

FACTORY AUTOMATION

**MELSEC iQ-R**  
series

**iQ Platform-compatible PAC  
MES Interface Module**

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

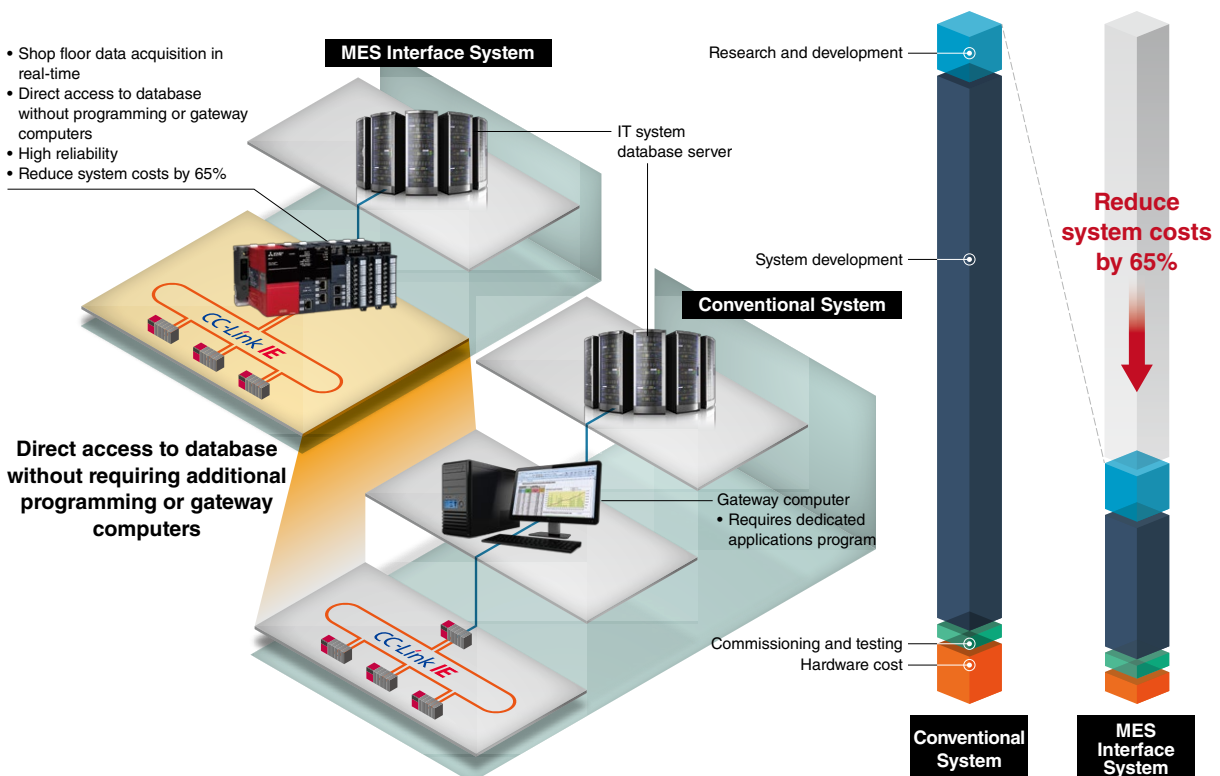
The MES interface module allows production data to be inserted into database records directly. The transmission of data can be event-driven providing real-time production status, enabling quicker response to production-related problems. Additional features are also included such as DB buffering, which 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®, PostgreSQL®, and MariaDB®.



## 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.

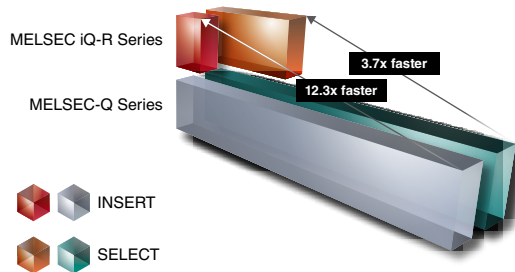
\*1. Assumption based on a typical control architecture.



