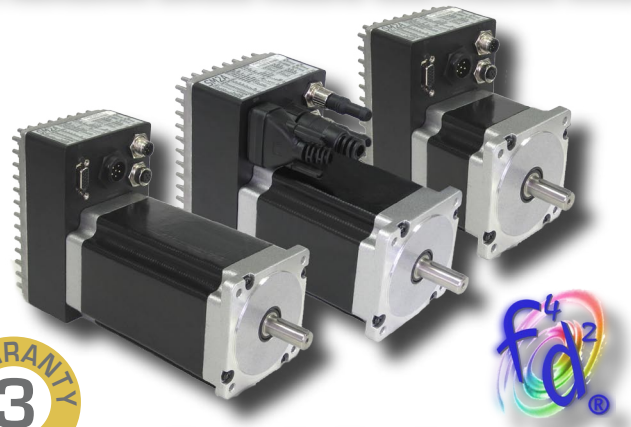
Full Digital Programmable
50 Poles Motor and Drive with fieldbus
for Advanced Motion Control with reduced costs



WARRANTY 3 YEARS

SM2A

Integrated Servomotors

- Multiform 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:
  - √ low motor vibration
  - √ low mechanical noise
  - √ low heat production
  - √ closed loop of torque, speed and position
  - √ protection class IP65
  - √ no resonance
  - √ high reliability
  - √ AC power supply
  - √ wide range of power

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Features

Specifications

MODELS

Code	Holding Torque
SM2A_____A__	3.40 Nm ±10%
SM2A_____B__	4.50 Nm ±10%
SM2A_____C__	7.00 Nm ±10%
SM2A_____D__	8.50 Nm ±10%
SM2A_____E__	12.50 Nm ±10%
SM2A_____L__	12.20 Nm ±10%

POWER SUPPLY
SM2A5_____: separated 24 Vdc (logic) and 18÷100 Vac (power)
SM2A6_____: single 18÷100 Vac

POWER STAGE
H-bridge bipolar chopper of 40 KHz

CURRENT
0 ÷ 8.0 Arms (0 ÷ 11.0 Apeak)

OPTOISOLATED CONTROL BUSSES
RS232 / RS422 / RS485 / CANbus

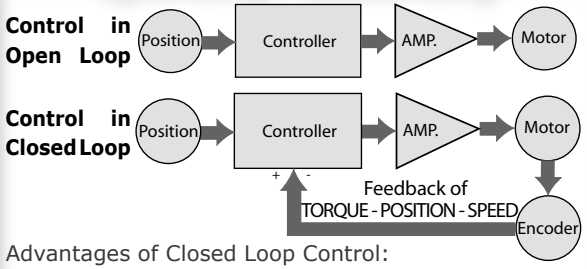
INPUTS / OUTPUTS
4 digital optocoupled inputs / 2 digital optocoupled outputs (100 mA)
2 analog inputs (potentiometer or ±10Vdc)

STEP RESOLUTION
from 1 to 128 microsteps (open loop) / StepLess technology (closed loop)

SAFETY PROTECTIONS
Over/Under-voltage, Over Current, Over Temperature,
Open Windings, Closed Windings Phase/Phase Phase/Ground

PROTECTION CLASS
IP65

Open Loop / Closed Loop

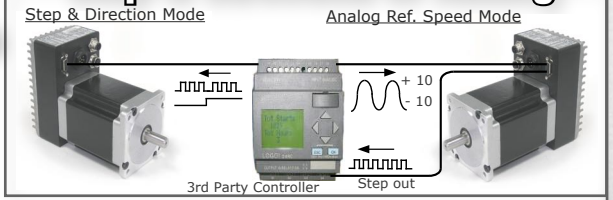


Advantages of Closed Loop Control:

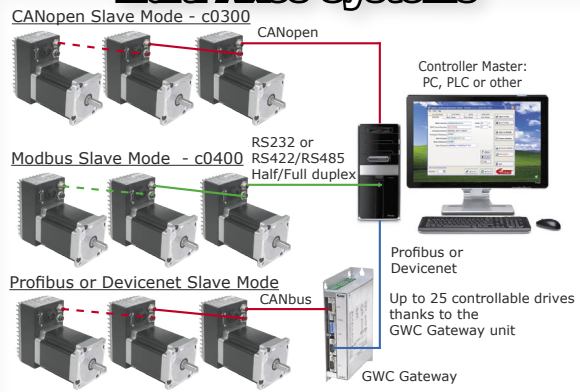
- with regard to an Open Loop Stepper Solution:
  - reliable positioning without synchronism loss;
  - keeps the original position stable and recovers it automatically in case of positioning errors caused by external factors such as mechanical vibrations;
  - 100% use of the motor torque;
  - capacity 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 every speed 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.

