MITSUBISHI ELECTRIC ENGINEERING

MELSEC iQ-R Series-Compatible Interface Modules for Connecting OMRON RFID System V680 Series

MODEL : ER-1V680D1/ER-1V680D2

New Product Release | No. 20-02E

Easy traceability management with the RFID system!

High-speed high-capacity data communication

Direct bus connection enables high-speed data communication with the programmable controller CPU.

Use of the existing system

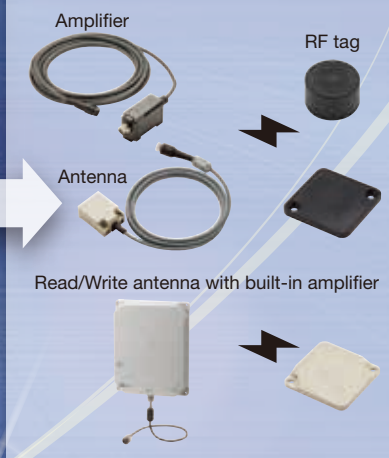
The user can use the program used in the MELSEC-Q series direct bus connection type.

Mitsubishi Electric Corporation
MELSEC iQ-R series

ER-1V680D1
<1-channel>

ER-1V680D2
<2-channel>

RFID system V680 series
manufactured by OMRON Corporation

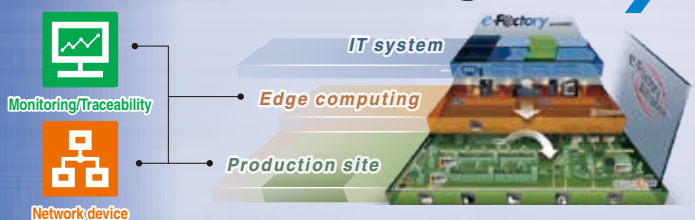


A wealth of test and measurement functions

Diagnostics which are useful at startup and maintenance, such as communication test between antennas and RF tags, are available.

FA Goods Products

e-F@ctory



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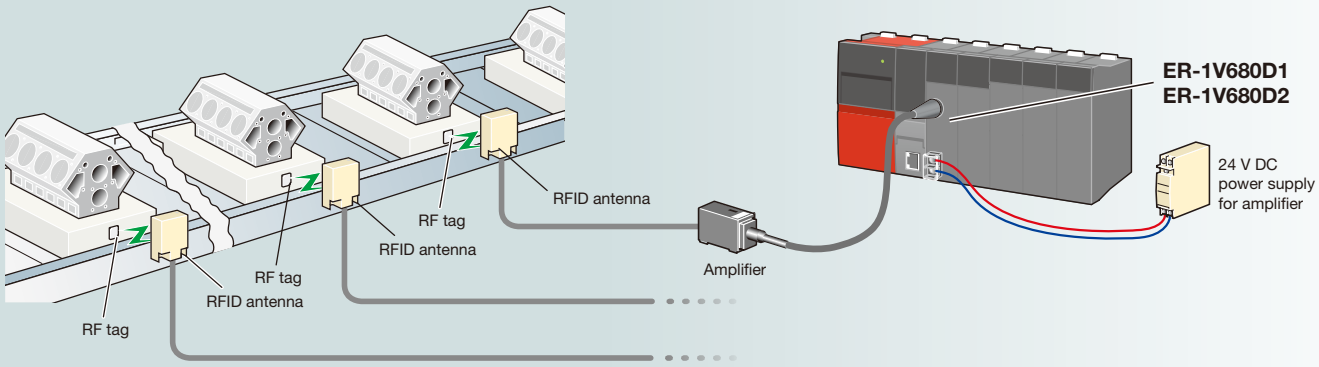
What is RFID system?

RFID (Radio Frequency Identification) system communicates information with RF tag that is capable of storing information, via short-distance wireless communication using inductive and radio waves.

