Changes for the Better

MITSUBISHI ELECTRIC

Mitsubishi iQ Platform Programmable Controller MELSEC-Q Series [QnU]

CC-Link IE CC-Link

Empowering Industries MELSOFT iQ Platform

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems)

ISO 14001 JACO EC97J1113 UKAS ENVIRONMENTAL MANAGEMENT 051

ISO 9001 BUREAU VERITAS Certification UKAS QUALITY MANAGEMENT 008

Unprecedented level of performance...

The next generation Q Series has arrived!

"Universal model: QnU" is the next generation MELSEC-Q Series.
It is an ideal solution for users who want to increase productivity and processing speed of large-volume production information, which is critical for traceability.
It is the fastest basic operation processing on the market* and can greatly improve performance of systems.
Furthermore, the design concepts inherited from the Q Series make it more user-friendly and reliable.
This new generation programmable controller will bring your systems to the next level

*As of October 2008

[High speed, high capacity]

**In order to support the complex product equipment, "Universal model: QnU" provides the fastest data processing operation available on the market.
Furthermore, the machine control with the higher speed and higher accuracy can be performed by using the multiple CPU system.
The number of programs and memory capacity that can be handled to process the large amount of control/production management data are increased.**

[Built-in Ethernet/USB port]

**The Ethernet connection is standardized for the top layer of the information network.
The Ethernet port is built in the main body of "Universal model: QnU". (Q03U and later)
The USB port is standardized for all models to improve the usability.**

[Enhanced lineup]

**The low-capacity type models are added to the lineup of the new generation programmable controller, "Universal model: QnU".
Program capacity of 10 k to 260 k can be selected for a specific purpose.**

Current production requirements

- Minimizing operation cycle
- Corresponding to strict quality management
- Adopting more complex, larger-scale equipment
- Supporting increasingly large volume control/production management data
- Responding to short product life cycle
- Improving equipment uptime

Such needs at production site gave birth to this next generation programmable controller

- **Improved Productivity**
- **More User - Friendly**
- **Easy Maintenance**

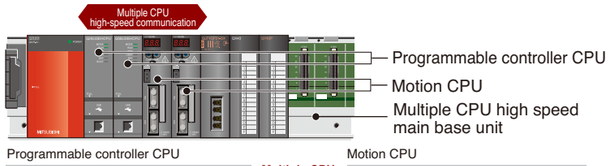
iQ Platform programmable controller

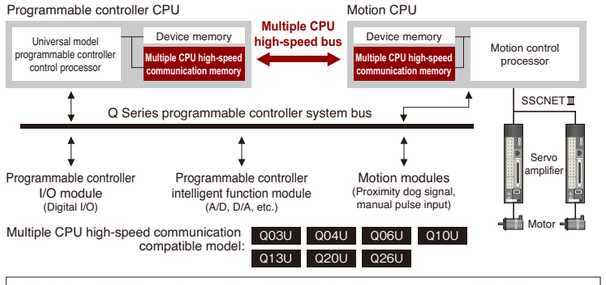
MELSEC Q series

QnU

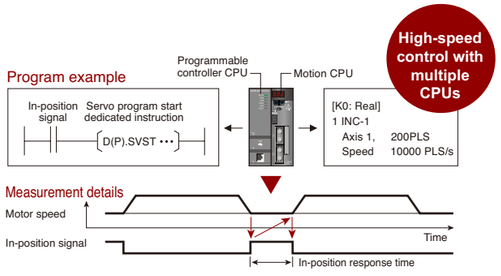
■ High-speed, high-accuracy machine control

By simultaneously processing a sequence program and multiple CPU high-speed communication (operation cycle of 0.88 ms), high-speed control is achieved. The multiple CPU high-speed communication cycle is synchronized with motion control, cutting down unnecessary control. Moreover, performance of motion control is two times faster than the previous model, allowing high-speed, high-accuracy machine control.

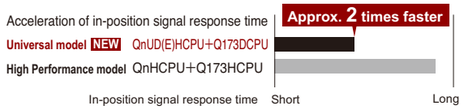


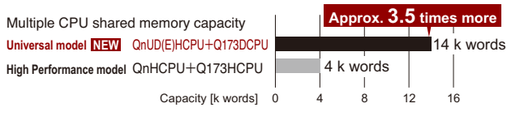


The indicated CPU icons of compatible model include the Ethernet port type and RS-232 port type.
Example) Q03U : Q03UDECPU, Q03UDCPU



〈In-position response time〉
In a 2-axis, multi-CPU system consisting of a programmable controller CPU and motion CPU, the motion CPU receives the in-position signal from the amplifier of the first axis. Next, the programmable controller CPU sends a start command to the second amplifier. This example thus shows the time it takes from the stopping of motion on one axis until the beginning of motion on a second axis. This time is a good indicator of CPU-to-CPU data transfer speed.





■ Improved production time with ultra-high-speed processing

To correspond with increasing demands for shortening production time of large-scale, complex systems, the new model offers the fastest basic operation performance* on the market: basic operation processing speed (LD) of 9.5 ns. This means scan time is reduced, improving production time and processing accuracy.
In addition, the programmable controller can realize high-speed control which was previously supported by micro computer boards only.

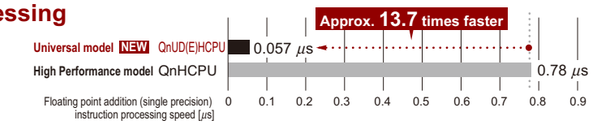
*As of October 2008

* 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.

■ High-speed, high-precision real data processing

Floating point addition instruction processing speed is greatly increased to 0.057 μs to support high-speed, high-precision operation processing of various production data.
Also, double precision operation is added to reduce calculation errors when implementing complex equations.

Universal model (New model)	QnUD(E)HCPU:	Q04/ 06/ 10/ 13/ 20/ 26UDHCPU, Q04/ 06/ 10/ 13/ 20/ 26UDEHCPU
High Performance model	QnHCPU	: Q02/ 06/ 12/ 25HCPU



		Universal model QnUD(E)HCPU	High Performance model QnHCPU
Addition (E+)	Single precision [μs]	0.057	0.78
	Double precision [μs]	4.3 *1	87 *2

*1 Minimum value
*2 Indicates internal double precision operation processing speed

Expanded possibility by networking...

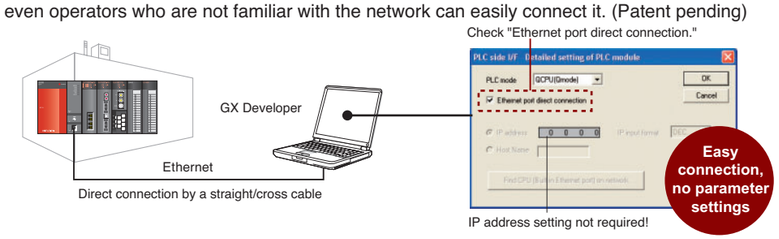
Built-in Ethernet Port CPU Modules

Q03UDE/ Q04U/ Q06U/ Q10U/ Q13U/ Q20U/ Q26UDEHCPU

7 modules added to lineup!

■ Easy to connect to programming tool via Ethernet

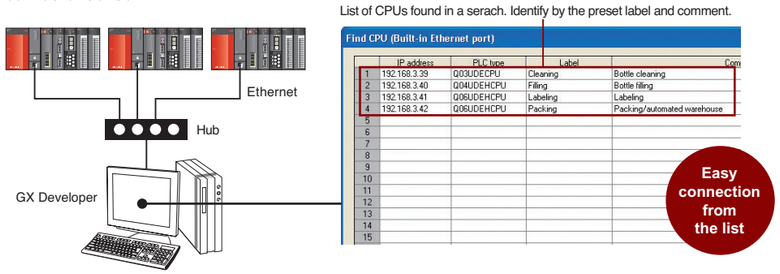
IP address setting is not required to connect GX Developer (programming tool) to the CPU module directly (one-to-one connection). Also, the CPU module allows the use of either straight or cross cable. Ethernet thus realizes easy communication with the CPU module like USB connection, even operators who are not familiar with the network can easily connect it. (Patent pending)



Easy connection, no parameter settings

■ Search and display a list of connected CPUs

Using an Ethernet hub, GX Developer can be simultaneously connected to multiple CPUs. The connected CPUs on the network can be searched and displayed in a list. By selecting a CPU from the list, it is connected easily even if the IP address is unknown, and the operating status can be checked.



