



**Applied
Motion
Products**

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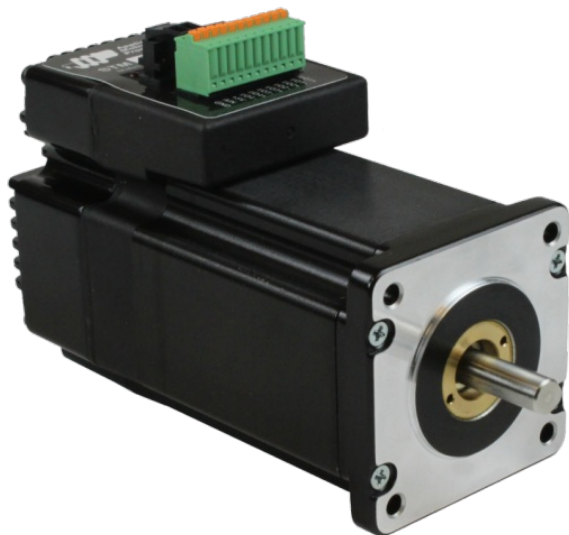
Product Datasheet

www.Applied-Motion.com

STM24SF-3AE

NEMA 24 Integrated Drive+Motor w/ Encoder

1pc. - 474.00
50pc. - 355.50



Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 24 frame size*
- *Step & direction, CW/CCW pulse, and A/B quadrature control modes*
- *Oscillator (velocity) control mode*
- *Streaming serial commands*
- *RS-232 port for programming and communications*
- *Built-in incremental encoder*



Description

The STM24SF-3AE 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 STM24SF-3AE integrated stepper can operate in the following control modes: step (pulse) & direction, velocity (oscillator), and streaming serial commands (SCL). (*STM24 integrated steppers do not support stored-program operation with the Applied Motion 4-axis and 8-axis SiNet Hubs*). 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 STM24SF-3AE comes with 4 digital I/O points, called Flex I/O points, because each point can be individually defined as an input or an output. As inputs, the Flex I/O points 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. When defined as digital outputs, the Flex I/O points 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 STM24SF-3AE comes with an RS-232 port for programming and serial communications.


Please note that 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:	STM24SF-3AE
Supply Voltage:	12-70 VDC
Supply Voltage Type:	DC
Control Modes:	Step & Direction Velocity (Oscillator) Streaming Commands
Communication Ports:	RS-232
Encoder Feedback:	Yes
Step Resolution:	Full Half Microstepping Microstep Emulation
Idle Current Reduction:	0-90%
Setup Method:	Software setup
Digital Inputs:	4 Flex I/O (shared with outputs)
Digital Outputs:	4 Flex I/O (shared with inputs)
Analog Inputs:	1 single-ended
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 70 °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:

 [STM24 Hardware Manual_920-0044E.pdf](#)
 [Host Command Reference Rev I.pdf](#)
 [STM23_24_S_Q_QuickSetup_920-0020E.pdf](#)



Datasheet:

<http://s3.amazonaws.com/applied-motion-pdf/STM24SF-3AE.pdf>

Family Datasheet:

 [STM-Datasheet-925-0009.pdf](#)

2D Drawing:

 [STM24_3D_Model-Simple.pdf](#)
 [STM24X-3X_2D.pdf](#)



3D Drawing:

 [STM24_3D_model.igs](#)

Agency Approvals:

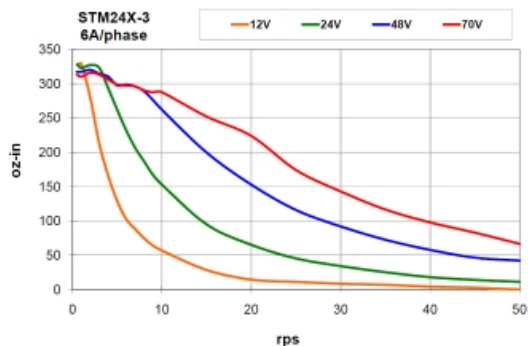
 [STM17_23_24_CE_DOC.pdf](#)

Application Notes:

 [APPN0018_EZ-Series-Touchpanel-HMI.zip](#)
 [APPN0015_Make-a-serial-programming-cable.pdf](#)

Torque Curves

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



Software

Software:

[SCL Utility](#)
[ST Configurator™](#)

Sample Code:

 [scldemo.zip](#)

STM24SF-3AE	
Part No. STM24SF-3AE	
1pc.	\$474.00
25pc.	\$407.64
50pc.	\$355.50
100pc.	Contact us for 100+ piece pricing.

Products in the Series *STM24 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
STM24IP-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	Yes	\$626.00 / \$469.50
STM24IP-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	No	\$551.00 / \$413.25
STM24Q-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	Yes	\$576.00 / \$432.00
STM24Q-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	No	\$501.00 / \$375.75
STM24QF-3AE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	\$564.00 / \$423.00
STM24QF-3AN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	No	\$489.00 / \$366.75
STM24QF-3RE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	Yes	\$572.00 / \$429.00
STM24QF-3RN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	No	\$497.00 / \$372.75
STM24S-3EE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	\$486.00 / \$364.50
STM24S-3EN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	No	\$411.00 / \$308.25
STM24SF-3AE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	Yes	\$474.00 / \$355.50
STM24SF-3AN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	No	\$399.00 / \$299.25
STM24SF-3RE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	Yes	\$482.00 / \$361.50
STM24SF-3RN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	No	\$407.00 / \$305.25