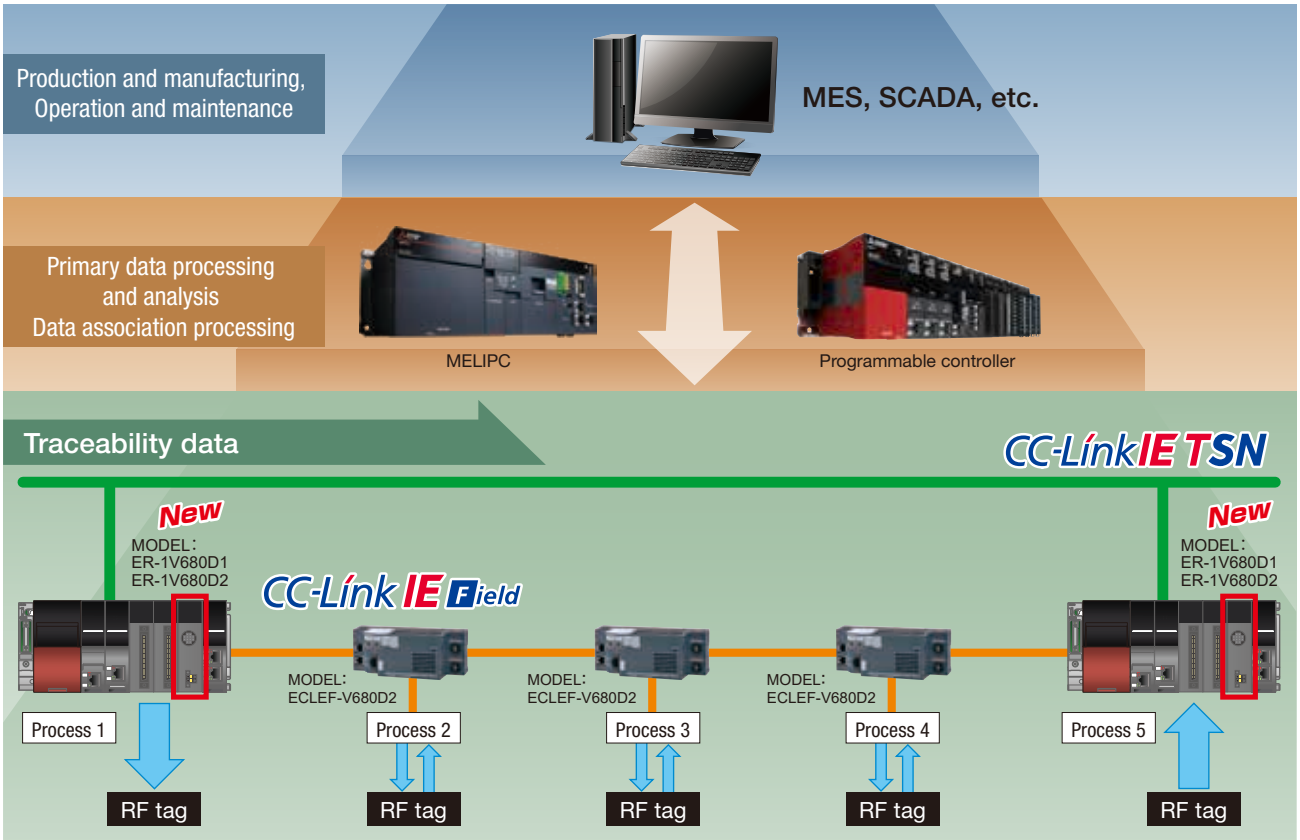


Overview of products

OMRON RFID system V680 series can be connected to MELSEC iQ-R series.

- Direct bus connection to MELSEC iQ-R series enables high-speed data communication.
- High-capacity data (2048 bytes) is readable/writable.
- The maximum cable length from RFID modules to antennas is 62.5 m.
- New features developed from the MELSEC iQ-R series functions are incorporated.

Introduction of IoT throughout the factory thanks to coordination with IT systems using the MELSEC iQ-R series-compatible RFID interface module



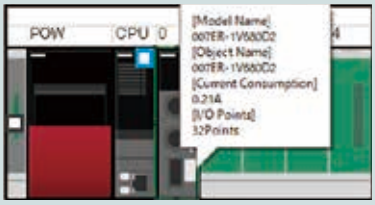
Flexible system structure

- The RFID system can be installed throughout the process dispersedly with the use of network-connected interface modules.
  Processes 1 and 5: MELSEC iQ-R series direct bus connection type modules to perform high-speed high-capacity data communication
  Processes 2 to 4: CC-Link IE Field/CC-Link models that can be installed at dispersed sites
- Interface modules with 1 or 2 channels are available.

