Elmo
Motion Control

THE EXTRIQ

Motion & Servo Solutions Ready for the Extreme

Ambient Operating Temperature

Thermal Shock

Altitude

Relative Humidity

Vibration

Mechanical Shock

- Inspiring Motion Since 1988
- Israeli HQ, Designing, Manufacturing, Distribution
- Over 300 employees, R&D with over 70 engineering experts focused on Innovative developing advanced products and applications.
- Global presence with subsidiaries in USA, Germany, Italy, UK, Swiss, Poland, China, Korea
- Manufacturing facilities: in Israel, Poland

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We are (almost) everywhere…

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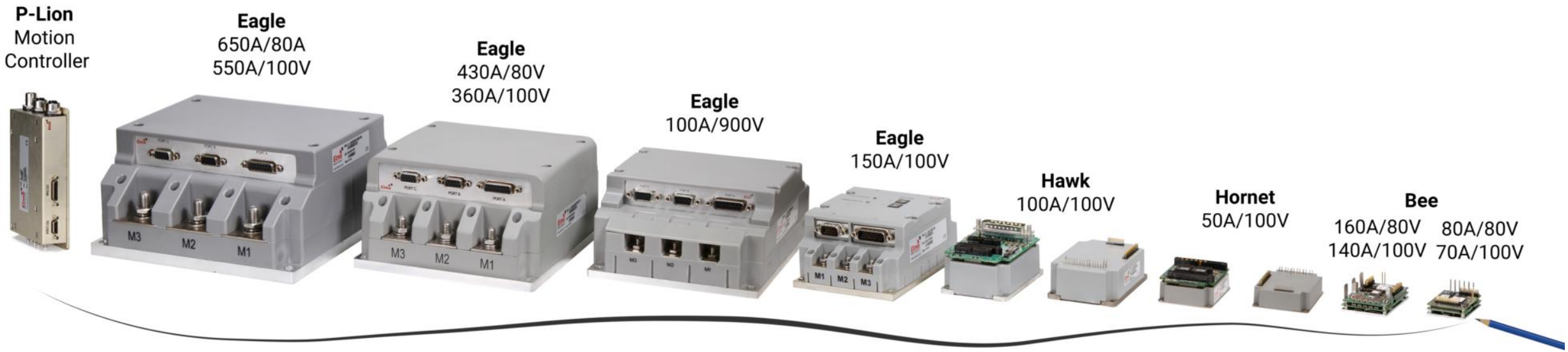
Advance Motion Controller & Servo Drives for Any Environment Ultra High Current, Ultra Small, Ultra Performance

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Motion Control Solution
for Harsh Environments

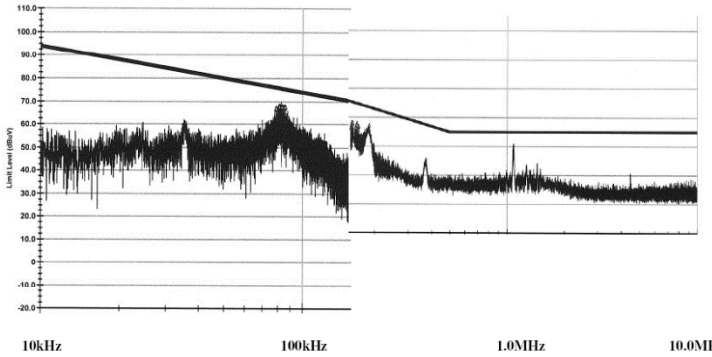
What is the ExtrIQ?

A full Line of STD most advance Motion Controllers and High Performance Servo Drives designed and proven to operate in Extreme Environmental Conditions

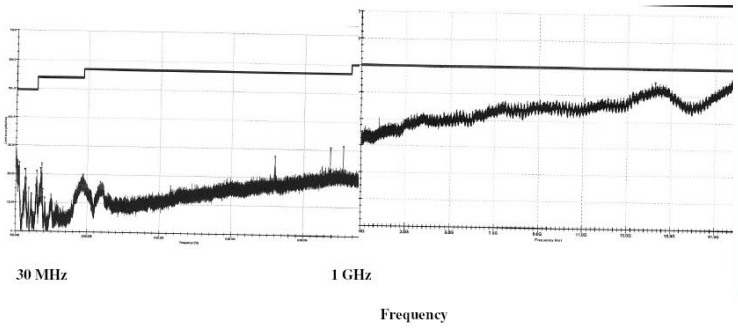
CE102 – Conducted Emissions
10 kHz – 10 MHz
Result – Pass with Ku and Ka Band

