

STM24C-3CE

NEMA 24 Integrated CANopen Drive+Motor w/ Encoder



Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 24 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 STM24C-3CE integrated stepper is a drive+motor unit, fusing a NEMA 24 step motor and a sophisticated, 6.0 A/phase (peak-of-sine) step motor 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 STM24C-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 STM24 integrated steppers 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 stepper 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. 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.

The STM24C-3CE comes with 3 digital inputs and 1 digital output. The digital inputs accept signals of 5-24 VDC and can be used for connecting 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 unit also comes with 1 analog input that accepts 0-5 VDC signals, which can be used for velocity and position control.

The STM24C-3CE comes with an RS-232 port for programming and a CANopen port for network communications.

A VL series gearhead purchased for this motor will require a special mounting adaptor and 2 weeks lead time. Please contact customer service for the price of this adaptor.

Specifications

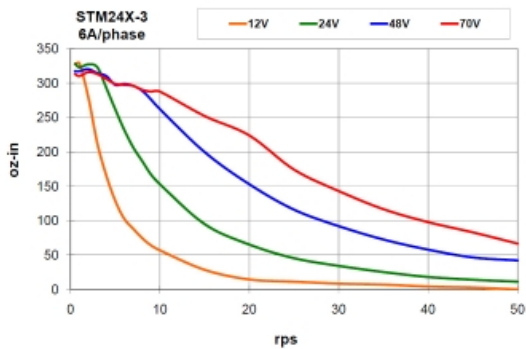
Part Number:	STM24C-3CE
Supply Voltage:	12-70 VDC
Supply Voltage Type:	DC
Control Modes:	CANopen
Communication Ports:	RS-232 CANopen
Encoder Feedback:	Yes
Step Resolution:	Full Half Microstepping Microstep Emulation
Idle Current Reduction:	0-90%
Setup Method:	Software setup
Digital Inputs:	3
Digital Outputs:	1
Circuit Protection:	Short circuit Over-voltage Under-voltage Over-temp
Status LEDs:	1 red, 1 green
Frame Size:	NEMA 24
Holding Torque:	340 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	1.27E-02 oz-in-sec ²
Length:	4.94 inches
Weight:	56 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)

Downloads

Speed-Torque Curves:	STM24_speed-torque.pdf
Manuals:	STM23C-STM24C_QuickSetup_920-0043.pdf STM24 Hardware Manual_920-0044F.pdf CANopen_Manual_920-0025L.pdf Host-Command-Reference_920-0002R.pdf
Product PDF - S3 Link:	http://s3.amazonaws.com/applied-motion-pdf/STM24C-3CE.pdf
Datasheet:	STM-Datasheet-925-0009.pdf CANopen_FAQ2.pdf STM-CANopen-EDS.eds
2D Drawing:	STM24C-IP-Q-QF-S-SF-3X_RevC.pdf STM24_3D_Model-Simple.pdf
3D Drawing:	STM24_3D_model.igs
Agency Approvals:	STM17_23_24_CE_DOC.pdf

Torque Curves

Note: all torque curves were measured at 20,000 steps/rev.



Software

Software:	ST Configurator™
Sample Code:	CANopen_Example.zip

Products in the Series *STM24 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
STM24C-3CE	NEMA 24	12-70 VDC	CANopen	340	RS-232, CANopen	Yes	\$796.00
STM24C-3CN	NEMA 24	12-70 VDC	CANopen	340	RS-232, CANopen	No	\$706.00
STM24IP-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	340	Ethernet, EtherNet/IP	Yes	\$751.00
STM24IP-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	340	Ethernet, EtherNet/IP	No	\$661.00
STM24Q-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	340	Ethernet	Yes	\$691.00
STM24Q-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	340	Ethernet	No	\$601.00
STM24QF-3AE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	340	RS-232	Yes	\$677.00
STM24QF-3AN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	340	RS-232	No	\$587.00
STM24QF-3RE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	340	RS-485	Yes	\$686.00
STM24QF-3RN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	340	RS-485	No	\$596.00
STM24S-3EE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	\$583.00
STM24S-3EN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	No	\$493.00
STM24SF-3AE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	Yes	\$569.00
STM24SF-3AN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	No	\$479.00
STM24SF-3RE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	Yes	\$578.00
STM24SF-3RN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	No	\$488.00

