MITSUBISHI ELECTRIC

Changes for the Better

MELSEC iQ-R Series
iQ Platform-compatible PAC

iF DESIGN AWARD 2015

GOOD DESIGN AWARD 2014

Concise

Bridging the next generation of automation

MELSEC iQ-R series

Revolutionary

iQ Platform

GLOBAL IMPACT OF MITSUBISHI ELECTRIC

Through Mitsubishi Electric's vision, "Changes for the Better" are possible for a brighter future.

Changes for the Better

We bring together the best minds to create the best technologies. At Mitsubishi Electric, we understand that technology is the driving force of change in our lives. By bringing greater comfort to daily life, maximizing the efficiency of businesses and keeping things running across society, we integrate technology and innovation to bring changes for the better.

Mitsubishi Electric is involved in many areas including the following

Energy and Electric Systems
A wide range of power and electrical products from generators to large-scale displays.

Electronic Devices
A wide portfolio of cutting-edge semiconductor devices for systems and products.

Home Appliance
Dependable consumer products like air conditioners and home entertainment systems.

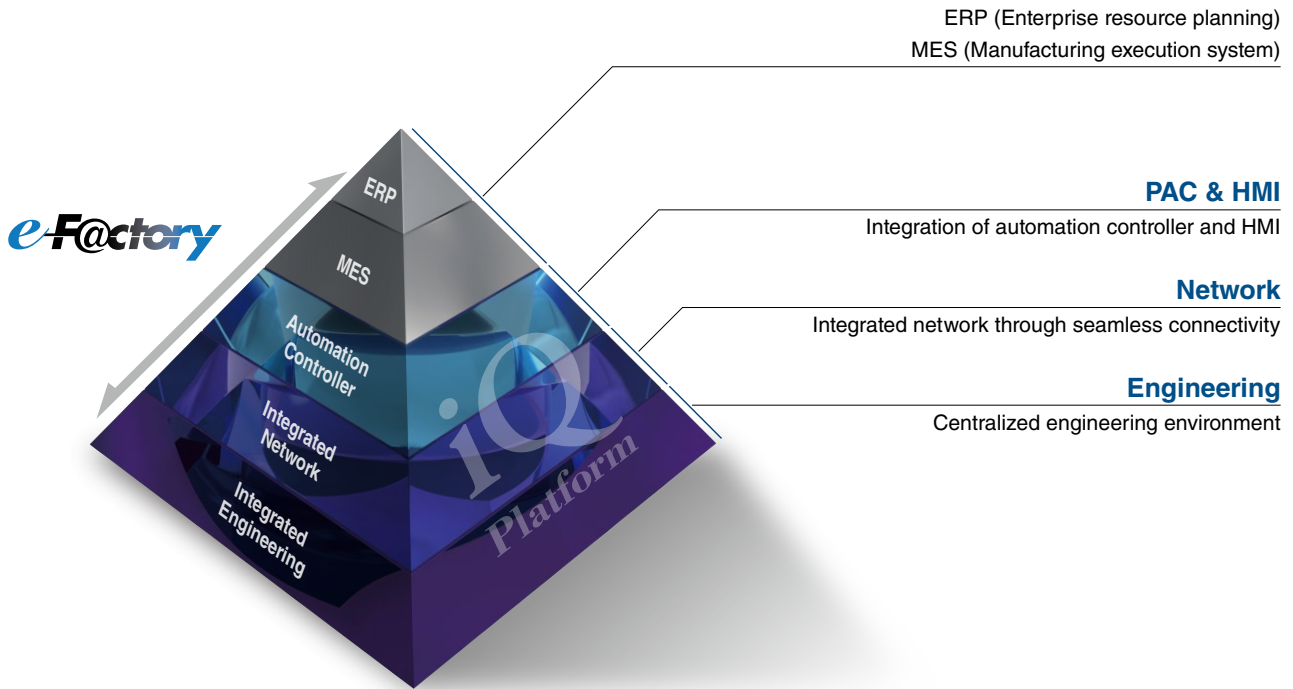### Information and Communication Systems
Commercial and consumer-centric equipment, products and systems.

Industrial Automation Systems
Maximizing productivity and efficiency with cutting-edge automation technology.

iQ Platform for maximum return on investment

Minimize TCO, Seamless integration, Maximize productivity, Transparent communications: these are common items that highlight the benefits of the iQ Platform and e-F@ctory. The iQ Platform minimizes TCO at all phases of the automation life cycle by improving development times, enhancing productivity, reducing maintenance costs, and making information more easily accessible across the plant. Together with e-F@ctory, offering various best-in-class solutions through its e-F@ctory alliance program, the capabilities of the manufacturing enterprise is enhanced even further realizing the next level for future intelligent manufacturing plants.

ERP (Enterprise resource planning)
MES (Manufacturing execution system)

PAC & HMI
Integration of automation controller and HMI

Network
Integrated network through seamless connectivity

Engineering
Centralized engineering environment

Further reduce TCO while securing your manufacturing assets

Automation Controller

Improve productivity and product quality

1. High-speed system bus realizing improved system performance
2. On-screen multi-touch control enabling smooth GOT (HMI) operations

Integrated Network

Best-in-class integrated network optimizing production capabilities

1. CC-Link IE supporting 1 Gbps high-speed communication
2. Seamless connectivity within all levels of manufacturing with SLMP

Centralized Engineering

Integrated engineering environment with system level features

1. Automatic generation of system configuration
2. Share parameters across multiple engineering software via MELSOFT Navigator
3. Changes to system labels are reflected between PAC and HMI

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

MELSEC iQ-R series

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

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 **Reuse** 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.

*TCO: Total cost of ownership

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
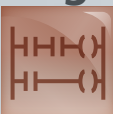- Inter-modular synchronization resulting in increased processing accuracy

Maintenance
Reduce maintenance costs and downtime utilizing easier maintenance features

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

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

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

MELSEC iQ-R series

Mitsubishi Electric PAC MELSEC iQ-R
Promotion Movie

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

Security

**Robust security that
can be relied on**

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

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

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.
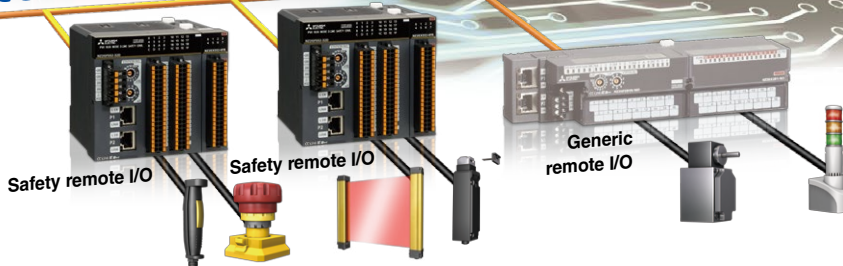
Less wiring

