

## Specifications

### MODELS

Code		Holding Torque
SM4A	B	1,10 Nm ±10%
SM4A	C	1,65 Nm ±10%
SM4A	D	2,10 Nm ±10%
SM4A	E	3,30 Nm ±10%

### POWER SUPPLY

Separated 24 Vdc (logic) and 18÷56 Vac (power)

### POWER STAGE

H-bridge bipolar chopper of 40 KHz

### CURRENT

0 ÷ 4.2 ARMS (0 ÷ 6.0 APEAK)

### STEPLESS CONTROL TECHNOLOGY

65536 position per turn

### OPTOISOLATED CONTROL INTERFACES

Modbus or CANbus and SCI interface for programming and real time debugging

### INPUTS / OUTPUTS

4 digital optocoupled inputs  
2 digital optocoupled outputs (100 mA)  
1 analog optocoupled input (potentiometer or ±10Vdc) (optional)

### FEEDBACK CONTROL POSITION

Incremental encoder 400, 1000 or 2000 pulse/turn (optional)

### SAFETY PROTECTIONS

Over Current, over Temperature, closed Windings phase/phase phase/ground

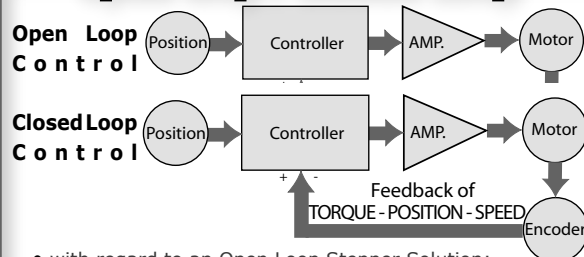
### TEMPERATURE

Operating from 5°C to 40°C, storage from -25°C to 55°C  
Humidity: 5%÷85% not condensed

### PROTECTION CLASS

IP65

## Open loop / Closed Loop



- with regard to an Open Loop Stepper Solution:
  - reliable positioning without synchronism loss;
  - keeps the original position stable and recovers it automatically in case of positioning errors caused by external factors such as mechanical vibrations;
  - 100% use of the motor torque;
  - capacity to operate at high velocity related to the current control, which is adjusted depending on the load variations, where the normal systems in open loop use a constant current control at all velocities without considering the load variations.
- compared with a brushless servo controlled solution:
  - no need to adjust the power (automatic current regulation depending on the load changes);
  - keeping the position stable without fluctuations after completing the positioning;
  - quick positioning favoured by the independent control of the integrated DSP;
  - continuous and fast execution of short stroke movements thanks to the short positioning time.

# Full Digital Programmable 50 Poles Motor and Drive with fieldbus for Advanced Motion Control with reduced costs

**TITANIO**  
VECTOR - STEPPER - DRIVES



# SM4A

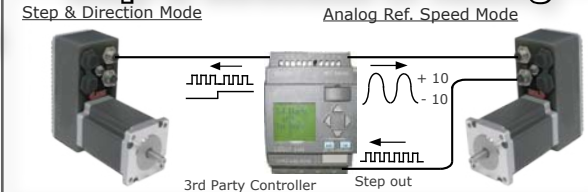
## Integrated Servomotors

- Multifunction Control Modes
- On Board Safety provisions:
  - ✓ fully tested for direct installation unit
  - ✓ built in watch dog functionality
  - ✓ fault monitoring and handling
  - ✓ on field working errors buffering
  - ✓ separated power supply for logic and power
- Servomotors main features:
  - ✓ Stepless control technology
  - ✓ low motor vibration
  - ✓ closed loop
  - ✓ low heat production
  - ✓ high speed and torque
  - ✓ protection class IP65
  - ✓ no resonance
  - ✓ high reliability
  - ✓ AC power supply

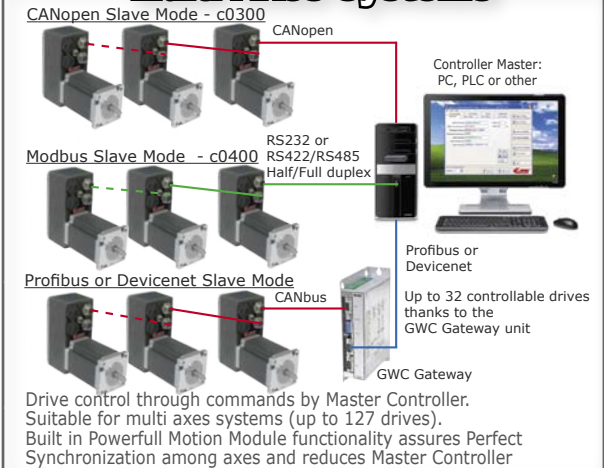
**Ever**  
ELETRONICA  
the clever drive

