

iQ Platform-compatible PAC Entry-level CPU

MELSEC iQ-R series

Story



MELSEC iQ-R Series Broadcast

Entry-level CPU modules for low- to medium-scale applications

The MELSEC iQ-R Series has expanded its CPU lineup with the addition of low- to medium-scale CPU modules, further increasing the range of usable applications. Compared with standard CPUs, the modules have a new design equipped with non-volatile memory that does not require a separate back-up battery. Three models are available in various program memory capacities, R00CPU (10K step), R01CPU (15K step), and R02CPU (20K step), enabling a broad choice depending on the application. The CPU modules inherit standard MELSEC iQ-R Series features*¹ such as improved productivity and security.

Reduce periodic maintenance as backup battery is non-mandatory

Entry-level CPU models are equipped with internal non-volatile memory, eliminating the backup battery required for standard CPU modules.

*1. Supported features may have some restrictions. Please see back page for details.
*2. SD memory card is not supported for the R00CPU.

Convenience

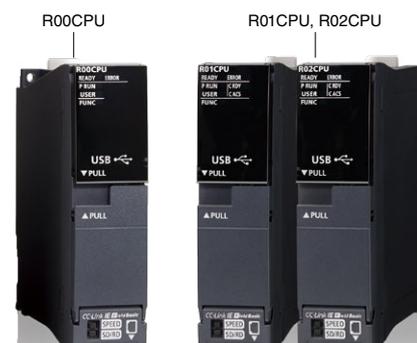
- No battery backup required as equipped with non-volatile memory
- SD memory card realizes data logging functionality
- Inherits MELSEC iQ-R Series standard features
- Seamless network connectivity

Entry-level models reduce overall hardware costs

The CPU module is equipped with an Ethernet port, SD memory card*² slot, and supports data logging functionality, as compared to the MELSEC-Q Series where three separate modules are required.

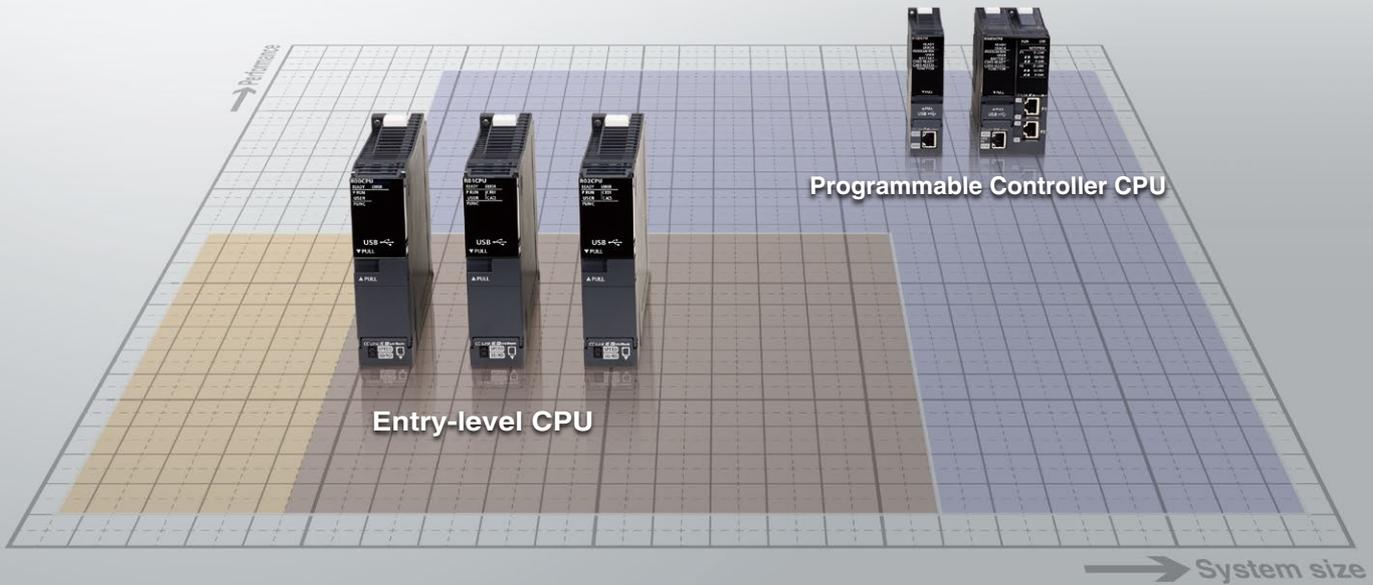
Seamless communication across open industrial network

