BTB2-16D	16 points	24 V DC	7 mA	16 points/common	10 ms	2-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current (Rated switching current)	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65BTB1-16T	16 points	12/24 V DC	0.5 A/points 2.8 A/common	8 points/common	2 ms	No	1-wire	Remote I/O station	1 station
	AJ65BTB2-16T	16 points	12/24 V DC	0.5 A/points 4 A/common	8 points/common	2 ms	No	2-wire	Remote I/O station	1 station
Relay output	AJ65BTB2-16R	16 points	24 V DC 240 V AC	2 A/points 8 A/common	8 points/common	12 ms	No	2-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65BTB1-16DT	Input 8 points	24 V DC	7 mA	–	8 points/common	10 ms	–	1-wire	Remote I/O station	1 station
		Output 8 points	12/24 V DC	–	0.5 A/points 4 A/common	8 points/common	2 ms	No	1-wire		
	AJ65BTB2-16DT	Input 8 points	24 V DC	7 mA	–	8 points/common	10 ms	–	2-wire	Remote I/O station	1 station
		Output 8 points	12/24 V DC	–	0.5 A/points 4 A/common	8 points/common	2 ms	No	2-wire		
DC input (positive/negative shared common)/ Relay output	AJ65BTB2-16DR	Input 8 points	24 V DC	7 mA	–	8 points/common	10 ms	–	2-wire	Remote I/O station	1 station
		Output 8 points	24 V DC 240 V AC	–	2 A/points 8 A/common	8 points/common	12 ms	No	2-wire		

A2C shape terminal block type

These removable I/O terminal block type modules have the same shape (installation dimensions) as the A2C I/O modules, and it eliminates to make drill mounting holes.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive/negative shared common)	AJ65DBTB1-32D	32 points	24 V DC	5 mA	16 points/common	10 ms	1-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current (Rated switching current)	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65DBTB1-32T1	32 points	12/24 V DC	0.5 A/points 8 A/common	32 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station
Relay output	AJ65DBTB1-32R	32 points	24 V DC 240 V AC	2 A/points 4 A/common	8 points/common	12 ms	No	1-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65DBTB1-32DT1	Input 16 points	24 V DC	5 mA	–	16 points/common	10 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	12/24 V DC	–	0.5 A/points 4 A/common	16 points/common	1.5ms	No	1-wire		
DC input (positive/negative shared common)/ Relay output	AJ65DBTB1-32DR	Input 16 points	24 V DC	5 mA	–	16 points/common	10 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC 240 V AC	–	2 A/points 4 A/common	8 points/common	12 ms	No	1-wire		

Spring clamp terminal block push-in type

These push-in type modules can reduce wiring work, detect disconnection and short circuit of individual input wiring, and check wiring abnormality of external power supply.

Input modules with diagnostic function

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive common)	AJ65ABTP3-16D	16 points	24 V DC	6 mA	16 points/common	1.5 ms	3-wire	Remote device station	1 station
DC input (negative common)	AJ65ABTP3-16DE	16 points	24 V DC	6 mA	16 points/common	1.5 ms	3-wire	Remote device station	1 station

Spring clamp terminal block type

No need for screw tightening or additional tightening saves wiring work hours. Available in both DIN rail and screw installation for module mounting. Supports 3-wire sensor input wiring.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive common)	AJ65VBTS3-16D	16 points	24 V DC	5 mA	16 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65VBTS3-32D	32 points	24 V DC	5 mA	16 points/common	1.5 ms	3-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65VBTS2-16T	16 points	12/24 V DC	0.5 A/points 4 A/common	16 points/common	1 ms	No	2-wire	Remote I/O station	1 station
	AJ65VBTS2-32T	32 points	12/24 V DC	0.5 A/points 4 A/common	16 points/common	1 ms	No	2-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65VBTS32-16DT	Input 8 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 4 A/common		1 ms	No	2-wire		
	AJ65VBTS32-32DT	Input 16 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 16 points	12/24 V DC	–	0.5 A/points 4 A/common	16 points/common	1 ms	No	2-wire		

Sensor connector (e-CON) type

Industry standard e-CON is adopted in the sensor connectors for easy wiring. Available in both DIN rail and screw installation for module mounting. Supports 3-wire sensor input wiring.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive common)	AJ65VBTCE3-8D	8 points	24 V DC	5 mA	8 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65VBTCE3-16D	16 points	24 V DC	5 mA	16 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65VBTCE3-32D	32 points	24 V DC	5 mA	32 points/common	1.5 ms	3-wire	Remote I/O station	1 station
DC input (negative common)	AJ65VBTCE3-16DE	16 points	24 V DC	5 mA	16 points/common	1.5 ms	3-wire	Remote I/O station	1 station
	AJ65VBTCE3-32DE	32 points	24 V DC	5 mA	32 points/common	1.5 ms	3-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65VBTCE2-8T	8 points	12/24 V DC	0.1 A/points 0.8 A/common	8 points/common	1 ms	Yes	2-wire	Remote I/O station	1 station
	AJ65VBTCE2-16T	16 points	12/24 V DC	0.1 A/points 1.6 A/common	16 points/common	1 ms	Yes	2-wire	Remote I/O station	1 station
Transistor (source) output	AJ65VBTCE3-16TE	16 points	12/24 V DC	0.1 A/points 1.6 A/common	16 points/common	1 ms	Yes	3-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65VBTCE32-16DT	Input 8 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.1 A/points 0.8 A/common		1 ms	Yes	2-wire		
	AJ65VBTCE32-32DT	Input 16 points	24 V DC	5 mA	–	32 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1 ms	Yes	2-wire		
DC input (negative common)/ Transistor (source) output	AJ65VBTCE3-16DTE	Input 8 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.1 A/points 0.8 A/common		1 ms	Yes	3-wire		
	AJ65VBTCE3-32DTE	Input 16 points	24 V DC	5 mA	–	32 points/common	1.5 ms	–	3-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1 ms	Yes	3-wire		

One-touch connector type

The one-touch connector simplifies the wiring, and can be mounted in six different directions.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive common)	AJ65VBTCU3-8D1	8 points	24 V DC	5 mA	8 points/common	0.2 ms	3-wire	Remote I/O station	1 station
	AJ65VBTCU3-16D1	16 points	24 V DC	5 mA	16 points/common	0.2 ms	3-wire	Remote I/O station	1 station
	AJ65SBTC4-16DN	16 points	24 V DC	5 mA	16 points/common	1.5ms	4-wire	Remote I/O station	1 station
DC input (negative common)	AJ65SBTC4-16DE	16 points	24 V DC	5 mA	16 points/common	1.5ms	4-wire	Remote I/O station	1 station
DC input (positive/negative shared common)	AJ65SBTC1-32D	32 points	24 V DC	5 mA	32 points/common	1.5ms	1-wire	Remote I/O station	1 station
	AJ65SBTC1-32D1	32 points	24 V DC	5 mA	32 points/common	0.2 ms	1-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65VBTCU2-8T	8 points	12/24 V DC	0.1 A/points 0.8 A/common	8 points/common	1 ms	Yes	2-wire	Remote I/O station	1 station
	AJ65VBTCU2-16T	16 points	12/24 V DC	0.1 A/points 1.6 A/common	16 points/common	1 ms	Yes	2-wire	Remote I/O station	1 station
	AJ65SBTC1-32T	32 points	12/24 V DC	0.1 A/points 3.2 A/common	32 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65SBTC1-32T1	32 points	12/24 V DC	0.1 A/points 3.2 A/common	32 points/common	1.5 ms	No	1-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65SBTC4-16DT	Input 8 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	4-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	Yes			
	AJ65SBTC4-16DT2	Input 8 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	4-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	No			
	AJ65SBTC1-32DT	Input 16 points	24 V DC	5 mA	–	32 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1.5 ms	Yes	1-wire		
	AJ65SBTC1-32DT1	Input 16 points	24 V DC	5 mA	–	32 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1.5 ms	Yes	1-wire		
	AJ65SBTC1-32DT2	Input 16 points	24 V DC	5 mA	–	32 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1.5 ms	No	1-wire		
	AJ65SBTC1-32DT3	Input 16 points	24 V DC	5 mA	–	32 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1.5 ms	No	1-wire		

40 pins connector type

The 40-pin connector enables connection to wide variety of devices, and can be mounted in six different directions.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive/negative shared common)	AJ65SBTCF1-32D	32 points	24 V DC	5 mA	32 points/common	1.5 ms	1-wire	Remote I/O station	1 station
	AJ65BTC1-32D	32 points	24 V DC	7 mA	32 points/common	10 ms	1-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65SBTCF1-32T	32 points	12/24 V DC	0.1 A/points 3.2 A/common	32 points/common	1.5 ms	Yes	1-wire	Remote I/O station	1 station
	AJ65BTC1-32T	32 points	12/24 V DC	0.1 A/points 2 A/common	32 points/common	2 ms	No	1-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive/negative shared common)/ Transistor (sink) output	AJ65SBTCF1-32DT	Input 16 points	24 V DC	5 mA	–	16 points/common	1.5 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	12/24 V DC	–	0.1 A/points 1.6 A/common	16 points/common	1.5 ms	Yes	1-wire		
	AJ65VBTCF1-32DT1	Input 16 points	24 V DC	5 mA	–	16 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	12/24 V DC	–	0.1 A/points 1.6 A/common	16 points/common	1 ms	Yes	1-wire		
DC input (positive common)/ Transistor (sink) output	AJ65VBTCFJ1-32DT1	Input 16 points	24 V DC	5 mA	–	32 points/common	0.2 ms	–	1-wire	Remote I/O station	1 station
		Output 16 points	24 V DC	–	0.1 A/points 1.6 A/common		1 ms	Yes	1-wire		

Water proof connector type

IP-67 certified high water resistance. Modules can be replaced without system shutdown.
Simple connection without any tools.
Built-in with termination resistor (110Ω/130Ω switch), and can be mounted in six different directions.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Station type	Occupied station
DC input (positive common)	AJ65FBTA4-16D	16 points	24 V DC	7 mA	16 points/common	1.5 ms	2 to 4-wire	Remote I/O station	1 station
DC input (negative common)	AJ65FBTA4-16DE	16 points	24 V DC	7 mA	16 points/common	1.5 ms	2 to 4-wire	Remote I/O station	1 station

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
Transistor (sink) output	AJ65FBTA2-16T	16 points	12/24 V DC	0.5 A/points 4 A/common	16 points/common	1.5 ms	Yes	2-wire	Remote I/O station	1 station
Transistor (source) output	AJ65FBTA2-16TE	16 points	12/24 V DC	1 A/points 4 A/common	16 points/common	1.5 ms	Yes	2-wire	Remote I/O station	1 station

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Output protection function	Wiring method	Station type	Occupied station
DC input (positive common)/ Transistor (sink) output	AJ65FBTA42-16DT	Input 8 points	24 V DC	7 mA	–	16 points/common	1.5 ms	–	2 to 4-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	0.5 A/points 2.4 A/common		1.5 ms	Yes	2-wire		
DC input (negative common)/ Transistor (source) output	AJ65FBTA42-16DTE	Input 8 points	24 V DC	7 mA	–	16 points/common	1.5 ms	–	2 to 4-wire	Remote I/O station	1 station
		Output 8 points	24 V DC	–	1 A/points 4 A/common		1.5 ms	Yes	2-wire		

Analog Module

Analog input/output module

One-touch connector type

The one-touch connector simplifies the wiring process.

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed	Station type	Occupied station
Voltage input	AJ65VBTCU-68ADVN	8 ch	-10 to 10 V DC	0 to 4000 / -4000 to 4000	1 ms/ch	Remote device station	1 station (Ver.2) / 3 stations (Ver.1)
Current input	AJ65VBTCU-68ADIN	8 ch	0 to 20 mA DC	0 to 4000	1 ms/ch	Remote device station	1 station (Ver.2) / 3 stations (Ver.1)
Voltage output	AJ65VBTCU-68DAVN	8 ch	-10 to 10 V DC	0 to 4000 / -4000 to 4000	1 ms/ch	Remote device station	1 station (Ver.2) / 3 stations (Ver.1)

Screw terminal block type

The two-piece terminal bock with removable terminal block, and the terminal block type with the use of captive screws save wiring work.

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed	Station type	Occupied station
Voltage/current input	AJ65SBT2B-64AD	4 ch	-10 to 10 V DC / 0 to 20 mA	0 to 16000 / -16000 to 16000	200 µs/ch	Remote device station	1 station
	AJ65SBT-64AD	4 ch	-10 to 10 V DC / 0 to 20 mA	0 to 4000 / -4000 to 4000	1 ms/ch	Remote device station	1 station
	AJ65BT-64AD	4 ch	-10 to 10 V DC / -20 to 20 mA	0 to 4000 / -2000 to 2000	1 ms/ch	Remote device station	2 stations
Voltage/current output	AJ65SBT2B-64DA	4 ch	-10 to 10 V DC / 0 to 20 mA	0 to 12000 / -16000 to 16000	200 µs/ch	Remote device station	1 station
	AJ65SBT-62DA	2 ch	-10 to 10 V DC / 0 to 20 mA	0 to 4000 / -4000 to 4000	1 ms/ch	Remote device station	1 station
Voltage output	AJ65BT-64DAV	4 ch	-10 to 10 V DC	-2000 to 2000	1 ms/ch	Remote device station	2 stations
Current output	AJ65BT-64DAI	4 ch	4 to 20 mA DC	0 to 4000	1 ms/ch	Remote device station	2 stations

Temperature input module

Standards compliant thermocouple and resistance temperature detector can be used.
Two-piece terminal block is used for simple maintenance.

Type	Model	Number of channels	Input	Conversion speed	Station type	Occupied station
Thermocouple	AJ65SBT2B-64TD	4 ch	Thermocouple B,R,S,K,E,J,T,N	640 ms/4 ch	Remote device station	1 station
	AJ65BT-68TD	8ch	Thermocouple B,R,S,K,E,J,T	45 ms/ch	Remote device station	4 stations
RTD	AJ65SBT2B-64RD3	4 ch	3-wire platinum resistance temperature detector Pt100, JPt100 / 3-wire nickel resistance temperature detector Ni100	40 ms/ch	Remote device station	1 station
	AJ65BT-64RD3	4 ch	3-wire platinum resistance temperature detector Pt100, JPt100	40 ms/ch	Remote device station	4 stations
	AJ65BT-64RD4	4 ch	4-wire platinum resistance temperature detector Pt100, JPt100	40 ms/ch	Remote device station	4 stations

High-Speed Counter Module

These modules can capture and count pulses from pulse generation devices and other equipment that cannot be captured by programmable controller CPU.

Model	Number of channels	Counting speed switch	Count input signal	External input	Coincidence output	Station type	Occupied station
AJ65BT-D62	2 ch	200/10 kpps (1-phase input) 200/7 kpps (2-phase input)	5 V DC 12 V DC 24 V DC	5 V DC 12 V DC 24 V DC	Transistor (open collector), 12/24 V DC, 0.5 A/points, 2 A/common	Remote device station	4 stations
AJ65BT-D62D	2 ch	400/10 kpps (1-phase input) 300/7 kpps (2-phase input)	Differential line driver	5 V DC 12 V DC 24 V DC	Transistor (open collector), 12/24 V DC, 0.5 A/points, 2 A/common	Remote device station	4 stations
AJ65BT-D62D-S1	2 ch	400/10 kpps (1-phase input) 300/7 kpps (2-phase input)	Differential line driver	Differential line driver (Preset input) 5 V DC DC12V 24 V DC Function/Start	Transistor (open collector), 12/24 V DC, 0.5 A/points, 2 A/common	Remote device station	4 stations

Positioning Module

Positioning control can be executed through external input including startup, shutdown, speed/position switch, etc. without the use of a sequence program.

Model	Maximum number of control axes	Control unit	No. of positioning data	Maximum output pulse	Station type	Occupied station
AJ65BT-D75P2-S3	2 axes	mm inch degree pulse	600	400 kpps (Differential driver) 200 kpps (Open collector)	Intelligent device station	4 stations

600 600 data/axis

RS-232 Interface Module

Two separate general-purpose input and output are included as standard, to make direct input and output of synchronization signal with a bar code reader or D controller without the use of a separate remote I/O module.

Model	Interface	Transmission speed	Number of channels	Transmission distance	Station type	Occupied station
AJ65BT-R2N	RS-232	300 bps 600 bps 1200 bps 2400 bps 4800 bps 9600 bps 19200 bps 38400 bps 57600 bps 115200 bps	1 ch	Max. 15 m	Intelligent device station	1 station

Repeater Module

These repeater hubs can be used to extend the trunk cable length.
Available in five types for each use.

Type	Model	Description	Station type	Occupied station
Thin waterproof type Repeater hub module	AJ65FBTA-RPH	Up to 8 star-wiring branch lines individually capable of max. wiring length based on transmission speed; waterproof (IP67) structure	–	–
Spring clamp Terminal block type Repeater hub module	AJ65BTS-RPH	Up to 8 star-wiring branch lines individually capable of max. wiring length based on transmission speed	–	–
Repeater (T-branch) module	AJ65SBT-RPT	Max. connection steps: 10 steps, T-branch wiring ready	–	–
Optic repeater module	AJ65SBT-RPS	For SI/QSI type optical fiber cable (two modules can be combined), max. connection steps: 3 steps, maximum transmission distance: 500 m (SI) / 1000 m (QSI)	–	–
	AJ65SBT-RPG	For GI type optical fiber cable (two modules can be combined), max. connection steps: 2 steps, maximum transmission distance: 2000 m	–	–
Spatial optical repeater module	AJ65BT-RPI-10A	Set use of AJ65BT-RPI-10A and AJ65BT-RPT-10B; 156 k/625 k/2.5 Mbps ready; infrared spatial transmission of 0 to 100 m; optical communication state monitor function	Remote I/O station (When using monitor functions)	– / 1 station
	AJ65BT-RPI-10B			

Bridge Module

CC-Link/LT, AnyWire Bitty, AnyWire DB A20, and AnyWireASLINK products can be seamlessly connected to CC-Link Network.

Type	Model	Station type	Occupied station	Others
For CC-Link – CC-Link/LT connection	AJ65SBT-CLB	Remote device station	2 to 8 stations	CC-Link/LT master station function
For CC-Link – AnyWireASLINK connection	NZ2AW1C2AL	Remote device station	1 to 4 stations	AnyWireASLINK master station function
For CC-Link – AnyWire Bitty connection	NZ2AW1C1BY	Remote device station	1 to 4 stations	AnyWire Bitty master station function
For CC-Link – AnyWire DB A20 connection	NZ2AW1C2D2	Remote device station (CC-Link Ver.2 only)	4 stations	AnyWire DB A20 master station function

Network Interface Board

PCI Express®/ Using these PCI bus interface boards, PC control systems can be directly connected to CC-Link IE Control Network. This interface board can be used as either a master station or local stations of CC-Link.

Model	Connection cable	Bus standard	Communication speed	Transmission path	Maximum cable distance (CC-Link Ver. 1.10-compatible cable)	Compatible station	Maximum stations per network
Q81BD-J61BT11	CC-Link Ver. 1.00/1.10-compatible cable	PCI Express® bus	156 kbps 625 kbps 2.5 Mbps 5 Mbps 10 Mbps	Bus (RS-485)	1200 m 900 m 400 m 160 m 100 m	Ver.2 Master station Ver.2 Local station Ver.1 Master station Ver.1 Local station	65 stations (Master station: 1, Slave station: 64)
Q80BD-J61BT11N	CC-Link Ver. 1.00/1.10-compatible cable	PCI bus	156 kbps 625 kbps 2.5 Mbps 5 Mbps 10 Mbps	Bus (RS-485)	1200 m 900 m 400 m 160 m 100 m	Ver.2 Master station Ver.2 Local station Ver.1 Master station Ver.1 Local station	65 stations (Master station: 1, Slave station: 64)

CC-Link/LT Compatible Products

CC-Link/LT

Remote I/O Module

Screw terminal block type

The smallest and compact design. Built with a terminal structure for direct connection of 2-wire sensor and load.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Occupied station
DC input (positive/negative shared common)	CL1X4-D1B2	4 points	24 V DC	4 mA	4 points/common	0.5 ms 1.5 ms	2-wire	1 station During 4,8,16 points mode
	CL2X8-D1B2	8 points	24 V DC	4 mA	8 points/common	0.5 ms 1.5 ms	2-wire	2 stations During 4 points mode / 1 station During 8,16 points mode

Output module

Type	Model	Output points	Rated load voltage	Maximum load current (Rated switching current)	Common type	Response time	Wiring method	Occupied station
Transistor (sink) output	CL1Y4-T1B2	4 points	12/24 V DC	0.1 A/points 0.4 A/common	4 points/common	1 ms	2-wire	1 station During 4,8,16 points mode
	CL2Y8-TP1B2	8 points	12/24 V DC	0.1 A/points 0.8 A/common	8 points/common	0.5 ms	2-wire	2 stations During 4 points mode / 1 station During 8,16 points mode
Relay output	CL1Y4-R1B2	4 points	30 V DC/250 V AC	2 A/points 4 A/common	4 points/common	10 ms	2-wire	1 station During 4,8,16 points mode
	CL1Y4-R1B1	4 points	30 V DC/250 V AC	2 A/points 2 A/common	1 point/common	10 ms	1-wire	1 station During 4,8,16 points mode

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/ Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Wiring method	Occupied station
DC input (positive/negative shared common)/ Transistor (sink) output	CL1XY4-DT1B2	Input 2 points	24 V DC	4 mA	–	2 points/common	1.5 ms	2-wire	1 station During 4,8,16 points mode
		Output 2 points	12/24 V DC	–	0.1 A/points 0.2 A/common	2 points/common	1 ms	2-wire	
	CL1XY8-DT1B2	Input 4 points	24 V DC	4 mA	–	4 points/common	1.5 ms	2-wire	1 station During 4,8,16 points mode
		Output 4 points	12/24 V DC	–	0.1 A/points 0.4 A/common	4 points/common	1 ms	2-wire	
DC input (positive/negative shared common)/ Relay output	CL1XY4-DR1B2	Input 2 points	24 V DC	4 mA	–	2 points/common	1.5 ms	2-wire	1 station During 4,8,16 points mode
		Output 2 points	30 V DC/250 V AC	–	2 A/points 4 A/common	2 points/common	10 ms	2-wire	
	CL1XY8-DR1B2	Input 4 points	24 V DC	4 mA	–	4 points/common	1.5 ms	2-wire	1 station During 4,8,16 points mode
		Output 4 points	30 V DC/250 V AC	–	2 A/points 4 A/common	4 points/common	10 ms	2-wire	

Spring clamp terminal block type

Additional tightening not required; applicable wire size is 0.3 to 1.5mm² (AWG22 to 16).
Two-piece structure terminal block for easy removal.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Occupied station
DC input (positive/negative shared common)	CL1X4-D1S2	4 points	24 V DC	4 mA	4 points/common	0.5 ms 1.5 ms	2-wire	1 station During 4,8,16 points mode
	CL2X8-D1S2	8 points	24 V DC	4 mA	8 points/common	0.5 ms 1.5 ms	2-wire	2 stations During 4 points mode / 1 station During 8,16 points mode

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method	Occupied station
Transistor (sink) output	CL1Y4-T1S2	4 points	12/24 V DC	0.1 A/points 0.4 A/common	4 points/common	1 ms	2-wire	1 station During 4,8,16 points mode
	CL2Y8-TP1S2	8 points	12/24 V DC	0.1 A/points 0.8 A/common	8 points/common	0.5 ms	2-wire	2 stations During 4 points mode / 1 station During 8,16 points mode
Transistor (source) output	CL2Y8-TPE1S2	8 points	12/24 V DC	0.1 A/points 0.8 A/common	8 points/common	1 ms	2-wire	2 stations During 4 points mode / 1 station During 8,16 points mode

Sensor connector (e-CON) type

The smallest and compact design. Available in both DIN rail and screw installation for module mounting. Supports 3-wire sensor input.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Occupied station
DC input (positive common)	CL1X4-D1C3	4 points	24 V DC	4 mA	4 points/common	0.5 ms 1.5 ms	3-wire	1 station During 4,8,16 points mode
	CL2X8-D1C3V	8 points	24 V DC	4 mA	8 points/common	0.5 ms 1.5 ms	3-wire	2 stations During 4 points mode / 1 station During 8,16 points mode
	CL2X16-D1C3V	16 points	24 V DC	4 mA	16 points/common	0.5 ms 1.5 ms	3-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method	Occupied station
Transistor (sink) output	CL1Y4-T1C2	4 points	24 V DC	0.1 A/points 0.4 A/common	4 points/common	1 ms	2-wire	1 station During 4,8,16 points mode
	CL2Y8-TP1C2V	8 points	24 V DC	0.1 A/points 0.8 A/common	8 points/common	0.5 ms	2-wire	2 stations During 4 points mode / 1 station During 8,16 points mode
	CL2Y16-TP1C2V	16 points	24 V DC	0.1 A/points 1.6 A/common	16 points/common	0.5 ms	2-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/ Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Wiring method	Occupied station
DC input (positive common)/ Transistor (sink) output	CL2XY16-DTP1C5V	Input 8 points	24 V DC	4 mA	–	8 points/common	0.5 ms 1.5 ms	3-wire	2 stations During 4 points mode / 1 station During 8,16 points mode
		Output 8 points	24 V DC	–	0.1 A/points 0.8 A/common	8 points/common	0.5 ms	2-wire	

MIL connector type

These MIL connector type modules are designed for easy connection to relay terminal, terminal block conversion module and solenoid valve. Simply remove the connector for easy module replacement.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Occupied station	Others
DC input (positive common)	CL2X16-D1M1V	16 points	24 V DC	4 mA	16 points/common	0.5 ms 1.5 ms	1-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode	–
	CL2X16-D1MJ1V	16 points	24 V DC	4 mA	16 points/common	0.5 ms 1.5 ms	1-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode	Common power supply

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method	Occupied station	Others
Transistor (sink) output	CL2Y16-TP1M1V	16 points	12/24 V DC	0.1 A/points 1.6 A/common	16 points/common	0.5 ms	1-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode	–
	CL2Y16-TP1MJ1V	16 points	24 V DC	0.1 A/points 1.6 A/common	16 points/common	0.5 ms	1-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode	Common power supply
Transistor (source) output	CL2Y16-TPE1M1V	16 points	12/24 V DC	0.1 A/points 1.6 A/common	16 points/common	1 ms	1-wire	4 stations During 4 points mode / 2 stations During 8 points mode / 1 station During 16 points mode	–

Cable type

These modules can be stored inside the duct like cables. Communication cable and external device connection cable are integrated for easy wiring.

Input module

Type	Model	Input points	Rated input voltage	Rated input current	Common type	Response time	Wiring method	Occupied station
DC input (positive common)	CL1X2-D1D3S	2 points	24 V DC	4 mA	2 points/common	0.5 ms 1.5 ms	3-wire	1 station During 4,8,16 points mode

Output module

Type	Model	Output points	Rated load voltage	Maximum load current	Common type	Response time	Wiring method	Occupied station
Transistor (sink) output	CL1Y2-T1D2S	2 points	24 V DC	0.1 A/points 0.2 A/common	2 points/common	1 ms	2-wire	1 station During 4,8,16 points mode

I/O composite module

Type	Model	Number of I/O points	Rated input voltage/ Rated load voltage	Rated input current	Maximum load current	Common type	Response time	Wiring method	Occupied station
DC input (positive common)/ Transistor (sink) output	CL1XY2-DT1D5S	Input 1 point	24 V DC	4 mA	–	1 point/common	1.5 ms	3-wire	1 station During 4,8,16 points mode
		Output 1 point	24 V DC	–	0.1 A/points 0.2 A/common	1 point/common	1 ms	2-wire	

Analog Module

Screw terminal block type

Analog input/output module

I/O points (number of occupied stations) are saved through change in number by the conversion permitted final channel.

Type	Model	Number of channels	Input/Output	Resolution	Conversion speed	Occupied station
Voltage/current input	CL2AD4-B	4 ch	-10 to 10 V DC 0 to 20 mA	0 to 4000 -4000 to 4000	200 µs/4 ch	4 stations During 16 points mode
Voltage/current output	CL2DA2-B	2 ch	-10 to 10 V DC 0 to 20 mA	0 to 4000 -4000 to 4000	200 µs/2 ch	2 stations During 16 points mode

Power Supply

Exclusive power supply

CC-Link/LT system exclusive use with a built-in 2A power supply.

Model	Input voltage	Output voltage	Output current
CL1PSU-2A	100 V AC, 120 V AC, 200 V AC, 230 V AC, 240 V AC	24 V DC	0.01 A to 2 A

Power supply adapter

Provides stable power supply to the overall system when power is supplied to the CC-Link/LT system from an external power source (arranged by a customer).

Model	Voltage input range	Maximum rated current
CL1PAD1	Max. 28.8 V DC	5 A *1

*1: In steady-state, use within the range that does not exceed the maximum rated current.

MELSECNET/H Compatible Products

Network Interface Board

Systems controlled by a PC compatible with PCI Express® bus and PCI bus can be incorporated into the MELSECNET/H network.

MELSECNET/H

Model	Connection cable	Bus standard	Communication speed	Transmission path	Overall cable distance	Compatible station	Maximum stations per network	Others
Q81BD-J71LP21-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable	PCI Express® bus	25 Mbps, 10 Mbps	Dual loop	30 km	Control network (control station), Control network (normal station)	64 stations (Control station: 1, Normal station: 63)	–
Q80BD-J71LP21-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable	PCI bus	25 Mbps, 10 Mbps	Dual loop	30 km	Control network (control station), Control network (normal station)	64 stations (Control station: 1, Normal station: 63)	–
Q80BD-J71LP21S-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable	PCI bus	25 Mbps, 10 Mbps	Dual loop	30 km	Control network (control station), Control network (normal station)	64 stations (Control station: 1, Normal station: 63)	With external power supply function
Q80BD-J71LP21G	GI fiber optic cable	PCI bus	10 Mbps	Dual loop	30 km	Control network (control station), Control network (normal station)	64 stations (Control station: 1, Normal station: 63)	–
Q80BD-J71BR11	3C-2V/5C-2V coaxial cable	PCI bus	10 Mbps	Single bus	300 m 3C-2V, 500 m 5C-2V/5C-FB	Control network (control station), Control network (normal station)	64 stations (Control station: 1, Normal station: 31)	–

Ethernet Compatible Products

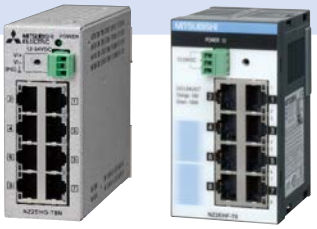
Wireless LAN Adapter DB

Wireless LAN (Ethernet) in the factory provides flexibility in installing new line or alteration layouts. Wireless saves your wiring costs. Simply installing wireless LAN adapters makes existing FA equipment wireless. Compatible with the latest security standards of WPA2/WPA. The security prevents unauthorized access from outside.

Powered by CONTEC
DB Co-developed with other companies

Type	Model	Wireless LAN standard	Number of port	Wired transmission speed	Rated input voltage
Access point only	NZ2WL-JPA	IEEE802.11a standards, IEEE802.11b standards, IEEE802.11g standards	1	10 Mbps, 100 Mbps	12 to 24 V DC
Station only	NZ2WL-JPS	IEEE802.11a standards, IEEE802.11b standards, IEEE802.11g standards	1	10 Mbps, 100 Mbps	12 to 24 V DC

Industrial Switching HUB DB



This 8-port industrial switching hub operates in ambient temperatures of 0 to 50°C in a fanless configuration. Compatible with DIN rail installation, enabling the hub to be installed in various orientations.

Powered by CONTEC
DB Co-developed with other companies

Model	Number of port	Transmission speed	Rated input voltage
NZ2EHG-T8N	8	10 Mbps, 100 Mbps, 1 Gbps	12 to 24 V DC
NZ2EHF-T8	8	10 Mbps, 100 Mbps	12 to 24 V DC

Managed CC-Link IE Switch

The managed CC-Link IE switch allows both CC-Link IE devices and Ethernet devices to co-exist in the same network. Support of ERP and LA functions and redundant network paths between switches enable routes to be switched to ensure that communications can be continued even if a network failure such as a cable disconnection occurs. The hub can also be used in systems requiring facility-to-facility landline communication since an SFP transceiver allows long-distance optical cable to be used.

Model	Number of port	Transmission speed	Rated input voltage	Others
NZ2MHG-T8F2	8 including 2 fiber-optic compatible ports	10 Mbps, 100 Mbps, 1 Gbps	24 V DC	ERP function, LA function, VLAN function, Optical fiber port compatible, Loop detection function, Port mirroring function, SNMP supported

MEMO

Engineering and Programming Software

MELSEC engineering and programming software is the best choice of the times!

A variety of MELSEC software applications are designed to achieve “enhanced design efficiency,” “shorter debugging time,” “less down time,” “data retention,” and other TCO reduction in engineering environment.

MELSOFT iQ Works

A software package combined with PLC, motion controller, GOT (HMI), and various programming software

GX Works3

Next-generation programming software with an intuitive programming environment contributes to a development cost reduction

GX Works2

A PLC programming software built on program assets acquired through GX Developer, pursuing a comfortable operability

PX Developer

This software offers a simple drag-and-drop operation to create loop control programs with ease

C language controller tools

Engineering tools, simulator and setup/monitoring tools for C language controller

MX Component

The Active X® control and .NET control libraries enable easy communication process from PC to a PLC without the need to consider protocols

MX Sheet

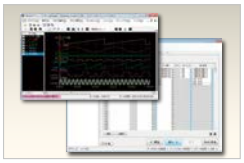
Software that utilizes Excel® to monitor, perform logging, collect alarm information, and change setting values for the PLC system

MX Component for iOS/Android™

A communication library that enables reading and writing of the values of sequencer devices and labels from a tablet

Peripheral device development support tools (free download)

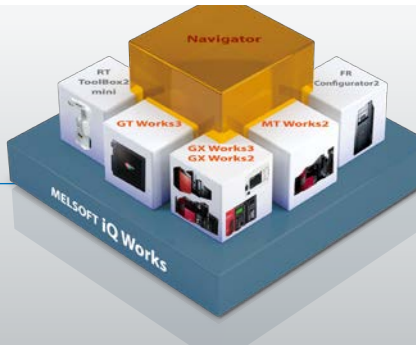
Lineup of free tools that support the development of PLC peripheral devices



MELSOFT iQ Works

Programmable controller engineering software

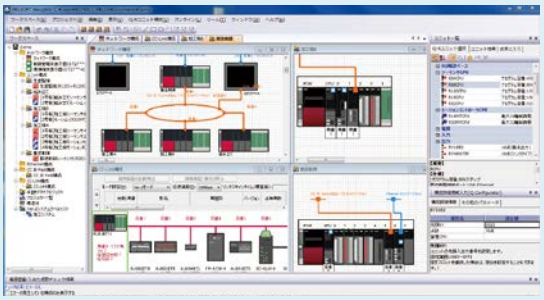
Here's a more interactive and visible engineering style.
Revolutionizing everything from the way you design system specifications and develop programs, to the way you perform field adjustments, operations, and maintenance.



System Management Software

MELSOFT Navigator

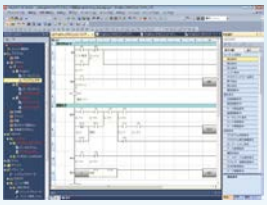
MELSOFT Navigator, along with GX Works3, MT Works2, GT Works3, RT ToolBox2 mini and FR Configurator2, facilitates system level design and acts as the interface between each software. Useful functions include design of system configuration, parameter batch setting, system labels, and batch read.



Redefining engineering with + MELSOFT Navigator

Programmable Controller Engineering Software

MELSOFT GX Works3



Helps reduce engineering costs by providing a graphical interface with intuitive operations, simple programming by selecting options, and diagnostic functions that simplify troubleshooting.

Programmable Controller Engineering Software

MELSOFT GX Works2

Incorporating legacy support of programs created with GX Developer, further improving its functionality resulting in reduced engineering costs.

Motion Controller Engineering Software

MELSOFT MT Works2

The motion control design and maintenance software includes intuitive graphic based programming together with a digital oscilloscope simulator, further helping to reduce a motion systems TCO.

HMI/GOT Screen Design Software

MELSOFT GT Works3

The GOT (Graphic Operation Terminal) screen creation software has been designed with 3 main features; Simplicity, Graphic Design, and Easy Usability, further helping to create graphic screens in fewer steps.

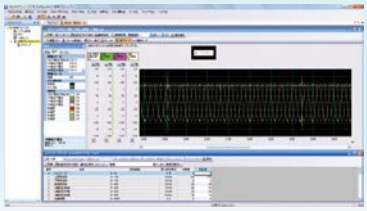
Robot Engineering Software

MELSOFT RT ToolBox2 mini

The robot setup software supports various steps from programming, to commissioning, evaluation, and maintenance. In addition to improving preventative maintenance by using the integrated 3D evaluation simulator to visualize parameterization and connected devices.

Inverter setup software

MELSOFT FR Configurator2



This software lets you handle everything from inverter startup to maintenance by making simple settings on a PC. You can manage parameter settings on a PC, make sequence function settings, and easily transfer parameter settings from existing inverter series.

GX Works3

The new-generation programming software with intuitive programming brings development cost reduction

The programming software is sometimes considered a fundamental part of the control system in addition to the hardware components. The core of the system, it includes various steps of the product life cycle, from the design stage all the way to commissioning and maintenance of the control system. Today, intuitive, easy to use software suites are expected as a standard for modern manufacturing needs. GX Works3 is the latest generation of programming and maintenance software offered by Mitsubishi Electric specifically designed for the MELSEC iQ-R and MELSEC iQ-F Series control system. It includes many new features and technologies to ensure a trouble-free engineering environment solution.

Intuitive programming software covering the product development cycle

Graphic-based configuration realizing easier programming

Various intuitive features such as graphic-based system configuration and an extensive module library (module label/FB) provided as standard.

Integrated motion-control system configuration

From setting simple motion module parameters and positioning data setup to servo amplifier configuration, everything is packaged into an easy-to-use programming environment.

Conforms to IEC 61131-3

GX Works3 realizes structured programming such as ladder and ST, making project standardization across multiple users even easier.

Simple point and click programming architecture

System design | Programming | Debug/maintenance

Straightforward graphic based system configuration design

- Simply drag and drop from the module list to easily create system configuration
- Directly setup parameters for each module
- Automatically reflect changes in the layout to the module parameters

System design | **Programming** | Debug/maintenance

MELSOFT library enables efficient programming through "Module Label/FB"

- Assign convenient label names to internal devices, rather than manually entering a device name every time.
- Simply drag & drop module FBs from the MELSOFT Library directly into the ladder program, making programming even easier.

System design | Programming | **Debug/maintenance**

Extensive version control features

- Flexibly register program change (historical) save points
- Easily visualize and confirm program changes

Navigation window

Easily access project components
Organize program file list.

Module configuration

Easily parameterize each module directly from the configuration editor.

Module list

Simply drag & drop modules directly into the module configuration.

One Software, Many Possibilities

Reduce programming time by 60%*1

Global realization by multi-language support

To adhere to today's global production needs, GX Works3 supports multi-language features at various levels, from the multiple language software menu to the device comment language switching feature.

Tab view multiple editors

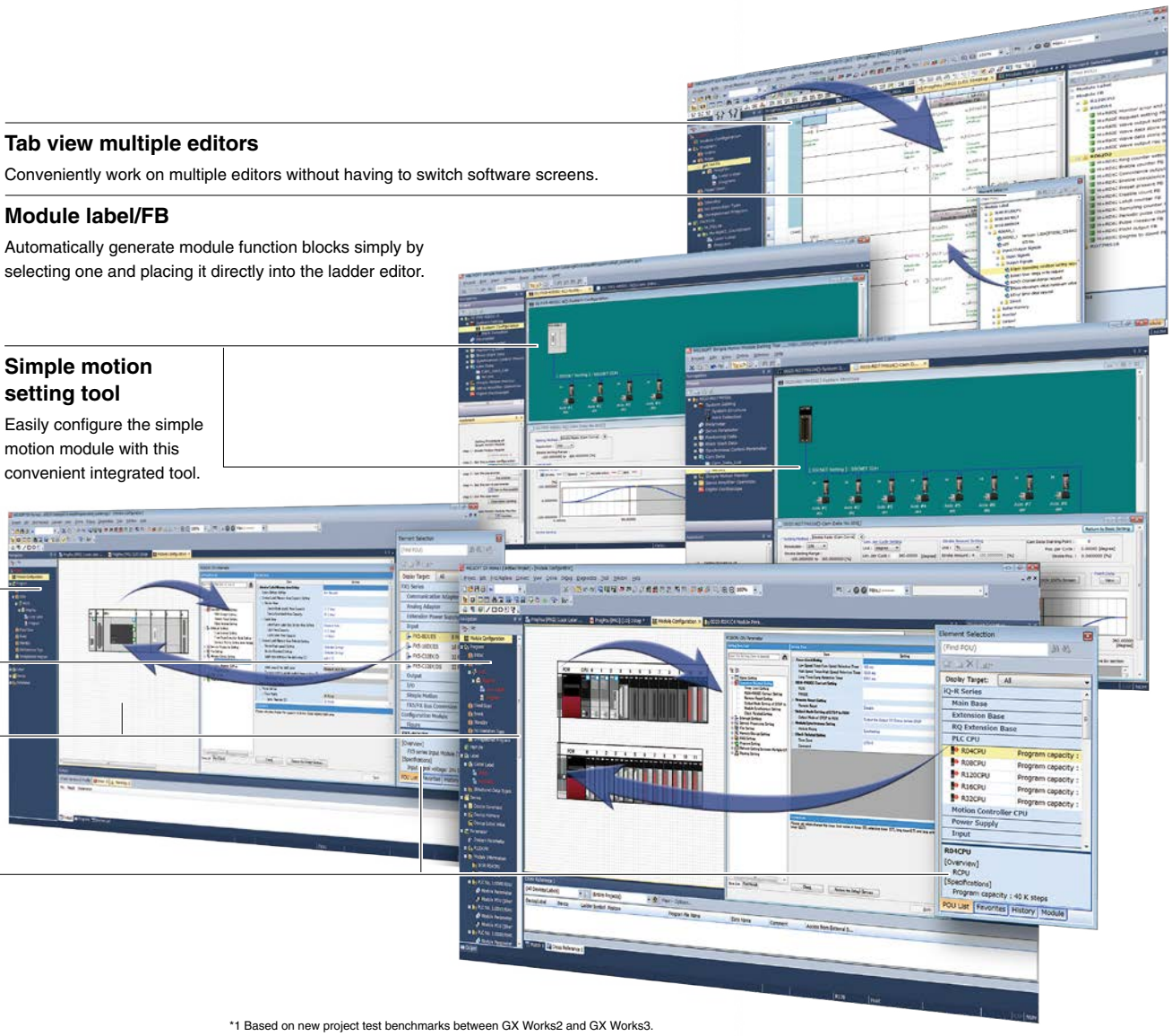
Conveniently work on multiple editors without having to switch software screens.

Module label/FB

Automatically generate module function blocks simply by selecting one and placing it directly into the ladder editor.

Simple motion setting tool

Easily configure the simple motion module with this convenient integrated tool.

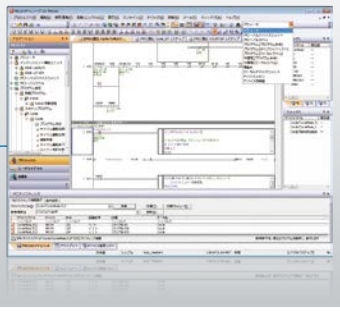


*1 Based on new project test benchmarks between GX Works2 and GX Works3.

GX Works2

World-Class PLC Programming Software

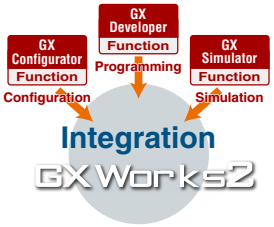
Now an easy-to-use programming software is no surprise.
In addition to its sophisticated usability, the programming software GX Works2 deploys the global mainstream concepts of “segmenting” and “structuring” for fundamental improvement of programming efficiency.
The world-standard engineering style begins with GX Works2.



Concept

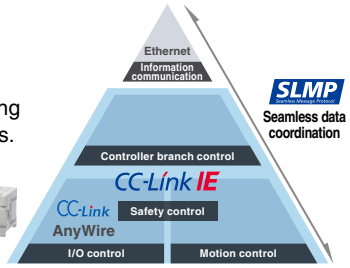
All-in-one package

All capabilities required for PLC engineering including the configuration function of the intelligent function module and simulation function are integrated in a single package.
The all-in-one GX Works2 package supports entire engineering such as system design, programming, debug and maintenance.



Make full use of MELSEC PLC modules

GX Works2 enables you to easily make a full use of high-function and high-performance CPUs and modules.
New updates are available for free download from the Mitsubishi FA website, so you can always use the latest GX Works2 supporting new products and functions.



Inherits customer assets

Your legacy GX Developer programs can be used in GX Works2 without any modification.
Also, programs written by GX Works2 to the programmable controller can be read using GX Developer. For example, even if GX Developer is installed in a production site’s PC, the data created and read with GX Developer can be used with GX Works2 installed in a development office’s PC.

Sophisticated usability

The favorable GX Developer functions have been incorporated to GX Works2 and the usability furthermore improved.
The performance has also been refined thus improving each operation to perform smoothly with a high response.
The usability will continue to advance.

International Standard IEC61131-3 compliant

GX Works2 conforms to the engineering tool international standard IEC 61131-3, and supports segmented and structured programming.
Programming languages including SFC, ST and ladders, can be used according to each application.
In addition, several languages including SFC, ST and ladders can be used together in one program.

Ultimate “Easy-to-use” user interface

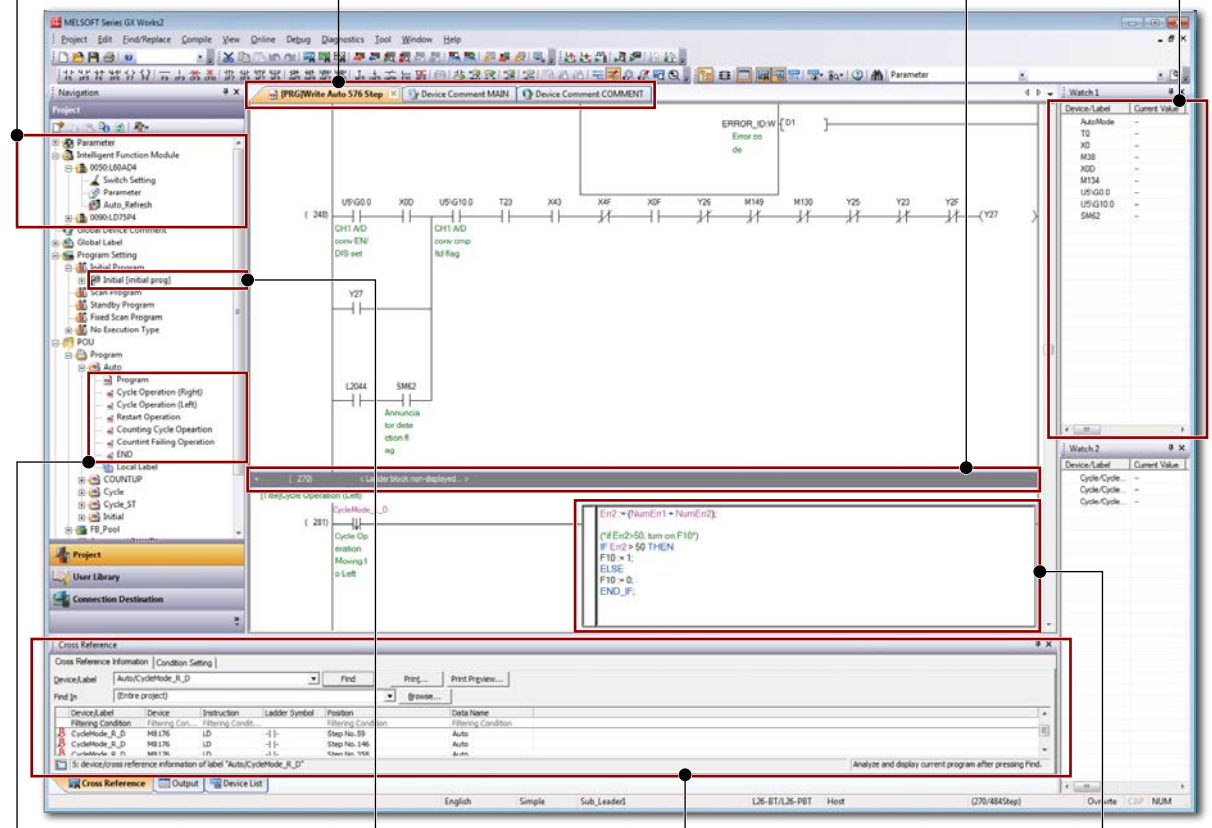
The GX Works2 engineering software enables anyone to perform programming, debugging, and maintenance by means of intuitive operations. Its comfortable operation environment will further enhance the design efficiency.

