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Product Datasheet
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TSM17Q-3AG

NEMA 17 Integrated Step Servo Motor w/ Q Programming & Modbus/RTU

1pc. - $388.00
50pc. - $291.00



Product **Features**

- *Step servo technology featuring space vector current control*
- *NEMA 17 frame size*
- *Q programming control mode for stand-alone operation*
- *Modbus/RTU for easy PLC and HMI communication*
- *"Boost" torque of 25-50% higher than holding torque*
- *RS-232 port for programming and communications*
- *Built-in 20,000 count/rev encoder for closed-loop control*

Description

The TSM17Q-3AG integrated step servo is a drive+motor unit, fusing a NEMA 17 step motor and a servo 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.

Step Servo technology combines the high torque capabilities of a step motor with the closed loop dynamic control of a servo system. The result is a highly customizable all-in-one motion control solution that operates quietly and efficiently, requiring only the minimum amount of current to maintain commanded position and velocity. Boost torque of 25-50% higher than the rated holding torque that is available from this integrated Step Servo motor increases the limits of acceleration, leading to faster cycle times. With software selectable servo loops that have been pre-tuned for various inertial loads, the TSM step servo can be applied in systems where a traditional stepper would not be capable of achieving the high accuracy required.

The TSM17Q-3AG integrated step servo can be operated in several different control modes, including Streaming Command mode using either SCL or Modbus/RTU, Pulse & Direction mode, and Velocity mode, plus it has 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 TSM17 units are setup, configured and tuned using Applied Motion's Step Servo Quick Tuner software with built in Q Programmer.

Each TSM17 integrated stepper comes with 8 digital inputs, 4 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 outputS 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 TSM17Q-3AG comes with an RS-232 port for programming and serial communications to allow for the use either Modbus/RTU or Applied Motion's Streaming Command Language (SCL). An integral 5000-line (20,000 count/rev) incremental encoder is housed inside the same enclosure as the drive electronics and used for closed-loop servo control to attain highly accurate position and velocity control. Encoder counts can be accessed over the network or from within the Q program using SCL registers.

Specifications

Part Number	TSM17Q-3AG
Supply Voltage	12-48 VDC
Supply Voltage Type	DC
Control Modes	• Analog Torque / Velocity • Streaming Commands • Analog Positioning • Encoder Following • Q Programming • Velocity Control • Modbus
Communication Ports	• RS-232
Encoder Feedback	Yes
Step Resolution	• Microstepping
Idle Current Reduction	Based on Torque demand
Setup Method	Software setup
Digital Inputs	8

Digital Outputs	4
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	73 oz-in
Step Angle	1.8 deg
Rotor Inertia	1.16E-03 oz-in-sec^2
Length	3.28 inches
Weight	15.5 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)
Maximum Radial Load	10 lbs
Maximum Thrust Load	Less than 1 lbs
Shaft Run Out	NA
Radial Play	NA
End Play	NA
Perpendicularity	NA
Concentricity	NA

Software

Software Downloads	• SCL Utility • Step Servo Quick Tuner
Sample Code	• scldemo.zip

Downloads

Manuals	TSM17S-Q HardwareManual_En-AMP_920-0084A.pdf TSM17S_Q_Quick Set-up guide_EN-AMP10.14_920-0077A.pdf Host Command Reference Rev I.pdf ModbusManual_920-0072E.pdf
Datasheet	No datasheets available for this product.
2D Drawing	TSM17Q-3AG_RevA.pdf
3D Drawing	TSM17Q-3AG.igs
Speed-Torque Curves	There are currently no Speed-Torque Curves documents available for this product.
Agency Approvals	There are no related agency approval documents at this time.
Application Notes	APPN0018_EZ-Series-Touchpanel-HMI.zip APPN0019_Analog-positioning-using-Q-program.zip APPN0034_ModbusRTU from Proface HMI with Q_0.zip

Pricing

	TSM17Q-3AG Part No. TSM17Q-3AG
1pc.	$388.00
25pc.	$333.68
50pc.	$291.00
100pc.	Contact us for 100+ piece pricing.

Products in the Series *Integrated Step Servo Products*

* Closeout priced products are highlighted in green.

* Items with web only pricing are highlighted in yellow.