Space-saving

Expandability

Quality

Design efficiency
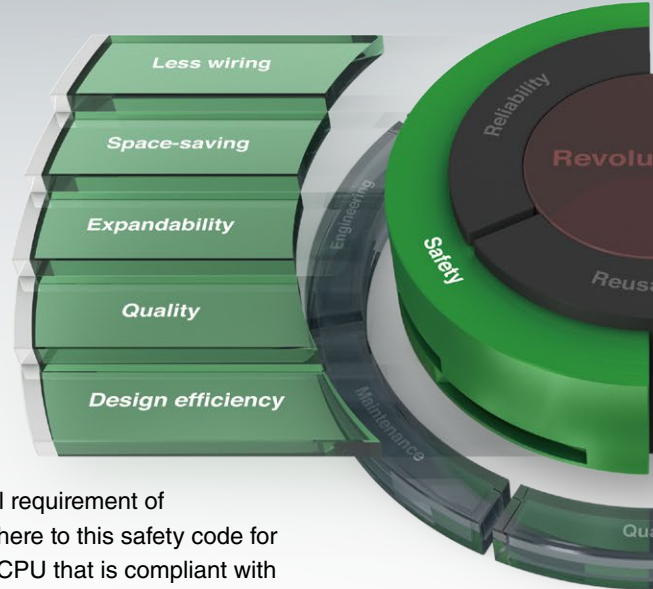
CC-Link IE Field

MELSEC iQ-R Series (Safety CPU)

CC-Link IE Field

Safety remote I/O   Safety remote I/O
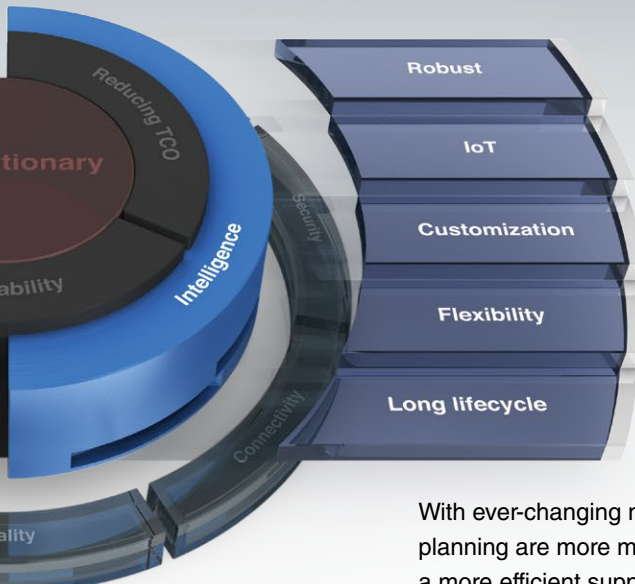
Generic remote I/O

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.
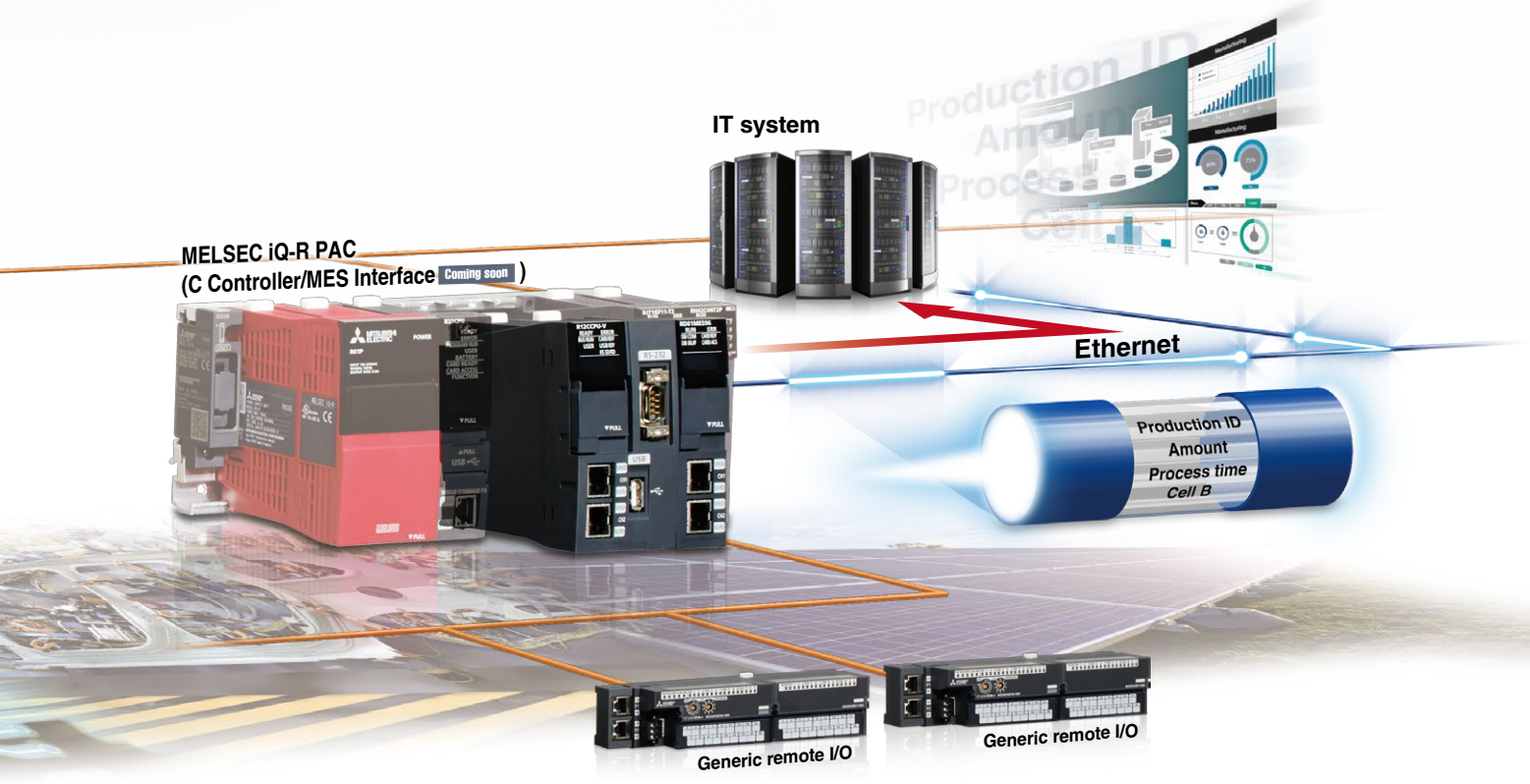
Mitsubishi Electric PAC MELSEC iQ-R
"Intelligence" Movie

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 C Controller and MES Interface modules as part of the "Intelligence" lineup of interconnected advanced information products.

IT system

MELSEC iQ-R PAC
(C Controller/MES Interface Coming soon)

Ethernet

Production ID
Amount
Process time
Cell B

Generic remote I/O

Generic remote I/O

C/C++ based programming
Flexibility

Based on the ARM® dual-core Cortex A9 processor, the real-time OS VxWorks® C Controller CPU is used in a diverse range of automation systems, providing improved reliability and higher flexibility as a cost-effective alternative to industrial computers.

