MITSUBISHI
ELECTRIC
FACTORY AUTOMATION

Q Series

QJ71MES96 MES Interface

Simplifying MES
Increasing visibility and productivity

IMPROVED COMMUNICATION — Allows direct connection from the shop floor to your MES databases

**MORE FLEXIBILITY** — Network loading reduced by event-driven communication

INTELLIGENT DESIGN — Multiple interfaces can be connected to a single database allowing scalable control over multiple production lines

LATEST STANDARDS — Easy, menu driven, setup requires no knowledge of communication programs or protocols

Higher productivity through improved visibility
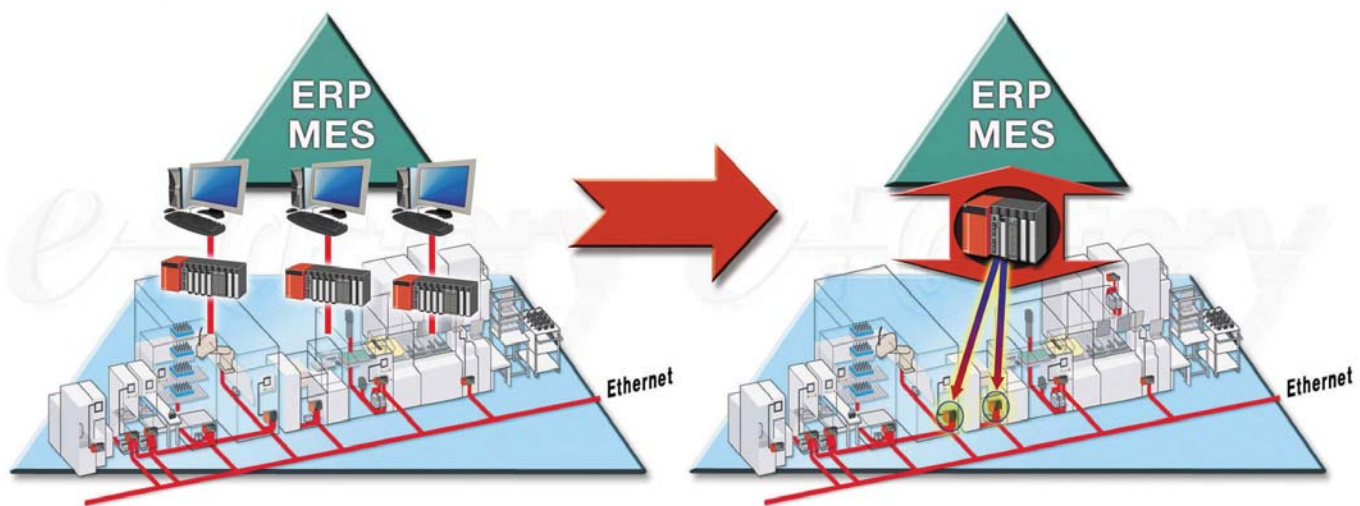
Reducing the traditional "data concentrating" PC layer opens up visibility and control.

The new Qseries MES module allows users to interface their production control systems directly to an MES database. This allows users to "win" at many levels:

- It removes the need for an interfacing PC layer - reducing hardware costs and installation time.

- It removes the need for specialist interfacing software run on the PC layer; saving on expensive software and services while reducing installation costs.

- It simplifies the MES architecture reducing the total commissioning time.

- It can improve reliability and accessibility as the module is based on industrial PLC design standards.

- The simplified system provides greater direct data visibility increasing the opportunity to achieve higher productivity.

The Q series MES module simplifies the MES application and enables users to take their e-F@ctory concept to the next level.

Direct connection

The QJ71MES96 MES module enables users to connect to a wide range of commercial databases including Oracle, Microsoft SQL Server and Access for example.

Setup Software

MES Database Server   MES Interface Module
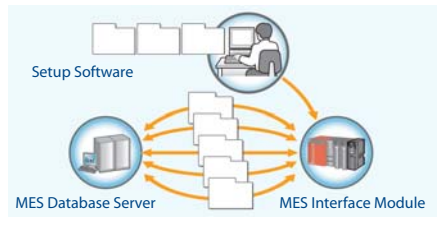
Easy set-up reduces commissioning time

The easy-to-use set-up software makes it possible for users to configure Device tags, Server Services and Job settings through an intuitive, menu driven software, without the need for knowledge of specialist communication programs.
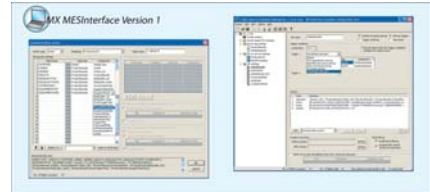

Intuitive, menu driven software

Reduced loading

An event-driven communication method helps the MES module to reduce network loading, for example, the MES module can transfer data via SQL texts when a user defined trigger condition occurs. The trigger condition could be a certain value being reached or the status of an action that takes place in a machine process. By using this method the MES module can significantly reduce network traffic compared to a traditional system using a PC layer, which would normally be based on a polling architecture.

Recipe handling and more!

Support for bi-directional data transfer allows the MES module to also receive data updates and "directions" as well as downloading production information from the MES database. This is achieved by pre-registering SQL jobs in the MES module and allowing the main MES information system to trigger these remotely.
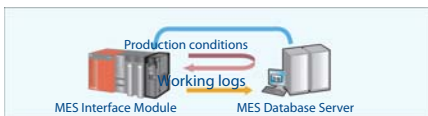

Bi-direction information flow helps keep productivity levels high

Reliability is key

Triggering and Database buffering functions enable the MES module to ensure reliable information delivery. When data transmissions exceed the system or network bandwidth the "Trigger buffering function" is enabled allowing the MES interface module to buffer the data to an internal memory. The stacked data is processed and resent sequentially once network/data loads are reduced.