Integrated intelligent functional unit setting function (GX Configurator)

Use of “Tabs” for simple switching between the program/parameter editing screens

Better operability and readability with the circuit block Folding Display

Watch window for quickly monitoring specific devices/labels



Project tree that shows the processing flow at a glance

Display of program title to prevent confusion

Cross reference linked to circuit display

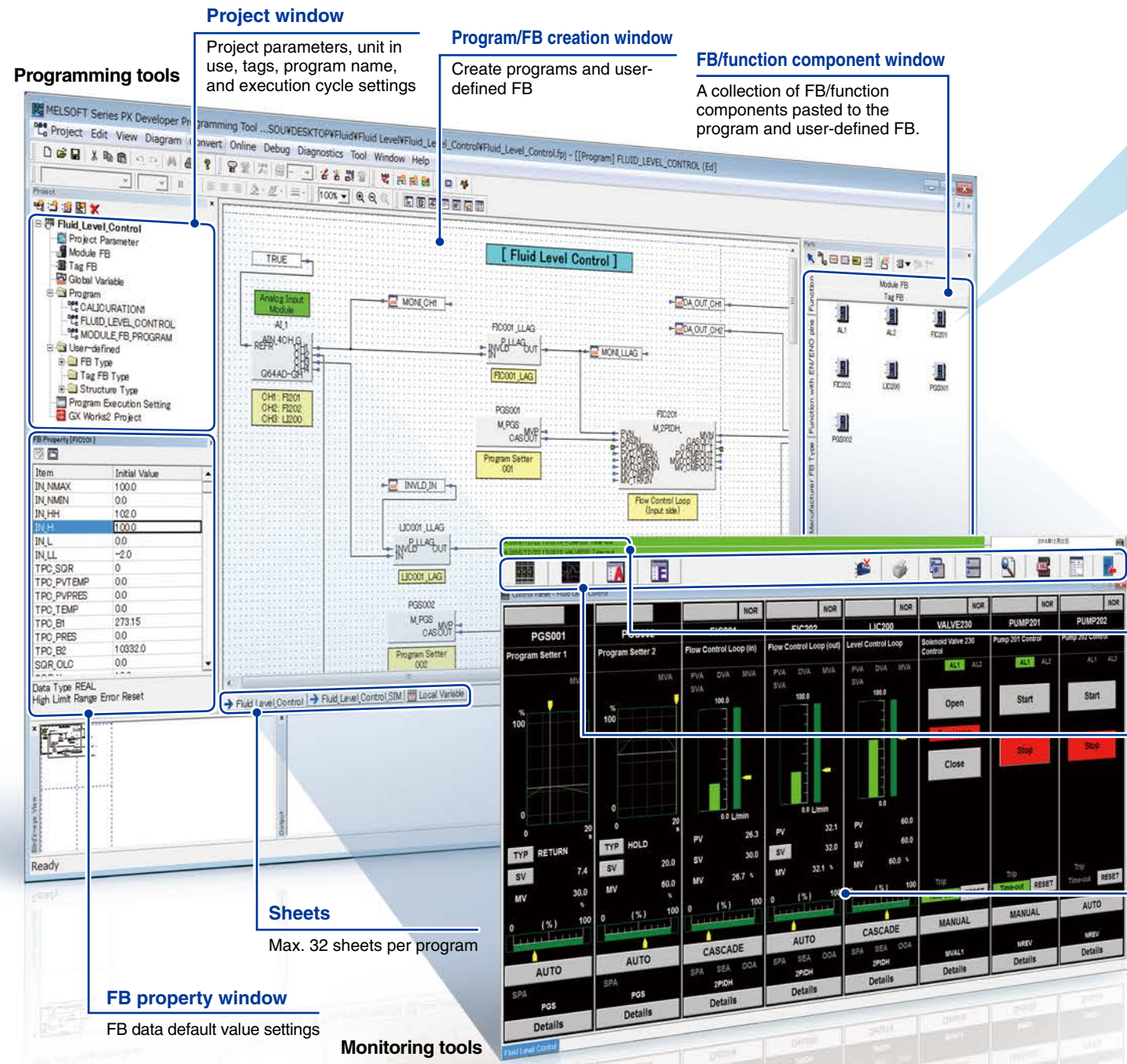
In-line ST allowing direct notation of calculations in ladder*1

*1: In-line ST is available only with a project using labels.

PX Developer

Improving productivity of process control design and maintenance tasks Simple engineering of PID loop control

By using FBD language (IEC61131- 3 compliant) loop control program can be created easily. This incorporates pasting and connecting FBs, also drag & drop functions. (No ladder program needed.) The control loops can be easily tuned and monitored by utilizing tags, using the standard monitor screen.



Function blocks (FBs) and functions needed for loop control are standard

FBs compatible with loop control commands provided by the process CPU, in addition to other easy-to-use FBs that can be combined with them, are provided. The FBs and functions include the basic FBs and functions of the IEC 61131-3 standard (logical operations, arithmetic operations, etc.), making it easy to describe sequence control on the FBD.

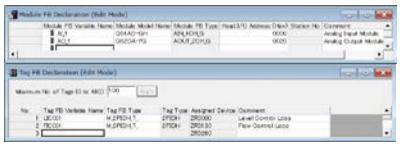
Support for larger-scale systems. Easily build a system at low cost

A monitoring system consisting of servers and clients can be used to share monitoring information and link monitoring operations. With a configuration consisting of servers and clients, it is possible to increase the number of PCs used for monitoring while keeping the communication load on the sequencer low and maintaining monitoring operability. Two servers and up to 16 clients are supported.

STEP.1

System configuration definitions
(DI/O and AI/O units, instrumentation tags)

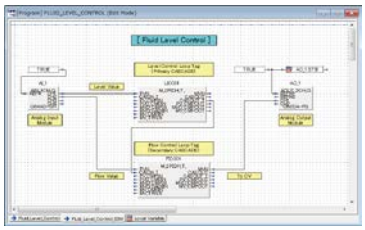
In the unit FBs of the I/O units, define the loop tags in the tag FBs.



STEP.2

FBD program creation

Connect the unit FBs and tag FBs.



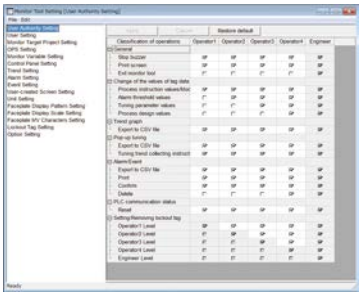
STEP.3

Control parameter settings

Set the tag FB parameters (FB properties).

Security

For each user authorization level, set restrictions for operations requiring security as part of monitoring control.



Warning/event display bar

Displays the two latest warnings/ event messages

Tool bar

A set of icons to open monitoring functions

Simulation function

You can simulate display and manipulation of the loop control program monitoring screen on the PC.

Monitoring function display area

Monitoring functions are displayed in this area (Control Panel/trend graph/ faceplate/ tuning panel/event list/ warning list)

Simple standardization and reuse of programs

Conformance to the IEC611-3 standard allows for program hierarchy and componentization (with the ability to create FBs unique to each user), enabling programs to easily be standardized and reused.

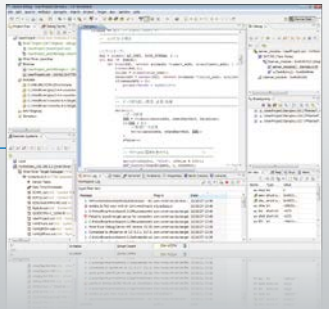
Programming components in text format

Programming components are created in a text format that takes advantage of arithmetic expressions and conditional statements. Arithmetic expressions and condition determination, which are difficult to describe in FBD language, can easily be described as in-line ST components.

C-language controller engineering tool

An easy way to develop user applications

A lineup of C-language controller tools, including various engineering tools, simulator, setup and monitoring tools

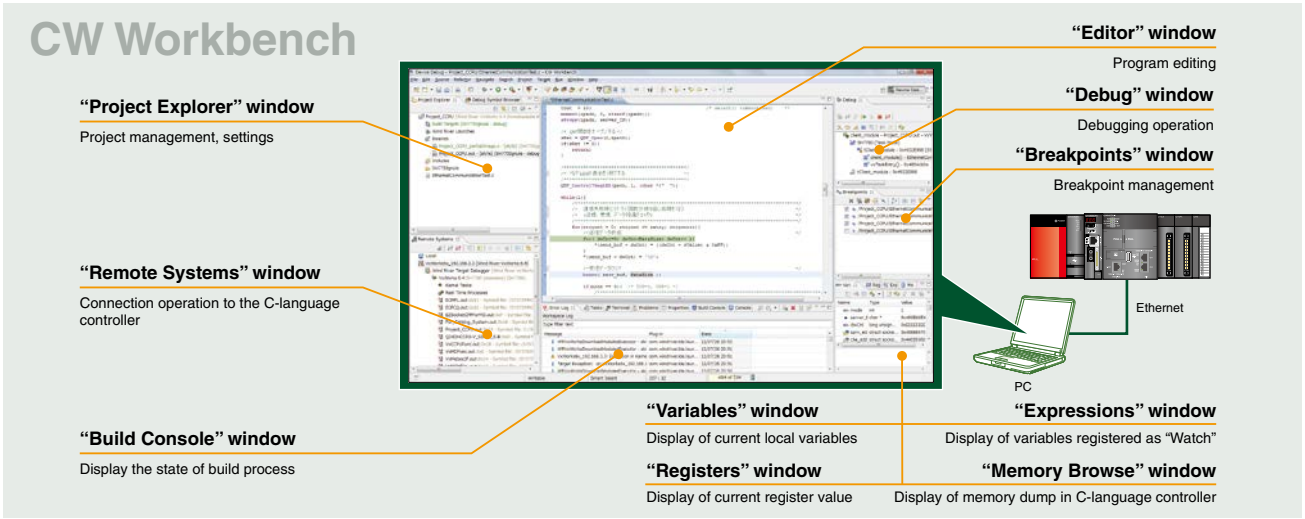


C-language controller engineering tool

CW Workbench

SW1DND-CWWR-E R12-V RD55-V SW1DND-CWWLQ24-E Q24-V Q24-VG SW1DND-CWWLQ12-E Q12-V

This tool allows you to develop a low-cost, yet full-scale embedded software. Equipped with basic features from program editing to debug via Ethernet (step/break execution, variable/memory watch), applications for C-language controller can be easily developed.



VxWorks® Simulator

CW-Sim

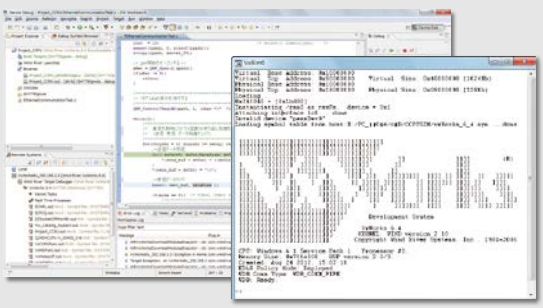
SW1DND-CWSIMR-EZ R12-V RD55-V SW1DNC-CWSIM-E*1 Q12-V Q24-V Q24-VG

VxWorks® can be simulated on PC without the C-language controller unit.
Program simulation and debugging can be performed on PC installed with CW Workbench.

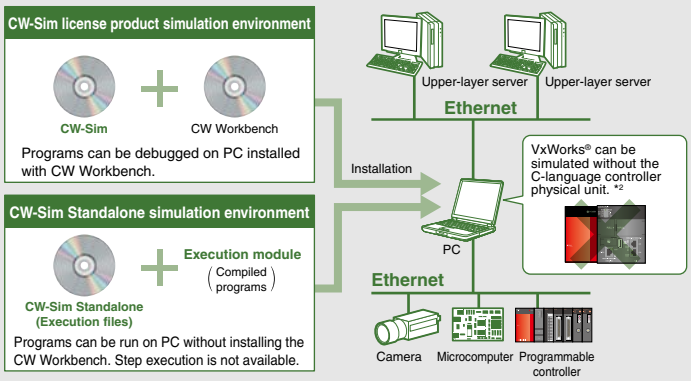
CW-Sim Standalone

SW1DNC-CWSIMSAR-E R12-V RD55-V SW1DNC-CWSIMSA-E Q12-V Q24-V Q24-VG

VxWorks® can be simulated on PC without the C-language controller unit.
Program simulation can be performed even on PC without installing the CW Workbench, but the debugging option is not available.



- VxWorks® can be simulated on PC without the C-language controller unit.*2
- Program quality and unit safety are enhanced before the actual run.
- Can be used for the debugging and training of systems composed of multiple C-language controllers.

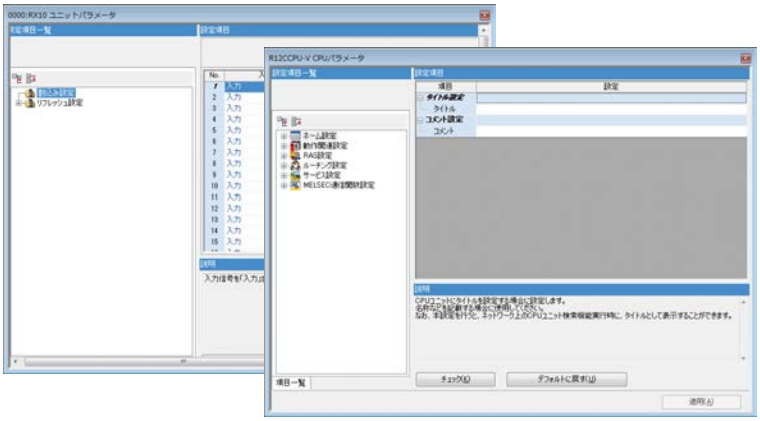


*1: Additional license products (SW1DNC-CWSIM-EZ) are also available.
*2: CW-Sim and CW-Sim Standalone are mounted with minimum necessary functions of the Wind River VxWorks® Simulator.

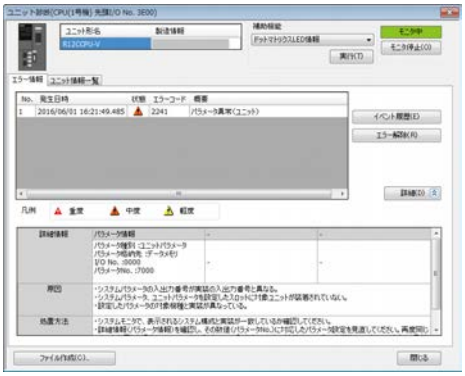
CW Configurator

SW1DND-RCCPU R12 -V

CW Configurator is software specifically for setting and monitoring C language controller unit parameters.
It provides superior functionality, operability, and ease of use in comparison with conventional C language controller setting and monitoring tools.
The software manages unit configuration data and parameters on a per-project basis for each C language controller unit.



Program-less, easy parameter settings



Program-less, easy diagnostics

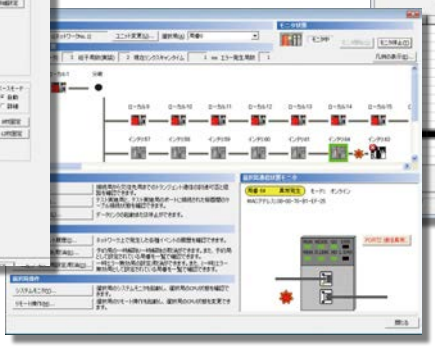
C-language controller setup and monitoring tools

SW4PVC-CCPU Q12 -V *1 Q24 -V Q24 -VG Q24 -LS Q26 -LS SW3PVC-CCPU Q12 -V *2

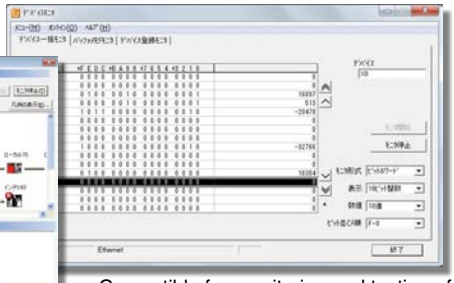
Features include C-language controller settings and diagnosis, base-mounted intelligent function units*3, network unit parameter setup and monitoring, as well as device value monitoring and testing.

*1: Available only with function extension mode
*2: Available only with basic function mode
*3: Available only with SW4PVC-CCPU

A program-less, easy parameter setup



A program-less, easy diagnosis



Compatible for monitoring and testing of the mounted units

Supports all phases of the application development

Wind River Workbench

WIND RIVER products

3.3 R12-V RD55-V

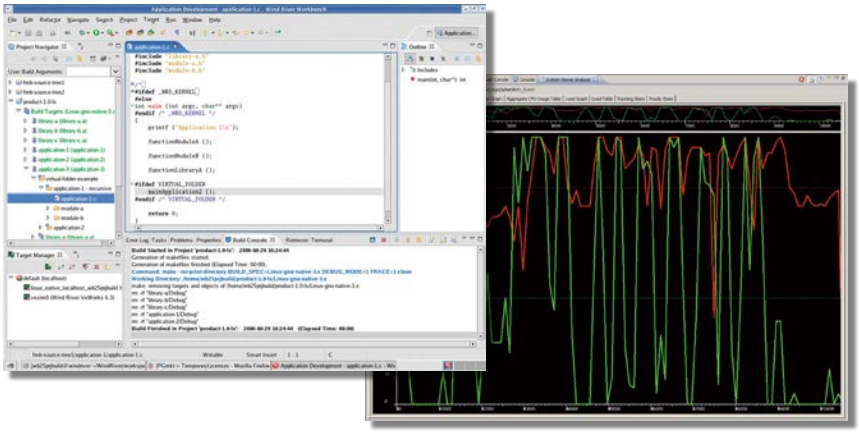
3.2 Q12-V*1 Q24-V Q24-VG

2.6.1 Q12-V*2

WIND RIVER

The software can edit and debug programs (step/break execution, variable/memory watch) via Ethernet.
Other features include task transition, memory usage analysis, variables, and real-time monitoring of the data structure using runtime analysis tools such as the System Viewer.

*1: Available only with function extension mode
*2: Available only with basic function mode



Embedded Linux® development environment

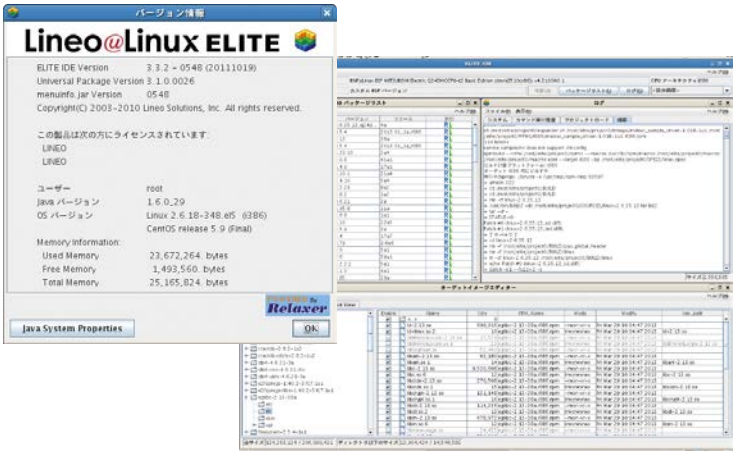
Lineo uLinux ELITE

Q24-LS Q26-LS

Lineo@Linux ELITE

Lineo Solutions product

This software is equipped with features of building Linux® systems optimized for the Q24DHCCPU-LS and Q26DHCCPU-LS, forwarding to the Q24DHCCPU-LS and Q26DHCCPU-LS, as well as source code editing and debugging.



MX Component

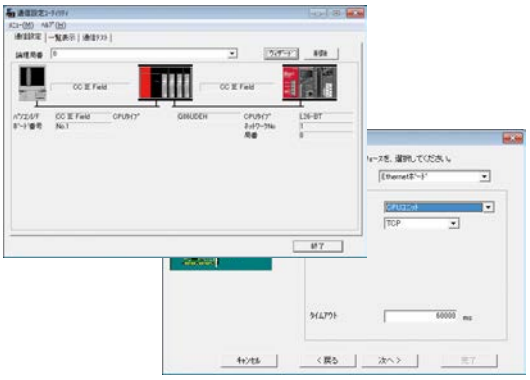
Enables easy-connection between PC and PLC

This Active X® Control with .NET Control libraries offer easy steps to perform the communication process from PC to PLC and motion controller, without being mindful of the protocols.
The MX Component makes the troublesome and complicated program developments of serial and Ethernet communications into a very easy task.

Easy communication setup with Wizard format

Communication setup utility includes Wizard format settings to access the PLC CPU. In addition, once you set the logic station of the PLC CPU, the communication setup utility stores its settings. To access again, simply specify the stored logic station.

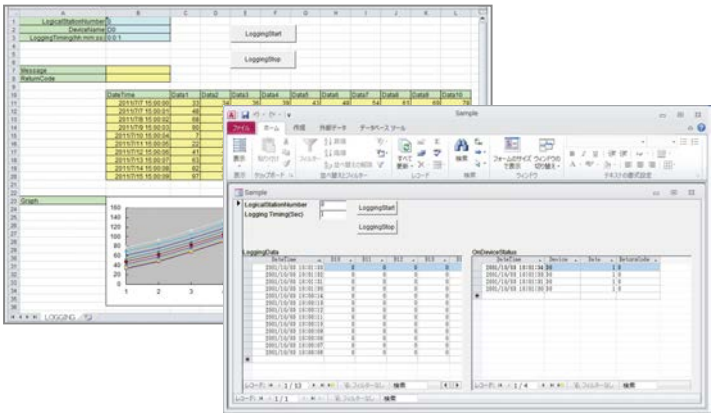
Follow the communication setup wizard.
(A setup control that uses only the program is also available.)



Paste the MX Component control icon on the form. Set the configured communication path number in the control property you pasted. After performing the communication path number setup, describe a program to read the device.

VBA data collection enabled

VBA programming allows you to create applications for real-time graph display by utilizing Excel® and Access® functions.
In addition, real-time device data can be collected and saved through logging of PLC device data.



Reduce man-hours by developing programs with use of labels

Device settings can be made with use of labels.
Labels are used in programs and MX Sheets for intuitive creation of programs and setup.
No change is required with programs and MX Sheets when switching the device.

MX Sheet

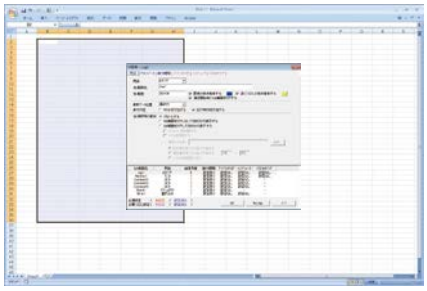
Easy data collection with the use of Excel®

This software allows you to use the familiar Excel® for PLC and motion controller monitoring, logging, collection of warning information, and change of settings.

Easy and program-less setup

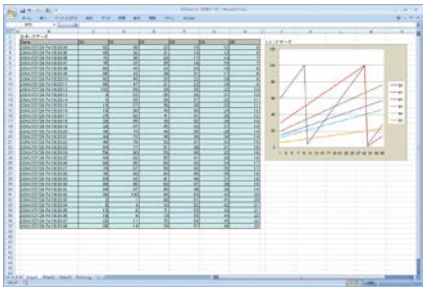
All operation settings for the MX Sheet can be performed easily from the Excel® menus, realizing a program-less communication between PLC and Excel®.

[Step1]



Open the setting utility screen and set conditions for function selection and target devices.

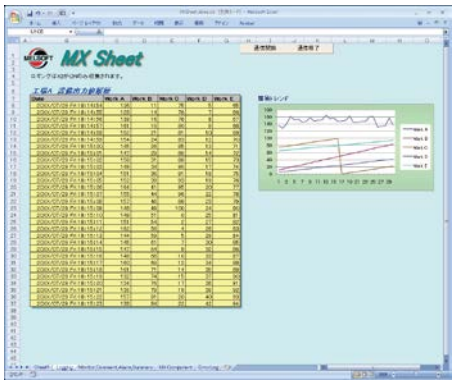
[Step2]

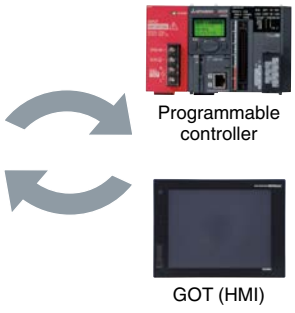


Then, simply arrange the screen and execute to initiate data collection.

Direct connection between office and site

Delivers real-time monitoring and logging of PLC device data and writing to Excel®. Recipe data and others can be forwarded to PLC as well.



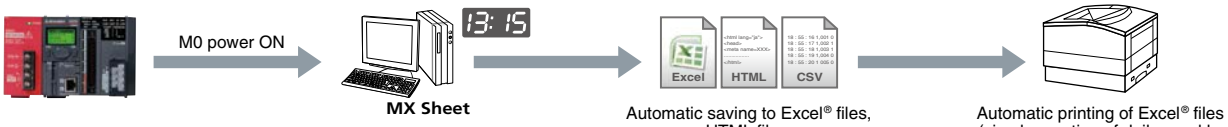


Programmable controller

GOT (HMI)

Automatic creation of daily reports and ledgers

Automatically saves and prints data displayed on Excel® at specified timing or based on PLC trigger condition. Preparing a list of daily reports and test results can be automated.



Automatic saving to Excel® files, HTML files, CSV files

Automatic printing of Excel® files (simple creation of daily, weekly, monthly reports)

Automatic saving and printing of daily and monthly reports are also possible (based on several conditions)

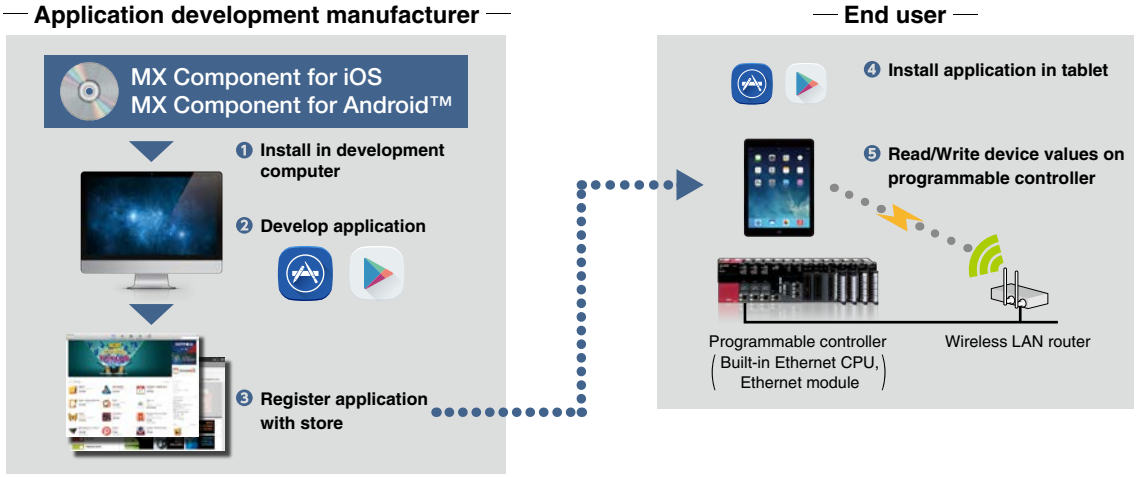
MX Component for iOS/Android™

Easily develop applications for iOS/Android™ smart terminals.

MX Component for iOS/Android™ is a communication middleware that reads and writes the values of devices and labels in programmable controllers from a tablet.
It can be used when creating user applications that communicate with programmable controllers from iPad®, iPhone® and Android™ terminals.

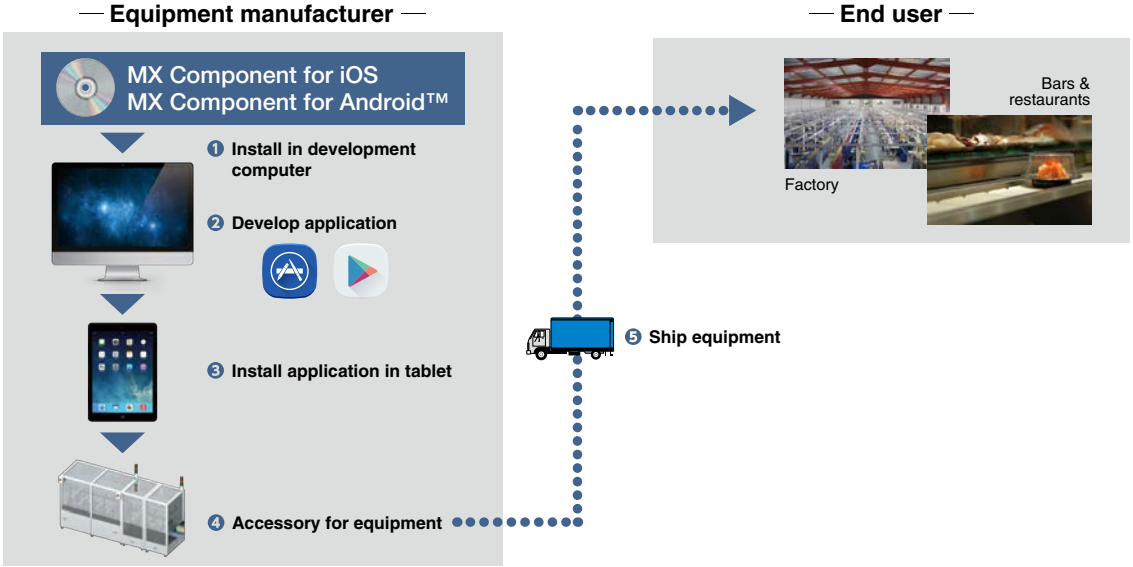
Distribution via App Store/Google Play

The application development manufacturer can provide applications developed to end users via App store/Google Play.



Delivery bundled with your company's equipment

Applications developed can be used for your equipment and delivered to end users.



Create tablet applications

Easily create applications for tablets that can read/write the values of devices and labels on programmable controllers without knowing the communication format of the programmable controller.

[Previous] Create communication procedure as a program

Create packet | Send packet | Wait for response | Receive response packet | Analyze packet

Entire program in a single line!

[MX Component for iOS/Android™]

```
[ Int result = mxcomm.readDeviceBlock("D100",1,readdata); ]
```

Peripheral device development support tool Free download

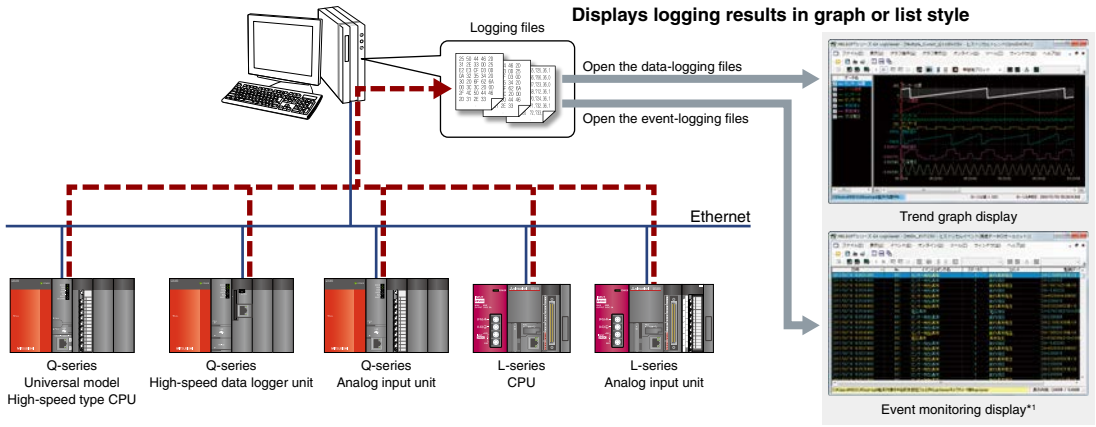
GX LogViewer

Displays and analyzes logging data with easy operation

This tool offers easy-to-understand operation to display and analyze mass data, which are collected by units and BOX data-logger with logging functions of MELSEC-Q or MELSEC-L series.
This tool can be downloaded (free of charge) from the Mitsubishi Electric FA website.

Easy steps to display and analyze mass logging data collections

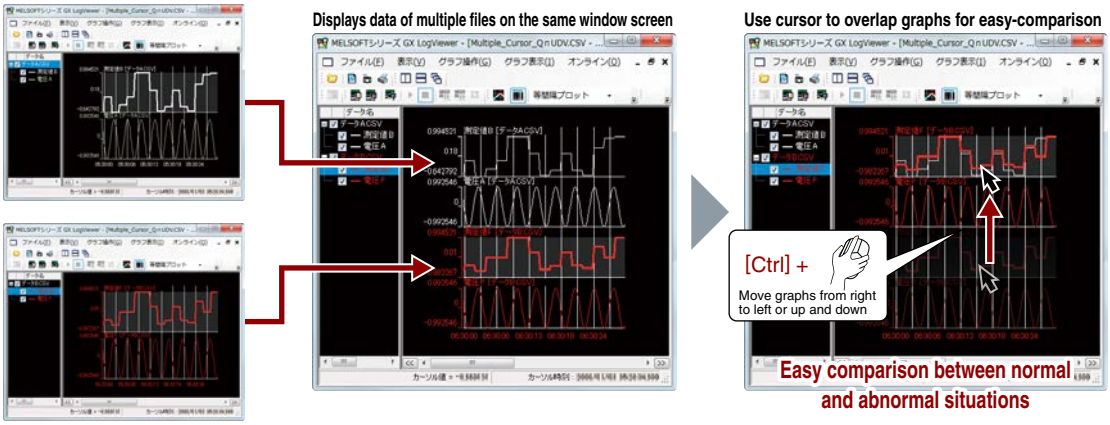
This tool offers easy-to-understand operation to display and analyze mass data, which are collected by units with logging functions of MELSEC-Q or MELSEC-L series. Target device setup can be performed in the same way as individual unit setup tools and GX Works2 for quick & easy confirmation of logging files.



*1: Event monitoring display is available only with Q-series High-speed data logger unit.

Displays data of multiple files in a single graph area for a quick comparison

The tool displays data of multiple files in the same graph area at identical time interval. Moving individual files to another display position is easy, enabling confirmation of data-gap among multiple files.



Peripheral device development support tool Free download

Safety controller setup and monitoring tools

Exclusive "setup and monitoring tool" for intuitive configuration

This tool is designed to perform settings and monitor safety controllers (MELSEC-WS series). Equipped with connections to safety sensor/switch and safety-exclusive function block, building of a safety system can be performed in easy steps.

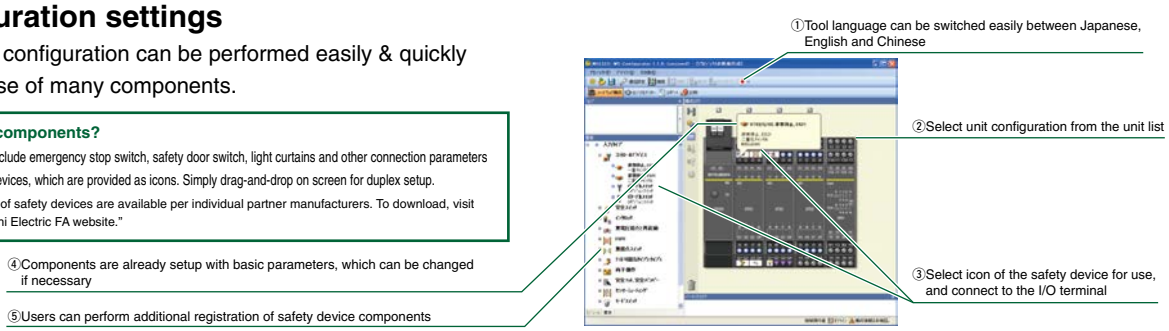
Configuration settings

Hardware configuration can be performed easily & quickly with the use of many components.

What are components?

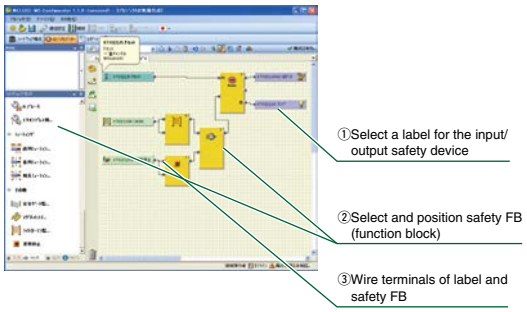
Components include emergency stop switch, safety door switch, light curtains and other connection parameters of key safety devices, which are provided as icons. Simply drag-and-drop on screen for duplex setup.

*Components of safety devices are available per individual partner manufacturers. To download, visit the "Mitsubishi Electric FA website."



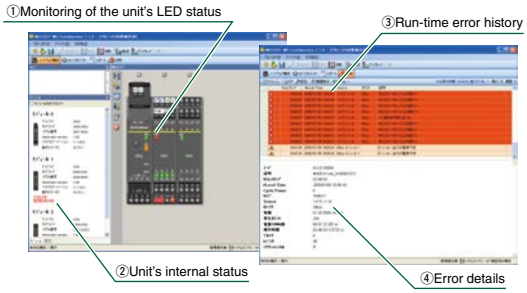
Logic creation

Creating logics is a simple task with FB (function block), using labels that are automatically generated for safety devices.



Diagnosis and monitoring

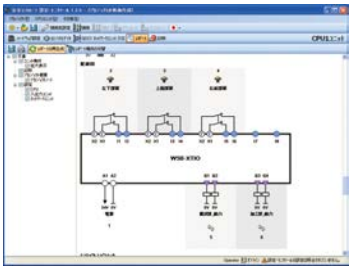
Confirms internal status and error history of units.



Improved report function

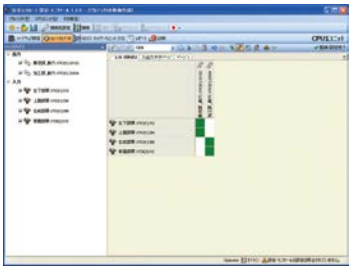
Detailed wiring diagram

Wiring diagram of I/O unit can be automatically generated.



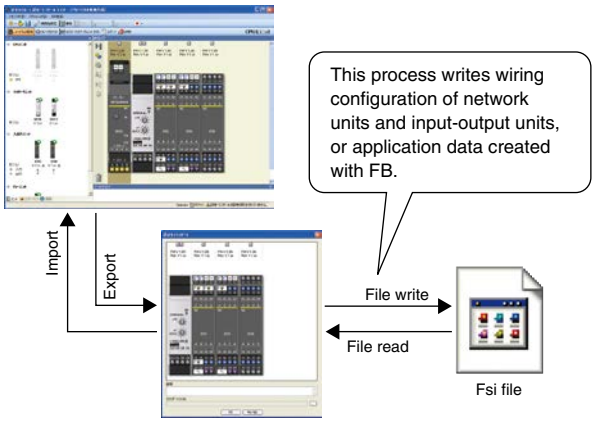
I/O matrix

Correlation between input and output can be displayed as matrix.



Logics import and export

You can now store only the application logics created with function block as a single configuration file, including connection settings to the input-output units, or even read from the stored configuration file. The conventional tasks of creating a new project or redoing hardware settings are no longer required when changing the CPU unit model (CPU0 → CPU1 or CPU1 → CPU0) or using a CPU unit with a new firmware version.



Access below to download free settings and monitoring tools

Mitsubishi FA device technical information service Mitsubishi Electric FA website

www.MitsubishiElectric.co.jp/fa/

List of software products

Software	Model name	Language compatibility			Description	Free of charge	MELSEC iQ-R Series				
		Multi-languages	Japanese	English			RnCPU RnENCPU	RnP(R)CPU	RnSFCPU	R12CCPU-V RD55UP06-V	
GX Works3	SW1DND-GXW3-J	○	○	○	Programmable Controller Engineering Software (Consolidated edition for programming, simulation, units settings, monitoring tool functions)	-	○	○	○	○	
	SW1DND-GXW3-E	○	○	○							
GX Works2	SW1DNC-GXW2-J	-	○	-	Programmable Controller Engineering Software (Consolidated edition for programming, simulation, units settings, monitoring tool functions)	-	-	-	-	-	
	SW1DNC-GXW2-E	-	-	○							
GX Developer	SW8D5C-GPPW-J	-	○	-	Programmable Controller Programming Software	-	-	-	-	-	
	SW8D5C-GPPW-E	-	-	○							
GX Simulator	SW7D5C-LLT-J	-	○	-	Programmable Controller Simulation Software GX Developer add-in software	-	-	-	-	-	
	SW7D5C-LLT-E	-	-	○							
GX LogViewer	SW1DNN-VIEWER-M	○	○	○	Logging data display and analysis tool	○	○	○	○	-	
PX Developer	SW1D5C-FBDQ-J	-	○	-	FBD software for instrumentation control	-	-	-	-	-	
	SW1D5C-FBDQ-E	-	-	○							
PX Developer monitoring tool	SW1DNC-FBDQMON-J	-	○	-	FBD software for instrumentation control (Designed exclusively for the monitoring tool)	-	-	-	-	-	
	SW1DNC-FBDQMON-E	-	-	○							
MX Component	SW4DNC-ACT-J	-	○	-	ActiveX® library for communication, .NET control library	-	○	○	○	○ (R12CCPU-V only)	
	SW4DNC-ACT-E	-	-	○							
MX Sheet	SW2DNC-SHEET-J	-	○	-	Excel® communication support tool Supported software: Microsoft® Excel® 2003, Microsoft® Excel® 2007, Microsoft® Excel® 2010 (32 bit), Microsoft® Excel® 2013 (32 bit)	-	○	○	○	○ (R12CCPU-V only)	
	SW2DNC-SHEET-E	-	-	○							
MX Component for iOS	SW1MIC-ACTIOS-B	-	○	○	A library that enables reading and writing of the values of sequencer devices and labels from a tablet	-	○	-	-	○ (R12CCPU-V only)	
MX Component for Android™	SW1DNC-ACTAND-B	-	○	○		-	○	-	-	○ (R12CCPU-V only)	
MX MESInterface-R	SW1DND-RMESIF-J	-	○	-	MES interface module information linkage tool for RD81MES96	-	-	-	-	-	
	SW1DND-RMESIF-E	-	-	○							
MX MESInterface	SW1DNC-MESIF-J	-	○	-	MES interface module information linkage tool for QJ71MES96	-	-	-	-	-	
	SW1DNC-MESIF-E	-	-	○							
CW Configurator	SW1DND-RCCPU-J	-	○	-	Setup and monitoring tool for C-language controller	-	-	-	-	○ (R12CCPU-V only)	
	SW1DND-RCCPU-E	-	-	○		-	-	-	-	○ (R12CCPU-V only)	
C-language controller setup and monitoring tools	SW4PVC-CCPU-J	-	○	-	Parameter setup and monitoring tool for C-language controller	-	-	-	-	-	
	SW4PVC-CCPU-E	-	-	○							
	SW3PVC-CCPU-J	-	○	-	Parameter setup and monitoring tool for C-language controller	-	-	-	-	-	
	SW3PVC-CCPU-E	-	-	○							
Safety controller setup and monitoring tools	SW1DNN-WS0ADR-B	○	○	○	Setup and monitoring tools for safety controller	○	-	-	-	-	
FX Configurator-FP	SW1D5C-FXSSC-J	-	○	-	Setup & monitoring tool for FX3U-20SSC-H	-	-	-	-	-	
	SW1D5C-FXSSC-E	-	-	○							
FX3U-ENET-L setup tool	SW1D5-FXENETL-J	-	○	-	Setup tool for FX3U-ENET-L	○	-	-	-	-	
	SW1D5-FXENETL-E	-	-	○							
Tool for high-speed data logger unit	SW1DNN-RDLUTL-J	-	○	-	High-speed data logger unit setup tool for RD81DL96	○	-	-	-	-	
	SW1DNN-RDLUTL-E	-	-	○							
	SW1DNN-DLUTL-J	-	○	-	High-speed data logger unit setup tool for QD81DL96	○	-	-	-	-	
	SW1DNN-DLUTL-E	-	-	○							
CPU unit logging setup tool	SW1DNN-LLUTL-M	○	○	○	CPU unit logging setup tool for RCPU, QnUDVCPU and LCPU	○	○	○	○	-	
High-speed data communication unit tool	SW1DNN-DCUTL-J	-	○	-	High-speed data communication unit setup tool for QJ71DC96	○	-	-	-	-	
	SW1DNN-DCUTL-E	-	-	○							
BOX data logger setup tool	SW1DNN-NLUTL-J	-	○	-	BOX data logger setup tool for NZ2DL	○	-	-	-	-	
	SW1DNN-NLUTL-E	-	-	○							

Note: Please refer to individual software products and relevant manuals for details on compatibility with CPU unit, CPU unit version, supported OS, supported unit name, etc.
△: Supports Japanese OS; please refer to the Japanese manual for details.