Direct data collection and analysis
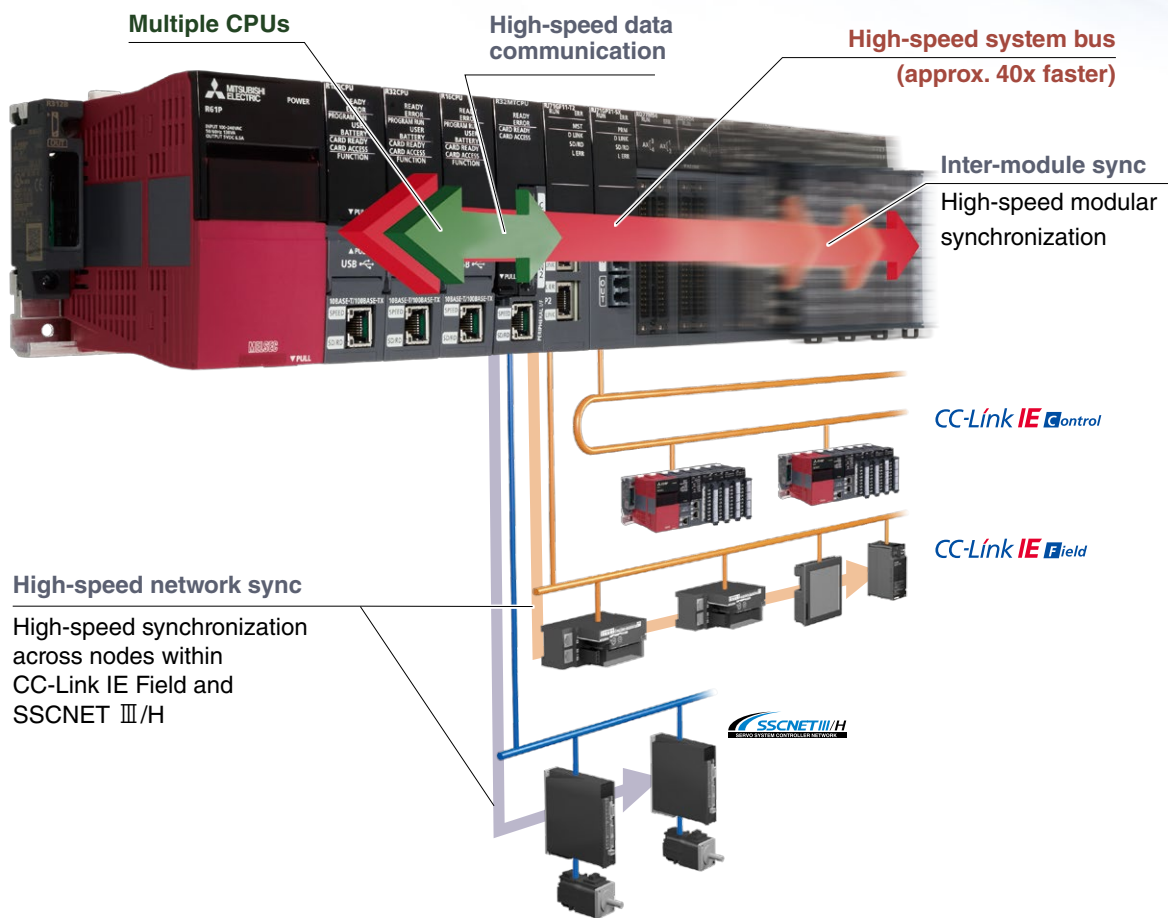### Information connection

Realize improved production management through real-time direct access to higher-level database servers. Overall system costs reduced as 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.

Multiple CPUs

High-speed data communication

High-speed system bus (approx. 40x faster)

Inter-module sync
High-speed modular synchronization

High-speed network sync

High-speed synchronization across nodes within CC-Link IE Field and SSCNET Ⅲ/H

CC-Link IE Control

CC-Link IE Field

SSCNET Ⅲ/H
SERVO SYSTEM CONTROLLER NETWORK

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]

Data management realized with built-in database

• Recipe
• Production data

• Realizes high-speed control performance

• Inherits MELSEC-Q Series functions

• Large-capacity memory ideal for large-scale control

• 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.
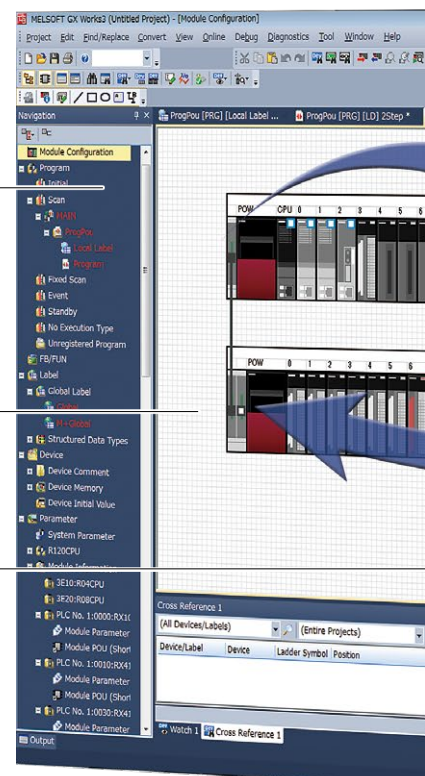
Navigation window

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.

Powertrain
Engine assembly
Machining

CC-Link **IE** **C**ontrol

CC-Link **IE** **C**ontrol

Andon
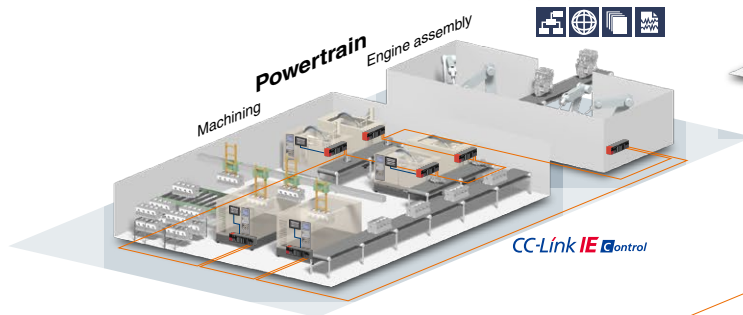
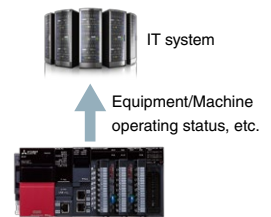### Preventive maintenance — CPU module

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
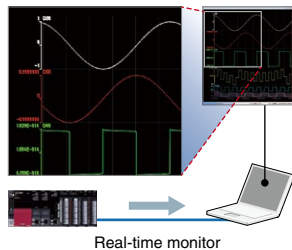
Preventive maintenance — MES interface module

Direct access to enterprise level

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

IT system

Equipment/Machine operating status, etc.

