MITSUBISHI ELECTRIC
Changes for the Better

MELSEC L Series

Programmable controllers

Innovative Motion Control
Positioning made easy

IMPROVED PRODUCTIVITY	Advanced and wide-range motion control for up to 16 axes
ENHANCED CONTROL	Various control functions available including speed and torque control, synchronisation and cam control
EASY SET-UP	Software with graphical interface for easy parameterisation
EASY INSTALLATION	Simple and smart system installation

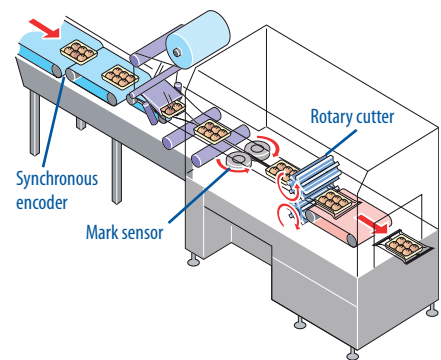# Simple Motion – as easy as can be

The Simple Motion module is part of the MELSEC L Series which includes a wide range of special modules such as communications, network and I/O modules.

Impressive range of functions

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 synchronisation width is also included.

Various applications such as XY tables and sealing systems can be easily realised using the positioning functions, which include
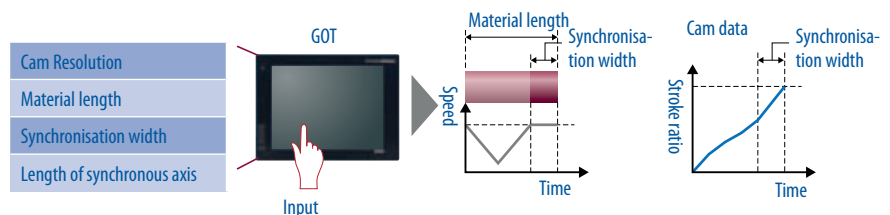

Synchronisation control with synchronous encoder

linear interpolation (up to four axes), circular interpolation (up to two axes) and path control. Proved and tested programs for the MELSEC Q QD75MH module can be used, since the module LD77MS is compatible with the QD75MH.

Motion control for the MELSEC L Series

For the MELSEC L series Mitsubishi Electric offers three different Simple Motion Modules. The 2-, 4- and 16-axis motion modules complement the existing positioning modules and provide the perfect finishing touch to the product range. Various control functions, which have previously been possible only with „pure" motion controller systems, are provided. These include speed and torque control, synchronisation and cam control. Complex motion control functions can be easily implemented with simple parameterisation and sequence programs using the Simple Motion modules.

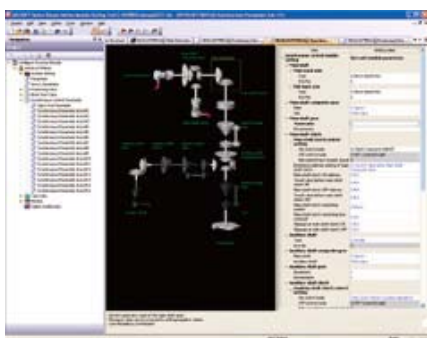Automatic generation of cam data for rotary cutter

Motion made easy

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.

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 synchronised control is required.

Simple programming

The motion modules are programmed with the established GX Works2 IEC 61131 software package using standardised PLCopen® function modules. 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

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

Programming and debugging can be easily carried out from your desk using a PC. All you need is the LD77MS, an MELSEC L Series CPU module and a power supply module. 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 network

The 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 with SSCNETIII/H and a guaranteed bus cycle time of 0.44 ms.

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 can be combined in one system and support various servo motors for a wide range of applications.
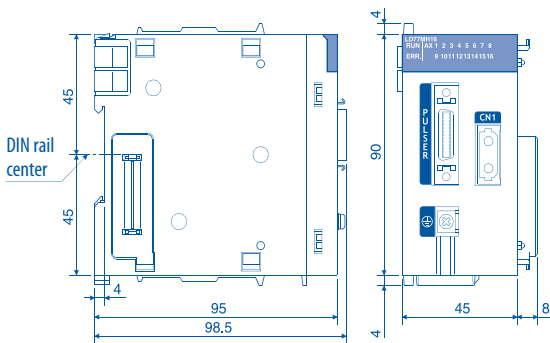
The MELSEC L Series

The compact modular MELSEC L Series

The Simple Motion modules are the latest additions to the MELSEC L Series. The MELSEC L Series includes many other modules such as communications and network modules as well as digital and analogue I/O modules. All CPUs have 24 I/O as standard and can implement many special functions, thus avoiding costs for additional special modules. With its compact design, the new MELSEC L Series simple motion module has all the essential features to ensure maximum system flexibility.

Easy synchronous control parameter Settings

Specifications

Specifications		LD77MS2	LD77MS4	LD77MS16
Number of controllable axes		2	4	16
Interpolation functions		Linear interpolation for up to 4 axes, circular interpolation for 2 axes		
Output type		SSCNETIII/H		
Output signal		Bus		
Servo amplifier		MR-J4-B servo amplifier range (over SSCNETIII/H)		
Operation cycle		0.88 ms		0.88 ms/1.7 ms
Positioning	Method	PTP (Point To Point) control, path control (linear and arc), speed control, speed-position switching control, position-speed switching control, torque control		
	Acceleration/deceleration control	Trapezoidal acceleration/deceleration, S-curve acceleration/deceleration		
	Compensation	Backlash compensation, Electronic gear, Near pass function		
	OPR control	5 different methods		
Number of positioning points		600 per axis (Can be set with GX Works2 or PLC program)		
External input signals	Encoder	1 Encoder A/B phases		
	High-speed inputs	2 inputs	4 digital inputs	
Cam function	Storage area cam data	256 kBytes		
	Number of cams	Max. 256 (depending on resolution)		
	Resolution per cycle	256, 512, 1024, 2048, 4096, 8192, 16384, 32768		
	Stroke resolution	2 to 16284		

Dimensions

DIN rail center

95
98.5
45
45
4
4
4
90
45
8

All dimensions in mm

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Version check