

STM23C-3CE

NEMA 23 Integrated CANopen Drive+Motor w/ Encoder



Product Features

- Sophisticated current control
- Anti-resonance
- Torque ripple smoothing
- Microstep emulation
- NEMA 23 frame size
- DS301 and DSP402 supported
- Profile position and velocity modes
- Several homing modes
- Objects for Q programming
- Objects for data registers
- RS-232 port for programming
- Built-in incremental encoder



Description

The STM23C-3CE integrated stepper is a drive+motor unit, fusing a NEMA 23 step motor and a sophisticated 5.0 A/phase (peak-of-sine) stepper drive into a single device. Power to the drive, located at the rear of the motor, must be supplied by an external DC supply. See Related and Recommended Products below for compatible 24 and 48 volt DC [power supplies](#).

The STM23C-3CE integrated stepper is designed to operate on a CANopen communication network and conforms to Can in Automation (CiA) DS301 and DSP402 specifications. It supports Profile Position, Profile Velocity, and Homing modes, as well as the ability to run stored Q programs via Applied Motion-specific CANopen objects. All STM23 units are setup and configured using Applied Motion's [ST Configurator™](#) software.

An integral 1000-line (4000 count/rev) incremental encoder is housed inside the same enclosure as the drive electronics, providing protection from dust and debris. The integration of the encoder means the STM23C-3CE can perform special functions not available otherwise. Stall Detection notifies the system as soon as the required torque is too great for the motor, which results in a loss of synchronization between the rotor and stator, also known as stalling. Stall Prevention actually prevents stalling of the step motor by dynamically adjusting motor speed to maintain synchronization of the rotor to the stator under all conditions. This unique feature allows step motors to operate in a much broader range of applications than previously available to step motors, such as torque-control applications. The Stall Prevention feature also performs static position maintenance, which maintains the position of the motor shaft when at rest.

Each STM23 integrated stepper comes with 3 digital inputs, 1 digital output, and 1 analog input. The digital inputs accept signals of 5-24 VDC and can be used for connecting pulse & direction signals, end-of-travel limit switches, jog switches, quadrature encoder signals, PLC outputs, sensors, or many other signal types. The digital output can be connected to PLC inputs, counters, lights, relays, or other devices. The analog input accepts 0-5 VDC signals and can be used for velocity and position control.

The STM23C-3CE comes with an RS-232 port for programming and a CANopen port for network communications.

Part Number	STM23C-3CE
Supply Voltage	12-70 VDC
Supply Voltage Type	DC
Control Modes	<ul style="list-style-type: none"> • CANopen
Communication Ports	<ul style="list-style-type: none"> • RS-232 • CANopen
Encoder Feedback	Yes
Step Resolution	<ul style="list-style-type: none"> • Full • Half • Microstepping • Microstep Emulation
Idle Current Reduction	0-90%
Setup Method	Software setup
Digital Inputs	3
Digital Outputs	1
Analog Inputs	NA
Circuit Protection	<ul style="list-style-type: none"> • Short circuit • Over-voltage • Under-voltage • Over-temp
Status LEDs	1 red, 1 green
Frame Size	NEMA 23
Holding Torque	210 oz-in
Step Angle	1.8 deg
Rotor Inertia	6.51E-03 oz-in-sec ²
Length	4.50 inches
Weight	42 oz
Operating Temperature Range	0 to 85 °C
Ambient Temperature Range	0 to 40 °C
Ambient Humidity	90% max, non-condensing
Insulation Class	Class B (130 °C)
Maximum Radial Load	NA
Maximum Thrust Load	NA
Shaft Run Out	NA
Radial Play	NA
End Play	NA
Perpendicularity	NA

Concentricity

NA

Software

Software Downloads

- [ST Configurator™](#)

Sample Code

- [CANopen_Example.zip](#)

Downloads

Manuals	STM23 Hardware Manual 920-0021.pdf STM23C-STM24C QuickSetup 920-0043.pdf CANopen Manual 920-0025.pdf
Datasheet	STM-Datasheet-925-0009.pdf CANopen_FAQ2.pdf STM-CANopen-EDS.eds
2D Drawing	STM23X-3CX_3D.pdf STM23X-3CX Rev B.pdf
3D Drawing	There are currently no 3D Drawings available for this product.
Speed-Torque Curves	STM23-speed-torque.pdf
Agency Approvals	STM17_23_24_CE_DOC.pdf
Application Notes	APPN0015_Make-a-serial-programming-cable.pdf