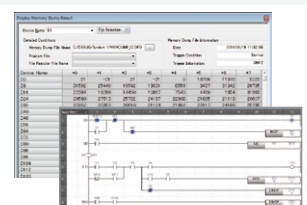### Preventive maintenance — Output module

Prevent system downtime with relay monitoring

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

Error occurrence	Error location	Specific I/O	Error information
Dec 12 13:10:30	Main Base	0010	Y04 Relay ON Upper limit exceeded
Dec 12 13:20:30	Main Base	0010	Y05 Relay ON Upper limit exceeded

---

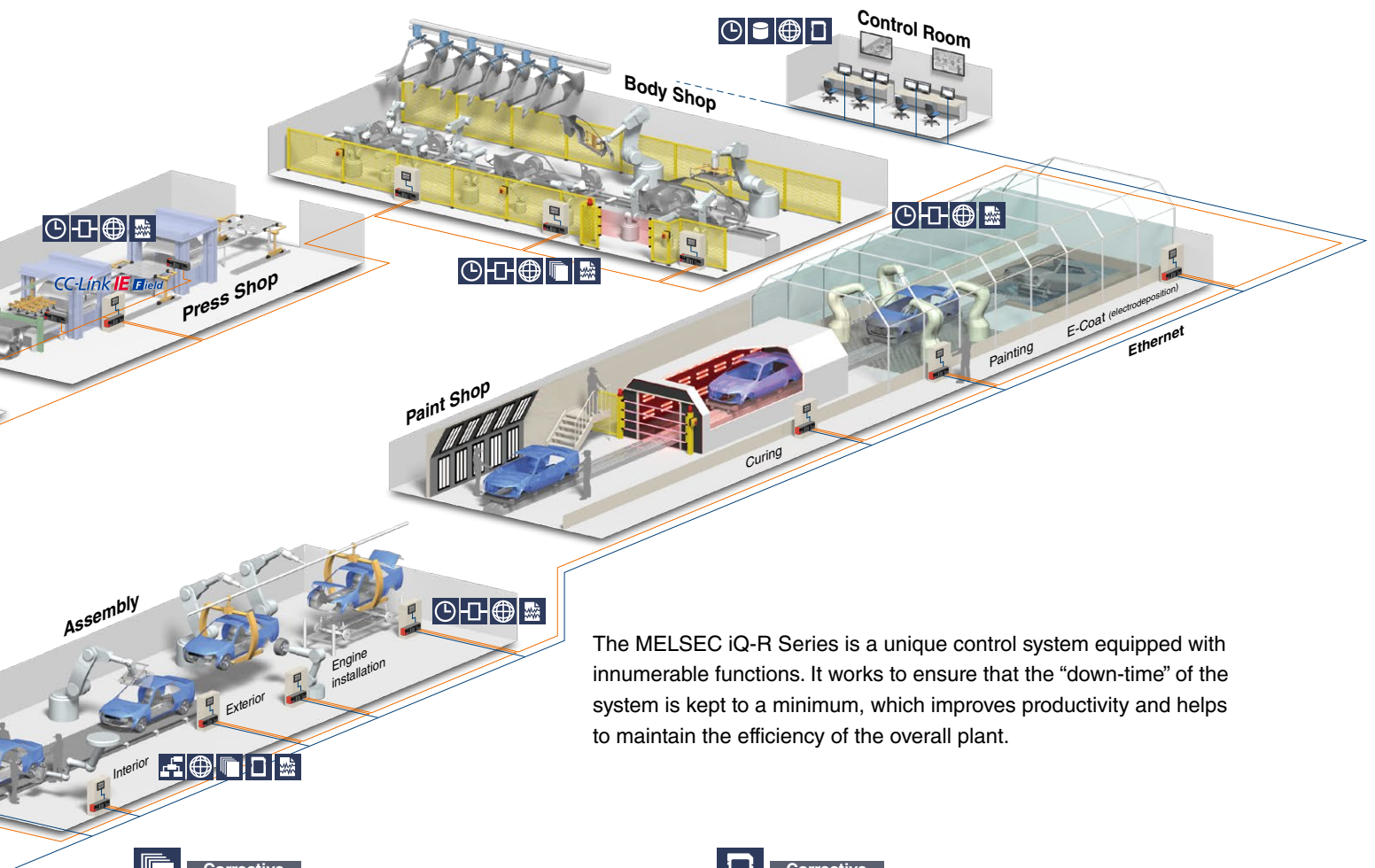### Corrective maintenance — CPU module

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

Control Room

Body Shop

Press Shop

CC-Link IE Field

Painting   E-Coat (electrodeposition)

Ethernet

Paint Shop

Curing

Assembly

Engine
installation

Exterior

Interior

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
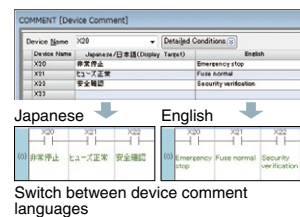- Quickly detect problems due to operating mistakes by multiple users
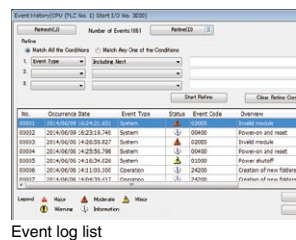
Event log list

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

Japanese → English

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
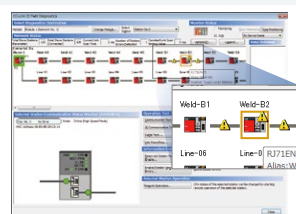
CC-Link IE Field diagnosis window

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

USB

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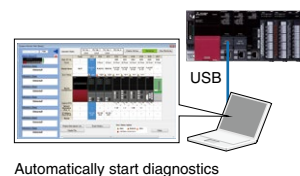These two characteristics are part of the main principle behind the MELSEC iQ-R Series. This new control system includes various features designed-in to provide a solution that not only improves the overall manufacturing productivity, but also maintains a high level of industrial quality that is ideal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

Electromagnetic compatibility (EMC) testing room
(simulated test)

Earth rail

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.

CE   c(UL)us   KC

Synchronized processing

Interrupt program

Network transmission cycle (link scan)