CC-Link IE Field Network Basic is supported as standard on each CPU module, enabling the seamless connection of CC-Link IE Field Network Basic devices and generic devices supporting the SLMP protocol. With the addition of a dedicated network module, the CPU models can communicate across CC-Link IE equivalent to the standard CPU module.



Scalable, low-cost CPU modules

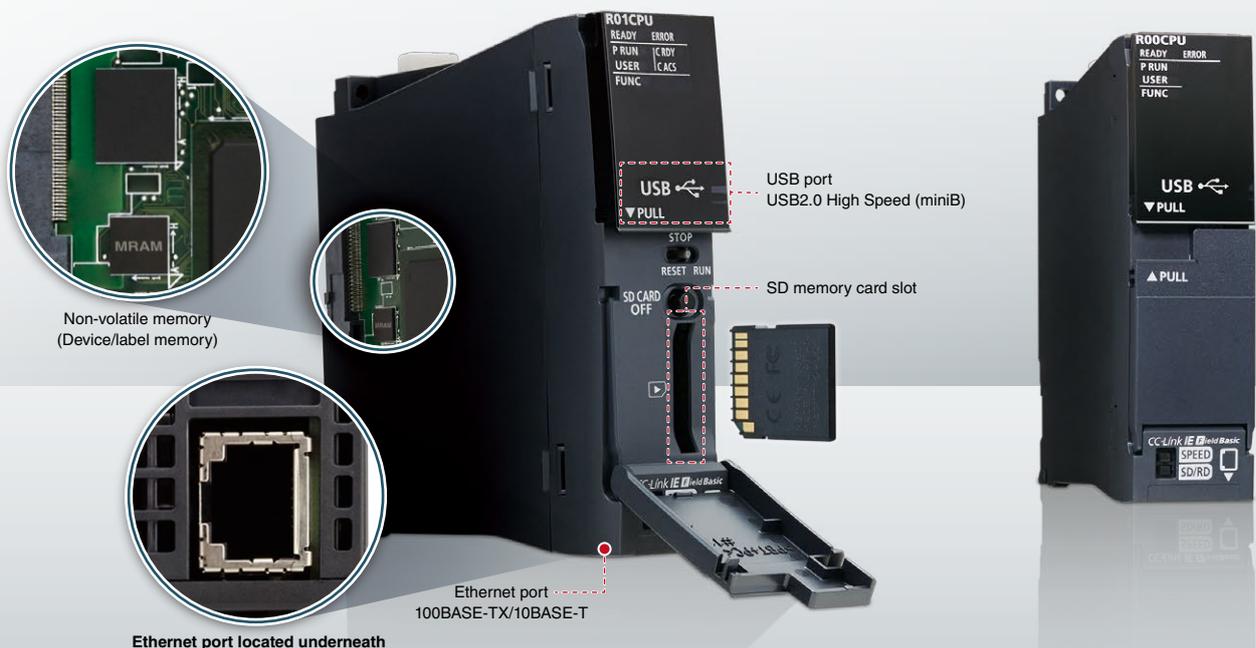
The new CPU modules are ideal for realizing low-cost standalone control systems that require fewer I/O. Unlike standard CPU modules, these modules are redesigned to include non-volatile memory and do not require a separate backup battery. They also have an embedded Ethernet port as a standard feature, thereby supporting seamless network connectivity with other network devices via CC-Link IE Field Network Basic.



