



Inspiring Motion

Since 1988



Motion Control

Ready for the Extreme



Elmo Motion Control - Inspiring Motion Since 1988

Elmo designs and manufactures cutting-edge servo drives and network motion controllers that are one-stop solutions for any motion control technology. As a leading company with over 25 years of experience and millions of servo drives at work, we provide our clients with profitability and success. With a focus on highest performance, efficiency, reliability, safety, ease-of-use and standards compliance, Elmo's solutions are used by leading machine manufacturers in nearly every industry around the world.

Elmo Quick Facts:

- Established in 1988
- 250 employees with over 80 engineering experts
- Headquarters located in Israel, Subsidiaries in USA, Germany, Italy, China and Korea
- Over 2,000,000 servo drives installed and operating globally
- Worldwide sales and support network

Gold Bee Tiny yet mighty



The NANO Servo Drive that provides over 4,000 qualitative Watts

- Ready for the Extreme, -40 °C to +70 °C, Vibrations up to 14 GRMS
- High Power Density, over 4000 of "Qualitative" Watts
- Ultra High Current , 50 A at 100 VDC
- Advanced Servo capabilities for Best results with any load
- Extremely High Bandwidth, Current Loop > 4.5 KHz
- Fast and accurate response time
- Wide current loop dynamic range of 2000:1 (Stable & Smooth at 0.025 A with a 50 A Drive)
- Sample time as low as 50 μ s, for current, velocity and position
- Smallest to comply and be certified with "Safe Torque Off" (STO), SIL3, Level E
- Rugged to endure any environment
- Complies to severe Safety, EMC and Environmental STDs

ExtrlQ Line

Servo Drives that Endure “Any Environment”

Extreme durability, meticulous power management and high precision of movement are essential attributes for developing high performance reliable industrial, commercial or military applications.

Elmo's ExtrlQ is a standard “off the shelf” series of robust motion control products designed verified, manufactured and tested for applications operating under extreme environmental conditions, such as: extended temperature ranges, high humidity, extreme altitude, intense vibration and high mechanical shock. In addition to enduring the most extreme environment the ExtrlQ exhibits top servo performance, super compact sizes, high efficiency, negligible EMI, High Reliability and answering any servo requirement. The durability is verified by the most severe Environmental, EMC and Safety Standards.



Environmental Specifications

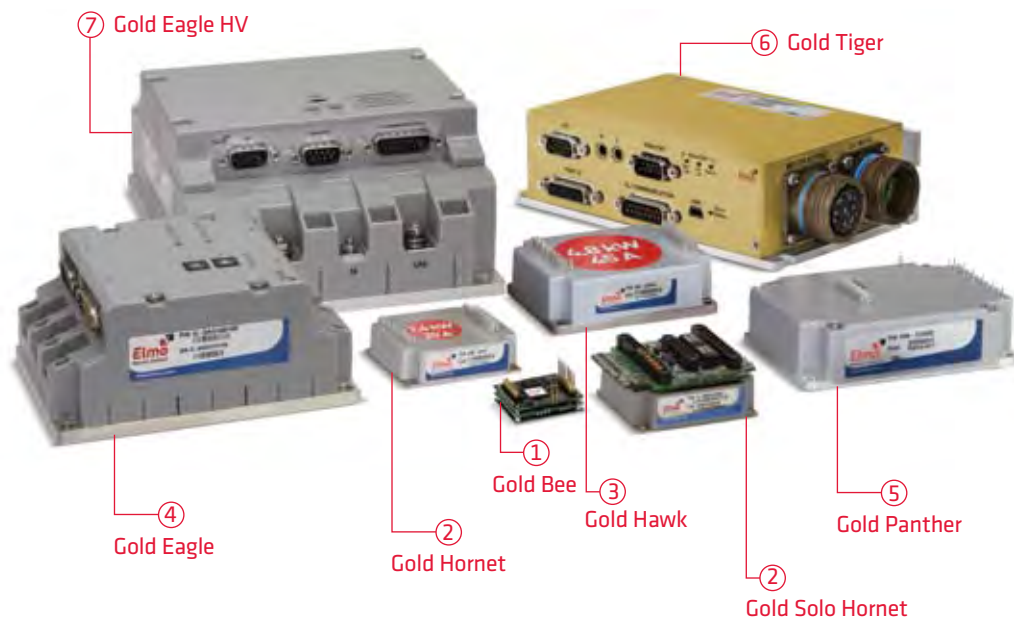
Our high performance field tested solutions endure the most extreme environmental conditions such as hot, cold, icy, frozen, desert, humidity and blustery. They also Comply with the most severe Safety, EMC, “Electrical power Characteristic”, Reliability prediction, and Environmental STDs such as 1275, 704, 1399, 810, 461, 217.