ELETRONICA PER AUTOMAZIONE INDUSTRIALE  
Via del Commercio, 2/4 -9/11  
Loc. S. Grato - Z.I.  
26900 - LODI (LO) - Italy  
Tel. 0039 0371 412318 - Fax 0039 0371 412367  
email infoever@everelettronica.it  
www.everelettronica.it

## Step & Direction or Analog



## Multi Axes Systems



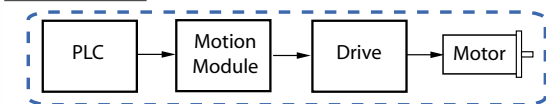
Drive control through commands by Master Controller. Suitable for multi axes systems (up to 127 drives). Built in Powerful Motion Module functionality assures Perfect Synchronization among axes and reduces Master Controller

## Stand Alone Mode

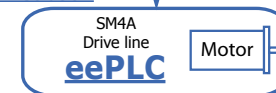
### User Programmable - eePLC - c0490

eePLC integrates PLC, Motion Module, Process Module and drive in One Device. eePLC Studio PC interface is available to friendly, fast and easy custom to machine or process device programming.

### Traditional Solution



### eePLC - SM4A Solution



eePLC Handler allows user to access all the functionalities and resources of the device and to manage and synchronize the motion module and other drive resources to any process' events.

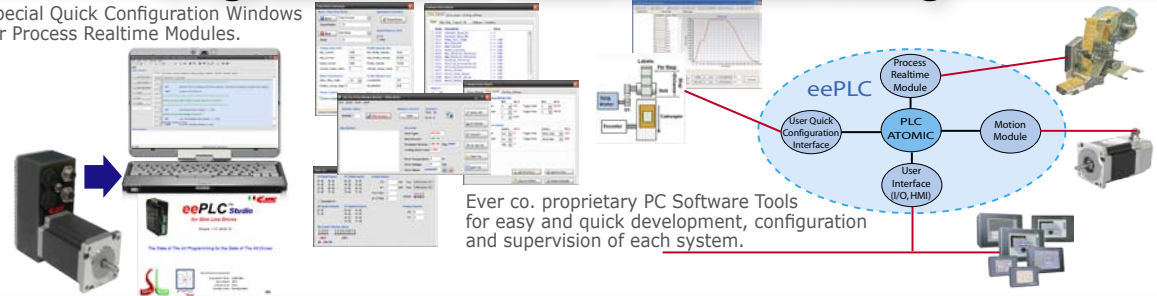
### Access to all Powerful Motion functionalities

Built in **Process Real Time Modules** for special applications:

- Labelling
- Labelling Premium (c2490)
- CAM (c1390 and c1490)
- Wire Processing
- User Custom Process
- .....

## Programmable for Stand-Alone functioning

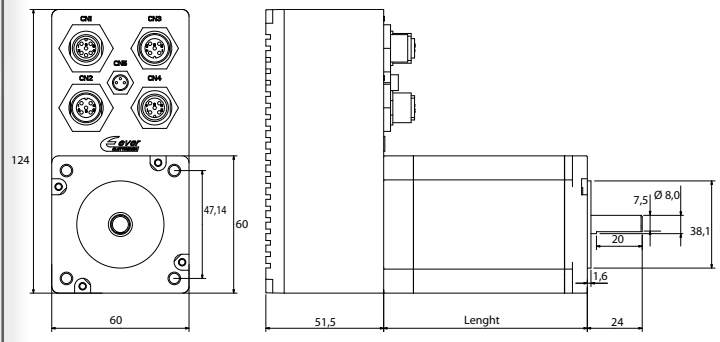
Special Quick Configuration Windows for Process Realtime Modules.



Ever co. proprietary PC Software Tools for easy and quick development, configuration and supervision of each system.

