

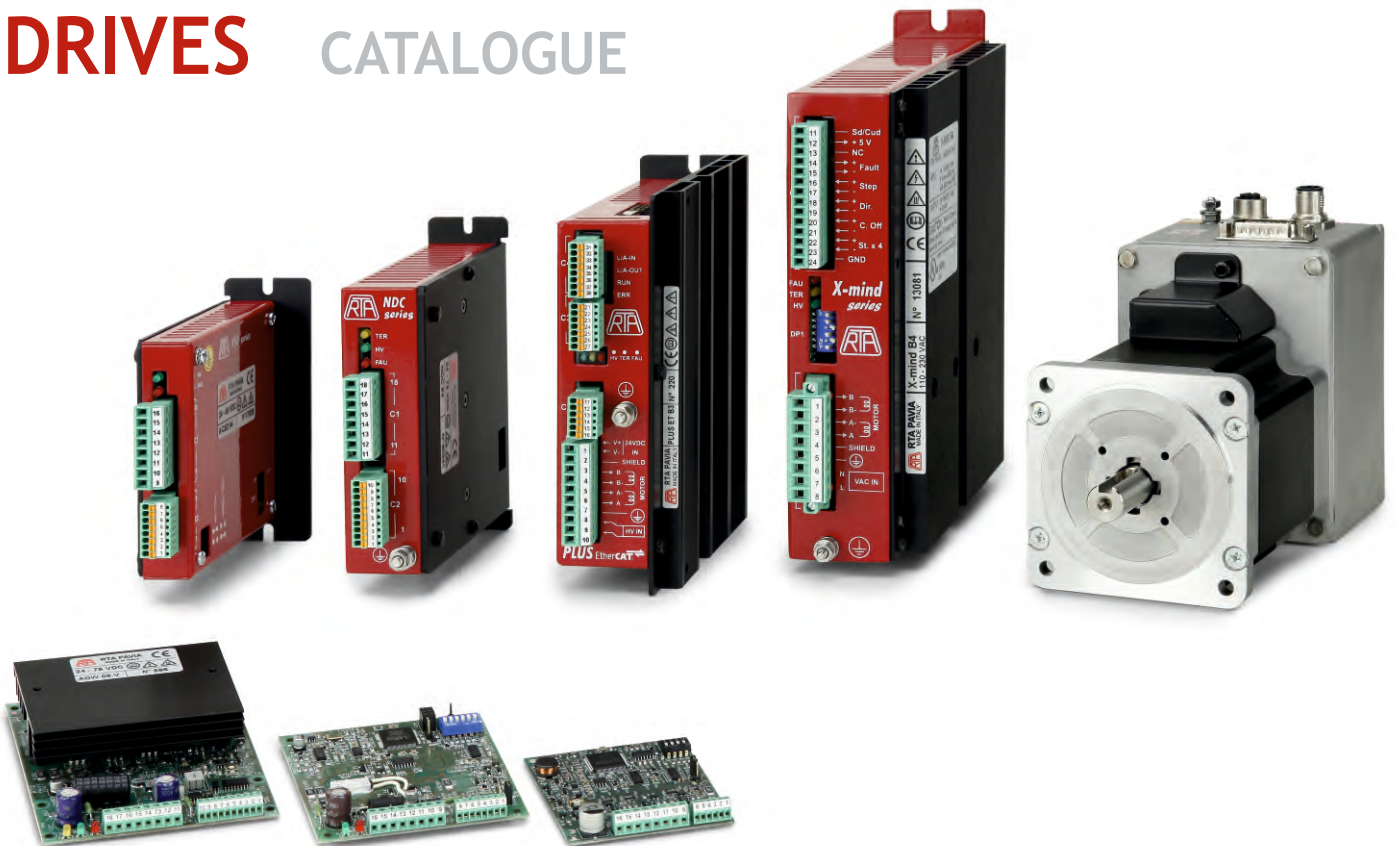


Motion Control Systems

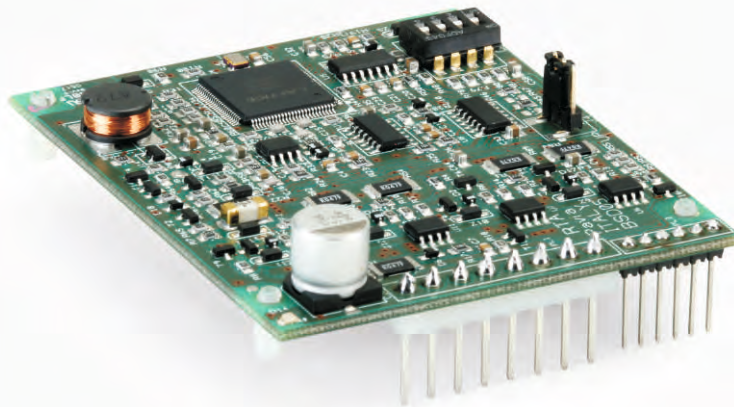
NEWS
2018
SUPPLEMENT



STEPPING MOTOR DRIVES CATALOGUE



BSD 02.S Series Drives



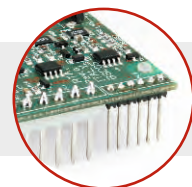
INTRODUCTION

- New series of microstep stepping motor drives specifically developed for small and mid-size stepping motors.
- Ultra-compact and optimized design to reduce space and cost, combined with *Adaptive Microstepping* technology ensuring noise and vibration suppression.
- Target: simple and effective motion control solutions requiring low power, high precision, smoothness of movement and low acoustic noise.
- Ideal solution to replace integrated circuits and self-made, low power drives. The perfect choice for small routers, medical, 3D printers and all types of compact machines.

HIGHLIGHTS

- Full digital microstepping drive.
- Adaptive microstepping up to 3.200 step/rev.
- Intelligent management of the current profile that achieves good results in terms of smoothness of movement, low noise and vibration control.
- Highly compact, easy to use and cost effective solution. This system is designed to be soldered to a PCB.
- A highly sophisticated control system, preserving anyhow the traditional ease of use of R.T.A. drives.

NEW VERSION EQUIPPED WITH SOLDER PINS (STRIPLINE)



