Full Digital Programmable drives with fieldbus and integrating stepper motor

for Advanced Motion Control with reduced costs

TITANIO
VECTOR - STEPPER - DRIVES

CANopen DS402 · Modbus · EtherCAT · Modbus TCP/IP · PROFINET

WARRANTY 3 YEARS

SM4D

Integrated Servomotors

√ Vectorial control

√ Several fieldbus

√ Integrated incremental and absolute single turn encoder or incremental encoder or absolute multiturn encoder for a closed loop control

√ Protection class IP65

√ New e3PLC Programming Environment, easy and intuitive

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Features

Specifications

MODELS

Code	Holding Torque	Code	Holding Torque
SM4D260P_ 5A _ _	0.5 Nm min.	SM4D260P_ 2A _ _	T.B.D.
SM4D260P_ 5B _ _	1.20 Nm min.	SM4D260P_ 2B _ _	T.B.D.
SM4D260P_ 5C _ _	T.B.D.	SM4D260P_ 2C _ _	T.B.D.
SM4D260P_ 5D _ _	2.00 Nm min.	SM4D260P_ 2D _ _	3.00 Nm min.
SM4D260P_ 5E _ _	T.B.D.	SM4D260P_ 2E _ _	T.B.D.

POWER SUPPLY
12÷48 Vdc for power and 24 Vdc for logic (mandatory and not isolated)

POWER STAGE
40 kHz bipolar chopper ultrasonic frequency

CURRENT
up to 6.0 Arms (8.5 Apk)

CONTROL INTERFACES
EtherCAT, Modbus TCP/IP, Profinet, Modbus RTU or CANbus

SCI SERIAL SERVICE INTERFACE
SCI for configuration or programming and debug in real time

INPUTS AND OUTPUTS
4 digital not isolated inputs / 2 digiral not isolated outputs and 1 analog not isolated input

INTEGRATED FEEDBACK (OPTIONAL)
incremental encoder or incremental and absolute single turn encoder or absolute multiturn BiSS-C encoder

STEP RESOLUTION
stepless control technology (65536 positions per turn)

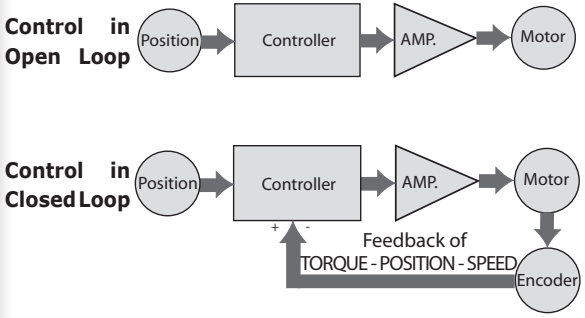
SAFETY PROTECTIONS
Over/Under-voltage, Over Current, Over Temperature, Open Windings, Closed Windings Phase/Phase Phase/Ground

TEMPERATURES
working: 5°C ÷ 40°C; storage -25°C ÷ 55°C

PROTECTION CLASS
IP65

HUMIDITY
5% ÷ 85% not condensing

Open Loop / Closed Loop



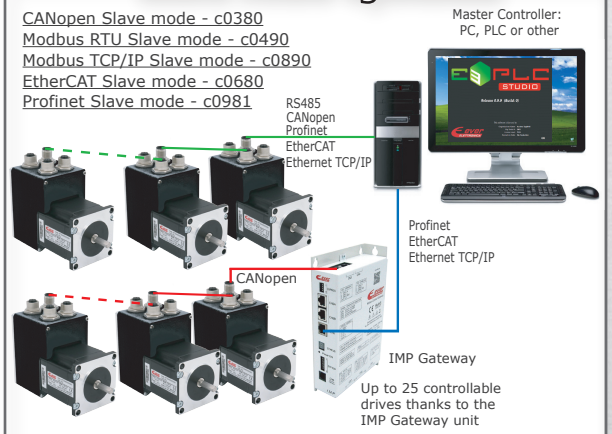
Better control compared to both an open loop stepper solution and a servo-controlled brushless solution

