

# iQ-R

## Integrated modular controller

### Next level iQ Platform PLC

brings even more intelligence to plant control



Improved system performance



Increasing productivity & reducing TCO



Reducing engineering efforts & costs



Improved debugging & troubleshooting functions

# New all-in-one controller is even more intelligent!



iQ Platform enables total integration of control and communications

## Scalable platform

The iQ Platform enables total integration of control and communications from a single, highly scalable hardware platform, capable of handling anything from a handful of I/O up to several thousand. It can monitor or map all channels concurrently, which means that business functions can be integrated more effectively.

With the iQ-R series, Mitsubishi Electric has brought even greater performance to the iQ Platform, delivering the ability to integrate sequence, motion and safety control (process, PC, CNC, robot\*) onto a single backplane with benchmark standards for processing power and synchronisation capability in even the most demanding automation environments.

\*Process, PC, CNC and robot CPU's will be released at a later date

## Reduced total cost of ownership

Everything about the design of the iQ-R series has been focused on improving the value of equipment and enabling users to boost the quality of their products. Not only can users develop more sophisticated and better performing automation systems, but they can do so with reduced development cost and reduced ongoing maintenance costs. It delivers these benefits all the way through the manufacturing life-cycle, from initial specification and design of the PLC system, through programming and subsequent installation, to ongoing operation and maintenance, through to system improvements and upgrades of production lines and equipment.

## Next generation CPU

Mitsubishi Electric has launched its next generation CPU for the iQ Platform programmable automation controller (PAC). The iQ-R series CPU offers dramatic improvements in performance, setting new benchmark standards for processing speed. This not only enables users to realise enhanced system designs, but also provides the basis for significant reduction in hardware costs. At the same time, the iQ-R series offers reductions in development cost, maintenance cost and risk of system failure, while providing an innovative upgrade path that will enable users to take advantage of ongoing developments through software upgrades rather than hardware upgrades.

The iQ Platform builds on the power of Mitsubishi Electric's high performance PACs, complementing this with a broad range of control modules and network interfaces. This adaptable and powerful control platform enables companies to take a strategic approach to automation and control, allowing full integration of the plant floor operations within the business functions.



Multiple CPUs on one backplane

## Benefits:

### ■ High performance CPU

With a scan time of 0.14 ms, the ability to process up to 419 instructions per millisecond, and a LD instruction speed of 0.98 ns, the iQ-R series sets new benchmark performance standards, helping to deliver increased productivity. In addition, this enables a single CPU to perform all of the operations that would once have required multiple CPUs, offering dramatic savings in hardware costs. At the same time, support for multiple CPUs on an iQ-R series backplane will be supported, enabling users to develop vastly more complex and sophisticated automation applications from a single PAC backplane.

### ■ Synchronised control

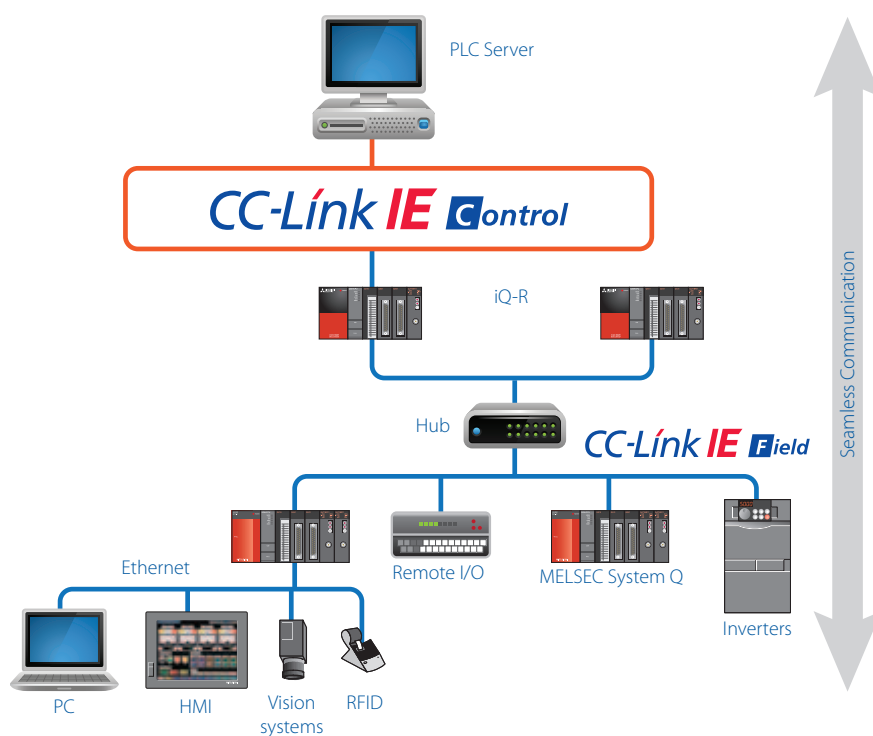
The iQ-R series offers a synchronised PLC and network scan to avoid data transfer delays and improve manufacturing quality. In addition to that all output modules are synchronized for much more precise control, removing the need for position detect sensors and reducing total system costs.