Control Modes

Step & Direction or Analog



Multi Axes Systems

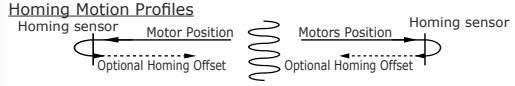


Drive control through commands by Master Controller.
Suitable for multi axes systems (up to 127 drives).
Built in Powerfull Motion Module functionality assures Perfect Synchronization between axes and reduces Master Controller workload.

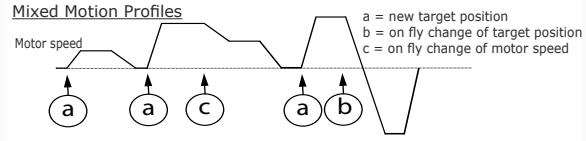
Powerful Motion Module

- 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 syncronizing for fast response demanding application: labeling, nick_finder, on fly cut., etc ...
- Multi Axis movements syncronization 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

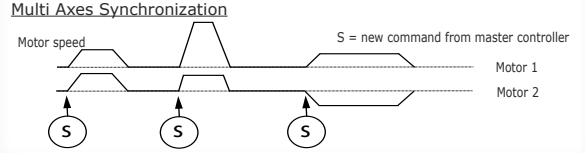
Homing Motion Profiles



Mixed Motion Profiles



Multi Axes Synchronization



Software

Programmable for Stand-Alone functioning

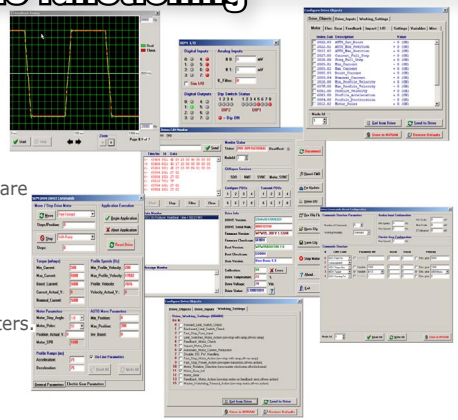
Quick configuration with process-oriented MS Windows Tools.

Accepts configuration parameters of optional controllers by means of CANbus connections with Canopen protocol or Serial RS232, RS422, RS485 with MODbus RTU protocols (HMI, PLC, PC, other...).

The Atomic environment also allows the user to access all functionalities and resources of the device, and to manage and synchronize the Motion Module and the resources of other drives with every process event.

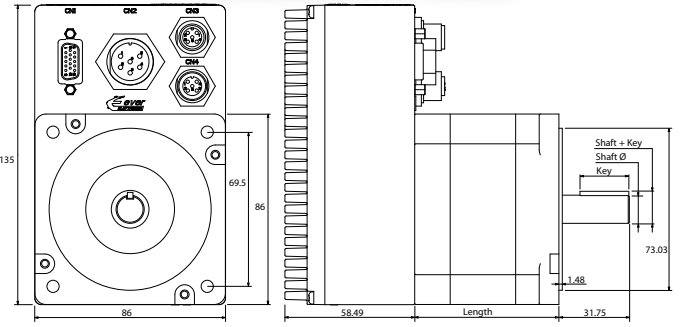
Special Real-time Software Modules available for:

- Labelling
- CAM Management
- Wire Processing
- Plates Orientation
- Control Printing Registers.
- Customization



Ever Elettronica PC Software tools to develop, configure and monitor every system in an easy and fast way.:
ATOMIC = environment for the simple and fast programming of customized cycles.
SDM_CAN/SDM_MOD = to configure the drive for CANbus or Serial use.
SDM_LBL = to configure the drive for the management of a labelling head.
SDM_TRK = to configure the drive for a 'Digital Tracker' function.

Mechanical Data



Models	Dimensions (mm) Length	Shaft Ø	Key	Shaft + Key	Weight (g.)
SM2A_ _ _ _ _ _ _A_ _	65.0	9.525	(3.000x3.000) 22.00	10.725	2.600
SM2A_ _ _ _ _ _ _B_ _	80.0	12.70	(3.175x3.175) 22.23	14.097	3.200
SM2A_ _ _ _ _ _ _C_ _	94.0	12.70	(3.175x3.175) 22.23	14.097	4.100
SM2A_ _ _ _ _ _ _D_ _	118.0	12.70	(3.175x3.175) 22.23	14.097	4.700
SM2A_ _ _ _ _ _ _E_ _	156.5	15.87	(4.763x4,763) 22.23	17.907	6.200
SM2A_ _ _ _ _ _ _L_ _	158.5	15.87	(4.763x4,763) 22.23	17.907	6.200