○: supported △: supports only a few selected types -: not supported

Supported CPU															
	MELSEC iQ-F Series	MELSEC-Q Series										MELSEC-L Series	MELSEC-QS Series	MELSEC-WS Series	MELSEC-F Series
	FX5U	Universal model QCPU		High-performance model QCPU	Basic model QCPU	Universal model process CPU	Process CPU	Redundant CPU	C-language CPU			LCPU	Safety CPU	Safety controller	FXCPU
		QnUDV	QnU/ QnUD(E)						Q12DC CPU-V	Q24DHC CPU-V/VG	Q24/26DHC CPU-LS				
	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	△	-	○ -	○	○	-	-	-	○	-	-	○
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	○	○	○	○	○	○	○	○	○	○ (Q24DHCCPU-V only)	○ (Q24DHCCPU-LS only)	○	-	-	-
	○	○	○	○	○	○	○	○	○	○ (Q24DHCCPU-V only)	○ (Q24DHCCPU-LS only)	○	-	-	-
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	-	-	-	-	-	-	-	-	○ (Function extension mode)	○	○	-	-	-	-
	-	-	-	-	-	-	-	-	○ (Basic function mode)	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	○	-
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	-	○	-	-	-	○	-	-	-	-	-	○	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

iQ Sensor Solution

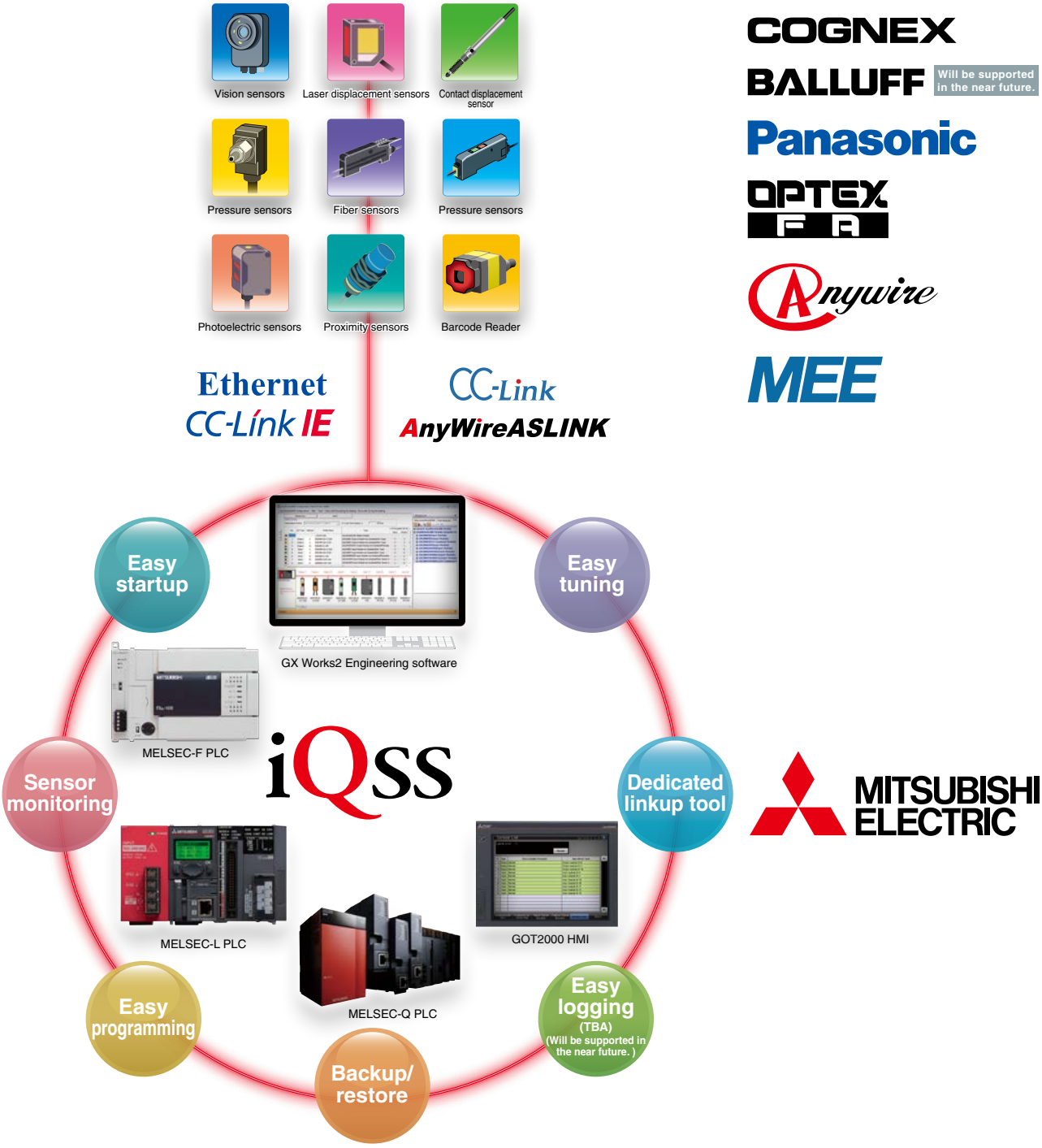
A tool for connecting! Visualizing!
For a more seamless sensor control!

Sensors used on the manufacturing floor are becoming more advanced and complex.
Managing your sensor configuration tools, and maintaining and starting up your equipment can be costly and hugely time consuming. Through a collaboration with partner manufacturers, Mitsubishi Electric offers an engineering tool that enables intuitive configuration and maintenance of sensors. This tool provides a solution that enhances the interaction between sensors and PLCs, HMIs and engineering softwares, which effectively reduces the customer's TCO*. The solution is iQ Sensor Solution (iQss).

*TCO: Total Cost of Ownership

iQss

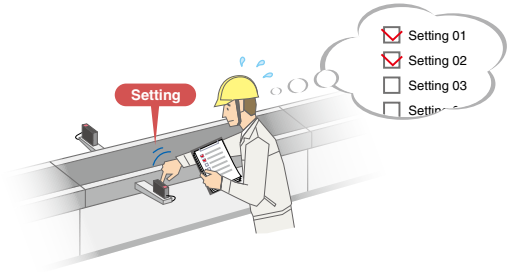
iQss supports all kinds of sensors, from standard type all the way up to full advanced sensors.



Do you have problems to solve at your production site?

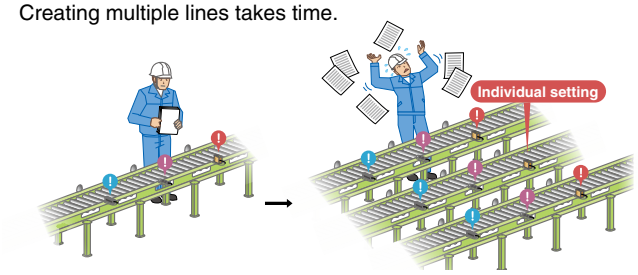
Sensor setting

Complex sensors require many setting items, increasing setup and maintenance time.



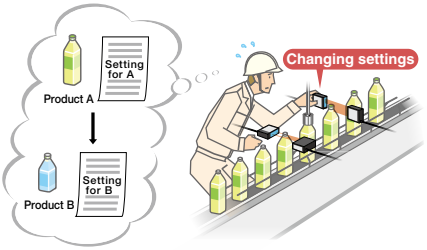
Duplicating lines

When you reorganize your factory space, the parameters for each sensor on your existing lines must be individually set.
Creating multiple lines takes time.



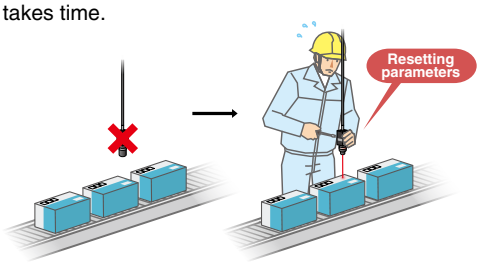
Changing the set-up

When you manufacture multiple products on a single line, sensor parameters have to be changed every time the product changes.
Changing the set-up takes time.



Replacing sensors

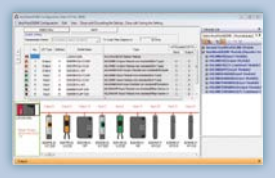
When sensors fail, they don't just have to be replaced. It is also necessary to reset the parameters for the new sensor. System recovery takes time.



Enhanced linkups between third party partners sensors and Mitsubishi PLCs, HMIs and engineering software reduces customers' TCO.

System design

To manage projects simply, we provide a workspace tree that enables projects to be managed in a single location, and a system configuration chart that depicts the entire system graphically.



System configuration management

Testing & startup

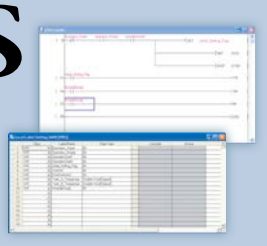
Functions are provided that allow monitoring from a single screen based on the system configuration chart so that the causes of problems can be identified quickly. This also shortens the time taken to adjust sections involving multiple devices.

Monitoring

iQSS

Programming

The labels used by PLCs can also be used by HMIs and sensors. This takes all the bother out of label setting. GOT sample screen libraries, sample ladders and function blocks, etc. are supported.



Label programming

Operation & maintenance

To make backups less laborious, batch read/write functions are provided for PLC, HMI and sensor settings.

Sensor configuration read/write

Lower TCO

Lower development costs

- Easy startup
- Easy programming
- Dedicated linkup tool

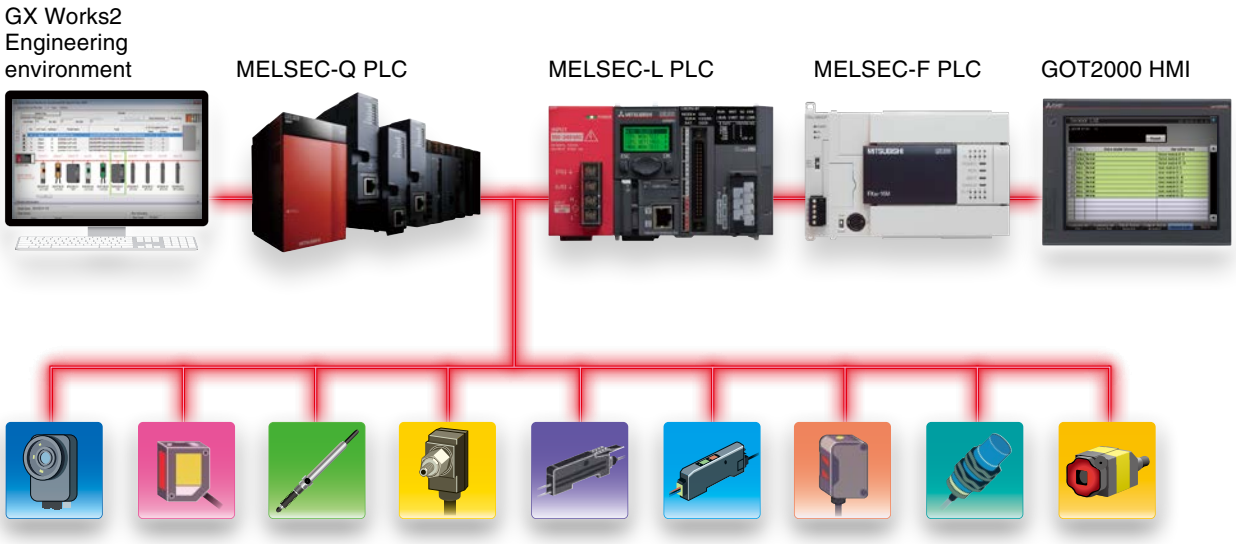
Lower production costs

- Easy tuning

Lower maintenance costs

- Sensor monitoring
- Backup/ restore
- Easy logging (TBA) (Will be supported in the near future.)

iQSS Configuration Chart



List of compatible models

○: Compatible －: Incompatible

Product	Manufacturer	Series/Model	Connection method				
			AnyWire ASLINK	CC-Link	CC-Link IE Field Network	Ethernet	Bus connection*1
Vision system	Cognex Corporation	In-Sight EZ-700, EZ-100 series In-Sight 7000, Micro, 5000 series * Supports In-Sight firmware version 4.9 and onwards * In-Sight EZ-700 and EZ-100 series are only sold in certain countries and areas.	－	－	－	○	－
	OPTEX FA CO., LTD.	HVS-OCR	－	－	－	○	－
Laser displacement sensors	Panasonic Industrial Devices SUNX Co., Ltd.	Sensor controller HL-C21C(E) series HL-C21C(E) (NPN type), HL-C21C(E)-P (PNP type)	－	－	－	○	－
		Sensor head for HL-C2(E) series HL-C201A(E)(-MK), HL-C201A(E)-SP2(M), HL-C201A(E)-SP3(M), HL-C203B(E)(-MK), HL-C205B(E)(-MK), HL-C205C(E)(-MK), HL-C211B(E)(-MK), HL-C211C(E)(-MK), HL-C235B(E)(-MK), HL-C235C(E)(-MK), HL-C235CE-W(MK)					
	OPTEX FA CO., LTD.	Control unit UQ1 series UQ 1-01 (Dedicated unit for CD5 series), UQ 1-02 (Dedicated unit for CD33 series)	－	－	－	－	○
		Sensor head CD5 series CD5-L25, CD5-LW25, CD5-30, CD5-W30, CD5-85, CD5-W85, CD5-150, CD5-W150, CD5-W350, CD5-W500, CD5-W2000					
		Sensor head CD33 series CD33-30 series, CD33-50 series, CD33-85 series, CD33-120 series, CD33-250 series, CD33-L30 series, CD33-L50 series, CD33-L85 series					
Fiber sensors	Panasonic Industrial Devices SUNX Co., Ltd.	CC-Link communication unit*2 SC-GU3-01 * Uses separate sensor head	－	○	－	－	－
		Digital fiber sensor amplifier FX-300 series FX-301, FX-305					
		Digital fiber sensor amplifier FX-500 series FX-501, FX-502					
	OPTEX FA CO., LTD.	CC-Link communication unit UC1-CL11 * Uses separate sensor head	－	○	－	－	－
		High-speed digital fiber amplifier D3RF series					
	Anywire Corporation	ASLINKAMP main unit B289SB-01AF-CAM20, B289SB-01AF-CAM20-V	○	－	－	－	－
		ASLINKAMP sub units B289SB-01AF-CAS, B289SB-01AF-CAS-V					
		ASLINKAMP main unit (With 7-segment display) LA-F1011					
		ASLINKAMP sub units (With 7-segment display) LB-F1011					
		AFT-4 M4 (Radius R30), AFT-1 M3 (Radius R20) AFT-2 M3 (Radius R25), AFT-1-1 M3 (Radius R20, Heat resistance 100°C)					

○: Compatible －: Incompatible

Product	Manufacturer	Series/Model	Connection method				
			AnyWire ASLINK	CC-Link	CC-Link IE Field Network	Ethernet	Bus connection*1
 Laser sensors	Panasonic Industrial Devices SUNX Co., Ltd	CC-Link communication unit*2 SC-GU3-01 * Uses separate sensor head (choice of three models)	－	○	－	－	－
		Digital laser amplifier LS series LS-500 series, LS-403					
 Pressure sensors	Panasonic Industrial Devices SUNX Co., Ltd.	CC-Link communication unit*2 SC-GU3-01 * Uses separate sensor head (Choice of three models)	－	○	－	－	－
		Digital pressure sensor DPS-400 series DPS-401, DPS-402					
	Anywire Corporation	ASLINKSENSOR (Positive pressure sensor) B284SB-01-1KPP30, B284SB-02-1KPP30	○	－	－	－	－
		ASLINKSENSOR (Negative pressure sensor) B284SB-01-1KNP30, B284SB-02-1KNP30					
		ASLINKSENSOR (Compound pressure sensor) B284SB-01-1KLP30, B284SB-02-1KLP30					
		ASLINKSENSOR (Low Positive Pressure sensor) B284SB-01-1KPLP30,B284SB-02-1KPLP30					
		ASLINKSENSOR (Low Positive Pressure sensor, Analog Level 10bit) B284SB-J1-1KPLP30					
		ASLINKSENSOR (Positive Pressure sensor, Analog Level 10bit) B284SB-J1-1KPP30					
		ASLINKSENSOR (Negative Pressure sensor, Analog Level 10bit) B284SB-J1-1KNP30					
		ASLINKSENSOR (Compound Pressure sensor, Analog Level 10bit) B284SB-J1-1KLP30					
 Photoelectric sensors	Anywire Corporation	ASLINKAMP main unit B289SB-01AP-CAM20	○	－	－	－	－
		ASLINKAMP sub units B289SB-01AP-CAS					
		ASLINKSENSOR (Transmission type) B283SB-PC-SET (P, C set type), B283SB-01-1KP (Light-projecting) B283SB-01-1KC (Light-receptive)					
		ASLINKSENSOR (Recurrent reflection type) B283SB-01-1KR-V					
		ASLINKSENSOR (Diffuse reflection type) B283SB-01-1KS					
		ASLINKSENSOR (IP67, Transmission Type) BS-H0117-1KP(Light-projecting), BS-H0117-1KC (Light-receptive)					
		ASLINKSENSOR (IP67, Recurrent reflection Type) BS-H0217-1K					
		ASLINKSENSOR (IP67, Diffuse reflection Type) BS-H0317-1K					
 Proximity sensors	Anywire Corporation	ASLINKAMP main Unit B289SB-01AK-CAM20	○	－	－	－	－
		ASLINKAMP sub units B289SB-01AK-CAS					
		ASLINKSENSOR (No coatings) BS-K1117-M8-1K (M8 Full thread), BS-K1117-M12-1K (M12 Full thread), BS-K1117-M18-1K (M18 Full thread), BS-K1117-M30-1K (M30 Full thread)					
		ASLINKSENSOR (Fluorine resin coatings) BS-K1117S-M12-1K (M12 Full thread), BS-K1117S-M18-1K (M18 Full thread), BS-K1117S-M30-1K (M30 Full thread)					
 Photo-interrupters	Anywire Corporation	ASLINKSENSOR B297SB-01-1K40 (Standard model)	○	－	－	－	－
 RFID	Mitsubishi Electric Engineering Company Ltd.	Interface unit ECL2-V680D1	－	○	－	－	－
	OMRON Corporation	Head unit V680 series					

*1: Used loaded into the I/O slot in a MELSEC-Q series base unit.
*2: Additionally use a cascading connector unit (SC-71), an end unit (SC-GU3-EC), and the computer software (SC-PC1).

- Refer to the iQ Sensor Solution Reference Manual (SH-081133ENG) for information on the supported versions of each product.
- Refer to the manual for each product for detailed product specifications.

Product List

Please refer to the product user manuals for information about compatible modules, restrictions, etc., before using the products.
Please visit the Mitsubishi Electric FA site or contact your nearest branch for the latest information on the MELSOFT versions and compatible OS.

MELSEC iQ-R Series

●CPU module

Type	Model	Outline
Programmable controller CPU	R04CPU	Program capacity, 40K steps; basic operation processing speed (LD instruction), 0.98 ns
	R08CPU	Program capacity, 80K steps; basic operation processing speed (LD instruction), 0.98 ns
	R16CPU	Program capacity, 160K steps; basic operation processing speed (LD instruction), 0.98 ns
	R32CPU	Program capacity, 320K steps; basic operation processing speed (LD instruction), 0.98 ns
	R120CPU	Program capacity, 1200K steps; basic operation processing speed (LD instruction), 0.98 ns
	R04ENCPU	CC-Link IE embedded; program capacity, 40K steps; basic operation processing speed (LD instruction), 0.98 ns
	R08ENCPU	CC-Link IE embedded; program capacity, 80K steps; basic operation processing speed (LD instruction), 0.98 ns
	R16ENCPU	CC-Link IE embedded; program capacity, 160K steps; basic operation processing speed (LD instruction), 0.98 ns
	R32ENCPU	CC-Link IE embedded; program capacity, 320K steps; basic operation processing speed (LD instruction), 0.98 ns
	R120ENCPU	CC-Link IE embedded; program capacity, 1200K steps; basic operation processing speed (LD instruction), 0.98 ns
Motion CPU	R16MTCPU	Up to 16-axis control; operation cycle, ≤0.222 ms; SSCNET Ⅲ/H connectivity
	R32MTCPU	Up to 32-axis control; operation cycle, ≤0.222 ms; SSCNET Ⅲ/H connectivity
	R64MTCPU	Up to 64-axis control; operation cycle, ≤0.222 ms; SSCNET Ⅲ/H connectivity
Safety CPU	R08SFCPU-SET	Program capacity, 80K steps (40K steps for safety programs); basic operation processing speed (LD instruction), 0.98 ns
	R16SFCPU-SET	Program capacity, 160K steps (40K steps for safety programs); basic operation processing speed (LD instruction), 0.98 ns
	R32SFCPU-SET	Program capacity, 320K steps (40K steps for safety programs); basic operation processing speed (LD instruction), 0.98 ns
	R120SFCPU-SET	Program capacity, 1200K steps (40K steps for safety programs); basic operation processing speed (LD instruction), 0.98 ns
Process CPU	R08PCPU	Program capacity, 80K steps; basic operation processing speed (LD instruction), 0.98 ns
	R16PCPU	Program capacity, 160K steps; basic operation processing speed (LD instruction), 0.98 ns
	R32PCPU	Program capacity, 320K steps; basic operation processing speed (LD instruction), 0.98 ns
	R120PCPU	Program capacity, 1200K steps; basic operation processing speed (LD instruction), 0.98 ns
Redundant function module	R6RFM	By combining with a process CPU a redundant control system can be realized.
C Controller	R12CCPU-V	Endian format, little endian; OS, VxWorks® Version 6.9
SD memory card*1	NZ1MEM-2GBSD	SD memory card, 2G bytes
	NZ1MEM-4GBSD	SDHC memory card, 4G bytes
	NZ1MEM-8GBSD	SDHC memory card, 8G bytes
	NZ1MEM-16GBSD	SDHC memory card, 16G bytes
Extended SRAM cassette	NZ2MC-1MBS	1M bytes
	NZ2MC-2MBS	2M bytes
	NZ2MC-4MBS	4M bytes
	NZ2MC-8MBS	8M bytes
	NZ2MC-8MBSE*2	8M bytes
	NZ2MC-16MBS	16M bytes
Battery	Q6BAT	Replacement battery
	Q7BAT	Replacement large-capacity battery
	Q7BAT-SET	Large-capacity battery with holder for mounting CPU

*1: Mitsubishi Electric shall not guarantee the operation of any third party products.
*2: ECC type for safety CPU and process CPU modules.

Base unit

Type	Model	Outline
Main base	R35B	5 slots, for MELSEC iQ-R Series modules
	R38B	8 slots, for MELSEC iQ-R Series modules
	R312B	12 slots, for MELSEC iQ-R Series modules
Redundant power supply main base	R310RB	10 slots, for MELSEC iQ-R Series modules
Extended temperature range main base	R310B-HT	10 slots, for MELSEC iQ-R Series modules
Extended temperature range redundant power supply main base	R38RB-HT	8 slots, for MELSEC iQ-R Series modules
Extension base	R65B	5 slots, for MELSEC iQ-R Series modules
	R68B	8 slots, for MELSEC iQ-R Series modules
	R612B	12 slots, for MELSEC iQ-R Series modules
Redundant power supply extension base	R610RB	10 slots, for MELSEC iQ-R Series modules
Extended temperature range extension base	R610B-HT	10 slots, for MELSEC iQ-R Series modules
Extended temperature range redundant power supply extension base	R68RB-HT	8 slots, for MELSEC iQ-R Series modules
RQ extension base	RQ65B	5 slots, for MELSEC-Q Series modules
	RQ68B	8 slots, for MELSEC-Q Series modules
	RQ612B	12 slots, for MELSEC-Q Series modules
Extension cable	RC06B	0.6 m cable for extension and RQ extension base units
	RC12B	1.2 m cable for extension and RQ extension base units
	RC30B	3 m cable for extension and RQ extension base units
	RC50B	5 m cable for extension and RQ extension base units
DIN rail mounting adapter	R6DIN1	For main and extension base units
	Q6DIN1	For RQ68B/RQ612B
	Q6DIN2	For RQ65B
	Q6DIN1A	For RQ extension base units (with vibration-proofing bracket sets)
Blank cover	RG60	For I/O slots of main and extension base units
	QG60	For I/O slots of RQ extension base units

Power supply module

Power supply	R61P	AC power supply; input, 100...240 V AC; output, 5 V DC/6.5 A
	R62P	AC power supply; input, 100...240 V AC; output, 5 V DC/3.5 A, 24 V DC/0.6 A
	R64P	AC power supply; input, 100...240 V AC; output, 5 V DC/9 A
	R63P	DC power supply; input, 24 V DC; output, 5 V DC/6.5 A
	R64RP	AC power supply; input, 100...240 V AC; output, 5 V DC/9 A, Redundant power supply function support

I/O module

Input	RX10	AC input, 16 points; 100...120 V AC (50/60 Hz)
	RX40C7	DC input, 16 points; 24 V DC, 7.0 mA
	RX41C4	DC input, 32 points; 24 V DC, 4.0 mA
	RX42C4	DC input, 64 points; 24 V DC, 4.0 mA
High-speed input	RX40PC6H	Positive common type DC input, 16 points; 24 V DC, 6.0 mA; minimum response time 5 µs
	RX40NC6H	Negative common type DC input, 16 points; 24 V DC, 6.0 mA; minimum response time 5 µs
	RX41C6HS	Positive/negative common type DC input, 32 points; 24 V DC, 6.0 mA; minimum response time 1 µs
	RX61C6HS	Positive/negative common type DC input, 32 points; 5 V DC, 6.0 mA; minimum response time 1 µs
Input (with diagnostic functions)	RX40NC6B	Negative common type DC input, 16 points; 24 V DC, 6.0 mA
Output	RY10R2	Relay output, 16 points; 24 V DC/2 A, 240 V AC/2 A
	RY40NT5P	Transistor (sink) output, 16 points; 12...24 V DC, 0.5 A
	RY41NT2P	Transistor (sink) output, 32 points; 12...24 V DC, 0.2 A
	RY42NT2P	Transistor (sink) output, 64 points; 12...24 V DC, 0.2 A
	RY40PT5P	Transistor (source) output, 16 points; 12...24 V DC, 0.5 A
	RY41PT1P	Transistor (source) output, 32 points; 12...24 V DC, 0.1 A
	RY42PT1P	Transistor (source) output, 64 points; 12...24 V DC, 0.1 A
High-speed output	RY41NT2H	Transistor (sink) output, 32 points; 5...24 V DC, 0.2 A; minimum response time 2 µs
	RY41PT2H	Transistor (source) output, 32 points; 5...24 V DC, 0.2 A; minimum response time 2 µs
Output (with diagnostic functions)	RY40PT5B	Transistor (source) output, 16 points; 24 V DC, 0.5 A
I/O combined	RH42C4NT2P	DC input, 32 points; 24 V DC, 4.0 mA Transistor (sink) output, 32 points; 12...24 V DC, 0.2 A

Analog module

Type	Model	Outline
Analog input	R60AD4	4 channels for voltage/current inputs -10...10 V DC, -32000...32000; 0...20 mA DC, 0...32000; 80 µs/CH
	R60ADH4	4 channels for voltage/current inputs -10...10 V DC, -32000...32000; 0...20 mA DC, 0...32000; 5 µs/4CH
	R60ADV8	8 channels for voltage inputs -10...10 V DC, -32000...32000; 80 µs/CH
	R60ADI8	8 channels for current inputs 0...20 mA DC/0...32000; 80 µs/CH
	R60AD8-G	8 channels for voltage/current input, channel isolated -10...10 V DC/-32000...32000, 0...20 mA DC/0...32000, 10 ms/CH
	R60AD16-G	16 channels for voltage/current input, channel isolated -10...10 V DC/-32000...32000, 0...20 mA DC/0...32000, 10 ms/CH
Temperature input	R60TD8-G	Thermocouple (B, R, S, K, E, J, T, N), 8 channels for input, channel isolated, 30 ms/CH
	R60RD8-G	RTD (Pt100, JPt100, Ni100, Pt50), 8 channels for input, channel isolated, 10 ms/CH
Temperature control	R60TCTRT2TT2	Thermocouple (B, R, S, K, E, J, T, N, U, L, PLⅡ, W5Re/W26Re), 4 channels for input (2 channels can also be used for RTD input)
	R60TCRT4	RTD (Pt100, JPt100), 4 channels for input
	R60TCTRT2TT2BW	Thermocouple (B, R, S, K, E, J, T, N, U, L, PLⅡ, W5Re/W26Re), 4 channels for input (2 channels can also be used for RTD input), heater disconnection detection
	R60TCRT4BW	RTD (Pt100, JPt100), 4 channels for input, heater disconnection detection
Analog output	R60DA4	4 channels for voltage/current outputs -32000...32000, -10...10 V DC; 0...32000, 0...20 mA DC; 80 µs/CH
	R60DAV8	8 channels for voltage outputs -32000...32000, -10...10 V DC; 80 µs/CH
	R60DAI8	8 channels for current outputs 0...32000, 0...20 mA DC; 80 µs/CH
	R60DA8-G	8 channels for voltage/current output, channel isolated -32000...32000/-12...12 V DC, 0...32000/0...20 mA DC, 1 ms/CH
	R60DA16-G	16 channels for voltage/current output, channel isolated -32000...32000/-12...12 V DC, 0...32000/0...20 mA DC, 1 ms/CH

Motion/Positioning/High-speed counter module

Simple motion	RD77GF4	4 axes, linear/circular interpolation, advanced synchronous control, CC-Link IE Field network compatible
	RD77GF8	8 axes, linear/circular interpolation, advanced synchronous control, CC-Link IE Field network compatible
	RD77GF16	16 axes, linear/circular interpolation, advanced synchronous control, CC-Link IE Field network compatible
	RD77MS2	2 axes, linear/circular interpolation, advanced synchronous control, SSCNETⅢ/H compatible
	RD77MS4	4 axes, linear/circular interpolation, advanced synchronous control, SSCNETⅢ/H compatible
	RD77MS8	8 axes, linear/circular interpolation, advanced synchronous control, SSCNETⅢ/H compatible
	RD77MS16	16 axes, linear/circular interpolation, advanced synchronous control, SSCNETⅢ/H compatible
Positioning	RD75P2	Transistor output, 2 axes; max. output, 200k pulse/s; linear/circular interpolation
	RD75P4	Transistor output, 4 axes; max. output, 200k pulse/s; linear/circular/helical interpolation
	RD75D2	Differential driver output, 2 axes; max. output, 5M pulse/s; linear/circular interpolation
	RD75D4	Differential driver output, 4 axes; max. output, 5M pulse/s; linear/circular/helical interpolation
High-speed counter	RD62P2	5/12/24 V DC input, 2 channels; counting speed, max. 200k pulse/s; external output, transistor (sink type)
	RD62P2E	5/12/24 V DC input, 2 channels; counting speed, max. 200k pulse/s; external output, transistor (source type)
	RD62D2	Differential input, 2 channels; max. counting speed, 8M pulse/s; external output, transistor (sink type)

Network module

Ethernet (built-in CC-Link IE)	RJ71EN71	1 Gbps/100 Mbps/10 Mbps, 2 ports Multi-network connectivity (Ethernet/CC-Link IE)
CC-Link IE Control	RJ71GP21-SX	1 Gbps, fiber-optic cable, control/normal station
CC-Link IE Field	RJ71GF11-T2	1 Gbps, master/local station
CC-Link IE Field Network remote head	RJ72GF15-T2	1 Gbps, remote station
CC-Link	RJ61BT11	Max. 10 Mbps, master/local station, CC-Link Ver.2 supported
AnyWireASLINK	RJ51AW12AL	DigitalLinkSensor AnyWireASLINK system compatible, master station
Serial communication	RJ71C24	Max. 230.4 kbps; RS-232, 1 channel; RS-422/485, 1 channel
	RJ71C24-R2	Max. 230.4 kbps; RS-232, 2 channels
	RJ71C24-R4	Max. 230.4 kbps; RS-422/485, 2 channels

Advanced information module

MES Interface	RD81MES96	Database connection (MX MESInterface-R is required)
High-speed data logger	RD81DL96	Data collection (High-speed data logger module tool "SW1DNN-RDLUTL-E" is required)*1
C intelligent function module	RD55UP06-V	C/C++ program execution (Setting and monitoring tool is integrated within GX Works3)

*1: For information on how to obtain the software, please contact your local Mitsubishi Electric sales office or representative.

MELSEC iQ-F Series

■CPU & I/O module

●CPU module

Model	Specification				
	Rated voltage	Input		Output	
◆FX5U CPU modules					
FX5U-32MR/ES	100...240 V AC 50/60 Hz	16 points	24 V DC sink/source	16 points	Relay
FX5U-32MT/ES					Transistor/sink
FX5U-32MT/ESS					Transistor/source
FX5U-64MR/ES		32 points		32 points	Relay
FX5U-64MT/ES					Transistor/sink
FX5U-64MT/ESS					Transistor/source
FX5U-80MR/ES		40 points		40 points	Relay
FX5U-80MT/ES					Transistor/sink
FX5U-80MT/ESS					Transistor/source
FX5U-32MR/DS	24 V DC	16 points	24 V DC sink/source	16 points	Relay
FX5U-32MT/DS					Transistor/sink
FX5U-32MT/DSS					Transistor/source
◆FX5UC CPU modules					
FX5UC-32MT/D	24 V DC	16 points	24 V DC sink	16 points	Transistor/sink
FX5UC-32MT/DSS			24 V DC sink/source		Transistor/source
FX5UC-64MT/D		32 points	24 V DC sink	32 points	Transistor/sink
FX5UC-64MT/DSS			24 V DC sink/source		Transistor/source
FX5UC-96MT/D		48 points	24 V DC sink	48 points	Transistor/sink
FX5UC-96MT/DSS			24 V DC sink/source		Transistor/source

●I/O module

Model	Specification				
	Rated voltage	Input		Output	
■■■Extension cable type■■■					
◆Input module					
FX5-8EX/ES	Supplied from CPU module	8 points	24 V DC sink/source	—	—
FX5-16EX/ES		16 points		—	—
◆Output module					
FX5-8EYR/ES	Supplied from CPU module	—	—	8 points	Relay
FX5-8EYT/ES					Transistor/sink
FX5-8EYT/ESS					Transistor/source
FX5-16EYR/ES		—	—	16 points	Relay
FX5-16EYT/ES					Transistor/sink
FX5-16EYT/ESS					Transistor/source
◆High-speed pulse input/output module					
FX5-16ET/ES-H	Supplied from CPU module	8 points	24 V DC sink/source	8 points	Transistor/sink
FX5-16ET/ESS-H					Transistor/source
◆Powered input/output module					
FX5-32ER/ES	100...240 V AC 50/60 Hz	16 points	24 V DC sink/source	16 points	Relay
FX5-32ET/ES					Transistor/sink
FX5-32ET/ESS					Transistor/source
FX5-32ER/DS	24 V DC	16 points	24 V DC sink/source	16 points	Relay
FX5-32ET/DS					Transistor/sink
FX5-32ET/DSS					Transistor/source
■■■Extension connector type■■■					
◆Input module					
FX5-C16EX/D	Supplied from CPU module	16 points	24 V DC sink	—	—
FX5-C16EX/DS			24 V DC sink/source		
FX5-C32EX/D		32 points	24 V DC sink	—	—
FX5-C32EX/DS			24 V DC sink/source		
◆Output module					
FX5-C16EYT/D	Supplied from CPU module	—	—	16 points	Transistor/sink
FX5-C16EYT/DSS					Transistor/source
FX5-C32EYT/D		—	—	32 points	Transistor/sink
FX5-C32EYT/DSS					Transistor/source
◆Input/output module					
FX5-C32ET/D	Supplied from CPU module	16 points	24 V DC sink	16 points	Transistor/sink
FX5-C32ET/DSS			24 V DC sink/source		Transistor/source

Expansion boards & Expansion adapter

Model	Specification
FX5-232-BD	For RS-232C communication
FX5-485-BD	For RS-485 communication
FX5-422-BD-GOT	For GOT connection RS-422 communication
FX5-232ADP	For RS-232C communication
FX5-485ADP	For RS-485 communication
FX5-4AD-ADP	4 ch analog input adapter
FX5-4DA-ADP	4 ch analog output adapter

FX5 extension power supply module, bus conversion module, connector conversion module

FX5-1PSU-5V	FX5U extension power supply
FX5-C1PS-5V	FX5UC extension power supply
FX5-CNV-BUS	Bus conversion FX5 (extension cable type)→FX3
FX5-CNV-BUSC	Bus conversion FX5 (extension connector type)→FX3
FX5-CNV-IF	Connector conversion FX5 (extension cable type)→FX5 (extension connector type)
FX5-CNV-IFC	Connector conversion FX5 (extension connector type)→FX5 (extension cable type)

FX5 intelligent function module

FX5-40SSC-S	Simple motion 4-axis control
FX5-CCLIEF	Intelligent device station for CC-Link IE Field network

FX3 extension power supply module

FX3U-1PSU-5V	FX3 extension power supply

FX3 intelligent function module

FX3U-4AD	4 ch analog input
FX3U-4DA	4 ch analog output
FX3U-4LC	4 ch temperature control
FX3U-1PG	Positioning pulse output 200 kpps
FX3U-2HC	2 ch 200 kHz high-speed counter
FX3U-16CCL-M	Master for CC-Link V2
FX3U-64CCL	Interface for CC-Link V2
FX3U-128ASL-M	Master for AnyWireASLINK

Software package

Type	Model	Specification
MELSOFT iQ Works (DVD-ROM)	SW2DND-IQWK-E*1	FA engineering software (English)*2
MELSOFT GX Works3 (DVD-ROM)	SW1DND-GXW3-E	PLC engineering software*2 ((English) includes GX Works2, GX Developer)

*1: Purchase the upgraded version separately if your software is the conventional model (SW1DND-IQWK-E). Contact our sales section.
*2: For the models corresponding to software, refer to manuals of each product.

Communication cable

Model		Specification
FX-232CAB-1	3 m	9-pin D-sub (female)⇔9-pin D-sub (female) (for DOS/V, etc.)

Input/output cable

FX-16E-150CAB	1.5 m	For connection between terminal module and FX5 PLC (Flat cable with connectors at both ends)
FX-16E-300CAB	3.0 m	
FX-16E-500CAB	5.0 m	
FX-16E-500CAB-S	5.0 m	Loose wire with connector on one end
FX-16E-150CAB-R	1.5 m	For connection between terminal module and FX5 PLC (Multi-core round cable with connectors at both ends)
FX-16E-300CAB-R	3.0 m	
FX-16E-500CAB-R	5.0 m	

Input/output connector

Model	Specification
FX2C-I/O-CON	20-pin connector and 10 pressure connectors for flat cable
FX2C-I/O-CON-S	20-pin connector and 5 sets of housing for loose wire and crimp contact (for 0.3 mm²)
FX2C-I/O-CON-SA	20-pin connector and 5 sets of housing for loose wire and crimp contact (for 0.5 mm²)
FX-I/O-CON2-S	40-pin connector, 2 sets of loose wire, AWG22 (0.3 mm²)
FX-I/O-CON2-SA	40-pin connector, 2 sets of loose wire, AWG20 (0.5 mm²)

Terminal module

FX-16E-TB	16 input or output points
FX-32E-TB	32 input or output points
FX-16E-TB/UL	16 input or output points
FX-32E-TB/UL	32 input or output points
FX-16EYR-TB	16 relay output points 2 A/1 point (8 A/4 points)
FX-16EYS-TB	16 triac output points, 0.3 A/1 point (0.8 A/4 points)
FX-16EYT-TB	16 transistor output points, 0.5 A/1 point (0.8 A/4 points) (sink output)
FX-16EYR-ES-TB/UL	16 relay output points 2 A/1 point (8 A/4 points)
FX-16EYS-ES-TB/UL	16 triac output points, 0.3 A/1 point (0.8 A/4 points)
FX-16EYT-ES-TB/UL	16 transistor output points, 0.5 A/1 point (0.8 A/4 points) (sink output)
FX-16EYT-ESS-TB/UL	16 transistor output points, 0.5 A/1 point (0.8 A/4 points) (source output)

Power cable

FX2NC-100MPCB	FX5UC CPU module, for 24 V DC power supply
FX2NC-100BPCB	Extension module (extension connector type), for 24 V DC input power supply
FX2NC-10BPCB1	Extension module (extension connector type), for 24 V DC input power supply connection wiring

Extended cable/connector conversion adapter

FX5-30EC	30 cm	For the extension of FX5 extension module
FX5-65EC	65 cm	
FX5-CNV-BC	For the connection between an extended extension cable and an FX5 input/output module (extension cable type), a high-speed pulse input/output module, or an FX5 intelligent function module	

SD memory card & battery

NZ1MEM-2GBSD	SD memory card (2 GB)
NZ1MEM-4GBSD	SDHC memory card (4 GB)
FX3U-32BL	Battery

MELSEC-Q Series

●CPU module

Type		Model	Outline
High-speed Universal model QCPU		Q03UDVCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30K steps, basic operation processing speed (LD instruction): 1.9 ns, program memory capacity: 120 KB, peripheral connection ports: USB, Ethernet (Predefined protocol support function), memory card I/F: SD memory card and extended SRAM cassette
		Q04UDVCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40K steps, basic operation processing speed (LD instruction): 1.9 ns, program memory capacity: 160 KB, peripheral connection ports: USB, Ethernet (Predefined protocol support function), memory card I/F: SD memory card and extended SRAM cassette
		Q06UDVCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60K steps, basic operation processing speed (LD instruction): 1.9 ns, program memory capacity: 240 KB, peripheral connection ports: USB, Ethernet (Predefined protocol support function), memory card I/F: SD memory card and extended SRAM cassette
		Q13UDVCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130K steps, basic operation processing speed (LD instruction): 1.9 ns, program memory capacity: 520 KB, peripheral connection ports: USB, Ethernet (Predefined protocol support function), memory card I/F: SD memory card and extended SRAM cassette
		Q26UDVCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260K steps, basic operation processing speed (LD instruction): 1.9 ns, program memory capacity: 1040 KB, peripheral connection ports: USB, Ethernet (Predefined protocol support function), memory card I/F: SD memory card and extended SRAM cassette
Universal model QCPU		Q00UJCPU	No. of I/O points: 256 points, no. of I/O device points: 8192 points, program capacity: 10K steps, basic operation processing speed (LD instruction): 120 ns, program memory capacity: 40 KB, peripheral connection ports: USB and RS-232, no memory card I/F, 5-slot base, with 100…240 V AC input/5 V DC/3 A output power supply
		Q00UCPU	No. of I/O points: 1024 points, no. of I/O device points: 8192 points, program capacity: 10K steps, basic operation processing speed (LD instruction): 80 ns, program memory capacity: 40 KB, peripheral connection ports: USB and RS-232, no memory card I/F
		Q01UCPU	No. of I/O points: 1024 points, no. of I/O device points: 8192 points, program capacity: 15K steps, basic operation processing speed (LD instruction): 60 ns, program memory capacity: 60 KB, peripheral connection ports: USB and RS-232, no memory card I/F
		Q02UCPU	No. of I/O points: 2048 points, no. of I/O device points: 8192 points, program capacity: 20K steps, basic operation processing speed (LD instruction): 40 ns, program memory capacity: 80 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q03UDCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30K steps, basic operation processing speed (LD instruction): 20 ns, program memory capacity: 120 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q04UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 160 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q06UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 240 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q10UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 100K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 400 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q13UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 520 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q20UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 200K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 800 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q26UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 1040 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
	Built-in Ethernet type	Q03UDECPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30K steps, basic operation processing speed (LD instruction): 20 ns, program memory capacity: 120 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q04UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 160 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q06UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 240 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q10UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 100K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 400 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q13UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 520 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q20UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 200K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 800 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q26UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 1040 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q50UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 500K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 2000 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card
		Q100UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 1000K steps, basic operation processing speed (LD instruction): 9.5 ns, program memory capacity: 4000 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, memory card IF: SRAM card, FLASH card, and ATA card

●CPU module

Type		Model	Outline
Basic model QCPU		Q00JCPU	No. of I/O points: 256 points, no. of I/O device points: 2048 points, program capacity: 8K steps, basic operation processing speed (LD instruction): 200 ns, program memory capacity: 58 KB, peripheral connection ports: RS-232, no memory card I/F, 5-slot base, with 100…240 V AC input/5 V DC/3 A output power supply
		Q00CPU	No. of I/O points: 1024 points, no. of I/O device points: 2048 points, program capacity: 8K steps, basic operation processing speed (LD instruction): 160 ns, program memory capacity: 94 KB, peripheral connection ports: RS-232, no memory card I/F
		Q01CPU	No. of I/O points: 1024 points, no. of I/O device points: 2048 points, program capacity: 14K steps, basic operation processing speed (LD instruction): 100 ns, program memory capacity: 94 KB, peripheral connection ports: RS-232, no memory card I/F
High Performance model QCPU		Q02CPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 28K steps, basic operation processing speed (LD instruction): 79 ns, program memory capacity: 112 KB, peripheral connection ports: RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q02HCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 28K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 112 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q06HCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 240 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q12HCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 124K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 496 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q25HCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 252K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 1008 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
Process CPU		Q02PHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 28K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 112 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q06PHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 240 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q12PHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 124K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 496 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q25PHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 252K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 1008 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
Redundant CPU		Q12PRHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 124K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 496 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
		Q25PRHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 252K steps, basic operation processing speed (LD instruction): 34 ns, program memory capacity: 1008 KB, peripheral connection ports: USB and RS-232, memory card IF: SRAM card, FLASH card, and ATA card
	Tracking cable	QC10TR	Tracking cable 1 m
		QC30TR	Tracking cable 3 m
C Controller CPU		Q24DHCCPU-V	No. of I/O points: 4096 points, endian format: little endian, removable storage: SD memory card, OS: VxWorks® Version 6.8.1
		Q24DHCCPU-LS	No. of I/O points: 4096 points, endian format: little endian, removable storage: SD memory card, OS: No pre-installed operating system (Operating system installed by user)
		Q12DCCPU-V	No. of I/O points: 4096 points, endian format: little endian, removable storage: CompactFlash card, OS: VxWorks® Version 6.4
		Q06CCPU-V	No. of I/O points: 4096 points, endian format: little endian, removable storage: CompactFlash card, OS: VxWorks® Version 5.4
	Bundled product	Q24DHCCPU-V-B019	C Controller (Q24DHCCPU-V) bundled with CIMSNIPER Q24 E, data collection package for EES/FDC/APC (equipped with Simple MES functionality)
		Q24DHCCPU-V-B01D	C Controller (Q24DHCCPU-V) bundled with DNA Designer Q24 E, model based development support tool
		Q24DHCCPU-VG-B000	C Controller (Q24DHCCPU-VG) bundled with GENWARE®3-VG Runtime License Version, runtime library is pre-installed
		Q24DHCCPU-VG-B002	C Controller (Q24DHCCPU-VG) bundled with GENWARE®3-VG Tool License Version, GUI development environment (CI SKETCH-E) is bundled into the Runtime License version
		Q24DHCCPU-LS-B030	C Controller (Q24DHCCPU-LS) bundled with Lineo uLinux and uLinux Station, web-based application that enables basic Linux system configuration
		Q12DCCPU-V-B011	C Controller (Q12DCCPU-V) bundled with CIMOPERATOR® SECS+ for ADVANCED E, supports SECS-I (SEMI E4), HSMS (SEMI E37)
		Q12DCCPU-V-B013	C Controller (Q12DCCPU-V) bundled with CIMOPERATOR® SECS+ for GEM ADVANCED E, middle kit version that supports GEM (E30) (does not support Trace data collection, Limit monitoring, Document file output)
		Q12DCCPU-V-B015	C Controller (Q12DCCPU-V) bundled with CIMOPERATOR® SECS+ for GEM ADVANCED (Option Pack) E, full kit version that supports GEM (E30) (supports Trace data collection, Limit monitoring, Document file output)
		Q12DCCPU-V-B019	C Controller (Q12DCCPU-V) bundled with CIMSNIPER E, data collection package for EES/FDC/APC (equipped with Simple MES functionality)
		Q12DCCPU-V-B01B	C Controller (Q12DCCPU-V) bundled with CIMSNIPER Light E, data collection package for EES/FDC/APC (not equipped with Simple MES functionality)
		Q12DCCPU-V-B01D	C Controller (Q12DCCPU-V) bundled with DNA Designer E, model based development support tool
	Cable	Q12DCCPU-CBL*1*2*3	RS-232 connection converter cable (custom mini-DIN to 9-pin D-sub connector)

*1: For use with Q24DHCCPU-V, Q24DHCCPU-VG.
*2: For use with Q24DHCCPU-LS.
*3: For use with Q12DCCPU-V.

