softMC
Multi-Axis Motion Controller

Multi-axis motion control software and hardware package, offering extensive programming capabilities for a variety of automation and robotics applications.

Modular real-time Linux-based software
• Servotronix multi-axis control algorithms embedded in a qualified off-the-shelf industrial PC

Scalable programming options for enhanced user flexibility
• Powerful, open, real-time programming language enables preemptive multitasking at user program level
• C/C++ user written module integration

Extensive motion and robotics functionalities
• Up to 64 interpolated axes
• Additional axes supported upon special request
• Single axis and synchronized axes motion
• Supports standard robot types such as DELTA, PUMA, SCARA, as well as other non-standard robotic kinematics such as traverse, scissors etc.

ControlStudio™ program development environment
ControlStudio™ is a free Windows-based integrated development environment used for editing and debugging of the MC-BASIC program.
A variety of machine and motion features are available, such as: task handling, text files editing, record graphs display, watch window, online tracking, etc.
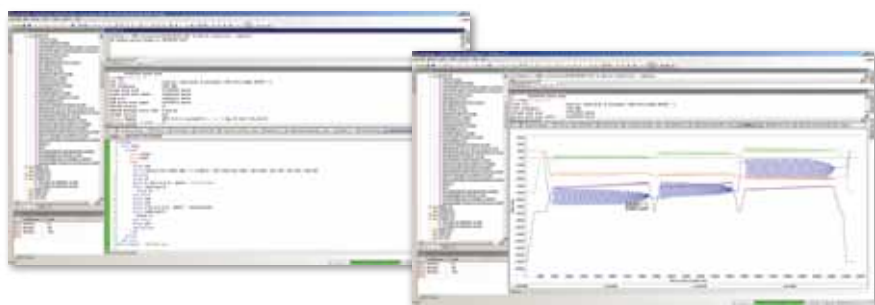
Complete support and integration for successful implementation
An experienced and dedicated team of software, hardware and control engineers comprise the pillar of Servotronix success. From integration services to technical support and application development, customers receive a complete product and service package.

Key benefits

• Open, modular, and modern machine control environment

• Ethernet machine interface

• Support for EtherCAT® and CANopen® motion buses

• Controls up to 64 interpolated axes

• Extensive capabilities for both standard and non-standard robotic kinematics

• Software core has been implemented in motion and robotic applications for over 15 years

• Customized software solution can be embedded into the customer's hardware

Seamlessly integrated with Servotronix drive-motor systems

Current range: 1.5 A rms - 30 A rms
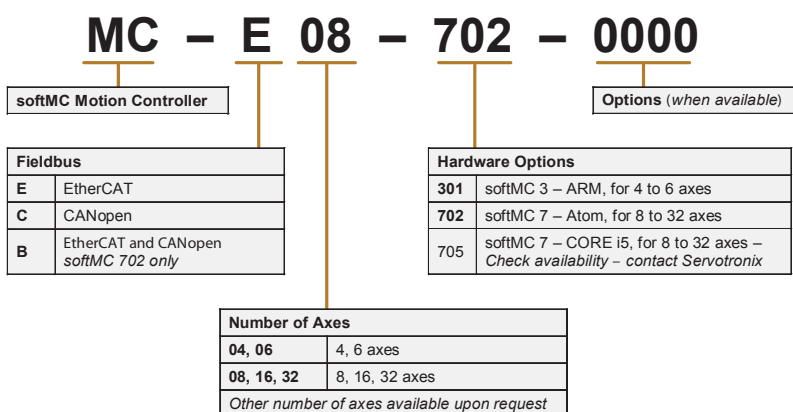Rated output: 50 W – 7.5 kW / 0.16 – 48 Nm

Motion

- Single-axis motion (move, jog)
- Group interpolation (move, circle)
- Blended motions
- Master-slave (camming, gearing)
- Profiles (sine acceleration, trapezoidal, customized)
- Simulated motions (off-line program validation)
- Advanced stop and proceed mechanisms
- User selectable units (meters, inches, mm/s and rpm)
- On-the-fly motion control (immediate, velocity-override)
- 3D compensation table for correcting mechanical inaccuracies
- Conveyor tracking (pick-and-place from linear and rotary conveyers)
- Robotic kinematics for standard and non-standard types
- Advanced spatial interpolation for all kinematics
- Dynamic model (identification, online inverse dynamic)
- Real-time robot impact detection
- Multiple robots controlled by single controller
- Multi robot synchronization

Interfaces

Machine: Ethernet, serial, Modbas
Fieldbus: EtherCAT®, CANopen®.

System

- Real-time Linux operating system
- Preemptive multitasking at user program level
- Integration with C/C++ user modules
- Position-based event generation using programmable limit switches, with microsecond resolution
- softMC-Basic language: Global and local libraries, user data structure, file system, error handling
- Integrated development environment: programming, software program management, diagnostic

Hardware

- CPU: 1.86 GHz Intel® Atom™ N2800 dual-core processor
- RAM: 1 GB 1066 MHz DDR3
- Storage: CompactFlash® card slot
- Ethernet: RJ45 port for host communications
- EtherCAT®: RJ45 port for real-time motion control

Customization capabilities:

- softMC software embedded in other industrial PC platforms
- Customized software solution designed per customer's hardware
- Fieldbus options (e.g. Sercos III)
- PLC language programming

Ordering Information

MC – E 08 – 702 – 0000

softMC Motion Controller

Options (*when available*)

Fieldbus

E	EtherCAT
C	CANopen
B	EtherCAT and CANopen *softMC 702 only*

Hardware Options

301	softMC 3 – ARM, for 4 to 6 axes
702	softMC 7 – Atom, for 8 to 32 axes
705	softMC 7 – CORE i5, for 8 to 32 axes – *Check availability – contact Servotronix*

Number of Axes

04, 06	4, 6 axes
08, 16, 32	8, 16, 32 axes
Other number of axes available upon request	

Software Add-On

Part Number	Item
FW-MC03-CODESYS	IEC 61131 CODESYS for softMC 3 – *upcoming*
FW-MC07-CODESYS	IEC 61131 CODESYS for softMC 7

Servotronix Motion Solutions

For over 15 years, softMC software algorithms have been successfully implemented in a variety of industrial applications, including robotics, machine tools, medical systems, and general automation. Servotronix provides complete motion solutions, from the motor to the motion controller. Contact us to find out how we can help you optimize your machine.

CE

SERVOTRONIX
always in motion™

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