Ordering Information of SM2A Integrated Servomotors and Options

Order code		Power				System Resources					
Versions	Config. (see table)	Power supply Power	Logic	Current	Data of the Integrated Motor (x = A / B / C / D / E / L)	CAN	Serial	Digital Inputs	Digital Outputs	Analog Inputs (y = 4 / 6)	Encoder for Closed Loop
SM2A560PC0y3x40	c0300 c0302	18 ÷ 100 Vac	24 Vdc	0 ÷ 8.0 Arms (0 ÷ 11.0 Apeak)	A = Holding torque 3.40 Nm±10% Phase resistance 0,29 ohm ±10% Phase inductance 1,70 mH ±10% Detent torque 0,08 Nm Rotor inertia 1000 g.cm²	CANbus (Canopen)	---	4	2	4 = no analog inputs	Incremental bidirectional with index of 400 ppr
SM2A560PC0y3x50											Incremental bidirectional with index of 1000 ppr
SM2A560PC0y3xN0											---
SM2A660PC0y3x40		Single 18 ÷ 100 Vac			B= Holding torque 4.50 Nm±10% Phase resistance 0,19 ohm ±10% Phase inductance 1.70 mH ±10% Detent torque 0,13 Nm Rotor inertia 1400 g.cm²						Incremental bidirectional with index of 400 ppr
SM2A660PC0y3x50											Incremental bidirectional with index of 1000 ppr
SM2A660PC0y3xN0											---
SM2A560PN2y3x40	c0400 c0402 c0404 c0420 c0450 c0499	18 ÷ 100 Vac	24 Vdc		C = Holding torque 7.00 Nm±10% Phase resistance 0,25 ohm ±10% Phase inductance 2.50 mH ±10% Detent torque 0,21 Nm Rotor inertia 1900 g.cm²	---	RS485 (Modbus)				Incremental bidirectional with index of 400 ppr
SM2A560PN2y3x50											Incremental bidirectional with index of 1000 ppr
SM2A560PN2y3xN0											---
SM2A660PN2y3x40		Single 18 ÷ 100 Vac			D= Holting torque 8.50 Nm±10% Phase resistance 0,27 ohm ±10% Phase inductance 3.00 mH ±10% Detent torque 0,25 Nm Rotor inertia 2700 g.cm²					6 = 2 analog inputs	Incremental bidirectional with index of 400 ppr
SM2A660PN2y3x50											Incremental bidirectional with index of 1000 ppr
SM2A660PN2y3xN0											---
SM2A560PN3y3x40		18 ÷ 100 Vac	24 Vdc		E= Holding torque 12.50 Nm±10% Phase resistance 0,35 ohm ±10% Phase inductance 4.80 mH ±10% Detent torque 0,38 Nm Rotor inertia 4000 g.cm²	---	RS232 RS485 (Modbus)				Incremental bidirectional with index of 400 ppr
SM2A560PN3y3x50											Incremental bidirectional with index of 1000 ppr
SM2A560PN3y3xN0											---
SM2A660PN3y3x40		Single 18 ÷ 100 Vac			L= Holding torque 12.20 Nm±10% Phase resistance 0,32 ohm ±10% Phase inductance 3.40 mH ±10% Detent torque 0,38 Nm Rotor inertia 4800 g.cm²						Incremental bidirectional with index of 400 ppr
SM2A660PN3y3x50											Incremental bidirectional with index of 1000 ppr
SM2A660PN3y3xN0											---

Configuration, Control Method and Optional Software Starter Kits

Config.	Control	Software Starter Kits Code	Description of the Software Starter Kits
c0300	Canopen Control Mode	SM2A_CAN-00	USB/CAN Converter, cable from the converter to the drive and a CD-Rom with the Monitor software demo version and the user manuals .
c0302	Canopen Index Control Mode	SM2A-CAN-00	USB/CAN Converter, cable from the converter to the drive and a CD-Rom with the Monitor software demo version and the user manuals.
c0400	Modbus Control Mode	SM2A_232U-00	Serial connection cable to the drive and serial/USB converter and a CD-Rom with the Monitor software demo version and the user manuals.
c0402	Modbus Index Control Mode	SM2A_232U-00	Serial connection cable to the drive and serial/USB converter and a CD-Rom with the Monitor software demo version and the user manuals.
c0404	Labelling Silver	SM2A_LBL232U-00	Serial connection cable to the drive and serial/USB converter and a CD-Rom with the Labelling Setup software demo version and the user manuals.
c0420	Tracker Control Mode	SM2A_TRK232U-00	Serial connection cable to the drive and serial/USB converter and a CD-Rom with the Digital Tracker Setup Software demo version and the user manuals.
c0450	Labelling GoldXP	SM2A_LBL232U-00	Serial connection cable to the drive and serial/USB converter and a CD-Rom with the Labelling Setup software demo version and the user manuals.
c0499	Stand-Alone Atomic Control Mode	SM2A_ATMU-00	Serial connection cable to the drive and serial/USB converter and a CD-Rom with the Atomic IDE software demo version and the user manuals.

Specifications