for a greener tomorrow

MITSUBISHI ELECTRIC
Changes for the Better

FACTORY AUTOMATION

MELSEC iQ-F SERIES

Simple Motion Control for reliable positioning solutions

- Excellent performance and cost effectiveness
- Various control functions available including advanced synchronous control, mark detection function or CAM auto generation
- Advanced motion control for up to 8 axis via SSCNETIII/H
- Simple and smart system installation

Simple Motion – reliable, accurate and easy

The Simple Motion modules are part of the MELSEC iQ-F series, which stands for an innovative concept with outstanding performance and superior drive control

Motion control for the MELSEC iQ-F series

For the MELSEC iQ-F series Mitsubishi Electric offers the FX5-40SSC-S 4-axis and FX5-80SSC-S 8-axis Simple Motion modules. They complement the built-in positioning function of the MELSEC iQ-F base unit. Similar to positioning modules, these Simple Motion modules are capable of a wide range of high-precision controls, such as positional control, advanced synchronous control, cam control and speed and torque control with setup of even complex motion control functions being done easily by parameters and programming.

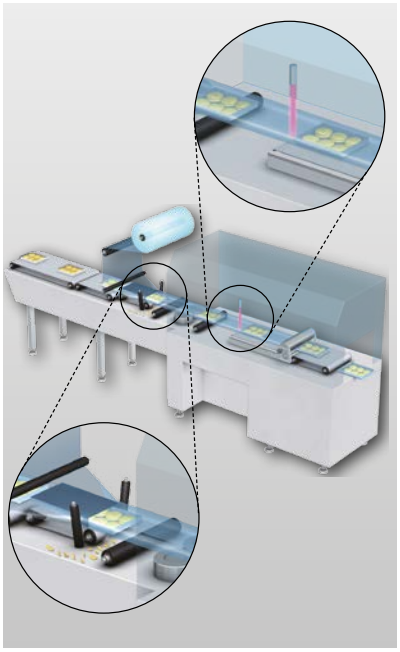
Impressive functions on a small footprint

The standard encoder signal interface and high-speed inputs for mark detection, for example, enable the system to be used in classical serial machines such as packaging and bottling lines or palletising systems without fitting additional optional modules. A function for automatically calculating the cam data for a rotary cutter application simply by entering the product length and the synchronization width is also included.

Various applications such as XY tables and sealing systems can easily realized using the positioning functions, which include linear interpolation (up to 4 axis), circular interpolation (max. two axes) and path control.

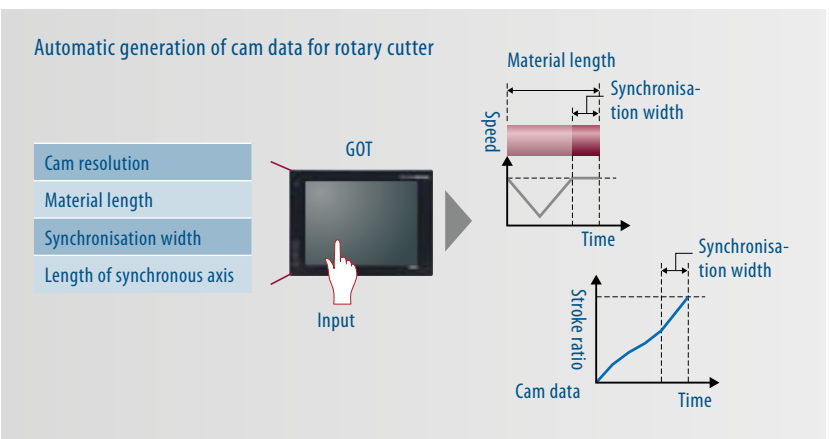
Easy motion control

Automatic operation can be easily achieved by entering position addresses, speeds etc. via the sequence program. Powerful additional functions such as M-Code, jump functions, step mode and target address change functions are also available.



Synchronisation control with synchronous encoder

Speed and torque control can be used for tension control applications such as winding and unwinding. The control system can be switched between "position control", "speed and torque control" and "position control". This makes it possible to continue to maintain a position with absolute position coordinates even after the control system has been switched over.



Synchronisation and cam functions can be combined in one system when synchronized control is required.

Simple programming

The motion modules are programmed with the GX Works3 software package using standardised PLCopen® function tools. All data can be easily generated by means of special auxiliary functions such as automatic speed calculation, off-line simulation and automatic calculation of auxiliary arcs. Programming and debugging can be easily carried out from your desk using a PC.

