Elmo’s Motion Control System Solutions

- **Gold** Maestro Multi-Axis Network Controller
  - Up to 100 Axes

- **Gold** Drive Modules (Integrated Solutions)
- **Gold** Network I/O Controller
- **Gold** Drive Integrated Solutions
- Network Encoder

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The Gold Maestro
The Ultimate Solution for Motion Control Networking
Top Level Multi-Axis Machine Motion Controller

Distributed Motion Control Architecture

The Gold Maestro is a distributed motion control architecture which enables an intelligent and modular design of the overall motion system, enabling optimal selection of the drive for each axis. When coupled with Elmo’s family of Gold Line and Gold Line Network drives, the implementation of the overall motion system is extremely efficient.

Intelligence at the Axis Level

Distributed intelligence: tasks are split between the Gold Maestro (upper level) and the drive (axis level). The Gold Maestro distributes the motion processing tasks to the drives, thereby allowing the drives to fully control the axis level performance. Together with a wide variety of special functions and features, Elmo’s drives have very high control algorithms, and they also handle the local axis and I/O sequences using the drive’s programing capabilities. Each axis can be operated with a cycle time as low as 500 µs and 1 µs accuracy of the overall system distributed clock, the Gold Maestro insures the fidelity of your application.

State-of-the-Art Solutions for Your Machinery Needs

The Gold Maestro is a state-of-the-art, multi-axis motion controller. Its role is to supervise and synchronize the axis level performance. Together with a wide variety of special functions and features, Elmo’s drives have very high

Gold Maestro Highlights

Elmo’s Gold Maestro is a network-based, multi-axis machine motion controller that operates in conjunction with Elmo’s classic SimplIQ servo drives, as well as the new Gold Line of intelligent servo drives, to provide a comprehensive and efficient motion control solution for the entire system.

The Superior Machine Motion Controller

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Operating System

The Gold Maestro functions as a device network node and provides the following types of motion:

• Linear single-axis, multi-axis and coordinated axes.

Axis Types

The Gold Maestro supports the following types of motion: single-axis, multi-axis and coordinated axes.

Control System Update Rate and After

• Cycle Jitter: < 10 µs for CAN Sync message initiation (actual jitter dependent on the CAN network’s physical limitations only)

• Cycle Update Rate: 1 ms (CAN physical network

Miscellaneous and Special Features

• Firmware update support (Gold Maestro and drives)

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Programming Execution Time, Threads, and I/O

Operating System

- 16-bit 2.04” x 1.6” x 0.7” (51.9 x 40.6 x 18.1mm)
- 75 mm

Stand-alone Panel Mount

- Ready-to-use industrial solution with a DC power supply, and DC Power supply, communication cables, the Gold Maestro is ready to control your system.

General System

- Linux, with Elmo’s RT extension for real-time motion control.
- Number of program execution threads: 10
- Number of axes: Up to 100 axes, allowing the following types of motion:

- Linear single-axis, multi-axis, and coordinated axes.

- Axis Types

- The Gold Maestro supports spatial (along the path) and NC modes.

Supported Motion Modes and Interfaces

- Supported motion modes and interfaces:

  - SimplIQ: supported
  - MDL (Motion Library API): for the development of user-defined motion programs.
  - Sequenced Motion (SFC): allows the user to create complex motion programs.
  - Enhanced Spatial (ST): supports spatial (along the path) and NC modes.

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Gold Maestro Hardware Options

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- Gold Maestro is a state-of-the-art, multi-axis motion controller. Its role is to supervise and synchronize the axis level performance. Together with a wide variety of special functions and features, Elmo’s drives have very high control algorithms, and they also handle the local axis and I/O sequences using the drive’s programing capabilities. Each axis can be operated with a cycle time as low as 500 µs and 1 µs accuracy of the overall system distributed clock, the Gold Maestro insures the fidelity of your application.

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The Gold Maestro - The Ultimate Solution for Motion Control Networking

Top Level Multi-Axis Machine Motion Controller

Offering You Comprehensive Solutions

Elmo’s Gold Maestro is a network-based, multi-axis machine motion controller that operates in conjunction with Elmo’s classic SimplIQ servo drives, as well as the new Gold Line of intelligent servo drives, to provide a comprehensive and efficient motion control solution for the entire system.

The Superior Machine Motion Controller

The Gold Maestro is built on the most advanced, easy to use and cost-effective distributed motion control architecture which enables the motion processing tasks to be shared. It contains a rich feature set that combines sophisticated motion control and advanced communications with full programming capabilities. The Gold Maestro uses standard protocols over its various communications channels (Ethernet, EtherCAT, CAN, and USB), combined with IEC and C programming, and the PLCopen interface.

Distributed Motion Control Architecture

The Gold Maestro is distributed motion control architecture lends itself to an intelligent and modular design all of the operation, enabling optimal selection of the drive for each axis. When coupled with Elmo’s family of SimplIQ and Gold Line Network drives, the implementation of the overall motion system is extremely efficient.

Intelligence at the Axis Level

The intelligent servo drives execute the highly demanding local position, velocity, current and vector real-time control algorithms, and they also handle the local axes and I/O sequences using the drive’s programming capabilities. Together, with a wide variety of special functions and features, Elmo’s drives have very high performance per price.