Series	Model	V _{DC} range (Volt)	I _{NP} min. (Peak value) (Amp)	I _{NP} max. (Peak value) (Amp)	Dimensions (mm)
BSD	02.S	24 to 48	0.7	2.2	78x68x27

CSD ET Series Drives

EtherCAT®

INTRODUCTION

- New series of stepping motor drives with EtherCAT interface.
- Drives optimized for coupling with SANYO DENKI stepping motors, fitted with encoder.
- Compact system, developed to offer a wide variety of integrated functions and optimized for the most demanding motion control applications.

HIGHLIGHTS

- Communication by means of EtherCAT interface.
- Modes of operation: PROFILE POSITION and CSP.
- Full digital microstepping drive.
- Extremely compact size.
- A highly sophisticated operation system, preserving anyhow the traditional ease of use of R.T.A. drives.



Series	Model	V _{DC} range (Volt)	I nom. (Amp)	Dimensions (mm)
CSD ET	04	24 to 48	4.0	130x106x32

TECHNICAL FEATURES

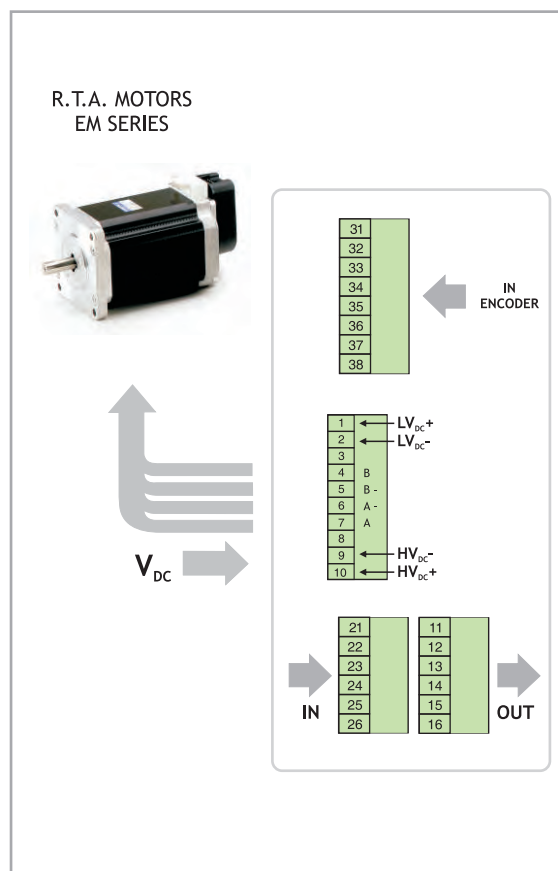
- Range of operating voltage: 24-48 V_{DC}.
- Protections:
 - Protection against under-voltage and over-voltage.
 - Protection against a short-circuit at motor outputs.
 - Overtemperature protection.
- Electronic damping facility for further acoustic noise and mechanic vibrations reduction.
- Available in boxed version with plug-in connectors. Maximum compactness.
- Optoinsulated auxiliary and programmable inputs and outputs.
- Warranty: 24 months.