All you need is the FX5-40SSC-S or FX5-80SSC-S module and a MELSEC iQ-F base unit. Neither the servo motors nor the servo amplifiers need to be connected for programming and testing. This considerably increases efficiency during setup and fault finding.

High-speed SSCNETIII/H

SSCNETIII/H is a high-speed motion network which has been developed by Mitsubishi Electric based on optical communication. It enables full-duplex communication with transmission speeds of up to 150 MB/s and a guaranteed bus cycle time of 0.44 ms.

Easy synchronous control parameter settings

Structure of a system configuration comprising servo amplifiers and servo motors together with an MELSEC iQ-F PLC-CPU.

The use of fibre optic cables makes communication fully resistant to electrical interference. SSCNETIII/H users therefore benefit in the form of greater reliability and more flexibility, as the fibre optic cables can be laid anywhere – even next to powerful electric motors.

Mitsubishi Electric servo amplifiers which are compatible with SSCNETIII/H can be combined in one system and support various servo motors for a wide range of applications.

The MELSEC iQ-F

The Mitsubishi MELSEC-F series has been reborn as the MELSEC iQ-F series, offering enhanced high speed bus, expanded built-in functions, advanced SSCNETIII/H support and improved engineering environment. Program and parameters are also set with the GX Works3 engineering software.

The base units are equipped with innovative processors and are designed for international use, operating on 100/240 V AC or 24 V DC. They are available with 32, 64 and 80 I/Os with either relay or transistor outputs. All base units are expandable up to 256 I/Os with expansion modules or up to 512 remote I/Os via suitable networks (CC-Link, CC- Link IE Field, Ethernet and Profibus).

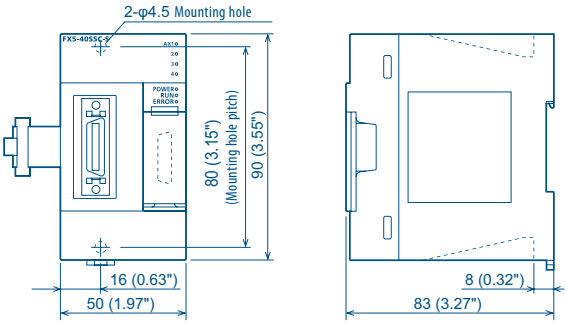
The compact modular MELSEC iQ-F series

The MELSEC iQ-F series is the result of the consistent development of the MELSEC FX3 series and offers outstanding performance. Mitsubishi Electric pioneered the compact PLC over thirty years ago and claims market leadership in the compact PLC sector with over sixteen million controllers sold.

Specifications

Specifications		FX5-40SSC-S	FX5-80SSC-S
Number of controllable axes		up to 4	up to 8
Interpolation functions		Linear interpolation for up to 4 axes, circular interpolation for 2 axes	
Output type		SSCNETIII/H	
Output signal		Bus	
Drives		MR-JE-B/MR-J4-B/MR-J4W2-B/MR-J4W3-B servo amplifier range and FR-A800 frequency inverter series (over SSCNETIII/H)	
Operation cycle		0.888, 1.77 ms	
Synchronous control	Input axis	Servo input axis, synchronous encoder axis, command generation axis	
	Output axis	Cam axis (up to 4 axis)	Cam axis (up to 8 axis)
Positioning	Method	PTP (Point To Point) control, Trajectory control (linear and arc), speed control, speed-position switching control, position-speed switching control, speed-torque control	
	Acceleration/deceleration control	Trapezoidal acceleration/deceleration, S-curve acceleration/deceleration	
	Compensation	Backlash compensation, electronic gear, near pass function	
Home Position Return (HPR)	HPR method	Proximity watch-dog method, count method 1, count method 2, data set method, scale home position signal detection method.	
	Fast HPR control	Available	
	Auxiliary functions	HPR retry, Home position shift	
Number of positioning data		600 per axis (can be set with GX Works3 or PLC program)	
External input signals	Encoder	Digital inputs (4 points), EMI (1point)	
	Input	A/B phases (multiplication by 4/2/1), PULSE, SIGN	
Cam function	Output axis	up to 4 cam axis	up to 8 cam axis
	Number of cams	up to 64 (depending on memory capacity, cam resolution and number of coordinates)	
	Cam data type	Stroke ratio data type, coordinate data type	
	Cam auto generation	for rotary cutter	
Mark detection	function	Regular mode, specified number of detection mode, ring buffer mode	
	signal	up to 4 points	
	setting	16 settings	

Dimensions



All dimensions in mm

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