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Product Datasheet

www.Applied-Motion.com

STM23S-2AE

NEMA 23 Integrated Drive+Motor w/ Encoder

1pc. - 350.00
50pc. - 262.50



Product Features

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

Description

The STM23S-2AE integrated stepper is a drive+motor unit, fusing a NEMA 23 step motor and a sophisticated 5.0 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 STM23S-2AE integrated stepper can operate in the following control modes: step (pulse) & direction, velocity (oscillator), streaming serial commands (SCL), and operation with an Applied Motion 4-axis or 8-axis SiNet Hub. All STM23 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 STM23S-2AE 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 STM23 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 STM23S-2AE comes with an RS-232 port for programming and serial communications.

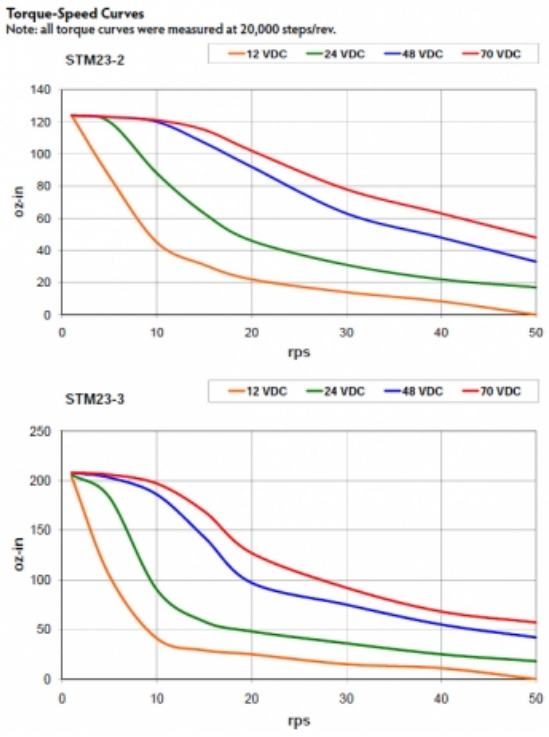
Specifications

Part Number:	STM23S-2AE
Supply Voltage:	12-70 VDC
Supply Voltage Type:	DC
Control Modes:	Step & Direction Velocity (Oscillator) Streaming Commands SiNet Hub Compatible
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:	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 23
Holding Torque:	125 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	3.68E-03 oz-in-sec^2
Length:	3.64 inches
Weight:	30 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 ºC)

Downloads

Speed-Torque Curves:	STM23-speed-torque.pdf
Manuals:	STM23_Hardware_Manual_920-0021.pdf STM23_24_S_Q_QuickSetup_920-0020E.pdf Host Command Reference Rev I.pdf
Datasheet:	http://s3.amazonaws.com/applied-motion-pdf/STM23S-2AE.pdf
Family Datasheet:	STM-Datasheet-925-0009.pdf
2D Drawing:	STM23S-2XX RevC.pdf STM23X-2AX_3D.pdf
3D Drawing:	STM23S-2_5-14.igs
Agency Approvals:	STM17_23_24_CE_DOC.pdf
Application Notes:	APPN0021_5V-Keepalive-Circuit.pdf APPN0018_EZ-Series-Touchpanel-HMI.zip APPN0015_Make-a-serial-programming-cable.pdf

Torque Curves



Software

Software:	SCL Utility ST Configurator™
Sample Code:	scldemo.zip

Pricing

	STM23S-2AE Part No. STM23S-2AE
1pc.	$350.00
25pc.	$301.00
50pc.	$262.50
100pc.	Contact us for 100+ piece pricing.

Products in the Series *STM23 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
STM23C-3CE	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	Yes	$535.00 / $401.25
STM23C-3CN	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	No	$460.00 / $345.00
STM23IP-2EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	125	Ethernet, EtherNet/IP	Yes	$525.00 / $393.75
STM23IP-2EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	125	Ethernet, EtherNet/IP	No	$450.00 / $337.50
STM23IP-3EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	210	Ethernet, EtherNet/IP	Yes	$535.00 / $401.25
STM23IP-3EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	210	Ethernet, EtherNet/IP	No	$460.00 / $345.00
STM23Q-2AE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	Yes	$440.00 / $330.00
STM23Q-2AN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	No	$365.00 / $273.75
STM23Q-2EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	125	Ethernet	Yes	$452.00 / $339.00
STM23Q-2EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	125	Ethernet	No	$377.00 / $282.75
STM23Q-2RE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	125	RS-485	Yes	$447.00 / $335.25
STM23Q-2RN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	125	RS-485	No	$372.00 / $279.00
STM23Q-3AE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	210	RS-232	Yes	$456.00 / $342.00
STM23Q-3AN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	210	RS-232	No	$381.00 / $285.75
STM23Q-3EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	210	Ethernet	Yes	$468.00 / $351.00
STM23Q-3EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	210	Ethernet	No	$393.00 / $294.75
STM23Q-3RE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	210	RS-485	Yes	$463.00 / $347.25
STM23Q-3RN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	210	RS-485	No	$388.00 / $291.00
STM23R-2ND	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	$172.00 / $172.00
STM23R-2NE	NEMA 23	12-70 VDC	Step & Direction	125	NA	Yes	$219.00 / $219.00
STM23R-2NN	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	$172.00 / $172.00
STM23R-3ND	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	$189.00 / $189.00
STM23R-3NE	NEMA 23	12-70 VDC	Step & Direction	210	NA	Yes	$230.00 / $230.00
STM23R-3NN	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	$189.00 / $189.00
STM23S-2AE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	125	RS-232	Yes	$350.00 / $262.50

STM23S-2AN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	125	RS-232	No	$275.00 / $206.25
STM23S-2EE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	Ethernet	Yes	$362.00 / $271.50
STM23S-2EN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	Ethernet	No	$287.00 / $215.25
STM23S-2RE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	RS-485	Yes	$357.00 / $267.75
STM23S-2RN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	RS-485	No	$282.00 / $211.50
STM23S-3AE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	210	RS-232	Yes	$366.00 / $274.50
STM23S-3AN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	210	RS-232	No	$291.00 / $218.25
STM23S-3EE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	Ethernet	Yes	$378.00 / $283.50
STM23S-3EN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	Ethernet	No	$303.00 / $227.25
STM23S-3RE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	RS-485	Yes	$373.00 / $279.75
STM23S-3RN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	RS-485	No	$298.00 / $223.50
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
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