SETTING BY MEANS OF EtherCAT[®] INTERFACE

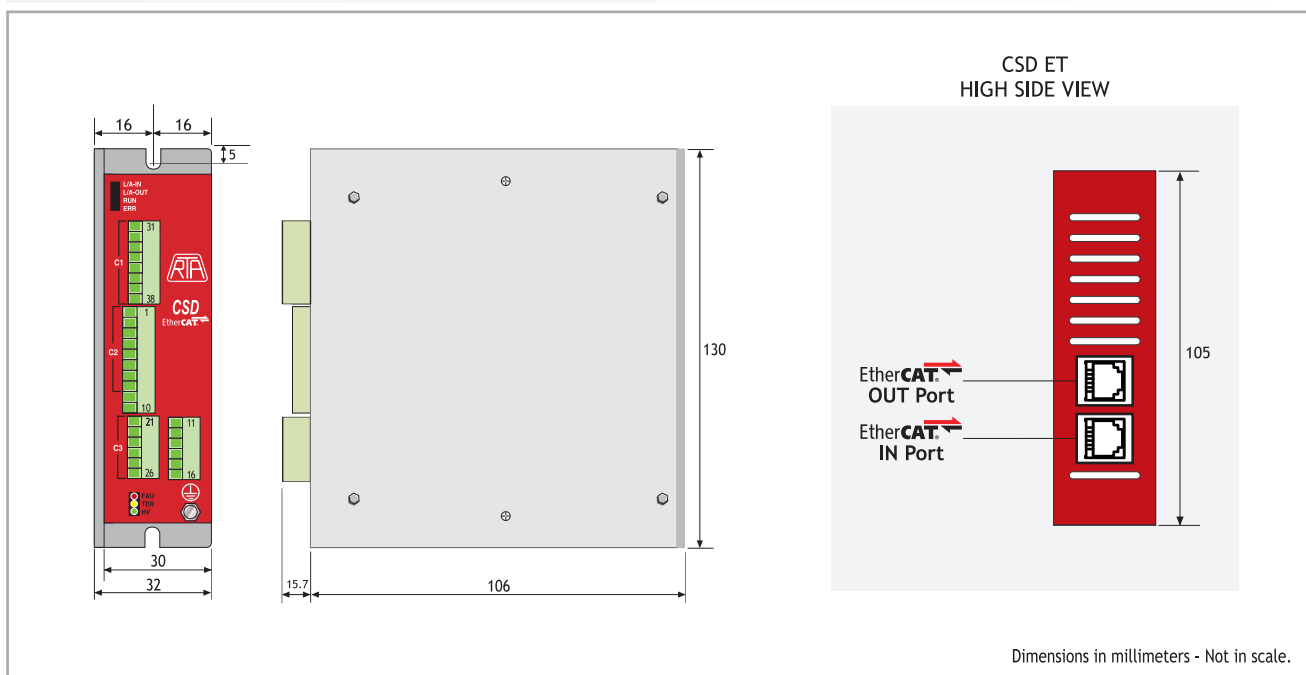
- Wide range of motor phase current setting.
- Motor current overboost.
- Intelligent management of the current profile.
- Communication by means of EtherCAT (CoE) interface.
- Modes of operation: PROFILE POSITION and CSP.
- Different variety of HOMING operation modes.
- Encoder feedback.

POWER AND LOGIC CONNECTIONS



EtherCAT[®]

MECHANICAL DIMENSIONS



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CSD ET 94 Series Drives

EtherCAT®

INTRODUCTION

- New series of stepping motor drives with EtherCAT interface.
- Drives optimized for coupling with SANYO DENKI stepping motors, fitted with encoder.
- Compact system, developed to offer a wide variety of integrated functions and optimized for the most demanding motion control applications.