●CPU module

Type	Model	Outline
Battery	Q6BAT	Replacement battery
	Q7BAT	Replacement large-capacity battery
	Q7BAT-SET	Large-capacity battery with holder for installing CPU
	Q8BAT	Replacement large-capacity battery module
	Q8BAT-SET	Large-capacity battery module with CPU connection cable
Extended SRAM cassette	Q4MCA-1MBS*1	Extended SRAM cassette, capacity: 1 MB
	Q4MCA-2MBS*1	Extended SRAM cassette, capacity: 2 MB
	Q4MCA-4MBS*1	Extended SRAM cassette, capacity: 4 MB
	Q4MCA-8MBS*1	Extended SRAM cassette, capacity: 8 MB
SD memory card	NZ1MEM-2GBSD*1*2*3*4	SD memory card, capacity: 2 GB
	NZ1MEM-4GBSD*1*2*3*4	SDHC memory card, capacity: 4 GB
	NZ1MEM-8GBSD*1*2*3*4	SDHC memory card, capacity: 8 GB
	NZ1MEM-16GBSD*1*2*3*4	SDHC memory card, capacity: 16 GB
Memory card	Q2MEM-1MBS*5	SRAM memory card, capacity: 1 MB
	Q2MEM-2MBS*5	SRAM memory card, capacity: 2 MB
	Q3MEM-4MBS*5	SRAM memory card, capacity: 4 MB
	Q3MEM-4MBS-SET*5	SRAM memory card with cover, capacity: 4 MB
	Q3MEM-8MBS*6	SRAM memory card, capacity: 8 MB
	Q3MEM-8MBS-SET*6	SRAM memory card with cover, capacity: 8 MB
	Q3MEM-CV	Memory card protective cover for the Universal model QCPU (comes with Q3MEM-4MBS-SET/Q3MEM-8MBS-SET)
	Q3MEM-CV-H	Memory card protective cover for the High Performance model, Process, and Redundant CPUs (comes with Q3MEM-4MBS-SET)
	Q2MEM-8MBA*5	ATA card, capacity: 8 MB, to be discontinued (December 2016)
	Q2MEM-16MBA*5	ATA card, capacity: 16 MB
	Q2MEM-32MBA*5	ATA card, capacity: 32 MB
CompactFlash card	GT05-MEM-128MC*4*7	CompactFlash card, capacity: 128 MB
	GT05-MEM-256MC*4*7	CompactFlash card, capacity: 256 MB
	QD81MEM-512MBC*4*7*8	CompactFlash card, capacity: 512 MB
	QD81MEM-1GBC*4*8	CompactFlash card, capacity: 1 GB
	QD81MEM-2GBC*4*8	CompactFlash card, capacity: 2 GB
	QD81MEM-4GBC*4*8	CompactFlash card, capacity: 4 GB
	QD81MEM-8GBC*4*8	CompactFlash card, capacity: 8 GB
Memory card adapter	Q2MEM-ADP	Adapter for Q2MEM memory card's standard PCMCIA slot
SRAM card battery	Q2MEM-BAT	Replacement battery for Q2MEM-1MBS and Q2MEM-2MBS
	Q3MEM-BAT	Replacement battery for Q3MEM-4MBS and Q3MEM-8MBS
Connection cable	QC30R2	RS-232 cable for connecting PC and CPU, 3 m (between mini-DIN6P and Dsub9P)
Cable disconnection prevention holder	Q6HLD-R2	Holder for preventing RS-232 cable (Programmable Controller CPU connection) disconnection

*1: For use with QnUDVCPU.
*2: For use with Q24DHCCPU-V, Q24DHCCPU-VG.
*3: For use with Q24DHCCPU-LS.
*4: Mitsubishi Electric shall not guarantee the operation of any non-Mitsubishi Electric products.
*5: For use with the Universal model QCPUs (except QnUDV), High Performance model QCPUs, process CPUs, and redundant CPUs that are equipped with the memory card interface.
*6: For use with the Universal model QCPUs (except QnUDV) that are equipped with the memory card interface.
*7: For use with Q06CCPU-V.
*8: For use with Q12DCCPU-V.

Base unit

Type	Model	Outline
Main base	Q33B	3 slots, 1 power supply module required, for Q Series modules
	Q35B	5 slots, 1 power supply module required, for Q Series modules
	Q38B	8 slots, 1 power supply module required, for Q Series modules
	Q312B	12 slots, 1 power supply module required, for Q Series modules
Multiple CPU high speed main base	Q35DB	5 slots, power supply module required, for Q Series modules
	Q38DB	8 slots, 1 power supply module required, for Q Series modules
	Q312DB	12 slots, 1 power supply module required, for Q Series modules
Slim type main base	Q32SB	2 slots, 1 slim type power supply module required, for Q Series modules
	Q33SB	3 slots, 1 slim type power supply module required, for Q Series modules
	Q35SB	5 slots, 1 slim type power supply module required, for Q Series modules
Redundant power main base	Q38RB	8 slots, 2 redundant power supply modules required, for Q Series modules
Extension base	Q63B	3 slots, 1 power supply module required, for Q Series modules
	Q65B	5 slots, 1 power supply module required, for Q Series modules
	Q68B	8 slots, 1 power supply module required, for Q Series modules
	Q612B	12 slots, 1 power supply module required, for Q Series modules
	Q52B	2 slots, power supply module not required, for Q Series modules
	Q55B	5 slots, power supply module not required, for Q Series modules
Redundant power extension base	Q68RB	8 slots, 2 redundant power supply modules required, for Q Series modules
Redundant type extension base	Q65WRB*1	5 slots, 2 redundant power supply modules required, for Q Series modules
Extension cable	QC05B	0.45 m cable for connecting extension base unit
	QC06B	0.6 m cable for connecting extension base unit
	QC12B	1.2 m cable for connecting extension base unit
	QC30B	3 m cable for connecting extension base unit
	QC50B	5 m cable for connecting extension base unit
	QC100B	10 m cable for connecting extension base unit
DIN rail mounting adapter	Q6DIN1	DIN rail mounting adapter for Q38B, Q312B, Q68B, Q612B, Q38RB, Q68RB, Q65WRB, Q38DB, and Q312DB
	Q6DIN2	DIN rail mounting adapter for Q35B, Q65B, Q00JCPU, and Q00UJCPU
	Q6DIN3	DIN rail mounting adapter for Q32SB, Q33SB, Q35SB, Q33B, Q52B, Q55B, and Q63B
	Q6DIN1A	DIN rail mounting adapter (with vibration-proofing bracket set) for Q3□B, Q5□B, Q6□B, Q38RB, Q68RB, and Q65WRB
Blank cover	QG60	Blank cover for I/O slot

*1: Only compatible with redundant CPU system.

Power supply module

Power supply	Q61P	Input voltage: 100…240 V AC, output voltage: 5 V DC, output current: 6 A
	Q62P	Input voltage: 100…240 V AC, output voltage: 5/24 V DC, output current: 3/0.6 A
	Q63P	Input voltage: 24 V DC, output voltage: 5 V DC, output current: 6 A
	Q64PN	Input voltage: 100…240 V AC, output voltage: 5 V DC, output current: 8.5 A
Power supply with life detection	Q61P-D	Input voltage: 100…240 V AC, output voltage: 5 V DC, output current: 6 A
Slim type power supply	Q61SP	Input voltage: 100…240 V AC, output voltage: 5 V DC, output current: 2 A
Redundant power supply	Q63RP	Input voltage: 24 V DC, output voltage: 5 V DC, output current: 8.5 A
	Q64RPN	Input voltage: 100…240 V AC, output voltage: 5 V DC, output current: 8.5 A

●I/O module

Type		Model	Outline
Input	AC	QX10	16 points, 100…120 V AC, response time: 20 ms, 16 points/common, 18-point terminal block
		QX10-TS	16 points, 100…120 V AC, response time: 20 ms, 16 points/common, 18-point spring clamp terminal block
		QX28	8 points, 100…240 V AC, response time: 20 ms, 8 points/common, 18-point terminal block
	DC (Positive common)*1	QX40	16 points, 24 V DC, response time: 1/5/10/20/70 ms, 16 points/common, positive common, 18-point terminal block
		QX40-TS	16 points, 24 V DC, response time: 1/5/10/20/70 ms, 16 points/common, positive common, 18-point spring clamp terminal block
		QX40-S1	16 points, 24 V DC, response time: 0.1/0.2/0.4/0.6/1 ms, 16 points/common, positive common, 18-point terminal block
		QX40H	16 points, 24 V DC, response time: 0/0.1/0.2/0.4/0.6/1 ms, 8 points/common, positive common, 18-point terminal block
		QX41*2 *3	32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, 40-pin connector
		QX41-S1*2	32 points, 24 V DC, response time: 0.1/0.2/0.4/0.6/1 ms, 32 points/common, positive common, 40-pin connector
		QX41-S2*2 *3	32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, 40-pin connector
		QX42*2	64 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, 40-pin connector
		QX42-S1*2	64 points, 24 V DC, response time: 0.1/0.2/0.4/0.6/1 ms, 32 points/common, positive common, 40-pin connector
	AC/DC	QX50	16 points, 48 V AC/DC, response time: 20 ms, 16 points/common, positive/negative common, 18-point terminal block
	DC sensor	QX70	16 points, 5/12 V DC, response time: 1/5/10/20/70 ms, 16 points/common, positive/negative common, 18-point terminal block
		QX70H	16 points, 5 V DC, response time: 0/0.1/0.2/0.4/0.6/1 ms, 8 points/common, positive common, 18-point terminal block
		QX71*2	32 points, 5/12 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive/negative common, 40-pin connector
		QX72*2	64 points, 5/12 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive/negative common, 40-pin connector
	DC (Negative common) *1	QX80	16 points, 24 V DC, response time: 1/5/10/20/70 ms, 16 points/common, negative common, 18-point terminal block
		QX80-TS	16 points, 24 V DC, response time: 1/5/10/20/70 ms, 16 points/common, negative common, 18-point spring clamp terminal block
		QX80H	16 points, 24 V DC, response time: 0/0.1/0.2/0.4/0.6/1 ms, 8 points/common, negative common, 18-point terminal block
		QX81*3 *4	32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, negative common, 37-pin D-sub connector
		QX81-S2*3 *4	32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, negative common, 37-pin D-sub connector
		QX82*2	64 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, negative common, 40-pin connector
		QX82-S1*2	64 points, 24 V DC, response time: 0.1/0.2/0.4/0.6/1 ms, 32 points/common, negative common, 40-pin connector
		QX90H	16 points, 5 V DC, response time: 0/0.1/0.2/0.4/0.6/1 ms, 8 points/common, negative common, 18-point terminal block
Output	Relay	QY10	16 points, 24 V DC/240 V AC, 2 A/point, 8 A/common, response time: 12 ms, 16 points/common, 18-point terminal block
		QY10-TS	16 points, 24 V DC/240 V AC, 2 A/point, 8 A/common, response time: 12 ms, 16 points/common, 18-point spring clamp terminal block
		QY18A	8 points, 24 V DC/240 V AC, 2 A/point, response time: 12 ms, 18-point terminal block, all points independent
	Triac	QY22	16 points, 100…240 V AC, 0.6 A/point, 4.8 A/common, response time: 1 ms + 0.5 cycle, 16 points/common, 18-point terminal block, with surge suppression
	Transistor (Sink)	QY40P	16 points, 12…24 V DC, 0.1 A/point, 1.6 A/common, response time: 1 ms, 16 points/common, sink type, 18-point terminal block, overload protection function, overheat protection function, surge suppression
		QY40P-TS	16 points, 12…24 V DC, 0.1 A/point, 1.6 A/common, response time: 1 ms, 16 points/common, sink type, 18-point spring clamp terminal block, overload protection function, overheat protection function, surge suppression
		QY41H	32 points, 5…24 V DC, 0.2 A/point, 2 A/common, response time: 2 us, 32 points/common, sink type, 40-pin connector, with surge suppression
		QY41P*2	32 points, 12…24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type, 40-pin connector, overload protection function, overheat protection function, surge suppression
		QY42P*2	64 points, 12…24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type, 40-pin connector, overload protection function, overheat protection function, surge suppression
		QY50	16 points, 12…24 V DC, 0.5 A/point, 4 A/common, response time: 1 ms, 16 points/common, sink type, 18-point terminal block, with surge suppression and fuse
	Transistor (Independent)	QY68A	8 points, 5…24 V DC, 2 A/point, 8 A/module, response time: 10 ms, sink/source type, 18-point terminal block, with surge suppression, all points independent
	TTL CMOS	QY70	16 points, 5…12 V DC, 16 mA/point, 256 mA/common, response time: 0.5 ms, 16 points/common, sink type, 18-point terminal block, with fuse
		QY71*2	32 points, 5…12 V DC, 16 mA/point, 512 mA/common, response time: 0.5 ms, 32 points/common, sink type, 40-pin connector, with fuse
	Transistor (Source)	QY80	16 points, 12…24 V DC, 0.5 A/point, 4 A/common, response time: 1 ms, 16 points/common, source type, 18-point terminal block, with surge suppression and fuse
		QY80-TS	16 points, 12…24 V DC, 0.5 A/point, 4 A/common, response time: 1 ms, 16 points/common, source type, 18-point spring clamp terminal block, with surge suppression and fuse
		QY81P*4	32 points, 12…24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, source type, 37-pin D-sub connector, overload protection function, overheat protection function, surge suppression
		QY82P*2	64 points, 12…24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, source type, 40-pin connector, overload protection function, overheat protection function, surge suppression
I/O	DC input/ transistor output	QH42P*2 *5	Input: 32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, output: 32 points, 12…24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type, 40-pin connector, overload protection function, overheat protection function, surge suppression
		QX48Y57	Input: 8 points, 24 V DC, response time: 1/5/10/20/70 ms, 8 points/common, positive common, output: 7 points, 12…24 V DC, 0.5 A/point, 2 A/common, response time: 1 ms, 7 points/common, sink type, 18-point terminal block, with surge suppression and fuse
		QX41Y41P*2 *5	Input: 32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, output: 32 points, 12…24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type, 40-pin connector, overload protection function, overheat protection function, surge suppression
Interrupt module		QI60	16 points, 24 V DC, response time: 0.1/0.2/0.4/0.6/1 ms, 16 points/common, 18-point terminal block
Connector		A6CON1	32-point connector soldering type (40-pin connector)
		A6CON2	32-point connector crimp-contact type (40-pin connector)
		A6CON3	32-point connector pressure-displacement (flat cable) type (40-pin connector)
		A6CON4	32-point connector soldering type (40-pin connector, cable connectable in bidirection)
		A6CON1E	32-point connector soldering type (37-pin D-sub connector)
		A6CON2E	32-point connector crimp-contact type (37-pin D-sub connector)
		A6CON3E	32-point connector pressure-displacement (flat cable) type (37-pin D-sub connector)

●I/O module

Type		Model	Outline
Spring clamp terminal block		Q6TE-18SN	For 16-point I/O modules, 0.3…1.5 mm² (22…16 AWG)
Terminal block adapter		Q6TA32	For 32-point I/O modules, 0.5 mm² (20 AWG)
		Q6TA32-TOL	Q6TA32 dedicated tool
Connector/terminal block conversion module		A6TBXY36	For positive common input modules and sink output modules (standard type)
		A6TBXY54	For positive common input modules and sink output modules (2-wire type)
		A6TBX70	For positive common input modules (3-wire type)
		A6TBX36-E	For negative common input modules (standard type)
		A6TBX54-E	For negative common input modules (2-wire type)
		A6TBX70-E	For negative common input modules (3-wire type)
		A6TBY36-E	For source output modules (standard type)
		A6TBY54-E	For source output modules (2-wire type)
	Cable	AC05TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 0.5 m
		AC10TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 1 m
		AC20TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 2 m
		AC30TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 3 m
		AC50TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 5 m
		AC80TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 8 m *Common current 0.5 A or lower
		AC100TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 10 m *Common current 0.5 A or lower
		AC05TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 0.5 m
		AC10TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 1 m
		AC20TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 2 m
		AC30TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 3 m
		AC50TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 5 m
Relay terminal module		A6TE2-16SRN	For 40-pin connector 24 V DC transistor output modules (sink type)
	Cable	AC06TE	For A6TE2-16SRN, 0.6 m
		AC10TE	For A6TE2-16SRN, 1 m
		AC30TE	For A6TE2-16SRN, 3 m
		AC50TE	For A6TE2-16SRN, 5 m
		AC100TE	For A6TE2-16SRN, 10 m

*1: "Positive common" indicates that the positive lead of a DC power supply must be connected to the common terminal.
Accordingly, "Negative common" indicates that the negative lead must be connected to the common terminal.
*2: Connector is not provided. Separately order one of the following: A6CON1/A6CON2/A6CON3/A6CON4.
*3: The rated input currents are different. [QX41: approx. 4 mA, QX41-S2: approx. 6 mA, QX81: approx. 4 mA, QX81-S2: approx. 6 mA]
*4: Connector is not provided. Separately order one of the following: A6CON1E/A6CON2E/A6CON3E.
*5: The number of occupied input/output points is different. [QH42P: 32 points; QX41Y41P: 64 points (first 32 points: input/second 32 points: output)]

●Analog I/O module

Type		Model	Outline
Analog input	Voltage input	Q68ADV	8 channels, input: -10…10 V DC, output (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, 0…16000, -16000…16000, conversion speed: 80 μs/channel, 18-point terminal block
	Current input	Q62AD-DGH	2 channels; input, 4…20 mA DC, output (resolution): 0…32000, 0…64000, conversion speed: 10 ms/2 channels, 18-point terminal block, channel isolated, supplies power to 2-wire transmitter
		Q66AD-DG*1	6 channels, input: 4…20 mA DC (when 2-wire transmitter is connected), 0…20 mA DC, output (resolution): 0…4000, 0…12000, conversion speed: 10 ms/channel, 40-pin connector, channel isolated, supplies power to 2-wire transmitter
		Q68ADI	8 channels, input: 0…20 mA DC, output (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, 0…16000, -16000…16000 conversion speed: 80 μs/channel, 18-point terminal block
	Voltage/current input	Q64AD	4 channels; input -10…10 V DC, 0…20 mA DC, output (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, 0…16000, -16000…16000, conversion speed: 80 μs/channel, 18-point terminal block
		Q64ADH	4 channels; input -10…10 V DC, 0…20 mA DC, output (resolution): 0…20000, -20000…20000, -5000…22500, conversion speed: 20 μs/channel, 18-point terminal block
		Q64AD-GH	4 channels, input: -10…10 V DC, 0…20 mA DC, output (resolution): 0…32000, -32000…32000, 0…64000, -64000…64000, conversion speed: 10 ms/4 channels, 18-point terminal block, channel isolated
		Q68AD-G*1	8 channels, input: -10…10 V DC, 0…20 mA DC, output (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, 0…16000, -16000…16000, conversion speed: 10 ms/channel, 40-pin connector, channel isolated
Analog output	Voltage output	Q68DAVN	8 channels, input (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, -16000…16000, output: -10…10 V DC, conversion speed: 80 μs/channel, 18-point terminal block
	Current output	Q68DAIN	8 channels, input (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000; output: 0…20 mA DC, conversion speed: 80 μs/channel, 18-point terminal block
	Voltage/current output	Q64DAH	4 channels, input (resolution): 0…20000, -20000…20000 output: -10…10 V DC, 0…20 mA DC, conversion speed: 20 μs/channel, 18-point terminal block
		Q62DAN	2 channels, input (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, -16000…16000, output: -10…10 V DC, 0…20 mA DC, conversion speed: 80 μs/channel, 18-point terminal block
		Q62DA-FG	2 channels, input (resolution): 0…12000, -12000…12000, -16000…16000, output: -12…12 V DC, 0…22 mA DC, conversion speed: 10 ms/2 channels, 18-point terminal block, channel isolated
		Q64DAN	4 channels, input (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, -16000…16000, output: -10…10 V DC, 0…20 mA DC, conversion speed: 80 μs/channel, 18-point terminal block
		Q66DA-G*1	6 channels, input (resolution): 0…4000, -4000…4000, 0…12000, -12000…12000, -16000…16000, output: -12…12 V DC, 0…22 mA DC, conversion speed: 6 ms/channel, 40-pin connector, channel isolated
Analog input/ output	Voltage and current input/ output	Q64AD2DA	Input: 4 channels, input: -10…10 V DC, 0…20 mA DC » output (resolution): 0…4000, -4000…4000, 0…12000, 0…16000, -16000…16000 » conversion speed: 500 μs/channel output: 2 channels input (resolution): 0…4000, -4000…4000, 0…12000, -16000…16000 » output: -10…10 V DC, 0…20 mA DC » conversion speed: 500 μs/channel 18-point terminal block
Load cell input		Q61LD	1 channel, input (load cell output): 0.0…3.3 mV/V, output (resolution): 0…10000, conversion speed: 10 ms, 18-point terminal block
CT input module		Q68CT	8 channels, input: CT 0…5 A AC, 0…50 A AC, 0…100 A AC, 0…200 A AC, 0…400 A AC, 0…600 A AC, output: 0…10000, 18-point terminal block
Temperature input	Thermocouple	Q64TD	4 channels, thermocouple (B, R, S, K, E, J, T, N), disconnection detection function, conversion speed: 40 ms/channel, channel isolated, 18-point terminal block
		Q64TDV-GH	4 channels, thermocouple (B, R, S, K, E, J, T, N), disconnection detection function, conversion speed: sampling cycle × 3, sampling cycle: 20 ms/channel, channel isolated, 18-point terminal block
		Q68TD-G-H01*1*2	8 channels, thermocouple (B, R, S, K, E, J, T, N), disconnection detection function, conversion speed: 320 ms/8 channels, channel isolated, 40-pin connector
		Q68TD-G-H02*1	8 channels, thermocouple (B, R, S, K, E, J, T, N), disconnection detection function, conversion speed: 640 ms/8 channels, channel isolated, 40-pin connector
	RTD	Q64RD	4 channels, platinum RTD (Pt100, JPt100), disconnection detection function, conversion speed: 40 ms/channel, 18-point terminal block
		Q64RD-G	4 channels, platinum RTD (Pt100, JPt100), nickel RTD (Ni100), disconnection detection function, conversion speed: 40 ms/channel, channel isolated, 18-point terminal block
		Q68RD3-G*1	8 channels, platinum RTD (Pt100, JPt100), nickel RTD (Ni100), disconnection detection function, conversion speed: 320 ms/8 channels, channel isolated, 40-pin connector
Temperature control	Thermocouple	Q64TCTTN	4 channels, thermocouple (K, J, T, B, S, E, R, N, U, L, PLⅡ, W5Re/W26Re), heating control/cooling control/heating-cooling control, sampling cycle: 500 ms/4 channels, channel isolated, 18-point terminal block
		Q64TCTTBWN	4 channels, thermocouple (K, J, T, B, S, E, R, N, U, L, PLⅡ, W5Re/W26Re), heating control/cooling control/heating-cooling control, heater disconnection detection function, sampling cycle: 500 ms/4 channels, channel isolated, two 18-point terminal blocks
	RTD	Q64TCRTN	4 channels, platinum RTD (Pt100, JPt100), heating control/cooling control/heating-cooling control, sampling cycle: 500 ms/4 channels, channel isolated, 18-point terminal block
		Q64TCRTBWN	4 channels, platinum RTD (Pt100, JPt100), heating control/cooling control/heating-cooling control, heater disconnection detection function, sampling cycle: 500 ms/4 channels, channel isolated, two 18-point terminal blocks
Loop control		Q62HLC	2 channels, input: thermocouple/micro voltage/voltage/current, conversion speed (input): 25 ms/2 channels, sampling cycle: 25 ms/2 channels, output: 4…20 mA DC, conversion speed (output): 25 ms/2 channels, 18-point terminal block, with 5 PID control modes

*1: A connector is not provided. The A6CON4 connector must be ordered separately.
*2: Depending on the combination of power source module and base unit, the installable slot position may be limited.

●Simple motion and Positioning module

Type		Model	Outline
Simple motion	With SSCNET Ⅲ/H connectivity	QD77MS2*1	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET Ⅲ/H connectivity
		QD77MS4*1	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET Ⅲ/H connectivity
		QD77MS16*1	16-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET Ⅲ/H connectivity
	With CC-Link IE Field Network connectivity	QD77GF16*2	16-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 26-pin connector, with CC-Link IE Field Network connectivity
Positioning	Open collector output	QD75P1N*1	1-axis, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 200 kpps, 40-pin connector
		QD75P1*1	1-axis, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 200 kpps, 40-pin connector
		QD75P2N*1	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 200 kpps, 40-pin connector
		QD75P2*1	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 200 kpps, 40-pin connector
		QD75P4N*1	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 200 kpps, 40-pin connector
		QD75P4*1	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 200 kpps, 40-pin connector
		QD70P4*1	4-axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 200 kpps, 40-pin connector
		QD70P8*1	8-axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 200 kpps, 40-pin connector
	Differential output	QD75D1N*1	1-axis, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 4 Mpps, 40-pin connector
		QD75D1*1	1-axis, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 1 Mpps, 40-pin connector
		QD75D2N*1	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 4 Mpps, 40-pin connector
		QD75D2*1	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 1 Mpps, 40-pin connector
		QD75D4N*1	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 4 Mpps, 40-pin connector
		QD75D4*1	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, max. output pulse: 1 Mpps, 40-pin connector
		QD70D4*1	4-axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 4 Mpps, 40-pin connector
		QD70D8*1	8-axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 4 Mpps, 40-pin connector
	With SSCNET connectivity	QD75M1*3	1-axis, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET connectivity
		QD75M2*3	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET connectivity
		QD75M4*3	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET connectivity
	With SSCNET Ⅲ connectivity	QD75MH1*3	1-axis, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET Ⅲ connectivity
		QD75MH2*3	2-axes, 2-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET Ⅲ connectivity
		QD75MH4*3	4-axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, control unit: mm, inch, degree, pulse, no. of positioning data: 600/axis, 40-pin connector, with SSCNET Ⅲ connectivity
		QD74MH8	8-axes, control unit: pulse, no. of positioning data: 32/axis, with SSCNET Ⅲ connectivity
		QD74MH16	16-axes, control unit: pulse, no. of positioning data: 32/axis, with SSCNET Ⅲ connectivity
	Open collector output with built-in counter function	QD72P3C3*1	Positioning: 3-axes, control unit: pulse, no. of positioning data: 1/axis, max. output pulse: 100 kpps, counter: 3 channels, 100 kpps, count input signal: 5/24 V DC, 40-pin connector
High-speed counter		QD62*2	2 channels, 200/100/10 kpps, count input signal: 5/12/24 V DC, external input: 5/12/24 V DC, coincidence output: transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common, 40-pin connector
		QD62E*2	2 channels, 200/100/10 kpps, count input signal: 5/12/24 V DC, external input: 5/12/24 V DC, coincidence output: transistor (source), 12/24 V DC, 0.1 A/point, 0.4 A/common, 40-pin connector
		QD62D*2	2 channels, 500/200/100/10 kpps, count input signal: EIA standards RS-422-A (differential line driver), external input: 5/12/24 V DC; coincidence output: transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common, 40-pin connector
		QD63P6*1	6 channels, 200/100/10 kpps, count input signal: 5 V DC, 40-pin connector
		QD64D2*1	2 channels, 4 Mpps, count input signal: EIA standards RS-422-A (differential line driver), external input: 24 V DC, coincidence output: transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common, 40-pin connector
		QD65PD2*1	2 Channels Differential input: 40 kpps/400 kpps/800 kpps/2 Mpps/4 Mpps/8 Mpps » Count input signal level: EIA Standards RS-422-A, differential line driver level DC Input: 10 kpps/100 kpps/200 kpps » Count input signal level: 5/12/24 V DC, 7…10 mA external outputs: Transistor (sink type) output, 12/24 V DC 0.1 A/point, 0.8 A/common, 40-pin connector
Channel isolated pulse input		QD60P8-G	8 channels, 30 kpps/10 kpps/1 kpps/100 pps/50 pps/10 pps/1 pps/0.1 pps, count input signal: 5/12…24 V DC

*1: A connector is not provided. The A6CON1/A6CON2/A6CON4 connector must be ordered separately.
*2: A connector is not provided. The LD77MHIOCON connector must be ordered separately.
*3: A connector is not provided. The A6CON1/A6CON2/A6CON3/A6CON4 connector must be ordered separately.

Energy measuring module

Type		Model	Outline
Energy measuring		QE81WH*1	Three-phase 3-wire type, Number of measurement circuits: 1 circuit, Measured items: power rate (consumption, regenerative), current, voltage, power, power factor, etc.
		QE84WH*1*2	Three-phase 3-wire type, Number of measurement circuits: 4 circuits, Measured items: power rate (consumption, regenerative), current, voltage, power, power factor, etc.
		QE81WH4W*1*3	Three-phase 4-wire type, Number of measurement circuits: 1 circuit, Measured items: power rate (consumption, regenerative), current, voltage, power, power factor, etc.
		QE83WH4W*1*2*3	Three-phase 4-wire type, Number of measurement circuits: 3 circuits, Measured items: power rate (consumption, regenerative), current, voltage, power, power factor, etc.
	Option	QE8WH4VT	QE81WH4W, QE83WH4W dedicated voltage transformer (63.5/110 V AC…227/480 V AC)
Isolation monitoring		QE82LG*4	Measured items: leakage current (Io), resistive component leakage current (Ior), number of measured circuits: 2 circuits

*1: Dedicated current sensors are required for operation.
*2: Current measurement mode is provided. Up to eight circuits can be measured when measuring only the current value.
*3: The separate voltage transformer (QE8WH4VT) is required for the three-phase 4-wire compatible products.
*4: Dedicated residual current transformers are required for operation.

Information module

MES interface		QJ71MES96	MES interface module (MX MESInterface and CompactFlash card are required)
	Option	GT05-MEM-128MC	CompactFlash card, capacity: 128 MB
		GT05-MEM-256MC	CompactFlash card, capacity: 256 MB
		QD81MEM-512MBC	CompactFlash card, capacity: 512 MB
		QD81MEM-1GBC	CompactFlash card, capacity: 1 GB
High-speed data logger		QD81DL96	High-speed data logger module 10BASE-T/100BASE-TX (CompactFlash card is required)
	Option	QD81MEM-512MBC	CompactFlash card, capacity: 512 MB
		QD81MEM-1GBC	CompactFlash card, capacity: 1 GB
		QD81MEM-2GBC	CompactFlash card, capacity: 2 GB
		QD81MEM-4GBC	CompactFlash card, capacity: 4 GB
		QD81MEM-8GBC	CompactFlash card, capacity: 8 GB
High-speed data communication		QJ71DC96	High-speed data communication module 10BASE-T/100BASE-TX (CompactFlash card is required)
	Option	QD81MEM-512MBC	CompactFlash card, capacity: 512 MB
		QD81MEM-1GBC	CompactFlash card, capacity: 1 GB
		QD81MEM-2GBC	CompactFlash card, capacity: 2 GB
		QD81MEM-4GBC	CompactFlash card, capacity: 4 GB
		QD81MEM-8GBC	CompactFlash card, capacity: 8 GB
Ethernet		QJ71E71-100	10BASE-T/100BASE-TX BACnet™ client function, MODBUS® TCP master function (using predefined protocol support function)
		QJ71E71-B2	10BASE2
		QJ71E71-B5	10BASE5
Serial communication		QJ71C24N	RS-232: 1 channel, RS-422/485: 1 channel, total transmission speed of 2 channels: 230.4 kbps MODBUS® RTU master function (using predefined protocol support function)
		QJ71C24N-R2	RS-232: 2 channels, total transmission speed of 2 channels: 230.4 kbps MODBUS® RTU master function (using predefined protocol support function)
		QJ71C24N-R4	RS-422/485: 2 channels, total transmission speed of 2 channels: 230.4 kbps MODBUS® RTU master function (using predefined protocol support function)
Intelligent communication		QD51	BASIC program execution module, RS-232: 2 channels
		QD51-R24	BASIC program execution module, RS-232: 1 channel, RS-422/485: 1 channel
		SW1IVD-AD51HP*5	Software package for QD51, AD51H-S3, and A1SD51S

*5: The program is run in Windows® command prompt.

●Control network module

[Legend] DB : Double brand product (Note)

Type		Model	Outline
CC-Link IE Control Network		QJ71GP21-SX	Multi-mode fiber optic cable, dual loop, control network (control/normal station)
		QJ71GP21S-SX	Multi-mode fiber optic cable, dual loop, control network (control/normal station), with external power supply function
MELSECNET/H	Optical loop (SI)	QJ71LP21-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable, dual loop, control network (control/normal station) or remote I/O network (remote mater station)
		QJ71LP21S-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable, dual loop, control network (control/normal station) or remote I/O network (remote mater station), with external power supply function
		QJ72LP25-25	SI/QSI/H-PCF/broadband H-PCF fiber optic cable, dual loop, remote I/O network (remote I/O station)
	Optical loop (GI)	QJ71LP21G	GI-50/125 fiber optic cable, dual loop, control network (control/normal station) or remote I/O network (remote master station)
		QJ72LP25G	GI-50/125 fiber optic cable, dual loop, remote I/O network (remote I/O station)
	Coaxial bus	QJ71BR11	3C-2V/5C-2V coaxial cable, single bus, control network (control/normal station) or remote I/O network (remote master station)
		QJ72BR15	3C-2V/5C-2V coaxial cable, single bus, remote I/O network (remote I/O station)
	Twist bus	QJ71NT11B	Twisted pair cable, single bus, control network (control/normal station)
CC-Link IE Field Network		QJ71GF11-T2	Master/local station, CC-Link IE Field Network compatible
CC-Link		QJ61BT11N	Master/local station, CC-Link Ver. 2 compatible
CC-Link/LT		QJ61CL12	Master station
FL-net (OPCN-2)	Ver. 2.00	QJ71FL71-T-F01	10BASE-T, 100BASE-TX
		QJ71FL71-B2-F01	10BASE2
		QJ71FL71-B5-F01	10BASE5
	Ver. 1.00	QJ71FL71-T	10BASE-T
		QJ71FL71-B2	10BASE2
		QJ71FL71-B5	10BASE5
MODBUS®		QJ71MB91	MODBUS® RTU/ASCII, RS-232, RS-422/485 configurable as master or slave
		QJ71MT91	MODBUS®/TCP 10BASE-T/100BASE-TX configurable as master or slave
AS-i		QJ71AS92	Master station, AS-Interface Specification Version 2.11 compatible

●Digital link sensor

AnyWireASLINK	QJ51AW12AL DB	AnyWireASLINK master module

●Compatible module for each protocol

Compatible protocol	Compatible modules	Model	Outline
SLMP (MC protocol)	High-speed Universal model (Built-in Ethernet)	QnUDVCPU	SLMP server function (only MC protocol QnA compatible 3E frame) SLMP client function (using predefined protocol support function)
	Universal model QCPU (Built-in Ethernet)	QnUDE(H)CPU	
	Ethernet interface module	QJ71E71-100	SLMP server function (including MC protocol) SLMP client function (using predefined protocol support function)
BACnet™	High-speed Universal model (Built-in Ethernet)	QnUDVCPU	Compatible BACnet™ object: Analog Input (AI), Binary Input (BI), Binary Output (BO), Accumulator (AC) (using predefined protocol support function)
	Ethernet interface module	QJ71E71-100	
	BACnet™ interface module (3rd party products)	BAQ08V	Compatible BACnet™ object: Analog Input (AI), Analog Output (AO), Analog Value (AV), Binary Input (BI), Binary Output (BO), Binary Value (BV), Multi-state Input (MI), Multi-state Output (MO), Multi-state Value (MV), Accumulator (AC), Calendar (CA), EventEnrollment (EE), Group Object (GR), Notification Class (NC), Schedule (SC), TrendLog (TL), Device (DV), Measurement object (measure)*1, Power demand monitoring (monitor power)*2, Power demand control (control power)*2, Generator load control (generator)*2
MODBUS®/TCP	High-speed Universal model (Built-in Ethernet)	QnUDVCPU	MODBUS®/TCP communication master function (using predefined protocol support function)
	Ethernet interface module	QJ71E71-100	
	MODBUS®/TCP interface module	QJ71MT91	MODBUS®/TCP communication master function/slave function
MODBUS®	Serial communication module	QJ71C24N (-R2/R4)	MODBUS®RTU communication master function (using predefined protocol support function)
	MODBUS® interface module	QJ71MB91	MODBUS® RTU/ASCII communication master function/slave function

*1: ANSI/ASHRAE 2004 and IEIEJ 2006 standards are not supported.
*2: ANSI/ASHRAE 2004 standard is not supported.

Note: General specifications and product guarantee conditions of jointly developed products are different from those of MELSEC products.
For more information, please refer to the product manuals or contact your local Mitsubishi representative for details.

MELSEC-L Series

MELSEC-L Series

Type		Model	Outline
CPU		L02SCPU	Number of I/O points: 1024 points, Number of I/O device points: 8192 points, Program capacity: 20K steps, Basic operation processing speed (LD instruction): 60 ns, Program memory capacity: 80 KB, Peripheral connection ports: USB and RS-232 (Predefined protocol support function), Memory card I/F: None, Built-in I/O functions (General-purpose input: 16 points, General purpose output (Sink type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L02SCPU-P	Number of I/O points: 1024 points, Number of I/O device points: 8192 points, Program capacity: 20K steps, Basic operation processing speed (LD instruction): 60 ns, Program memory capacity: 80 KB, Peripheral connection ports: USB and RS-232 (Predefined protocol support function), Memory card I/F: None, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Source type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L02CPU	Number of I/O points: 1024 points, Number of I/O device points: 8192 points, Program capacity: 20K steps, Basic operation processing speed (LD instruction): 40 ns, Program memory capacity: 80 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Sink type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L02CPU-P	Number of I/O points: 1024 points, Number of I/O device points: 8192 points, Program capacity: 20K steps, Basic operation processing speed (LD instruction): 40 ns, Program memory capacity: 80 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Source type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L06CPU	Number of I/O points: 4096 points, Number of I/O device points: 8192 points, Program capacity: 60K steps, Basic operation processing speed (LD instruction): 9.5 ns, Program memory capacity: 240 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Sink type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L06CPU-P	Number of I/O points: 4096 points, Number of I/O device points: 8192 points, Program capacity: 60K steps, Basic operation processing speed (LD instruction): 9.5 ns, Program memory capacity: 240 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Source type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L26CPU	Number of I/O points: 4096 points, Number of I/O device points: 8192 points, Program capacity: 260K steps, Basic operation processing speed (LD instruction): 9.5 ns, Program memory capacity: 1040 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Sink type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L26CPU-P	Number of I/O points: 4096 points, Number of I/O device points: 8192 points, Program capacity: 260K steps, Basic operation processing speed (LD instruction): 9.5 ns, Program memory capacity: 1040 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Source type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), END cover included
		L26CPU-BT	Number of I/O points: 4096 points, Number of I/O device points: 8192 points, Program capacity: 260K steps, Basic operation processing speed (LD instruction): 9.5 ns, Program memory capacity: 1040 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Sink type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), CC-Link master/local station function, END cover included
		L26CPU-PBT	Number of I/O points: 4096 points, Number of I/O device points: 8192 points, Program capacity: 260K steps, Basic operation processing speed (LD instruction): 9.5 ns, Program memory capacity: 1040 KB, Peripheral connection ports: USB and Ethernet (Predefined protocol support function), Memory card I/F: SD Memory Card, Built-in I/O functions (General-purpose input: 16 points, General-purpose output (Source type): 8 points, Interrupt input, Pulse catch, Positioning, High-speed counter), CC-Link master/local station function, END cover included
CPU packages		L02CPU-SET	CPU module (L02CPU), Display unit (L6DSPU), and Power supply module (L61P) set
		L02CPU-P-SET	CPU module (L02CPU-P), Display unit (L6DSPU), and Power supply module (L61P) set
		L06CPU-SET	CPU module (L06CPU), Display unit (L6DSPU), and Power supply module (L61P) set
		L06CPU-P-SET	CPU module (L06CPU-P), Display unit (L6DSPU), and Power supply module (L61P) set
		L26CPU-SET	CPU module (L26CPU), Display unit (L6DSPU), and Power supply module (L61P) set
		L26CPU-P-SET	CPU module (L26CPU-P), Display unit (L6DSPU), and Power supply module (L61P) set
		L26CPU-BT-SET	CPU module (L26CPU-BT), Display unit (L6DSPU), and Power supply module (L61P) set
		L26CPU-PBT-SET	CPU module (L26CPU-PBT), Display unit (L6DSPU), and Power supply module (L61P) set
CPU options	Display unit	L6DSPU	STN black-and-white LCD, 16 characters x4 lines
	Battery	Q6BAT	Replacement battery
		Q7BAT-SET	High capacity battery with a battery holder for CPU installation
		Q7BAT	High capacity replacement battery
	SD Memory Card	NZ1MEM-2GBSD*1	SD memory card, capacity: 2 GB
		NZ1MEM-4GBSD*1	SDHC memory card, capacity: 4 GB
		NZ1MEM-8GBSD*1	SDHC memory card, capacity: 8 GB
		NZ1MEM-16GBSD*1	SDHC memory card, capacity: 16 GB
	RS-232 adapter	L6ADP-R2	For GOT(HMI) connection, 1 x RS-232 channel, maximum transmission speed: 115.2Kpbs, MELSOFT connectable MODBUS® RTU master function (using predefined protocol support function)
	RS-422/485 adapter	L6ADP-R4	For GOT(HMI) connection, 1 x RS-422/485 channel, maximum transmission speed: 115.2Kpbs MODBUS® RTU master function (using predefined protocol support function)
END cover with error terminal		L6EC-ET	END cover with error terminal

*1: Mitsubishi Electric does not guarantee the operation of non-Mitsubishi Electric products.

MELSEC-L Series

Type			Model	Outline
Power supply			L61P	Input voltage: 100…240 V AC, Output voltage: 5 V DC, Output current: 5 A
			L63P	Input voltage: 24 V DC, Output voltage: 5 V DC, Output current: 5 A
	Slim type Power supply		L63SP	Input voltage: 24 V DC, Output voltage: 5 V DC, Output current: 5 A, No isolation
Branch / Extension module			L6EXB	Branch module
			L6EXE	Extension module with END cover
	Extension cable		LC06E	0.6-m cable for connecting branch and extension modules
			LC10E	1.0-m cable for connecting branch and extension modules
			LC30E	3.0-m cable for connecting branch and extension modules
I/O module	Input	AC input	LX10	16 points, 100…120 V AC, Response time: 20 ms or less, 16 points/common, 18-point terminal block
			LX28	8 points, 100…240 V AC, Response time: 20 ms or less, 8 points/common, 18-point terminal block
		DC input	LX40C6	16 points, 24 V DC, Response time: 1/5/10/20/70 ms or less, 16 points/common, Positive/Negative common, 18-point terminal block
			LX41C4	32 points, 24 V DC, Response time: 1/5/10/20/70 ms or less, 32 points/common, Positive/Negative common, 40-pin connector
			LX42C4	64 points, 24 V DC, Response time: 1/5/10/20/70 ms or less, 32 points/common, Positive/Negative common, 40-pin connector x2
	Output	Relay	LY10R2	16 points, 24 V DC/240 V AC, 2 A/point, 8 A/common, Response time: 12 ms or less, 16 points/common, 18-point terminal block
			LY18R2A	8 points, 24 V DC/240 V AC, 2 A/point, 8 A/module, Response time: 12 ms or less, No common (all points independent), 18-point terminal block
		Triac	LY20S6	16 points, 100…240 V AC, 0.6 A/point, 4.8 A/common, Response time: 1 ms + 0.5 cycles or less, 16 points/common, 18-point terminal block
			LY28S1A	8 points, 100…240 V DC, 1 A/point, 8 A/module, Response time: 1 ms + 0.5 cycles or less, No common (all points independent), 18-point terminal block
		Transistor (Sink)	LY40NT5P	16 points, 12…24 V DC, 0.5 A/point, 5 A/common, Response time: 1 ms or less, 16 points/common, 18-point terminal block, overload protection function, overheat protection function, surge suppression
			LY41NT1P	32 points, 12…24 V DC, 0.1 A/point, 2 A/common, Response time: 1 ms or less, 32 points/common, Sink type, 40-pin connector, overload protection function, overheat protection function, surge suppression
			LY42NT1P	64 points, 12…24 V DC, 0.1 A/point, 2 A/common, Response time: 1 ms or less, 32 points/common, Sink type, 40-pin connector x2, overload protection function, overheat protection function, surge suppression
		Transistor (Source)	LY40PT5P	16 points, 12…24 V DC, 0.5 A/point, 5 A/common, Response time: 1 ms or less, 16 points/common, 18-point terminal block, overload protection function, overheat protection function, surge suppression
			LY41PT1P	32 points, 12…24 V DC, 0.1 A/point, 2 A/common, Response time: 1 ms or less, 32 points/common, 40-pin connector, overload protection function, overheat protection function, surge suppression
			LY42PT1P	64 points, 12…24 V DC, 0.1 A/point, 2 A/common, Response time: 1 ms or less, 32 points/common, 40-pin connector x2, overload protection function, overheat protection function, surge suppression
	I/O combined	DC input/transistor output (sink)	LH42C4NT1P	Input specifications : 32 points, 24 V DC, Response time: 1/5/10/20/70 ms or less, 32 points/common, Positive/Negative common Output specifications : 32 points, 12…24 V DC, 0.1 A/point, 2 A/common, Response time: 1 ms or less, 32 points/common, overload protection function, overheat protection function, surge suppression 40-pin connector x2
		DC input/transistor output (source)	LH42C4PT1P	Input specifications : 32 points, 24 V DC, Response time: 1/5/10/20/70 ms or less, 32 points/common, Positive/Negative common Output specifications : 32 points, 12…24 V DC, 0.1 A/point, 2 A/common, Response time: 1 ms or less, 32 points/common, overload protection function, overheat protection function, surge suppression 40-pin connector x2
Space module			LG69	Space module for AnS module replacement
Spring clamp terminal block			L6TE-18S	Alternative to a 18-point screw terminal block, 0.3…1.0 mm² (AWG22…18), push-in type

MELSEC-L Series

[Legend] DB : Double brand product (Note)

Type		Model	Outline
Multiple input (voltage/current/temperature) modules		L60MD4-G	4 channels, Input: -10…10 V DC, 0…20 mA DC, micro voltage-100…100 mV DC, Thermocouple (K, J, T, E, N, R, S, B, U, L, PLⅡ, W5Re/W26Re), RTD (Pt1000, Pt100, JPt100, Pt50), Output (resolution): 0…20000, -20000…20000, (with voltage, current, micro voltage input) Conversion speed: 50 ms/channels, 18-point terminal block, Channel isolated
Analog I/O module	Analog input	L60AD4	4 channels, Input: -10…10 V DC, 0…20 mA DC, Output (resolution): 0…20000, -20000…20000, Conversion speed: 20 µs, 80 µs, 1 ms/channel, 18-point terminal block
		L60ADVL8	8 channels, Input: -10…10 V, Output (resolution)-16000…16000, Conversion speed: 1 ms/channels 18-point terminal block
		L60ADIL8	8 channels, Input: 0…20 mA DC, Output (resolution): 0…8000, Conversion speed: 1 ms/channels 18-point terminal block
		L60AD4-2GH	4 channels, Input: -10…10 V DC, 0…20 mA DC, Output (resolution): 0…32000, -32000…32000, Conversion speed: 40 µs/2 channels, 18-point terminal block, Dual channel isolation
	Analog output	L60DA4	4 channels, Input (resolution): 0…20000, -20000…20000, Output: -10…10 V DC, 0…20 mA DC, Conversion speed: 20 µs/channel, 18-point terminal block
		L60DAVL8	8 channels, Input (resolution): -16000…16000, Output: -10…10 V DC, Conversion speed: 200 µs/channel, 18-point terminal block
		L60DAIL8	8 channels, Input (resolution): 0…8000, Output: 0…20 mA DC, Conversion speed: 200 µs/channel, 18-point terminal block
	Analog I/O	L60AD2DA2	Input specifications : 2 channels, Input: -10…10 V DC, 0…20 mA DC, Output (resolution): 0…12000, -16000…16000, Conversion speed: 80 µs/channel, Output specifications : 2 channels, Input (resolution): 0…12000, -16000…16000, Output: -10…10 V DC, 0…20 mA DC, Conversion speed: 80 µs/channel, 18-point terminal block
Temperature input module	RTD input	L60RD8	8 channels, RTD (Pt1000, Pt100, JPt100, Pt50, Ni500, Ni120, Ni100, Cu100, Cu50) Resolution: 0.1°C, Conversion speed: 40 ms/ch, 24-point spring clamp terminal block
Temperature control module	Thermocouple input	L60TCTT4	4 channels (normal mode) /2 channels (heating-cooling control), Thermocouple (K, J, T, B, S, E, R, N, U, L, PLⅡ, W5Re/W26Re), No Heater disconnection detection function, sampling cycle: 250 ms/4 channels, 500 ms/4 channels, Channel isolated, 18 point terminal block
		L60TCTT4BW	4 channels (normal mode) /2 channels (heating-cooling control), Thermocouple (K, J, T, B, S, E, R, N, U, L, PLⅡ,W5Re/W26Re), Heater disconnection detection function, Sampling cycle: 250 ms/4 channels, 500 ms/4 channels, Channel isolated, 18 point terminal block x2
	RTD input	L60TCRT4	4 channels (normal mode) /2 channels (heating-cooling control), Platinum type resistive temperature device(Pt100, JPt100), No Heater disconnection detection function, Sampling cycle: 250 ms/4 channels, 500 ms/4 channels, Channel isolated, 18 point terminal block
		L60TCRT4BW	4 channels (normal mode) /2 channels (heating-cooling control), Platinum type resistive temperature device (Pt100, JPt100), Heater disconnection detection function, Sampling cycle: 250 ms/4 channels, 500 ms/4 channels, Channel isolated, 18 point terminal block x2
Simple motion module	SSCNET Ⅲ/H	LD77MS2*1	2 axes, 2-axis linear interpolation, 2-axis circular interpolation, synchronous control, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, SSCNET Ⅲ/H connectivity
		LD77MS4*1	4 axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, synchronous control, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, SSCNET Ⅲ/H connectivity
		LD77MS16*1	16 axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, synchronous control, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, SSCNET Ⅲ/H connectivity
Positioning module	Open collector	LD75P1	1 axis, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, Maximum output pulse: 200 kpps, 40-pin connector
		LD75P2	2 axes, 2-axis linear interpolation, 2-axis circular interpolation, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, Maximum output pulse: 200 kpps, 40-pin connector
		LD75P4	4 axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, 3-axis helical interpolation, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, Maximum output pulse: 200 kpps, 40-pin connector x2
	Differential driver	LD75D1	1 axis, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, Maximum output pulse: 4 Mpps, 40-pin connector
		LD75D2	2 axes, 2-axis linear interpolation, 2-axis circular interpolation, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, Maximum output pulse: 4 Mpps, 40-pin connector
		LD75D4	4 axes, 2-/3-/4-axis linear interpolation, 2-axis circular interpolation, 3-axis helical interpolation, Control unit: mm, inch, degree, pulse, Number of positioning data: 600 data/axis, Maximum output pulse: 4 Mpps, 40-pin connector x2
Flexible high-speed I/O control module		LD40PD01	12 input points (all for 5 V DC/24 V DC/differential) 14 output points (8 points for DC (5 V DC...24 V), 6 points for differential)
High-speed counter module		LD62	2 channels, 200/100/10 kpps, Count input signal: 5/12/24 V DC, External input: 5/12/24 V DC, Coincidence output: transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common, 40-pin connector
		LD62D	2 channels, 500/200/100/10 kpps, Count input signal: EIA standards RS-422-A (Differential line driver level), External input: 5/12/24 V DC, Coincidence output: transistor (sink), 12/24 V DC, 0.5 A/point, 2 A/common, 40-pin connector
Network module	CC-Link IE Field Network	LJ71GF11-T2	Master/Local station
		LJ72GF15-T2*2	Remote station (Head module with END cover)
	CC-Link	LJ61BT11	Master/Local station, CC-Link Ver.2.0 compatible
	CC-Link/LT	LJ61CL12	Master station, CC-Link/LT system compatible
	AnyWireASLINK	LJ51AW12AL DB	AnyWireASLINK system compatible master module
	SSCNET Ⅲ/H	LJ72MS15*3	Remote station (Head module with END cover)
	Ethernet interface	LJ71E71-100	10BASE-T/100BASE-TX BACnet™ client function, MODBUS® TCP master function (using predefined protocol support function)
	Serial communication	LJ71C24	RS-232: 1 channel, RS-422/485: 1 channel, Total transmission speed of 2 channels: 230.4 kbps MODBUS® RTU master function (using predefined protocol support function)
		LJ71C24-R2	RS-232: 2 channels, Total transmission speed of 2 channels: 230.4 kbps MODBUS® RTU master function (using predefined protocol support function)

*1: The connector is not appended. Please obtain an LD77MHIOCON separately.
*2: The CPU module, branch and extension module, display unit, RS-232 adapter, CC-Link IE Field Network master/local module and Ethernet interface module cannot be mounted on a system using LJ72GF-T2.
*3: The CPU module, branch and extension module, display unit, RS-232 adapter, temperature control module, simple motion module, positioning module, CC-Link IE Field Network master/local module, CC-Link IE Field network head module, CC-Link master/local module, CC-Link/LT master module, AnyWireASLINK master module, Ethernet interface module, and serial communication module cannot be mounted on a system using LJ72MS15.

