



**Applied  
Motion  
Products**

Applied Motion Products, Inc.  
404 Westridge Dr.  
Watsonville, CA 95076, USA

1-888-662-1173  
Tel (831) 761-6555  
Fax (831) 761-6544

**Product Datasheet**

[www.Applied-Motion.com](http://www.Applied-Motion.com)

## SWM24SF-3AE

IP65 Rated NEMA 24 Integrated Drive+Motor

1pc. - 637.00  
50pc. - 477.75



### Product Features

- Rated IP65 for wet and dusty environments
- M12 connectors
- 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 SWM24SF-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 IP65 rated 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 SWM24SF-3AE integrated stepper can operate in the following control modes: step (pulse) & direction, velocity (oscillator), and streaming serial commands (SCL). (SWM24 integrated steppers do not support stored-program operation with the Applied Motion 4-axis and 8-axis SiNet Hubs). All SWM24 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 SWM24SF-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 SWM24SF-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

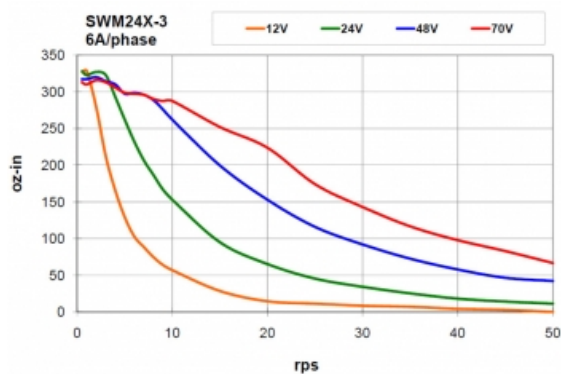
<b>Part Number:</b>	SWM24SF-3AE
<b>Supply Voltage:</b>	12-70 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Step & Direction Velocity (Oscillator) Streaming Commands
<b>Communication Ports:</b>	RS-232
<b>Encoder Feedback:</b>	Yes
<b>Step Resolution:</b>	Full Half Microstepping Microstep Emulation
<b>Idle Current Reduction:</b>	0-90%
<b>Setup Method:</b>	Software setup
<b>Digital Inputs:</b>	4 Flex I/O (shared with outputs)
<b>Digital Outputs:</b>	4 Flex I/O (shared with inputs)
<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 24
<b>Holding Torque:</b>	340 oz-in
<b>Step Angle:</b>	1.8 deg
<b>Rotor Inertia:</b>	1.27E-02 oz-in-sec <sup>2</sup>
<b>Length:</b>	5.03 inches
<b>Weight:</b>	56 oz
<b>Operating Temperature Range:</b>	-20 to 50 °C
<b>Ambient Temperature Range:</b>	0 to 40 °C
<b>Ambient Humidity:</b>	90%
<b>Insulation Class:</b>	Class B (130 °C)
<b>Maximum Radial Load:</b>	NA lbs
<b>Maximum Thrust Load:</b>	NA lbs
<b>Shaft Bore:</b>	0.8810 in ± 0.0010 in

Shaft Run Out:	0.0012 inch T.I.R. max
Radial Play:	0.0008 inch max w/ 1.1lb load
End Play:	0.003 inch max w/ 1.1lb load
Perpendicularity:	0.004 inches inch
Concentricity:	0.002 inches inch

## Downloads

Speed-Torque Curves:	 <a href="#">SWM24-3 torque curve.pdf</a>
Manuals:	 <a href="#">SWM24 Hardware Manual_920-0068B.pdf</a>  <a href="#">SWM24_FlexIO_QuickSetup_920-0069C.pdf</a>
Datasheet:	<a href="http://s3.amazonaws.com/applied-motion-pdf/SWM24SF-3AE.pdf">http://s3.amazonaws.com/applied-motion-pdf/SWM24SF-3AE.pdf</a>
2D Drawing:	 <a href="#">SWM24_Simple_3Dpdf.pdf</a>  <a href="#">SWM24x-3Ax_RevC.pdf</a>
3D Drawing:	 <a href="#">SWM24_Simple_10-31-13.igs</a>

## Torque Curves



## Software

Software:	<a href="#">DSP Firmware Downloader</a> <a href="#">SCL Utility</a> <a href="#">ST Configurator™</a>
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SWM24SF-3AE Part No. SWM24SF-3AE	
1pc.	\$637.00
25pc.	\$547.82
50pc.	\$477.75
100pc.	<a href="#">Contact us</a> for 100+ piece pricing.

Products in the Series *SWM24 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
<a href="#">SWM24IP-3EE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet	Yes	\$857.00 / \$642.75
<a href="#">SWM24Q-3EE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	Yes	\$794.00 / \$595.50
<a href="#">SWM24QF-3AE</a>	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	\$772.00 / \$579.00
<a href="#">SWM24S-3EE</a>	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	\$659.00 / \$494.25
<a href="#">SWM24SF-3AE</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	Yes	\$637.00 / \$477.75