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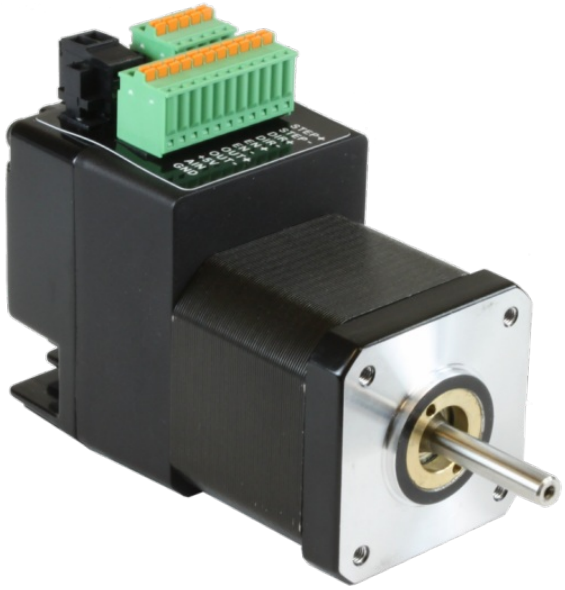
Product Datasheet

www.Applied-Motion.com

STM17Q-3AE

NEMA 17 Integrated Drive+Motor w/ Q Programming & Encoder

1pc. - 353.00
50pc. - 264.75



Product Features

- Sophisticated current control
- Anti-resonance
- Torque ripple smoothing
- Microstep emulation
- NEMA 17 frame size
- Q programming control mode for stand-alone operation
- Modbus/RTU for easy PLC and HMI communication
- Capable of all “S” control modes
- RS-232 port for programming and communications
- Built-in incremental encoder

Description

The STM17Q-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 STM17Q-3AE integrated stepper can operate in all of the same control modes as the S option, plus the ability to run a Q program stored in non-volatile memory. Q programs are created using Applied Motion's *Q programmer™* software, which provides powerful commands for motion, I/O, conditional processing, multi-tasking, math functions, and more. 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 STM17Q-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 STM17Q-3AE comes with an RS-232 port for programming and serial communications.

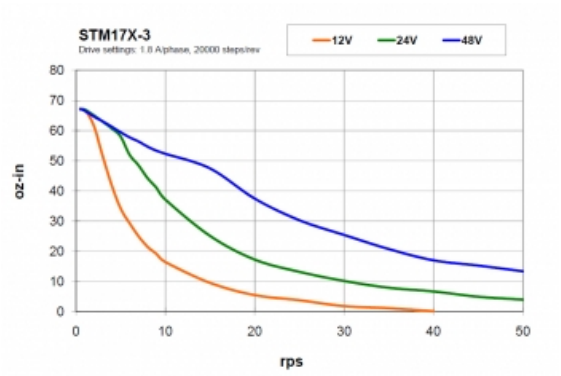
Specifications

Part Number:	STM17Q-3AE
Supply Voltage:	12-48 VDC
Supply Voltage Type:	DC
Control Modes:	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus
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 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:	STM17_Hardware_Manual.pdf STM17_Quick_Setup_Guide.pdf Host Command Reference Rev I.pdf ModbusManual_920-0072E.pdf
Datasheet:	http://s3.amazonaws.com/applied-motion-pdf/STM17Q-3AE.pdf
Family Datasheet:	STM-Datasheet-925-0009.pdf
2D Drawing:	STM17-3_RevA.pdf STM17S-3X_3D.pdf STM17X-3X_NEW_DESIGN_2D-drawing.pdf
3D Drawing:	STM17X-3X_NEW.igs STM17S-3X_Simple.igs
Agency Approvals:	STM17_23_24_CE_DOC.pdf
Application Notes:	APPN0019_Analog-positioning-using-Q-program.zip APPN0018_EZ-Series-Touchpanel-HMI.zip

Torque Curves



Software

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

Pricing

	STM17Q-3AE Part No. STM17Q-3AE
1pc.	$353.00
25pc.	$303.58
50pc.	$264.75
100pc.	Contact us for 100+ piece pricing.