Easy connection from the list

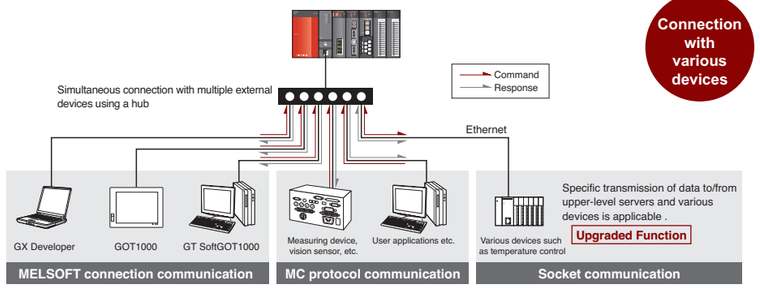
MELSEC Q series

QnU

■ Connect to various devices according to applications

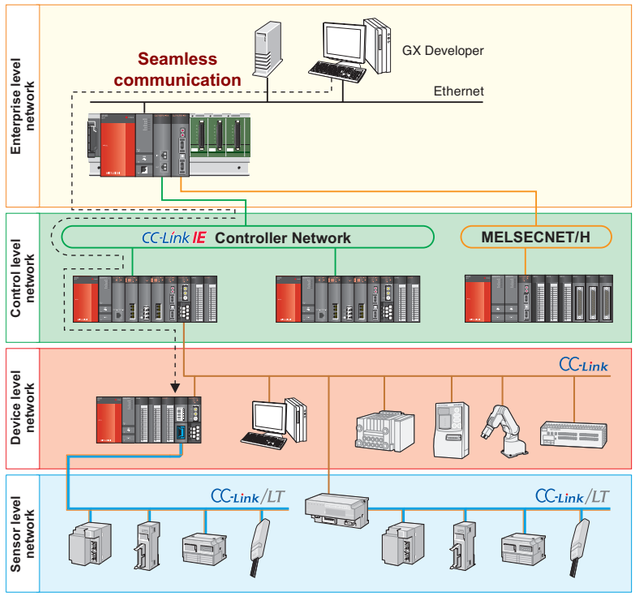
High-speed communication with external devices is available via Ethernet. According to application requirements, various devices can be connected.

Connection with various devices



■ Seamless communication across all layers

The QnU model supports the high-speed, high-capacity CC-Link IE Controller Network to allow for massive data exchange. It can also communicate with MELSECNET/H, Ethernet, and CC-Link seamlessly beyond the network type and hierarchy. Each programmable controller on the network can be monitored/programmed by GX Developer connected via Ethernet.

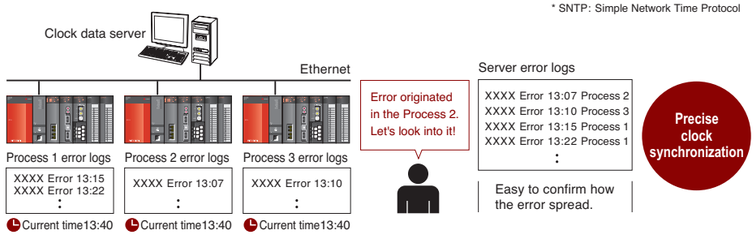


Access beyond hierarchy

■ Always provide accurate clock data

With the SNTP* clock synchronization function, clock synchronization, which is a bottleneck factor, is automatically performed. Accurate time of error occurrence can be grasped, enabling the user to easily confirm the multiple CPU related error occurrence timing.

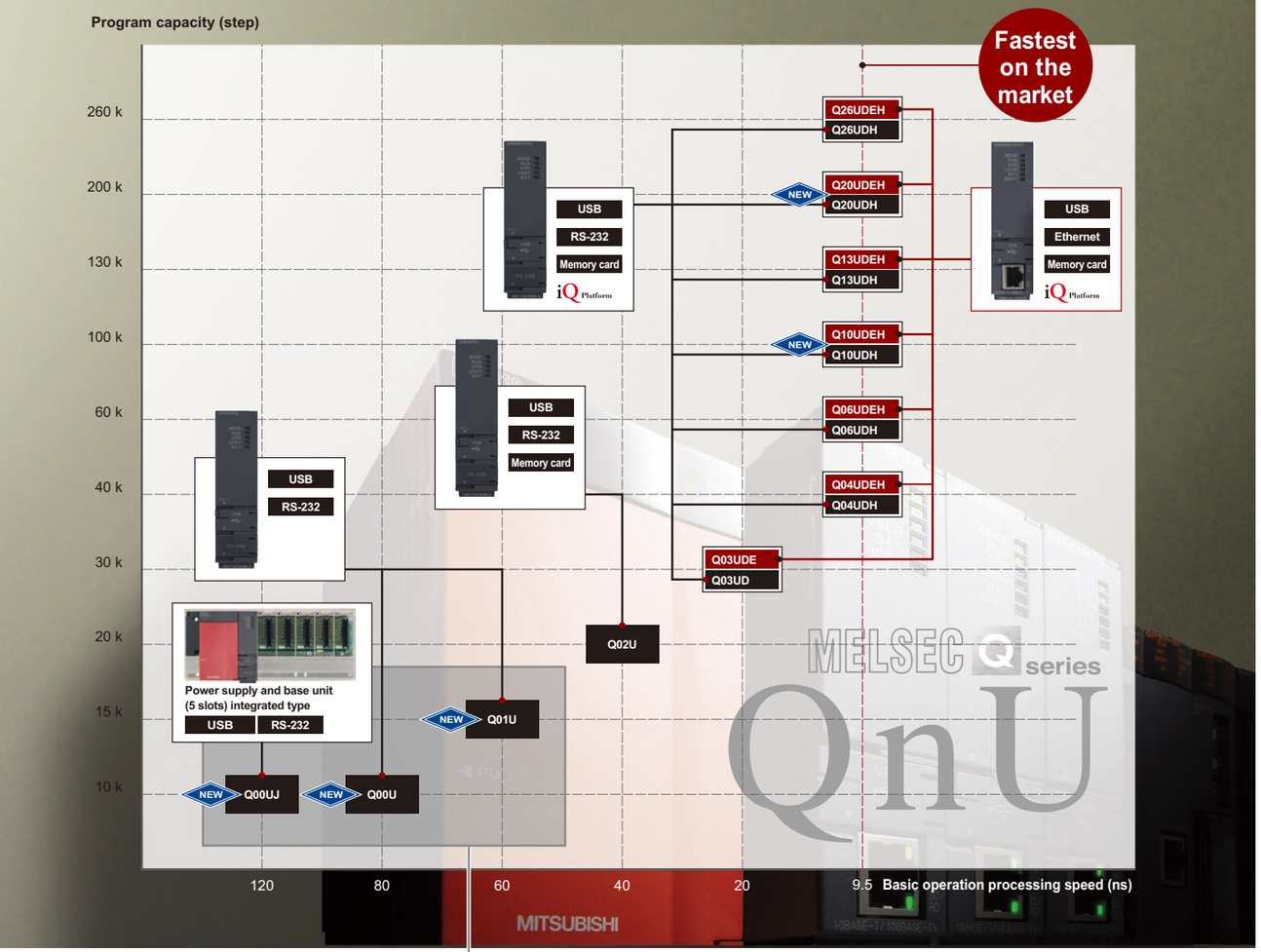
* SNTP: Simple Network Time Protocol



Precise clock synchronization

Wide variety of products for your needs

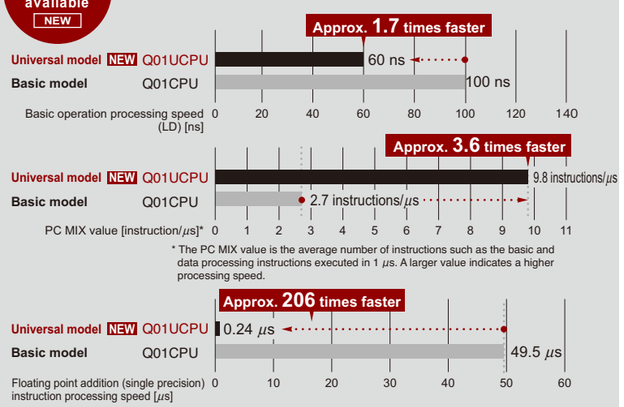
Enhanced lineup from low capacity to high capacity



■ Improved performance

Compared to Basic model QCPU, the performance is improved efficiently.

Low-capacity type is available NEW



■ Compatible with multiple programs

Compatible with up to 32 programs.
With the use of common instructions, programs can be used for all Universal model modules. Thus the program assets are easily utilized when changing the CPU types.