Note: General specifications and product guarantee conditions of jointly developed products are different from those of MELSEC products.
For more information, please refer to the product manuals or contact your local Mitsubishi representative for details.

MELSEC-F Series

Model Name	CE		UL	KC	Ship approvals							
	EMC	LVD	cUL		ABS	DNV	LR	GL	BV	RINA	NK	KR
α2 Main Units												
AL2-10MR-A	●	●	●	—	—	—	—	—	—	—	—	—
AL2-10MR-D	●	●	●	—	—	—	—	—	—	—	—	—
AL2-14MR-A	●	●	●	—	—	●	—	—	—	—	—	—
AL2-14MR-D	●	●	●	—	—	●	—	—	—	—	—	—
AL2-24MR-A	●	●	●	—	—	●	—	—	—	—	—	—
AL2-24MR-D	●	●	●	—	—	●	—	—	—	—	—	—
α Extension Modules												
AL2-2DA	●	●	●	—	—	—	—	—	—	—	—	—
AL2-2PT-ADP	●	—	●	—	—	—	—	—	—	—	—	—
AL2-2TC-ADP	●	—	●	—	—	—	—	—	—	—	—	—
AL2-4EX-A2	●	●	●	—	—	●	—	—	—	—	—	—
AL2-4EX	●	●	●	—	—	●	—	—	—	—	—	—
AL2-4EYR	●	●	●	—	—	●	—	—	—	—	—	—
AL2-4EYT	●	●	●	—	—	●	—	—	—	—	—	—
AL2-ASI-BD	●	●	●	—	—	●	—	—	—	—	—	—
FX3S Main Units												
FX3S-10MR/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-10MT/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-10MT/ESS	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-14MR/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-14MT/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-14MT/ESS	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-20MR/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-20MT/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-20MT/ESS	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-30MR/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-30MT/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3S-30MT/ESS	●	●	●	●	—	—	—	—	—	—	—	—
FX3G Main Units												
FX3G-14MR/DS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-14MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-14MT/DS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-14MT/DSS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-14MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-14MT/ESS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-24MR/DS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-24MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-24MT/DS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-24MT/DSS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-24MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-24MT/ESS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-40MR/DS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-40MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-40MT/DS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-40MT/DSS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-40MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-40MT/ESS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-60MR/DS	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-60MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-60MT/DS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-60MT/DSS	●	○	●	●	●	●	●	●	●	●	●	—
FX3G-60MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	—
FX3G-60MT/ESS	●	●	●	●	●	●	●	●	●	●	●	—
FX3GC Main Units												
FX3GC-32MT/D	●	○	●	●	—	—	—	—	—	—	—	—
FX3GC-32MT/DSS	●	○	●	●	—	—	—	—	—	—	—	—

Model Name	CE		UL	KC	Ship approvals							
	EMC	LVD	cUL		ABS	DNV	LR	GL	BV	RINA	NK	KR
FX3U Main Units												
FX3U-16MR/DS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-16MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-16MT/DS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-16MT/DSS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-16MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-16MT/ESS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-32MR/DS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-32MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-32MR/UA1	●	●	●	●	—	—	—	—	—	—	—	—
FX3U-32MS/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3U-32MT/DS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-32MT/DSS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-32MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-32MT/ESS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-48MR/DS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-48MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-48MT/DS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-48MT/DSS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-48MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-48MT/ESS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-64MR/DS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-64MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-64MR/UA1	●	●	●	●	—	—	—	—	—	—	—	—
FX3U-64MS/ES	●	●	●	●	—	—	—	—	—	—	—	—
FX3U-64MT/DS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-64MT/DSS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-64MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-64MT/ESS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-80MR/DS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-80MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-80MT/DS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-80MT/DSS	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-80MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-80MT/ESS	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-128MR/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-128MT/ES-A	●	●	●	●	●	●	●	●	●	●	●	●
FX3U-128MT/ESS	●	●	●	●	●	●	●	●	●	●	●	●
FX3UC Main Units												
FX3UC-16MR/D-T	●	●	●	●	—	—	—	—	—	—	—	—
FX3UC-16MR/DS-T	●	●	●	●	—	—	—	—	—	—	—	—
FX3UC-16MT/D	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-16MT/DSS	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-32MT/D	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-32MT/DSS	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-64MT/D	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-64MT/DSS	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-96MT/D	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-96MT/DSS	●	○	●	●	●	●	●	●	●	●	—	—
FX2N Extension Units												
FX2N-32ER-ES/UL	●	●	●	●	●	●	●	●	●	●	—	●
FX2N-32ET-ESS/UL	●	●	●	●	●	●	●	●	●	●	—	●
FX2N-48ER-DS	●	●	●	●	●	●	—	—	—	—	—	●
FX2N-48ER-ES/UL	●	●	●	●	●	●	●	●	●	●	—	●
FX2N-48ER-UA1/UL	●	●	●	—	●	—	—	—	—	—	—	●
FX2N-48ET-DSS	●	○	●	●	●	●	—	—	—	—	—	●
FX2N-48ET-ESS/UL	●	●	●	●	●	●	●	●	●	●	—	●

● = comply, ○ = no need to comply

Model Name	CE		UL	KC	Ship approvals							
	EMC	LVD	cUL		ABS	DNV	LR	GL	BV	RINA	NK	KR
FX2N Extension Blocks												
FX2N-8ER-ES/UL	●	●	●	○	—	●	—	●	—	—	—	—
FX2N-8EX-ES/UL	●	○	●	○	—	●	—	●	—	—	—	—
FX2N-8EX-UA1/UL	—	—	●	○	—	—	—	—	—	—	—	—
FX2N-8EYR-ES/UL	●	●	●	○	—	●	—	●	—	—	—	—
FX2N-8EYT-ESS/UL	●	○	●	○	—	●	—	●	—	—	—	—
FX2N-16EX-ES/UL	●	○	●	○	●	●	●	●	●	●	●	●
FX2N-16EYR-ES/UL	●	●	●	○	●	●	●	●	●	●	●	●
FX2N-16EYT-ESS/UL	●	○	●	○	●	●	●	●	●	●	●	●
FX2N-16EYS	—	—	●	○	—	—	—	—	—	—	—	—
FX2NC Extension Blocks												
FX2NC-16EX-DS	●	○	●	○	●	●	●	—	—	—	—	—
FX2NC-16EX-T-DS	●	○	●	○	●	●	●	—	—	—	—	—
FX2NC-16EYR-T-DS	●	●	●	○	●	●	●	—	—	—	—	—
FX2NC-16EYT-DSS	●	○	●	○	●	●	●	—	—	—	—	—
FX2NC-32EX-DS	●	○	●	○	●	●	●	—	—	—	—	—
FX2NC-32EYT-DSS	●	○	●	○	●	●	●	—	—	—	—	—
FX0N/FX2N Special Function Blocks												
FX0N-3A	●	○	—	●	—	—	—	●	—	—	—	—
FX2N-1HC	●	○	●	●	●	●	●	●	●	●	—	●
FX2N-1PG-E	●	○	●	●	●	●	●	●	●	●	—	●
FX2N-1RM-E-SET	●	○	—	●	●	—	—	—	—	—	—	●
FX2N-2AD	●	○	●	●	●	—	—	●	—	—	●	●
FX2N-2DA	●	○	●	●	●	—	—	●	—	—	●	●
FX2N-2LC	●	○	●	●	—	—	—	—	—	—	—	—
FX2N-4AD	●	○	●	●	●	●	●	●	●	●	—	●
FX2N-4AD-PT	●	○	●	●	●	●	●	●	●	●	—	●
FX2N-4AD-TC	●	○	●	●	●	●	●	●	●	●	—	●
FX2N-4DA	●	○	●	●	●	●	●	●	●	●	●	●
FX2N-5A	●	○	●	●	—	—	—	●	●	●	—	—
FX2N-8AD	●	○	●	●	—	—	—	●	●	●	●	—
FX2N-10GM	●	○	●	●	—	—	—	—	—	—	—	—
FX2N-10PG	●	○	●	●	—	—	—	—	—	—	—	—
FX2N-20GM	●	○	●	●	—	—	—	—	—	—	—	—
FX2N-32CCL	●	○	—	●	—	—	—	—	—	—	—	—
FX2N-64CL-M	●	○	●	●	—	—	—	—	—	—	—	—
FX2N-232IF	●	○	—	●	●	●	●	●	●	●	—	—
FX2NC Special Adapters & Special Function Blocks												
FX2NC-1HC	●	○	●	●	—	—	—	—	—	—	—	—
FX2NC-4AD	●	○	●	●	—	●	●	—	—	—	—	—
FX2NC-4DA	●	○	●	●	—	●	●	—	—	—	—	—
FX2NC-232ADP	●	○	●	●	—	●	●	—	—	—	—	—
FX2NC-485ADP	●	○	●	●	—	●	●	—	—	—	—	—
FX2NC-CNV-IF	—	—	—	—	—	—	●	—	—	—	—	—
FX3U Special Function Blocks												
FX3U-1PG	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-1PSU-5V	●	●	●	●	—	—	—	—	—	—	—	—
FX3U-2HC	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-4AD	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-4DA	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-4LC	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-20SSC-H	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-16CCL-M	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-64CCL	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-ENET-L	●	○	●	●	—	—	—	—	—	—	—	—
FX3U Special Adapters												
FX3U-2HSY-ADP	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-3A-ADP	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-4AD-ADP	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-4AD-PNK-ADP	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-4AD-PT-ADP	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-4AD-PTW-ADP	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-4AD-TC-ADP	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-4DA-ADP	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-4HSX-ADP	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-232ADP-MB	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-485ADP-MB	●	○	●	●	●	●	●	●	●	●	●	●
FX3U-CF-ADP	●	○	●	●	—	—	—	—	—	—	—	—
FX3U-ENET-ADP	●	○	●	—	—	—	—	—	—	—	—	—

Model Name	CE		UL	KC	Ship approvals							
	EMC	LVD	cUL		ABS	DNV	LR	GL	BV	RINA	NK	KR
FX3G Interface Adapter												
FX3G-CNV-ADP	●	○	●	○	●	●	●	●	●	●	●	—
FX3S Interface Adapter												
FX3S-CNV-ADP	●	○	●	○	—	—	—	—	—	—	—	—
FX3UC Special Function Blocks												
FX3UC-1PS-5V	●	○	●	●	●	●	●	●	●	●	—	—
FX3UC-4AD	●	○	●	●	—	—	—	—	—	—	—	—
Expansion Boards												
FX1N-1DA-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX1N-2AD-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX1N-2EYT-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX1N-4EX-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX1N-8AV-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX1N-232-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX1N-422-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX1N-485-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX1N-CNV-BD	●	○	—	○	●	●	●	—	—	—	●	●
FX3G-1DA-BD	●	○	—	●	●	●	●	●	●	●	●	—
FX3G-2AD-BD	●	○	—	●	●	●	●	●	●	●	●	—
FX3G-8AV-BD	●	○	—	○	●	●	●	●	●	●	●	—
FX3G-232-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX3G-422-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX3G-485-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX3U-8AV-BD	●	○	—	○	—	—	—	—	—	—	—	—
FX3U-232-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX3U-422-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX3U-485-BD	●	○	—	●	●	●	●	●	●	●	●	●
FX3U-CNV-BD	●	○	—	○	●	●	●	●	●	●	●	●
FX3U-USB-BD	●	○	—	●	●	●	●	●	●	●	●	●
Terminal Blocks												
FX-16E-TB/UL	—	—	●	○	—	—	—	—	—	—	—	—
FX-16EYR-ES-TB/UL	—	—	●	○	—	—	—	—	—	—	—	—
FX-16EYS-ES-TB/UL	—	—	●	○	—	—	—	—	—	—	—	—
FX-16EYT-ES-TB/UL	—	—	●	○	—	—	—	—	—	—	—	—
FX-16EYT-ESS-TB/UL	—	—	●	○	—	—	—	—	—	—	—	—
FX-32E-TB/UL	—	—	●	○	—	—	—	—	—	—	—	—
Accessories												
FX-10DM-E	●	○	—	●	—	—	—	—	—	—	—	—
FX-30P	●	○	●	●	—	—	—	—	—	—	—	—
FX-232AWC-H	●	○	—	●	—	—	—	—	—	—	—	—
FX-485PC-IF	●	○	—	○	—	—	—	—	—	—	—	—
FX-USB-AW	●	○	—	●	—	—	—	—	—	—	—	—
FX1N-5DM	●	○	—	○	●	●	●	●	●	●	●	●
FX1N-BAT	●	○	●	○	—	—	—	—	—	—	—	—
FX2N-20PSU	●	●	●	●	—	—	—	—	—	—	—	—
FX2N-CNV-BC	●	○	—	○	—	—	—	—	—	—	—	—
FX3G-5DM	●	○	—	●	●	●	●	●	●	●	●	—
FX3U-7DM	●	○	—	●	●	●	●	●	●	●	●	●
FX3U-7DM-HLD	—	○	—	○	—	—	—	—	—	—	—	—
Memory Cassettes												
FX1N-EEPROM-8L	●	○	—	○	●	●	●	—	—	—	●	●
FX3G-EEPROM-32L	●	○	—	○	●	●	●	●	●	●	●	—
FX3U-FLROM-16	●	○	—	○	●	●	●	●	●	●	●	●
FX3U-FLROM-64	●	○	—	○	●	●	●	●	●	●	●	●
FX3U-FLROM-64L	●	○	—	○	●	●	●	●	●	●	●	●
FX3U-FLROM-1M	●	○	—	○	—	—	—	—	—	—	—	—

● = comply, ○ = no need to comply

MELSEC-QS/WS Series

Safety Programmable Controller

Product name	Model*1	Outline
Safety CPU module	QS001CPU(-K)	Program capacity: 14 k steps, number of I/O device points: 6144 points, operation/error history: 3,000 records
Safety main base unit	QS034B(-K)	4 slots; for QS series, MELSECNET/H, CC-Link IE, and Ethernet modules
Safety power supply module	QS061P-A1(-K)	Input: 100...120 V AC, 50/60 Hz; output: 5 V 6 A; with overvoltage/overcurrent protection and shutdown circuit diagnostics
	QS061P-A2(-K)	Input: 200...240 V AC, 50/60 Hz; output: 5 V 6 A; with overvoltage/overcurrent protection and shutdown circuit diagnostics
CC-Link IE Field Network master/local module (with Safety Communication Functions)	QS0J71GF11-T2	Max. number of stations per network: 121 (32 for safety stations) Safety CPU module QS001CPU whose first five serial number digits are 13042 or later
CC-Link Safety system master module	QS0J61BT12(-K)	Max. number of connectable modules: 64 (42 for safety stations)
CC-Link Safety system remote I/O module	QS0J65BTB2-12DT(-K)	No. of input points: 8 points (double input), 16 points (single input) No. of output points: 4 points(source + sink type), 2 points(source + source type)
	QS0J65BTS2-8D	No. of input points: 8 points (double input), 16 points (single input)
	QS0J65BTS2-4T	No. of output points: 4 points (source + sink type), 2 points (source + source type)

*1: S-mark compatible part models are indicated in parentheses.

Safety Controller

CPU module	WS0-CPU000200 (WS0-CPU0)*1	Program size: 255 FBs, Scan cycle: 4 ms, Interface: RS-232
CPU module (with EFI)	WS0-CPU130202 (WS0-CPU1)*1	EFI-equipped (EFI is the communication interface for setting SICK's safety products.) Flexi Link with EFI
CPU module memory plug	WS0-MPL00201 (WS0-MPL)*1	For storing CPU parameters and programs (required)
Safety input module	WS0-XTDI80202 (WS0-XTDI)*1	Safety input: 8 points (single input), Spring clamp terminal block, Fast shut off function (response of 8 ms)
Safety I/O module	WS0-XTIO84202 (WS0-XTIO)*1	Safety input: 8 points (single input), Safety output: 4 points (single output) Output current: max. 2 A, Spring clamp terminal block, Fast shut off function (response of 8 ms)
Safety relay output module	WS0-4RO4002 (WS0-4RO)*1	Safety output: safety relay output 4 points (single input), Output current: max. 6 A
RS-232 cable connecting to CPU module	WS0-C20R2	RS-232 cable for PC-CPU connection
USB/RS-232 conversion cable	WS0-UC-232A	USB/RS-232 conversion cable
CC-Link interface module	WS0-GCC100202 (WS0-GCC1)*1	For CC-Link communication (standard communication)
Ethernet interface module	WS0-GETH00200 (WS0-GETH)*1	For Ethernet/TCP connection (standard communication)
Screw-in replacement terminal block	WS0-TBS4	Screw-in replacement terminal block
Spring clamp replacement terminal block	WS0-TBC4	Spring clamp replacement terminal block
Setting and Monitor Tool	SW1DNN-WS0ADR-B*2	Setting and Monitor Tool for safety controller

*1: Abbreviated product model name is shown in ( ) for this catalog. Please let us know the exact product model in the upper product list when you contact local Mitsubishi sales office or representative.
*2: For the acquisition of Setting and Monitor Tool, please contact your local Mitsubishi sales office or representative.

Safety Relay Module

Q series safety relay module	QS90SR2SP-Q	For MELSEC-Q series safety input: 1 point (2 inputs), P type (dual input with positive commons); safety output: 1 point (3 outputs)
	QS90SR2SN-Q	For MELSEC-Q series safety input: 1 point (2 inputs), N type (dual input with positive common and negative common); safety output: 1 point (3 outputs)
CC-Link safety relay module	QS90SR2SP-CC	For CC-Link; safety input: 1 point (2 inputs), P type (dual input with positive commons); safety output: 1 point (3 outputs)
	QS90SR2SN-CC	For CC-Link; safety input: 1 point (2 inputs), N type (dual input with positive common and negative common); safety output: 1 point (3 outputs)
Extension safety relay module	QS90SR2SP-EX	For extension; safety input: 1 point (2 inputs), P type (dual input with positive commons); safety output: 1 point (3 outputs)
	QS90SR2SN-EX	For extension; safety input: 1 point (2 inputs), N type (dual input with positive common and negative common); safety output: 1 point (3 outputs)
Safety circuit part extension cable	QS90CBL-SE01	0.1 m cable for adding safety part
	QS90CBL-SE15	1.5 m cable for adding safety part

Network Related Products

CC-Link IE Control Network Compatible Products

Type		Model	Outline
CC-Link IE embedded CPU module		R04ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R08ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R16ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R32ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R120ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
Multi-network supporting Ethernet module		RJ71EN71	MELSEC iQ-R Series multi-network supported (Ethernet/CC-Link IE)
Control network module		RJ71GP21-SX	CC-Link IE Control Network control/normal station for MELSEC iQ-R Series
		QJ71GP21-SX	CC-Link IE Control Network control/normal station for MELSEC-Q Series
		QJ71GP21S-SX	CC-Link IE Control Network control/normal station (with the External power supply function) for MELSEC-Q Series
Network interface board		Q81BD-J71GP21-SX	CC-Link IE Control Network control/normal station, compatible with PCI Express® bus
		Q81BD-J71GP21S-SX	CC-Link IE Control Network control/normal station (with the External power supply function), compatible with PCI Express® bus
		Q80BD-J71GP21-SX	CC-Link IE Control Network control/normal station, compatible with PCI/PCI X bus
		Q80BD-J71GP21S-SX	CC-Link IE Control Network control/normal station (with the External power supply function), compatible with PCI/PCI X bus

CC-Link IE Field Network Compatible Products

CC-Link IE embedded CPU module		R04ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R08ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R16ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R32ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
		R120ENCPU	MELSEC iQ-R Series CC-Link IE Field Network master/local station CC-Link IE Control Network control/normal station
Multi-network supporting Ethernet module		RJ71EN71	MELSEC iQ-R Series multi-network supported (Ethernet/CC-Link IE)
Master/local module		RJ71GF11-T2	CC-Link IE Field Network master/local station for MELSEC iQ-R Series
		QJ71GF11-T2	CC-Link IE Field Network master/local station for MELSEC-Q Series
		LJ71GF11-T2	CC-Link IE Field Network master/local station for MELSEC-L Series
		QS0J71GF11-T2	CC-Link IE Field Network safety master/local station for MELSEC-QS Series
Simple motion module		RD77GF4	CC-Link IE Field Network master station for MELSEC iQ-R Series Up to 4-axis control, linear interpolation, 2-axis circular interpolation, synchronous control, speed-torque control
		RD77GF8	CC-Link IE Field Network master station for MELSEC iQ-R Series Up to 8-axis control, linear interpolation, 2-axis circular interpolation, synchronous control, speed-torque control
		RD77GF16	CC-Link IE Field Network master station for MELSEC iQ-R Series Up to 16-axis control, linear interpolation, 2-axis circular interpolation, synchronous control, speed-torque control
		QD77GF4	CC-Link IE Field Network master station for MELSEC-Q Series Up to 4-axis control, linear interpolation, 2-axis circular interpolation, synchronous control, speed-torque control
		QD77GF8	CC-Link IE Field Network master station for MELSEC-Q Series Up to 8-axis control, linear interpolation, 2-axis circular interpolation, synchronous control, speed-torque control
		QD77GF16	CC-Link IE Field Network master station for MELSEC-Q Series Up to 16-axis control, linear interpolation, 2-axis circular interpolation, synchronous control, speed-torque control
Head module		RJ72GF15-T2	MELSEC iQ-R Series CC-Link IE Field Network compatible remote head module
		LJ72GF15-T2	MELSEC-L Series CC-Link IE Field Network compatible head module (END cover enclosed)
Intelligent device station module		FX5-CCLIEF	MELSEC iQ-F Series CC-Link IE Field Network intelligent device station module
Block type remote module	DC input	NZ2GF2B1N1-16D	16 points, 24 V DC, response time 0…70 ms, positive/negative common shared, screw terminal block, 1-wire, max. extension modules: 3
		NZ2GF2B1N-16D	16 points, 24 V DC, response time 0…70 ms, positive/negative common shared, screw terminal block, 1-wire
		NZ2GF2S1-16D	16 points, 24 V DC, response time 0…70 ms, positive/negative common shared, spring clamp terminal block, 1-wire
		NZ2GFCE3-16D*1*2	16 points, 24 V DC, response time 0…70 ms, positive common (sink type), sensor connector (e-CON), 3-wire
		NZ2GFCE3-16DE*1*2	16 points, 24 V DC, response time 0…70 ms, negative common (source type), sensor connector (e-CON), 3-wire
		NZ2GFCE3-32D	32 points, 24 V DC, response time 0…70 ms, positive common (sink type), sensor connector (e-CON), 3-wire
		NZ2GFCM1-16D*1	16 points, 24 V DC, response time 0…70 ms, positive common (sink type), MIL connector (20 pin), 1-wire
		NZ2GFCM1-16DE*1	16 points, 24 V DC, response time 0…70 ms, negative common (source type), MIL connector (20 pin), 1-wire
		NZ2GFCF1-32D	32 points, 24 V DC, response time 0…70 ms, positive/negative common shared, 40-pin connector, 1-wire

CC-Link IE Field Network Compatible Products

Type		Model	Outline
Block type remote module	Transistor output	NZ2GF2B1N1-16T	16 points, 12/24 V DC (0.5 A), sink type, screw terminal block, 1-wire max. extension modules: 3
		NZ2GF2B1N1-16TE	16 points, 12/24 V DC (0.5 A), sink type, screw terminal block, 1-wire max. extension modules: 3
		NZ2GF2B1N-16T	16 points, 12/24 V DC (0.5 A), sink type, screw terminal block, 1-wire
		NZ2GF2B1N-16TE	16 points, 12/24 V DC (0.5 A), source type, screw terminal block, 1-wire
		NZ2GF2S1-16T	16 points, 12/24 V DC (0.5 A), sink type, spring clamp terminal block, 1-wire
		NZ2GF2S1-16TE	16 points, 12/24 V DC (0.5 A), source type, spring clamp terminal block, 1-wire
		NZ2GFCE3-16T*1*2	16 points, 12/24 V DC (0.5 A), sink type, sensor connector (e-CON), 3-wire
		NZ2GFCE3-16TE*1*2	16 points, 12/24 V DC (0.5 A), source type, sensor connector (e-CON), 3-wire
		NZ2GFCE3-32T	32 points, 12/24 V DC (0.5 A), sink type, sensor connector (e-CON), 3-wire
		NZ2GFCM1-16T*1	16 points, 12/24 V DC (0.5 A), sink type, MIL connector (20 pin), 1-wire
		NZ2GFCM1-16TE*1	16 points, 12/24 V DC (0.5 A), source type, MIL connector (20 pin), 1-wire
		NZ2GFCF1-32T	32 points, 12/24 V DC (0.1 A), sink type, 40-pin connector, 1-wire
	I/O combined	NZ2GFCE3-32DT	Input 16 points, 24 V DC, response time 0…70 ms, positive common (sink type) Output 16 points, 12/24 V DC (0.5 A), sink type, sensor connector (e-CON), 3-wire
		NZ2GFCF1-32DT	Input 16 points, 24 V DC, response time 0...70 ms, positive/negative common shared Output 16 points, 12/24 V DC (0.1 A), sink type, 40-pin connector, 1-wire
	Analog input	NZ2GF2BN-60AD4	4 channels, -10…10 V DC, 0…20 mA DC; conversion speed, 100 µs/ch; screw terminal block
	Analog output	NZ2GF2BN-60DA4	4 channels, -10…10 V DC, 0…20 mA DC; conversion speed, 100 µs/ch, screw terminal block
	Temperature control	NZ2GF2B-60TCTT4	4 channels, thermocouple input, transistor output, screw terminal block
		NZ2GF2B-60TCRT4	4 channels, RTD input, transistor output, screw terminal block
	High-speed counter	NZ2GFCF-D62PD2	2 channels Differential input Counting speed, 10 kpps/100 kpps/200 kpps/500 kpps/1 Mpps/2 Mpps/4 Mpps/8 Mpps; count input signal, EIA Standard RS-422-A (Differential line driver) DC input Counting speed, 10 kpps/100 kpps/200 kpps; count input signal, 5/24 V DC 4…8 mA; coincidence output, transistor (sink type); 5…24 V DC (0.1 A); 40-pin connector
Extension module for Block type remote module	DC input	NZ2EX2B1N-16D	16 points, 24 V DC, response time 0…70 ms, positive/negative common shared, screw terminal block, 1-wire, multiple modules connectable
		NZ2EX2B1-16D	16 points, 24 V DC, response time 0…70 ms, positive/negative common shared, screw terminal block, 1-wire
		NZ2EX2S1-16D	16 points, 24 V DC, response time 0…70 ms, positive/negative common shared, spring clamp terminal block, 1-wire
	Transistor output	NZ2EX2B1N-16T	16 points, 12/24 V DC (0.5 A), sink type, screw terminal block, 1-wire, multiple modules connectable
		NZ2EX2B1N-16TE	16 points, 12/24 V DC (0.5 A), source type, screw terminal block, 1-wire, multiple modules connectable
		NZ2EX2B1-16T	16 points, 12/24 V DC (0.5 A), sink type, screw terminal block, 1-wire
		NZ2EX2B1-16TE	16 points, 12/24 V DC (0.5 A), source type, screw terminal block, 1-wire
		NZ2EX2S1-16T	16 points, 12/24 V DC (0.5 A), sink type, spring clamp terminal block, 1-wire
		NZ2EX2S1-16TE	16 points, 12/24 V DC (0.5 A), source type, spring clamp terminal block, 1-wire
	Analog input	NZ2EX2B-60AD4	4 channels, Input: -10…10 V DC, 0…20 mA DC, Conversion speed: 100 µs/ch, screw terminal block
	Analog output	NZ2EX2B-60DA4	4 channels, Output: -10…10 V DC, 0…20 mA DC, Conversion speed: 100 µs/ch, screw terminal block
Safety Remote I/O module	Main safety input	NZ2GFSS2-32D	32 points with single wiring/16 points with double wiring, 24 V DC, response time 0.4 ms, negative common, spring clamp terminal block, 2-wire
	Extension safety output	NZ2EXSS2-8TE	8 points with single wiring/4 points with double wiring, 24 V DC (0.5 A), source + source type, spring clamp terminal block, 2-wire
Network interface board		Q81BD-J71GF11-T2	CC-Link IE Field Network master/local station, compatible with PCI Express® bus
		Q80BD-J71GF11-T2	CC-Link IE Field Network master/local station, compatible with PCI/PCI X bus
Ethernet adapter module		NZ2GF-ETB	Compatible with Ethernet devices, transmission rate 100 Mbps/1 Gbps
Network bridge module		NZ2GF-CCB	CC-Link IE Field Network - CC-Link bridge module
		NZ2AW1GFAL	CC-Link IE Field Network - AnyWireASLINK bridge module

*1: A connector for Power supply and FG is required with e-CON and MIL connector type remote I/O module. Please refer to the sale parts list below.
*2: A sensor connector is required with e-CON connector type remote I/O module.

CC-Link Related Products

Type		Model	Specifications	Protection level
Master/local module		RJ61BT11	Master/local module for MELSEC iQ-R Series CC-Link Ver.2-compatible	-
		QJ61BT11N	Master/local module for MELSEC-Q Series CC-Link Ver.2-compatible	-
		L26CPU-BT	CPU with master/local function for MELSEC-L Series CC-Link Ver.2-compatible Sink output type	-
		L26CPU-PBT	CPU with master/local function for MELSEC-L Series CC-Link Ver.2-compatible Source output type	-
		LJ61BT11	Master/local module for MELSEC-L Series CC-Link Ver.2-compatible	-
		FX3U-16CCL-M	Master block for MELSEC-FX Series (FX3G/FX3U/FX3GC/FX3UC) CC-Link Ver.2-compatible	-
Bridge module		NZ2GF-CCB	CC-Link IE Field Network-CC-Link bridge module	-
		NZ2AW1C1BY	CC-Link-AnyWire Bitty bridge module	IP2X
		NZ2AW1C2D2	CC-Link-AnyWire DB A20bridge module Only for CC-Link Ver.2 use	IP2X
		NZ2AW1C2AL	CC-Link-AnyWireASLINK bridge module CC-Link Ver.2 compatible	IP2X
Remote I/O module	Screw terminal block type	AJ65SBTB2N-8A	Input 8 points: 100...120 V AC 2-wire type Response time 20 ms Terminal block type	IP1X
		AJ65SBTB2N-16A	Input 16 points: 100...120 V AC 2-wire type Response time 20 ms Terminal block type	IP1X
		AJ65SBTB1-8D	Input 8 points: 24 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB3-8D	Input 8 points: 24 V DC (positive/negative common shared) 3-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB1-16D	Input 16 points: 24 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB1-16D1	Input 16 points: 24 V DC (positive/negative common shared) 1-wire type High-speed response Terminal block type Response time 0.2 ms	IP2X
		AJ65SBTB3-16D	Input 16 points: 24 V DC (positive/negative common shared) 3-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB3-16D5	Input 16 points: 5 V DC (positive/negative common shared) 3-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB3-16KD	Input 16 points: 24 V DC (positive/negative common shared) 3-wire type Terminal block type Response time 0.2/1.5/5/10 ms switching type	IP2X
		AJ65SBTB1-32D	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB1-32D1	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type High-speed response Terminal block type Response time 0.2 ms	IP2X
		AJ65SBTB1-32D5	Input 32 points: 5 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 1.5 ms	IP2X
		AJ65SBTB1-32KD	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 0.2/1.5/5/10 ms switching type	IP2X
		AJ65SBTB1-8T	Output 8 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-8T1	Output 8 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB2-8T	Output 8 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type	IP2X
		AJ65SBTB2-8T1	Output 8 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-16T	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-16T1	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB2-16T	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type	IP2X
		AJ65SBTB2-16T1	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-32T	Output 32 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-32T1	Output 32 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-8TE	Output 8 points: 12/24 V DC (0.1 A) Transistor output (source type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-16TE	Output 16 points: 12/24 V DC (0.1 A) Transistor output (source type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1B-16TE1	Output 16 points: 12/24 V DC (0.5 A) Transistor output (source type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-32TE1	Output 32 points: 12/24 V DC (0.5 A) Transistor output (source type) 1-wire type Terminal block type	IP2X
		AJ65SBTB2N-8R	Output 8 points: 24 V DC/240 V AC (2 A) Relay output 2-wire type Terminal block type	IP1X
		AJ65SBTB2N-16R	Output 16 points: 24 V DC/240 V AC (2 A) Relay output 2-wire type Terminal block type	IP1X
		AJ65SBTB2N-8S	Output 8 points: 100...240 V AC (0.6 A) Triac output 2-wire type Terminal block type	IP1X
		AJ65SBTB2N-16S	Output 16 points: 100...240 V AC (0.6 A) Triac output 2-wire type Terminal block type	IP1X
		AJ65SBTB32-8DT	Input 4 points: 24 V DC (positive common) 3-wire type Response time 1.5 ms Output 4 points: 24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type	IP2X
		AJ65SBTB32-8DT2	Input 4 points: 24 V DC (positive common) 3-wire type Response time 1.5 ms Output 4 points: 24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-16DT	Input 8 points: 24 V DC (positive common)1-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-16DT1	Input 8 points: 24 V DC (positive common)1-wire type High-speed response Response time 0.2 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-16DT2	Input 8 points: 24 V DC (positive common) 1-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-16DT3	Input 8 points: 24 V DC (positive common) 1-wire type High-speed response Response time 0.2 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB32-16DT	Input 8 points: 24 V DC (positive common) 3-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type	IP2X
		AJ65SBTB32-16DT2	Input 8 points: 24 V DC (positive common) 3-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB32-16KDT2	Input 8 points: 24 V DC (positive common) 3-wire type Response time 0.2/1.5/5/10 ms switching type Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB32-16KDT8	Input 8 points: 24 V DC (positive common) 3-wire type Response time 0.2/1.5/5/10 ms switching type Output 8 points: 12 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB32-16KDR	Input 8 points: 24 V DC (positive/negative common shared) 3-wire type Response time 0.2/1.5/5/10 ms switching type Output 8 points: 24 V DC/240 V AC (2 A) Relay output 2-wire type Terminal block type	IP1X
		AJ65SBTB1-32DT	Input 16 points: 24 V DC (positive common) 1-wire type Response time 1.5 ms Output16 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-32DT1	Input 16 points: 24 V DC (positive common) 1-wire type High-speed response Response time 0.2 ms Output16 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65SBTB1-32DT2	Input 16 points: 24 V DC (positive common) 1-wire type Response time 1.5 ms Output16 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-32DT3	Input 16 points: 24 V DC (positive common) 1-wire type High-speed response Response time 0.2 ms Output16 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-32DTE1	Input 16 points: 24 V DC (negative common) 1-wire type Response time 1.5 ms Output16 points: 24 V DC (0.5 A) Transistor output (source type) 1-wire type Terminal block type	IP2X
		AJ65SBTB32-16DR	Input 8 points: 24 V DC (positive/negative common shared) 3-wire type Response time 1.5 ms Output 8 points: 24 V DC/240 V AC (2 A) Relay output 2-wire type Terminal block type	IP1X
		AJ65SBTB1-32KDT2	Input 16 points: 24 V DC (positive common) 1-wire type Response time 0.2/1.5/5/10 ms switching type Output16 points: 24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65SBTB1-32KDT8	Input 16 points: 12 V DC (positive common) 1-wire type Response time 0.2/1.5/5/10 ms switching type Output16 points: 12 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X

CC-Link Related Products

Type		Model	Specifications	Protection level
Remote I/O module	Screw/2-piece terminal block type	AJ65BTB1-16D	Input 16 points: 24 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 10 ms	IP2X
		AJ65BTB2-16D	Input 16 points: 24 V DC (positive/negative common shared) 2-wire type Terminal block type Response time 10 ms	IP2X
		AJ65BTB1-16T	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65BTB2-16T	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type Terminal block type	IP2X
		AJ65BTB2-16R	Output 16 points: 24 V DC/240 V AC (2 A) Relay output 2-wire type Terminal block type	IP1X
		AJ65BTB1-16DT	Input 8 points: 24 V DC (positive common) Response time 10 ms Output 8 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65BTB2-16DT	Input 8 points: 24 V DC (positive common) Response time 10 ms Output 8 points: 12/24 V DC (0.5 A)Transistor output (sink type) 2-wire type Terminal block type	IP2X
		AJ65BTB2-16DR	Input 8 points: 24 V DC (positive/negative common shared) Response time 10 ms Output 8 points: 24 V DC/240 V AC (2 A) Relay output 2-wire type Terminal block type	IP1X
	A2C form terminal block type	AJ65DBTB1-32D	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type Terminal block type Response time 10 ms	IP2X
		AJ65DBTB1-32T1	Output 32 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type (low-leakage current type)	IP2X
		AJ65DBTB1-32R	Output 32 points: 24 V DC/240 V AC (2 A) Relay output 1-wire type Terminal block type	IP1X
		AJ65DBTB1-32DT1	Input 16 points: 24 V DC (positive common) Response time 10 ms Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 1-wire type Terminal block type	IP2X
		AJ65DBTB1-32DR	Input 16 points: 24 V DC (positive/negative common shared) Response time 10 ms Output 16 points: 24 V DC/240 V AC (2 A) Relay output 1-wire type Terminal block type	IP1X
	Spring clamp terminal block push-in type	AJ65ABTP3-16D	Input 16 points: 24 V DC/6 mA (positive common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65ABTP3-16DE	Input 16 points: 24 V DC/6 mA (negative common) 3-wire type Response time 1.5 ms	IP1XB
	Spring clamp terminal block type	AJ65VBTS3-16D	Input 16 points: 24 V DC/5 mA (negative common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTS3-32D	Input 32 points: 24 V DC/5 mA (negative common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTS2-16T	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTS2-32T	Output 32 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTS32-16DT	Input 8 points: 24 V DC/5 mA (positive common) 3-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTS32-32DT	Input 16 points: 24 V DC/5 mA (positive common) 32-wire type Response time 1.5 ms Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type	IP1XB
	Sensor connector type	AJ65VBTCE3-8D	Input 8 points: 24 V DC/5 mA (positive common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTCE3-16D	Input 16 points: 24 V DC/5 mA (positive common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTCE3-32D	Input 32 points: 24 V DC/5 mA (positive common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTCE3-16DE	Input 16 points: 24 V DC/5 mA (negative common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTCE3-32DE	Input 32 points: 24 V DC/5 mA (negative common) 3-wire type Response time 1.5 ms	IP1XB
		AJ65VBTCE2-8T	Output 8 points: 12/24 V DC (0.1 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTCE2-16T	Output 16 points: 12/24 V DC (0.1 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTCE3-16TE	Output 16 points: 12/24 V DC (0.1 A) Transistor output (source type) 3-wire type	IP1XB
		AJ65VBTCE32-16DT	Input 8 points: 24 V DC/5 mA (positive common) 3-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.1 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTCE3-16DTE	Input 8 points: 24 V DC/5 mA (negative common) 3-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.1 A) Transistor output (source type) 3-wire type	IP1XB
		AJ65VBTCE32-32DT	Input 16 points: 24 V DC/5 mA (positive common) 3-wire type Response time 1.5 ms Output 16 points: 24 V DC (0.1 A) Transistor output (sink type) 2-wire type	IP1XB
		AJ65VBTCE3-32DTE	Input 16 points: 24 V DC/5 mA (negative common) 3-wire type Response time 1.5 ms Output 16 points: 24 V DC (0.1 A) Transistor output (source type) 3-wire type	IP1XB
	One-touch connector type	AJ65VBTCU3-8D1	Input 8 points: 24 V DC (positive common) 3-wire type Response time 0.2 ms One-touch connector type	IP1XB
		AJ65VBTCU3-16D1	Input 16 points: 24 V DC (positive common) 3-wire type Response time 0.2 ms One-touch connector type	IP1XB
		AJ65SBTC4-16DN	Input 16 points: 24 V DC (positive common) 4-wire type Response time 1.5 ms One-touch connector type	IP2X
		AJ65SBTC4-16DE	Input 16 points: 24 V DC (negative common) 4-wire type Response time 1.5 ms One-touch connector type	IP2X
		AJ65SBTC1-32D	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type One-touch connector type (plug: sold separately) Response time 1.5 ms	IP2X
		AJ65SBTC1-32D1	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type High-speed response One-touch connector type (plug: sold separately) Response time 0.2 ms	IP2X
		AJ65VBTCU2-8T	Output 8 points: 12/24 V DC (0.1 A) Transistor output (sink type) 2-wire type One-touch connector type	IP1XB
		AJ65VBTCU2-16T	Output 16 points: 12/24 V DC (0.1 A) Transistor output (sink type) 2-wire type One-touch connector type	IP1XB
		AJ65SBTC1-32T	Output 32 points: 12/24 V DC (0.1 A) Transistor output (sink type) 1-wire type One-touch connector type (plug: sold separately)	IP2X
		AJ65SBTC1-32T1	Output 32 points: 12/24 V DC (0.1 A) Transistor output (sink type) 1-wire type One-touch connector type (low-leakage current type)	IP2X
		AJ65SBTC4-16DT	Input 8 points: 24 V DC (positive common) 4-wire type (for 8 sensors) Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 4-wire type One-touch connector type (plug: sold separately)	IP2X
		AJ65SBTC4-16DT2	Input 8 points: 24 V DC (positive common) 4-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A) Transistor output (sink type) 4-wire type One-touch connector type (plug: sold separately) (low-leakage current type)	IP2X
		AJ65SBTC1-32DT	Input 16 points: 24 V DC (positive common) 1-wire type Response time 1.5 ms Output 16 points: 24 V DC (0.1 A) Transistor output (sink type) 1-wire type One-touch connector type (plug: sold separately)	IP2X
		AJ65SBTC1-32DT1	Input 16 points: 24 V DC (positive common) 1-wire type High-speed response Response time 0.2 ms Output 16 points: 24 V DC (0.1 A) Transistor output (sink type) 1-wire type One-touch connector type (plug: sold separately)	IP2X
		AJ65SBTC1-32DT2	Input 16 points: 24 V DC (positive common) 1-wire type Response time 1.5 ms Output 16 points: 24 V DC (0.1 A) Transistor output (sink type) 1-wire type One-touch connector type (plug: sold separately) (low-leakage current type)	IP2X
		AJ65SBTC1-32DT3	Input 16 points: 24 V DC (positive common) 1-wire type High-speed response Response time 0.2 ms Output 16 points: 24 V DC (0.1 A) Transistor output (sink type) 1-wire type One-touch connector type (plug: sold separately) (low-leakage current type)	IP2X
	40-pin connector type (FCN connector type)	AJ65SBTCF1-32D	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type Response time 1.5 ms FCN connector type (40-pin connector)	IP2X
		AJ65BTC1-32D	Input 32 points: 24 V DC (positive/negative common shared) 1-wire type Response time 10 ms FCN connector type (40-pin connector)	IP2X
		AJ65SBTCF1-32T	Output 32 points: 12/24 V DC (0.1 A) Transistor output (sink type) 1-wire type FCN connector type (40-pin connector)	IP2X
		AJ65BTC1-32T	Output 32 points: 12/24 V DC (0.1 A) Transistor output (sink type) 1-wire type FCN connector type (40-pin connector)	IP2X
		AJ65SBTCF1-32DT	Input 16 points: 24 V DC (positive/negative common shared) 1-wire type Response time 1.5 ms Output 16 points: 12/24 V DC (0.1 A) Transistor output (sink type) 1-wire type FCN connector type (40-pin connector)	IP2X
		AJ65VBTCF1-32DT1	Input 16 points: 24 V DC (positive/negative common shared) 1-wire type Response time 0.2 ms Output 16 points: 12/24 V DC (0.1 A) Transistor output (sink type) 1-wire type FCN connector type	IP1XB
		AJ65VBTCFJ1-32DT1	Input 16 points: 24 V DC (positive common) 1-wire type Response time 0.2 ms Shared power supply for module and I/O parts Output 16 points: 24 V DC (0.1 A) Transistor output (sink type) 1-wire type FCN connector type	IP1XB