Three new features

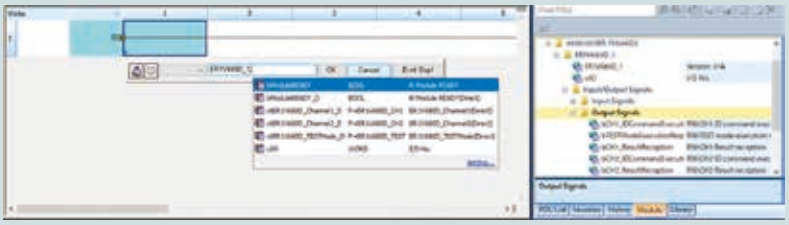
Initial settings via GUI

- Initial setting using the graphical user interface
- Drag-and-drop assignment operations



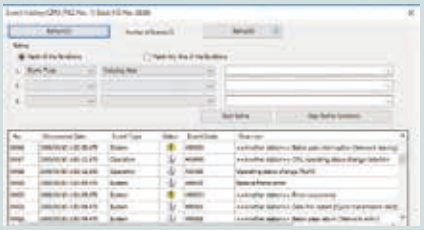
Module label

- Programming using labels
- Devices are selectable from the list.
- Assigned modules are automatically tracked.



Event history

- Event history of the CPU is supported.
- Date and time of the error, cause, and countermeasure are displayed.

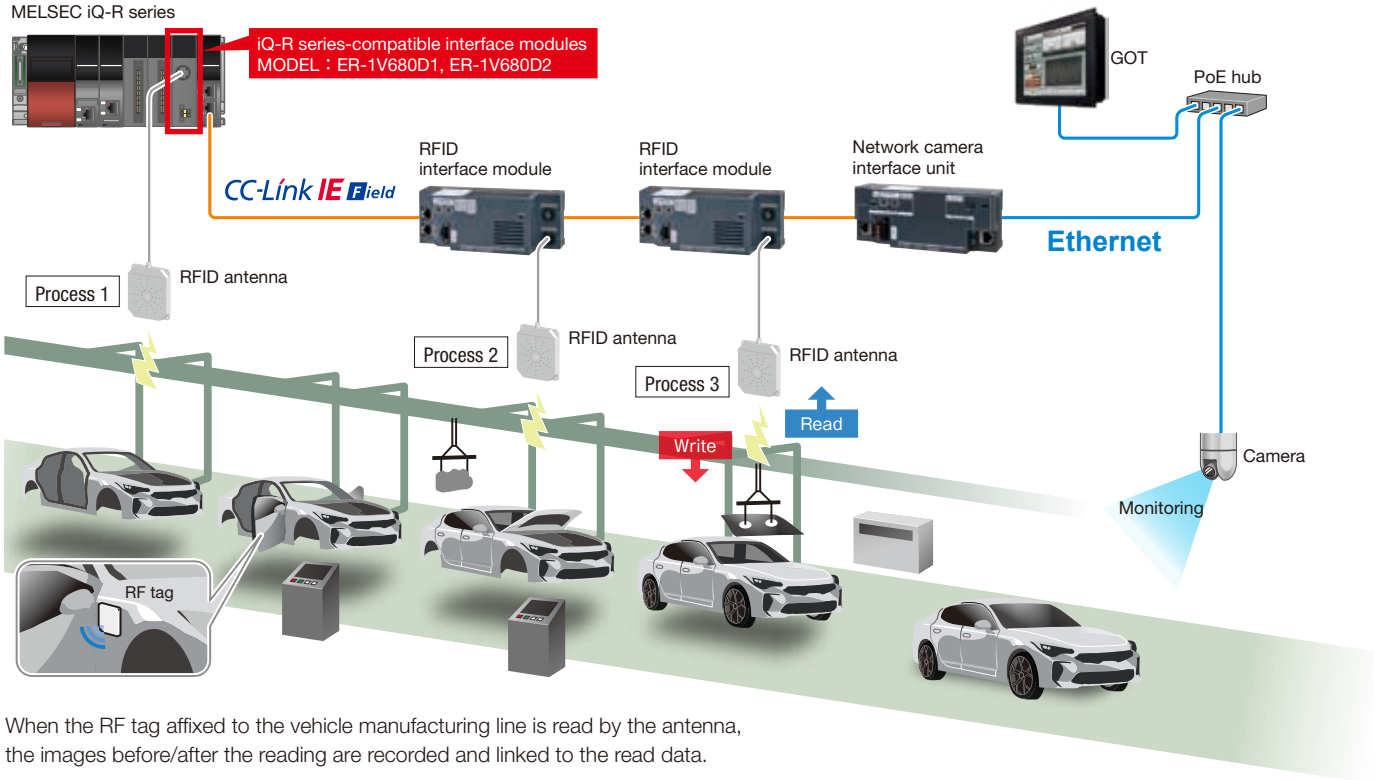


Configuration of traceability management system for monitoring

Configuration of traceability management system for monitoring Utilization of the RFID and camera monitoring systems

■Combination of the RFID system and camera images enables analysis of short stoppage, which reduces the frequency of short stoppage.

