

RV SD & SQ

Industrial Robots

Integration and Performance

Seamless unification of automation and robotics



FULL
INTEGRATION 

First single platform unification of robotics and automation

SIMPLIFIED 
ENGINEERING

Robot controller is fully integrated with other system elements

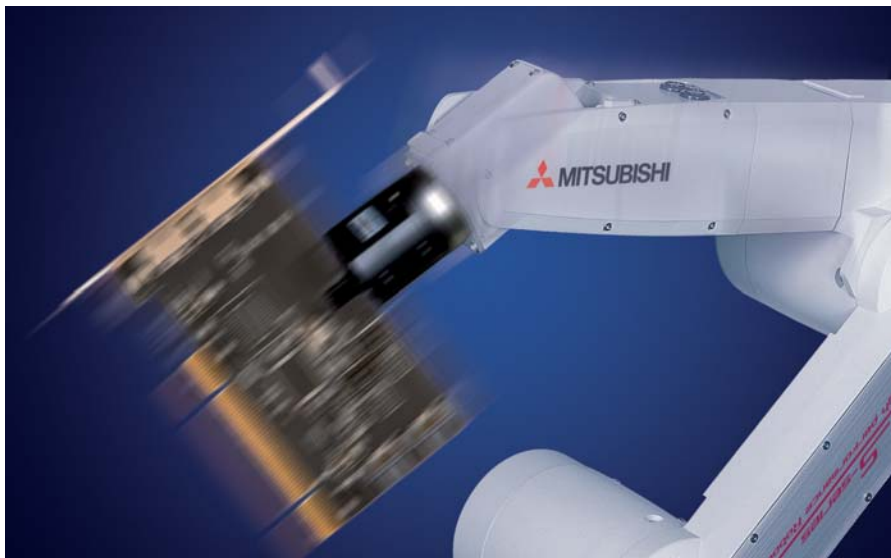
HIGHER 
PRODUCTIVITY

Fast performance and highest accuracy minimize cycle times

REDUCED 
COSTS

Fewer system components; simpler designs

SD & SQ: All inclusive or fully integrated



Mitsubishi Electric robots: perfect movement, perfectly integrated.

SQ Series – the highest degree of integration available

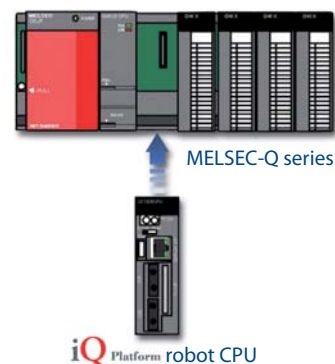
The design and implementation of a robotic work cell can be a complicated process. Rarely is a robot used alone; it must be integrated with the other systems in the cell, which may mean co-ordination with PLCs, motion control and HMIs. In the past, these systems were usually from multiple vendors. This often led to major headaches trying to get these incompatible systems to function together. With the SQ Series, Mitsubishi offers an end to this waste of precious engineering resources. This is the world's first robot family which offers a controller that seamlessly integrates with other cell automation via the iQ Automation Platform.

The buck stops here

For the design of robotic systems, Mitsubishi offers unrivalled choice. Our two key robot families cover all requirements no matter how complex or demanding your application. Our SD Series offers a high level of performance for maximum productivity, while our SQ Series extends these benefits with the highest level of integration available from any robotic system anywhere.

SD Series – no optional extras

When you are specifying a system, you don't want your budget to be slowly eaten away by a list of hidden extras to complete the solution. With the SD Series, a comprehensive list of standard features insures it has the full capabilities from the outset. Key features like tracking and controlling external axes plus Ethernet communications provide a flexible solution without having to add accessory components. The SD Series also provides a wide selection of arm configurations including vertically articulated 5 and 6 axis models as well as SCARA, in various arm lengths.



Easily add robot control to your system

Integrated but not limited

The SQ Series' controller is added to an existing iQ system by simply by plugging its CPU module into the rack. This means it can reside alongside additional CPUs that offer motion, PLC or even CNC control without any complicated engineering. Since all CPUs are in a common system, this means that the whole resources of the system (I/O, networks and specialized functions) are also available to the robot controller. Further, since the system uses a common architecture, system design is simplified,

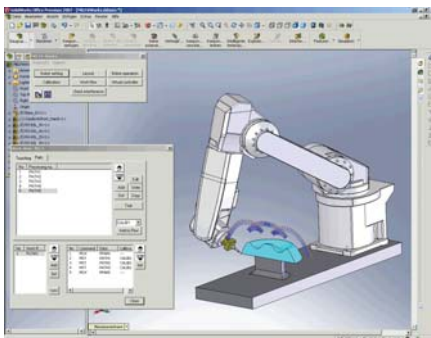
costs are reduced and spare parts are simplified. The iQ takes care of all the integration, leaving you to concentrate on your application.