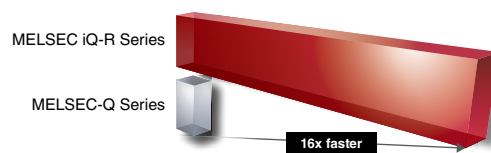
## High-speed and large-capacity data collection

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

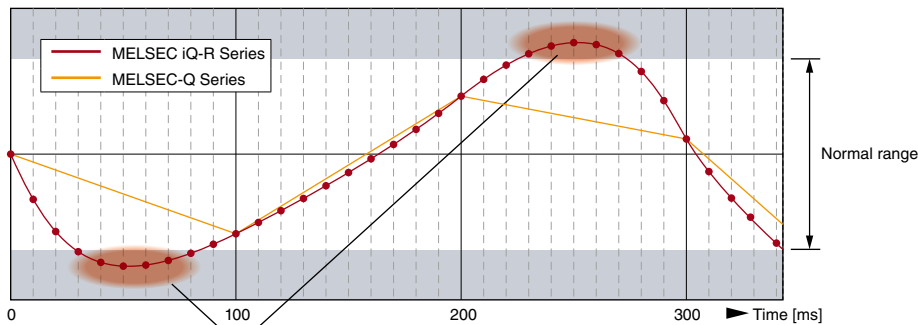


\*1. Database communications time is based on measurement criteria set out by Mitsubishi Electric. For further details, please refer to the relevant manual for each product.

\*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 by setting various parameters in the tool, without having to develop dedicated programs to enable communication with the database server.

Job setup wizard

Job Setting No.[1]  
Job Name: Job01

Job Configuration Selection  
Job Configuration: Extended Configuration

DB Communication Action Setting  
DB Communication Action Settings  
DB Communication Type: Select  
Access Table: ORDERTABLEServer01

Data Assignment Settings  
Set the assignment of the data to be input/output in DB communication.

No.	Access Field	(Data Type)	↔	Assignment Data	(Data Type)
1	ORDERCODE	Integer	->	[TAG]Tae01.Ocode	Word [Signed]
2	PRODUCTCODE	Character String [Unicode]	->	[TAG]Tae01.Pcode	Character String [Unicode]
3	PLANNUMBER	Integer	->	[TAG]Tae01.PlanNo	Word [Signed]
4					
5					
6					
7					
8					
9					
10					
11					
12					

Auto-generated SQL  
Execution SQL Statements  
SELECT 'ORDERCODE', 'PRODUCTCODE', 'PLANNUMBER' FROM 'ORDERTABLE' WHERE 'ORDERCODE' = '1'.

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

## MES interface module specifications

Item	RD81MES96N
<b>External interface</b>	
Ethernet (1000BASE-T/100BASE-TX/10BASE-T) (ch)	2
SD memory card slot	SD memory card/SDHC memory card (2 GB...16 GB)
<b>Database connection</b>	
Supported database*1	Oracle® Database, Microsoft® SQL Server®, Microsoft® Access®, MySQL®, PostgreSQL®, MariaDB®
No. of connected databases	Max. 16/project
<b>Job</b>	
Allowable number of settings	Max. 64/project
Trigger buffering count	192
Trigger conditions (number of combinations)	2 conditions/job
<b>Action</b>	
Allowable number of settings	Max. 1920/project, max. 30 (20 main processing actions + 10 pre/post-processing actions)/job
Database communication type	SELECT, INSERT, UPDATE, DELETE, Multi-SELECT, Multi-INSERT*2, STORED PROCEDURE*2
Number of field settings per project	Max. 65536 fields
No. of operations possible for operation action	(Max. 20 binary operations)/operation action
<b>Program execution</b>	
Allowable number of settings	Max. 10 programs (Max. 10 for the total of main processing and pre/post-processing actions)/job
<b>Device tag</b>	
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
<b>Data sampling interval</b>	
High-speed sampling	<ul style="list-style-type: none"> <li>Programmable controller scan time synchronization</li> <li>1...9 ms, 1...9 x 10 ms, 1...9 x 100 ms, 1...60 s</li> </ul>
General sampling (s)	0.1...0.9, 1...3600
<b>DB buffering</b>	
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 when used with Oracle® Database, SQL Server®, MySQL®, PostgreSQL®, and MariaDB® database.

## Functions

Item	RD81MES96N
<b>Function</b>	
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)
<b>Setup software</b>	
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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