### ■ Secure data storage

Important manufacturing information like recipes can be stored in the iQ-R built-in database preventing the whole automation system to stop when for example the network fails and communication to a PC database server stops. iQ-R can also backup/restore all parameters/data of the whole PLC system including CC-Link IE Field network devices.

### ■ Reduced maintenance effort

The iQ-R series incorporates a host of features and functions that help to reduce maintenance efforts and costs. For example, users can define errors and events to be automatically stored to SD card through the in-built SD card slot. In the case of an error or certain event the PLC can store all relevant process information, the error & event log including operation history to an SD card. This data can then easily be analyzed and help to reduce downtime and maintenance effort.



Seamless connectivity via SLMP communication

### ■ Seamless device connectivity

With the iQ-R series connected to other devices via CC-Link IE, CC-Link IE Field or Ethernet users can take advantage of Mitsubishi Electric's Seamless Message Protocol (SLMP) to monitor and collect data from devices anywhere on the network without consideration for network layers. For example, there is no longer any need to write code to set up communications – users simply select the communication protocol and the labels to enable the PLC and connected devices to communicate.

### ■ Efficient engineering – GX Works3

The all GX Works3 reduces engineering efforts and the risk of errors as it offers users for example automatic label update over the whole project in case of changes in the global label database and auto creation plus Drag & Drop functionality for labels and function blocks. IPR can easily be protected in GX Works3 by setting a password to the sensible parts of the user program. Troubleshooting is made easy as you just need to connect GX Works3 in a case of an error to the PLC and it directly shows the cause of the error in a diagnostic screen.

### ■ System security

A feature of the iQ-R series is the ability to plug a hardware security key into the CPU, without which the CPU module will not run. The data held in this key is encrypted, and cannot be copied by outsiders. Further, authorised device IP addresses can be set up, and access denied to unauthorised devices, reducing the risk of hacking or altering of the PLC program by unauthorised personnel. All this is on top of a user authentication function.

### ■ MELSEC System Q compatibility

The iQ-R series is fully compatible with existing MELSEC System Q modules and terminal blocks, providing a simple upgrade path for users. In addition, programs written for the MELSEC System Q can be directly ported to the iQ-R series, reducing programming costs for system upgrades.

# Specifications

Power Supply		
Power supply	R□P	AC/DC input
Main base unit	R3□B	5–12 slots
Extension base unit	R6□B	5–12 slots
RQ extension base (Q Series type)	RQ6□B	5–12 slots
Extension cable	R□B	0.6–5 m

CPU		
Programmable controller CPU	R□CPU	40–1200 K steps
Motion CPU	R□MTCPU	16–32 axis
SD memory card	L1MEM-□GBSD	2–4 GB
Extended SRAM cassette	NZ2MC-□MBS	1–8 MB

I/O		
AC inputs	RX10	16 points
DC inputs	RX□C□	16–64 points
Relay inputs	RY10R2	16 points
Transistor (sink) outputs	RY□NT□P	16–64 points
Transistor (source) outputs	RY□PT□P	16–64 points

I/O combined module		
DC Input, transistor (sink) outputs	RH42C4NT2P	32 points

Analog		
Analog input	R60AD4 R60ADV8 R60AD18	4 channels 8 channels (voltage) 8 channels (current)
Analog output	R60DA4 R60DAV8 R60DA18	4 channels 8 channels (voltage) 8 channels (current)

Motion, Positioning, High-speed counter		
Simple Motion	RD77MS□	2–16 axis
Positioning		
Transistor output	RD75P□	2–4 axis
Differential driver output	RD75D□	2–4 axis

High-speed counter		
DC input/Transistor (sink) output	RD62P2	2 channels
DC input/Transistor (source) output	RD62P2E	2 channels
Differential input/Transistor (sink) output	RD62D2	2 channels

Network		
Ethernet	RJ1EN71	1 G/100 M/10 Mbps multiple network type (Ethernet/CC-Link IE)
CC-Link IE Control network	RJ1GP21-SX	Control/normal station, optical cable
CC-Link IE Field network	RJ1GF11-T2	Master/Local station
CC-Link	RJ61BT1	Master/Local station CC-Link Ver.2
Serial communication	RJ71C24 RJ71C24-R2 RJ71C24-R4	RS232, RS422/485 RS232 x2 channels RS422/485 x2 channels

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