MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow

iQ Platform-compatible PAC
MES Interface Module

MELSEC iQ-R series

Brief

MELSEC iQ-R Series Broadcast

Extensive data handling from shop floor to business process systems

e-F@ctory is a solution from Mitsubishi Electric realizing leaner operations, improved yield, and efficient management of the supply chain through its direct connectivity between an IT system and the shop floor. The MES Interface enables this direct connectivity by allowing production data to be inserted into database records directly, for example.

Improvements

- Shop floor data collection and analysis in real-time
- Direct access to IT system database
- Robust design ideal for industrial environments
- Reduce system configuration costs
- Ensure latest functional version with firmware update

Direct access to IT system database

Realize improved production management and reduce overall system costs through real-time direct access to IT system database servers without requiring additional programming and gateway computers.

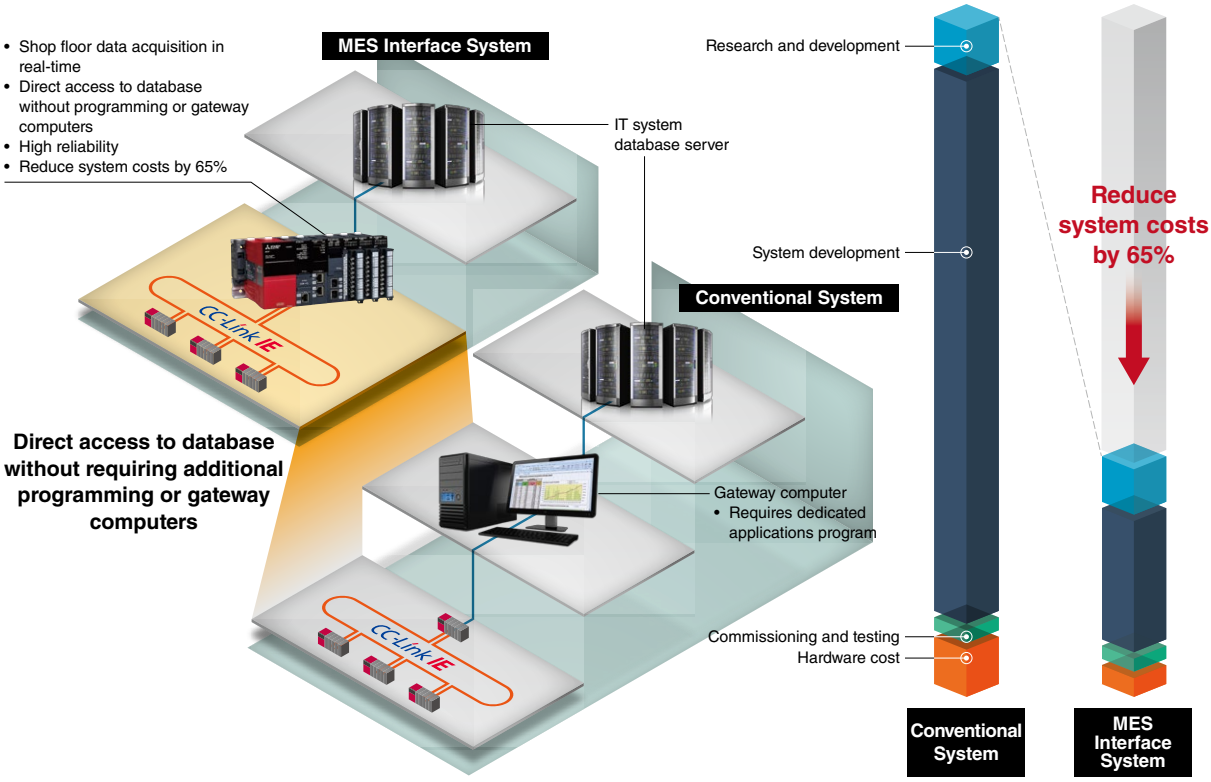
Production data directly inserted into database

The MES Interface module allows production data to be inserted into database records directly. The transmission of data can be event-driven providing real-time production status, enabling quicker response to production-related problems. Additional features are also included such as DB buffering, which enables data to be sent even when a connection between the database server and control system is lost. Supported databases include Oracle® database, Microsoft® SQL Server®, and Microsoft® Access®, in addition to open source databases such as MySQL® and PostgreSQL.