Feature	Operating Conditions	Range
Ambient Temperature Range	Non-operating conditions	-50 °C to 100 °C (-58 °F to 212 °F)
	Operating conditions	-40 °C to 70 °C (-40 °F to 160 °F)
Temperature Shock	Non-operating conditions	-40 °C to 70 °C (-40 °F to 160 °F) within 3 minutes
Altitude	Non-operating conditions	Unlimited
	Operating conditions	-400 m to 10,000 m (-1,300 ft to 32,800 ft) Models for higher altitudes are available upon request
Relative Humidity	Non-operating conditions	Up to 95% relative humidity non-condensing at 35 °C (95 °F)
	Operating conditions	Up to 95% relative humidity non-condensing at 25 °C (77 °F) Up to 90% relative humidity non-condensing at 42 °C (108 °F)
Vibration	Operating conditions	20 Hz to 2 kHz, 14.6 g
Mechanical Shock	Non-operating conditions	±40 g; Half sine, 11 msec
	Operating conditions	±20 g; Half sine, 11 msec

ExtrIQ Gold Servo Drives

Ultra Smart, Small and Simple

The ExtrIQ Gold Line exhibit extreme wide servo bandwidth performance, “Any Feedback” capability, and very high network synchronization with EtherCAT or CANopen.



1. Gold Bee - Ultra Small, 4000W

50 A / 60 VDC
50 A / 100 VDC
45 A / 120 VDC
12 A / 200 VDC

2. Gold Hornet / Gold Solo Hornet - Ultra Miniature

50 A / 60 VDC
40 A / 100 VDC
9 A / 200 VDC

3. Gold Hawk - Super Compact

75 A / 100 VDC
20 A / 200 VDC

4. Gold Eagle - Ultra High Current

70 A / 60 VDC
150 A / 100 VDC
60 A / 200 VDC
18 A / 400 VDC

5. Gold Panther - High Voltage, Compact

22 A / 400 VDC
16 A / 800 VDC

6. Gold Tiger - High Voltage, Metal Housed

22 A / 400 VDC
16 A / 800 VDC

7. Gold Eagle HV - High Voltage, High Power

100 A / 400 VDC
100 A / 800 VDC

ExtrIQ Gold Servo Capabilities

A reliable and ruggedized high performance Servo with a high capacity bandwidth to receive best results for any Servo load, even for the most demanding non-linear mechanics.

- Best results with any servo mechanism, whether high resonance, high inertia, wide bandwidth, very low speed, non-linear. Ultimate tuning tools, accomplishing top performance “Fast & Easy”
- Down to 50µs sampling rate
- “1:1:1” technology, same sample time for current, velocity and position loops resulting very fast and wide bandwidths
- High servo loop bandwidth, as high as 4.5KHz current loop Bandwidth
- Very High linearity, current dynamic range of 2000:1 (100A drive runs smoothly 0.05A load)
- Supports Any “known” Feedback sensor and any combination of Dual Loop sensors, “2 in 1”, A drive can Control simultaneously two independent motors by 2 advanced independent motion profilers
- Mastering Gantry by only 2 Gold Drives, No need for additional bulky controller
- “By The Book” Standard EtherCAT and CANopen networking
- Abundance of control features:
 - ECAM
 - Output Compare
 - Master-Slave Follower
 - Modulo
 - Dynamic Braking
 - Dual Loop
 - Gantry
 - Planar
 - 1D error correction
 - Unlimited Control Numerical values
- Utmost efficiency of 99%
- Ultra High Current Technology
- Certified STO (Safety Torque Off), IEC 61800-5-2 SIL 3, EN ISO 13849-1 Cat 3, PL e
- Proven reliability of MTBF > 1,000,000 Hours