HIGHLIGHTS

- Communication by means of EtherCAT interface.
- Modes of operation: PROFILE POSITION and CSP.
- Full digital microstepping drive.
- Extremely compact size.
- A highly sophisticated operation system, preserving anyhow the traditional ease of use of R.T.A. drives.



Series	Model	V _{DC} range (Volt)	I nom. (Amp)	Dimensions (mm)
CSD ET	94	24 to 48	4.0	130x106x32

Combo Unit: **HI-MOD ET**

EtherCAT[®]



INTRODUCTION

- New series of stepper motors with integrated ministep bipolar chopper drives; setting by means of EtherCAT interface and based on incremental encoder.
- Compact system housed in a metallic box mounted on motor body, minimizing dimensions and optimizing wiring and mounting easiness.
- Target: advanced applications requiring the detection of motor loss of synchronism setting by means of EtherCAT interface.

HIGHLIGHTS EtherCAT[®] INTERFACE

- Communication by means of EtherCAT (CoE) interface.
- Modes of operation: PROFILE POSITION and CSP.
- Different variety of HOMING operation modes.
- PROXIMITY hardware input.
- Motor current overboost.
- Intelligent management of the current profile.

EtherCAT[®]

HI-MOD ET X₁ - X₂ - X₃ - X₄ - X₅ - n

X₁ = Electronic features

X₂X₃X₄X₅ = Motor type and power

n = Release software

E: EtherCAT - Incremental Encoder

X₂ = Maximum power

Alphanumeric character

X₃ = Mechanical hardware identification

X₄ = Motor type

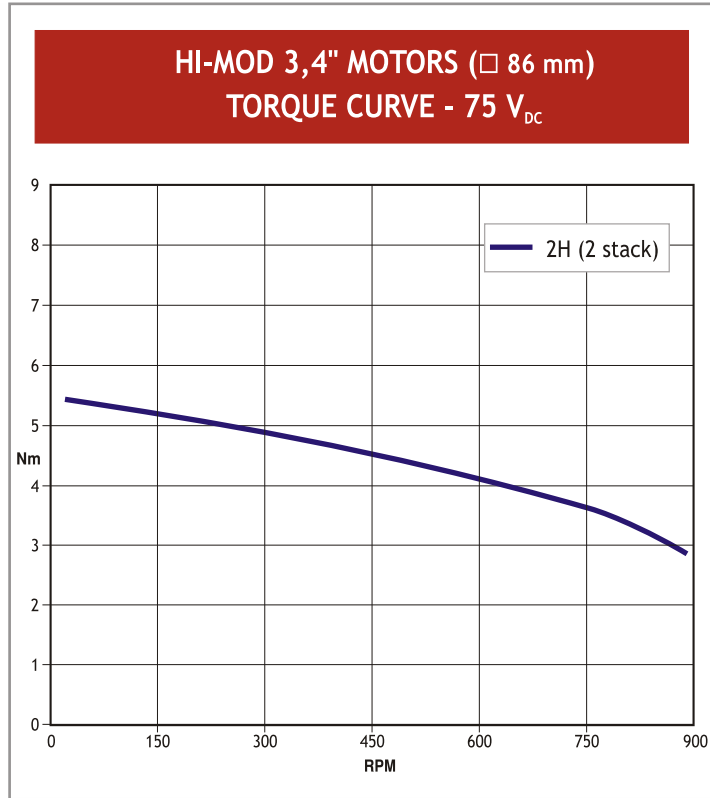
X₅ = Motor current

Available version: HI-MOD ET E3F2HA

TECHNICAL FEATURES

- Range of operating voltage: 32-75 V_{DC}.
- Protections:
 - Protection against under-voltage and over-voltage.
 - Protection against a short-circuit at motor outputs.
 - Overtemperature protection.
- Electronic damping facility for further acoustic noise and mechanic vibrations reduction.
- Command to execute runs with position control to set: distance, direction, speed and acceleration.
- Command to execute zero research (HOMING).
- Possibility to detect motor loss of synchronism or stall and position error by means of Incremental Encoder.

