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Product Datasheet

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STM17C-3CE

NEMA 17 Integrated CANopen Drive+Motor w/ Encoder



Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 17 frame size*
- *DS301 and DSP402 supported*
- *Profile position, velocity and homing modes*
- *Objects for Q programming*
- *Objects for data registers*
- *RS-232 port for programming*
- *Built-in incremental encoder*







Description

The STM17C-3CE integrated stepper is a drive+motor unit, fusing a NEMA 17 step motor and a sophisticated 2.0 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 STM17C-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 STM17 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 STM17C-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 STM17 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 STM17C-3CE comes with an RS-232 port for programming and a CANopen port for network communications.

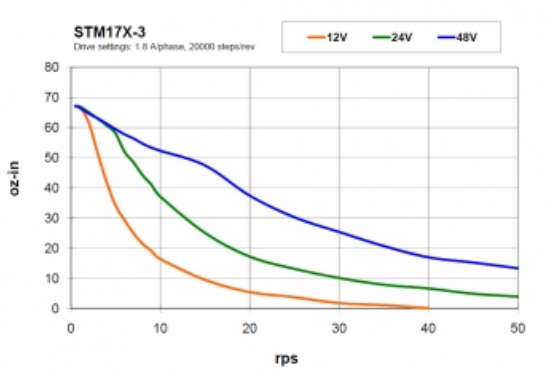
Specifications

Part Number:	STM17C-3CE
Supply Voltage:	12-48 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
Analog Inputs:	1 single-ended
Circuit Protection:	Short circuit Over-voltage Under-voltage Over-temp
Status LEDs:	1 red, 1 green
Frame Size:	NEMA 17
Holding Torque:	68 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	1.16E-03 oz-in-sec^2
Length:	3.19 inches
Weight:	15.6 oz
Operating Temperature Range:	0-85 °C
Ambient Temperature Range:	0-40 °C
Ambient Humidity:	90% max, non-condensing
Insulation Class:	Class B (130 ºC)

Downloads

Speed-Torque Curves:	STM17-3_torque_curves.pdf
Manuals:	STM17C_QuickSetup_920-0045B.pdf STM17_Hardware_Manual_920-0034B.pdf CANopen_Manual_920-0025L.pdf Host-Command-Reference_920-0002R.pdf
Product PDF - S3 Link:	http://s3.amazonaws.com/applied-motion-pdf/STM17C-3CE.pdf
Datasheet:	STM-Datasheet-925-0009.pdf CANopen_FAQ2.pdf STM-CANopen-EDS.eds
2D Drawing:	STM17C-3X_3D.pdf STM17S-Q-C-3XX_RevB.pdf
3D Drawing:	STM17S-3X_Simple.igs STM17X-3X_NEW.igs
Agency Approvals:	STM17_23_24_CE_DOC.pdf

Torque Curves



Software

Software:	ST Configurator™
Sample Code:	CANopen_Example.zip

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

Products in the Series *STM17 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
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
STM17Q-1AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-232	Yes	$416.00
STM17Q-1AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-232	No	$326.00
STM17Q-1RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-485	Yes	$424.00
STM17Q-1RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-485	No	$334.00
STM17Q-2AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-232	Yes	$420.00
STM17Q-2AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-232	No	$330.00
STM17Q-2RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-485	Yes	$427.00
STM17Q-2RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-485	No	$337.00
STM17Q-3AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-232	Yes	$424.00
STM17Q-3AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-232	No	$346.00
STM17Q-3RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-485	Yes	$432.00
STM17Q-3RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-485	No	$354.00
STM17R-3ND	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00
STM17R-3NE	NEMA 17	12-48 VDC	Step & Direction	68	NA	Yes	$204.00
STM17R-3NN	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00
STM17S-1AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	Yes	$380.00
STM17S-1AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	No	$290.00
STM17S-1RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	Yes	$390.00
STM17S-1RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	No	$300.00
STM17S-2AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	Yes	$389.00
STM17S-2AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	No	$299.00
STM17S-2RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming	54	RS-485	Yes	$397.00

			Commands				
STM17S-2RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-485	No	$307.00
STM17S-3AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	Yes	$394.00
STM17S-3AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	No	$316.00
STM17S-3RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	Yes	$402.00
STM17S-3RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	No	$324.00