* Positive common: sink type, negative common: source type

CC-Link Related Products

Type			Model	Specifications	Protection level
Remote I/O module	Waterproof connector type		AJ65FBTA4-16D	Input 24 V DC (positive common) 4-wire type Low profile waterproof type Response time 1.5 ms	IP67
			AJ65FBTA4-16DE	Input 24 V DC (negative common) 4-wire type Low profile waterproof type Response time 1.5 ms	IP67
			AJ65FBTA2-16T	Output 16 points: 12/24 V DC (0.5 A) Transistor output (sink type) 2-wire type Low profile type	IP67
			AJ65FBTA2-16TE	Output 16 points: 12/24 V DC (1.0 A) Transistor output (source type) 2-wire type Low profile waterproof type	IP67
			AJ65FBTA42-16DT	Input 8 points: 24 V DC (positive common) 4-wire type Response time 1.5 ms Output 8 points: 24 V DC (0.5 A)Transistor output sink type 2-wire type Low profile waterproof type	IP67
			AJ65FBTA42-16DTE	Input 8 points: 24 V DC (negative common) 4-wire type Response time 1.5 ms Output 8 points: 24 V DC (1.0 A) Transistor output (source type) 2-wire type Low profile waterproof type	IP67
Safety relay module	Spring clamp terminal block type		QS90SR2SP-CC	For CC-Link Safety input: 1 point (2 inputs) P type (positive common/positive common input) Safety output: 1 point (3 outputs)	IP1X
			QS90SR2SN-CC	For CC-Link Safety input: 1 point (2 inputs) N type (positive common/negative common input) Safety output: 1 point (3 outputs)	IP1X
Safety controller	Spring clamp terminal block type		WS0-GCC100202	CC-Link interface module for WS series	-
Analog module	Screw terminal block type	Voltage/ current input	AJ65SBT-64AD	4-channel voltage/current input A/D conversion module (analog input module)	IP2X
			AJ65SBT2B-64AD	4-channel voltage/current input A/D conversion module (analog input module) High accuracy, high resolution, high speed	IP2X
			AJ65BT-64AD	4-channel voltage/current input A/D conversion module (analog input module) Screw/2-Piece terminal block type	IP2X
		Temperature input	AJ65BT-64RD3	4-channel Pt100 (3-wire type) input Platinum RTD Pt100 temperature input	IP2X
			AJ65BT-64RD4	4-channel Pt100 (4-wire type) input Platinum RTD Pt100 temperature input	IP2X
			AJ65SBT2B-64TD	4-channel thermocouple input Thermocouple temperature input module	IP2X
			AJ65BT-68TD	8-channel thermocouple input Thermocouple temperature input module	IP2X
			AJ65SBT2B-64RD3	4-channel RTD input module	IP2X
		Voltage/current output	AJ65SBT-62DA	2-channel voltage/current output D/A conversion module (analog output module)	IP2X
			AJ65SBT2B-64DA	4-channel voltage/current output D/A conversion module (analog output module)	IP2X
		Voltage output	AJ65BT-64DAV	4-channel voltage output D/A conversion module (analog output module)	IP2X
		Current output	AJ65BT-64DAI	4-channel current output D/A conversion module (analog output module)	IP2X
	One-touch connector type	Voltage input	AJ65VBTCU-68ADVN	8-channel voltage input A/D conversion module (analog input module) CC-Link Ver.2-compatible	IP1XB
		Current input	AJ65VBTCU-68ADIN	8-channel current input A/D conversion module (analog input module) CC-Link Ver.2-compatible	IP1XB
		Voltage output	AJ65VBTCU-68DAVN	8-channel voltage output D/A conversion module (analog output module) CC-Link Ver.2-compatible	IP1XB
High-speed counter module			AJ65BT-D62	DC input Preset DC input	IP2X
			AJ65BT-D62D	Differential input Preset DC input	IP2X
			AJ65BT-D62D-S1	Differential input Preset differential input	IP2X
Positioning module			AJ65BT-D75P2-S3	2 axes (independent, with/ linear and circular interpolation)	IP2X
RS-232 interface module			AJ65BT-R2N	RS-232 1-channel, with/ DC input 2 points Transistor output 2 points	IP2X
Network interface board			Q81BD-J61BT11	CC-Link interface board for an IBM PC/AT compatible PC (for PCI Express bus slot: master station, standby master station or local station)	-
			Q80BD-J61BT11N	CC-Link interface board for an IBM PC/AT compatible PC (for PCI bus slot: master station, standby master station or local station)	-
FX Series interface block			FX_{3U}-64CCL	Interface block for FX_{3G}, FX_{3U}, FX_{3GC}, FX_{3UC} Series	-
			FX_{2N}-32CCL	Interface block for FX_{3G}, FX_{3U}, FX_{3GC}, FX_{3UC} Series	-
Repeater module	Low profile waterproof type repeater hub module		AJ65FBTA-RPH	8-port star wiring hub module with repeater function, IP67-compatible	IP67
	Spring clamp terminal block type repeater hub module		AJ65BTS-RPH	8-port star wiring hub module with repeater function, spring clamp terminal block type	IP2X
	Repeater module (T-branch)		AJ65SBT-RPT	T-branch module with repeater function	IP2X
	Optical repeater module		AJ65SBT-RPS	For SI/QSI type fiber cable (Use 2 modules as a set)	IP2X
			AJ65SBT-RPG	For GI type fiber cable (Use 2 modules as a set)	IP2X
	Space optical repeater module		AJ65BT-RPI-10A	AJ65BT-RPI-10A and AJ65BT-RPI-10B used as a pair, 156 k/625 k/2.5 Mbps supported	IP2X
			AJ65BT-RPI-10B		IP2X
Embedded type I/O module			AJ65MBTL1N-16D	Input 16 points : 24 V DC (positive common) Pin header type 44-pin (2 rows) Embedded type Response time 1.5 ms	-
			AJ65MBTL1N-16T	Output 16 points : 12/24 V DC (0.1 A) Transistor output (sink type) Pin header type 44-pin (2 rows) Embedded type	-
			AJ65MBTL1N-16DT	Input 8 points : 24 V DC (positive common) Response time 1.5 ms Output 8 points : 24 V DC (0.1 A) Transistor output (sink type) Pin header type 44-pin (2 rows) Embedded type	-
			AJ65MBTL1N-32D	Input 32 points : 24 V DC (positive common) Pin head type 62-pin (2 rows) Embedded type Response time 1.5 ms	-
			AJ65MBTL1N-32T	Output 32 points : 12/24 V DC (0.1 A) Transistor output (sink type) Pin head type 62-pin (2 rows) Embedded type	-
Embedded type interface board			Q50BD-CCV2	Master/local/intelligent device station CC-Link Ver.2 compatible	-
Object development	MFP1N		A6GA-CCMFP1NN60F	Communication LSI for lead-free/RoHS compatible master/local/intelligent device station (60 pcs)	-
			A6GA-CCMFP1NN300F	Communication LSI for lead-free/RoHS compatible master/local/intelligent device station (300 pcs)	-
	Device kit		Q6KT-NPC2OG51	For network circuit (Flash ROM x 1pc, SPLD x 2 pcs)	-
Dedicated communication LSI	MFP2AN		A6GA-CCMFP2ANN 60F	Communication LSI for lead-free/RoHS compatible remote I/O station (16 points) (60 pcs)	-
			A6GA-CCMFP2ANN 300F	Communication LSI for lead-free/RoHS compatible remote I/O station (16 points) (300 pcs)	-
	MFP2N		A6GA-CCMFP2NN 60F	Communication LSI for lead-free/RoHS compatible remote I/O station (32 points) (60 pcs)	-
			A6GA-CCMFP2NN 300F	Communication LSI for lead-free/RoHS compatible remote I/O station (32 points) (300 pcs)	-
	MFP3N		A6GA-CCMFP3NN 60F	Communication LSI for lead-free/RoHS compatible remote device station (60 pcs)	-
			A6GA-CCMFP3NN 300F	Communication LSI for lead-free/RoHS compatible remote device station (300 pcs)	-

* Positive common: sink type, negative common: source type

CC-Link Related Products

Type			Model	Specifications	Protection level
Master module			QJ61CL12	CC-Link/LT master module for MELSEC-Q Series	-
			LJ61CL12	CC-Link/LT master module for MELSEC-L Series	-
			FX_{2N}-64CL-M	CC-Link/LT master module for MELSEC-FX_{3N} and FX_{3NUC}	-
			FX_{3UC}-32MT-LT (-2)*1	MELSEC-FX_{3UC} series CC-Link/LT programmable controller (built-in master function)	-
Bridge module			AJ65SBT-CLB	CC-Link - CC-Link/LT bridge module	IP2X
Remote I/O module	Screw terminal block type		CL1X4-D1B2	Input 4 points: 24 V DC (positive/negative common shared)	IP2X
			CL2X8-D1B2	Input 8 points: 24 V DC (positive/negative common shared)	IP2X
			CL1Y4-T1B2	Output 4 points: 12/24 V DC (sink type) 0.1 A Transistor output	IP2X
			CL2Y8-TP1B2	Output 8 points: 12/24 V DC (sink type) 0.1 A Transistor module (with output protection function)	IP2X
			CL1Y4-R1B2	Output 4 points: 30 V DC, ≤ 250 V AC 2 A Relay output	IP1X
			CL1Y4-R1B1	Output 4 points: 30 V DC, ≤ 250 V AC 2 A Relay output 1 point 1 common (independent)	IP1X
			CL1XY4-DT1B2	Input 2 points: 24 V DC (positive/negative common shared) Output 2 points: 12/24 V DC (sink type) 0.1 A Transistor output	IP2X
			CL1XY8-DT1B2	Input 4 points: 24 V DC (positive/negative common shared) Output 4 points: 12/24 V DC (sink type) 0.1 A Transistor output	IP2X
			CL1XY4-DR1B2	Input 2 points: 24 V DC (positive/negative common shared) Output 2 points: 30 V DC, ≤ 250 V AC (sink type) 2 A Relay output	IP1X
			CL1XY8-DR1B2	Input 4 points: 24 V DC (positive/negative common shared) Output 4 points: 30 V DC, ≤ 250 V AC 2 A Relay output	IP1X
	Spring clamp terminal block type		CL1X4-D1S2	Input 4 points: 24 V DC (positive/negative common shared)	IP2X
			CL2X8-D1S2	Input 8 points: 24 V DC (positive/negative common shared)	IP2X
			CL1Y4-T1S2	Output 4 points: 12/24 V DC (sink type) 0.1 A Transistor output	IP2X
			CL2Y8-TP1S2	Output 8 points: 12/24 V DC (sink type) 0.1 A Transistor output (output protection function)	IP2X
			CL2Y8-TPE1S2	Output 8 points: 12/24 V DC (source type) 0.1 A Transistor output (output protection function)	IP2X
	Sensor connector type (e-CON)		CL1X4-D1C3	Input 4 points: 24 V DC (positive common)	IP2X
			CL2X8-D1C3V	Input 8 points: 24 V DC (positive common)	IP2X
			CL2X16-D1C3V	Input 16 points: 24 V DC (positive common)	IP2X
			CL1Y4-T1C2	Output 4 points: 24 V DC (sink type) 0.1 A Transistor output	IP2X
			CL2Y8-TP1C2V	Output 8 points: 24 V DC (sink type) 0.1 A Transistor module (output protection function)	IP2X
			CL2Y16-TP1C2V	Output 16 points: 24 V DC (sink type) 0.1 A Transistor module (output protection function)	IP2X
			CL2XY16-DTP1C5V	Input 8 points: 24 V DC (positive common) Output 8 points: 24 V DC (sink type) 0.1 A Transistor module (output protection function)	IP2X
	MIL connector type		CL2X16-D1M1V	Input 16 points: 24 V DC (positive common)	IP2X
			CL2X16-D1MJ1V	Input 16 points: 24 V DC (positive common) Shared power supply for module and I/O parts	IP2X
			CL2Y16-TP1M1V	Output 16 points: 12/24 V DC (sink type) 0.1 A Transistor module (output protection function)	IP2X
			CL2Y16-TP1MJ1V	Output 16 points: 24 V DC (sink type) 0.1 A Transistor module (output protection function) Shared power supply for module and I/O parts	IP2X
			CL2Y16-TPE1M1V	Output 16 points: 12/24 V DC (source type) 0.1 A Transistor module (output protection function)	IP2X
	Cable type		CL1X2-D1D3S	Input 2 points: 24 V DC (positive common)	IP2X
			CL1Y2-T1D2S	Output 2 points: 24 V DC (sink type) 0.1 A Transistor output	IP2X
			CL1XY2-DT1D5S	Input 1 points: 24 V DC (positive common) Output 1 points: 24 V DC (sink type) 0.1 A Transistor output	IP2X
Analog module	Screw terminal block type	Voltage/current input	CL2AD4-B	4-channel voltage/current input A/D conversion module (analog input module)	IP2X
		Voltage/current output	CL2DA2-B	2-channel voltage/current output D/A conversion module (analog output module)	IP2X
Dedicated power supply			CL1PSU-2A	CC-Link/LT dedicated power supply (2 A)	IP1X
Power supply adapter			CL1PAD1	Power adapter (5 A) for CL1PAD1 CC-Link/LT	-
Communication LSI for master station	CLC13		CL2GA13-60	Communication LSI for lead-free/RoHS compatible master station (60 pcs)	-
Communication LSI for remote I/O station	CLC21		CL2GA21-60	Communication LSI for lead-free/RoHS compatible remote I/O station (60 pcs)	-
			CL2GA21-300	Communication LSI for lead-free/RoHS compatible remote I/O station (300 pcs)	-
Communication LSI for remote device station	CLC31		CL2GA31-60	Communication LSI for remote device station (60 pcs)	-
Accessories	Common terminal block		CL2TE-5	Common terminal block for screw terminal block type modules (applicable model: CL2X8-D1B2, CL2Y8-TP1B2, CL2AD4-B)	-
			CL2TE-10S	Common terminal block for spring clamp terminal block type modules (applicable model : CL2X8-D1S2)	-
	Holder		CL1-HLD	Holder for cable type installation (5 pcs)	-

*1: CC-Link/LT parameters for FX_{3UC}-32MT-LT-2 can be configured with GX Works2, GX Developer or display modules.

MELSECNET/H Related Product

[Legend] DB : Double brand product (Note)

Type		Model	Outline
MELSECNET/H (10)	Optical loop (SI)	Q81BD-J71LP21-25	PCI Express bus, Japanese/English OS compatible, SI/QSI/H-PCF/broadband H-PCF fiber optic cable, dual loop, control network (control/normal station)
		Q80BD-J71LP21-25	PCI bus, Japanese/English OS compatible, SI/QSI/H-PCF/broadband H-PCF fiber optic cable, dual loop, control network (control/normal station)
		Q80BD-J71LP21S-25	PCI bus, Japanese/English OS compatible, SI/QSI/H-PCF/broadband H-PCF fiber optic cable, dual loop, control network (control/normal station), with external power supply function
	Optical loop (GI)	Q80BD-J71LP21G	PCI bus, Japanese/English OS compatible, GI-50/125 fiber optic cable, dual loop, control network (control/normal station)
	Coaxial bus	Q80BD-J71BR11	PCI bus, Japanese/English OS compatible, 3C-2V/5C-2V coaxial cable, single bus, control network (control/normal station)

Ethernet Related Product

Wireless LAN Adapter	U.S.A.	NZ2WL-US*1*2 DB	Conforms to IEEE 802.11a, IEEE 802.11b, IEEE 802.11g standards
	Europe	NZ2WL-EU*1*2 DB	Conforms to IEEE 802.11a, IEEE 802.11b, IEEE 802.11g standards
	China	NZ2WL-CN*1*2 DB	Conforms to IEEE 802.11a, IEEE 802.11b, IEEE 802.11g standards
	Korea	NZ2WL-KR*1*2 DB	Conforms to IEEE 802.11a, IEEE 802.11b, IEEE 802.11g standards
	Taiwan	NZ2WL-TW*1*2 DB	Conforms to IEEE 802.11a, IEEE 802.11b, IEEE 802.11g standards
Industrial switching HUB		NZ2EHG-T8 DB	10 Mbps/100 Mbps/1 Gbps AUTO-MDIX, DIN rail supported, 8 ports
		NZ2EHF-T8 DB	10 Mbps/100 Mbps AUTO-MDIX, DIN rail supported, 8 ports
CC-Link IE Field Network Ethernet Adapter		NZ2GF-ETB	Compatible with Ethernet devices, transmission rate: 100 Mbps/1 Gbps

*1: Each product is usable only in the respective country.
*2: Both access points and stations are supported, and can be switched with the settings.

Note: General specifications and product guarantee conditions of jointly developed products are different from those of MELSEC products.
For more information, please refer to the product manuals or contact your local Mitsubishi representative for details.

MELSEC Common Options

Connector, Connector/terminal block conversion module, Relay terminal module

Type		Model	Outline
Connector		A6CON1	32-point connector soldering type (40-pin connector)
		A6CON2	32-point connector crimp-contact type (40-pin connector)
		A6CON3	32-point connector pressure-displacement (flat cable) type (40-pin connector)
		A6CON4	32-point connector soldering type (40-pin connector, cable connectable in bidirection) (Straight-out/diagonal-out type)
		A6CON1E	32-point connector soldering type (37-pin D-sub connector)
		A6CON2E	32-point connector crimp-contact type (37-pin D-sub connector)
		A6CON3E	32-point connector pressure-displacement (flat cable) type (37-pin D-sub connector)
Connector/terminal block conversion module		A6TBXY36	For positive common input modules and sink output modules (standard type)
		A6TBXY54	For positive common input modules and sink output modules (2-wire type)
		A6TBX70	For positive common input modules (3-wire type)
		A6TBX36-E	For negative common input modules (standard type)
		A6TBX54-E	For negative common input modules (2-wire type)
		A6TBX70-E	For negative common input modules (3-wire type)
		A6TBY36-E	For source output modules (standard type)
		A6TBY54-E	For source output modules (2-wire type)
	Cable	AC05TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 0.5 m
		AC10TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 1 m
		AC20TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 2 m
		AC30TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 3 m
		AC50TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 5 m
		AC80TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 8 m *Common current 0.5 A or lower
		AC100TB	For A6TBXY36, A6TBXY54, and A6TBX70 (positive common/sink type), 10 m *Common current 0.5 A or lower
		AC05TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 0.5 m
		AC10TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 1 m
		AC20TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 2 m
		AC30TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 3 m
		AC50TB-E	For A6TBX36-E, A6TBY36-E, A6TBX54-E, A6TBY54-E, and A6TBX70-E (negative common/source type), 5 m
Relay terminal module		A6TE2-16SRN	For 40-pin connector 24 V DC transistor output modules (sink type)
	Cable	AC06TE	For A6TE2-16SRN, 0.6 m
		AC10TE	For A6TE2-16SRN, 1 m
		AC30TE	For A6TE2-16SRN, 3 m
		AC50TE	For A6TE2-16SRN, 5 m
		AC100TE	For A6TE2-16SRN, 10 m

One-touch connector plugs

Type	Model	Specifications		
		Core wire size of applicable cable	Core wire size of applicable cable	Maximum rated curren
One-touch connector plug (20 pcs)	A6CON-P214 (33104-6000FL*1)	0.14...0.2 mm² (26...24 AWG)	ϕ1.0...1.4 mm	2 A*2
	A6CON-P220 (33104-6100FL*1)		ϕ1.4...2.0 mm	
	A6CON-P514 (33104-6200FL*1)	0.3...0.5 mm² (22...20 AWG)	ϕ1.0...1.4 mm	3 A*2
	A6CON-P520 (33104-6300FL*1)		ϕ1.4...2.0 mm	
One-touch connector plug for communication (10 pcs)	A6CON-L5P (35505-6000-B0M GF*1)	Communication line: 0.5 mm², 20 AWG, Shielded cable: 0.5 mm², 20 AWG Applicable cable size (diameter): ϕ2.2...3.0 mm		
One-touch connector plug for power supply and FG (10 pcs)	A6CON-PW5P (35505-6080-A00 GF*1)	Core wire size of applicable cable: 0.75 mm² (0.66...0.98 mm²), 18 AWG, 0.16 mm or larger for strand diameter, Insulating coating material PVC (heat resistant vinyl), Outer diameter of applicable cable: ϕ2.2...3.0mm, Maximum rated current: 7 A*2		
	A6CON-PW5P-SOD (35505-6180-A00 GF*1)	Core wire size of applicable cable: 0.75 mm² (0.66...0.98 mm²), 18 AWG, 0.16 mm or larger for strand diameter, Insulating coating material PVC (heat resistant vinyl), Outer diameter of applicable cable: ϕ2.0...2.3 mm, Maximum rated current: 7 A*2		
One-touch connector plug with terminating resistor (1 pc)*3	A6CON-TR11N	One-touch connector plug for communication with terminating resistor (110 W) (built-in type)		

*1: Model name by plug manufacturer 3M company.
*2: Keep the current within the allowable of the connected cable.
*3: When the connector type remote I/O is used for the end station, be sure to use this.

Online connector

Online connector for communication (5 pcs)	A6CON-LJ5P (35720-L200-B00 AK*1)	Online connector for communication, 5-pole (10-pin)
Online connector for power supply and FG (5 pcs)	A6CON-PWJ5P (35720-L200-A00 AK*1)	Online connector for power supply, FG 5-pole (10-pin)

*1: Model name by plug manufacturer 3M company.

Protective cover for remote I/O module

Protective cover for 8-point module (10 pcs)	A6CVR-8	AJ65SBTB1-8D, AJ65SBTB1-8T, AJ65SBTB1-8TE, AJ65SBT-RPT, AJ65SBTB1-8T1
	A6CVR-VCE8	AJ65VBTCE3-8D, AJ65VBTCE2-8T
Protective cover for 16-point module (10 pcs)	A6CVR-16	AJ65SBTB1-16D, AJ65SBTB1-16D1, AJ65SBTC1-32D, AJ65SBTC1-32D1, AJ65SBTB3-8D, AJ65SBTB2-8A, AJ65SBTB2N-8A, AJ65SBTB1-16T, AJ65SBTB1-16T1, AJ65SBTC1-32T, AJ65SBTB2-8T, AJ65SBTB1-16TE, AJ65SBTB2-8R, AJ65SBTB2N-8R, AJ65SBTB2-8S, AJ65SBTB2N-8S, AJ65SBTC1-32DT, AJ65SBTC1-32DT1, AJ65SBTC4-16D, AJ65SBTC4-16DT, AJ65SBTB1-16DT, AJ65SBTB1-16DT1, AJ65SBTB32-8DT, AJ65SBT-RPG, AJ65SBT-RPS, AJ65SBTC4-16DN, AJ65SBTC4-16DE, AJ65SBTB2-8T1, AJ65SBTB1-16DT2, AJ65SBTC1-32DT2, AJ65SBTC1-32DT3, AJ65SBTC4-16DT2, AJ65SBTB1-16DT3, AJ65SBTB32-8DT2
	A6CVR-VCE16	AJ65VBTCE3-16D, AJ65VBTCE2-16T, AJ65VBTCE32-16DT, AJ65VBTCE3-16DE, AJ65VBTCE3-16TE, AJ65VBTCE3-16DTE
Protective cover for 32-point module (10 pcs)	A6CVR-32	AJ65SBTB1-32D, AJ65SBTB1-32D1, AJ65SBTB3-16D, AJ65SBTB2-16A, AJ65SBTB2N-16A, AJ65SBTB1-32T, AJ65SBTB1-32T1, AJ65SBTB2-16T, AJ65SBTB2N-16R, AJ65SBTB2-16S, AJ65SBTB2N-16S, AJ65SBTB1-32DT, AJ65SBTB1-32DT1, AJ65SBTB32-16DT, AJ65SBTB2N-16R, AJ65SBTB2-16T1, AJ65SBTB1-32DT3, AJ65SBTB32-16DT2, AJ65SBTB1-32DT2

Protective cap for unused connector

Waterproof cap (20 pcs)	A6CAP-WP2	For protective cover for unused connector, waterproof protective structure: IP67-compatible, applicable for AJ65FBTA□-□ I/O module

Software

MELSOFT iQ Works

* Refer to the "Compatible CPUs" table for individual part names.

Type	Model	Outline
MELSOFT iQ Works	SW1DNC-IQWK-E	Mitsubishi Electric iQ Platform compatible FA Integrated Engineering Software suite with Additional Integrated Functions, CD-ROM Version Mitsubishi Electric iQ Platform compatible System Management Software [MELSOFT Navigator] + Mitsubishi Electric iQ Platform compatible Programmable Controller Engineering Software [MELSOFT GX Works2] + Mitsubishi Electric iQ Platform compatible Motion Controller Engineering Software [MELSOFT MT Works2] + Mitsubishi Electric iQ Platform compatible Screen Design Software [MELSOFT GT Works 3] + Mitsubishi Electric iQ Platform compatible Robot Engineering Software [MELSOFT RT ToolBox2 mini]
	SW1DND-IQWK-E	Mitsubishi Electric iQ Platform compatible FA Integrated Engineering Software suite with Additional Integrated Functions, DVD-ROM Version Mitsubishi Electric iQ Platform compatible System Management Software [MELSOFT Navigator] + Mitsubishi Electric iQ Platform compatible Programmable Controller Engineering Software [MELSOFT GX Works2] + Mitsubishi Electric iQ Platform compatible Motion Controller Engineering Software [MELSOFT MT Works2] + Mitsubishi Electric iQ Platform compatible Screen Design Software [MELSOFT GT Works 3] + Mitsubishi Electric iQ Platform compatible Robot Engineering Software [MELSOFT RT ToolBox2 mini]
MELSOFT GX Works2	SW1DNC-GXW2-E	MELSEC Programmable Controller Programming SW Programming Function + Intelligent Module Function + Simulator Function
MELSOFT MT Works2	SW1DNC-MTW2-E	Mitsubishi Electric iQ Platform compatible Motion Controller Engineering Software
MELSOFT GT Works3	SW1DNC-GTWK3-E	Screen Design Software for GOT + Simple Data Conversion Function + GT SoftGOT 1000 Function + Simulator Function
MELSOFT RT ToolBox2	3D-11C-WINE	Robot Engineering Software with Simulation Function CD-ROM Version
	3D-12C-WINE	Robot Engineering Software mini Simple Version CD-ROM Version

MELSOFT GX Series

Type	Model	Outline	Compatible CPU*						
			Universal model			High Performance model	Basic model	Process CPU	Redundant CPU
			QnUDV	QnU	QnUD(E)				
MELSOFT GX Works3	SW1DND-GXW3-E	Programmable controller engineering software (integrated software for programming, simulating, and setting/monitoring modules) Comes with GX Works2 and GX Developer	Supported by GX Works2 or GX Developer (both come with GX Works3)						
MELSOFT GX Works2	SW1DNC-GXW2-E	Programmable controller engineering software (integrated software for programming, simulating, and setting/monitoring modules) Comes with GX Developer	●	●	●	●	●	●	●
MELSOFT GX Developer	SW8D5C-GPPW-E	MELSEC programmable controller programming software	—	●	●*1	●	●	●	●
	SW8D5C-GPPW-EV	MELSEC programmable controller programming software (upgrade)	—	●	●*1	●	●	●	●
MELSOFT GX Simulator*3	SW7D5C-LLT-E	MELSEC programmable controller simulation software	—	●	●*1	●	●	●	●
	SW7D5C-LLT-EV	MELSEC programmable controller simulation software (upgrade)	—	●	●*1	●	●	●	●
MELSOFT GX Converter*3	SW0D5C-CNVW-E	Excel®/text data converter	—	—	—	●	●	●	●
MELSOFT GX Configurator-AD*3	SW2D5C-QADU-E	Analog to digital conversion module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-DA*3	SW2D5C-QDAU-E	Digital to analog conversion module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-SC*3	SW2D5C-QSCU-E	MELSEC-Q dedicated serial communication module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-CT*3	SW0D5C-QCTU-E	MELSEC-Q dedicated high-speed counter module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-TC*3	SW0D5C-QTCU-E	MELSEC-Q dedicated temperature control module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-TI*3	SW1D5C-QTIU-E	MELSEC-Q dedicated temperature input module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-FL*3	SW0D5C-QFLU-E	MELSEC-Q dedicated FL-net module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-PT*3	SW1D5C-QPTU-E	MELSEC-Q dedicated positioning module QD70 setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-MB*3	SW1D5C-QMBU-E	MODBUS master module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-AS*3	SW1D5C-QASU-E	AS-i master module setting/monitoring tool	—	●	●*1	●	●	●	●
MELSOFT GX Configurator-QP	SW2D5C-QD75P-E	Positioning module QD75P/D/M setting/monitoring tool	—	●	●*1	●	●	●	●

Note: General specifications and product guarantee conditions of jointly developed products are different from those of MELSEC products.
For more information, please refer to the product manuals or contact your local Mitsubishi representative for details.

MELSOFT GX Series

* Refer to the "Compatible CPUs" table for individual part names.

Type	Model	Outline	Compatible CPU*						
			Universal model			High Performance model	Basic model	Process CPU	Redundant CPU
			QnUDV	QnU	QnUD(E)				
MELSOFT GX Explorer	SW2D5C-EXP-E	Maintenance tool	—	—	—	●	●	●*2	—
MELSOFT GX RemoteService- I	SW2D5C-RAS-E	Remote access tool	—	—	—	●	●	●*2	—
MELSOFT GX Works	SW4D5C-QSET-E	Set type products (7 in total): GX Developer, GX Simulator, GX Explorer, GX Configurator-AD, DA, SC, CT	*4						
	SW8D5C-GPPLLT-E	GX Developer, GX Simulator, GX Explorer	*4						

*1: Not compatible with Q50UDEHCPU, Q100UDEHCPU, and QJ71GF11-T2.
*2: Not compatible with Q02PHCPU and Q06PHCPU.
*3: This operates as add-in software for GX Developer. GX Developer is required separately.
*4: To determine which CPUs are supported, refer to the individual products above.

MELSOFT PX Series

MELSOFT PX Developer	SW1D5C-FBDQ-E	Process control FBD software package	—	—	—	—	—	●	●
	SW1DNC-FBDQMON-E	Process control FBD software package monitoring tool	—	—	—	—	—	●	●
MELSOFT PX Works	SW3D5C-FBDGPP-E	Set type products (6 in total): PX Developer, GX Developer, GX Configurator-AD, DA, CT, TI	*1						

*1: To determine which CPUs are supported, refer to the individual products.

MELSOFT MX Series

MELSOFT MX Component	SW4DNC-ACT-E	ActiveX® library for communication	●	●	●	●	●	●	●
MELSOFT MX Sheet	SW2DNC-SHEET-E*1	Excel® communication support tool	●	●	●	●	●	●	●
MELSOFT MX Works	SW2DNC-SHEETSET-E	A set of two products: MX Component, MX Sheet	*2						
MELSOFT MX MESInterface	SW1DNC-MESIF-E	MES interface module QJ71MES96 dedicated information linkage tool	*3						

*1: To use MX Sheet, MX Component is required.
*2: To determine which CPUs are supported, refer to the individual products.
*3: Required when using the MES interface module.

Note: General specifications and product guarantee conditions of jointly developed products are different from those of MELSEC products.
For more information, please refer to the product manuals or contact your local Mitsubishi representative for details.

Engineering tool for C Controller module

Product	Model	Outline
CW Workbench *1	SW1DND-CWWLQ24-E	C Controller engineering tool software package, product with license for Q24DHCCPU-V
	SW1DND-CWWLQ24-EZ	Additional license product for Q24DHCCPU-V
	SW1DND-CWWLQ24-EVZ	Update license product for Q24DHCCPU-V
	SW1DND-CWWLQ12-E	C Controller engineering tool software package, product with license for Q12DCCPU-V
	SW1DND-CWWLQ12-EZ	Additional license product for Q12DCCPU-V
	SW1DND-CWWLQ12-EVZ	Update license product for Q12DCCPU-V
CW-Sim *2	SW1DNC-CWSIM-E	CW Worbench simulation evironment, license product
	SW1DNC-CWSIM-EZ	CW Workbench simulation environment, additional license product*3
	SW1DNC-CWSIMSA-E	CW Workbench simulation environment, standalone product

*1: CW Workbench is available as a one month trial version. For more information, please contact your local Mitsubishi Electric office or sales representative.
*2: CW-Sim standalone does not require a license file.
*3: This product is an additional license for SW1DNC-CWSIM-E.

Setting/monitoring tools for C Controller module

Setting/monitoring tools for C Controller module	SW4PVC-CCPU-E	A tool for setting/monitoring C Controller module, CC-Link, MELSECNET/H, CC-Link IE Controller network, CC-Link IE Field network
	SW3PVC-CCPU-E	A tool for setting/monitoring C Controller module, CC-Link, MELSECNET/H, CC-Link IE Controller network

MELSEC-A/AnS/QnA/QnAS List of Products Used for Upgrade

Type		Model	Outline
Q Series large type base unit	Main base unit	Q35BL	5 slots, 1 power supply module required, for the Q Series large type I/O modules
		Q38BL	8 slots, 1 power supply module required, for the Q Series large type I/O modules
	Extension base unit	Q65BL	5 slots, 1 power supply module required, for the Q Series large type I/O modules
		Q68BL	8 slots, 1 power supply module required, for the Q Series large type I/O modules
		Q55BL	5 slots, power supply module not required, for the Q Series large type I/O modules
	large type blank cover	QG69L	Blank cover for installing the existing Q Series module on the Q Series large type base unit
Q Series large type base unit (AnS Series size)	Main base unit	Q35BLS	5 slots, for Q Series modules, panel installation type
		Q38BLS	8 slots, for Q Series modules, panel installation type
		Q35BLS-D	5 slots, for Q Series modules, DIN rail installation type
		Q38BLS-D	8 slots, for Q Series modules, DIN rail installation type
	Extension base unit	Q65BLS	5 slots, for Q Series modules, panel installation type
		Q68BLS	8 slots, for Q Series modules, panel installation type
		Q65BLS-D	5 slots, for Q Series modules, DIN rail installation type
		Q68BLS-D	8 slots, for Q Series modules, DIN rail installation type
		Q55BLS	5 slots, for Q Series modules, panel installation type, power supply module not required
		Q55BLS-D	5 slots, for Q Series modules, DIN rail installation type, power supply module not required
	Q Series large type blank cover (AnS Series size)	QG69LS	Blank cover for the Q Series module on the Q Series large type base unit (AnS Series size)
Q Series large type I/O module	Input module	QX11L	32 points, 100...120 V AC, rated input current: 10 mA (100 V AC, 60 Hz), response time: 15 ms or less (OFF to ON), 25 ms or less (ON to OFF), 32 points/common, 38-point terminal block
		QX21L	32 points, 200...240 V AC, rated input current: 10 mA (220 V AC, 60 Hz), response time: 15 ms or less (OFF to ON), 25 ms or less (ON to OFF), 32 points/common, 38-point terminal block
	Output module	QY11AL	16-point contact output, 24 V DC/240 V AC, 2 A/point, 16 A/all points, all points independent, 38-point terminal block, surge suppressor (varistor 387...473 V)
		QY13L	32-point contact output, 24 V DC/240 V AC, 2 A/point, 5 A/common, 8 points/common, 38-point terminal block
		QY23L	32-point triac output, 100...240 V AC, 0.6 A/point, 2.4 A/common, 8 points/common, 38-point terminal block
		QY51PL	32-point transistor output (Sink), 12/24 V DC, 0.5 A/point, 4 A/common, 16 points/common, 38-point terminal block
High-speed counter module		QD62-H01	High-speed counter module for replacing the AD61 (with the same input filtering system and counting speed)
		QD62-H02	High-speed counter module for replacing the AD61-S1 (with the same input filtering system and counting speed)
Positioning module		QD73A1	1-axis analog output type Position control mode (positioning control, two-phase trapezoidal positioning control) Velocity/position control switchover mode
Extension base unit	QA1S extension base unit	QA1S51B	1 slot, for AnS Series modules (power supply module not required)
		QA1S65B	5 slots, for AnS Series modules
		QA1S68B	8 slots, for AnS Series modules
	QA extension base unit	QA65B	5 slots, for A Series modules
		QA68B	8 slots, for A Series modules
Base conversion adapter	Q-AnS base conversion adapter	QA1S6ADP	Conversion adapter to connect AnS/QnAS Series extension base unit with Q Series system
	QA conversion adapter	QA6ADP	Adapter for connecting large type A/QnA extension base unit as QCPU extension base unit
AnS-Q module conversion adapter		A1SADP-Q-SET1	1 slot: Adapter to install devices such as Q Series module and intelligent function module on AnS Series base unit.
		A1SADP-Q-SET2	2 slots: Adapter to install devices such as Q Series module and intelligent function module on AnS Series base unit.
MELSECNET(Ⅱ) local station data link module		A1SJ71AP23Q	MELSECNET (Ⅱ) local station data link module for SI optical fiber cable
		A1SJ71AR23Q	MELSECNET (Ⅱ) local station data link module for coaxial cable
MELSECNET/B local station data link module		A1SJ71AT23BQ	MELSECNET/B local station data link module for shielded twisted pair cable
L Series Space Module		LG69	Module for ensuring wiring space when upgrading AnS/QnAS Series module to L Series

Servo System Controller

Servo system controllers designed to provide the best total performance of the system

Optimized to deliver high-speed and high-precision drive control of various industrial machines, our controllers include lineup of motion controller and simple motion unit to meet your control needs.

Features of Motion Controller

Advanced Motion control

The Motion controller is a CPU module used with PLC CPU for Motion control.

- Using Motion SFC program, the Motion CPU separately operates the controls from the PLC CPU.
- CPU loads are distributed by sharing tasks between Motion CPU and PLC CPU for advanced Motion control.
- Advanced Motion control is achieved, such as position follow-up and tandem operation.
- High-speed input and output are possible with direct management of various modules, such as I/O, analog, and high-speed counter.

Q173DSCPU
Q172DSCPU

SSCNET III/H compatible MELSEC-Q series

- For a large or medium scale system
- Maximum number of controlled axes: 32 axes (Q173DSCPU), 16 axes (Q172DSCPU)
- A PLC CPU or a C Controller is selectable according to your application
- Up to 96 axes can be controlled by use of three modules of the Q173DSCPU
- Supports the safety observation function and the vision system

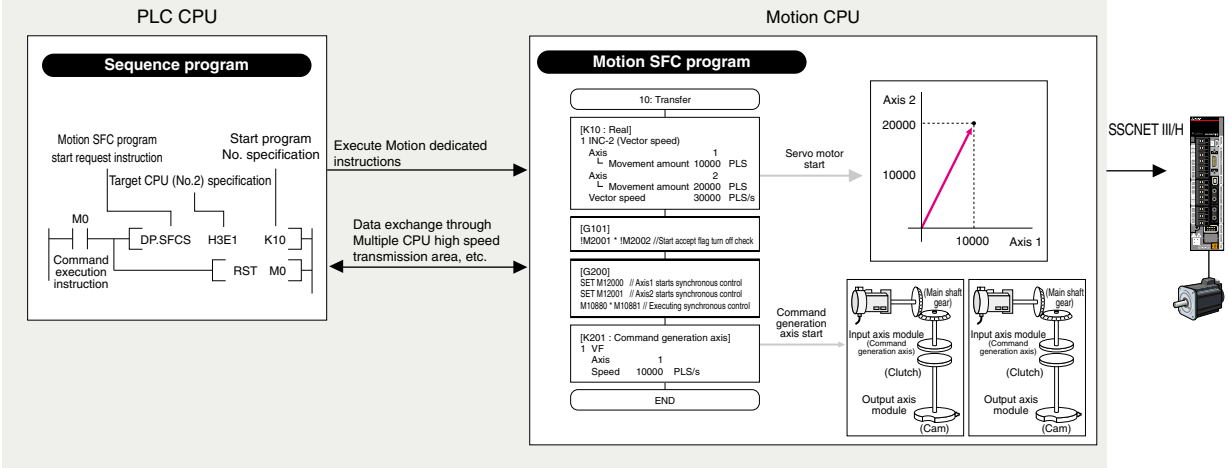
Specifications P.246 Device configuration P.254

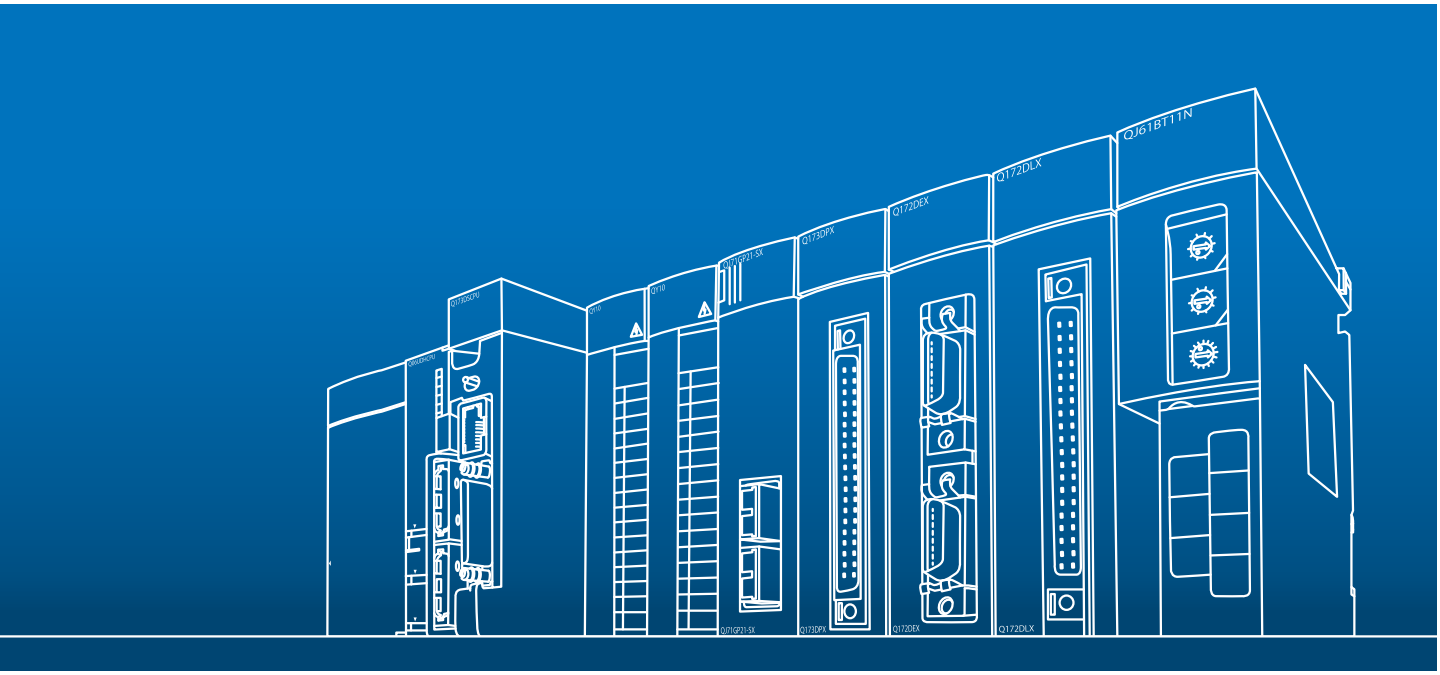
Q170MSCPU
Q170MSCPU-S1

SSCNET III/H compatible MELSEC-Q series

- Highly cost-effective product for a small scale system
- Integrates a power supply, a PLC, and a Motion controller
- Maximum number of controlled axes: 16 axes
- The program capacity: 60k steps (Q170MSCPU-S1), 30k steps (Q170MSCPU)
- Supports the vision system

Specifications P.246 Device configuration P.254





Simple Motion Module

Advanced control but simple to use just like Positioning modules

The Simple Motion module is an intelligent function module which performs positioning control by following the instructions of PLC CPU.

- The positioning functions are used in the same manner as those of the Positioning module.
- Linear interpolation control and other controls can be achieved easily just by writing positioning data to the buffer memory with sequence programs.
- Positioning/advanced synchronous/cam controls are performed with simple parameter setting and a start from a sequence program.
- Supports only MELSOFT GX Works2 as an engineering software.

QD77MS16 / QD77MS4 / QD77MS2

SSCNET III/H

SSCNET III/H compatible MELSEC-Q series

- For customers who need a module allowing user to use a wide-range of Motion controls - advanced synchronous control, cam control, speed-torque control (tightening & press-fit control), etc. - more easily just with the sequence programs.
- Maximum number of controlled axes:
  16 axes (QD77MS16),
  4 axes (QD77MS4),
  and 2 axes (QD77MS2)
- Equipped with all the functions of the QD75MH Positioning module

Specifications P.258 Device configuration P.261

LD77MS16 / LD77MS4 / LD77MS2

SSCNET III/H

SSCNET III/H compatible MELSEC-L series

- For customers who need more compact and lower cost products
- Maximum number of controlled axes:
  16 axes (LD77MS16),
  4 axes (LD77MS4),
  and 2 axes (LD77MS2)
- Equipped with all the functions of the QD75MH Positioning module

Specifications P.258 Device configuration P.261

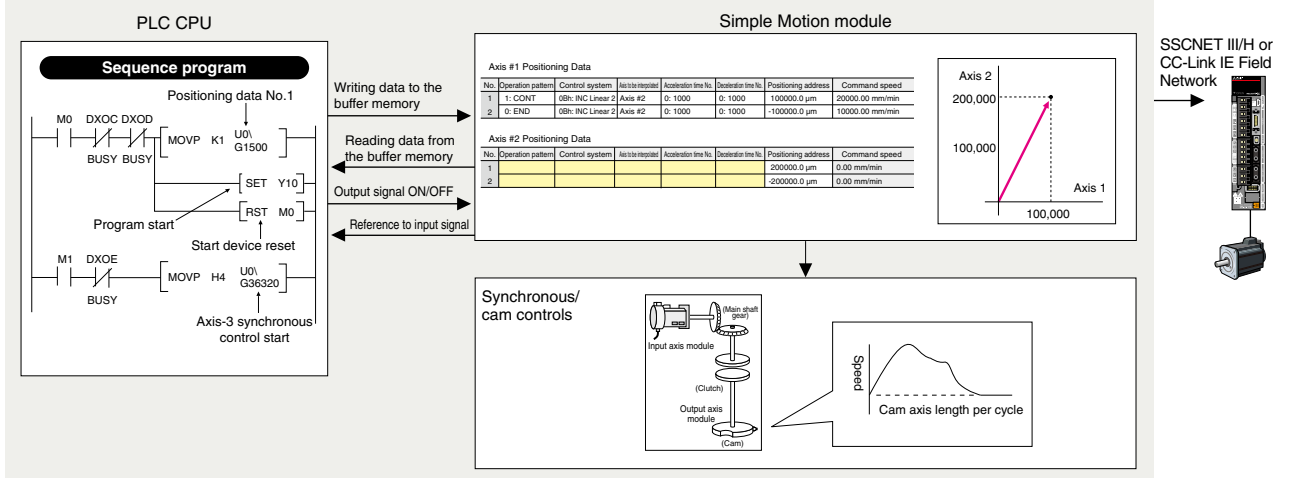
QD77GF16

CC-Link IE Field

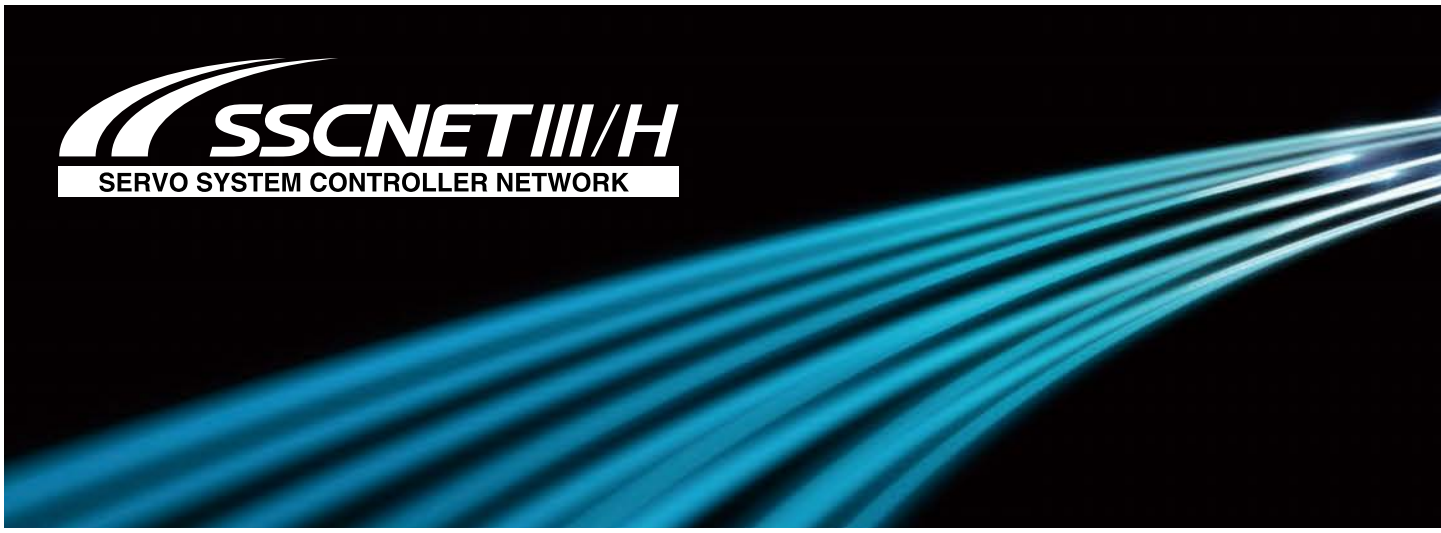
CC-Link IE Field Network compatible MELSEC-Q series

- For customers who prefer to use open network
- Maximum number of controlled axes: 16 axes

Specifications P.258 Device configuration P.261



"SSCNETⅢ/H" Servo System High-Speed Synchronous Network

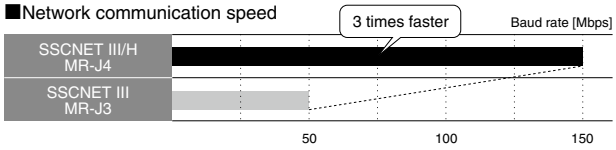


Three Times Faster Communication Speed

Industry-leading levels

Communication speed is increased to 150 Mbps full duplex (equivalent to 300 Mbps half duplex), three times faster than the conventional speed. System response is dramatically improved.