Output module

Positioning module
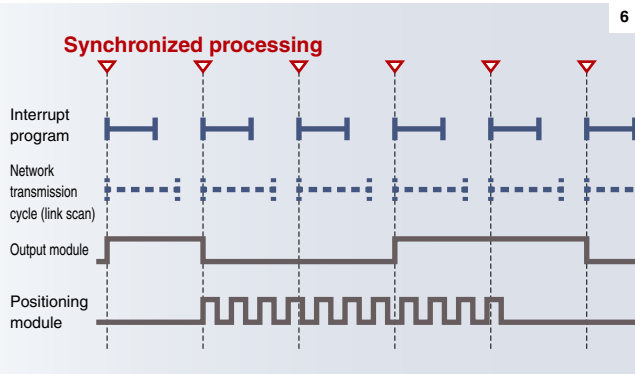
· Parts inventory
· Production data
· Operations log
· Inspection record
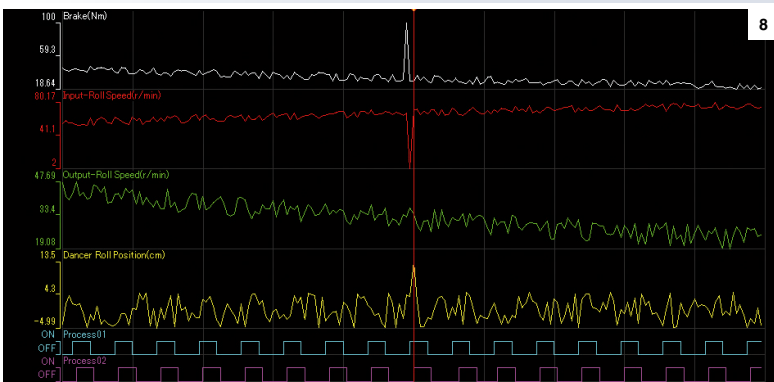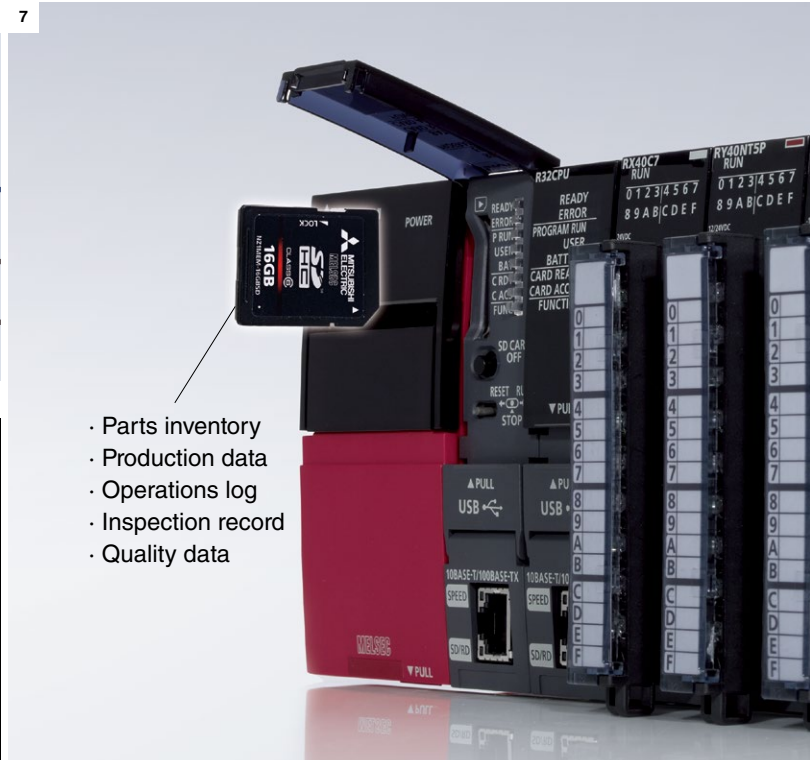· Quality data

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.

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.

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 3/H high-speed motion control network further enhance the factory-wide connectivity solution.

*1: Seamless Message Protocol (SLMP): A simple client-server common protocol that enables communication between Ethernet products and CC-Link IE-compatible machines.

System hardware costs reduced by approx. 50%

CC-Link IE embedded CPU module

CC-Link IE Control
CC-Link IE Field

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.

R04ENCPU

R04CPU +
RJ71EN71

Reduced by 50%

System hardware costs
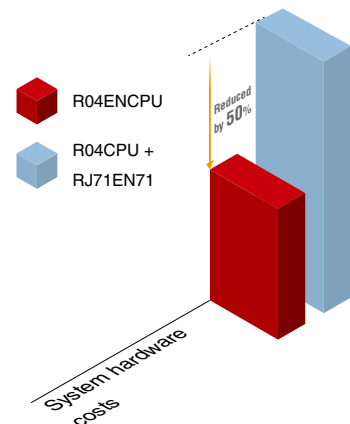
Mitsubishi Electric PAC MELSEC iQ-R
"Connectivity" Movie

Optimal network proposals for each level

CC-Link IE Control

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 Field

CC-Link IE Field is a versatile gigabit Ethernet-based network integrating controller, I/O control, safety control, and motion control in a flexible wiring topology supporting star, ring, and line configurations.
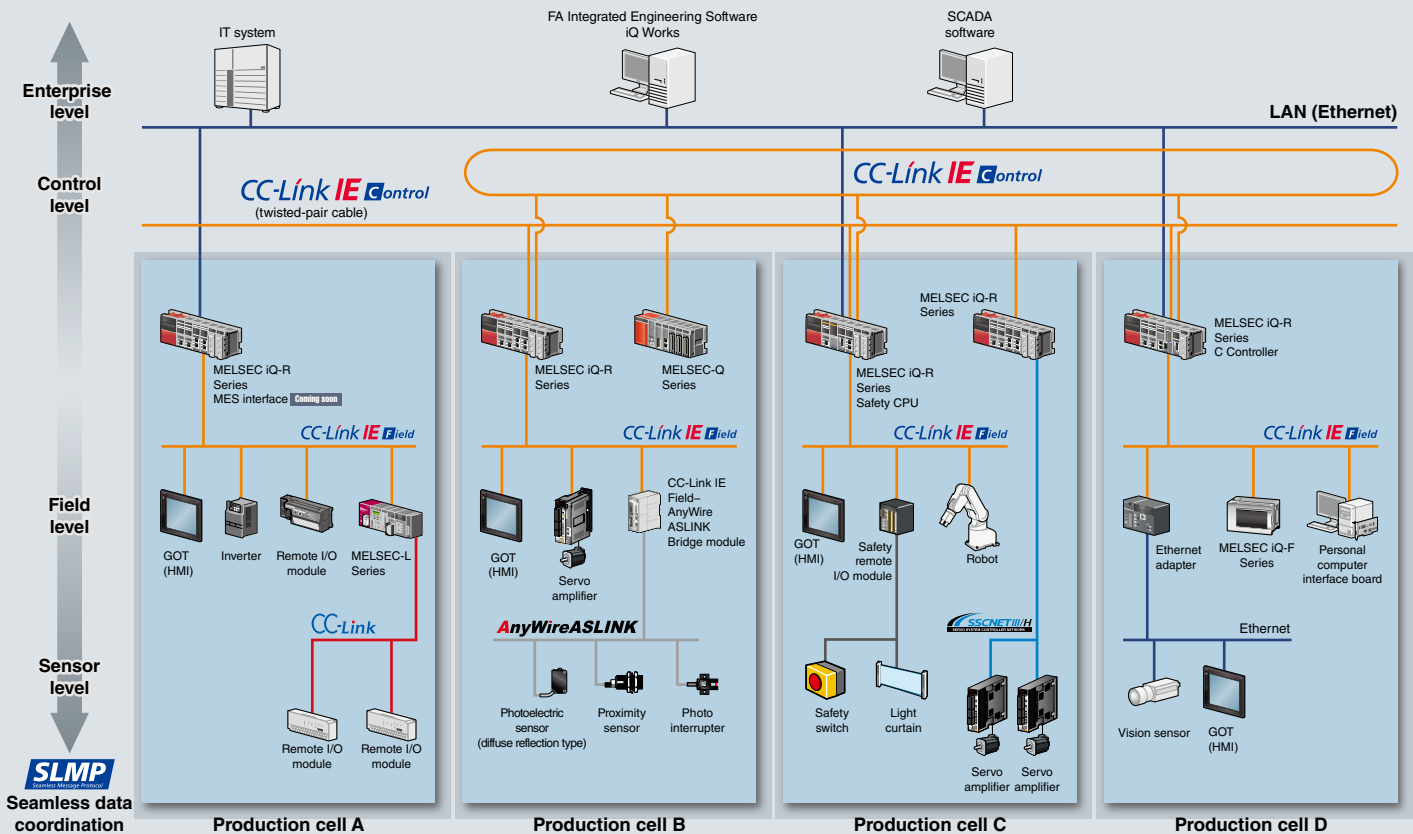
CC-Link

CC-Link is a high-speed and highly reliable deterministic I/O control network that realizes reduced wiring while offering multi-vendor compatible products. This open field network is a global standard, originating from Japan and Asia.

