Kollmorgen is proud to introduce three new configurations for the SERVO**STAR**® MC. The SERVO**STAR** MC is a high performance, multi-axis controller capable of controlling up to 16 axes of coordinated motion via the SERCOS interface fiber optic link.

In addition to the existing ISA PC card controller, a PCI PC card version and Standalone self-contained units (two versions) are now available.

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SERVOSTAR® MC

Description

The SERVO**STAR** MC (Multi-Axis Controller) is designed for controlling up to 16 axes of coordinated motion via SERVO**STAR** SERCOS drive amplifiers. The MC is simple to install using the equivalent of two adjacent ISA / PCI bus slots in an industrial PC or as a self contained standalone unit. The SERVO**STAR** MC is supplied with the necessary Microsoft® Windows® driver and the **BASIC Moves Development Studio** software package for development, editing and debugging of the user's program. The Motion Developer's Kit allows the user to create interfaces between the MC and other programs/devices such as soft PLC's (Programmable Logic Controllers) and HMI's (Human Machine Interfaces).

Because the SERVO**STAR** MC uses SERCOS and has been designed to work with the SERVO**STAR** SERCOS drive amplifiers, there is no special knowledge required to connect the drive amplifiers to the controller. All SERVO**STAR** MC systems, regardless of axis count, require only two fiber optic connections between the drive amplifiers and the controller. Drive amplifier setup is performed over the SERCOS ring using Kollmorgen **MOTIONLINK**® software.

Features

Motion

- ❖ Profile - Sine acceleration + automatic/manual jerk control
- ❖ Profile - Trapezoidal velocity for rapid motions
- ❖ Point-to-point moves
- ❖ Jogging
- ❖ Multiple axis linear and circular interpolation
- ❖ Dynamic speed change
- ❖ Dynamic position change
- ❖ Gearing
- ❖ Camming
- ❖ Simulated Axes
- ❖ PLS -- Programmable Limit Switches
- ❖ Absolute, incremental moves
- ❖ Extensive stop and recovery after stop (proceed) mechanism
- ❖ Displacement & Wrap around mechanisms
- ❖ Position capture
- ❖ Homing
- ❖ Blended motions
- ❖ Software limit switches
- ❖ Time base acceleration

Programming Capabilities:

- ❖ **D**ynamic **L**ink **L**ibriaries
- ❖ Extensive task control mechanism
- ❖ Up to 256 tasks running in 16 priority levels
- ❖ Extensive event mechanism (Software interrupts)
- ❖ Extensive error management, recovery and control
- ❖ Full-featured editor/debugger with watch and command line interpreter capabilities
- ❖ Fast data mechanism for real-time communication with the host computer through a dual port RAM

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- ❖ Extensive programming language (BASIC compatible with extensions)
- ❖ Data gathering with graphical representation for performance analysis easy debugging
- ❖ Interpreted language for reduced commands execution time
- ❖ Built-in test (BIT) self-diagnostic mechanism

Hardware:

	ISA	PCI	Standalone
Mechanical configuration	Half size ISA Bus PC Card	Half size PCI Bus PC Card	Self contained standalone package
Onboard I/Os	• 23 isolated inputs • 20 isolated outputs	• 23 isolated inputs • 20 isolated outputs • 8 dip-switches	• 23 isolated inputs • 20 isolated outputs • 8 dip-switches • 5 LEDs
Option card support	PC-104 connector (stackable) for connection of up to 2 expansion cards	PC-104 / PC-104+ connector (stackable) for connection of up to 2 expansion cards	1. PC-104 / PC-104+ connector (stackable) for connection of up to 2 expansion cards 2 SST compatible fieldbus support
NvRAM - for rapid storage of user data.	No	Yes	Yes
Flash Disk	8, 12 or 24 MB	8, 12 or 24 MB	8, 12 or 24 MB
RAM	8 ,16 or 32MB	16 or 32MB	8 ,16 or 32MB
CPU	5x86 133MHz	GXM 233Mhz	5x86 133MHz or GXM 233Mhz

Firmware:

- ❖ Supplied on the flash disk (occupies 3 Mb of flash disk space)
- ❖ May be upgraded by the user in the field
- ❖ May be specified by the user to be a specific version at the time of order (refer to the part number field for "Firmware Version")
- ❖ Utilizes the Real-time Operating System (RTOS) VxWorks™ from Wind River Systems.
- ❖ Support for up to 16 axes of coordinated motion
- ❖ Possible to upgrade existing axis count in the field by purchase of additional axes in a new firmware file

Software:

- ❖ **BASIC Moves Development Studio** to allow the user to easily create, edit and debug the motion control program.
  - ❖ Easy-to-use Windows® interface operates on the host PC platform running Windows NT /

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Issued 6-23-00
Revision 7-26-00

95 / 98 / 2000
- ❖ Includes wizards to simplify many common tasks
- ❖ True BASIC Language programming with motion extensions
- ❖ Multitasking environment
- ❖ Project control capability
- ❖ Motion Developer's Kit (MDK)
  - ❖ Provides Application Programming Interface (API) for user to create interfaces to other programs or devices
- ❖ **MOTIONLINK®**
  - ❖ Drive setup via the fiber optic SERCOS ring from the host computer
  - ❖ No need to connect serially to each drive

SERCOS:

- ❖ Industry Standard (IEC 1491) fully digital motion control bus
- ❖ Two fiber optic connections between drives and controller regardless of axes connected
- ❖ Virtually eliminates electrical noise between drives and controller
- ❖ Can add, remove or replace drives without significant rewiring
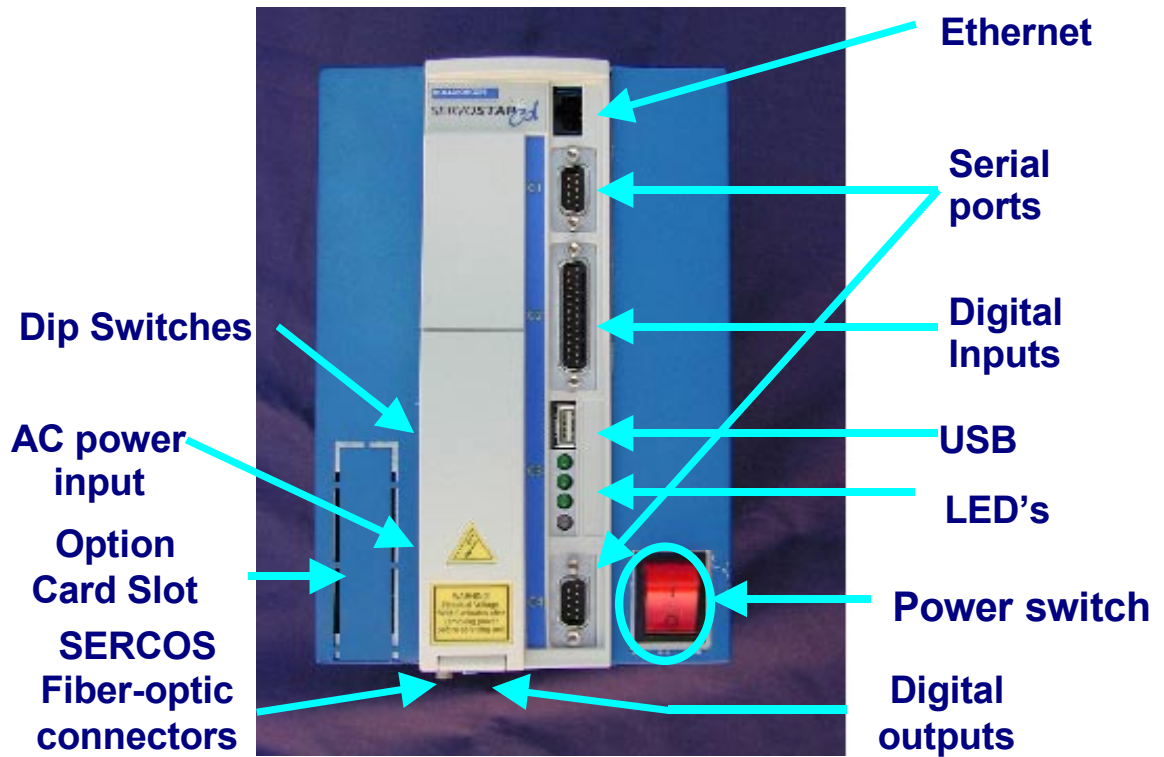- ❖ All parameters are loaded into the drive on power-up

Upgrade Options:

- ❖ IO expansion -- in addition to the on-board 43 isolated I/O points, the MC allows up to 2 PC-104 /PC-104+ expansion cards which may be used for expanding the number of I/O ports
- ❖ The standard 8 MB flash disk may be upgraded to 12 or 24 MB to provide more user program space. (can be upgraded in the field)
- ❖ The standard RAM may be upgraded to 16 or 32 MB to provide more space for user programs & data (can be upgraded in the field)
- ❖ The pre-purchased axis count may be upgraded when needed by purchase of additional axes in a new firmware file. (can be upgraded in the field)

Communication

- ❖ Two RS232 ports for user input, **BASIC Moves Development Studio**, **MOTIONLINK**
- ❖ One Ethernet port for 10Mbit/sec, **BASIC Moves Development Studio**, **MOTIONLINK**, Ethernet I/O
- ❖ Fieldbus option card for remote I/O, DeviceNet (available 2001), and PROFIBUS (available 2001)
- ❖ Protocol - TCP/IP, SLIP

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SERVOSTAR® MC

Connectors for the Standalone Product

Ethernet

Serial ports

Dip Switches

Digital Inputs

AC power input

USB

Option Card Slot

LED's

Power switch

SERCOS Fiber-optic connectors

Digital outputs

Option Card Slot requires use of extended version Standalone Unit.
Consult the factory for use of the USB connector.

SERVOSTAR® MC

Multi Axis Controller

Product information

Ordering Information

MC S I 04 - 08 16 - 000 - 0100 00

Series Name
MC ServoStar MC

Communication
S - SERCOS

Configuration
I - ISA PC-Card
P - PCI PC-Card
S - Standalone
E - Extended standalone
(with option cards sockets).

Number of
02 - 2 Axes
03 - 3 Axes
04 - 4 Axes
05 - 5 Axes
06 - 6 Axes
08 - 8 Axes
10 - 10 Axes
12 - 12 Axes
14 - 14 Axes
16 - 16 Axes

RAM Size

Upgrade 000	Upgrade 001
08 - 8MByte	08 - Not available
16 - 16MByte	16 - 16MByte
32 - 32MByte	32 - 32MByte

Flash Disk Size
08 - 8MByte
16 - 16MByte
24 - 24MByte

Upgrades
000 - Standard CPU 5x86
(Not available in PCI configuration)
001 - CPU upgrade 1 GXM
(Not available in ISA configuration)

Firmware Version
0300 - Version 3.0
(Not specified = most recent)

User program
00 - Standard, no user program
(Normally not specified)