State-of-the-Art Solutions for Your Machinary Needs

The Gold Maestro is a state-of-the-art multi-axis motion controller. Its role is to supervise and synchronize the operation of the entire system and the axes. With IEC-61131-3 PLC programming, as well as a coupling ready-to-use DP/VB/Drive user code templates, Elmo Gold Maestro supports a variety of predefined and user-written programs for common applications, the user can easily create programs for machine control and NC axes synchronization. With up to 100 axes in the system and up to 16 axes in synchronous motion with a cycle time as low as 500 µs and 1 µs accuracy of the overall system distributed clock, the Gold Maestro meets the needs of your application.

Standard Communication Protocols

The Gold Maestro is equipped with Ethernet and USB communication channels to communicate with the host computer via the PLCopen or EtherCAT, and supports standard communication protocols such as Modbus, Telnet, FTP and EtherCAT.

Gold Maestro Functionality

- Operating System: Linux, with Elmo’s RT Extension for real-time motion control support
- Number of Axes: Supports up to 100 axes, allowing the following types of motion: mixed single axis, multiple axes and coordinated axes.
- Communications: Supports advanced triggering options, and real-time scope capabilities.
- Motion Programming and Debugging: Supports upload/download support, and debugging, Supplied with the PLCopen Motion Library extension using Elmo’s IDE.
- Motion library: The Gold Maestro supports spatial (along the path) vector motions.
- Programming Execution Time, Threads, and I/O: Typical programming execution time (IEC): 10 µs per point supported by hardware.
- Motion Library API: Provides a convenient TCP/IP or UDP interface for setup and debugging.
- Gold Maestro’s target processor (native mode).
- CAN: CANopen device profiles, e.g. DS 301, DS 305, TRIOP RT, and standard CAN.
- Control System Update Rate and Jitter: Cycle Update Rate: 1 ms (CAN physical network), Cycle Jitter: < 10 µs for CAN Sync message initiation (actual jitter dependent on the CAN network’s physical limitations only).
- Ethernet: 1 port, Standard Ethernet, 10/100 Mbps, Ethernet, TCP/IP, UDP (Fast Binary Protocols, Modbus, Ethernet/IP, Telnet, FTP, HTTP) and FTP and Ethernet/IP.
- Motion Control: The Gold Maestro supports spatial (along the path) vector motions.
- Communications: Supports standard communication protocols such as Modbus, Telnet, FTP and EtherCAT.
- Processor and Memory: PowerPC 333 MHz, with double precision floating point support.
- Number of Axes: Supports up to 100 axes, allowing the following types of motion: mixed single axis, multiple axes and coordinated axes.
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The Ultimate Solution for Motion Control Networking

Top Level Multi-Axis Machine Motion Controller

The Gold Maestro is a distributed motion control architecture which enables the motion processing tasks to be shared. It consists of a rich feature set that combines sophisticated motion control and advanced communications with full programming capabilities. The Gold Maestro uses standardized protocols over its various communications channels (Ethernet, EtherCAT, CAN, and USB), combined with EIC and C-programming, and the PLCoopen interface.

Gold Maestro Hardware Options

- Stand-alone Panel Mount
- Stand-alone Panel Mount

Distributed Motion Control Architecture

The Gold Maestro is a distributed motion control architecture which enables intelligent and modular design of all the major components of the system, enabling optimal selection of the drives for each axis when coupled with Elmo’s family of SimplIQ and Gold Line Network drives, the implementation of the overall motion system is extremely efficient.

Intelligence at the Axis Level

The intelligent servo drives execute the highly demanding local position, velocity, current and vector real-time control algorithms, and they also handle the local axis and I/O sequences using the drive’s programming capabilities. Together with a wide variety of special functions and features, Elmo’s drives have very high performance capabilities.

State-of-the-Art Solutions for Your Machineways

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Standard Communication Protocols

The Gold Maestro is equipped with Ethernet and USB communication channels to communicate with the host computer, PLC (TIA-PLC, CANopen, and USB), and supports standard communication protocols such as Modbus, Telnet, FTP and Ethernet/IP.

Gold Maestro Functionality

- Operating System
  - Supports both the Windows and Linux operating systems.
  - Supports both Ethernet and USB communication interfaces.

- Communications Protocols
  - Supports CANopen, EtherCAT, and USB communication protocols.
  - Supports Modbus, Telnet, FTP, and Ethernet/IP communication protocols.

- Processor and Memory
  - Processor: 32-bit, 200 MHz, dual core processor
  - Memory: 256 MB SDRAM, 128 MB flash memory

- Power Supply
  - 115 VAC, 50/60 Hz

- Dimensions
  - 3.8" x 2.6" x 0.8" (96.5 x 65.7 x 20 mm)

- Weight
  - 0.5 lb (0.23 kg)

- Catalog Number
  - GoldMaestro-02: 20 ~ 196 VDC

- Optional Accessories
  - EtherCAT to USB Bridge, support for both EtherCAT and USB

- Power Supply
  - Includes a 115 VAC, 50/60 Hz input power supply.
The Gold Distributed Network
Elmo’s Motion Control System Solutions

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Motion Control Solutions Made Small, Smart & Simple

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The Ultimate Solution for Motion Control Networking
Top Level Multi-Axis Machine Motion Controller

Elmo’s Line
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Our Best Ever Motion Solutions
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Disclaimer: The information in this document is subject to change without notice.
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