Products in the Series *Modbus Products*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
5000-128	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	No	$467.00 / $350.25
5000-130	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	Yes	$540.00 / $405.00
5000-132	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	No	$570.00 / $427.50
5000-134	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	Yes	$625.00 / $468.75
5000-138	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	No	$515.00 / $386.25
5000-140	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	Yes	$580.00 / $435.00
5000-142	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	No	$630.00 / $472.50
5000-144	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	Yes	$690.00 / $517.50
STM17Q-1AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	Yes	$347.00 / $260.25
STM17Q-1AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	No	$272.00 / $204.00
STM17Q-1RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	Yes	$353.00 / $264.75
STM17Q-2AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	Yes	$350.00 / $262.50
STM17Q-2AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	No	$275.00 / $206.25
STM17Q-2RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	Yes	$356.00 / $267.00
STM17Q-2RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	No	$281.00 / $210.75
STM17Q-3AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	Yes	$353.00 / $264.75
STM17Q-3AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	No	$288.00 / $216.00
STM17Q-3RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	Yes	$360.00 / $270.00
STM17Q-3RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	No	$295.00 / $221.25
			Streaming Commands, Analog Positioning,				$440.00 /

STM23Q-2AE	NEMA 23	12-70 VDC	Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	Yes	$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-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-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
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
SWM24QF-3AE	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
TSM17C-1CG	NEMA 17	12-48 VDC	Q Programming, CANopen	40	CANopen	Yes	$547.00 / $410.25
TSM17C-2CG	NEMA 17	12-48 VDC	Q Programming, CANopen	59	CANopen	Yes	$551.00 / $413.25
TSM17C-3CG	NEMA 17	12-48 VDC	Q Programming, CANopen	73	CANopen	Yes	$554.00 / $415.50
TSM17P-1AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	40	RS-232	Yes	$378.00 / $283.50
TSM17P-2AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	59	RS-232	Yes	$380.00 / $285.00
TSM17P-3AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	73	RS-232	Yes	$383.00 / $287.25
TSM17Q-1AG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	40	RS-232	Yes	$412.00 / $309.00
TSM17Q-1RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	40	RS-485	Yes	$418.00 / $313.50
TSM17Q-2AG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-232	Yes	$415.00 / $311.25
TSM17Q-2RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-485	Yes	$391.00 / $293.25
TSM17Q-3AG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	73	RS-232	Yes	$418.00 / $313.50
TSM17Q-3RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	73	RS-485	Yes	$424.00 / $318.00
TSM23C-2CG	NEMA 23	12-70 VDC	Q Programming, CANopen	142	CANopen	Yes	$562.00 /

TSM23C-2CG	NEMA 23	12-70 VDC	Q Programming, CANopen	142	CANopen	Yes	$421.50
TSM23C-3CG	NEMA 23	12-70 VDC	Q Programming, CANopen	212	CANopen	Yes	$576.00 / $432.00
TSM23C-4CG	NEMA 23	12-70 VDC	Q Programming, CANopen	340	CANopen	Yes	$631.00 / $473.25
TSM23P-2AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	142	RS-232	Yes	$392.00 / $294.00
TSM23P-3AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	212	RS-232	Yes	$403.00 / $302.25
TSM23P-4AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	340	RS-232	Yes	$445.00 / $333.75
TSM23Q-2AG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-232	Yes	$507.00 / $380.25
TSM23Q-2RG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-485	Yes	$514.00 / $385.50
TSM23Q-3AG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	212	RS-232	Yes	$521.00 / $390.75
TSM23Q-3RG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	212	RS-485	Yes	$529.00 / $396.75
TSM23Q-4AG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-232	Yes	$576.00 / $432.00
TSM23Q-4RG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-485	Yes	$584.00 / $438.00