■ Standardized USB port

Even when the RS-232 port is occupied by a peripheral such as a display device, the programming tool can be connected to the USB port.

MELSEC Q series

QnU

■ Enhanced lineup

Enhanced lineup

7 new models are added to the 11 existing models.
Wide variety of modules are available to suit your needs of performance and functions.

- The USB port is standardized for all models and either Ethernet port type or RS-232 port type can be selected.

Compatible model: Q03U Q04U Q06U Q10U Q13U Q20U Q26U

- CPUs from low capacity to high capacity can be selected according to your program size.

■ Easy programming with the convenient instructions Upgraded Function

Reduced programming work

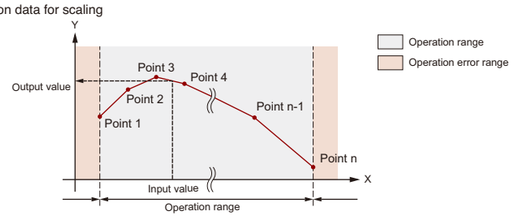
The convenient instructions such as the scaling instruction, exponentiation instruction, and rising/falling pulse contact instruction of closed contact are added. Programming that used to require complicated processes is now improved efficiently and thus the programming work is reduced.

[Scaling instruction]

The result of scaling for the conversion data (Point 1 to n in the figure below) with the specified input value is stored to the specified device number as the output value.

◎ Configuration of conversion data for scaling

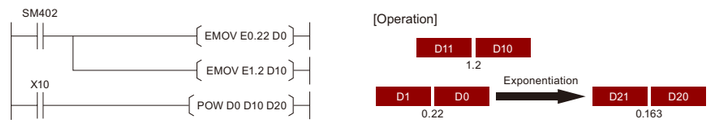
Setting item	
Coordinate points	
Point 1	X coordinate
	Y coordinate
Point 2	X coordinate
	Y coordinate
⋮	
Point n	X coordinate
	Y coordinate



[Exponentiation instruction]

The exponentiation operation can be performed with the specified floating-point real number.

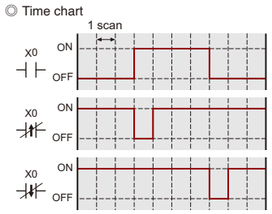
Example) Exponentiation operation on 32-bit floating-point real numbers D0, D1 and D10, D11



[Rising/falling pulse contact instruction of closed contact]

Previously, multiple instructions are required for the rising/falling conditions of closed contact, but now, the rising/falling pulse contact instruction of closed contact is available for the efficient programming.

◎ Time chart



◎ Added instructions

Category	Instruction	Symbol
Contact instruction	Pulse operation start of closed contact	LDPI, LDFI
	Pulse series connection of closed contact	ANDPI, ANDFI
	Pulse parallel connection of closed contact	ORPI, ORFI
Shift instruction	n-bit right/left shift of n-bit data	SFTBR, SFTBL
Data processing instruction	Average value calculation	MEAN, DMEAN
String processing instruction	String insertion	STRINS
	String deletion	STRDEL
Special function instruction	Floating-point exponentiation operation	POW, POWD
	Floating-point common logarithm operation	LOG10, LOG10D
Data control instruction	Scaling (coordinate by point data)	SCL, DSCL
	Scaling (coordinate by X/Y data)	SCL2, DSCL2
Clock instruction	Date comparison	DT=, DT<>, DT>, DT<=, DT<, DT>=
	Time comparison	TM=, TM<>, TM>, TM<=, TM<, TM>=

Compatible model: Q00UJ Q00U Q01U Q02U Q03U Q04U Q06U Q10U Q13U Q20U Q26U

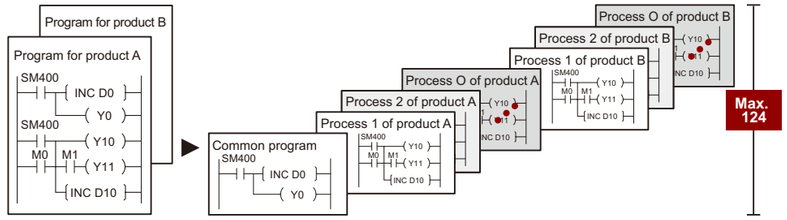
MELSEC Q series

QnU

■ Programs structured into individual routines

Increased program capacity

The number of programs is increased to 124 (max.) to allow detailed program management by product, process, etc. This facilitates structuring programs into individual routines. Such structured programs can be highly utilized and enhance visibility.
Also, standard ROM capacity is expanded to 4 MB (max.), enabling storage of label information of function block (FB) and device comments of sequence programs in CPU.

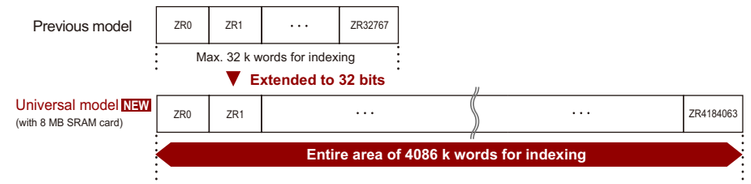


CPU		Q00UJ NEW	Q00U NEW	Q01U NEW	Q02U	Q03UDE / Q03UD	Q04UDEH / Q04UDH	Q06UDEH / Q06UDH	Q10UDEH NEW / Q10UDH NEW	Q13UDEH / Q13UDH	Q20UDEH NEW / Q20UDH NEW	Q26UDEH / Q26UDH
Program memory	Program capacity	10 k steps		15 k steps	20 k steps	30 k steps	40 k steps	60 k steps	100 k steps	130 k steps	200 k steps	260 k steps
	No. of programs	32			64	124						
Standard ROM capacity (Flash ROM)		256 KB	512 KB			1 MB			2 MB		4 MB	

■ Easy to handle large-volume data

High-speed, large-volume data processing

The capacity of standard RAM and memory card, which can be used as file register, is increased to store larger amounts of production and quality data. With an 8 MB SRAM, a maximum of 4086 k words (about 4 times more than the previous model) can be used for file registers. Furthermore, because the index register is extended to 32 bits, programming beyond 32 k words is possible, enabling use of the entire area of file register for indexing. (Except Q00UJCPU)
To perform operation of structured (sequence) data efficiently, programming by indexing is necessary. Index register processing speed is also dramatically improved, which can shorten scan time when indexing is heavily used for sequence programs such as FOR to NEXT instruction.



◎Standard RAM capacity (file register capacity)

Q00UJ NEW	Q00U NEW	Q01U NEW	Q02U	Q03UDE / Q03UD	Q04UDEH / Q04UDH	Q06UDEH / Q06UDH	Q10UDEH NEW / Q10UDH NEW	Q13UDEH / Q13UDH	Q20UDEH NEW / Q20UDH NEW	Q26UDEH / Q26UDH
—	128 KB (64 k words)			192 KB (96 k words)	256 KB (128 k words)	768 KB (384 k words)	1024 KB (512 k words)		1280 KB (640 k words)	

◎Memory card (SRAM)

Model	Q2MEM-1MBS	Q2MEM-2MBS	Q3MEM-4MBS	Q3MEM-8MBS
Capacity	1 MB	2 MB	4 MB	8 MB
File register capacity*	505 k words	1017 k words	2039 k words	4086 k words

* Maximum capacity when the memory card is used as file register.
Memory card cannot be used for Q00UJ, Q00U, and Q01UCPU.

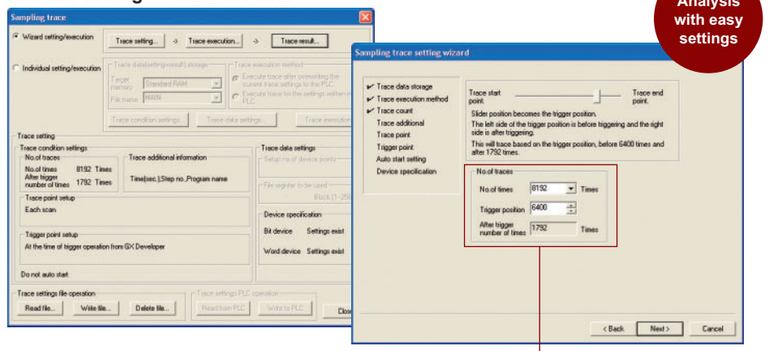
MELSEC Q series
QnU

■ Shortened startup time with sampling trace function

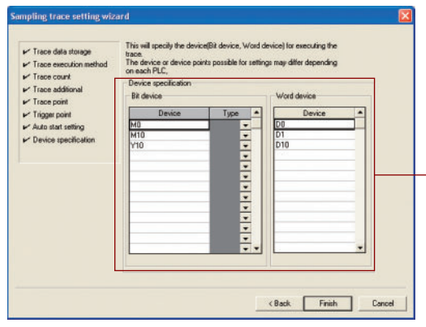
The sampling trace function facilitates error analysis and program debugging timing verification, reducing equipment error analysis time and startup time. For a multiple CPU system, CPU-to-CPU data exchange timing can be also confirmed.
The collected data can be not only viewed on GX Developer but also exported to a CSV file, allowing data analysis utilizing Excel.