Control Modes

Step & Direction or Analog

Multi Axes Systems

CANopen Slave mode - c0380
Modbus RTU Slave mode - c0490
Modbus TCP/IP Slave mode - c0890
EtherCAT Slave mode - c0680
Profinet Slave mode - c0981

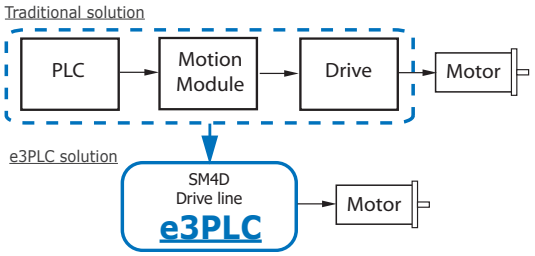


Drive control through commands by Master Controller.
Suitable for multi axes systems (up to 25 drives).
Built in Powerfull Motion Module functionality assures Perfect Synchronization between axes and reduces Master Controller workload.

Stand-Alone System

User Programmable - e3PLC- c390 / c0490 / c0690 / c0890 / c0990

FIELDBUS DRIVES WITH AUTONOMOUS FUNCTIONING that, by integrating advanced PLC and motion controller functions in one single device, programmable by the user with the IDE for Windows PC and e3PLC, allows to reduce the traditional machine control solution.



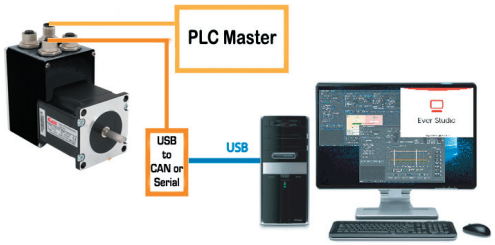
The e3PLC IDE allows the user to access all the I/O control functions and resources, provided by the drive, and to locally program its Motion Control Module, which can also be synchronized with other drives and events of the controlled process. Thanks to the advanced functionalities of the Power Motion Module, an integrated Real-time Process Module, applications can be easily created for special applications such as:

- *Labelling*
- *Electronic cams*
- *Control Sequences of cable processing*
- *Many other user-customized processes ...*

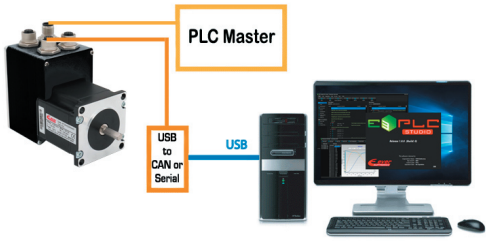
Software

Configuration software

Fieldbus configuration (slave)



IDE e3PLC configuration (programmable)



Ever co. proprietary PC Software Tools for easy and quick configuration or programming, real time debug and supervision of each system

Autonomous management of the firmware for the execution of the ***homing***, of the target movement with relative or absolute quota and for the generation of the ramp profiles

Torque mode for operation with torque limitation

Speed control thanks to digital inputs, analogue inputs or fieldbus

Electronic CAM with advanced programming of internal profiles inside the drive

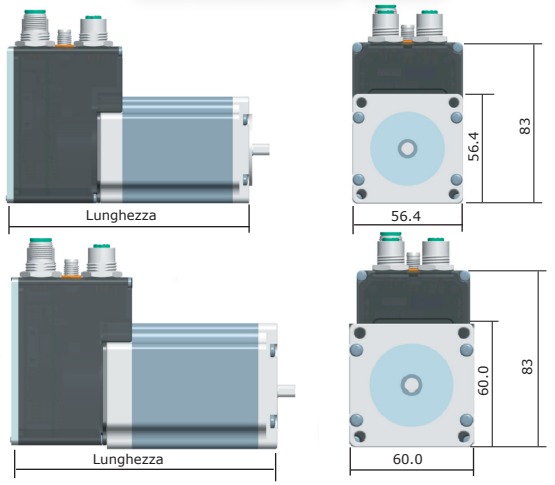
Electric shaft with encoder or analogue input with variable tracking ratio (Electric Gear)

Fast inputs and outputs for motor' start & stop and event synchronization for high speed response applications such as labeling, nick finder, flying saw etc.