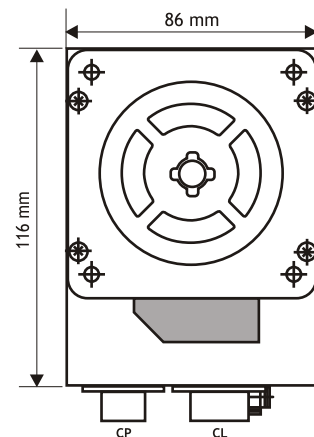
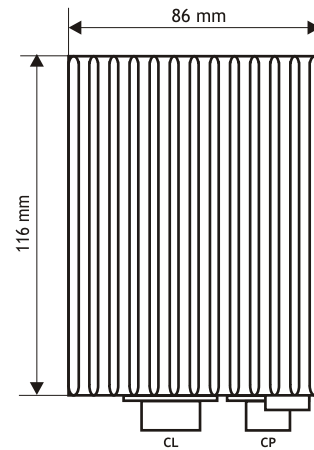
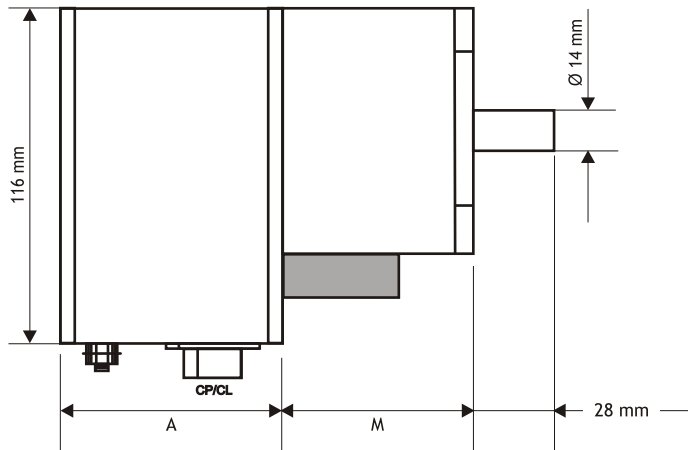
EtherCAT®



MECHANICAL DIMENSIONS

Model	A Length (mm)
HI-MOD ET	78.0

Type	M Length (mm)
2H	96.5



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INTRODUCTION

STEP & DIRECTION

ADVANCED

ANALOG INPUT

PROGRAMMABLE

EtherCAT

CANopen

Combo Unit: **HI-MOD ETS**

Ether**CAT**[®]

SIL3
SAFE TORQUE
OFF (STO)



INTRODUCTION

- New series of stepper motors with integrated ministep bipolar chopper drives; setting by means of EtherCAT interface and STO function, based on incremental encoder or multi-turn absolute encoder.
- Compact system housed in a metallic box mounted on motor body, minimizing dimensions and optimizing wiring and mounting easiness.
- Target: advanced applications requiring the detection of motor loss of synchronism setting by means of EtherCAT interface.
- UL/CSA certified.

HIGHLIGHTS Ether**CAT**[®] INTERFACE

- STO [SIL3] function.
- Error Detection Monitor.
- Communication by means of EtherCAT (CoE) interface.
- Modes of operation: PROFILE POSITION and CSP.
- Different variety of HOMING operation modes.
- PROXIMITY hardware input.

c **AL** [®] us

Ether**CAT**[®]

STO FUNCTION FEATURES

- Safe Torque Off (STO) function - **SIL3**
- Error Detection Monitor

SIL3
SAFE TORQUE
OFF (STO)

HI-MOD ET X₁ - X₂ - X₃ - X₄ - X₅ - n

X₁ = Electronic features

X₂X₃X₄X₅ = Motor type and power

n = Release software

E: EtherCAT - Incremental Encoder

X₂ = Maximum power

Alphanumeric character

A: EtherCAT - Multi-Turn Absolute Encoder

X₃ = Mechanical hardware identification

X₄ = Motor type

X₅ = Motor current

Available versions: HI-MOD ETS E4F2HC - HI-MOD ETS A4F2HC

Combo Unit: **R-MOD ET**

EtherCAT 



INTRODUCTION

- New series of stepper motors with integrated ministep bipolar chopper drives; setting by means of EtherCAT interface and based on encoder.
- More compact system housed in a metallic box mounted on motor body, minimizing dimensions and optimizing wiring and mounting easiness.
- Target: advanced applications with distributed electronics requiring compact dimensions and ensuring perfect integration in complex EtherCAT architectures.

HIGHLIGHTS **EtherCAT** INTERFACE

- Communication by means of EtherCAT (CoE) interface.
- Modes of operation: PROFILE POSITION and CSP.
- Different variety of HOMING operation modes.
- PROXIMITY hardware input.
- Motor current overboost.
- Intelligent management of the current profile.