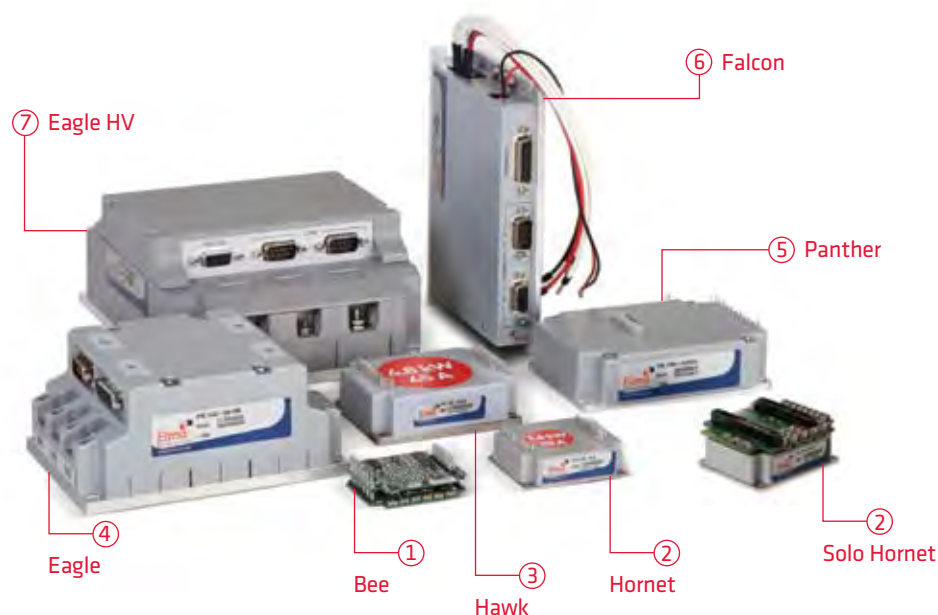


ExtrlQ, SimplIQ Servo Drives

Leader since 2004, Field proven for High reliability and Top Servo performance.

Elmo's servo drives combine high power density, intelligent functionality and extreme environment durability.

The drives integrate Elmo's advanced, SimplIQ motion control core technology, which enables superior control performance,



1. Bee - Ultra Small, Light weight

3 A / 60 VDC
2.5 A / 100 VDC

2. Hornet / Solo Hornet - Ultra Miniature

50 A / 60 VDC
40 A / 100 VDC
9 A / 200 VDC

3. Hawk - Super Compact

35 A / 60 VDC
50 A / 100 VDC
20 A / 200 VDC

4. Eagle - Super compact, High power

100 A / 60 VDC
100 A / 100 VDC
60 A / 200 VDC
18 A / 400 VDC

5. Panther - High Voltage, Compact

22 A / 400 VDC
16 A / 800 VDC

6. Falcon - Compact, Metal Case

30 A / 100 VDC
15 A / 200 VDC

7. Eagle HV - High Voltage, High Power

100 A / 400 VDC
100 A / 800 VDC

ExtrIQ SimplIQ Servo Highlights

Elmo SimplIQ Core servo drive exhibit richness of capabilities and features supporting large variety of applications requiring harsh environmental conditions.

- Field Proven performance, quality and reliability since 2004
- High performance servo control
- Down to 50µs sampling rate
- High servo loop bandwidth, as high as 2KHz current loop Bandwidth
- Supports large variety of feedback sensors
- “By The Book” Standard CANopen networking (DS402, DS303)
- RS232 communication
- Abundance of control features:
 - ECAM
 - Smart position follower
 - Pulse and Direction
 - Output Compare
 - Master-Slave Follower
 - PT and PVT position and velocity operating modes.
 - Modulo
 - Dynamic Braking
 - Dual Loop
- Utmost efficiency of 99%
- Ultra High Current Technology
- Proven reliability of MTBF > 1,000,000 Hours



Elephant Extreme Environment Power Supply for Servo Applications

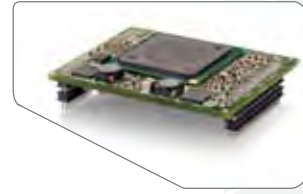


Up to 528 VAC, 30 A Continuous output current, 60 A peak

The Elephant power supply is a compact direct-to-mains power supply for servo drives applications. The Elephant is designed to power multiple servo drives up to 528 VAC and to complement Elmo servo drives with DC power bus input.

