



MCSA-30012-1

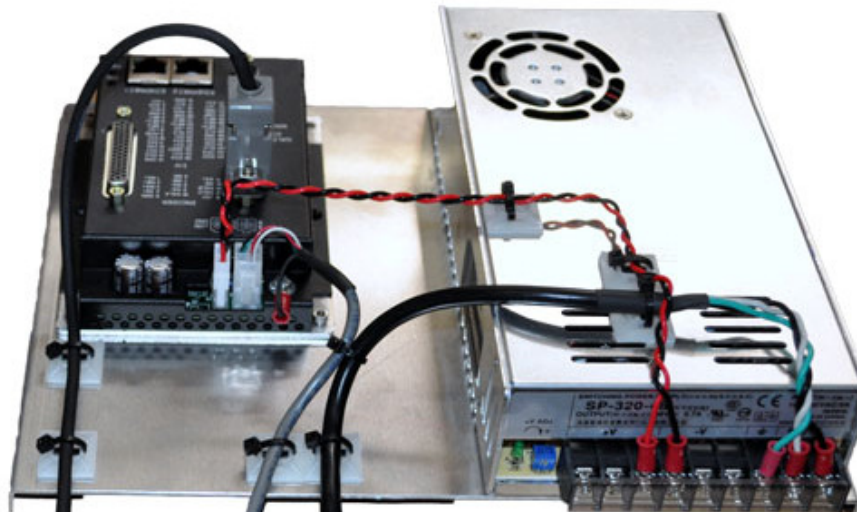
Single Axis Programmable Motion Electronics

The MCSA-30012-1 is a fully integrated single-axis programmable motion controller with built in servo amplifier, separate DC power supply, and cables. Assembly will be mounted to a chassis panel and completely wired. It uses a 32-bit RISC processor to provide high processing speeds. The motion controller operates stand-alone or can be networked to a PC via Ethernet.

Features include PID compensation with velocity and acceleration feed-forward, program memory with multitasking for concurrent execution of four programs, and uncommitted optically isolated inputs and outputs for synchronizing motion with external events. Modes of motion include point-to-point positioning, jogging, contouring, PVT, electronic gearing and electronic cam. This controller uses a simple, English-like command language which makes it very easy to program. The software further simplifies system set-up with “one button” servo tuning and real-time display of position and velocity information.

Features:

- Single-axis motion controller with on-board 800 brushed/brushless sine drive 10 A rms cont., 15 A peak
- Two daisy-chainable Ethernet 100 Base-T ports. One 115kbaud RS232 port
- Ethernet supports multiple masters and slaves. TCP/IP, UDP and Modbus TCP master protocol for communication with I/O devices
- Encoder feedback up to 15 MHz. Quadrature standard; SSI, BiSS , and sinusoidal encoder options. Main and auxiliary encoder inputs.
- PID compensation with velocity and acceleration feed-forward, integration limits, notch filter and low-pass filter
- Modes of motion include jogging, point-to-point positioning, contouring, PVT, electronic gearing and electronic cam
- Over 200 English-like commands executable by controller. Includes conditional statements and event triggers
- Non-volatile memory for programs, variables and arrays. Concurrent execution of four programs
- Optically isolated forward and reverse limit inputs and homing input
- 8 uncommitted, isolated inputs and 4 isolated outputs
- High speed position latch and output compare
- 2 uncommitted analog inputs and 1 analog output





Innovation in Linear Motion

Specifications:

System Processor

- RISC-Based processor with DSP functions

Communications Interface

■ Two Ethernet 10/100BASE-T ports. One RS232 port up to 115 kbaud Commands are sent in ASCII. A binary communication mode is also available as a standard feature. Daisy-chain Ethernet - no external hub required

Modes of Motion:

- Point-to-point positioning
- Position Tracking
- Jogging
- Electronic Gearing
- Electronic Cam
- Contouring
- Teach and playback
- PVT

Memory

- Program memory size: 1000 lines · 40 characters / line
- 254 variables
- 3000 array elements in up to 6 arrays

Filter

- PID (proportional-integral-derivative) with velocity and acceleration feed-forward
- Notch and low-pass filter
- Velocity smoothing to minimize jerk
- Integration limit
- Torque limit
- Offset adjustments

Kinematic Ranges

■ Position: 32 bit (± 2.15 billion counts per move; automatic rollover; no limit in jog or vector modes)

■ Velocity: Up to 15 million counts/sec for servo motors

■ Acceleration: Up to 67 million counts/sec²

Uncommitted I/O

- 8 isolated inputs
- 4 isolated outputs
- 2 analog inputs; 0–5 Volts, 12-bit ADC (16-bit option configurable ± 10 V)
- 1 uncommitted analog output ± 10 V

High Speed Position Latch

- Latches encoder position

Dedicated Inputs

- Main encoder inputs—Channel A, A-,B,B-,I,I- (± 12 V or TTL)
- Auxiliary encoder inputs
- Forward and reverse limit inputs—isolated
- Home input—isolated
- High-speed position latch input—isolated

Dedicated Outputs

- Analog motor command output with 16-bit DAC resolution
- Error output
- Amp enable
- High-speed position compare output

Minimum Servo Loop Update Time

- 125 microseconds

Maximum Encoder Feedback Rate

- 15 MHz

Power

- 100-240VAC Single Phase

Drive Specifications

- 10 A rms continuous, 15 A peak

Environmental

- Operating temperature: 0–70° C
- Humidity: 20–95% RH, non-condensing

Mechanical

- 11" x 9" x 4" (L x W x H)

Connectors

- 44-pin HD Female D-sub—I/O
- 15-pin HD Female D-sub—encoder