motioncontrol catalog

ManualPosition controller MC-5B

Manual Position Control

The MC-5B Micro Positioning Controller from National Aperture, Inc. was designed for ease of use and effortless integration into any application.
The MC-5B is a low-cost, quick-setup solution for those applications requiring precise position control of motorized stages. Incorporated into this all-in-one controller is a keypad/display interface, a 750mA 12V linear DC motor amplifier, single ended (TTL) A/B quadrature encoder inputs, 5 volt limit switch inputs and a serial communication interface.
The MC-5B functions seamlessly as a single axis, stand-alone system or as a multi-axis networked system, either with or without a PC. The peer to peer network architecture makes it possible for every MC-5B in a multi-axis system to control every axis in the motion system. No software development or complex wiring is required. The controllers themselves may be programmed to store and recall positions and to sequence through stored positions with looping, pausing and user/program interaction. Automation may also be driven serially from a PC or host processor.

Benefits:

- Instant "Out-of-the-Box" Motion Control
- A Low Cost, Integrated Motion Solution
- No need to write additional motion commands
- Perfect for Rapid Development, Prototyping, Bread Boarding, Proof-of-Concept, Small OEM lots where delivery is Critical

Features:

- Communicate to any node on the system through your PC's Serial Port
- Up to 99 MC-5B controllers can be configured on a single motion system
- Control all nodes from any node on the motion network
- Original Settings are retained
- Configure each unit as a node on the network with a unique node number
- Broadcast Single or Multiple Motion Commands to one node or all nodes at the same time;

Options:

MC-5B Encoder Wheel: Continuous bi-directional ultra-precision control. Detant value can be configured via the MC-5B menu selections.

MC-5B Joystick: 2-axis, 2-speed precision joystick manual control. High and low speed values configured via a simple jog rate control using the menu selection feature.

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ManualPosition controller MC-5B Accessories

Model MC-5B Encoder Wheel
Single Axis Manual Positioning Control for the MC-5B Servo Controller

Features:

- Manually adjust Linear or Rotary position without writing any software
- Just plug it in and you are ready for precision positioning
- Each “click” of the Encoder Wheel generates motion in increments that you define.
- Easy to use remote control.
- Large velcro base for easy, stable surface placement
- Package includes all required cabling

Model MC-5B Joystick
Single or Dual Axis Manual Positioning Control for the MC-5B Servo Controller

Features:

- Manually adjust Linear or Rotary position without writing any software
- Just plug it in and you are ready for precision positioning
- Integrated 2-Speed Control; Standard Jog and Accelerated Jog
- Integrated Dual Axis Positioning System be used on one or two MC-5B Servo Controllers.
- Easy to use remote control
- Large velcro base for easy, stable surface placement.
- Package includes all required cabling

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multiaxis
Servo Amplifier System
MC-4SA

MULTI-AXIS|micropower

The MC-4SA is a multi-axis motor drive amplification system designed for use in systems where low power micro motors are required for a particular application.

The MC-4SA was designed for interfaceability to the National Instrument™ controllers. The MC-4SA interface connectors allow versatile connectivity based on the application and controller being used. All 4 axes may be accessed through a single cable.

National Aperture, Inc. can provide **custom** electronic and mechanical design **services** in order to integrate the MC-4SA into your application.

Features

- Fully compatible with all MicroMini™ stages
- 110VAC 60Hz/220VAC 50/60Hz operation
- Built-in limit-sensing logic
- Front panel axis fault lights
- Axis enable switches w/illuminated status lights
- Compact design
- Versatile multiple-controller interface
- On-board encoder conditioning
- Joystick Input
- Linear Encoder Inputs (Differential)
- Auxiliary I/O connector for ease of wiring
- Easily accessible rear panel mounted fuses
- 19” Rack Mountable or Desktop design
- ***Fully LabVIEW™ by National Instruments compatible.***

Simple Connectivity

All of the difficult interfacing problems have been taken out of the hands of the user. For example, setup is simple; connect one end of the 68 conductor cable to the controller and the other to the MC-4SA; plug in your MicroMini™ stage and you are ready! No external power supply connections, no multi-wire motor connections.

The MC-4SA also features a number of built-in protective devices and signal enhancement circuits such as;

- Supply Rail Monitoring (SRM)
- System status monitoring
- Kickless Balanced Power Supply
- Encoder conditioning
- Reversible motor polarity

Specifications

AC power input (User-selectable):	110/220 VAC
Motor control input voltage:	±10 VDC across 300 K ohms
Encoder supply voltage:	+5 VDC
Max output power (Standard):	6 Watts
Output voltage range:	±12 VDC
Slew rate:	8 V/µS, max.
Voltage gain (Av):	1.2
Standard cabling:	**CA10-10-3**: 3 ft. motor extension cable
	CA10-10-6: 6 ft. motor extension cable
	CA10-10-9: 9 ft. motor extension cable
	186381-02: 6 ft controller amplifier interface cable
	Call for information on additional lengths