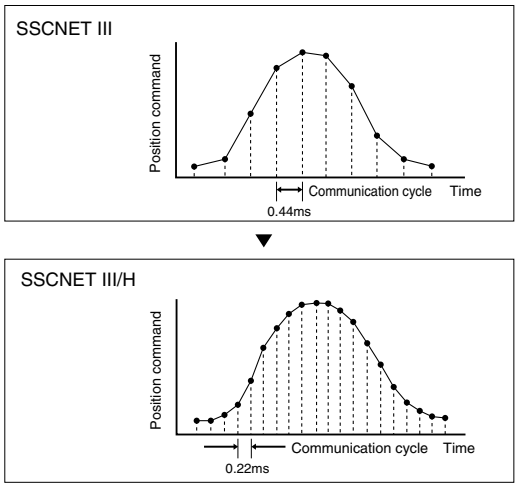
■Network communication speed



Cycle Times as Fast as 0.22 ms

Industry-leading levels

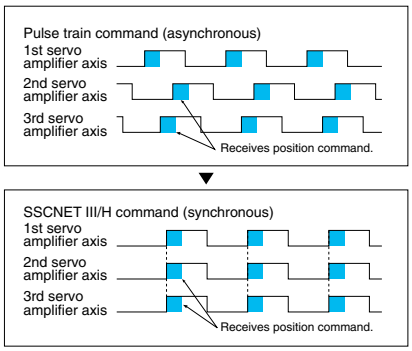
Smooth control of machine is possible using high-speed serial communication with cycle times of 0.22 ms.



Deterministic and Synchronized Communication

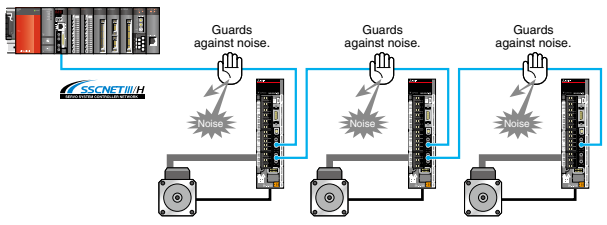
Complete deterministic and synchronized communication is achieved with SSCNET III/H, offering technical advantages in machines such as printing and food processing machines that require synchronous accuracy.

■Timing of servo amplifier processing



No Transmission Collision

The fiber-optic cables thoroughly shut out noise that enters from the power cable or external devices. Noise tolerance is dramatically improved as compared to metal cables.

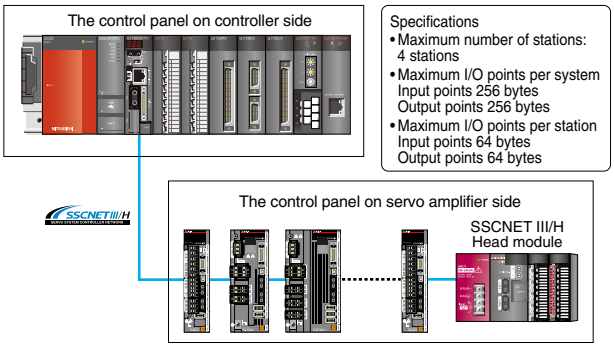


The blazingly fast speed and response of 150 Mbps full-duplex baud rate SSCNET III/H optical networking

"SSCNETⅢ/H" is a high-speed and high-performance servo system controller network using a fiber-optic cable.
Its high-speed serial communication with cycle times of 0.22 ms enhances system responsiveness and reduces cycle time. The dedicated fiber-optic cable connection offers strong noise-resistance and enables long-distance wiring. No more complicated wiring; a single cable connection reduces the wiring installation time and simplifies wiring.

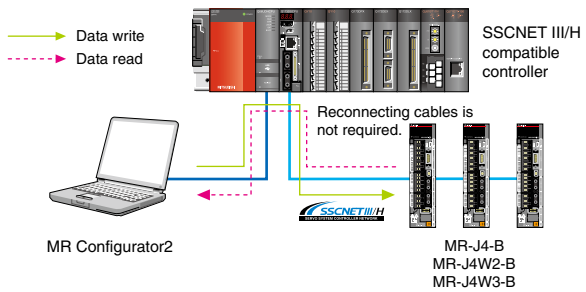
Dramatically Reduced Wiring

The SSCNET III/H Head module allows the controller to connect remotely with various modules (I/O, analog, high-speed counter, etc.) via SSCNET III/H. This results in reduced wiring since the Motion controller receives the I/O and analog I/O signals directly from the servo amplifier side.



Central Control with Network

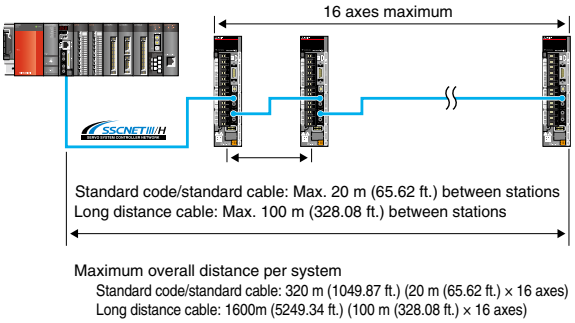
Large amounts of servo data are exchanged in real-time between the controller and the servo amplifier.
Using MELSOFT MR Configurator2 on a personal computer that is connected to the Motion controller or the Simple Motion module helps consolidate information such as parameter settings and monitoring for the multiple servo amplifiers.



Long Distance Wiring up to 1600 m (5249.34 ft.) Enhanced performance

Long distance wiring is possible up to 1600 m (5249.34 ft.) per system (maximum of 100 m (328.08 ft.) between stations × 16 axes). Thus, it is suitable for large-scale systems.

* This is when all axes are connected via SSCNET III/H.

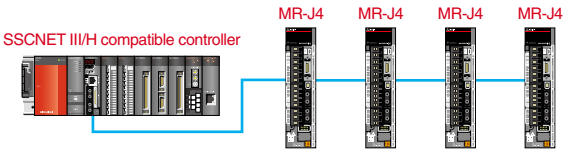


SSCNET III/H Compatible and SSCNET III Compatible Products Connected in a Same System

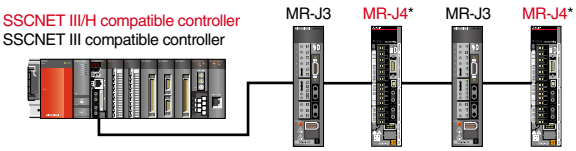
SSCNET III/H and SSCNET III compatible controllers support the use of SSCNET III/H and SSCNET III compatible servo amplifiers together in a same system.

* When the SSCNET III compatible products are in the system, the communication speed is 50 Mbps, and the function and the performance are equivalent to those of MR-J3.

■Communication speed: 150 Mbps



■Communication speed: 50 Mbps



Motion Controller

SSCNET III/H compatible
MELSEC-Q series Motion controller

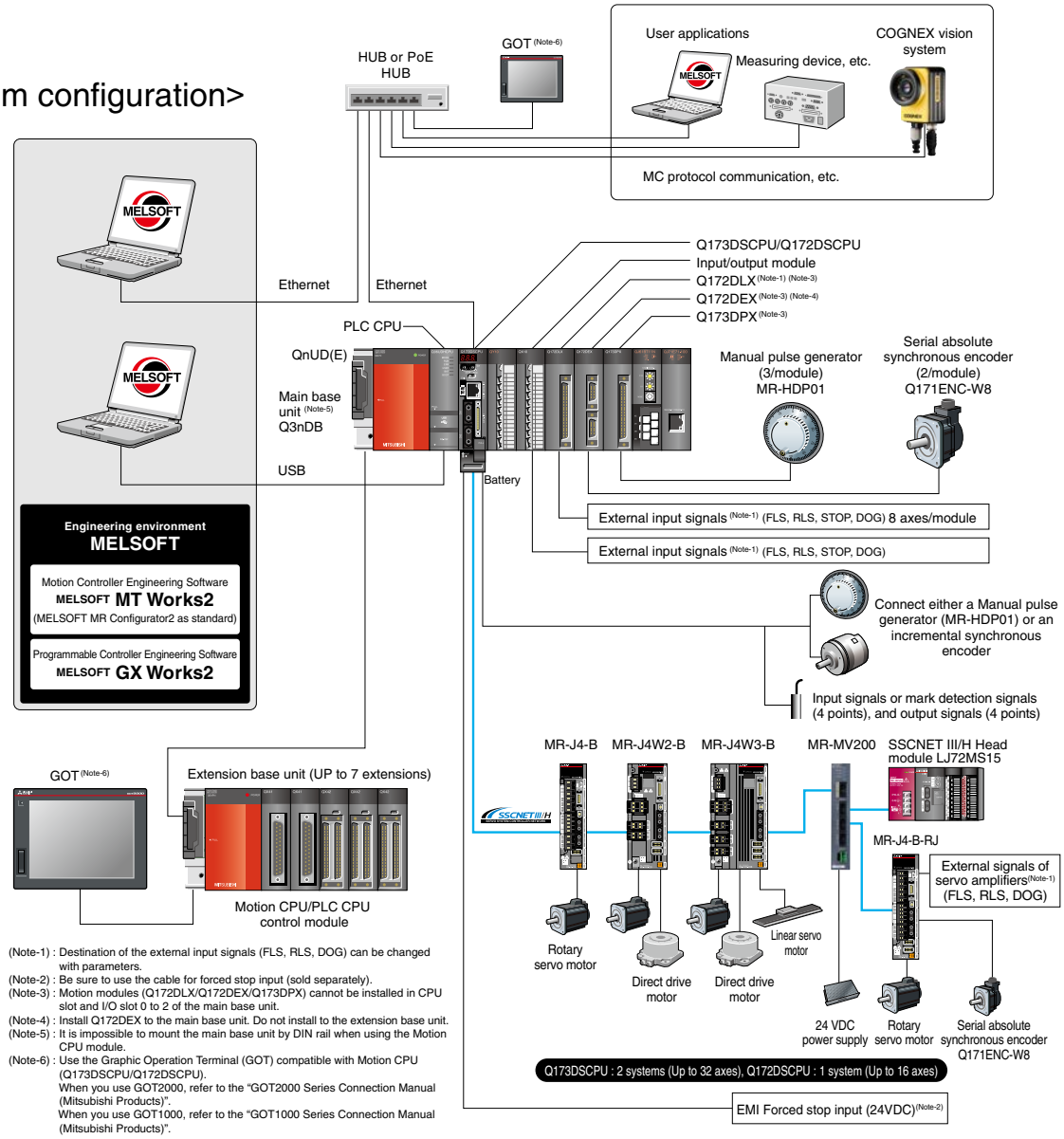
Q173DSCPU/Q172DSCPU

iQ Platform

Multiple CPU System for High-speed Motion Control

- The Q-series Motion controllers can configure a Multiple CPU system with Programmable controllers.
- Over 100 types of Q series modules are available, which enhances system scalability.
- Up to 96 axes of servo motors can be controlled by using three modules of the Q173DSCPU.
- Position/speed/torque/advanced synchronous controls, etc. are available.
- The safety observation function is available as standard.
- The COGNEX vision system can be connected directly with Ethernet connection.
- The MELSEC-L series I/O modules, analog I/O module, and high-speed counter module can be used when the SSCNETIII/H Head module LJ72MS15 is connected in the system.

<System configuration>



(Note-1) : Destination of the external input signals (FLS, RLS, DOG) can be changed with parameters.
(Note-2) : Be sure to use the cable for forced stop input (sold separately).
(Note-3) : Motion modules (Q172DLX/Q172DEX/Q173DPX) cannot be installed in CPU slot and I/O slot 0 to 2 of the main base unit.
(Note-4) : Install Q172DEX to the main base unit. Do not install to the extension base unit.
(Note-5) : It is impossible to mount the main base unit by DIN rail when using the Motion CPU module.
(Note-6) : Use the Graphic Operation Terminal (GOT) compatible with Motion CPU (Q173DSCPU/Q172DSCPU).
When you use GOT2000, refer to the "GOT2000 Series Connection Manual (Mitsubishi Products)".
When you use GOT1000, refer to the "GOT1000 Series Connection Manual (Mitsubishi Products)".

SSCNET III/H compatible

MELSEC-Q series Motion controller

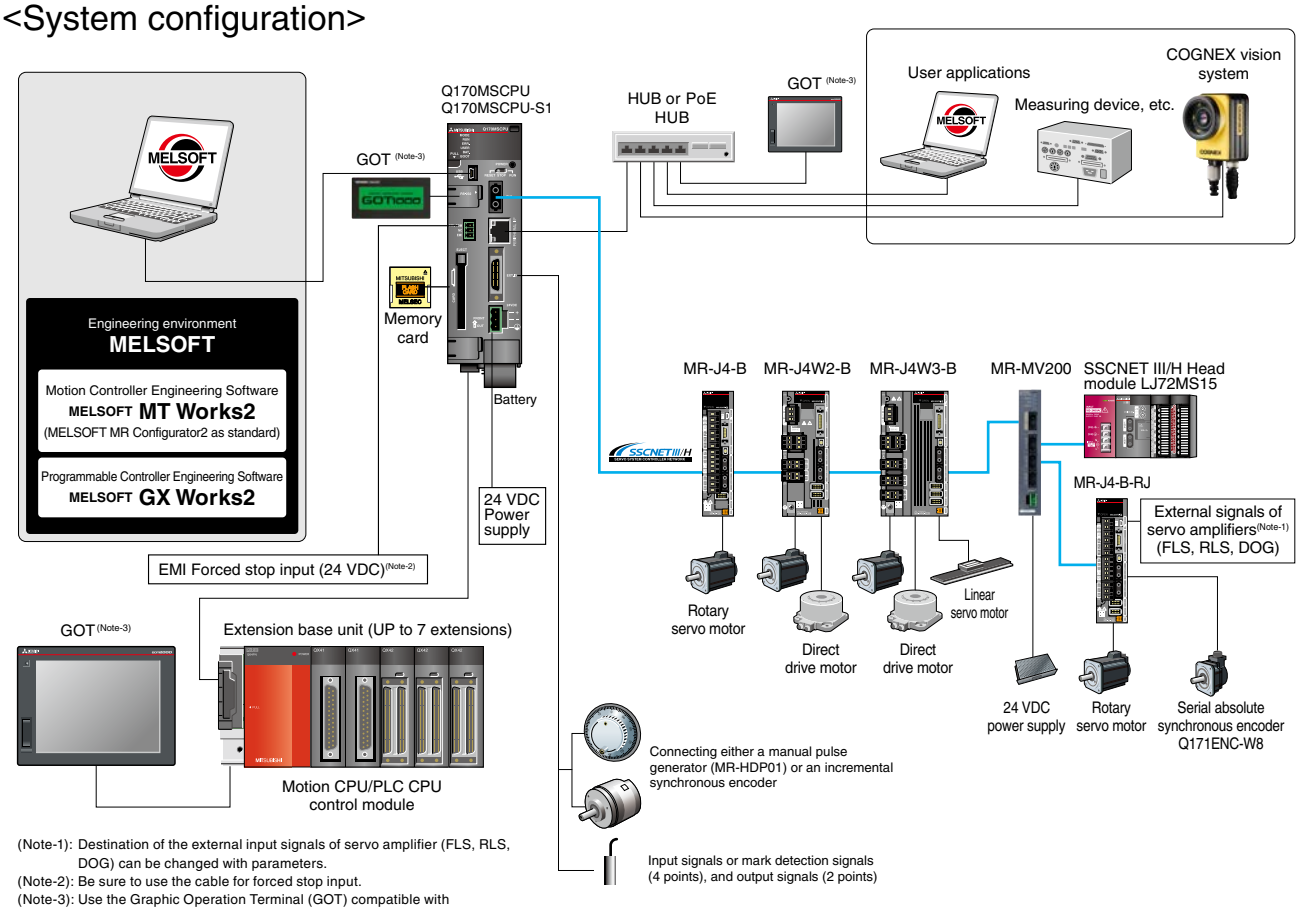
Q170MSCPU/Q170MSCPU-S1

iQ Platform

Power Supply, PLC, and Motion Controller All in One

- Up to 16 axes can be controlled.
- Position/speed/torque/advanced synchronous controls, etc. are available.
- Incremental synchronous encoder interface and Mark detection interface are integrated.
- PLC capacity is increased to 60k steps (Q170MSCPU-S1), and up to 7 extension base units can be used.
- STO (Safe torque off) is achieved by combining the servo amplifier
- The COGNEX vision system can be connected directly with Ethernet connection.
- The MELSEC-L series I/O modules, analog I/O module, and high-speed counter module can be used when the SSCNETIII/H Head module LJ72MS15 is connected in the system.

<System configuration>



(Note-1): Destination of the external input signals of servo amplifier (FLS, RLS, DOG) can be changed with parameters.
(Note-2): Be sure to use the cable for forced stop input.
(Note-3): Use the Graphic Operation Terminal (GOT) compatible with Q170MSCPU(-S1).
When you use GOT2000, refer to the "GOT2000 Series Connection Manual (Mitsubishi Products)".

■Motion controller specifications

● Control specification

Item		Specifications			
		Q173DSCPU	Q172DSCPU	Q170MSCPU-S1	Q170MSCPU
Number of control axes		Up to 32 axes (16 axes/system)	Up to 16 axes		
Operation cycle (Operation cycle setting)		0.22 ms, 0.44 ms, 0.88 ms, 1.77 ms, 3.55 ms, 7.11 ms			
Interpolation function		Linear interpolation (Up to 4 axes), Circular interpolation (2 axes), Helical interpolation (3 axes)			
Control modes		PTP (Point to Point) control, Speed control, Speed-position switching control, Fixed-pitch feed control, Constant speed control, Position follow-up control, Speed control with fixed position stop, Speed switching control, High-speed oscillation control, Cam control (SV22), Speed-torque control, Synchronous control (SV22(Advanced synchronous control method/Virtual mode switching method))			
Acceleration/deceleration control		Trapezoidal acceleration/deceleration, S-curve acceleration/deceleration, Advanced S-curve acceleration/deceleration			
Compensation function		Backlash compensation, Electronic gear, Phase compensation (SV22)			
Programming language		Motion SFC, Dedicated instruction, Mechanical support language (SV22)			
Servo program capacity		16k steps			
Number of positioning points		3200 points (Positioning data can be set indirectly)			
Peripheral interface	Motion CPU (area)	PERIPHERAL I/F			
	PLC CPU (area)	USB, RS-232, Ethernet		USB, RS-232	
Home position return function		Proximity dog type (2 types), Count type (3 types), Data set type (2 types), Dog cradle type, Stopper type (2 types), Limit switch combined type, Scale home position signal detection type, Dogless home position signal reference type (Home position return re-try function provided, home position shift function provided)			
JOG operation function		Provided			
Manual pulse generator operation function		Possible to connect 3 modules (Q173DPX use) Possible to connect 1 module (Internal I/F use) (Note-5)			
Speed-torque control		Speed control without positioning loops, Torque control, Tightening & press-fit control			
Multiple CPU synchronous control		Up to 96 axes (by use of three modules of Q173DSCPU)		–	
Synchronous encoder operation function		12 modules connectable (SV22) (via Q173DPX+Q172DEX+ internal I/F+ device (Note-6)+ servo amplifier (Note-6))		12 modules connectable (SV22) (via Q173DPX+ internal I/F+ device (Note-6)+ servo amplifier (Note-6))	
M-code function		M-code output function provided, M-code completion wait function provided			
Limit switch output function		Number of output points: 64 points (Advanced synchronous control method), 32 points (Virtual mode switching method (SV13)) Watch data: Motion control data, Word device			
ROM operation function		Provided			
External input signal		Q172DLX (FLS, RLS, STOP, DOG) , External input signals (FLS, RLS, DOG) of servo amplifier, Internal I/F(DI), Bit device			
High-speed reading function (Note-6)		Available (Via built-in interface in Motion CPU, input module, tracking of Q172DEX/Q173DPX)		Available (Via built-in interface in Motion CPU, input module, tracking of Q173DPX)	
Mark detection function		Continuous Detection mode, Specified Number of Detections mode, Ring Buffer mode			
	Mark detection signal	4 points (Via Internal I/F), Bit device, Q172DLX (DOG)			
	Mark detection setting	32			
Torque limit value change function		Positive direction torque limit value, Negative direction torque limit value			
Target position change function		Provided			
Servo parameter change function		Provided			
Servo amplifier control mode switching function		Gain switching function, PI-PID control, Control loop changing (semi closed loop control, fully closed loop control)			
Optional data monitor function		Up to 6 data/axis (MR-J4-B with SSCNET III/H use)			
Forced stop		Motion controller forced stop (EMI terminal, System setting), Forced stop terminal of servo amplifier			
Number of input/output points		Total of 256 points (Internal I/F (4 input points) + I/O module+ Intelligent function module)		Total of 256 points (Internal I/F (4 input points + 2 output points) + I/O module+ Intelligent function module)	
Clock function		Provided			
Security function		Password registration, Password for every Motion SFC program, Software security key function			
All clear function		Delete all user data in Motion CPU			
Remote operation		Remote RUN/STOP, Remote latch clear			
Digital oscilloscope function		Bit data: 16 channels, Word data: 16 channels (Note-4)			
Driver communication function		Provided			
Amplifier-less operation function		Provided			
Absolute position system		Made compatible by setting battery to servo amplifier. (Possible to select the absolute data method or incremental method for each axis)			
Number of SSCNETIII/H systems (Note-1)		2 systems	1 system	1 system	
Number of Motion modules		Q172DLX 4 modules usable Q172DEX 6 modules usable (Note-2) Q173DPX 4 modules usable (Note-3)	Q172DLX 2 modules usable Q172DEX 6 modules usable (Note-2) Q173DPX 4 modules usable (Note-3)	Q172DLX 2 modules usable Q173DPX 4 modules usable (Note-3)	

(Note-1): The SSCNETIII compatible servo amplifier can be used, but the SSCNET compatible servo amplifier cannot be used.
(Note-2): Q172DEX cannot be used in SV13.
(Note-3): This is the case of using an incremental synchronous encoder (SV22 used). When using a manual pulse generator, only one module are allowed to use.
(Note-4): 8CH word data and 8CH bit data can be displayed in real time.
(Note-5): The Q173DPX and internal interface can not be used simultaneously.
(Note-6): Advanced synchronous control only.

● Motion SFC performance specification

Item				Specifications			
				Q173DSCPU	Q172DSCPU	Q170MSCPU-S1	Q170MSCPU
Motion SFC program capacity	Code total (Motion SFC chart + Operation control +Transition)			652k bytes			
	Text total (Operation control + Transition)			668k bytes			
Motion SFC program	Number of Motion SFC programs			256 (No.0 to 255)			
	Motion SFC chart size/program			Up to 64k bytes (Included Motion SFC chart comments)			
	Number of Motion SFC steps/program			Up to 4094 steps			
	Number of selective branches/branch			255			
	Number of parallel branches/branch			255			
	Parallel branch nesting			Up to 4 levels			
Operation control program (F/FS) / Transition program (G)	Number of operation control programs			4096 with F (Once execution type) and FS (Scan execution type) combined (F/FS0 to F/FS4095)			
	Number of transition programs			4096 (G0 to G4095)			
	Code size/program			Up to approx. 64k bytes (32766 steps)			
	Number of blocks(line)/program			Up to 8192 blocks (In the case of 4 steps (min)/block)			
	Number of characters/block			Up to 128 (Comment included)			
	Number of operand/block			Up to 64 (Operand: Constants, Word devices, Bit devices)			
	( ) nesting/block			Up to 32 levels			
	Descriptive expression	Operation control program		Calculation expression, Bit conditional expression and branches, Repetition process IF ~ ELSE ~ IEND, SELECT ~ CASE ~ SEND, FOR ~ NEXT			
		Transition program		Calculation expression, bit conditional expression, comparison conditional expression			
Execute specification	Number of multi executed programs			Up to 256			
	Number of multi active steps			Up to 256 steps per all programs			
	Executed task	Normal task		Executed in Motion main cycle			
		Event task (Execution can be masked.)	Fixed cycle	Executed in fixed cycle (0.22 ms, 0.44 ms, 0.88 ms, 1.77 ms, 3.55 ms, 7.11 ms, 14.2 ms)			
			External interrupt	Executed when input ON is set among the input 16 points of interrupt module QI60			
			PLC interrupt	Executed with interrupt instruction (D (P).GINT) from PLC CPU			
		NMI task		Executed when input ON is set among the input 16 points of interrupt module QI60			
Number of I/O points (X/Y)				8192 points			
Number of real I/O points (PX/PY)				256 points			
Number of devices	Internal relays (M)			12288 points			
	Link relays (B)			8192 points			
	Annunciators (F)			2048 points			
	Special relays (SM)			2256 points			
	Data registers (D)			19824 points (advanced synchronous control method), 8192 points (Virtual mode switching control method (SV13))			
	Link registers (W)			8192 points			
	Special registers (SD)			2256 points			
	Motion registers (#)			12288 points			
	Coasting timers (FT)			1 point (888μs)			
	Multiple CPU shared device (U□\G)			Up to 14336 points (Note-1)			

(Note-1): The number of usable points will differ depending on the system settings.

Advanced synchronous control specifications

Synchronous control

Item		Number of settable axes			
		Q173DSCPU	Q172DSCPU	Q170MSCPU-S1	Q170MSCPU
Input axis	Servo input axis	32 axes/module	16 axes/module		
	Command generation axis	32 axes/module	16 axes/module		
	Synchronous encoder axis	12 axes/module			
Composite main shaft gear		1/output axis			
Main shaft main input axis		1/output axis			
Main shaft sub input axis		1/output axis			
Main shaft gear		1/output axis			
Main shaft clutch		1/output axis			
Auxiliary shaft		1/output axis			
Auxiliary shaft gear		1/output axis			
Auxiliary shaft clutch		1/output axis			
Auxiliary shaft composite gear		1/output axis			
Speed change gear		2/output axis			
Output axis (Cam axis)		32 axes/module	16 axes/module		

Cam control

Item			Specifications			
			Q173DSCPU	Q172DSCPU	Q170MSCPU-S1	Q170MSCPU
Memory capacity	Storage area for cam data		256k bytes			
	Working area for cam data		1024k bytes			
Number of registration			Up to 256 program items (depending on memory capacity, cam resolution and number of coordinates)			
Comment			Up to 32 characters for each cam data			
Cam data	Stroke ratio data type	Cam resolution	256, 512, 1024, 2048, 4096, 8192, 16384, 32768			
		Stroke ratio	-214.7483648 to 214.7483647 [%]			
	Coordinate data type	Coordinate number	2 to 16384			
		Coordinate data	Input value : 0 to 2147483647 Output value : -2147483648 to 2147483647			
Cam auto-generation			Cam for rotary cutter, Easy stroke ratio cam			

Mechanical system program (SV22)

Item			Specifications							
			Q173DSCPU		Q172DSCPU		Q170MSCPU-S1		Q170MSCPU	
Control unit	Drive module	Virtual servo motor	pulse							
		Synchronous encoder								
	Output module	Roller	mm, inch							
		Ball screw								
		Rotary table	Fixed as “degree”							
		Cam	mm, inch, degree, pulse							
Mechanical system program	Drive module	Virtual servo motor	32	Total 44	16	Total 28	16	Total 28	16	Total 28
		Synchronous encoder	12		12		12		12	
	Virtual axis	Virtual main shaft	32	Total 64	16	Total 32	16	Total 32	16	Total 32
		Virtual auxiliary input axis	32		16		16		16	
	Transmission module	Gear (Note-1)	64		32					
		Clutch (Note-1)	64		32					
		Speed change gear (Note-1)	64		32					
		Differential gear (Note-1)	32		16					
		Differential gear (Connect to the virtual main shaft) (Note-2)	32		16					
	Output module	Roller	32	Total 32	16	Total 16	16	Total 16	16	Total 16
		Ball screw	32		16		16		16	
		Rotary table	32		16		16		16	
		Cam	32		16		16		16	
Cam	Types		Up to 256							
	Resolution per cycle		256, 512, 1024, 2048							
	Memory capacity		132k bytes							
	Stroke resolution		32767							
	Control mode		Two-way cam, Feed cam							

(Note-1): Use only one module for one output module. (one gear, clutch, speed change gear or differential gear module for one output module).
(Note-2): The differential gears connected to the virtual main shaft can be used only one module per one main shaft.

Performance specification of PLC CPU control area (Q170MSCPU(-S1))

Item		Specifications	
		Q170MSCPU-S1	Q170MSCPU
PLC CPU area		Q06UDHCPU or equivalent	Q03UDCPU or equivalent
Control method		Stored program repeat operation	
I/O control mode		Refresh mode	
Sequence control language		Relay symbol language (ladder), Logic symbolic language (list), MELSAP3 (SFC), MELSAP-L, Structured text (ST)	
Processing speed (Sequence instruction)	LD instruction	9.5ns	20ns
	MOV instruction	19ns	40ns
	PC MIX value (instruction/μs)	60	28
	Floating point addition	0.057μs	0.12μs
Total number of instructions		858	
Operation (floating point operation) instruction		Yes	
Character string processing instruction		Yes	
PID instruction		Yes	
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		Yes	
Constant scan		0.5 to 2000ms (setting available in units of 0.5ms)	
Program capacity		60k steps (240 kbytes)	30k steps (120 kbytes)
CPU shared memory	QCPU standard memory	8k bytes	
	Multiple CPU high speed transmission area	32k bytes	
Number of I/O device points [X/Y]		8192 points	
Number of I/O points [X/Y]		4096 points	
Internal relay [M]	Points by default (Changeable by parameter)	8192 points	
Latch relay [L]		8192 points	
Link relay [B]		8192 points	
Timer [T]		2048 points	
Retentive timer [ST]		0 points	
Counter [C]		1024 points	
Data register [D]		12288 points	
Link register [W]		8192 points	
Annunciator [F]		2048 points	
Edge relay [V]		2048 points	
Link special relay [SB]		2048 points	
Link special register [SW]		2048 points	
File register [R, ZR]		393216 points	98304 points
Step relay [S]		8192 points	
Index register/Standard device register [Z]		20 points	
Index register [Z] (32-bit modification specification of ZR indexing)		Up to 10 points (Z0 to Z18) (Index register [Z] is used in double words.)	
Pointer [P]		4096 points	
Interrupt pointer [I]		256 points	
Special relay [SM]		2048 points	
Special register [SD]		2048 points	
Function input [FX]		16 points	
Function output [FY]		16 points	
Function register [FD]		5 points	
Local device		Yes	
Device initial values		Yes	
Extension base unit		Up to 7 (up to 64 slots)	
PC type when program is made by GX Works2		Q06UDHCPU	Q03UDCPU

Module specification

● Motion CPU module Q173DSCPU/Q172DSCPU

Item		Specifications	
		Q173DSCPU	Q172DSCPU
Number of control axes		Up to 32 axes	Up to 16 axes
Servo amplifier connection system		SSCNET III/H (2 systems)	SSCNET III/H (1 system)
Maximum overall cable distance [m(ft.)]		SSCNET III/H : 1600 (5249.34), SSCNET III : 800 (2624.67)	
Maximum distance between stations [m(ft.)]		SSCNET III/H : 100 (328.08), SSCNET III : 50 (164.04)	
Peripheral I/F		PERIPHERAL I/F (Motion CPU), USB/RS-232/Ethernet (Via PLC CPU)	
Manual pulse generator operation function		Possible to connect 3 modules	
Synchronous encoder operation function		Possible to connect 12 modules (Note-1) (SV22 use)	
Controllable modules	Q172DLX	Up to 4 modules per CPU	Up to 2 modules per CPU
	Q172DEX	Up to 6 modules per CPU (SV22 use)	
	Q173DPX	Up to 4 modules per CPU (Incremental synchronous encoder use in SV22)	
		Up to 1 module per CPU (Only manual pulse generator use)	
	Q173DSXY	Up to 3 modules	
	Input/output module	Total : Up to 256 points per CPU	
	Analogue module		
	QI60	Up to 1 module per CPU	
Input signal	Number of input points	4 points	
	Input method	Positive Common/ Negative Common Shared Type (Photocoupler isolation)	
	Rated input voltage/ current	24VDC/Approx. 5 mA	
	Operating voltage range	21.6 to 26.4VDC (24VDC ±10%, ripple ratio 5% or less)	
	ON voltage/current	17.5VDC or more/3.5mA or more	
	OFF voltage/current	5VDC or less/0.9mA or less	
	Input resistance	Approx. 5.6kΩ	
	Response time	1ms or less (OFF→ON, ON→OFF)	
	Recommended wire size	AWG18 to AWG22	
Forced stop input signal	Number of input points	1 point	
	Input method	Sink/ Source (Photocoupler isolation)	
	Rated input voltage/ current	24VDC/Approx. 2.4 mA	
	Operating voltage range	20.4 to 26.4 VDC (+10/-15 %, ripple ratio 5 % or less)	
	ON voltage/current	17.5 VDC or more/ 2.0 m A or more	
	OFF voltage/current	1.8 VDC or less/ 0.18m A or less	
	Input resistance	Approximately 10kΩ	
	Response time	1ms or less (OFF→ON, ON→OFF)	
	Recommended wire size	AWG22	
Manual pulse generator/ incremental synchronous encoder signal	Signal input form	Phase A/ Phase B (magnification by 4)	
	Input frequency	Up to 1Mpps (After magnification by 4, up to 4Mpps) (Differential-output type) Up to 200kpps (After magnification by 4, up to 800kpps) (Voltage-output/Open-collector type)	
Extension base unit		Up to 7	
5VDC internal current consumption [A]		1.75	1.44
Mass [kg]		0.38	
Exterior dimensions [mm(inch)]		120.5 (4.74)(H) × 27.4 (1.08)(W) × 120.3 (4.74)(D)	

(Note-1): Up to 12 of manual pulse generators and synchronous encoders can be used in total.

● Stand-alone Motion controller Q170MSCPU/Q170MSCPU-S1

Item		Specifications	
		Q170MSCPU-S1	Q170MSCPU
Number of control axes		Up to 16 axes	
Servo amplifier connection system		SSCNET III/H (1 system)	
Maximum overall cable distance [m(ft.)]		SSCNET III/H : 1600 (5249.34), SSCNET III : 800 (2624.67)	
Maximum distance between stations [m(ft.)]		SSCNET III/H : 100 (328.08), SSCNET III : 50 (164.04)	
Peripheral I/F		PERIPHERAL I/F (Motion CPU control area), USB/RS-232 (PLC CPU control area)	
Manual pulse generator operation function		Possible to connect 3 modules	
Synchronous encoder operation function		Possible to connect 12 modules (Note-1) (SV22 use)	
Controllable modules	Q172DLX	Up to 2 modules per CPU	
	Q173DPX	Up to 4 modules per CPU (Incremental synchronous encoder use in SV22)	
		Up to 1 module per CPU (Only manual pulse generator use)	
	Input/output module	Total : Up to 256 points per CPU	
	Analogue module		
	QI60	Up to 1 module per CPU	
Input signal	Number of input points	4 points	
	Input method	Positive Common/ Negative Common Shared Type (Photocoupler isolation)	
	Rated input voltage/ current	24VDC/ Approx. 5mA	
	Operating voltage range	21.6 to 26.4VDC (24VDC ±10%, ripple ratio 5% or less)	
	ON voltage/current	17.5VDC or more/3.5mA or more	
	OFF voltage/current	5VDC or less/0.9mA or less	
	Input resistance	Approx. 5.6kΩ	
	Response time	1ms or less (OFF→ON, ON→OFF)	
	Recommended wire size	AWG18 to AWG22	
Forced stop input signal	Number of input points	1 point	
	Input method	Sink/ Source (Photocouple isolation)	
	Rated input voltage/ current	24VDC/Approx. 2.4mA	
	Operating voltage range	20.4 to 26.4 VDC (+10/-15 %, ripple ratio 5 % or less)	
	ON voltage/current	17.5 VDC or more/ 2.0 mA or more	
	OFF voltage/current	1.8 VDC or less/ 0.18m A or less	
	Input resistance	Approximately 10kΩ	
	Response time	1ms or less (OFF→ON, ON→OFF)	
	Recommended wire size	AWG16 to AWG22	
Manual pulse generator/ incremental synchronous encoder signal	Signal input form	Phase A/ Phase B (magnification by 4)	
	Input frequency	Up to 1Mpps (After magnification by 4, up to 4Mpps) (Differential-output type) Up to 200kpps (After magnification by 4, up to 800kpps) (Voltage-output/Open-collector type)	
Memory card interface		Internal interface	
Extension base unit		Up to 7	
24VDC internal current consumption [A]		1.4	
Mass [kg]		0.8	
Exterior dimensions [mm(inch)]		186(7.32)(H) × 52(2.05)(W) × 135(5.31)(D)	

(Note-1): Up to 12 of manual pulse generators and synchronous encoders can be used in total.

● Servo external signals interface module Q172DLX

Item			Specifications
External input signal (FLS, RLS, STOP, DOG)	Number of input points		Servo external control signals : 32 points, 8 axes
	Input method		Positive Common/ Negative Common Shared Type (Photocoupler isolation)
	Rated input voltage/current		12VDC/2mA, 24VDC/4mA
	Operating voltage range		10.2 to 26.4 VDC (Ripple ratio 5% or less)
	ON voltage/current		10VDC or more/2.0mA or more
	OFF voltage/current		1.8VDC or less/0.18mA or less
	Response time	FLS, RLS, STOP	1ms (OFF to ON, ON to OFF)
		DOG	0.4ms, 0.6ms, 1ms (OFF to ON, ON to OFF) CPU parameter setting, default 0.4ms
Number of I/O occupying points			32 points (I/O allocation: Intelligent function module, 32 points)
5VDC internal current consumption [A]			0.06
Mass [kg]			0.15
Exterior dimensions [mm (inch)]			98 (3.86)(H) × 27.4 (1.08)(W) × 90 (3.54)(D)

Note) Motion modules (Q172DLX) cannot be installed in CPU slot and I/O slot 0 to 2 of the main base unit.

● Synchronous encoder interface module Q172DEX

Item		Specifications
Serial absolute synchronous encoder input	Number of modules	2 per module
	Applicable encoder	Q171ENC-W8
	Position detection method	Absolute (ABS) data method
	Transmission method	Serial communications (2.5Mbps)
	Back up battery	A6BAT/MR-BAT
	Maximum cable length [m(ft.)]	50(164.04)
Tracking enable input	Number of input points	2 points
	Input method	Positive Common/Negative Common Shared Type (Photocoupler isolation)
	Rated input voltage/current	12VDC/2mA, 24VDC/4mA
	Operating voltage range	10.2 to 26.4 VDC (Ripple ratio 5% or less)
	ON voltage/current	10VDC or more/2.0mA or more
	OFF voltage/current	1.8VDC or less/0.18mA or less
	Response time	0.4ms, 0.6ms, 1ms (OFF to ON, ON to OFF) CPU parameter setting, default 0.4ms
Number of I/O occupying points		32 points (I/O allocation: Intelligent function module, 32 points)
5VDC internal current consumption [A]		0.19
Mass [kg]		0.15
Exterior dimensions [mm (inch)]		98 (3.86)(H) × 27.4 (1.08)(W) × 90 (3.54)(D)

(Note-1) Motion modules (Q172DEX) cannot be installed in CPU slot and I/O slot 0 to 2 of the main base unit.
(Note-2) Install Q172DEX to the main base unit. Do not install to the extension base unit.

● Manual pulse generator interface module Q173DPX

Item			Specifications
Manual pulse generator/ incremental synchronous encoder input	Number of modules		3 per module
	Voltage-output/ Open-collector type	High-voltage	3.0 to 5.25 VDC
		Low-voltage	0 to 1.0 VDC
	Differential-output type	High-voltage	2.0 to 5.25 VDC
		Low-voltage	0 to 0.8 VDC
	Input frequency		50kpps (Up to 200kpps after magnification by 4)
	Applicable types		Voltage-output/Open-collector type (5VDC), (Recommended product: MR-HDP01) Differential-output type (26C31 or equivalent)
	Maximum cable length [m(ft.)]		Voltage-output type: 10(32.79) Differential-output type: 30(98.36)
Tracking enable input	Number of input points		3 points
	Input method		Positive Common/Negative Common Shared Type (Photocoupler isolation)
	Rated input voltage/current		12VDC/2mA, 24VDC/4mA
	Operating voltage range		10.2 to 26.4 VDC (Ripple ratio 5% or less)
	ON voltage/current		10VDC or more/2.0mA or more
	OFF voltage/current		1.8VDC or less/0.18mA or less
	Response time		0.4ms, 0.6ms, 1ms (OFF to ON, ON to OFF) CPU parameter setting, default 0.4ms
Number of I/O occupying points			32 points (I/O allocation: Intelligent function module, 32 points)
5VDC internal current consumption [A]			0.38
Mass [kg]			0.15
Exterior dimensions [mm (inch)]			98(3.86)(H) × 27.4(1.08)(W) × 90(3.54)(D)

Note) Motion modules (Q173DPX) cannot be installed in CPU slot and I/O slot 0 to 2 of the main base unit.

● Safety signal module Q173DSXY

Item		Specifications
		Q173DSXY
Input signals	Number of input points	32 points × 2 systems (PLC CPU control 32 points + Motion CPU control 32 points, Safety input 20 points × 2 systems, Feedback inputs for outputs 12 points × 2 systems)
	Input isolation method	Photocoupler
	Rated input voltage	24VDC (+10/-10%), Negative Common Type
	Max. input current	Approx. 4mA
	Input resistance	Approx. 8.2kΩ
	Input ON voltage/current	20VDC or more/3mA or more
	Input OFF voltage/current	5VDC or less/1.7mA or less
	Input response time	PLC CPU control I/O: 10ms (digital filter's default value) Motion CPU control I/O: 15ms (CR filter)
	Input common method	32 points/common (separate commons for the PLC CPU control I/O and the Motion CPU control I/O)
	Input operation indicator LED	32 points (indication for PLC CPU control)
Output signals	Number of output points	12 points × 2 systems (PLC CPU control 12 points + Motion CPU control 12 points)
	Output isolation method	Photocoupler
	Rated output voltage	24VDC (+10/-10%), Source type
	Max. load current	(0.1A × 8 points, 0.2A × 4 points) × 2 systems, common current: each connector 1.6A or less
	Max. inrush current	0.7A 10ms or less (1.4A, 10ms or less for 0.2A output pin)
	Response time	1ms or less
	Output common method	12 points/common (separate commons for the PLC CPU control I/O and the Motion CPU control I/O)
	Output operation indicator LED	Shared with inputs
Safety specifications (Note-1)	Functions according to IEC61800-5-2	STO, SS1, SS2, SOS, SLS, SBC, SSM (IEC61800-5-2 : 2007) and Safety I/Os
	Safety performance	EN ISO 13849-1 Category3 PL d, EN 61800-5-2/IEC 61508 Part 1-7 : 1998/2000, EN 62061 SIL CL 2
	Mean time to dangerous failure (MTTFd)	169 years or more (theoretical value)
	Diagnostic converge (DCavq)	Low
	Probability of dangerous Failure per Hour (PFH)	2.17E-8 (1/h)
Number of I/O occupying points		32 points
Communication between PLC CPUs		Parallel bus communication (via main base unit)
Communication between Motion CPUs		Serial communication (RS-485), RIO cable
Number of installed modules		Up to 3 modules (Max. number of input points: 60 points × 2 systems; Max. number of output points: 36 points × 2 systems)
5VDC internal current consumption		0.20A (TYP. all points ON)
Mass [kg]		0.15
Exterior dimensions [mm(inch)]		98 (3.86)(H) × 27.4 (1.08)(W) × 90 (3.54)(D)

Note) Install Q173DSXY to the main base unit. Do not install to the extension base unit.
(Note-1): These functions are certified by Certification Body only for the combination of Q173DSXY and "QnUD(E)(H)CPU", the following PLC CPU modules.
QnUD (E)(H) CPU : Q03UDCPU, Q03UDECPU, Q04UDHCPU, Q04UDEHCPU, Q06UDHCPU, Q06UDEHCPU, Q10UDHCPU, Q10UDEHCPU, Q13UDHCPU, Q13UDEHCPU, Q20UDHCPU, Q20UDEHCPU, Q26UDHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU

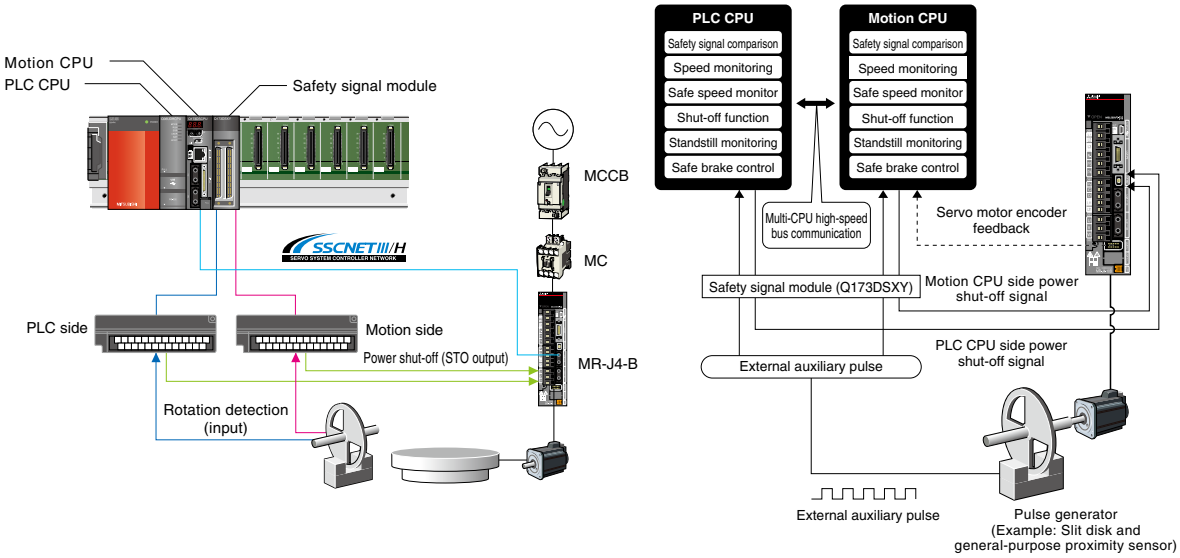
Safety System

Q17nDSCPU

The safety system is compliant with “EN ISO13849-1:2008 Category 3 PLd” and “EN62061 SIL CL2” (these standards are harmonized with European Machine Directives). Functional safety (STO, SS1, SS2, SOS, SSM, SBC, SLS) according to IEC61800-5-2 are available as standard, as well as the safety signal comparison function, which confirms the status of the input/output signals by the Motion CPU and the PLC CPU. The operating conditions for these functions are freely programmed by using the PLC CPU and Motion CPU ladder circuits.