New hardware design with various embedded features

The entry-level CPU modules inherit the main features of the MELSEC iQ-R Series, offering improved scalability, productivity, security and quality. The new design includes embedded non-volatile memory that enables the retention of device and label data when the power is off and without the need of a backup battery. Also included as standard features are a SD memory card slot*, Ethernet port and USB port.

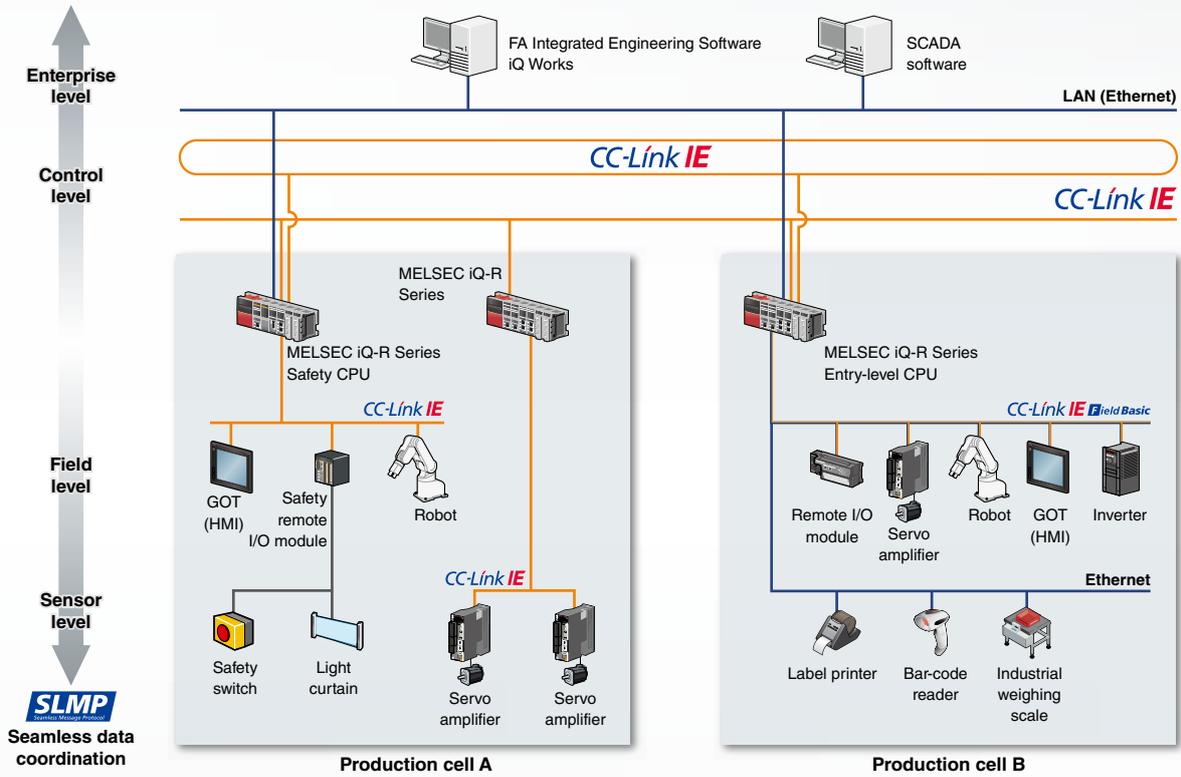
*1. SD memory card is not supported for the R00CPU.





Seamless network connectivity

CC-Link IE Field Network Basic is supported by all new CPU modules, enabling seamless connectivity to compatible CC-Link IE Field Network Basic devices and generic devices that support the SLMP protocol. With an addition of a dedicated network module from the MELSEC iQ-R Series lineup, the CPU can communicate across the CC-Link IE network equivalent to the standard CPU module.