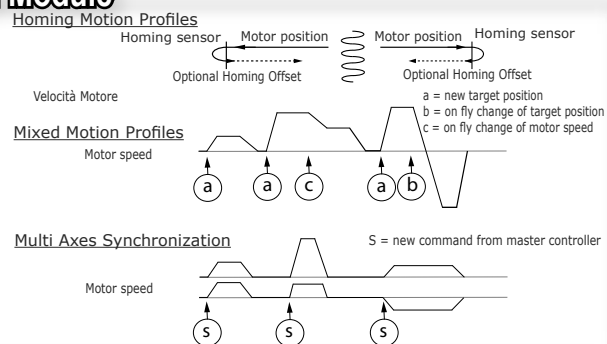
## Mechanical Data

Models	Lenght (mm)	Weight (kg.)
SM4A_B	49,0	1,450
SM4A_C	59,0	1,620
SM4A_D	69,0	2,050
SM4A_E	89,0	2.250



## Power Motion Module

- Step & Direction Control Mode
- Analog Speed Ref. Control Mode (by potentiometer or ±10Vdc)
- Velocity Control Mode
- Wide range of Positioning Control Modes (homing, relative, absolute, target)
- CAM Mode... cam profile can be programmed
- Electric Gear with programmable gear ratio to track external master reference (from fieldbus or incremental encoder) of motor Speed and Position
- High speed I/O triggered motor start & stop to event synchronizing for fast response demanding application: labeling, nick\_finder, on fly cut., etc ...
- Multi Axis movements synchronization capability
- On fly change among any Motion Module Control Modes
- On fly Electric Gear Enable/Disable capability
- Motor Stall detection & Target Position tracking through encoder feedback



## Ordering Information of SM4A Integrated Servomotors and Options

Order code		Power			System Resources							
Versions	Config. (see table)	Power supply Power	Logic	Current	Data of the Integrated Motor (z = B / C / D / E)	CAN	Serial	SCI	Digital Inputs	Digital Outputs	Analog Inputs	Encoder (w = N - 4 - 5 - 6)
SM4A342PC242zw0	c0300	18 ÷ 56 Vac	24 Vdc	0 ÷ 4.2 A <sub>RMS</sub> (0 ÷ 6.0 A <sub>PEAK</sub> )	B = Holding torque 1.10 Nm±10% Phase resistance 0.44 ohm ±10% Phase inductance 2.54 mH ±10% Detent torque 0.05 Nm Rotor inertia 275 g.cm <sup>2</sup>	CANbus (Canopen)		for programming and real time debug	4	2	---	N=No encoder 4=Bidirectional incremental encoder 400 pulse 5=Bidirectional incremental encoder 1000 pulse 6=Bidirectional incremental encoder 2000 pulse
SM4A342PC272zw0	c0380 c0390 c1390				C = Holding torque 1.65 Nm±10% Phase resistance 0.19 ohm ±10% Phase inductance 1.70 mH ±10% Detent torque 0.07 Nm Rotor inertia 300 g.cm <sup>2</sup>							
SM4A342PM242zw0	c0400	18 ÷ 56 Vac	24 Vdc	0 ÷ 4.2 A <sub>RMS</sub> (0 ÷ 6.0 A <sub>PEAK</sub> )	D = Holding torque 2.10 Nm±10% Phase resistance 0.27 ohm ±10% Phase inductance 3.00 mH ±10% Detent torque 0.09 Nm Rotor inertia 570 g.cm <sup>2</sup>	---	RS232 RS485 (Modbus)		4	2	---	1
SM4A342PM272zw0	c0490 c1490 c2490				E = Holding torque 3.30 Nm±10% Phase resistance 0.65 ohm ±10% Phase inductance 3.20 mH ±10% Detent torque 0.10 Nm Rotor inertia 840 g.cm <sup>2</sup>							

### Configuration, Control Method and Optional Software Starter Kits

Config.	Control	Software Starter Kits Code	Description of the Software Starter Kits
c0300	Canopen Control Mode	SM4A_SERV00-SL	Communication kit for SCI service interface to configure the drive with SL_Monitor.
c0380	Canopen Control Mode (CiA DS402 profile)		
c0390	Stand-Alone eePLC Studio IDE Canopen Mode		
c1390	Stand-Alone eePLC Studio IDE Canopen Mode with 'Electronic CAM'	SM4A_SERV00-EE	Communication kit for SCI service interface to program the drive with eePLC Studio IDE.
c0400	Modbus Control Mode	SM4A_SERV00-SL	Communication kit for SCI service interface to configure the drive with SL_Monitor.
c0490	Stand Alone eePLC Studio IDE Modbus Mode		
c1490	Stand-Alone eePLC Studio IDE Modbus Mode with 'Electronic CAM'	SM4A_SERV00-EE	Communication kit for SCI service interface to program the drive with eePLC Studio IDE.
c2490	Stand-Alone eePLC Studio IDE Mode with 'Labelling Premium'		