Intuitive setting in Wizard format

Analysis with easy settings

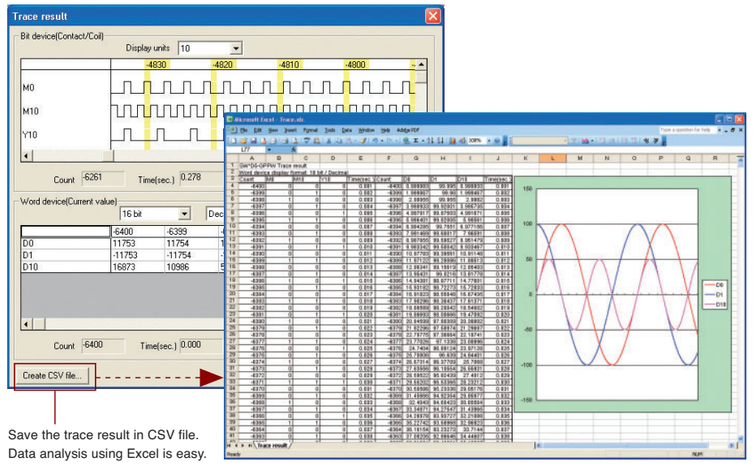


Set the total number of traces and trigger position.



Select devices to be traced.

Trace result

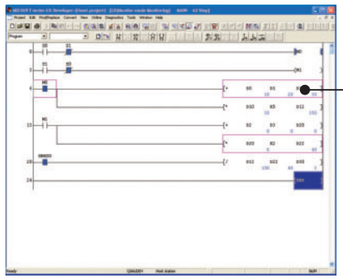


Save the trace result in CSV file.
Data analysis using Excel is easy.

Compatible model: Q00U Q01U Q02U Q03U Q04U Q06U Q10U Q13U Q20U Q26U

■ Simplified program debugging task Upgraded Function

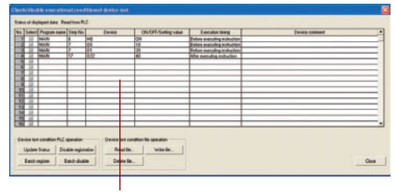
The QnU model features the "Executional conditioned device test" function, which allows the user to change the device value to the specified value at any step in the program. Previously, a program for device setting must be added to debug a specific ladder block. However, using this function, only the specified ladder block can be debugged without modifying the program. This eliminates the program modification time for debugging and simplifies the debugging task.



The section to be debugged is in a colored box for easy confirmation.

No program modifications required

Execute the device test by setting the conditions such as step No. and execution timing (before/after executing instruction).



All sections to be tested are displayed in a list. Reading the registered conditions from the CPU and saving/reading the execution condition file are available.

Compatible model: Q00UJ Q00U Q01U Q02U Q03U Q04U Q06U Q10U Q13U Q20U Q26U

■ Improved program creation with device extension Upgraded Function

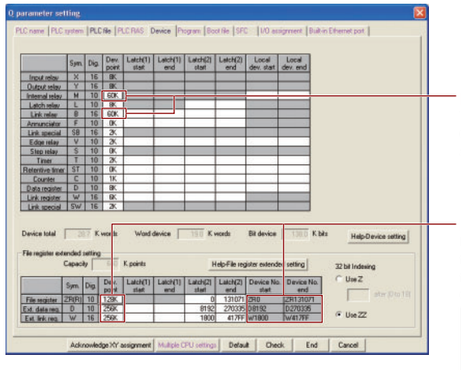
Extended bit/word devices

[Bit device extension]
The bit devices M and B can be extended up to 60 k points, improving program readability. (Previously up to 32 k points)

Compatible model: Q00UJ Q00U Q01U Q02U Q03U Q04U Q06U Q10U Q13U Q20U Q26U

[Extended data registers/extended link registers]
The device range is extended by using the standard ROM or memory card as D device or W device. (Previously used as file register (R/ZR))
Devices can be extended easily and flexibly for such case as word device increase by the program change.

Compatible model: Q00U Q01U Q02U Q03U Q04U Q06U Q10U Q13U Q20U Q26U



[Bit device extension]
The points can be set within the range from 0 k to 60 k points for the internal relay (M) and link relay (B).

[Extended data registers/extended link registers]
For example, 640 k points of word device in the standard ROM area can be divided as follows according to the purpose of use for Q26UDEHCPU.

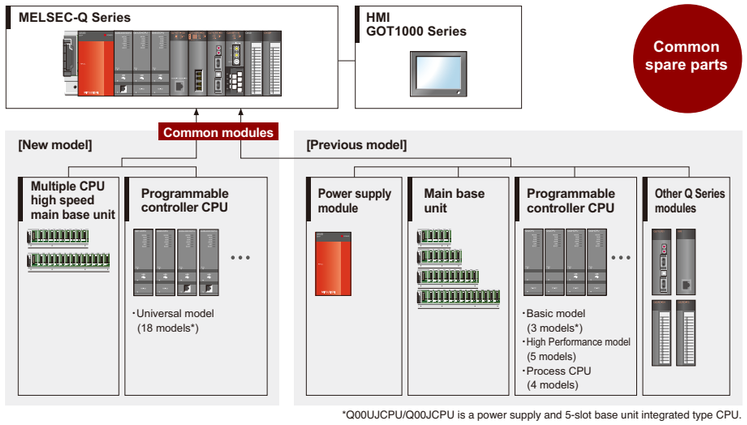
- File register (R): 128 k points
- Extended data register (D): 256 k points
- Extended link register (W): 256 k points

Easy Maintenance

■ Highly compatible with standard Q Series

[Compatibility with Q Series modules]

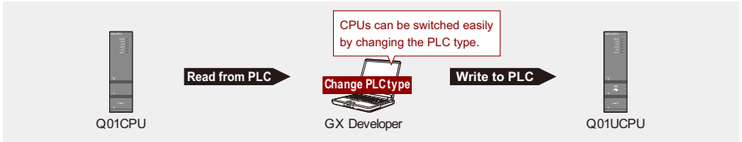
The standard Q Series modules can be used without modification. Common modules can be used for the existing system and new system, lowering maintenance costs.



*Q00UJCPU/Q00JCPU is a power supply and 5-slot base unit integrated type CPU.

[Utilizing Q Series programs]

The existing QCPU programs can be utilized by changing the PLC type on GX Developer. Switching of a module to Universal model CPU is performed smoothly.

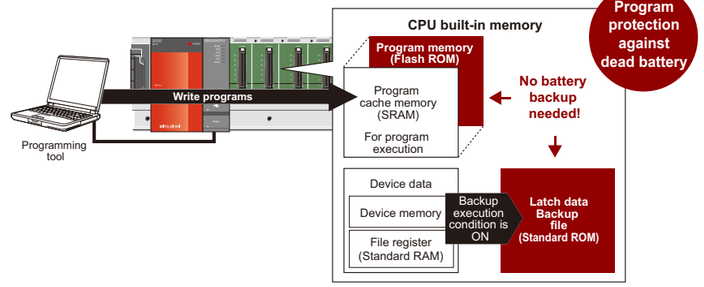


MELSEC Q series

QnU

■ Secure data even after prolonged storage

Program and parameter files are automatically saved in the Flash ROM, which does not require battery backup. This prevents data loss due to dead battery. This function improves battery life. Important information such as device data is also protected in case of dead battery. The data will be backed up in standard ROM, and the backup data automatically returns when power is turned ON.



Compatible model: Q00UJ | Q00U | Q01U | Q02U | Q03U | Q04U | Q06U | Q10U | Q13U | Q20U | Q26U

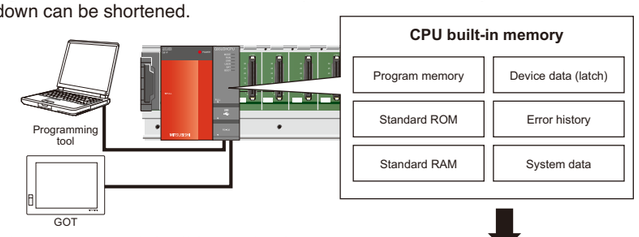
■ Shortened recovery time in system down Upgraded Function

Backing up data

[CPU module exchange function using a memory card]

All data in the CPU are backed up to a memory card with a simple operation. By backing up data regularly, updated parameters and programs are always stored to a memory card.