Incorporating the functionality of three modules into one

The new CPU modules have features equivalent to those of three MELSEC-Q Series modules combined, including Ethernet communication and data logging. With these embedded features all in one module, low-cost systems can be easily realized through reductions in hardware and maintenance costs.

MELSEC Q series



Programmable controller CPU module specifications

Existing CPU

Item	R00CPU	R01CPU	R02CPU	R04CPU
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))			
Programming language	Ladder diagram (LD), structured text (ST), function block diagram (FBD), sequential function chart (SFC)			
Extended programming language	Function block (FB), label programming (system/local/global)			
Program execution type	Initial, scan, fixed scan, interrupt, standby			
Number of I/O points [X/Y] (point)	4096	4096	4096	4096
Constant scan (ms) (Function for keeping regular scan time)	0.5...2000 (Setting available in 0.1 ms increments)			0.2...2000 (Setting available in 0.1 ms increments)
Memory capacity				
Program capacity (step)	10K	15K	20K	40K
Program memory (byte)	40K	60K	80K	160K
Device/label memory (byte)	252K	252K	252K	400K
Data memory (byte)	1.5M	1.5M	1.5M	2M
Instruction processing time				
LD instruction (ns)	31.36	31.36	3.92	0.98
MOV instruction (ns)	62.72	62.72	7.84	1.96
E + instruction (floating-point addition) (ns)	100.0	100.0	17.6	9.8
Structured text IF instruction*1 (ns)	31.36	31.36	3.92	1.96
Structured text FOR instruction*1 (ns)	31.36	31.36	3.92	1.96
PC MIX value*2 (instructions/μs)	19	19	146	419
Interface connection port				
USB2.0 High Speed (miniB)	●	●	●	●
Ethernet (100 BASE-TX/10 BASE-T)	●	●	●	●
Memory interface				
SD memory card	-	●	●	●
Extended SRAM cassette	-	-	-	●
Function				
Multiple interrupt	●	●	●	●
Standard PID control	●	●	●	●
Internal database	-	-	-	●
Memory dump	-	●	●	●
Data logging	-	●	●	●
Real-time monitor	●	●	●	●
Security	●	●	●	●
Inter-modular synchronization	●	●	●	●
SLMP communication	●	●	●	●
Firmware update	-	●	●	●

*1. The IF or FOR sentence of the structured text consists of several instructions, which may increase the processing time period.

*2. Average number of instructions such as for basic instructions and data processing executed in 1 μs. The larger the value, the faster the processing speed.

SD memory card*3 specifications

Item	NZ1MEM-2GBSD	NZ1MEM-4GBSD	NZ1MEM-8GBSD	NZ1MEM-16GBSD
Type	SD memory card	SDHC memory card	SDHC memory card	SDHC memory card
Capacity (byte)	2G	4G	8G	16G

*3. SD memory card is not supported for the R00CPU.

Option

Item	Model	Outline
Battery	FX3U-32BL	Long term backup battery for clock data

Country/Region Sales Office
 USA +1-847-478-2100
 Mexico +52-55-3067-7500
 Brazil +55-11-4689-3000
 Germany +49-2102-486-0
 UK +44-1707-28-8780
 Ireland +353-1-4198800
 Italy +39-039-60531
 Spain +34-935-65-3131
 France +33-1-55-68-55-68

Czech Republic ... +420-251-551-470
 Poland +48-12-347-65-00
 Sweden +46-8-625-10-00
 Russia +7-812-633-3497
 Turkey +90-216-526-3990
 UAE +971-4-3724716
 South Africa +27-11-658-8100
 China +86-21-2322-3030
 Taiwan +886-2-2299-2499

Korea +82-2-3660-9530
 Singapore +65-6473-2308
 Thailand +66-2682-6522
 Vietnam +84-8-3910-5945
 Indonesia +62-21-3192-6461
 India +91-20-2710-2000
 Australia +61-2-9684-7777

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 **For safe use**

• To use the products listed in this publication properly, always read the relevant manuals before use.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

www.MitsubishiElectric.com