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Find the *Elmo Motion Control SAX-14/230* at our website: ***Click HERE***

When Every Movement Counts...

SAXOPHONE

The integrated, digital servo drive



Elmo Motion Control
www.elmomc.com

General Description

The SAXOPHONE series of servo drives, for permanent magnet synchronous motors, is designed for the sophisticated industrial market of high performance automated machinery. They incorporate a digital motion controller, featuring networking, position loop, velocity loop, current loop and sinusoidal commutation. The SAXOPHONE is available in 3 different configurations:

- ❑ A fully digital velocity mode amplifier - Standard version
- ❑ A network drive for distributed intelligence concepts, with high performance motion capabilities, including a CAN interface - Plus version
- ❑ A "stand alone" device with advanced motion capabilities to fully control a servo axis - PlusPlus version

All the adjustments including position, velocity, current and commutation functions are accomplished via the serial communication line. The power source to the SAXOPHONE series is 3 phase 230VAC to 460VAC. Two models for single phase 115VAC to 230VAC are also available. The control and the auxiliary supplies are derived from a 24V AC/DC supply that is isolated from the power DC bus. This allows a safe and economical "power back up" feature that is essential for positioning systems.
The product meets UL508c and the relevant CE regulations.

Common Features

- ❑ Operation directly from the "Mains"
- ❑ Integrated power supply with shunt regulator
- ❑ A separate 24VAC/DC supply enables a safe "Emergency" power down
- ❑ Two differential analog inputs with 12 bit resolution
- ❑ Standard feedback: encoder & Hall sensors or encoder only.
- ❑ RS232/485 for axis startup, setup, and testing
- ❑ Windows™ based ***"Composer"*** software for setup, startup and tuning
- ❑ A non volatile memory for the storage of the controller parameters and user programs
- ❑ Zero dead band
- ❑ Automatic feedback alignment
- ❑ Auto tuning for position-, velocity-, and current-loop adjustments
- ❑ Enable input, limit switch and emergency stop handling - FLS & RLS, Stop
- ❑ Analog output for visualization of any motion parameter such as motor velocity or current monitor
- ❑ Fault indication relay
- ❑ 7 segment display status indicator
- ❑ Bookshelf format