If a more serious failure occurs where the MES module becomes disconnected from the main MES system the Database or DB buffering function allows all unsent SQL data to be stored on a CompactFlash (CF) card. The buffered data can then either be sent on reconnection of the host database or can be loaded manual from the CF card. his function minimises the production data that is lost from the system and allows the MES database to updated once the systems are reconnected.
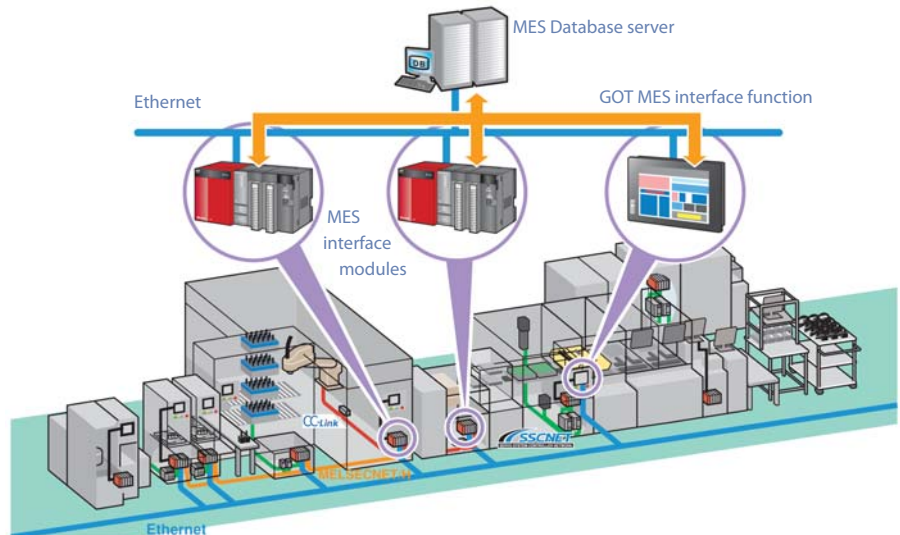
MES interfaces are available for System Q and for GOT1000 products

What is e-F@ctory?

The three main targets of today's manufacturers are to reduce costs, increase productivity and improve quality. e-F@ctory integrates automation components which are already "best in class" into a single harmonious system. Its objective is to guarantee a streamlined information flow between the shop floor and the top floor.

■ As used by Mitsubishi

e-F@ctory is more than just a concept from Mitsubishi Electric. It is already being used through out many of our own factories for efficient automation covering everything from planning to installation, operation and maintenance. It helps us realize greater productivity, machine utilization and quality.

■ Scalable solutions

The modular architecture of the e-F@ctory concept makes it suitable for companies of all sizes and for system expansion and growth. All data from shop floor to top floor such as process, production and quality control data is available in real-time. The MES interfaces for the Q series and GOT1000 HMIs allow users to integrate their e-F@ctory in to their MES solution.

Delivering productivity and cost savings

Specifications ///

Software

Item			Specifications
DB interface	No. of connected databases		max. 32 items/project
	Supported databases		Oracle® 8i, Oracle® 9i, Oracle® 10g, Microsoft® SQL Server 2000 Microsoft® SQL Server 2000 Desktop Engine (MSDE2000), Microsoft® Access 2000, Microsoft® Access 2003
	Jobs	Allowable number of settings	max. 64 items/project
		Trigger buffering	max. 128 times
		Trigger conditions — No. Of conditions can be combined	max. 2 conditions (Combination can be selected either AND or OR)/ job
		Trigger conditions — Condition type	21 types Period: 1 to 32767 seconds Time: Year, month, day, day of the week, hour, minute Value monitoring: Compares tag component value and tag component value (6 types). Compares tag component value and constant value (6 types). Module startup Handshake
		Action — Allowable number of settings	max. 10 actions/job
		Action — Type	4 types (Select, update, insert, operation)
		Action — No. of communication action fields	max. 8192 fields/project • [DB-Tag link setting]: Maximum 256 rows/communication action • [Select/Update conditions]: Maximum 8 rows/communication action
		Action — No. of operations possible for operation action	(Maximum 20 dyadic operations)/operation action
		Action — Operators for operation action	6 types (Addition, subtraction, multiplication, division, remainder, character string combination)
		Program execution — Allowable number of settings	Maximum 2 programs (One program before execution of initial action + one program after execution of final action)/job
	Device tag	No. of tags	64 tags/project
		No. of components	256 components/tag, 4096 components/project
		Data type	5 types (Signed single-precision integer type (16 bits), signed double-precision integer type (32 bits), single-precision floating point type (32 bits), bit type, character string type (1 to 32 characters))
		Statistical processing	6 types (Average, maximum, minimum, moving average, moving maximum, moving minimum)
	DB buffering	Buffering capacity during communication error	Maximum capacity: CompactFlash card capacity - 32 MB (16 MB to 512 MB)
XML processing	Command type		3 types (One-shot execution of a job, enabling the job, disabling the job)
	Request message size		Maximum 128 KB
	Reception protocol		HTTP1.0
	User authentication		No. of accounts: 16 User ID: 1 to 20 characters Password: 6 to 14 characters
Working log	Error log capacity		max. capacity: 1 MB • At least 4800 logs can be recorded.
	Event log capacity		max. capacity: 2 MB • At least 4800 logs can be recorded. (When there is no detailed log) • At least 2 logs can be recorded. (When there is a detailed log)

Transmission specifications

Item		Specifications	
Ethernet	Interface	10BASE-T	100BASE-TX
	Data transmission rate	10 Mbps	100 Mbps
	Transmission method	Base band	