In a case of CPU failure, backed up data are restored from the memory card. Thus the management of the backup data is not required and the recovery time from the system down can be shortened.



STEP 1 Install a memory card to the CPU and store the backup data to the memory card in advance.

STEP 2 When the CPU is failed, exchange it to the normal CPU and install the memory card with the backup data.

STEP 3 Execute the backup data restoration function from the programming tool, and reset the CPU to recover the data.

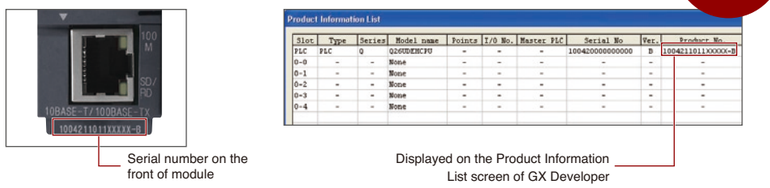
Compatible model: Q02U | Q03U | Q04U | Q06U | Q10U | Q13U | Q20U | Q26U

■ The serial number is indicated on the front of module

Easy checking of serial numbers

Without mounting off the module from the base unit, the serial number can be checked on the front of the module.

The serial numbers can be also checked on the screen of GX Developer.



CPU Module Performance Specifications

Item		Q00UJCPU NEW	Q00UCPU NEW	Q01UCPU NEW	Q02UCPU	Q03UDECPU / Q03UDCPU	Q04UDEHCPU / Q04UDHCPU		Q06UDEHCPU / Q06UDHCPU	Q10UDEHCPU NEW / Q10UDHCPU NEW	Q13UDEHCPU / Q13UDHCPU	Q20UDEHCPU NEW / Q20UDHCPU NEW	Q26UDEHCPU / Q26UDHCPU
Control method		Sequence program control method							Sequence program control method				
I/O control mode		Refresh							Refresh				
Program language (sequence control language)		・Relay symbol language (ladder) ・Logic symbolic language (list) ・MELSAP3 (SFC), MELSAP-L ・Structured text (ST)							・Relay symbol language (ladder) ・Logic symbolic language (list) ・MELSAP3 (SFC), MELSAP-L ・Structured text (ST)				
Peripheral connection port	USB (Note 6)	Yes							Yes				
	Ethernet (100BASE-TX/10BASE-T)	No				Q03UDECPU	Q04UDEHCPU		Q06UDEHCPU	Q10UDEHCPU	Q13UDEHCPU	Q20UDEHCPU	Q26UDEHCPU
	RS-232	Yes				Q03UDCPU	Q04UDHCPU		Q06UDHCPU	Q10UDHCPU	Q13UDHCPU	Q20UDHCPU	Q26UDHCPU
Memory card interface		No			Yes				Yes				
Processing speed (sequence instruction) (Note 1)	LD instruction	0.12 μs	0.08 μs	0.06 μs	0.04 μs	0.02 μs	0.0095 μs		0.0095 μs				
	MOV instruction	0.24 μs	0.16 μs	0.12 μs	0.08 μs	0.04 μs	0.019 μs		0.019 μs				
	PC MIX value (instruction/μs) (Note 2)	4.92	7.36	9.79	14	28	60		60				
	Floating point addition	0.42 μs	0.30 μs	0.24 μs	0.18 μs	0.12 μs	0.057 μs		0.057 μs				
Total number of instructions (Note 3)		822	848		850	858			858				
Operation (floating point operation) instruction		Yes							Yes				
Character string processing instruction		Yes							Yes				
PID instruction		Yes							Yes				
Special function instruction (Trigonometric function, square root, exponential operation, etc.)		Yes							Yes				
Constant scan (Function for keeping regular scan time)		0.5 to 2000 ms (setting available in units of 0.5 ms)							0.5 to 2000 ms (setting available in units of 0.5 ms)				
Program capacity		10 k steps		15 k steps	20 k steps	30 k steps	40 k steps		60 k steps	100 k steps	130 k steps	200 k steps	260 k steps
Number of I/O device points [X/Y]		8192 points							8192 points				
Number of I/O points [X/Y]		256 points	1024 points		2048 points	4096 points			4096 points				
Internal relay [M]	(Note 4)	8192 points							8192 points				
Latch relay [L]		8192 points							8192 points				
Link relay [B]		8192 points							8192 points				
Timer [T]		2048 points							2048 points				
Retentive timer [ST]		0 points							0 points				
Counter [C]		1024 points							1024 points				
Data register [D]		12288 points							12288 points				
Link register [W]		8192 points							8192 points				
Annunciator [F]		2048 points							2048 points				
Edge relay [V]		2048 points							2048 points				
Link special relay [SB]		2048 points							2048 points				
Link special register [SW]		2048 points							2048 points				
File register [R, ZR]		No	65536 points		65536 points (Note 5)	98304 points (Note 5)	131072 points (Note 5)		393216 points (Note 5)	524288 points (Note 5)		655360 points (Note 5)	
Step relay [S]		8192 points							8192 points				
Index register/standard device register [Z]		20 points							20 points				
Index register [Z] (32-bit ZR indexing)		No	Max. 10 points (Z0 to Z18) (Index register [Z] is used in double words.)						Max. 10 points (Z0 to Z18) (Index register [Z] is used in double words.)				
Pointer [P]		512 points			4096 points				4096 points				
Interrupt pointer [I]		128 points			256 points				256 points				
Special relay [SM]		2048 points							2048 points				
Special register [SD]		2048 points							2048 points				
Function input [FX]		16 points							16 points				
Function output [FY]		16 points							16 points				
Function register [FD]		5 points							5 points				
Local device		No	Yes						Yes				
Device initial values		Yes							Yes				

Note 1) The processing speed is the same even when the device is indexed.
Note 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.
Note 3) Intelligent function module dedicated instructions are not included.
Note 4) Indicates the number of points in the default state. This can be changed with the parameter.
Note 5) 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.
Note 6) The USB port terminal is mini-B.

General Specifications

General specifications indicate the environmental specifications in which this product can be installed and operated. Unless otherwise specified, the general specifications apply to all products of the Q Series.
Install and operate the Q Series products in the environment indicated in the general specifications.

Item	Specifications					
Operating ambient temperature	0 to 55℃					
Storage ambient temperature	-25 to 75℃ (Note 3)					
Operating ambient humidity	5 to 95%RH (Note 4), non-condensing					
Storage ambient humidity	5 to 95%RH (Note 4), non-condensing					
Vibration resistance	Conforms to JIS B 3502, IEC 61131-2		Frequency	Acceleration	Amplitude	Sweep count
		Under intermittent vibration	5 to 9 Hz	—	3.5 mm (0.14 in.)	10 times each in X, Y, Z directions (for 80 min.)
			9 to 150 Hz	9.8 m/s^2	—	
		Under continuous vibration	5 to 9 Hz	—	1.75 mm (0.069 in.)	
			9 to 150 Hz	4.9 m/s^2	—	
Shock resistance	Conforms to JIS B 3502, IEC 61131-2 (147 m/s^2, 3 times in each of 3 directions X, Y, Z)					
Operating atmosphere	No corrosive gases					
Operating altitude (Note 5)	2000 m (6562 ft.) or less					
Installation location	Inside control panel					
Overvoltage category (Note 1)	Ⅱ or less					
Pollution degree (Note 2)	2 or less					
Equipment class	Class Ⅰ					

Note 1) 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.
Note 2) This index indicates the degree to which conductive material is generated in the environment where the equipment is used.
In pollution degree 2, only non-conductive pollution occurs. However, a temporary conductivity caused by condensation is to be expected.
Note 3) The storage ambient temperature is -20 to 75℃ if the system includes the AnS Series modules.
Note 4) The operating ambient humidity and storage ambient humidity are 10 to 90%RH if the system includes the AnS Series modules.
Note 5) Do not use or store the programmable controller under pressure higher than the atmospheric pressure of altitude 0 m.
Doing so can cause a malfunction.
When using the programmable controller under pressure, please consult your local Mitsubishi sales office or representative.