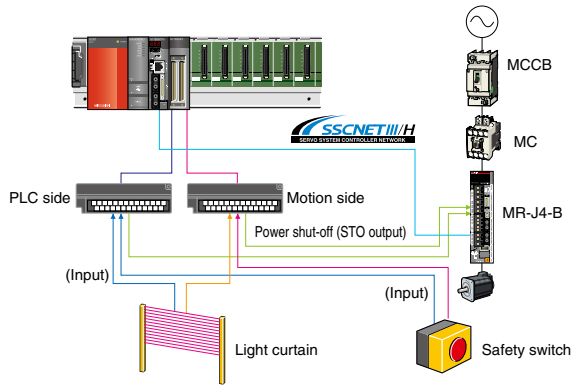
Speed monitoring function

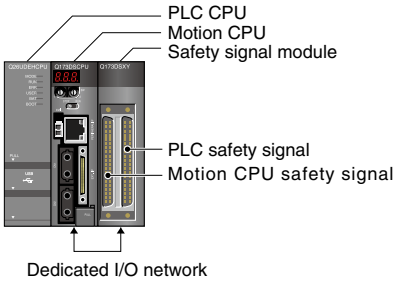
The motor speed is monitored not to exceed the "Safety Speed" by the Motion CPU and the PLC CPU.



Safety signal comparison function

The safety input signals are monitored using the Motion CPU, PLC CPU and safety signal module.





PLC CPU	QnUD(E)(H)CPU (Note-1)
Motion CPU	Q173DSCPU/Q172DSCPU
Safety signal module	Q173DSXY (up to 3 modules can be installed) (Note-2)
Number of input points	Up to 60 points × 2 systems
Number of output points	Up to 36 points × 2 systems

(Note-1): The safety system is certified by Certification Body only for the combination of Q173DSXY and "QnUD(E)(H)CPU"
(Note-2): All output signal points at the 2nd and 3rd modules can be used as user safety signals.

	No. of points	Signal description
Input	20	User safety signals
Output	1	Power shut-off signal (Note-3)
	11	User safety signals

(Note-3): Power shut-off signal turns: ON when safety signal comparison function status is normal. OFF when error is detected.

Motion controller Product Line-up

Part	Model	Description			Standards
Motion CPU module	Q173DSCPU	Up to 32 axes, Operation cycle 0.22 ms or more (Attachment: battery (Q6BAT))			CE, UL, KC
	Q172DSCPU	Up to 16 axes, Operation cycle 0.22 ms or more (Attachment: battery (Q6BAT))			CE, UL, KC
Stand-alone Motion controller	Q170MSCPU	Integrated with power supply, PLC CPU, and Motion CPU			CE, UL, KC
	Q170MSCPU-S1	Attachment: battery (Q6BAT), 24VDC power supply connector, emergency stop input cable connector (Note-1)			CE, UL, KC
Cable for forced stop input (Note-1)	Q170DEMICBL05M	Forced stop input (Be sure to order with Motion CPU modules)		0.5m (1.64ft.)	—
	Q170DEMICBL1M			1m (3.28ft.)	—
	Q170DEMICBL3M			3m (9.84ft.)	—
	Q170DEMICBL5M			5m (16.40ft.)	—
	Q170DEMICBL10M			10m (32.81ft.)	—
	Q170DEMICBL15M			15m (49.21ft.)	—
	Q170DEMICBL20M			20m (65.62ft.)	—
	Q170DEMICBL25M			25m (82.02ft)	—
	Q170DEMICBL30M			30m (98.43ft.)	—
Connector for forced stop input cable	Q170DEMICON	Connector for forced stop input cable production (Be sure to order when you make the forced stop input cable)			—
SSCNET III cable (Note-3)	MR-J3BUS_M	Q17nDSCPU⇔MR-J4-B Q170MSCPU(-S1)⇔MR-J4-B MR-J4-B⇔MR-J4-B	Standard cord for inside panel	0.15m (0.49ft.), 0.3m (0.98ft.), 0.5m (1.64ft.), 1m (3,28ft.), 3m (9.84ft.)	—
	MR-J3BUS_M-A		Standard cable for outside panel	5m (16.40ft.), 10m (32.81ft.), 20m (65.62ft.)	—
	MR-J3BUS_M-B (Note-2)		Long distance cable	30m (98.43ft.), 40m (131.23ft.), 50m (164.04ft.)	—
Servo external signals interface module	Q172DLX	Servo external signal inputs for 8 axes (FLS, RLS, STOP, DOG × 8)			CE, UL, KC
Synchronous encoder interface module	Q172DEX	Serial absolute synchronous encoder Q171ENC-W8 interface × 2, Tracking input 2 points, with A6BAT			CE, UL, KC
Manual pulse generator interface module	Q173DPX	Manual pulse generator MR-HDP01/Incremental synchronous encoder interface × 3, Tracking input 3 points			CE, UL, KC
Safety signal module	Q173DSXY	Input: 20 points (2 systems), Output: 12 points (2 systems), Attachment RIO cable (Q173DSXYCBL01M)			CE, UL, KC
Optical hub unit	MR-MV200	Three branches/unit, DC power supply connector enclosed			CE, UL, KC
Serial absolute synchronous encoder	Q171ENC-W8	Resolution: 4,194,304pulse/rev, Permitted speed: 3600r/min			CE, UL, KC
Serial absolute synchronous encoder cable	Q170ENCCBL2M	Serial absolute synchronous encoder Q171ENC-W8⇔Q172DEX		2m (6.56ft.)	—
	Q170ENCCBL5M			5m (16.40ft.)	—
	Q170ENCCBL10M			10m (32.81ft.)	—
	Q170ENCCBL20M			20m (65.62ft.)	—
	Q170ENCCBL30M			30m (98.43ft.)	—
	Q170ENCCBL50M			50m (164.04ft.)	—
	Q170ENCCBL2M-A	Serial absolute synchronous encoder Q171ENC-W8⇔MR-J4-RJ		2m (6.56ft.)	—
	Q170ENCCBL5M-A			5m (16.40ft.)	—
	Q170ENCCBL10M-A			10m (32.81ft.)	—
	Q170ENCCBL20M-A			20m (65.62ft.)	—
	Q170ENCCBL30M-A			30m (98.43ft.)	—
	Q170ENCCBL50M-A			50m (164.04ft.)	—
Internal I/F connector set	Q170DSIOCON	Manual pulse generator/incremental synchronous encoder interface, external command signal/interface for switching signals, With ferrite core (This set is not included with the Motion CPU module.)			—
	LD77MHIOCON	Manual pulse generator/Incremental synchronous encoder interface, external command signal/Switching signal interface (This set is not included with the Q170MSCPU(-S1).)			—
RIO cable	Q173DSXYCBL01M	Q17nDSCPU⇔Q173DSXY		0.1m (0.44ft.)	—
	Q173DSXYCBL05M	Q173DSXY⇔Q173DSXY		0.5m (1.64ft.)	—
Battery	Q6BAT	For memory data backup of SRAM built-in Motion CPU (program, parameter, absolute position data, latch data)			—
	A6BAT	For data backup of Q171ENC-W8			—
Large capacity battery	Q7BAT	For memory data backup of SRAM built-in Motion controller (program, parameter, absolute position data, latch data)			—
Battery holder	Q170MSBAT-SET	Battery holder for Q7BAT (included with the battery)			—
Manual pulse generator	MR-HDP01	Number of pulses per revolution: 25pulse/rev (100pulse/rev after magnification by 4) Permitted speed: 200r/min (Normal rotation)			—

(Note-1): Be sure to use the cable for forced stop input . The forced stop cannot be released without using it.
(Note-2): For long distance cable up to 100m (328.08ft.) and ultra-long bending life cable, contact Mitsubishi Electric System & Service Co., Ltd.
[Sales office] FA PRODUCT DIVISION mail: osb.webmaster@melsc.jp
(Note-3): "_" indicates cable length (015: 0.15m (0.49ft.), 03: 0.3m (0.98ft.), 05: 0.5m (1.64ft.), 1: 1m (3.28ft.), 3: 3m (9.84ft.), 5: 5m (16.40ft.), 10: 10m (32.81ft.), 20: 20m (65.62ft.), 30: 30m (98.43ft.), 40: 40m (131.23ft.), 50: 50m (164.04ft.))

Software for Motion controller

[Operating system software] (Note-1)

Application	Model name			
	Q173DSCPU	Q172DSCPU	Q170MSCPU-S1	Q170MSCPU
Conveyor assembly use SV13	SW8DNC-SV13QJ	SW8DNC-SV13QL	SW8DNC-SV13QN	
Automatic machinery use SV22	SW8DNC-SV22QJ	SW8DNC-SV22QL	SW8DNC-SV22QN	

Product	Model name	Description
Operating system software set for Q17nDSCPU/Q170MSCPU	SW8DNC-SV1322QJLSET	SW8DNC-SV13QJ, SW8DNC-SV13QL, SW8DNC-SV13QN, SW8DNC-SV22QJ, SW8DNC-SV22QL, SW8DNC-SV22QN

(Note-1): Operating system software (SV22) is Pre-installed into Motion controller before shipment
SW8DNC-SV1322QJLSET [CD-ROM] that includes all operating system softwares in the table above is also available.

Simple Motion Module

SSCNET III/H compatible

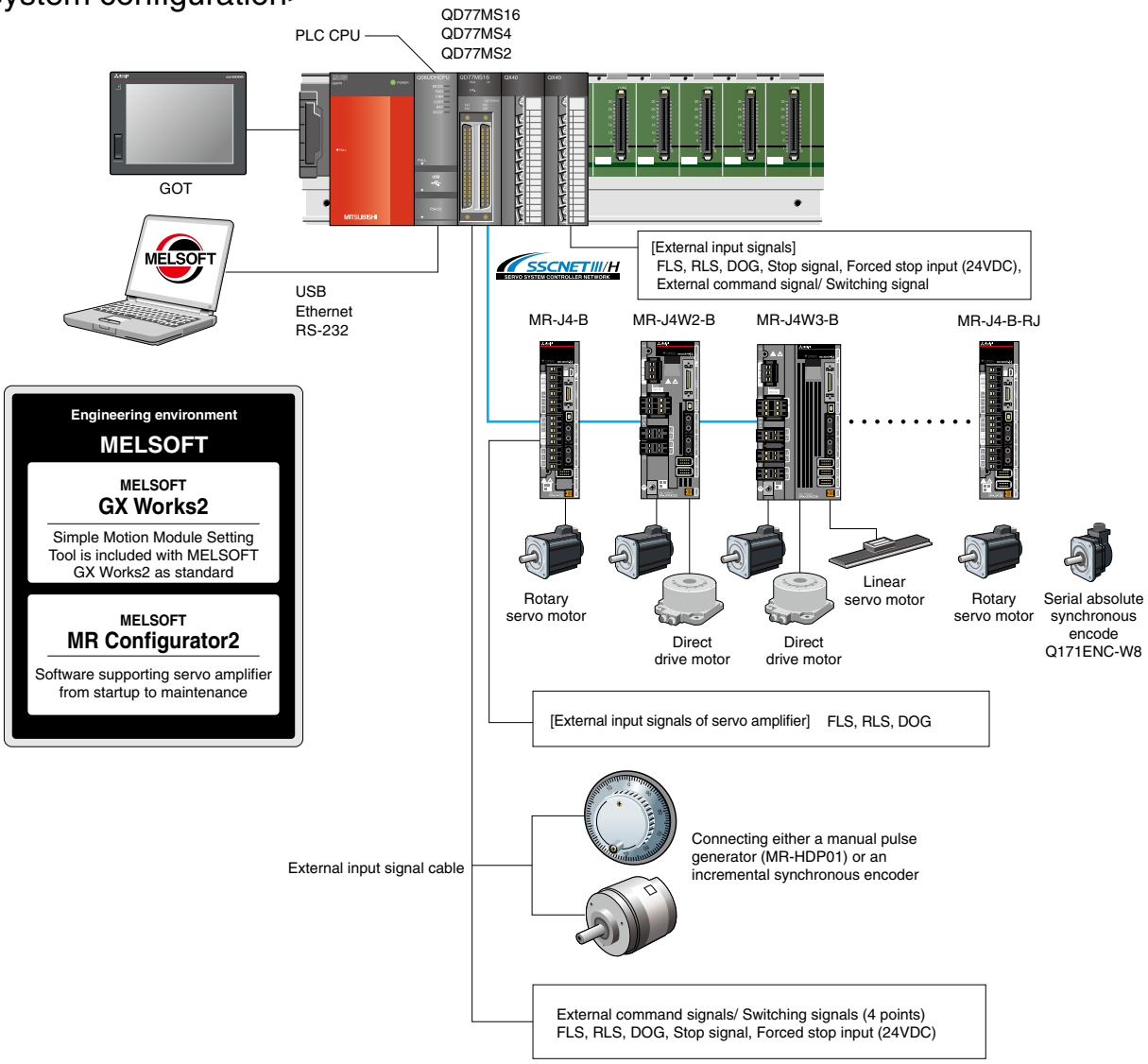
MELSEC-Q series Simple Motion module

QD77MS16/QD77MS4/QD77MS2

Achieving Various Controls While Being Simple to Use Just Like Positioning Modules

- Advanced and wide-range Motion controls can be easily performed just with a sequence program, such as advanced synchronous control, cam control, and speed-torque control (tightening & press-fit control).
- Equipped with the synchronous encoder input and mark detection function as standard.
- Simple settings without programming are achieved with Mitsubishi's MELSOFT series Engineering environment.
- QD75MH existing project assets can be diverted to QD77MS.

<System configuration>



SSCNET III/H compatible

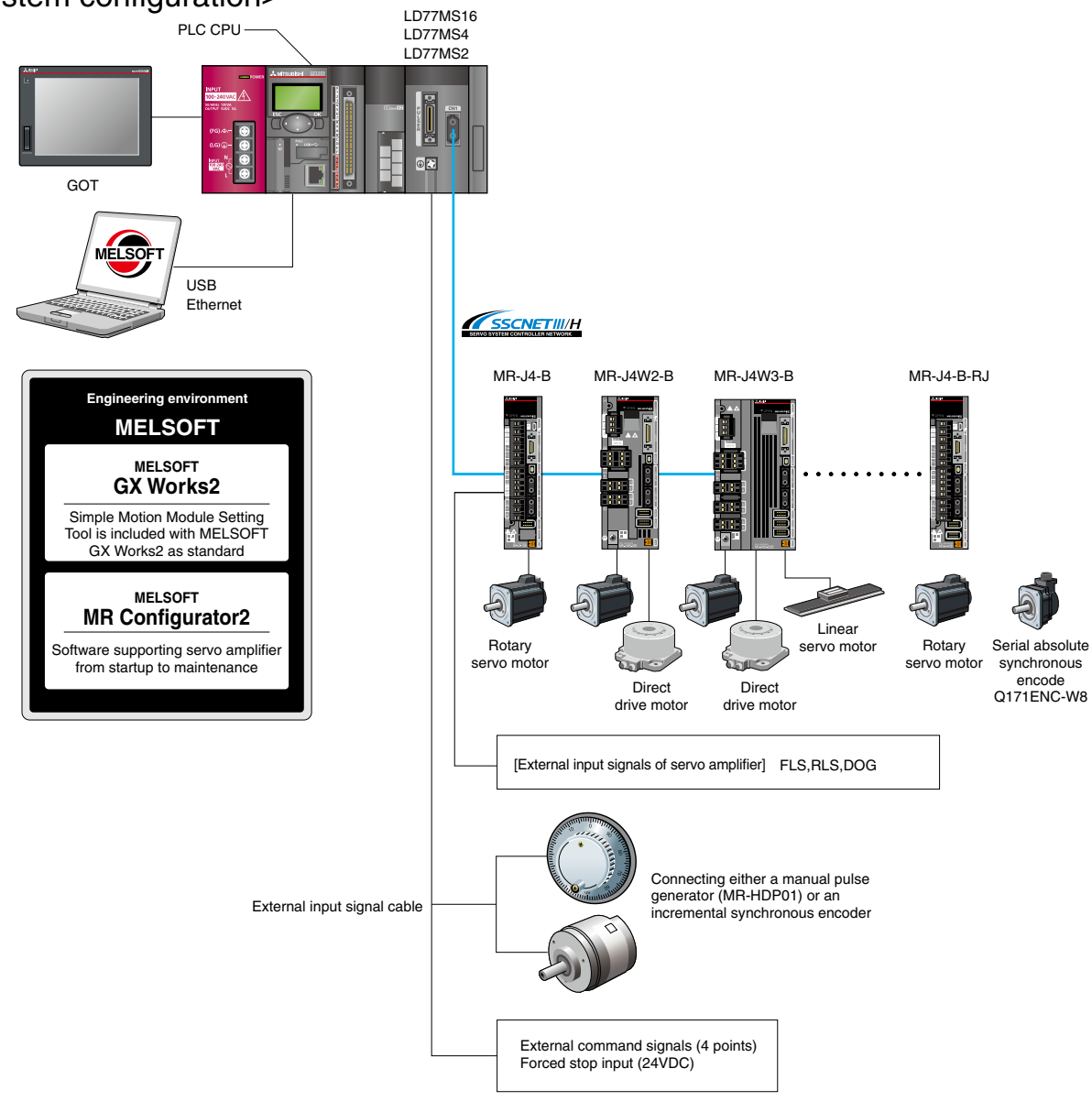
MELSEC-L series Simple Motion module

LD77MS16/LD77MS4/LD77MS2

Motion Control Made Simpler

- Advanced and wide-range Motion controls can be easily performed just with a sequence program, such as advanced synchronous control, cam control, and speed-torque control (tightening & press-fit control).
- Equipped with the synchronous encoder input and mark detection function as standard.
- Simple settings without programming are achieved with Mitsubishi's MELSOFT series Engineering environment.
- LD77MH existing project assets can be diverted to LD77MS.

<System configuration>



CC-Link IE Field Network

MELSEC-Q series Simple Motion module

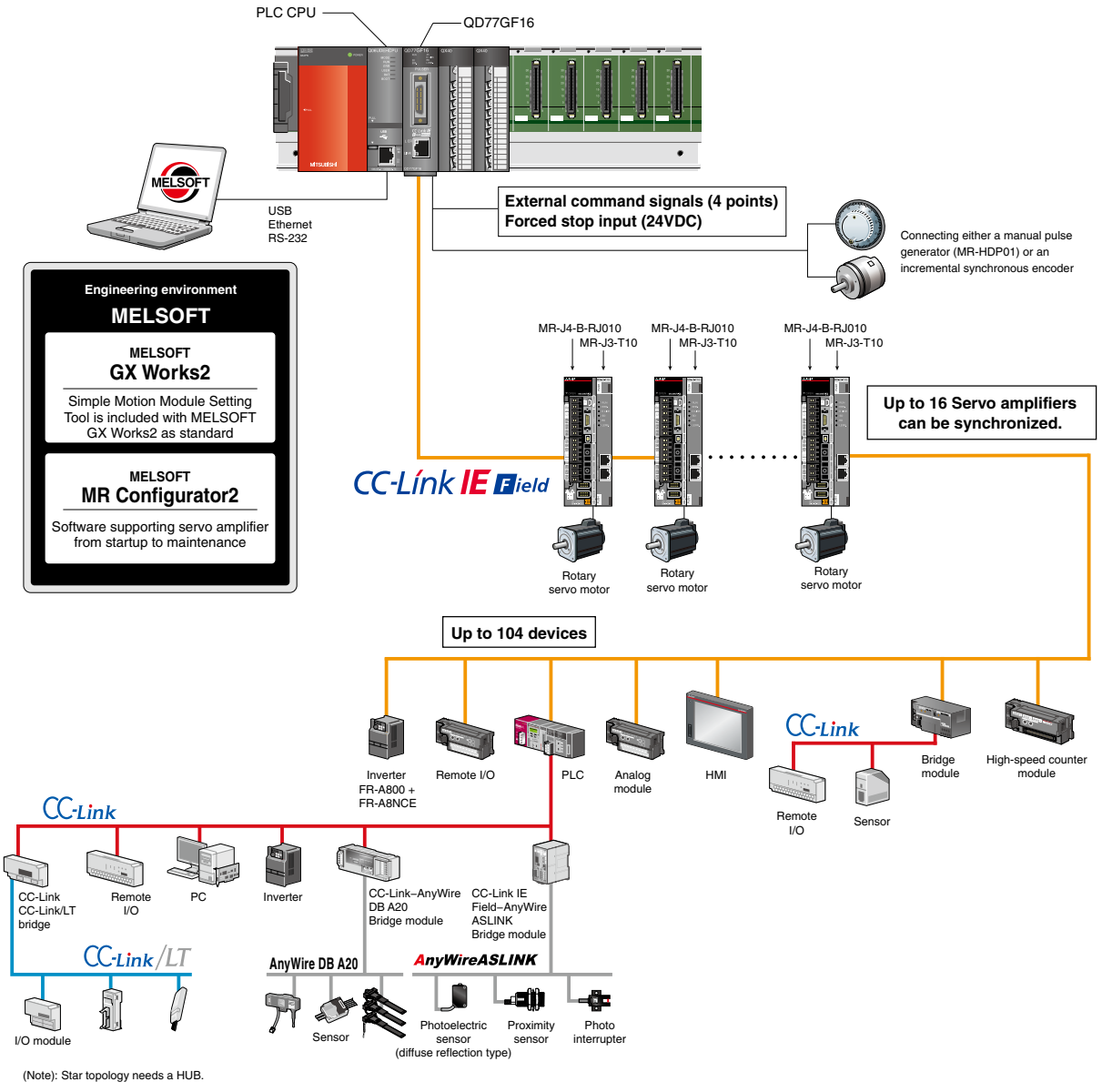
QD77GF16

Superior Motion Performance Now Available for CC-Link IE Field Network

- Positioning/advanced synchronous/cam controls are easily performed with simple parameter setting and a start from a sequence program.
- QD77GF16 can be used as the master station of CC-Link IE Field Network. (equivalent to QJ71GF11-T2) (Note-1)
- Within one network, QD77GF16 can communicate with servo amplifiers and field devices (Remote I/O, Sensor, etc.).

(Note-1): QD77GF can be used only as the master station. Line and star topologies are available. Up to 104 slave devices can be connected in one network.

<System configuration>



(Note): Star topology needs a HUB.

Simple motion module specifications

Control specification

Item		Specifications						
		QD77MS16	QD77MS4	QD77MS2 (Note-3)	LD77MS16	LD77MS4	LD77MS2 (Note-3)	QD77GF16
Number of control axes (Virtual servo amplifier axis included)		Up to 16 axes	Up to 4 axes	Up to 2 axes	Up to 16 axes	Up to 4 axes	Up to 2 axes	Up to 16 axes
Operation cycle (Operation cycle settings) (Note-1)		0.88ms, 1.77ms						0.88ms, 1.77ms, 3.55ms
Interpolation function		Linear interpolation (Up to 4 axes), Circular interpolation (2 axes)						
Control modes		PTP (Point To Point) control, Trajectory control (both linear and arc can be set), Speed control, Speed-position switching control, Position-speed switching control, Speed-torque control						
Acceleration/deceleration process		Trapezoidal acceleration/deceleration, S-curve acceleration/deceleration						
Compensation function		Backlash compensation, Electronic gear, Near pass function						
Synchronous control		Synchronous encoder input, Cam, Phase Compensation, Cam auto-generation						
Control unit		mm, inch, degree, pulse						
Positioning data		600 data (positioning data No. 1 to 600)/axis (Can be set with MELSOFT GX Works2 or Sequence program.)						
Backup		Parameters, positioning data, and block start data can be saved on flash ROM (battery-less backup)						
OPR control	OPR method	Near-point dog method, Count method 1, Count method 2,Data set method, Scale home position signal detection method						
	Fast OPR control	Provided						
	Sub functions	OPR retry, OP shift						
Positioning control	Linear control	1-axis linear control, 2-axis linear interpolation control, 3-axis linear interpolation control, 4-axis linear interpolation control (Note-4) (Composite speed, Reference axis speed)						
	Fixed-pitch feed control	1-axis fixed-pitch feed, 2-axis fixed-pitch feed, 3-axis fixed-pitch feed, 4-axis fixed-pitch feed						
	2-axis circular interpolation	Sub point designation, center point designation						
	Speed control	1-axis speed control, 2-axis speed control, 3-axis speed control, 4-axis speed control						
	Speed-position switching control	INC mode, ABS mode						
	Position-speed switching control	INC mode						
	Current value change	Positioning data, Start No. for a current value changing						
	NOP instruction	Provided						
	JUMP instruction	Unconditional JUMP, Conditional JUMP						
	LOOP, LEND	Provided						
	High-level positioning control	Block start, Condition start, Wait start, Simultaneous start, Repeated start						
Manual control	JOG operation	Provided						
	Inching operation	Provided						
	Manual pulse generator operation	Possible to connect 1 module (Incremental) Unit magnification (1 to 10000 times)						
Expansion control	Speed-torque control	Speed control without positioning loops, Torque control, Tightening & press-fit control (Note-5)						
Absolute position system		Made compatible by setting battery to servo amplifier						
Synchronous encoder interface		Up to 4 channels (Total of the internal interface , via PLC CPU interface, and servo amplifier interface (Note-5))						
	Internal interface	1 channel (Incremental)						
Functions that limit control	Speed limit function	Speed limit value, JOG speed limit value						
	Torque limit function	Torque limit value_same setting, torque limit value_individual setting						
	Forced stop	Valid/Invalid setting						
	Software stroke limit function	Movable range check with current feed value, movable range check with machine feed value						
	Hardware stroke limit function	Provided						
Functions that change control details	Speed change function	Provided						
	Override function	Provided						
	Acceleration/deceleration time change function	Provided						
	Torque change function	Provided						
	Target position change function	Target position address and speed to target position are changeable						
Other functions	M code output function	Provided						
	Step function	Deceleration unit step, Data No. unit step						
	Skip function	Via PLC CPU, Via external command signal						
	Teaching function	Provided						
Mark detection function		Continuous Detection mode, Specified Number of Detections mode, Ring Buffer mode						
	Mark detection signal	4 points		2 points	4 points		2 points	4 points
	Mark detection setting	16 settings	4 settings		16 settings	4 settings		16 settings
Optional data monitor function		4 points/axis						—
Driver communication function		Provided						—
Amplifier-less operation function		Provided						—
Digital oscilloscope function (Note-2)	Bit data	16ch	8ch		16ch	8ch		16ch
	Word data	16ch	4ch		16ch	4ch		16ch

(Note-1): Default value is 1.77 ms. If necessary, check the operation time and change to 0.88 ms.
(Note-2): 8CH word data and 8CH bit data can be displayed in real time.
(Note-3): The maximum number of control axes for QD77MS2 and LD77MS2 is two axes. Use QD77MS4, QD77MS16, LD77MS4, or LD77MS16 to control three or more axes.
(Note-4): 4-axis linear interpolation control is enabled only at the reference axis speed.
(Note-5): QD77MS and LD77MS only.

● Synchronous control specification

Synchronous control

Item		Number of settable axes						
		QD77MS16	QD77MS4	QD77MS2	LD77MS16	LD77MS4	LD77MS2	QD77GF16
Input axis	Servo input axis	16 axes/module	4 axes/module	2 axes/module	16 axes/module	4 axes/module	2 axes/module	16 axes/module
	Synchronous encoder axis	4 axes/module						
Composite main shaft gear		1/output axis						
Main shaft main input axis		1/output axis						
Main shaft sub input axis		1/output axis						
Main shaft gear		1/output axis						
Main shaft clutch		1/output axis						
Auxiliary shaft		1/output axis						
Auxiliary shaft gear		1/output axis						
Auxiliary shaft clutch		1/output axis						
Auxiliary shaft composite gear		1/output axis						
Speed change gear		1/output axis						
Output axis (Cam axis)		16 axes/module	4 axes/module	2 axes/module	16 axes/module	4 axes/module	2 axes/module	16 axes/module

Cam control

Item			Specifications						
			QD77MS16	QD77MS4	QD77MS2	LD77MS16	LD77MS4	LD77MS2	QD77GF16
Memory capacity	Storage area for cam data		256k bytes						
	Working area for cam data		1024k bytes						
Number of registration			Max. 256 (depending on memory capacity, cam resolution and number of coordinates)						
Comment			Up to 32 characters for each cam data						
Cam data	Stroke ratio data type	Cam resolution	256, 512, 1024, 2048, 4096, 8192, 16384, 32768						
		Stroke ratio	–214.7483648 to 214.7483647 [%]						
	Coordinate data type	Coordinate number	2 to 16384						
		Coordinate data	Input value: 0 to 2147483647 Output value: -2147483648 to 2147483647						
Cam auto-generation			Cam auto-generation for rotary cutter						

■Module specification

●Simple Motion module QD77MS16/QD77MS4/QD77MS2

Item		Specifications		
		QD77MS16	QD77MS4	QD77MS2
Number of control axes (Virtual servo amplifier axis included)		Up to 16 axes	Up to 4 axes	Up to 2 axes
Servo amplifier connection system		SSCNET III/H		
Maximum overall cable distance [m(ft.)]		SSCNET III/H: 1600 (5249.34), SSCNET III: 800 (2624.67)		
Maximum distance between stations [m(ft.)]		SSCNET III/H: 100 (328.08), SSCNET III: 50 (164.04)		
Peripheral I/F		Via CPU module (USB, RS-232, Ethernet)		
Manual pulse generator operation function		Possible to connect 1 module		
Synchronous encoder operation function		Possible to connect 4 modules (Total of the internal interface , via PLC CPU interface, and servo amplifier interface)		
Near-point dog signal (DOG) External command signal/ Switching signal (CHG)	Number of input points	4 points		2 points
	Input method	Positive common/ Negative common shared (Photocoupler isolation)		
	Rated input voltage/current	24 VDC/ Approx. 5 mA		
	Operating voltage range	19.2 to 26.4 VDC (24 VDC +10%/-20%, ripple ratio 5% or less)		
	ON voltage/current	17.5 VDC or more/ 3.5 mA or more		
	OFF voltage/current	7 VDC or less/ 1.0 mA or less		
	Input resistance	Approx 6.8 kΩ		
	Response time	1 ms or less (OFF→ON, ON→OFF)		
	Recommended wire size	AWG24 (0.2 mm^2)		
Forced stop input signal (EMI) Upper limit signal (FLS) Lower limit signal (RLS) Stop signal (STOP)	Number of input points	4 points, 1 point (EMI)		2 points, 1 point (EMI)
	Input method	Positive common/ Negative common shared (Photocoupler isolation)		
	Rated input voltage/current	24 VDC/ Approx. 5 mA		
	Operating voltage range	19.2 to 26.4VDC (24VDC +10%/-20%, ripple ratio 5% or less)		
	ON voltage/current	17.5 VDC or more/ 3.5 mA or more		
	OFF voltage/current	7 VDC or less/ 1.0 mA or less		
	Input resistance	Approx 6.8 kΩ		
	Response time	4 ms or less (OFF→ON, ON→OFF)		
	Recommended wire size	AWG24 (0.2 mm^2)		
Manual pulse generator/ Incremental synchronous encoder signal	Signal input form	Phase A/Phase B (magnification by 4/magnification by 2/magnification by 1), PULSE/SIGN		
	Input frequency	1Mpps (After magnification by 4, up to 4 Mpps) (Differentialoutput type) 200 kpps (After magnification by 4, up to 800 kpps) (Voltage-output/Open-collector type)		
	Cable length	Up to 30 m (98.43ft.) (Differentialoutput type) Up to 10 m (32.81ft.) (Voltage-output/Open-collector type)		
Number of I/O occupying points		32 points (I/O allocation: Intelligent function module, 32 points)		
Number of module occupied slots		1		
5VDC internal current consumption [A]		0.75	0.6	
Mass [kg]		0.16		0.15
Exterior dimensions [mm(inch)]		98.0 (3.86) (H) × 27.4 (1.08) (W) × 90.0 (3.54) (D)		

●Simple Motion module LD77MS16/LD77MS4/LD77MS2

Item		Specifications		
		LD77MS16	LD77MS4	LD77MS2
Number of control axes (Virtual servo amplifier axis included)		Up to 16 axes	Up to 4 axes	Up to 2 axes
Servo amplifier connection system		SSCNET III/H (1 system)		
Maximum distance between stations [m(ft.)]		SSCNET III/H: 1600 (5249.34), SSCNET III: 800 (2624.67)		
Maximum distance between stations [m(ft.)]		SSCNET III/H: 100 (328.08), SSCNET III: 50 (164.04)		
Peripheral I/F		Via CPU module (USB, Ethernet)		
External command signal/ Switching signal (CHG)	Number of input points	4 points		2 points
	Input method	Positive common/Negative common shared (Photocoupler isolation)		
	Rated input voltage/current	24 VDC/Approx. 5 mA		
	Operating voltage range	21.6 to 26.4 VDC (24 VDC ±10 %, ripple ratio 5 % or less)		
	ON voltage/current	17.5 VDC or more/3.5 mA or more		
	OFF voltage/current	5 VDC or less/0.9 mA or less		
	Input resistance	Approx. 5.6 kΩ		
	Response time	1 ms or less (OFF→ON, ON→OFF)		
	Recommended wire size	AWG24 (0.2 mm^2)		
Forced stop input signal (EMI)	Number of input points	1 point (EMI)		
	Input method	Positive common/Negative common shared (Photocoupler isolation)		
	Rated input voltage/current	24 VDC/Approx. 2.4 mA		
	Operating voltage range	20.4 to 26.4 VDC (24 VDC +10 %/-15 %, ripple ratio 5 % or less)		
	ON voltage/current	17.5 VDC or more/2.0 mA or more		
	OFF voltage/current	1.8 VDC or less/0.18 mA or less		
	Input resistance	Approx. 10 kΩ		
	Response time	1 ms or less (OFF→ON, ON→OFF)		
	Recommended wire size	AWG24 (0.2mm^2)		
Manual pulse generator/ Incremental synchronous encoder signal	Signal input form	Phase A/Phase B (magnification by 4/magnification by 2/magnification by 1), PULSE/SIGN		
	Input frequency	1Mpps (After magnification by 4, up to 4 Mpps) (Differentialoutput type) 200 kpps (After magnification by 4, up to 800 kpps) (Voltage-output/Open-collector type)		
	Cable length	Up to 30 m (98.43ft.) (Differentialoutput type) Up to 10 m (32.81ft.) (Voltage-output/Open-collector type)		
Number of I/O occupying points		32 points (I/O allocation: Intelligent function module, 32 points)		
Number of module occupied slots		2		
5VDC internal current consumption [A]		0.7	0.55	
Mass [kg]		0.22		
Exterior dimensions [mm(inch)]		90.0 (3.54) (H) × 45.0 (1.77) (W) × 95.0 (3.74) (D)		

● Simple Motion module QD77GF16

Item		Specifications QD77GF16
Number of control axes (Virtual servo amplifier axis included)		Up to 16 axes
Servo amplifier connection system		CC-Link IE Field Network
Maximum distance between stations [m(ft.)]		100 (328.08)
Peripheral I/F		Via CPU module (USB, RS-232, Ethernet)
Manual pulse generator operation function		Possible to connect 1 module
External command signal	Number of input points	4 points
	Input method	Positive common/ Negative common shared (Photocoupler isolation)
	Rated input voltage/ current	24 VDC/ Approx. 5 mA
	Operating voltage range	21.6 to 26.4 VDC (24 VDC ±10%, ripple ratio 5% or less)
	ON voltage/current	17.5 VDC or more/ 3.5 mA or more
	OFF voltage/current	5 VDC or less/ 0.9 mA or less
	Input resistance	Approx 5.6 kΩ
	Response time	1 ms or less (OFF→ON, ON→OFF)
	Recommended wire size	AWG24 (0.2 mm^2)
Forced stop input signal (EMI)	Number of input points	1 point
	Input method	Positive common/ Negative common shared (Photocoupler isolation)
	Rated input voltage/ current	24 VDC/ Approx. 2.4 mA
	Operating voltage range	20.4 to 26.4VDC (24VDC +10%/-15%, ripple ratio 5% or less)
	ON voltage/current	17.5 VDC or more/ 2 mA or more
	OFF voltage/current	1.8 VDC or less/ 0.18 mA or less
	Input resistance	Approx. 10 kΩ
	Response time	1 ms or less (OFF→ON, ON→OFF)
	Recommended wire size	AWG24 (0.2 mm^2)
Manual pulse generator/ Incremental synchronous encoder signal	Signal input form	Phase A/Phase B (magnification by 4/magnification by 2/magnification by 1), PULSE/SIGN
	Input frequency	1Mpps (After magnification by 4, up to 4 Mpps) (Differential output type) 200 kpps (After magnification by 4, up to 800 kpps) (Voltage-output/Open-collector type)
	Cable length	Up to 30 m (98.43ft.) (Differential output type) Up to 10 m (32.81ft.) (Voltage-output/Open-collector type)
Number of I/O occupying points		32 points (I/O allocation: Intelligent function module, 32 points)
Number of module occupied slots		1
5VDC internal current consumption [A]		0.8
Mass [kg]		0.26
Exterior dimensions [mm(inch)]		98.0 (3.86) (H) ×27.4 (1.08) (W) ×115 (4.53) (D)

■Simple Motion module Component

Part	Model	Description			Standards
Simple Motion Module	QD77MS16 (Note-1)	Up to 16 axes			CE, UL, KC
	QD77MS4 (Note-1)	Up to 4 axes			CE, UL, KC
	QD77MS2 (Note-1)	Up to 2 axes			CE, UL, KC
	LD77MS16 (Note-2)	Up to 16 axes			CE, UL, KC
	LD77MS4 (Note-2)	Up to 4 axes			CE, UL, KC
	LD77MS2 (Note-2)	Up to 2 axes			CE, UL, KC
	QD77GF16 (Note-2)	Up to 16 axes			CE, UL, KC
SSCNETIII cable (Note-3)	MR-J3BUS_M	・Simple Motion module ⇔MR-J4-B ・MR-J4-B⇔MR-J4-B	Standard code for inside panel	0.15m (0.49ft.), 0.3m (0.98ft.), 0.5m (1.64ft.), 1m (3.28ft.), 3m (9.84ft)	—
	MR-J3BUS_M-A		Standard code for outside panel	5m (16.40ft.), 10m (32.81ft.), 20m (65.62ft.)	—
	MR-J3BUS_M-B (Note-4)		Long distance cable	30m (98.43ft.), 40m (131.23ft.), 50m (164.04ft.)	—
Manual pulse generator	MR-HDP01	Number of pulses per revolution: 25pulse/rev (100pulse/rev after magnification by 4), Permitted speed: 200r/min (Normal rotation)			—
Connector for external input signal cable	LD77MHIOCON	Manual pulse generator/Incremental synchronous encoder interface, Interface for forced stop input, External command signal/Switching signal interface			—

(Note-1): Order the A6CON1, A6CON2, and A6CON4 separately because the connectors are not included in the package.
(Note-2): Order the LD77MHICON separately because the connector is not included in the package.
(Note-3): "_" indicates cable length (015: 0.15m (0.49ft.), 03: 0.3m (0.98ft.), 05: 0.5m (1.64ft.), 1: 1m (3.28ft.), 3: 3m (9.84ft.), 5: 5m (16.40ft.), 10: 10m (32.81ft.), 20: 20m (65.62ft.), 30: 30m (98.43ft.), 40: 40m (131.23ft.), 50: 50m (164.04ft))
(Note-4): For long distance cable up to 100m (328.08ft.) and ultra-long bending life cable, contact Mitsubishi Electric System & Service Co., Ltd.
[Sales office] FA PRODUCT DIVISION mail: osb.webmaster@melsc.jp

Engineering Software MELSOFT

iQ Platform MELSOFT

◎Comprehensibly supporting Motion controller design and maintenance

Motion Controller Engineering Software — MELSOFT MT Works2

Motion SFC programming, parameter setting, digital oscilloscope function, and simulation function are available. This software supports all necessary steps including system configuration, programming, debugging, and maintenance of Motion controllers.

◎Supporting settings of Simple Motion modules as well as sequence program creation

Programmable Controller Engineering Software — MELSOFT GX Works2

This software supports sequence program creation and the necessary setup steps for use of Simple Motion modules, such as the creation, startup, debugging, and maintenance of parameters, positioning data, and cam data.

◎Startup support tool for a suitable machine system, optimum control and short setup time

Servo Setup Software — MELSOFT MR Configurator2

Tuning, monitor display, diagnosis, reading/writing parameters, and test operations are easily performed on a personal computer. This startup support tool achieves a stable machine system, optimum control, and short setup time.

Easy to Use | Various "easy-to-use" features

System design

MT Works2 GX Works2

♦ System design

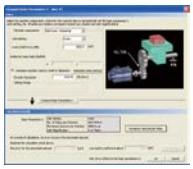
Servo amplifiers and modules can be set easily with a graphical system setting screen.

♦ Parameter setting

One-point help allows parameters to be set without a manual.

♦ Electronic gear setting

The electronic gear can be set easily just by inputting the machine specifications (reduction ratio, ball screw pitch, etc.).

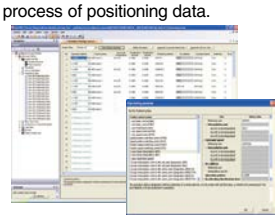


Programming

♦ Positioning data setting

Functions such as Data setting assistant, and Automatic calculation of auxiliary arc simplify the setting input process of positioning data.

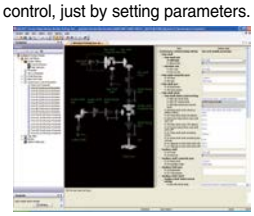
GX Works2



♦ Synchronous control parameter

Using software to replace machine mechanisms, such as the gear, shaft, speed change gear and cam achieves synchronous control, just by setting parameters.

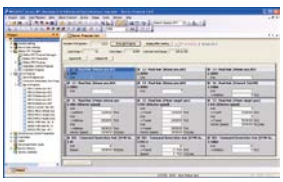
MT Works2 GX Works2



♦ Programming

User-friendly functions facilitate Motion controller program development.

MT Works2

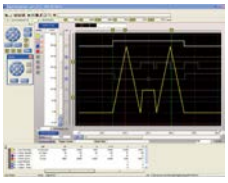


Startup and adjustment

♦ Digital oscilloscope

Operation check and troubleshooting are powerfully supported with data collection and wave displays which are synchronized to the Motion operation cycle.

MT Works2 GX Works2



♦ Monitor

The items and axes to be displayed can be selected from various monitored information.

MT Works2 GX Works2

♦ Simulator

Program debugging can be executed without using a Motion controller, which improves designing efficiency.

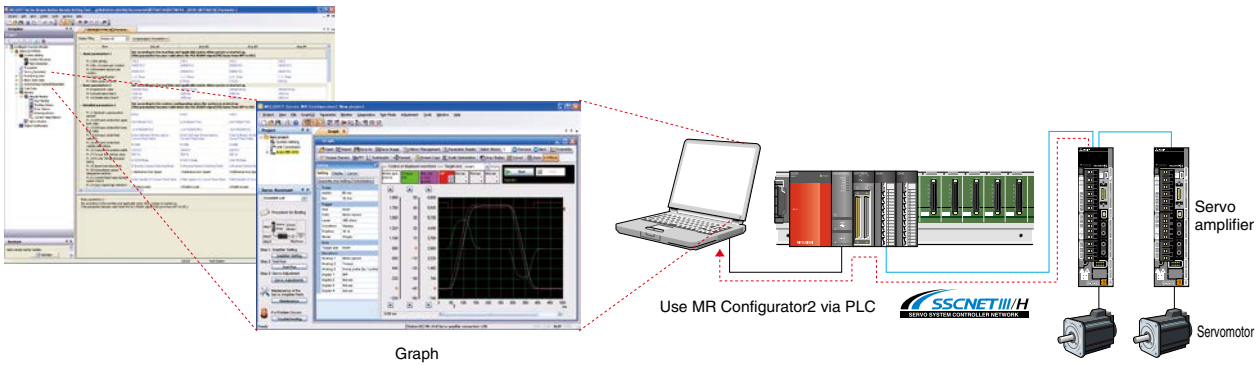
MT Works2

Easy to Use | Simplifies servo amplifier setup and tuning

♦ Adjustment of Servo Amplifier Parameters

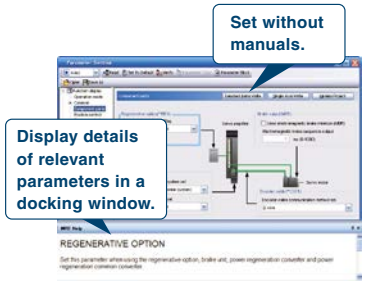
MR Configurator2

Coordination with the MELSOFT MR Configurator2 increases the ease of servo installation.
You can set and adjust servo amplifier parameters with the MELSOFT MR Configurator2, the software created with Mitsubishi servo know-how.



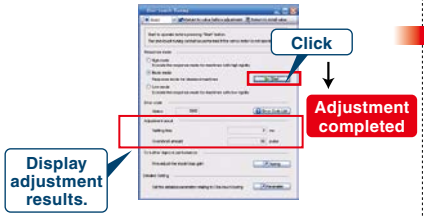
♦ Parameter setting function

Display parameter setting in list or visual formats, and set parameters by selecting from the drop down list.



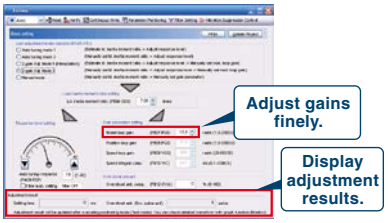
♦ One-touch tuning function

Adjustments including estimating load to motor inertia ratio, adjusting gain, and suppressing machine resonance are automatically performed for the maximum servo performance just by clicking the start button.



♦ Tuning function

Adjust control gain finely on the [Tuning] window manually for further performance after the one-touch tuning.



■Motion controller software

<Engineering environment MELSOFT series>

Product	Model name	Description
MELSOFT MT Works2	SW1DND-MTW2-E	Parameter setting and program creation of Motion CPU
MELSOFT GX Works2	SW1DND-GXW2-E	Sequence program creation
MELSOFT IQ Works (Note-1)	SW1DNC-IQWK-E	License product (1 license in CD-ROM)
	SW1DND-IQWK-E	License product (1 license in DVD-ROM)

(Note-1): This product includes the following software.
- System Management Software [MELSOFT Navigator]
- Programmable Controller Engineering Software [MELSOFT GX Works2]
- Motion Controller Engineering Software [MELSOFT MT Works2]
- Screen Design Software [MELSOFT GT Works3]
- Robot Total Engineering Support Software [MELSOFT RT ToolBox2 mini]