AnyWire

AnyWire is a sensor level distributed control network that is designed to reduce installation costs by utilizing general-purpose wiring and robot cables.

SSCNET III/H

SSCNET III/H is a dedicated high-speed, high-performance, highly reliable servo system control network that offers flexible long-distance wiring capabilities based on optical-fiber cable topology.

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.

Extended SRAM cassette
with registered
security key

Prevent unauthorized access across the network

Ethernet

Device with registered IP address
(access permitted)

Device without registered IP address
(access denied)
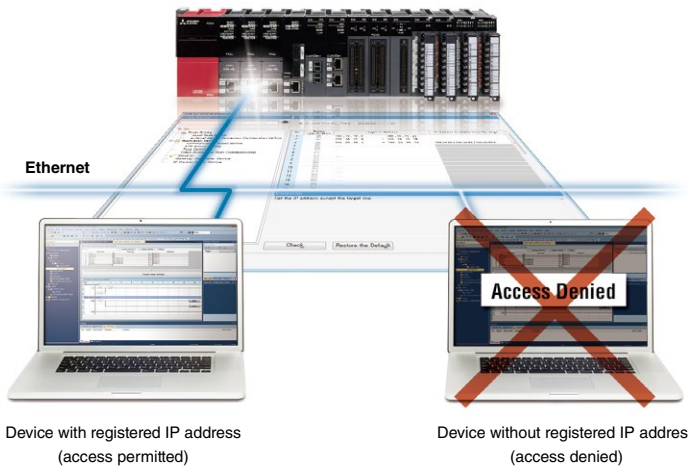
The IP filter can be used to register the IP addresses of devices permitted to access the CPU module. As a result, access from non-registered devices can be blocked, thereby lowering the risk of program hacking and unauthorized access by a third party.
Another feature is a remote password function for 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.
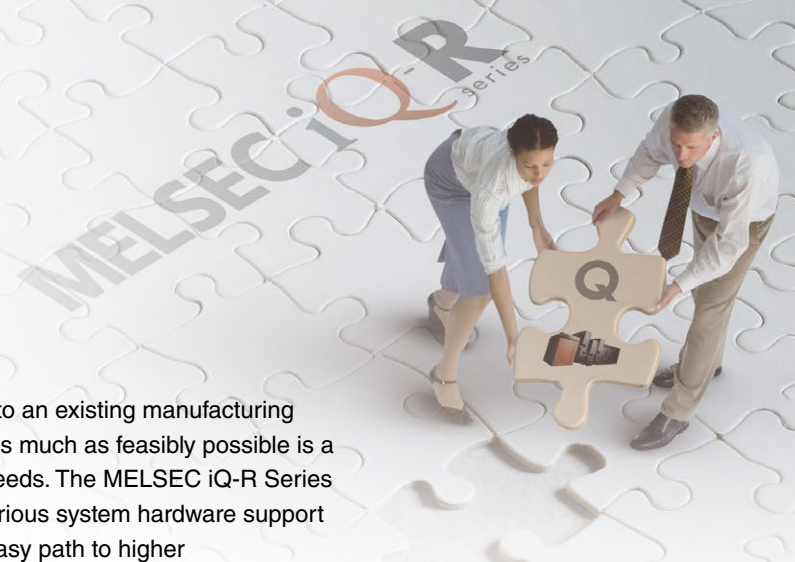
Mitsubishi Electric PAC MELSEC iQ-R "Compatibility" Movie

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".
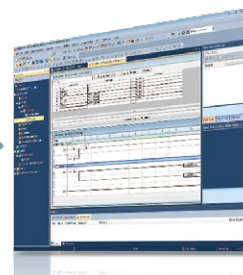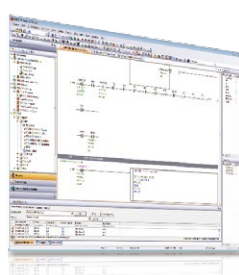
MELSEC Q series　　MELSEC iQ-R series

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.

Lineup

Power supply

R61P.. AC input

R62P.. AC input
(inc. 24 V DC output)
R64P.........................AC input (large capacity)

R63P..DC input

Base

Main base
R35B..5-slot
R38B..8-slot
R312B.. 12-slot

Extension base
R65B..5-slot
R68B..8-slot
R612B.. 12-slot

RQ extension base (MELSEC-Q Series)
RQ65B..5-slot
RQ68B..8-slot
RQ612B.. 12-slot

Extension cable
RC06B...0.6 m
RC12B .... 1.2 m
RC30B ....3 m
RC50B ....5 m

CPU

Programmable controller CPU   **NEW**
R04(EN)CPU ....40K steps
R08(EN)CPU ....80K steps
R16(EN)CPU .... 160K steps
R32(EN)CPU ....320K steps
R120(EN)CPU .... 1200K steps

R□ENCPU is equipped with CC-Link IE Control/CC-Link IE Field network ports.

Motion CPU
R16MTCPU 16-axis
R32MTCPU 32-axis

Safety CPU   **NEW**
R08SFCPU-SET............................80K steps
R16SFCPU-SET.......................... 160K steps
R32SFCPU-SET..........................320K steps
R120SFCPU-SET...................... 1200K steps

Process CPU
R08PCPU ....80K steps
R16PCPU .... 160K steps
R32PCPU ....320K steps
R120PCPU .... 1200K steps

C Controller
R12CCPU-V ....Memory capacity 256 MB

I/O

AC input
RX10.. 16-point
DC input
RX40C7 .... 16-point
RX41C4 ....32-point
RX42C4 ....64-point

DC high-speed input   **NEW**
RX40PC6H ....Positive common, 16-point
RX40NC6H........ Negative common, 16-point

Relay output
RY10R2 .... 16-point
Transistor (sink) output
RY40NT5P....................................... 16-point
RY41NT2P.......................................32-point
RY42NT2P.......................................64-point
Transistor (source) output
RY40PT5P....................................... 16-point
RY41PT1P.......................................32-point
RY42PT1P.......................................64-point