Module Combinations for Multiple CPU System

◎ Possible
○ Possible (multiple CPU high-speed communication not available)
× Impossible

【Multiple CPU high speed main base unit (Q3□DB)】

CPU 1 \ CPU 2 to 4		Universal model QCPU: Q00U, Q01U, Q02U	Universal model QCPU: Q03UD(E), Q04UD(E)H, Q06UD(E)H, Q10UD(E)H, Q13UD(E)H, Q20UD(E)H, Q26UD(E)H, iQ Platform	High Performance model QCPU: Q02(H), Q06H, Q12H, Q25H	Process CPU: Q02PH, Q06PH, Q12PH, Q25PH	Motion CPU: Q172D, Q173D, iQ Platform	Motion CPU: Q172H, Q173H, Q172, Q173	PC CPU
Universal model QCPU	Q00U, Q01U, Q02U (Note 2)	×	×	×	×	×	×	○ (Note 1) (Note 3)
	Q03UD(E), Q04UD(E)H, Q06UD(E)H, Q10UD(E)H, Q13UD(E)H, Q20UD(E)H, Q26UD(E)H, iQ Platform	×	◎	○	○	◎	×	○ (Note 1) (Note 3)
High Performance model QCPU	Q02(H), Q06H, Q12H, Q25H	×	○	○	○	×	×	○ (Note 1) (Note 3)

【Main base unit other than Q3□DB】

CPU 1 \ CPU 2 to 4		Universal model QCPU: Q00U, Q01U, Q02U	Universal model QCPU: Q03UD(E), Q04UD(E)H, Q06UD(E)H, Q10UD(E)H, Q13UD(E)H, Q20UD(E)H, Q26UD(E)H, iQ Platform	High Performance model QCPU: Q02(H), Q06H, Q12H, Q25H	Process CPU: Q02PH, Q06PH, Q12PH, Q25PH	Motion CPU: Q172D, Q173D, iQ Platform	Motion CPU: Q172H, Q173H, Q172, Q173	PC CPU
Universal model QCPU	Q00U, Q01U, Q02U (Note 2)	×	×	×	×	×	○ (Note 4) (Note 6)	○ (Note 1) (Note 3) (Note 6)
	Q03UD(E), Q04UD(E)H, Q06UD(E)H, Q10UD(E)H, Q13UD(E)H, Q20UD(E)H, Q26UD(E)H, iQ Platform	×	○	○	○ (Note 7)	×	×	○ (Note 1) (Note 3) (Note 6)
High Performance model QCPU	Q02(H), Q06H, Q12H, Q25H	×	○	○	○ (Note 7)	×	○ (Note 5) (Note 6)	○ (Note 1) (Note 3) (Note 6)

Note 1) For usable model name, version, etc., please contact your local Mitsubishi sales office or representative.
Note 2) Q00U, Q01U, or Q02U does not support multiple CPU high-speed communication.
Note 3) Only one PC CPU can be used.
Note 4) Only one motion CPU can be used.
Note 5) Cannot be used together with Q03UD(E), Q04UD(E)H, Q06UD(E)H, Q10UD(E)H, Q13UD(E)H, Q20UD(E)H, or Q26UD(E)HCPU.
Note 6) The slim type main base unit (Q3□SB) and redundant power main base unit (Q38RB) cannot be used.
Note 7) The slim type main base unit (Q3□SB) cannot be used.

【Comparison between built-in Ethernet port CPU and Ethernet module (QJ71E71-100)】

Function/performance	Built-in Ethernet port CPU QnUDE(H)CPU	Ethernet module QJ71E71-100
Communication speed	100 Mbps	100 Mbps
Communication with GX Developer	Yes	Yes
Communication with GOT	Yes	Yes
MC protocol communication	Yes (Note 1)	Yes
Socket communication	No (Note 2)	Yes (Fixed buffer communication)
Random access buffer communication	No	Yes
Communication by data link instruction	No	Yes
FTP server function	Yes	Yes
E-mail function	No	Yes

Note 1) QnA compatible 3E frame device memory access commands only. Refer to the manual for details.
Note 2) Some differences in function. Refer to the manual for details.

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Product List

MELSEC Q series QnU
Basic instruction (LD) : 9.5ns Floating point addition:57ns
PC MIX value:80 instructions/μs Program capacity:60k steps max.

*Always refer to user's manuals for information on usable modules, restrictions, etc. before using.
*Contact your local Mitsubishi sales office or representative for the latest information on the MELSOFT versions and compatible OS.

CPU, base, power supply

Product		Model	Outline
CPU		Q00UJCPU NEW	No. of I/O points: 256 points, no. of I/O device points: 8192 points, program capacity: 10 k steps, basic operation processing speed (LD instruction): 0.12 μs, program memory capacity: 40 KB, peripheral connection ports: USB and RS232, no memory card I/F
		Q00UCPU NEW	No. of I/O points: 1024 points, no. of I/O device points: 8192 points, program capacity: 10 k steps, basic operation processing speed (LD instruction): 0.08 μs, program memory capacity: 40 KB, peripheral connection ports: USB and RS232, no memory card I/F
		Q01UCPU NEW	No. of I/O points: 1024 points, no. of I/O device points: 8192 points, program capacity: 15 k steps, basic operation processing speed (LD instruction): 0.06 μs, program memory capacity: 60 KB, peripheral connection ports: USB and RS232, no memory card I/F
		Q02UCPU	No. of I/O points: 2048 points, no. of I/O device points: 8192 points, program capacity: 20 k steps, basic operation processing speed (LD instruction): 0.04 μs, program memory capacity: 80 KB, peripheral connection ports: USB and RS232, with memory card I/F
		Q03UDECPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30 k steps, basic operation processing speed (LD instruction): 0.02 μs, program memory capacity: 120 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q03UDCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30 k steps, basic operation processing speed (LD instruction): 0.02 μs, program memory capacity: 120 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
		Q04UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 160 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q04UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 160 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
		Q06UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 240 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q06UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 240 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
		Q10UDEHCPU NEW	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 100 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 400 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q10UDHCPU NEW	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 100 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 400 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
		Q13UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 520 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q13UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 520 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
		Q20UDEHCPU NEW	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 200 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 800 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q20UDHCPU NEW	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 200 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 800 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
		Q26UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 1040 KB, multiple CPU high-speed communication, peripheral connection ports: USB and Ethernet, with memory card I/F
		Q26UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260 k steps, basic operation processing speed (LD instruction): 0.0095 μs, program memory capacity: 1040 KB, multiple CPU high-speed communication, peripheral connection ports: USB and RS232, with memory card I/F
	Battery	Q6BAT	Replacement battery
		Q7BAT	Replacement large-capacity battery
		Q7BAT-SET	Large-capacity battery with holder for mounting CPU
		Q8BAT	Replacement large-capacity battery module
		Q8BAT-SET	Large-capacity battery module with CPU connection cable
	Memory card	Q2MEM-1MBS	SRAM memory card, capacity: 1 MB
		Q2MEM-2MBS	SRAM memory card, capacity: 2 MB
		Q3MEM-4MBS	SRAM memory card, capacity: 4 MB
		Q3MEM-4MBS-SET	SRAM memory card with cover, capacity: 4 MB
		Q3MEM-8MBS	SRAM memory card, capacity: 8 MB
		Q3MEM-8MBS-SET	SRAM memory card with cover, capacity: 8 MB
		Q2MEM-2MBF	Linear Flash memory card, capacity: 2 MB
		Q2MEM-4MBF	Linear Flash memory card, capacity: 4 MB
		Q2MEM-8MBA	ATA card, capacity: 8 MB
		Q2MEM-16MBA	ATA card, capacity: 16 MB
		Q2MEM-32MBA	ATA card, capacity: 32 MB

CPU, base, power supply

Product		Model	Outline
CPU	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 personal computer 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
Base	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	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
	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, 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
Power supply		Q61P	Input voltage: 100 to 240 V AC, output voltage: 5 V DC, output current: 6 A
		Q62P	Input voltage: 100 to 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 (Note 8)	Input voltage: 100 to 240 V AC, output voltage: 5 V DC, output current: 8.5 A
Slim type power supply		Q61SP	Input voltage: 100 to 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
		Q64RP	Input voltage: 100 to 120/200 to 240 V AC, output voltage: 5 V DC, output current: 8.5 A
Power Supply with Life Detection NEW		Q61P-D	Input voltage: 100 to 240 V AC, output voltage: 5 V DC, output current: 6A