Products in the Series *CANopen Products*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
5000-136	NA	24-48 VDC	CANopen	NA	RS-232, CANopen	No	\$649.00
5000-137	NA	24-48 VDC	CANopen	NA	RS-232, CANopen	Yes	\$702.00
5000-146	NA	24-80 VDC	CANopen	NA	RS-232, CANopen	No	\$757.00
5000-147	NA	24-80 VDC	CANopen	NA	RS-232, CANopen	Yes	\$818.00
STF03-R	NA	12-48 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	NA	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$185.00
STF06-R	NA	12-48 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	NA	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$198.00
STF10-R	NA	24-70 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	NA	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$211.00
STM17C-3CE	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	Yes	\$564.00
STM17C-3CN	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	No	\$474.00
STM23C-3CE	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	Yes	\$642.00
STM23C-3CN	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	No	\$552.00
STM24C-3CE	NEMA 24	12-70 VDC	CANopen	340	RS-232, CANopen	Yes	\$796.00
STM24C-3CN	NEMA 24	12-70 VDC	CANopen	340	RS-232, CANopen	No	\$706.00
SV2A3-C-CE	NA	78-139 VAC	CANopen	NA	CANopen	NA	\$642.00
SV2A5-C-CE	NA	78-139 VAC	CANopen	NA	CANopen	NA	\$798.00
SV2B3-C-CE	NA	156-264 VAC	CANopen	NA	CANopen	NA	\$642.00
SV2B5-C-CE	NA	156-264 VAC	CANopen	NA	CANopen	NA	\$798.00
TSM17C-1CG	NEMA 17	12-48 VDC	CANopen	40	CANopen	Yes	\$656.00
TSM17C-2CG	NEMA 17	12-48 VDC	CANopen	59	CANopen	Yes	\$661.00
TSM17C-3CG	NEMA 17	12-48 VDC	CANopen	73	CANopen	Yes	\$665.00
TSM23C-2CG	NEMA 23	12-70 VDC	CANopen	142	CANopen	Yes	\$674.00
TSM23C-3CG	NEMA 23	12-70 VDC	CANopen	212	CANopen	Yes	\$691.00
TSM23C-4CG	NEMA 23	12-70 VDC	CANopen	340	CANopen	Yes	\$757.00
TSM34C-1CG	NEMA 34	24-70 VDC	CANopen	382	CANopen	Yes	\$702.00
TSM34C-3CG	NEMA 34	24-70 VDC	CANopen	736	CANopen	Yes	\$773.00
TSM34C-5CG	NEMA 34	24-70 VDC	CANopen	949	CANopen	Yes	\$864.00
TSM34C-6CG	NEMA 34	48-70 VDC	CANopen	1161	CANopen	Yes	\$966.00
TXM24C-1CG	NEMA 24	12-70 VDC	CANopen	116	CANopen	Yes	\$989.00
TXM24C-3CG	NEMA 24	12-70 VDC	CANopen	340	CANopen	Yes	\$1042.00
TXM34C-1CG	NEMA 34	24-70 VDC	CANopen	382	CANopen	Yes	\$1190.00
TXM34C-3CG	NEMA 34	24-70 VDC	CANopen	736	CANopen	Yes	\$1261.00
TXM34C-5CG	NEMA 34	24-70 VDC	CANopen	949	CANopen	Yes	\$1352.00
TXM34C-6CG	NEMA 34	48-70 VDC	CANopen	1161	CANopen	Yes	\$1454.00