I/O combined module
DC Input, transistor (sink) output
RH42C4NT2P....................32-point/32-point
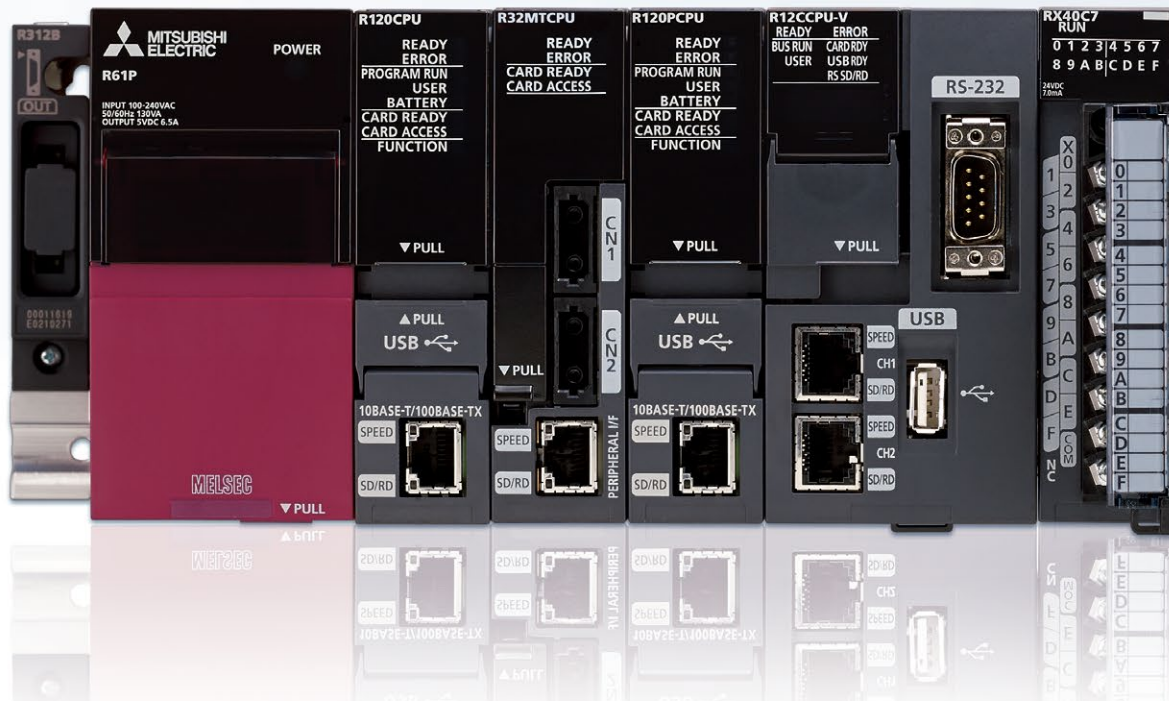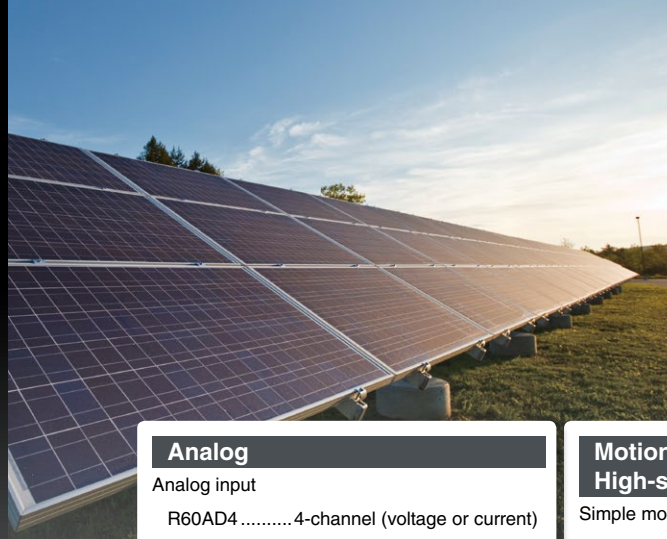
Analog

Analog input
R60AD4 .... 4-channel (voltage or current)
R60ADV8 .... 8-channel (voltage)
R60ADI8 .... 8-channel (current)

Analog input (channel isolated)
R60AD8-G ...... 8-channel (voltage or current)
R60AD16-G .. 16-channel (voltage or current)

Temperature input
R60TD8-G .... 8-channel (thermocouple)
R60RD8-G .... 8-channel (RTD)

Temperature control **NEW**
R60TCTRT2TT2 .... 2-channel multi-input,
2-channel thermocouple input
R60TCRT4 .... 4-channel RTD input
R60TCTRT2TT2BW ...2-channel multi-input,
2-channel thermocouple input
R60TCRT4BW .... 4-channel RTD input

Analog output
R60DA4 .... 4-channel (voltage or current)
R60DAV8 .... 8-channel (voltage)
R60DAI8 .... 8-channel (current)

Analog output (channel isolated)
R60DA8-G ...... 8-channel (voltage or current)
R60DA16-G .. 16-channel (voltage or current)

Motion, Positioning, High-speed counter

Simple motion
RD77MS2 .... 2-axis
RD77MS4 .... 4-axis
RD77MS8 .... 8-axis
RD77MS16 .... 16-axis

Positioning
Transistor output
RD75P2 .... 2-axis
RD75P4 .... 4-axis
Differential driver output
RD75D2 .... 2-axis
RD75D4 .... 4-axis