I/O module

Product		Model	Outline
Input	AC	QX10	16 points, 100 to 120 V AC, response time: 20 ms, 16 points/common, 18-point terminal block
		QX10-TS NEW	16 points, 100 to 120 V AC, response time: 20 ms, 16 points/common, 18-point spring clamp terminal block
		QX28	8 points, 100 to 240 V AC, response time: 20 ms, 8 points/common, 18-point terminal block
	DC (Positive common) (Note 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 NEW	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 NEW	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 (Note 2)	32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, 40-pin connector
		QX41-S1 (Note 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
		QX42 (Note 2)	64 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common, 40-pin connector
		QX42-S1 (Note 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 (Note 1)	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 NEW	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	32 points, 5/12 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive/negative common, 40-pin connector
		QX72	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) (Note 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 NEW	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 NEW	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 (Note 3)	32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, negative common, 37-pin D-sub connector
		QX82 (Note 2)	64 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, negative common, 40-pin connector
		QX82-S1 (Note 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 NEW	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 NEW	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 to 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 suppressor
	Transistor (Sink)	QY40P	16 points, 12 to 24 V DC, 0.1 A/point, 1.6 A/common, response time: 1 ms, 16 points/common, sink type, 18-point terminal block, with thermal and short-circuit protection and surge suppressor
		QY40P-TS NEW	16 points, 12 to 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, with thermal and short-circuit protection and surge suppressor
		QY41P (Note 2)	32 points, 12 to 24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type, 40-pin connector, with thermal and short-circuit protection and surge suppressor
		QY42P (Note 2)	64 points, 12 to 24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type, 40-pin connector, with thermal and short-circuit protection and surge suppressor
		QY50	16 points, 12 to 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 suppressor and fuse
	Transistor (Independent)	QY68A	8 points, 5 to 24 V DC, 2 A/point, 8 A/module, response time: 10 ms, sink/source type, 18-point terminal block, with surge suppressor, all points independent
	TTL CMOS	QY70	16 points, 5 to 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 (Note 2)	32 points, 5 to 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 to 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 suppressor and fuse
		QY80-TS NEW	16 points, 12 to 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 suppressor and fuse
		QY81P	32 points, 12 to 24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, source type, 37-pin D-sub connector, with thermal and short-circuit protection and surge suppressor
I/O	DC input/ transistor output	QH42P* (Note 2)	Input: 32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common; output: 32 points, 12 to 24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type; 40-pin connector, with thermal and short-circuit protection and surge suppressor
		QX48Y57	Input: 8 points, 24 V DC, response time: 1/5/10/20/70 ms, 8 points/common, positive common; output: 7 points, 12 to 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 suppressor and fuse
		QX41Y41P* (Note 2)	Input: 32 points, 24 V DC, response time: 1/5/10/20/70 ms, 32 points/common, positive common; output: 32 points, 12 to 24 V DC, 0.1 A/point, 2 A/common, response time: 1 ms, 32 points/common, sink type; 40-pin connector, with thermal and short-circuit protection and surge suppressor
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

*Number of occupied I/O points differs.
QH42P: 32 points
QX41Y41P: 64 points (32 points of first half: input, 32 points of latter half: output)

I/O module

Product		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)
		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)
Spring clamp terminal block		Q6TE-18S	For 16-point I/O modules, 0.3 to 1.5 mm^2 (22 to 16 AWG)
Terminal block adapter		Q6TA32	For 32-point I/O modules, 0.5 mm^2 (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

Analog I/O module

Product		Model	Outline
Analog input	Voltage input	Q68ADV	8 channels; input: -10 to 10 V DC; output (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, 0 to 16000, -16000 to 16000; conversion speed: 80 μs/channel; 18-point terminal block
	Current input	Q62AD-DGH	2 channels; input: 4 to 20 mA DC; output (resolution): 0 to 32000, 0 to 64000; conversion speed: 10 ms/2 channels; 18-point terminal block; channel isolated; supplies power to 2-wire transmitter
		Q66AD-DG (Note 5)	6 channels; input: 4 to 20 mA DC (when 2-wire transmitter is connected), 0 to 20 mA DC; output (resolution): 0 to 4000, 0 to 12000; conversion speed: 10 ms/channel; 40-pin connector; channel isolated; supplies power to 2-wire transmitter
		Q68ADI	8 channels; input: 0 to 20 mA DC; output (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, 0 to 16000, -16000 to 16000; conversion speed: 80 μs/channel; 18-point terminal block
	Voltage/ current input	Q64AD	4 channels; input: -10 to 10 V DC, 0 to 20 mA DC; output (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, 0 to 16000, -16000 to 16000; conversion speed: 80 μs/channel; 18-point terminal block
		Q64AD-GH	4 channels; input: -10 to 10 V DC, 0 to 20 mA DC; output (resolution): 0 to 32000, -32000 to 32000, 0 to 64000, -64000 to 64000; conversion speed: 10 ms/4 channels; 18-point terminal block, channel isolated
		Q68AD-G (Note 5)	8 channels; input: -10 to 10 V DC, 0 to 20 mA DC; output (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, 0 to 16000, -16000 to 16000; conversion speed: 10 ms/channel; 40-pin connector, channel isolated
Analog output	Voltage output	Q68DAVN	8 channels; input (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, -16000 to 16000; output: -10 to 10 V DC; conversion speed: 80 μs/channel; 18-point terminal block, transformer isolation between power supply and output
	Current output	Q68DAIN	8 channels; input (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000; output: 0 to 20 mA DC; conversion speed: 80 μs/channel; 18-point terminal block, transformer isolation between power supply and output
	Voltage/ current output	Q62DAN	2 channels; input (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, -16000 to 16000; output: -10 to 10 V DC, 0 to 20 mA DC; conversion speed: 80 μs/channel; 18-point terminal block, transformer isolation between power supply and output
		Q62DA-FG	2 channels; input (resolution): 0 to 12000, -12000 to 12000, -16000 to 16000; output: -12 to 12 V DC, 0 to 22 mA DC; conversion speed: 10 ms/2 channels; 18-point terminal block; channel isolated
		Q64DAN	4 channels; input (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, -16000 to 16000; output: -10 to 10 V DC, 0 to 20 mA DC; conversion speed: 80 μs/channel; 18-point terminal block; transformer isolation between power supply and output
		Q66DA-G (Note 5)	6 channels; input (resolution): 0 to 4000, -4000 to 4000, 0 to 12000, -12000 to 12000, -16000 to 16000; output: -12 to 12 V DC, 0 to 22 mA DC; conversion speed: 6 ms/channel; 40-pin connector; channel isolated
Temperature input	RTD	Q64RD	4 channels, platinum RTD (Pt100 [JIS C1604-1997, IEC 751 1983], JPt100 [JIS C1604-1981]), conversion speed: 40 ms/channel, 18-point terminal block
		Q64RD-G	4 channels, RTD (Pt100 [JIS C1604-1997, IEC 751 1983], JPt100 [JIS C1604-1981], Ni100 Ω [DIN43760 1987]), conversion speed: 40 ms/channel, 18-point terminal block, channel isolated
		Q68RD3-G (Note 5)	8 channels, RTD (3-wire type, Pt100 [JIS C1604-1997, IEC 751 1983], JPt100 [JIS C1604-1981]), Ni100 Ω [DIN43760 1987]), conversion speed: 320 ms/8 channels, 40-pin connector, channel isolated
	Thermocouple	Q64TD	4 channels, thermocouple (JIS C1602-1995), conversion speed: 40 ms/channel, 18-point terminal block
		Q64TDV-GH	4 channels, thermocouple (JIS C1602-1995), micro voltage (-100 to 100 mV), conversion speed: sampling cycle x 3, sampling cycle: 20 ms/channel, 18-point terminal block
		Q68TD-G-H01 (Note 5) (Note 7)	8 channels, thermocouple (JIS C1602-1995, IEC 60584-1 [1995], IEC 60584-2 [1982]), conversion speed: 320 ms/8 channels, 40-pin connector
		Q68TD-G-H02 NEW (Note 5)	8 channels, thermocouple (JIS C1602-1995, IEC 60584-1 [1995], IEC 60584-2 [1982]), conversion speed: 640 ms/8 channels, 40-pin connector
Temperature control	Platinum RTD	Q64TCRT	4 channels, platimum RTD (Pt100, JPt100), no heater disconnection detection, sampling cycle: 0.5 s/4 channels, 18-point terminal block
		Q64TCRTBW	4 channels, platimum RTD (Pt100, JPt100), with heater disconnection detection, sampling cycle: 0.5 s/4 channels, two 18-point terminal blocks
	Thermocouple	Q64TCTT	4 channels, thermocouple (K, J, T, B, S, E, R, N, U, L, PLII, W5Re/W26Re), no heater disconnection detection, sampling cycle: 0.5 s/4 channels, 18-point terminal block
		Q64TCTTBW	4 channels, thermocouple (K, J, T, B, S, E, R, N, U, L, PLII, W5Re/W26Re), with heater disconnection detection, sampling cycle: 0.5 s/4 channels, 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 to 20 mA DC, conversion speed (output): 25 ms/2 channels; 18-point terminal block, with 5 PID control modes