Products in the Series *STM17 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
STM17C-3CE	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	Yes	$470.00 / $352.50
STM17C-3CN	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	No	$408.00 / $306.00
STM17Q-1AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	Yes	$347.00 / $260.25
STM17Q-1AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	No	$272.00 / $204.00
STM17Q-1RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	Yes	$353.00 / $264.75
STM17Q-1RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	No	$278.00 / $208.50
STM17Q-2AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	Yes	$350.00 / $262.50
STM17Q-2AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	No	$275.00 / $206.25
STM17Q-2RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	Yes	$356.00 / $267.00
STM17Q-2RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	No	$281.00 / $210.75
STM17Q-3AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	Yes	$353.00 / $264.75
STM17Q-3AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	No	$288.00 / $216.00
STM17Q-3RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	Yes	$360.00 / $270.00
STM17Q-3RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	No	$295.00 / $221.25
STM17R-3ND	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00 / $118.00
STM17R-3NE	NEMA 17	12-48 VDC	Step & Direction	68	NA	Yes	$192.00 / $192.00
STM17R-3NN	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$117.00 / $117.00
STM17S-1AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	Yes	$317.00 / $237.75
STM17S-1AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	No	$242.00 / $181.50
STM17S-1RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	Yes	$325.00 / $243.75
STM17S-1RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	No	$250.00 / $187.50
STM17S-2AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	Yes	$324.00 / $243.00
STM17S-2AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	No	$249.00 / $186.75
STM17S-2RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-485	Yes	$331.00 / $248.25
STM17S-2RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-485	No	$256.00 / $192.00
STM17S-3AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	Yes	$328.00 / $246.00

STM17S-3AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	No	$263.00 / $197.25
STM17S-3RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	Yes	$335.00 / $251.25
STM17S-3RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	No	$270.00 / $202.50
TSM17C-1CG	NEMA 17	12-48 VDC	Q Programming, CANopen	40	CANopen	Yes	$547.00 / $410.25
TSM17C-2CG	NEMA 17	12-48 VDC	Q Programming, CANopen	59	CANopen	Yes	$551.00 / $413.25
TSM17C-3CG	NEMA 17	12-48 VDC	Q Programming, CANopen	73	CANopen	Yes	$554.00 / $415.50
TSM17P-1AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	40	RS-232	Yes	$378.00 / $283.50
TSM17P-2AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	59	RS-232	Yes	$380.00 / $285.00
TSM17P-3AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	73	RS-232	Yes	$383.00 / $287.25
TSM17Q-1AG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	40	RS-232	Yes	$412.00 / $309.00
TSM17Q-1RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	40	RS-485	Yes	$418.00 / $313.50
TSM17Q-2AG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-232	Yes	$415.00 / $311.25
TSM17Q-2RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-485	Yes	$391.00 / $293.25
TSM17Q-3AG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	73	RS-232	Yes	$418.00 / $313.50
TSM17Q-3RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	73	RS-485	Yes	$424.00 / $318.00
TSM23C-2CG	NEMA 23	12-70 VDC	Q Programming, CANopen	142	CANopen	Yes	$562.00 / $421.50
TSM23C-3CG	NEMA 23	12-70 VDC	Q Programming, CANopen	212	CANopen	Yes	$576.00 / $432.00
TSM23C-4CG	NEMA 23	12-70 VDC	Q Programming, CANopen	340	CANopen	Yes	$631.00 / $473.25
TSM23P-2AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	142	RS-232	Yes	$392.00 / $294.00
TSM23P-3AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	212	RS-232	Yes	$403.00 / $302.25
TSM23P-4AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	340	RS-232	Yes	$445.00 / $333.75
TSM23Q-2AG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-232	Yes	$507.00 / $380.25
TSM23Q-2RG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-485	Yes	$514.00 / $385.50
TSM23Q-3AG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	212	RS-232	Yes	$521.00 / $390.75
TSM23Q-3RG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	212	RS-485	Yes	$529.00 / $396.75
TSM23Q-4AG	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-232	Yes	$576.00 / $432.00
TSM23Q-			Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder				$584.00 /

TSM2SQ-4RG	NEMA 23	12-70 VDC	Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-485	Yes	$384.00 $438.00