Gold Lion

Multi Axis Network Motion Controller for Extreme Environments



“Design Your Own Extreme Motion Control Solution”

Elmo's Gold Lion is an advanced network based, multi-axis machine motion controller. The Gold Lion can control any multi axis scenario. From simple Point-To-Point to complete multi-axis coordinated / synchronized motion. The Gold Lion Module is a “ready to use” complete motion controller to be embedded in user's printed board, thus resulting high-level of customization, most advance motion solution with tremendous design flexibility, richness with functionalities and huge space saving.

- Controls up to 100 axes with a high-level of synchronization and accuracy
- Reverse Kinematics Support
- Motion blending and superimposed motion
- Coordinated group motion, blending and transitions
- Polynomial motion segments, PVT and Spline support
- Real-time updates of target positions ('flying vision™')
- 1D, 2D and 3D error correction
- EtherCAT master for distributed networking, with distributed clock management
- CANopen master for distributed networking
- Host communications and protocols:
 - Ethernet, TCP/IP, UDP (Fast Binary Protocols, Modbus, Ethernet/ IP)
 - USB 2.0
 - Rich, high-level, multi-axis programming environment:
 - Microsoft .NET
 - IEC 61131-3, PLCopen
 - Native C/C++ programming using the PLCopen for Motion
 - Win32 C/C++

Elmo Application Studio II

The Advanced Application Tool for Motion Control

Elmo Application Studio II (EASII) gets machines to peak performance in the shortest time, making drive setup simpler and putting powerful, intuitive software tools for motion control at your fingertips. No matter the size or complexity of the implementation process.

EASII, the Microsoft® Windows®-based platform, simplifies complex motion environments by integrating all of the activities under one environment:

- Drive level configuration, setup and tuning
- Servo performance analysis and optimization
- Field bus network configuration, analysis and management
- Multi-axis motion control organization and sequencing
- Testing, monitoring, recording and troubleshooting
- Advanced scripting
- Integrated development environment

Experience EASII in a real environment of motion control for yourself

Enter the following URL address to experience Elmo's remote training system.

<http://www.elmomc.com/support/elmo-rps.html>

The remote training system connects you directly to both explanatory films, exercises, and emulation hardware so that you can operate EASII and build a motion control solution, fast and easy.

See exactly how EASII tunes, configures, tests, records, programs, and optimizes your motion sequences.



EASII
Elmo Application Studio



Ultra-High Current servo drive

150 A within a Super Compact Package

Ultra-High Current servo drive, designed to meet the unique requirements of unmanned applications such as unmanned vehicles, turrets and other systems that require repeated power bursts for relatively long periods.

Extreme Servo Control Solutions

Highest density of power and intelligence

4-Axes

- 4x servo drives 40 A/120 VDC each
- 16,000 W of qualitative output power
- 25,000 W of power regeneration capabilities
- High-performance position, velocity, current and dual loop operation



3-Axes

- 3x servo drives 30 A/100 VDC each
- Offering super-compact with triple axis integration
- Extraordinary current loop performance: Bandwidth > 4 kHz



2-Axes

- 2x Hornet 40 A/110 VDC servo drives, each up to 40 A and up to 120 VDC
- 8 kW of qualitative output power and 12 kW of power regeneration capabilities
- High-performance position, velocity, current and dual loop operation



1-Axis

- Ultra-miniature, high-power solution with single axis integration
- Servo drive 30 A/100 VDC, rugged package that is "Ready to Use"
- Exceptional current loop performance: Bandwidth > 4 kHz



Elmo Extreme Motion Control Solutions

Elmo's Harsh Environment solutions use the approach and core technology as our industrial solutions, but with added capabilities to withstand severe environmental and operational requirements.

Elmo Application Studio II
(EASII)



Rugged PC

Elmo's "Arena"

Gold Lion



CANopen

EtherCAT[®]
Conformance tested

Up to 100 Axes



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