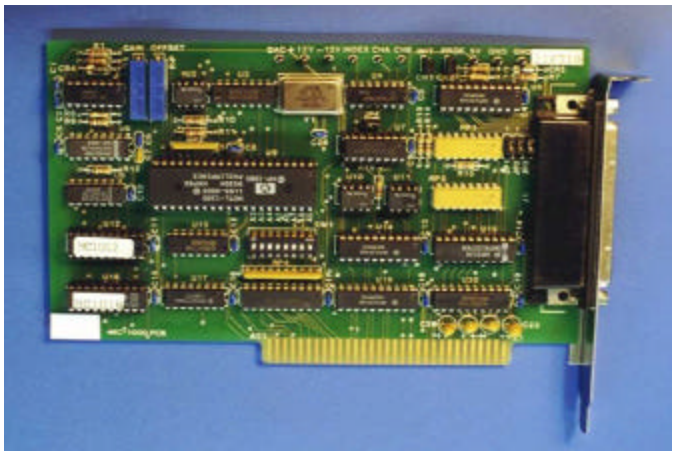
SERVOMOTIVE MC-1100

Single Axis PC Based Servo Motion Controller



Features

- Half-sized expansion card for ISA Bus PCs
- Closed-loop high performance position and velocity control of DC brush, DC brushless and step motors
- Programmable digital compensation filter with a grain, pole and zero
- Programmable sample timer allowing a loop sample time from 64 microseconds to 2.048 milliseconds
- Programmable position and velocity profile control with velocity and acceleration limits
- 24-bit position counter
- Encoder feedback selectable for single or differential inputs
- 20 kHz PWM output, pulse and sign
- Motor commutator for DC brushless or step motors, with programmable phase overlap and phase advance
- Four digital output bits, 2 optically isolated and 2 TTL levels
- Four digital input bits, 2 optically isolated and 2 TTL levels
- High speed interface to PC uses only five registers in PC I/O space
- Register write time 1 microsecond
- Register read time 2.1 microsecond
- Control and Demonstration software provided in C, MCBasic and a menu based point and click “Motion Control Center” interface using Microsoft Windows 3.1 with DLLs

Overview

The MC-1100 motion controller is an IBM PC/XT/AT (ISA Bus) compatible application board designed around the Hewlett Packard HCTL-1100 motion controller ASIC. The MC-1100 provides one axis of closed loop motion control. The axis has two Position Control modes and two velocity control modes. In addition, the MC-1100 also provides four digital output bits and four digital input bits. Two of each of these are optically isolated, and the other two of each are TTL level.

All that is needed for a one axis closed loop servo system is an ISA Bus PC computer, an MC-1100 with optional cable and connector board, one servo motor power amplifier, one servo motor with incremental optical encoder and a motor power supply. These components and their basic interrelationship is illustrated in Figure 1.

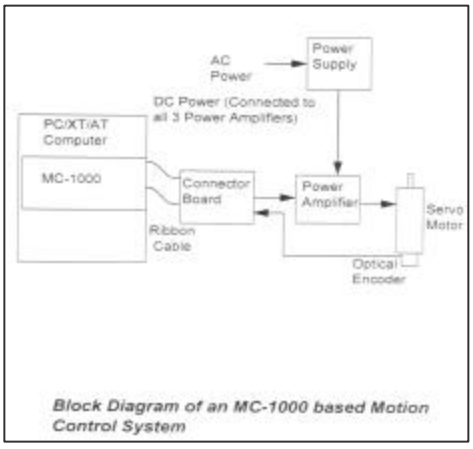
The MC-1100s most attractive feature is its high-speed interface to the PC enabling efficient communications with the PC. The MC-1100 also provides the necessary extras to enable a complete motion control system solution including an industrial quality incremental encoder interface with differential of TTL level inputs and noise filtering, and a generous amount of uncommitted digital I/O to allow sensing limit switches, or controlling amplifier enables, or other user required I/O functions.