System configuration costs reduced by 65%*1

MES Interface modules enable direct connectivity between IT database servers and programmable controllers on the shop floor, eliminating the need for gateway computers or specified programs. Being much more reliable than computers, the MES Interface saves on maintenance costs typical of computers.

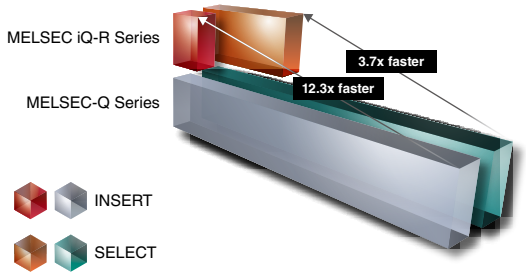
*1. Assumption based on a typical control architecture.



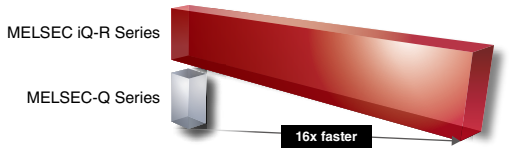
High-speed and large-capacity data collection

Along with ever-changing manufacturing trends, improving machine productivity and maintaining manufacturing quality through meticulous traceability have become a fundamental part of manufacturing. The MES Interface module addresses these requirements with its high-performance and large-capacity data handling. These features are exceptionally useful in glass and rechargeable battery manufacturing industries.

■ Database communication speed*1



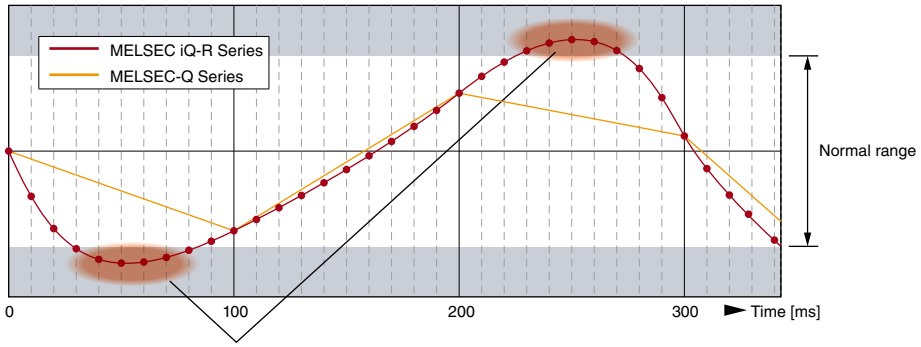
■ Database communication capacity*2



*1. Database communications time is based on measurement criteria set out by Mitsubishi Electric. For further details, please refer to the relevant manual for each product.
*2. Comparison of data sets that can be handled in database communication. One project may contain up to 4096 data sets for the MELSEC-Q Series, and 65536 for the MELSEC iQ-R Series.