■Coordination with CC-Link Family networks enables remote monitoring.



When the RF tag affixed to the vehicle manufacturing line is read by the antenna, the images before/after the reading are recorded and linked to the read data.

Product specifications

Item	Specifications	
	ER-1V680D1	ER-1V680D2
Number of connectable antennas	1	2
Data transfer volume	2048 bytes maximum	
Number of occupied I/O points	32	
Operating ambient temperature	0 to 55℃	
Operating ambient humidity	5 to 95%RH, no condensation	
External power supply	20.4 V DC to 28.8 V DC (24 V DC -15%, +20%)	
Internal current consumption (5 V DC)	0.18 A	0.21 A
External dimensions	106 (H) ×27.8 (W) ×125 (D) mm	
Weight	0.2 kg	

Function list

Function			Description
Command	Read	Read	Reads data from RF tag.
		Read with error correction	Reads data and check codes from RF tag, inspects data reliability, and corrects any 1-bit errors.
		Read UID	Reads the UID (unit identification number) of RF tag.
	Write	Write	Writes data to RF tag.
		Bit set	Sets the bit specified in the data of RF tag to "1".
		Bit clear	Clears the bit specified in the data of RF tag to "0".
		Mask bit write	Protects data that is not to be overwritten within RF tag data, and writes data.
		Calculation write	Writes an addition or subtraction calculation result (data) to RF tag data.
		Write with error correction	Writes data and check codes for inspecting data reliability to RF tag.
	Duplicate	Copy	Copies RF tag data between 1-channel and 2-channel models. (Available with ER-1V680D2 only)
	Initialize	Data fill	Initializes data of RF tag of specified data.
	Manage	Data check	Checks whether or not an error occurred in RF tag data.
		Overwrite count control	Sets the number of writes to RF tag (EEPROM type), and assesses whether or not the number of writes of the RF tag has been exceeded.
		Measure noise	Measures a noise level of an area surrounding an antenna.
Test function	Test /Measure	Communication test	Reads data from RF tag.
		Communications success rate measurement	Executes communication 100 times, and measures a success rate.
		Speed level measurement	Measures the number of times communication can be performed continuously with RF tags that pass through an antenna communications area.
		Noise level measurement	Measures a noise level in an area surrounding an antenna.

Data read/write time

The following shows the data read/write time for 1k-byte RF tags used in the normal-speed communication mode.

Read	100 bytes	: 162 ms + 2 scans*
	1000 bytes	: 1339 ms + 2 scans*
Write	100 bytes	: 289 ms + 2 scans*
	1000 bytes	: 2296 ms + 2 scans*

* The maximum number of scans after turning on of the ID instruction execution request signal of the sequence program until receiving of the ON signal of the execution completion signal.

Product line

Combination of products enables versatile traceability management.

RFID interface modules			Model
MELSEC IQ-R series direct bus connection type	• High-speed communication with the programmable controller CPU • Availability of 1-channel and 2-channel models enables system configuration for the intended use.	1-channel	ER-1V680D1
		2-channel	ER-1V680D2
MELSEC-Q series direct bus connection type	• High-speed communication with the programmable controller CPU • Availability of 1-channel and 2-channel models enables system configuration for the intended use.	1-channel	EQ-V680D1
		2-channel	EQ-V680D2
CC-Link IE Field-compatible dispersed installation type	• The use of this module as an intelligent device station in the CC-Link IE network enables high-speed communication and dispersed control. • The maximum cable length from the master station is 12000 m.	2-channel	ECLEF-V680D2
CC-Link-compatible dispersed installation type	• The use of this module as a remote device station in the CC-Link network enables dispersed control. • The maximum cable length from the master station is 1200 m.	1-channel	ECL2-V680D1

Network camera interface unit		Model
CC-Link IE Field-compatible dispersed installation type	• Trouble monitoring/quick troubleshooting enabled by network cameras • Images captured by network cameras can be monitored on the GOT screen. • Images captured during a short stoppage are recorded.	ECLEF-NV1G-02 ECLEF-NV1G-04 ECLEF-NV1G-08 ECLEF-NV1G-16

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Specifications are subject to change without notice.