Negligible EMI

KU BAND. WORST-CASE RUN (Electronics Line)



Ka Band, Horizontal (Typical)



Feature	Operation 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 min
Altitude	Non-operating conditions	Unlimited
	Operating conditions	-400 m to 12,000 m (-1312 to 39370 feet)
Maximum 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 2,000 Hz, 14.6 g
Mechanical Shock	Non-operating conditions	±40g; Half sine, 11 msec

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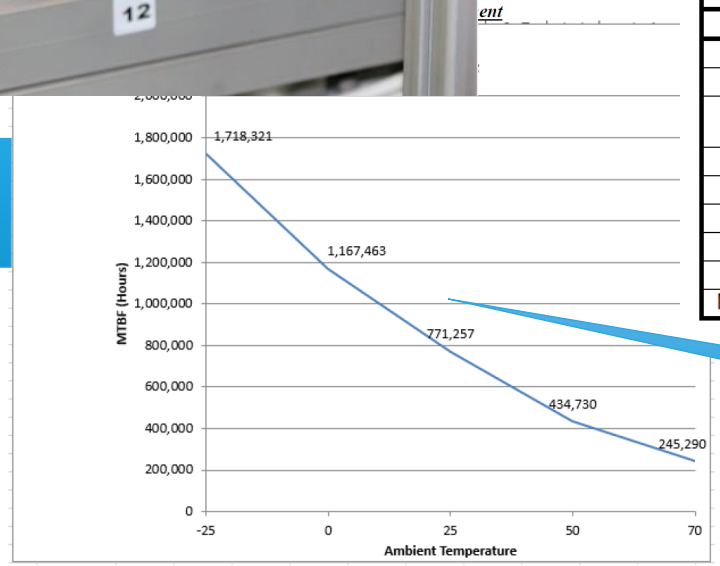
Quality & Reliability

As a part of the “Reliability Establishment” process, Elmo is performing in house Verification tests, Life tests and ESS tests

Long Term Life Test



HALT,
“Highly Accelerated Life Tests”

5.1. G-BEE 25/100 Module PASS RESULTS (UNDER FULL LO

The table provides the achieved (Pass) limits during HALT process.

Test Environment		Test Description	Test Result	Remarks
Temperature [°C]	Vibration			
Minimum temperature	None	-75 °C	O.K.	
Maximum temperature	None	+110 °C	O.K.	
20 °C (room temperature)	Maximum gRMS	+30.0 gRMS	O.K.	Manually Stopped
Temperature cycling	None	-75 °C to+110 °C	O.K.	
Temperature rate per min.		40 °C	O.K.	
Combined cycling	20.0 gRMS	-57 °C to+83 °C	O.K.	
Minimum temperature ramp	0.5 * maximum gRMS	-47 °C	O.K.	
Maximum temperature ramp	0.5 * maximum gRMS	73 °C	O.K.	
Maximum cold start temperature		-75 °C	O.K.	

MIL 217 MTBF Prediction,
“Field” Verified

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Extremely Reliable, “Hundreds” of Applications

Since 1988 over 3,500,000 Industrial Drives
and over 200,000 ExtrIQ Drives are Installed

and perform perfectly 24/7, day and night,
on the ground, in the air, under the water, in the space,

exposed to extreme environment, cold, hot, vibrations, high humidity,
always on the move….