National Aperture, Inc. - 16 Northwestern Dr. - Salem, N.H. 03079-4810 - Tel. (800) 360-4598 - (603) 893-7393 - FAX (603) 893-7857 - **www.nationalaperture.com/www.naimotion.com**

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multiaxis
Servo Amplifier System
MC-4SA
Accessories

MC-4SA-Joystick-2
Single or Dual Axis Manual Positioning Control for the MC-4SA Amplifier

Features:

- Manually Adjust Linear or Rotary position without writing any software
- Just plug it in and you are ready for precision positioning
- Integrated 2-Speed Control; Standard Jog and Accelerated Jog.
- Integrated Dual Axis Positioning System for use on the MC-4SA Amplifier
- Easy to use remote control
- Rubber “feet” on base for easy, stable surface placement.
- Package includes all cabling and sample joystick software for end user development

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motioncontrol catalog

single(multi)axis

Motion Control/ Amplifier System

MC-CQ

SMALL BUT POWERFUL

The newest addition to National Aperture's family of electronics is the MC-CQ DC-Servo Motion Controller/Amplifier.

The MC-CQ is RoHS and CE compliant.

This small package contains not only a single-axis motion controller for use with our motorized stages, but also an amplifier and a user-friendly Serial Interface.

Each single-axis controller can be linked to multiple Control Units for an integrated multi-axis Motion Control system.

Your purchase will include an easy to use Software Application Development Interface, RS-232 serial cable.

- RoHS Compliant
- CE Marked
- Integrated Controller and Amplifier
- Small footprint
- Easy to use RS-232 Serial Interface
- Linkable to multiple Control Units
- Single-Axis becomes Multi-Axis
- Includes Software Application Development Interface
- DC power input with Secure-Lock-on connection

- Easy access fuse
- Front access ON/OFF power switch
- Controller provides Velocity and Position Mode closed-loop control w/programmable speed and acceleration and a rich Command-Set
- Clean-and-Simple-Connectivity facilitates Rapid Development

Optional 2,4,8 or 16 port RS-232-to-USB Expansion Module (Plug 'n Play)

When combined with National Aperture's "IMS Motion Console Software" users receive a "no-development-required" complete Motion Control system for up to four axes.

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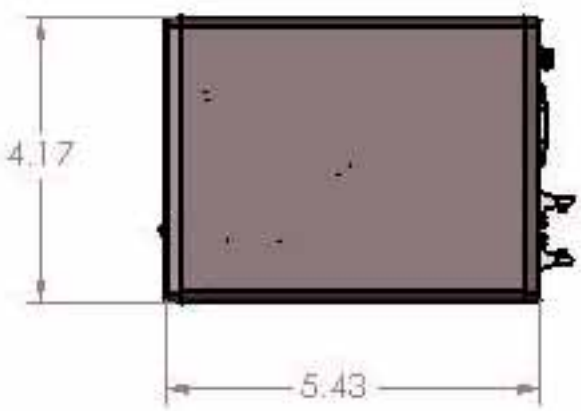
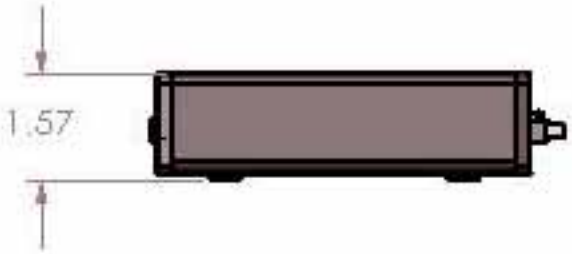
MC-CQ

Motion Control/Amplifier System

Dimensional Outlines





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MC-CQ

Motion Control/Amplifier System

Specifications

Supply voltage	12-30 VDC, (15 VDC recommended for NAI stages)
PWM Switching Frequency	78.12 kHz
Efficiency	95%
Max Continuous Motor Current	6A with sufficient conductors for motor connection 1A with 28 gauge ribbon cable
Max Peak Motor Current	10A with sufficient conductors for motor connection and suffiient power supply current. 2A with 28 gauge ribbon cable
Controller Current Consumption	60mA (w/no Motor, Encoder, or Limit Switch Current)
5 Volt Outputs	50mA (Max Combined Load from Encoder Vcc and Limit Vcc)
Limit Switch Configuration	Switches to ground expected (Controller incorporates 1K pullup resistors to 5V)
Limit Switch Logic Levels	low 0-0.5V, high 4.0-5.0V
Encoder Input Logic Levels	low 0-0.5V, high 4.0-5.0V
Encoder Input Max Frequency	400kHz
Maximum Motor Velocity	30,000 rpm (do not exceed stage speed rating)
Baud Rate	600, 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600,115,200
Serial EEPROM Program Memory	6656 bytes
Operating Temperature	0 to 70º C
Storage Temperature	-25º to +85º C

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