EtherCAT 

R-MOD ET X₁ - X₂ - X₃ - X₄ - X₅ - n

X₁ = Electronic features

X₂X₃X₄X₅ = Motor type and power

n = Release software

E: EtherCAT - Encoder

X₂ = Maximum power
 X₃ = Mechanical hardware identification
 X₄ = Motor type
 X₅ = Motor current

Alphanumeric character

Available version: R-MOD ET E3H2MA

X-PLUS ET S4 Series Drives

INTRODUCTION

- New series of stepping motor drives with EtherCAT interface, direct input from the main AC power supply (from 110 V_{AC} to 230 V_{AC}) and STO function.
- Optimized for coupling with SANYO DENKI stepping motors, fitted with encoder.
- Possibility to be connected directly from the main (from 110 V_{AC} to 230 V_{AC}), saving on transformer use.
- High performance in terms of power and able to further increase the application potential.

HIGHLIGHTS

- STO [SIL3] function.
- Error Detection Monitor.
- Communication by means of EtherCAT interface.
- Modes of operation: PROFILE POSITION and CSP.
- Full digital microstepping drive.
- Wide range of SANYO DENKI stepping motors to be coupled with: holding torque up to 9,2 Nm and flange size up to 86 mm.
- Extremely compact size.
- A highly sophisticated operation system, preserving anyhow the traditional ease of use of R.T.A. drives.



STO FUNCTION FEATURES

- Safe Torque Off (STO) function - **SIL3**
- Error Detection Monitor

SIL3
SAFE TORQUE
OFF (STO)

Series	Model	V _{AC} range (Volt)	I nom. (Amp)	Dimensions (mm)
X-PLUS ET	S4	110 to 230 +/- 15%	4.0	169x129x46

X-PLUS S4.1 Series Drives

INTRODUCTION

- New series bipolar microstep stepping motor drive with power input directly from the main AC supply (110 V_{AC} to 230 V_{AC}), with STO function, specifically developed for applications requiring high performance with reduced acoustic noise and low vibrations.
- Target: advanced applications requiring high precision, low noise and smoothness of movement.
- The perfect choice for combining high power and low acoustic noise.

HIGHLIGHTS

- STO [SIL3] function.
- Error Detection Monitor.
- Full digital microstepping drive.
- Adaptive microstepping up to 3,200 step/rev.
- Intelligent management of the current profile that achieves good results in terms of smoothness of movement, low noise and vibration control.
- A highly sophisticated control system, preserving anyhow the traditional ease of use of R.T.A. drives.



STO FUNCTION FEATURES

- Safe Torque Off (STO) function - **SIL3**
- Error Detection Monitor

SIL3
SAFE TORQUE
OFF (STO)

Series	Model	V _{AC} range (Volt)	I _{NP} min. (Peak value) (Amp)	I _{NP} max. (Peak value) (Amp)	Dimensions (mm)
X-PLUS	S4.1	110 to 230 +/- 15%	2.4	4.0	152x129x46

X-PLUS S Series Drives

INTRODUCTION

- Stepping motor drives series with Step & Direction interface and direct input from the main AC power supply (from 110 V_{AC} to 230 V_{AC}) and STO function.
- The drive is equipped with an internal rectifier able to transfer more than 330 V_{DC} (230 V_{AC}) to the motor, in order to ensure the maximum power for the application as well as a significant cost saving on transformer and rectifier, together with the related cabling.
- Target: advanced application requiring great dynamic performance, high reliability and simplified power supply.

HIGHLIGHTS

- STO [SIL3] function.
- Error Detection Monitor.
- Electronic damping facility for further acoustic noise and mechanic vibrations reduction at low and medium speed.
- Optoisolated and differential input and output signals ease interfacing with the most commonly used control systems and ensure high noise immunity.
- Coupling with stepping motors rated for high voltage and equivalent or bigger than NEMA 34 is mandatory.



STO FUNCTION FEATURES

- Safe Torque Off (STO) function - **SIL3**
- Error Detection Monitor

SIL3
SAFE TORQUE
OFF (STO)

Series	Model	V _{AC} range (Volt)	I _{NP} min. (Peak value) (Amp)	I _{NP} max. (Peak value) (Amp)	Dimensions (mm)
X-PLUS	S4	110 to 230 +/- 15%	2.4	4.0	152x129x46