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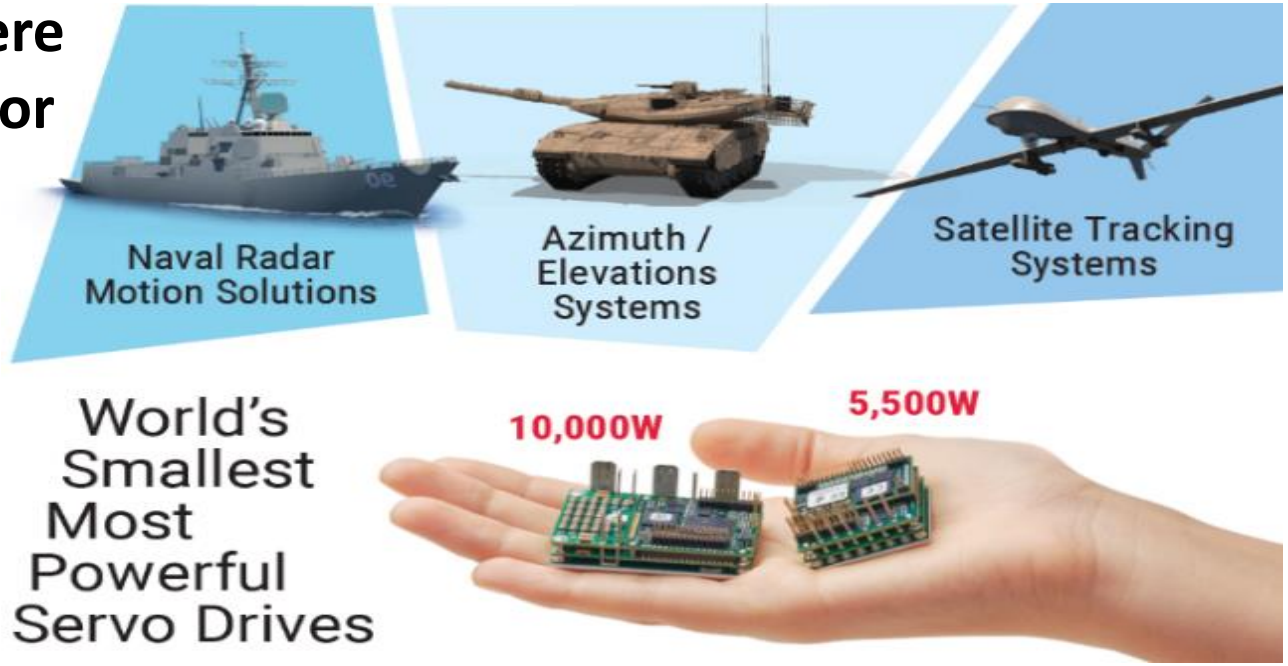
ExtrIQ, the distribution

A. ≈ 70% STD “Of The Shelf” ExtrIQ products are used in Military projects.

B. ≈ 20% STD “Of The Shelf” ExtrIQ products are used in Industrial projects.

C. ≈ 10% STD are customized projects where an ExtrIQ product was “Designed and/ or modified” for a specific military application.



Distributing “C” type products requires Export License (Dual Use)

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Elmo Brings to the Military Segment
3 Essential Values:

❑ Seniority

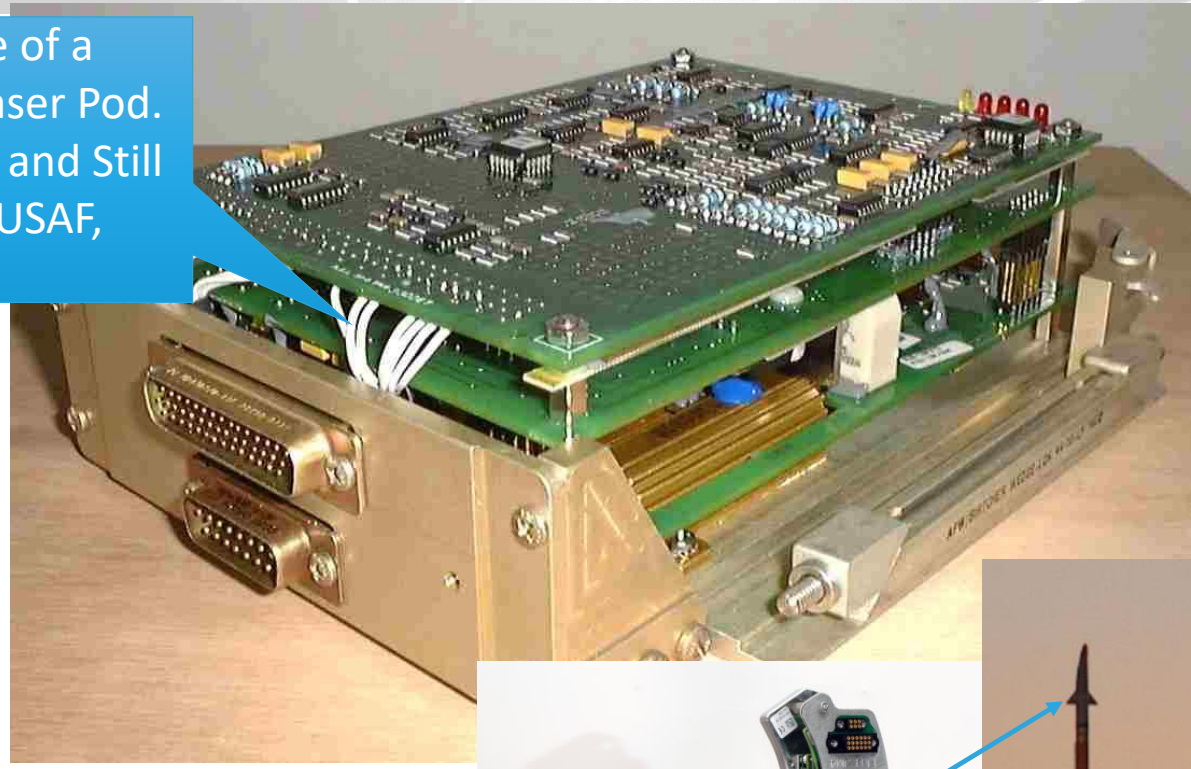
Since 1990 in the ExtrIQ arena, with best motion technologies implemented in hundreds of projects worldwide (>200,000 ExtrIQ Drives)

❑ Ready For The Extreme (&Ready to use)

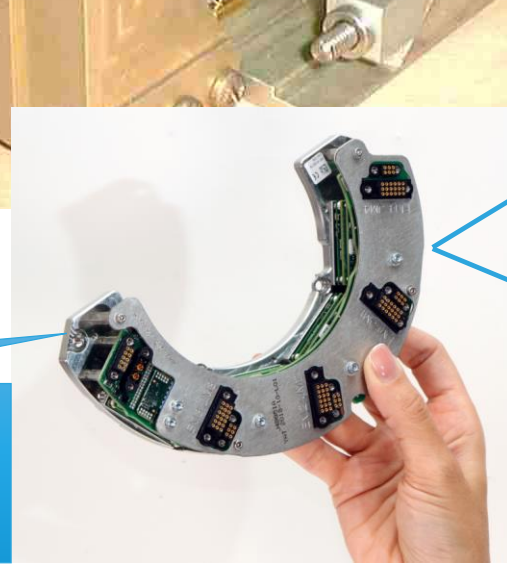
Specified, qualified and verified for perfect servo operation at Extreme Environments

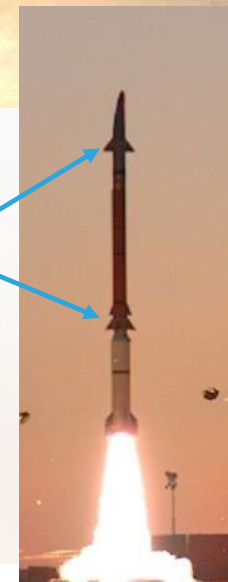
❑ Continuity

Still delivering products from the “nineties” (products from 1993, 1994…)



Servo Drive of a Fighter’s Laser Pod. Since **1994** and Still Going On (USAF, and IAF….)





2018, a complete Smart Winglets motion Control Solution
4 Servo drives, each delivering up to 5,000 qualitative Watts

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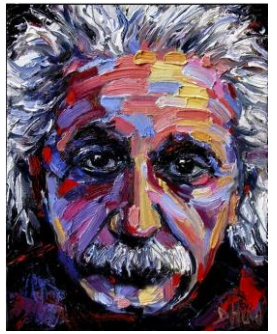
25 Years of ExtrIQ Innovation

1993, RAF-65/24, 65A, 24VDC, 1,500W

Current Mode Analog Servo Drive

Intelligence Comparison



2018, GOLD BEE, 160A, 80V, 10,000W

A Complete "Motion Control System"

Elmo Motion Control

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Thank You

www.elmomc.com

Smallest On Earth
Smart Servo Drives