■ High-speed access to the control CPU

Shortest scan time is used as an event trigger for monitoring

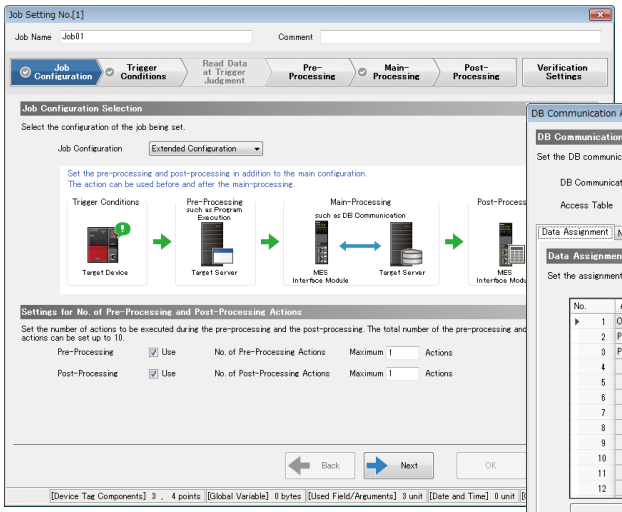


Use high-speed data capture for event trigger

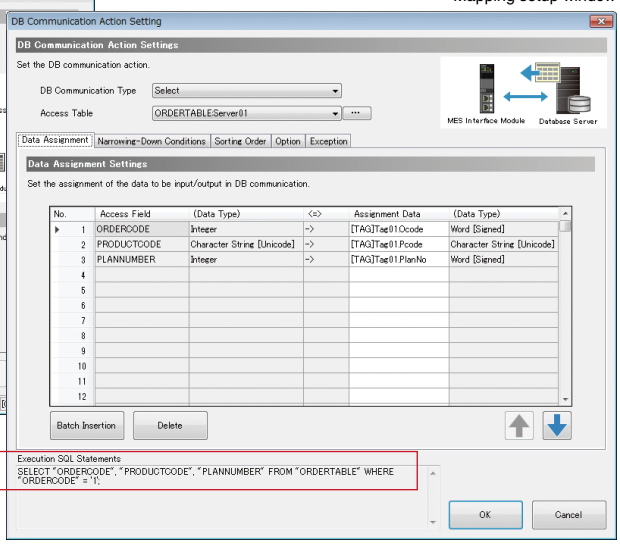
Intuitive and easy-to-use setup software

The setup of the module can be done easily using its wizard-like configuration tool. SQL*3 sentences can be automatically generated just be setting various parameters in the tool, without having to develop dedicated programs to enable communication with the database server.

Job setup wizard



Mapping setup window



Auto-generated SQL

*3. Structured Query Language is a programming language designed for managing data in a relational database.

MES Interface module specifications

Item	RD81MES96N
External interface	
Ethernet (1000BASE-T/100BASE-TX/10BASE-T)	2 channels
SD memory card slot	SD memory card/SDHC memory card (2 GB…16 GB)
Database connection	
Supported database*1	Oracle® Database, Microsoft® SQL Server®, Microsoft® Access®, MySQL®, PostgreSQL
No. of connected databases	Max. 16/project
Job	
Allowable number of settings	Max. 64/project
Trigger buffering count	192
Trigger conditions (number of combinations)	2 conditions/job
Action	
Allowable number of settings	Max. 1920/project, max. 30 (20 main processing actions + 10 pre/post-processing actions)/job
SQL text	SELECT, INSERT, UPDATE, DELETE, Multi-SELECT, Multi-INSERT*2, STORED PROCEDURE
Database communication action fields	Max. 65536/project • "Data Assignment Settings": Max. 1024 fields/DB action. 256 for STORED PROCEDURE. • "Narrowing-Down Condition Settings": Max. 8 lines/DB communication action
No. of operations possible for operation action	(Max. 20 binary operations)/operation action
Program execution	
Allowable number of settings	Max. 10 programs (Max. 10 for the total of main processing and pre/post-processing actions)/job
Device tag	
Accessible CPU modules*1	MELSEC iQ-R, MELSEC-Q, MELSEC-L, MELSEC iQ-F, MELSEC-F Series
No. of tags	64/project
No. of components	1024/tag 65536/project
Data sampling interval	
High-speed sampling (ms)	Synchronized with the scan time, 1…900 (up to 32K points)
General sampling (s)	0.1…0.9, 1…3600
DB buffering	
Buffering size at communication error	2,048 MB (Two DB buffers of up to 1,024 MB each can be set)

*1. For details, please refer to the relevant manual (for support related to the database, please contact the relevant database software company).
*2. Supported only when used with a SQL Server® database.

Functions

Item	RD81MES96N
Function	
DB record read/write	Reads/writes data in the database of the host information system
Device memory read/write	Reads/writes device memory data of the CPU module
Trigger condition monitoring	Monitors values of the time or device tag components etc., and starts jobs when a trigger condition changes from false to true (the condition is satisfied)
Data operation and processing	Performs four arithmetic operations, obtains remainder, performs character string operation, etc.
Program execution	Executes a program on the server through a MES Interface module
DB buffering	Buffers the data sent to the database, and resend it after recovery, when the data cannot be linked due to the disconnection of the network between MES Interface module and the database or failure of the database etc.
REST server*3	Enables job-related operations and job information acquisition from the REST client (Also supports the XML process function for the MELSEC-Q Series MES interface module)
Setup software	
MES Interface function configuration tool	SW1DND-RMESIF-E

*3. REST: Representational state transfer

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⚠ For safe use

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

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