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

Network

Ethernet
RJ71EN71 .... 1 G/100 M/10 Mbps
Multiple network type
(Ethernet/CC-Link IE)
CC-Link IE Control network
RJ71GP21-SX .... Control/Normal
station optical cable
CC-Link IE Field network
RJ71GF11-T2 .... Master/Local
station
CC-Link
RJ61BT11 .... Master/Local station
CC-Link Ver.2
Serial communication
RJ71C24 .... RS-232, RS-422/485
RJ71C24-R2 .... RS-232 x2ch
RJ71C24-R4 .... RS-422/485 x2ch
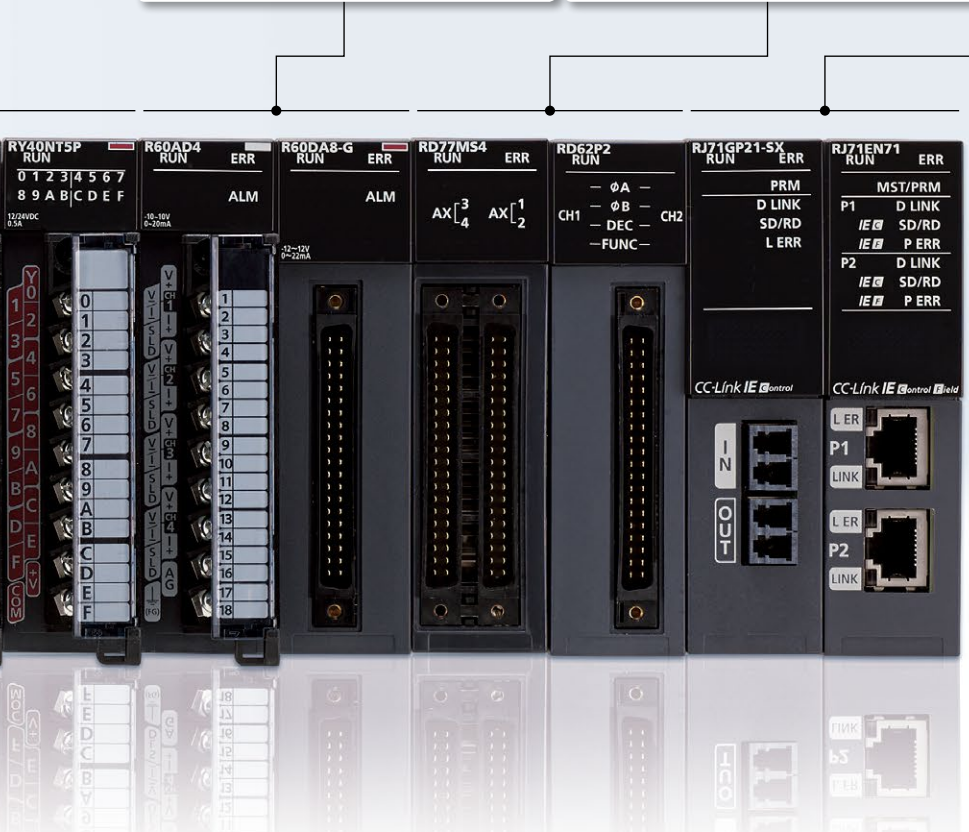
Country/Region	Sales office	Tel/Fax
USA	MITSUBISHI ELECTRIC AUTOMATION, INC. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.	Tel : +1-847-478-2100 Fax : +1-847-478-2253
Mexico	MITSUBISHI ELECTRIC AUTOMATION, INC. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo, C.P.54030, Mexico	Tel : +52-55-3067-7500
Brazil	MITSUBISHI ELECTRIC DO BRASIL COMÉRCIO E SERVIÇOS LTDA. Rua Jussara, 1750-Bloco B Anexo, Jardim Santa Cecilia, CEP 06465-070, Barueri-SP, Brasil	Tel : +55-11-4689-3000 Fax : +55-11-4689-3016
Germany	MITSUBISHI ELECTRIC EUROPE B.V. German Branch Gothaer Strasse 8, D-40880 Ratingen, Germany	Tel : +49-2102-486-0 Fax : +49-2102-486-1120
UK	MITSUBISHI ELECTRIC EUROPE B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K.	Tel : +44-1707-28-8780 Fax : +44-1707-27-8695
Ireland	MITSUBISHI ELECTRIC EUROPE B.V. Irish Branch Westgate Business Park, Ballymount, IRL-Dublin 24, Ireland	Tel : +353-1-4198800 Fax : +353-1-4198890
Italy	MITSUBISHI ELECTRIC EUROPE B.V. Italian Branch Centro Direzionale Colleoni-Palazzo Sirio Viale Colleoni 7, 20864 Agrate Brianza(Milano) Italy	Tel : +39-039-60531 Fax : +39-039-6053-312
Spain	MITSUBISHI ELECTRIC EUROPE, B.V. Spanish Branch Carretera de Rubí, 76-80-Apdo. 420, 08173 Sant Cugat del Vallés (Barcelona), Spain	Tel : +34-935-65-3131 Fax : +34-935-89-1579
France	MITSUBISHI ELECTRIC EUROPE B.V. French Branch 25, Boulevard des Bouvets, F-92741 Nanterre Cedex, France	Tel : +33-1-55-68-55-68 Fax : +33-1-55-68-57-57
Czech Republic	MITSUBISHI ELECTRIC EUROPE B.V. Czech Branch Avenir Business Park, Radlicka 751/113e, 158 00 Praha5, Czech Republic	Tel : +420-251-551-470 Fax : +420-251-551-471
Poland	MITSUBISHI ELECTRIC EUROPE B.V. Polish Branch ul. Krakowska 50, 32-083 Balice, Poland	Tel : +48-12-630-47-00 Fax : +48-12-630-47-01
Sweden	MITSUBISHI ELECTRIC EUROPE B.V. (Scandinavia) Fjelievägen 8, SE-22736 Lund, Sweden	Tel : +46-8-625-10-00 Fax : +46-46-39-70-18
Russia	MITSUBISHI ELECTRIC EUROPE B.V. Russian Branch St. Petersburg office Piskarevsky pr. 2, bld 2, lit "Sch", BC "Benua", office 720; RU-195027 St. Petersburg, Russia	Tel : +7-812-633-3497 Fax : +7-812-633-3499
Turkey	MITSUBISHI ELECTRIC TURKEY A.Ş Ümraniye Branch Serifali Mahallesi Nutuk Sokak No:5, TR-34775 Umraniye, Istanbul, Turkey	Tel : +90-216-526-3990 Fax : +90 -216-526-3995
UAE	MITSUBISHI ELECTRIC EUROPE B.V. Dubai Branch Dubai Silicon Oasis, P.O.BOX 341241, Dubai, U.A.E.	Tel : +971-4-3724716 Fax : +971-4-3724721
South Africa	ADROIT TECHNOLOGIES 20 Waterford Office Park, 189 Witkoppen Road, Fourways, Johannesburg, South Africa	Tel : +27-11-658-8100 Fax : +27-11-658-8101
China	MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD. No.1386 Hongqiao Road, Mitsubishi Electric Automation Center, Shanghai, China	Tel : +86-21-2322-3030 Fax : +86-21-2322-3000
Taiwan	SETSUYO ENTERPRISE CO., LTD. 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan, R.O.C.	Tel : +886-2-2299-2499 Fax : +886-2-2299-2509
Korea	MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD. 7F-9F, Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Gangseo-Gu, Seoul 157-801, Korea	Tel : +82-2-3660-9530 Fax : +82-2-3664-8372
Singapore	MITSUBISHI ELECTRIC ASIA PTE. LTD. 307, Alexandra Road, Mitsubishi Electric Building, Singapore 159943	Tel : +65-6473-2308 Fax : +65-6476-7439
Thailand	MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO., LTD. 12th Floor, SV.City Building, Office Tower 1, No. 896/19 and 20 Rama 3 Road, Kwaeng Bangpongpang, Khet Yannawa, Bangkok 10120, Thailand	Tel : +66-2682-6522 Fax : +66-2682-6020
Vietnam	MITSUBISHI ELECTRIC VIETNAM COMPANY LIMITED Hanoi Branch 6-Floor, Detech Tower, 8 Ton That Thuyet Street, My Dinh 2 Ward, Nam Tu Liem District, Hanoi, Vietnam	Tel : +84-4-3937-8075 Fax : +84-4-3937-8076
Indonesia	PT. MITSUBISHI ELECTRIC INDONESIA Gedung Jaya 11th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia	Tel : +62-21-3192-6461 Fax : +62-21-3192-3942
India	MITSUBISHI ELECTRIC INDIA PVT. LTD. Pune Branch Emerald House, EL-3, J Block, M.I.D.C Bhosari, Pune-411026, Maharashtra, India	Tel : +91-20-2710-2000 Fax : +91-20-2710-2100
Australia	MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD. 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W 2116, Australia	Tel : +61-2-9684-7777 Fax : +61-2-9684-7245

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO 14001 (standards for environmental management systems) and ISO 9001 (standards for quality assurance management systems).

ISO 14001
JACO
EC97J1113   051
UKAS MANAGEMENT SYSTEMS

ISO 9001
BUREAU VERITAS
Certification
008
UKAS MANAGEMENT SYSTEMS
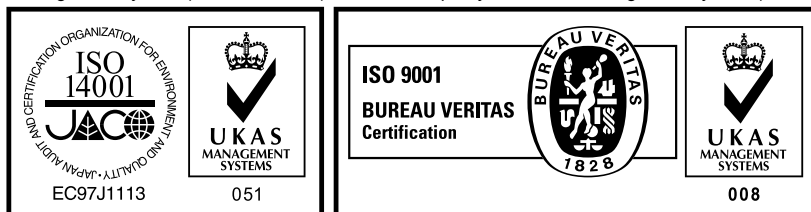
MITSUBISHI ELECTRIC CORPORATION

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

www.MitsubishiElectric.com