Optional Features

- ❑ Resolver feedback

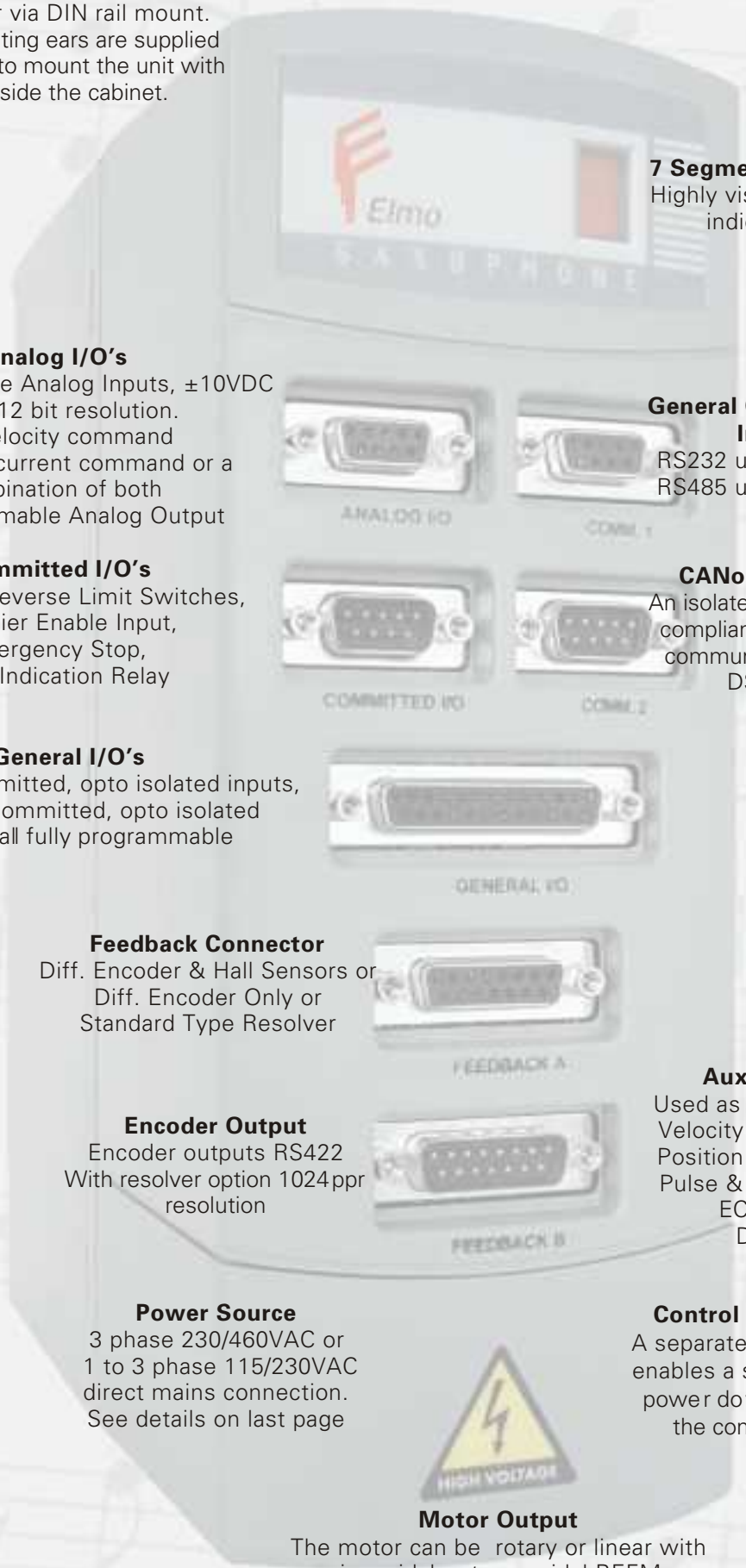
Protective Features

- ❑ Software error handling, emergency stop and status reporting
- ❑ Communication error
- ❑ Loss of feedback
- ❑ Short between the motor power outputs
- ❑ Excess temperature
- ❑ Overload of the shunt circuit
- ❑ Loss or wrong commutation signals
- ❑ Under/Over voltage
- ❑ Failure of the internal power supplies
- ❑ Latch mode of the protective functions

Dedicated Features

Feature	Standard	Plus	PlusPlus
CAN interface	no	yes	yes
Current mode	yes	yes	yes
Velocity mode	yes	yes	yes
Velocity follower	no	yes	yes
Position jog	no	yes	yes
Position follower	no	no	yes
PT Position versus time mode	no	yes	yes
PTP Point to point position mode	no	yes	yes
PVT Position & velocity versus time	no	yes	yes
ECAM	no	no	yes
Pulse & direction input	no	no	yes
Dual loop, position/velocity	no	no	yes
Event capturing inputs	0	0	2
Uncommitted inputs	2	2	6
Uncommitted outputs	2	2	6
User program size	200Bytes	2kB	32kB

Flexible Mounting
The unit can be mounted to a back panel with two screws or via DIN rail mount. In addition two mounting ears are supplied which allow the user to mount the unit with the heatsink outside the cabinet.



7 Segment Display
Highly visible status indication

Analog I/O's
2 Programmable Analog Inputs, ±10VDC range,12 bit resolution.
For velocity command reference, current command or a combination of both
1 Programmable Analog Output

General Communication Interface
RS232 up to 19200Baud
RS485 up to 38400Baud

Committed I/O's
Froward & Reverse Limit Switches,
Amplifier Enable Input,
Emergency Stop,
Fault Indication Relay

CANopen Interface
An isolated interface that is compliant with CANopen communication protocol DS301-V3.0

General I/O's
Up to 6 uncommitted, opto isolated inputs,
Up to 6 uncommitted, opto isolated outputs, all fully programmable

Feedback Connector
Diff. Encoder & Hall Sensors or
Diff. Encoder Only or
Standard Type Resolver

Encoder Output
Encoder outputs RS422
With resolver option 1024ppr resolution

Auxiliary Input
Used as Master input for
Velocity Follower mode,
Position Follower mode,
Pulse & Direction Input,
ECAM mode,
Dual Loop

Power Source
3 phase 230/460VAC or
1 to 3 phase 115/230VAC
direct mains connection.
See details on last page

Control Voltage Supply
A separate 24VAC/DC supply enables a safe "Emergency" power down, while keeping the control logic active

Motor Output
The motor can be rotary or linear with sinusoidal or trapezoidal BEFM.

Technical Specifications

Power Ratings

Model		SAX 3/230	SAX 5/230	SAX 3/400	SAX 4/400	SAX 8/400	SAX 10/400	SAX 14/400
AC Supply voltage min.	[VAC]	60	60	140	140	140	140	140
Rated AC Supply	[VAC]	1 or 3 x 230				3 x 460		
AC Supply voltage max.	[VAC]	1 or 3 x 270				3x 480		
Switch off threshold	[VDC]	380	380	715	715	715	715	715
Cont. current limit (RMS)*	[A]	3	5	3	4.5	8.5	10.5	14
Peak current limit (RMS)	[A]	6	10	6	9	17	21	28
Pulse power, shunt circuit	[kW]	4	4	5.5	5.5	5.5	11	11
Cont. power, shunt circuit	[W]	80	80	80	80	160	160	160
Auxiliary supply voltage	[V]	18...28VAC or 18...40VDC						
Auxiliary supply power	[VA]	40						
Inrush current limit	[A]	<140						
Efficiency @ rated power	[%]	>97						
PWM switching frequency	[kHz]	10 - 20 ±5% selectable						
Switching method		advanced unipolar PWM						
Current loop bandwidth	[kHz]	>1.2						
Max. Heat sink temperature	[°C] (°F)	80 (176)						
Operating temperature	[°C] (°F)	0...50 (32...122)						
Storage temperature	[°C] (°F)	-20...85 (-4...185)						
Humidity	-	max. 90% non condensing						
Operating altitude A.S.L.	[m] (feet)	2000 (6000)						
Protection level	-	IP20						
Weight	[kg] (LBS)	2.7 (5.9)						
Overall dimensions	[mm] (inch)	247 x 188 x 92 (9.72 x 7.40 x 3.60)						

* @f_{PWM} <12kHz

Part Numbering System

SAX - PP 14 / 400 R

Features
- not specified = Standard(Velocity mode)
- P = Plus (Networking)
- PP = PlusPlus (Stand alone)

Continuous output current

Nominal supply voltage [VAC]

Feedback
- not specified = Encoder & Hall sensors
- R = Resolver

Elmo Motion Control

Visit us on the web at www.elmomc.com

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