Programming the MC-1100

The MC-1100 controller provides three approaches to user programming, including an MCBasic interpreter, a Windows based point and click menu of motion commands and separate Dynamic Link Libraries (DLL), and a set of "C' programming language source code libraries allowing integration of the MC-1100 motion control commands with a user supplied "C" language compiler to produce user application programs.

Graphic Tuning Utility

Each MC-1100 controller includes graphic tuning software utility providing very simple and easy to use initializing and setup aid.



Block Diagram of the MC-1100 Motion Controller

MC-1100 Control Modes

The control modes provided by the MC-1100 are the same as MC-3000:

Proportional Velocity	Integral Velocity
Position	Trapezoidal Profile

Init Mode:

Direct access to DAC and PWM Output for low level control software applications.

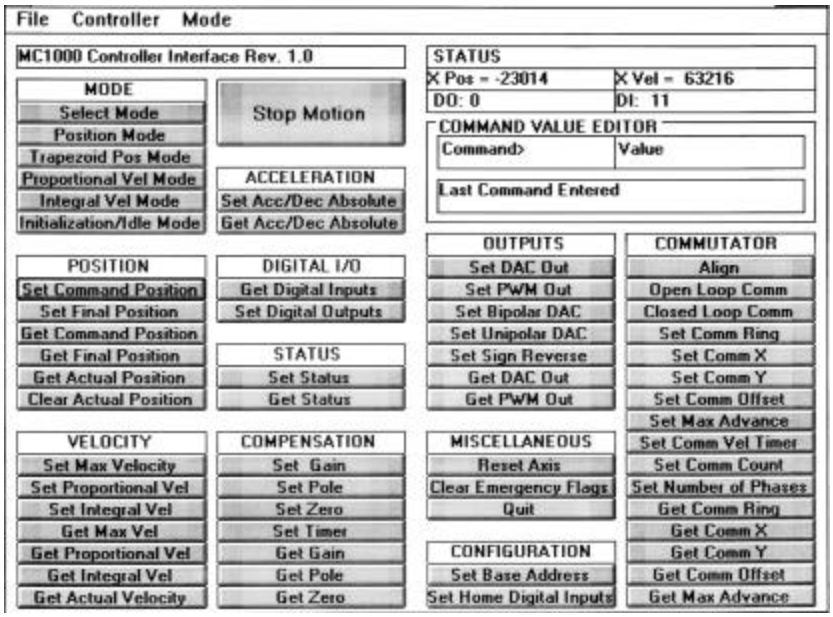
Uncommitted Digital I/O

4 Digital Inputs: 2 TTL and 2 Optically Isolated

4 Digital Outputs: 2 TM and 2 Optically Isolated

WINDOWS GUI Setup Utility

The MC-1100 Comes with a Windows 3.1 Based Graphical User Interface (GUI) , and Dynamic Link Libraries (DLLs) to Support User Written Windows Applications.



General Motion Specifications

Position Range	24 bits (16, 777, 216 [quadrature counts])
Velocity Range	31 – 32*10 [quadrature counts/sec]

Acceleration Range	2 – 2000 [quadrature counts/sec2]
Loop Sample Time	64 – 2048 [microseconds]
Maximum Encoder Frequency	312.5 [kHz]
PWM Modulation Frequency	20 kHz

Ordering Information

The MC-1100 is available with one axes of control standard. Other options include a connector board and cable set for convenient connection of the user signals to the MC-1100. Two and three axis versions of this controller are available with expanded I/O and optional multi-axis software to allow coordinated linear and circular interpolation using EIA-274D “G” and “M” code commands

Part Number and Descriptions

Part Identity	**Description**
MC-1000	One axis MC-1000 Motion Controller
MC-1000CB	MC-1000 Connector Board
MC-1000CA	MC-1000 Cable Set

Warranty

Servomotive Corp. warrants the MC-1000 against defects in workmanship and materials for a period of one year after the date of shipment.

Contact Information

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