Pulse I/O and positioning module

Product		Model	Outline
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 to 24 V DC
High-speed counter		QD62 (Note 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
		QD62D (Note 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
		QD62E (Note 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
		QD63P6 (Note 4)	6 channels, 200/100/10 kpps, count input signal: 5 V DC, 40-pin connector
Positioning	Open collector output (Note 4)	QD75P1	1 axis; control unit: mm, inch, degree, pulse; no. of positioning data: 600/axis; max. output pulse: 200 kpps; 40-pin connector
		QD75P2	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
		QD75P4	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	4 axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 200 kpps, 40-pin connector
		QD70P8	8 axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 200 kpps, 40-pin connector
	Differential output (Note 4)	QD75D1	1 axis; control unit: mm, inch, degree, pulse; no. of positioning data: 600/axis; max. output pulse: 1 Mpps; 40-pin connector
		QD75D2	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
		QD75D4	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	4 axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 4 Mpps, 40-pin connector
		QD70D8	8 axes, control unit: pulse, no. of positioning data: 10/axis, max. output pulse: 4 Mpps, 40-pin connector
	With SSCNET connectivity (Note 2)	QD75M1	1 axis; control unit: mm, inch, degree, pulse; no. of positioning data: 600/axis; 40-pin connector
		QD75M2	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
		QD75M4	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 (Note 2)	QD75MH1	1 axis; control unit: mm, inch, degree, pulse; no. of positioning data: 600/axis; 40-pin connector; with SSCNET III connectivity
		QD75MH2	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	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 NEW	8 axes, control unit: pulse, no. of positioning data: 32/axis, with SSCNET III connectivity
		QD74MH16 NEW	16 axes, control unit: pulse, no. of positioning data: 32/axis, with SSCNET III connectivity
	Open collector output with built-in counter function (Note 4)	QD72P3C3	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

Information module

Product		Model	Outline
MES interface		QJ71MES96	MES interface module *MX MESInterface and CompactFlash card are required.
	Option	GT05-MEM-128MC	128 MB CompactFlash card
		GT05-MEM-256MC	256 MB CompactFlash card
Ethernet		QJ71E71-100	10BASE-T/100BASE-TX
		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
		QJ71C24N-R2	RS-232: 2 channels, total transmission speed of 2 channels: 230.4 kbps
		QJ71C24N-R4	RS-422/485: 2 channels, total transmission speed of 2 channels: 230.4 kbps
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
		SW□IVD-AD51HP (Note 6)	Software package for QD51, AD51H-S3, and A1SD51S

Control network module

CC-Link IE Controller Network		QJ71GP21-SX	Multi-mode fiber optic cable, dual loop, controller network (control/normal station)
		QJ71GP21S-SX	Multi-mode fiber optic cable, dual loop, controller 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, controller 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, controller 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, controller 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)
		QJ71LP21GE	GI-62.5/125 fiber optic cable, dual loop, controller network (control/normal station) or remote I/O network (remote master station)
		QJ72LP25GE	GI-62.5/125 fiber optic cable, dual loop, remote I/O network (remote I/O station)
	Coaxial bus	QJ71BR11	3C-2V/5C-2V coaxial cable, single bus, controller 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 NEW	Twisted pair cable, single bus, controller network (control/normal station)
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
AS-i		QJ71AS92	Master station, AS-Interface Specification Version 2.11 compatible

PC interface board

Product		Model	Outline
CC-Link IE controller network		Q80BD-J71GP21-SX	PCI bus/PCI-X bus, Japanese/English OS compatible, multi-mode fiber optic cable, dual loop, controller network (control/normal station)
		Q80BD-J71GP21S-SX	PCI bus/PCI-X bus, Japanese/English OS compatible, multi-mode fiber optic cable, dual loop, controller network (control/normal station), with external power supply function
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, controller 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, controller 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, controller 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, controller network (control/normal station)
		Q80BD-J71LP21GE	PCI bus, Japanese/English OS compatible, GI-62.5/125 fiber optic cable, dual loop, controller network (control/normal station)
	Coaxial bus	Q80BD-J71BR11	PCI bus, Japanese/English OS compatible, 3C-2V/5C-2V coaxial cable, single bus, controller network (control/normal station)
CC-Link		Q81BD-J61BT11	PCI Express bus, Japanese/English OS compatible, master/local interface board, CC-Link Ver. 2 compatible
		Q80BD-J61BT11N	PCI bus, Japanese/English OS compatible, master/local interface board, CC-Link Ver. 2 compatible

Note 1) "Positive common" means using the module by connecting the common terminal to positive DC power; "negative common" means using the module by connecting the common terminal to negative DC power.
Note 2) The connector is not enclosed. Prepare A6CON1, A6CON2, A6CON3, or A6CON4 separately.
Note 3) The connector is not enclosed. Prepare A6CON1E, A6CON2E, or A6CON3E separately.
Note 4) The connector is not enclosed. Prepare A6CON1, A6CON2, or A6CON4 separately.
Note 5) The connector is not enclosed. Prepare A6CON4 separately.
Note 6) Runs in Windows® command prompt.
Note 7) Depending on the combination of the power supply module and base unit, the mounting position (slot) of Q68TD-G-H01 is restricted.
Note 8) If the shipping standard compliance is required, select the Q64P model.

MELSOFT GX Series

Product	Model	Outline
GX Developer	SW□D5C-GPPW-E	MELSEC programmable controller programming software
	SW□D5C-GPPW-EV	MELSEC programmable controller programming software (upgrade)
GX Simulator	SW□D5C-LLT-E	MELSEC programmable controller simulation software
	SW□D5C-LLT-EV	MELSEC programmable controller simulation software (upgrade)
GX Configurator-AD	SW□D5C-QADU-E	MELSEC-Q dedicated analog to digital conversion module setting/monitoring tool
GX Configurator-DA	SW□D5C-QDAU-E	MELSEC-Q dedicated digital to analog conversion module setting/monitoring tool
GX Configurator-SC	SW□D5C-QSCU-E	MELSEC-Q dedicated serial communication module setting/monitoring tool
GX Configurator-CT	SW□D5C-QCTU-E	MELSEC-Q dedicated high-speed counter module setting/monitoring tool
GX Configurator-TC	SW□D5C-QTCU-E	MELSEC-Q dedicated temperature control module setting/monitoring tool
GX Configurator-TI	SW□D5C-QTIU-E	MELSEC-Q dedicated temperature input module setting/monitoring tool
GX Configurator-FL	SW□D5C-QFLU-E	MELSEC-Q dedicated FL-net module setting/monitoring tool
GX Configurator-PT	SW□D5C-QPTU-E	MELSEC-Q dedicated positioning module QD70 setting/monitoring tool
GX Configurator-AS	SW□D5C-QASU-E	MELSEC-Q dedicated AS-i master module setting/monitoring tool
GX Configurator-QP	SW□D5C-QD75P-E	MELSEC-Q dedicated positioning module QD75P/D/M setting/monitoring tool

MELSOFT MX Series

MX Component	SW□D5C-ACT-E	ActiveX library for communication
MX Sheet	SW□D5C-SHEET-E	Excel communication support tool
MX MESInterface	SW1DNC-MESIF-E	MES interface module QJ71MES96 dedicated information linkage tool
MX Works	SW□D5C-SHEETSET-E	A set of two products: MX Component, MX Sheet

MEMO

MEMO

Mitsubishi Programmable Controllers

Precautions for Choosing the Products

This publication explains the typical features and functions of the Q Series programmable controllers and does not provide restrictions and other information on usage and module combinations. When using the products, always read the user's manuals of the products.
Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; opportunity loss or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

⚠ For safe use

- To use the products given in this publication properly, always read the "manuals" before starting to use them.
- The products have been manufactured as general-purpose parts for general industries, and have not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the products for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
- The products have been manufactured under strict quality control. However, when installing the products where major accidents or losses could occur if the products fail, install appropriate backup or failsafe functions in the system.

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L(NA)08101E-E 0902(MDOC)

New publication effective Feb. 2009.
Specifications subject to change without notice.