In addition to these benefits offered by the SQ Series, there are further integration features available to simplify engineering. The SD Series offers a built in SSCNET III interface that permits up to eight external axes to be controlled directly. This allows the MR-J3 servo family to be utilized for auxiliary motion functions in a work cell without the need for complex cabling; a single optical fibre links all axes to the robot controller. The SQ can have access to similar benefits through adding motion control capabilities to an iQ system. Additionally, both systems can use the GOT HMI as a control panel for controlling the robot directly. The Ethernet connectivity available for both systems also permits external devices such as the COGNEX range of machine vision systems to communicate directly.

Reduced engineering time

For system development, options are just as broad. If an iQ based system is being used, the GX Navigator programming suite* allows all relevant programming tools to be accessed from a common framework. Hence only one set of system data needs to be considered and robot, PLC, motion control and even HMI screens can all be programmed with a common set of tools.

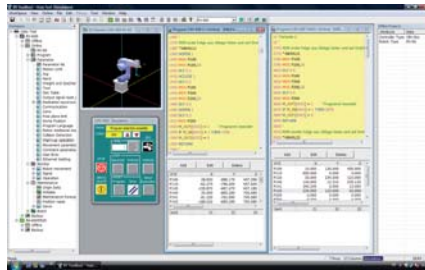
To further speed development, Mitsubishi also offers the powerful MELFA Works and MELFA Vision software. These allow automatic path code generation from existing SolidWorks CAD data, while MELFA Vision simplifies the configuration of machine vision such as that available from COGNEX.



Following workpiece contours in MELFA-Works



Mitsubishi robots can handle a wide range of exacting requirements.



Simulating robot programs with RT ToolBox2

Both packages are supported by the robot programming software RT ToolBox2 which offers a complete project set up and management by additional functions like offline and online programming and classified parameter settings. Simulating a robot program or calculating the tact time before the application is built up is as easy as the documentation and maintenance of the project afterwards.

Increased productivity

Both SD and SQ robots themselves also offer significantly increased process productivity with some of the highest performance figures in their class. Composite speeds up to 9300 mm/second offer cycle times below half a second while repeatability is plus or minus 0.02 mm. The robots also offer flexible options for a variety of end effectors of either electrical or pneumatic actuation.

Greater safety

Many companies are aware of an upcoming change to the Machinery Directive in 2009. These robots conform to the revised ISO-10218 Robot C Standard. Hence building safety compliant systems will be made easier thanks to safety features such as redundant I/O and multiple three position switches ("dead man switch").

More than just robots

Finally, a system will require more than just a robot. Mitsubishi is also equally able to provide other key parts of a work cell, such as inverters, servos or slice I/O. Combine this with a wealth of robot implementation expertise and a system integrator network, and you have a powerful partner to complete robotic projects. No matter whether you are transferring parts, deburring, sealing or some other application, we have the right robot solution for your application.

* Available summer 2009

SD & SQ Series Overview ///

Series	Type	Articulation	No. of Axes	Payload (kg)	No. of Models available	Controller Type	Comments
SD	RV-SD	Vertical	6 (5 in case of RV-SDJ variant)	3, 6 or 12	14	CR1D-721/731 (3 kg payload)	Clean specification (RV-SDC) and long reach (RV-SDL) types also available
						CR2D-711 (6 kg payload)	
						CR3D-701M (12 kg payload, IP54)	
SD	RV-SDH	Horizontal (SCARA)	4	6, 12 or 18	14	CR1D-761 (6 kg payload)	Clean specification (RH-SDHC) and oil mist (RV-SDHM) types also available
						CR2D-741 (12 kg payload)	
						CR2D-751 (18 kg payload)	
SQ	RV-SQ	Vertical	6 (5 in case of RV-SQJ variant)	3, 6 or 12	10	CR-3Q-721M/731M (IP54) (3 kg payload)	Clean specification (RV-SQC) and long reach (RV-SQL) types also available
						CR1Q-721/731 (3 kg payload)	
						CR3Q-711M (6 kg payload, IP54)	
						CR2Q-711 (6 kg payload)	
						CR3Q-701 (12 kg payload)	
	RH-SQH	Horizontal (SCARA)	4	6, 12 or 18	9	CR1Q-761 (6 kg payload)	Clean specification (RH-SQHC) and oil mist (RV-SDHM) types also available
						CR3Q-761M (6 kg payload, IP54)	
						CR2Q-741 (12 kg payload)	
						CR2Q-741M (12 kg payload, IP54)	
						CR2Q-751 (18 kg payload)	
						CR3Q-751M (18 kg payload, IP54)	

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Specifications subject to change /// Art. no. 225745-A /// 04.2009

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