MC600 Series Stepper Motion Controllers, 2 or 4 Axes, 32-bit DSP, Closed-Loop

Model MC600 Series · waveqvanta.com/products/mc600-series-stepper-motion-controllers

Stand-alone DSP motion controllers with built-in stepper drivers for motorized linear and rotation stages.



The MC600 series are motion controllers based on a 32-bit DSP, providing 3-axis linear and 2-axis circular interpolation with closed-loop feedback available on every axis. Programs can run from the built-in SD card, so a host computer is not required. Motor drivers are installed inside the chassis; the controllers run motorized linear stages, rotation stages and goniometers, with a front-panel LCD, full parameter setup and flexible I/O. MC600-2B/4B drive two-phase stepping motors, MC6003P-2B/4B three-phase stepping motors.

Key features

- 32-bit, 150 MHz DSP with 3-axis linear and 2-axis circular interpolation
- Closed-loop control using external linear scales (grating rulers)
- Absolute and relative positioning; units in pulses, degrees, mm or µm
- Separate start speed, constant speed and acceleration settings; any position can be set as user origin
- Real-time readout of logic position, actual position, speed and acceleration
- 16-channel I/O (8 TTL inputs, 8 open-collector outputs); RS-232 and USB 2.0
- Stand-alone operation from built-in SD card; parameters saved at power-off; optional joystick

Specifications

Axes	2 or 4 (by model)
Motor Type	Two-phase stepping motor (MC600); three-phase stepping motor (MC6003P)
Drive Output	24 V, 3.5 A max (MC600); 24 V, 5.8 A max (MC6003P)
Microstepping	Up to 256 subdivisions (MC600); up to 51200 pulses/rev (MC6003P)
Control Loop	Open loop or closed loop
Pulse Frequency	400 kHz
Processor	32-bit, 150 MHz DSP
Servo Control	Digital PID
Speed Profile	Trapezoidal
Motion Modes	Point to point, synchronous/asynchronous; point and incremental modes
Interpolation	3-axis linear, 2-axis circular
Sensor Inputs	Origin sensor, negative limit, positive limit
Communication	RS-232, USB 2.0
I/O	16-bit: 8 TTL inputs, 8 open-collector outputs
Memory	512 KB flash, non-volatile firmware
Display	LCD, 240 × 128 dots, 105 × 56 mm
Software	Control software included

Optional Accessory	Joystick
Power Supply	115/220 V, 60/50 Hz, 400 W max
Dimensions	440 × 395 × 145 mm
Weight	7.5 kg max

Model overview

Model	Axes	Motor Type	Drive Output	Microstepping
MC600-4B	4	Two-phase stepper	24 V, 3.5 A max	Up to 256 subdivisions
MC600-2B	2	Two-phase stepper	24 V, 3.5 A max	Up to 256 subdivisions
MC6003P-4B	4	Three-phase stepper	24 V, 5.8 A max	Up to 51200 pulses/rev
MC6003P-2B	2	Three-phase stepper	24 V, 5.8 A max	Up to 51200 pulses/rev

Typical applications

- Control of motorized linear stages
- Rotation stage and goniometer control
- Multi-stage combined motion systems
- Stand-alone automated positioning without a PC