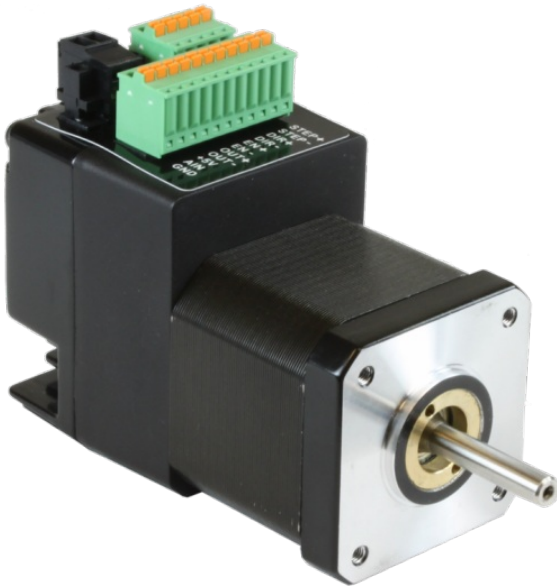


## STM17S-3AE

NEMA 17 Integrated Drive+Motor w/ Encoder



### Product Features

- Sophisticated current control
- Anti-resonance
- Torque ripple smoothing
- Microstep emulation
- NEMA 17 frame size
- Step & direction, CW/CCW pulse, and A/B quadrature pulse control modes
- Velocity (oscillator) control mode
- Streaming serial commands (SCL) control mode
- RS-232 port for programming and communications
- Built-in incremental encoder



### Description

The STM17S-3AE 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 STM17S-3AE integrated stepper can operate in the following control modes: step (pulse) & direction, velocity (oscillator), and streaming serial commands (SCL). (*STM17 integrated steppers do not support operation with the Applied Motion 4-axis and 8-axis SiNet Hubs*). 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 STM17S-3AE 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 STM17S-3AE comes with an RS-232 port for programming and serial communications.

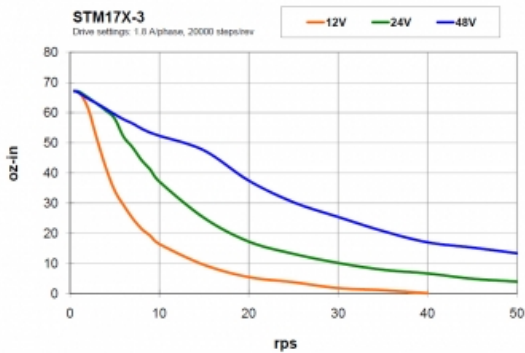
## Specifications

<b>Part Number:</b>	STM17S-3AE
<b>Supply Voltage:</b>	12-48 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Step & Direction Velocity (Oscillator) Streaming Commands
<b>Communication Ports:</b>	RS-232
<b>Encoder Feedback:</b>	Yes
<b>Step Resolution:</b>	Full Half Microstepping Microstep Emulation
<b>Idle Current Reduction:</b>	0-90%
<b>Setup Method:</b>	Software setup
<b>Digital Inputs:</b>	3
<b>Digital Outputs:</b>	1
<b>Analog Inputs:</b>	1 single-ended
<b>Circuit Protection:</b>	Short circuit Over-voltage Under-voltage Over-temp
<b>Status LEDs:</b>	1 red, 1 green
<b>Frame Size:</b>	NEMA 17
<b>Holding Torque:</b>	68 oz-in
<b>Step Angle:</b>	1.8 deg
<b>Rotor Inertia:</b>	1.16E-03 oz-in-sec <sup>2</sup>
<b>Length:</b>	3.19 inches
<b>Weight:</b>	15.6 oz
<b>Operating Temperature Range:</b>	0-85 °C
<b>Ambient Temperature Range:</b>	0-40 °C
<b>Ambient Humidity:</b>	90% max, non-condensing
<b>Insulation Class:</b>	Class B (130 °C)

## Downloads

<b>Speed-Torque Curves:</b>	 <a href="#">STM17-3_torque_curves.pdf</a>
<b>Manuals:</b>	 <a href="#">STM17_Hardware_Manual.pdf</a>  <a href="#">STM17_Quick_Setup_Guide.pdf</a>  <a href="#">Host Command Reference Rev I.pdf</a>
<b>Datasheet:</b>	<a href="http://s3.amazonaws.com/applied-motion-pdf/STM17S-3AE.pdf">http://s3.amazonaws.com/applied-motion-pdf/STM17S-3AE.pdf</a>
<b>Family Datasheet:</b>	 <a href="#">STM-Datasheet-925-0009.pdf</a>
<b>2D Drawing:</b>	 <a href="#">STM17S-3X_3D.pdf</a>  <a href="#">STM17S-Q-C-3XX_RevB.pdf</a>
<b>3D Drawing:</b>	 <a href="#">STM17S-3X_Simple.igs</a>  <a href="#">STM17X-3X_NEW.igs</a>
<b>Agency Approvals:</b>	 <a href="#">STM17_23_24_CE_DOC.pdf</a>
<b>Application Notes:</b>	 <a href="#">APPN0026B-LabVIEW-communication-using-streaming-commands.zip</a>  <a href="#">APPN0018_EZ-Series-Touchpanel-HMI.zip</a>

## Torque Curves



## Software

<b>Software:</b>	<a href="#">SCL Utility</a> <a href="#">ST Configurator™</a>
<b>Sample Code:</b>	 <a href="#">scldemo.zip</a>

## Products in the Series *STM17 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
<a href="#">STM17C-3CE</a>	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	Yes	\$470.00
<a href="#">STM17C-3CN</a>	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	No	\$395.00
<a href="#">STM17Q-1AE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	Yes	\$347.00
<a href="#">STM17Q-1AN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	No	\$272.00
<a href="#">STM17Q-1RE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	Yes	\$353.00
<a href="#">STM17Q-1RN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	No	\$278.00
<a href="#">STM17Q-2AE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	Yes	\$350.00
<a href="#">STM17Q-2AN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	No	\$275.00
<a href="#">STM17Q-2RE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	Yes	\$356.00
<a href="#">STM17Q-2RN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	No	\$281.00
<a href="#">STM17Q-3AE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	Yes	\$353.00
<a href="#">STM17Q-3AN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	No	\$288.00
<a href="#">STM17Q-3RE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	Yes	\$360.00
<a href="#">STM17Q-3RN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	No	\$295.00
<a href="#">STM17R-3ND</a>	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	\$118.00
<a href="#">STM17R-3NE</a>	NEMA 17	12-48 VDC	Step & Direction	68	NA	Yes	\$192.00
<a href="#">STM17R-3NN</a>	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	\$117.00
<a href="#">STM17S-1AE</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	Yes	\$317.00
<a href="#">STM17S-1AN</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	No	\$242.00
<a href="#">STM17S-1RE</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	Yes	\$325.00
<a href="#">STM17S-1RN</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	No	\$250.00
<a href="#">STM17S-2AE</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	Yes	\$324.00
<a href="#">STM17S-2AN</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	No	\$249.00
<a href="#">STM17S-2RE</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-485	Yes	\$331.00
<a href="#">STM17S-2RN</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-485	No	\$256.00
<a href="#">STM17S-3AE</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	Yes	\$328.00
<a href="#">STM17S-3AN</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	No	\$263.00
<a href="#">STM17S-3RE</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	Yes	\$335.00

<a href="#">STM17S-3RN</a>	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	No	\$270.00
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