Possibility to synchronize the movements in multi-axis systems, even without fieldbus

Enabling and on-the-fly changing of the motion control modes

Mechanical Data



Models	Dimensions (mm)	
	Length	Shaft Ø
SM4D260Px275**A**w0	96.0	6.35
SM4D260Px275**B**w0	107.0	6.35
SM4D260Px275**C**w0	T.B.D.	6.35
SM4D260Px275**D**w0	131.0	6.35
SM4D260Px275**E**w0	T.B.D	6.35

Models	Dimensions (mm)	
	Length	Shaft Ø
SM4D260Px272**A**w0	T.B.D.	8.00
SM4D260Px272**B**w0	T.B.D.	8.00
SM4D260Px272**C**w0	T.B.D.	8.00
SM4D260Px272**D**w0	137,5	8.00
SM4D260Px272**E**w0	T.B.D.	8.00

Specifications

Ordering Information for SM4D servomotors and options

Ordering code			Power				System Resources				
Versions	Config.	Connectors with cable (1 mt) kit	Power supply: Power	Power supply: Logic	Current	Integrated motor data (kz = 5A / 5B / 5D / 2D)	Interface	Digitals Inputs	Digitals Outputs	Analog Input	Encoder for Closed Loop (w = N / 7 / M / B)
SM4D260PC27kzw0	c0380 c0390	SM4D2KIT-100	12 ÷ 48 Vdc	24 Vdc (Mandatory and not isolated)	up to 6.0 Arms (8.5 Apeak)	5A=Holding Torque 0.50 Nm min. Phase resistance 0.25 ohm ±0.1 Phase inductance 0.65 mH ±20% Rotor inertia 170 g.cm²	CANbus (Canopen DS402)	4	2	1	N = No encoder
SM4D260PM27kzw0	c0490	SM4D2KIT-100				5B=Holding Torque 1,20 Nm min. Phase resistance 0.40 ohm ±0.1 Phase inductance 1.20 mH ±20% Rotor inertia 280 g.cm²	RS485 (Modbus-RTU)				7 = Incremental encoder
SM4D260PH27kzw0	c0680 c0690	SM4D2KIT-H1M				5D=Holding Torque 2,00 Nm min. Phase resistance 0.50 ohm ±0.1 Phase inductance 1.80 mH ±20% Rotor inertia 520 g.cm²	EtherCAT (CoE)				M = Incemental encoder + absolute single turn
SM4D260PE27kzw0	c0890	SM4D2KIT-E1M				2D=Holding Torque 3,00 Nm min. Phase resistance 0.84 ohm ±0.15 Phase inductance 3.00 mH ±20% Rotor inertia 920 g.cm²	Ethernet (Modbus TCP/IP)				B = Multiturn absolute encoder BiSS-C
SM4D260PT27kzw0	c0981 c0990	SM4D2KIT-H1M					Profinet				

Software kit

Config.	Control	Software kit code	Software kit description
c0380	CANbus (Canopen DS402) fieldbus mode	SM4D_SERV00-SL	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and Ever Studio configuration software.
c0390	e3PLC Studio with CANbus	SM4D_SERV00-EE	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and e3PLC programming software.
c0490	e3PLC Studio with RS485 (Modbus-RTU)	SM4D_SERV00-EE	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and e3PLC programming software.
c0680	EtherCAT (CoE) fieldbus mode	SM4D_SERV00-SL	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and Ever Studio configuration software.
c0690	e3PLC Studio with EtherCAT	SM4D_SERV00-EE	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and e3PLC programming software.
c0890	e3PLC Studio with Ethernet (Modbus TCP/IP)	SM4D_SERV00-EE	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and e3PLC programming software.
c0981	Profinet fieldbus mode	SM4D_SERV00-SL	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and Ever Studio configuration software.
c0990	e3PLC Studio with Profinet	SM4D_SERV00-EE	SCI service kit with cables, service serial to RS485 and RS485 to USB converters and e3PLC programming software.