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque (oz-in)	Communication Ports	Encoder Feedback	1pc./50pc.
TSM17C-1CG	NEMA 17	12-48 VDC	Q Programming CANopen	40	CANopen	Yes	$517.00 / $387.75
TSM17C-2CG	NEMA 17	12-48 VDC	Q Programming CANopen	59	CANopen	Yes	$521.00 / $390.75
TSM17C-3CG	NEMA 17	12-48 VDC	Q Programming CANopen	73	CANopen	Yes	$524.00 / $393.00
TSM17P-1AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	40	RS-232	Yes	$353.00 / $264.75
TSM17P-2AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	59	RS-232	Yes	$355.00 / $266.25
TSM17P-3AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	73	RS-232	Yes	$358.00 / $268.50
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	$382.00 / $286.50

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	$388.00 / $291.00
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	$385.00 / $288.75
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	$388.00 / $291.00
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	$394.00 / $295.50
TSM23C-2CG	NEMA 23	12-70 VDC	Q Programming CANopen	142	CANopen	Yes	$532.00 / $399.00
TSM23C-3CG	NEMA 23	12-70 VDC	Q Programming CANopen	212	CANopen	Yes	$546.00 / $409.50
TSM23C-4CG	NEMA 23	12-70 VDC	Q Programming CANopen	340	CANopen	Yes	$601.00 / $450.75
TSM23P-2AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	142	RS-232	Yes	$367.00 / $275.25
TSM23P-3AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	212	RS-232	Yes	$378.00 / $283.50
TSM23P-4AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	340	RS-232	Yes	$420.00 / $315.00
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	$477.00 / $357.75
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	$484.00 / $363.00
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	$491.00 / $368.25
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	$499.00 / $374.25
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	$546.00 / $409.50
			Analog Torque / Velocity Streaming Commands Analog Positioning				

TSM23Q-4RG	NEMA 23	12-70 VDC	Encoder Following Q Programming Velocity Control Modbus	340	RS-485	Yes	$554.00 / $415.50

Products in the Series *Modbus Products*

* Closeout priced products are highlighted in green.

* Items with web only pricing are highlighted in yellow.

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque (oz-in)	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	$391.00 / $293.25
STM17Q-1AN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	31	RS-232	No	$290.00 / $217.50

STM17Q-1RE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	31	RS-485	Yes	$403.00 / $302.25
STM17Q-2AE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-232	Yes	$403.00 / $302.25
STM17Q-2AN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-232	No	$299.00 / $224.25
STM17Q-2RE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-485	Yes	$415.00 / $311.25
STM17Q-2RN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-485	No	$311.00 / $233.25
STM17Q-3AE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-232	Yes	$420.00 / $315.00
STM17Q-3AN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-232	No	$314.00 / $235.50
STM17Q-3RE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-485	Yes	$432.00 / $324.00
STM17Q-3RN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-485	No	$326.00 / $244.50
STM23Q-2AE	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming SiNet Hub Compatible Modbus	125	RS-232	Yes	$571.00 / $428.25
STM23Q-2AN	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming SiNet Hub Compatible Modbus	125	RS-232	No	$422.00 / $316.50
STM23Q-2RE	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	125	RS-485	Yes	$603.00 / $452.25
STM23Q-2RN	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	125	RS-485	No	$486.00 / $364.50
STM23Q-3AE	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming SiNet Hub Compatible Modbus	210	RS-232	Yes	$591.00 / $443.25
STM23Q-3AN	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming SiNet Hub Compatible Modbus	210	RS-232	No	$447.00 / $335.25
STM23Q-3RE	NEMA 23	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	210	RS-485	Yes	$610.00 / $457.50
			Streaming Commands				

STM23Q-3RN	NEMA 23	12-70 VDC	Analog Positioning Encoder Following Q Programming Modbus	210	RS-485	No	$504.00 / $378.00
STM24QF-3AE	NEMA 24	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	340	RS-232	Yes	$623.00 / $467.25
STM24QF-3AN	NEMA 24	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	340	RS-232	No	$499.00 / $374.25
STM24QF-3RE	NEMA 24	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	340	RS-485	Yes	$682.00 / $511.50
STM24QF-3RN	NEMA 24	12-70 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	340	RS-485	No	$539.00 / $404.25
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	$790.00 / $592.50
TSM17C-1CG	NEMA 17	12-48 VDC	Q Programming CANopen	40	CANopen	Yes	$517.00 / $387.75
TSM17C-2CG	NEMA 17	12-48 VDC	Q Programming CANopen	59	CANopen	Yes	$521.00 / $390.75
TSM17C-3CG	NEMA 17	12-48 VDC	Q Programming CANopen	73	CANopen	Yes	$524.00 / $393.00
TSM17P-1AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	40	RS-232	Yes	$353.00 / $264.75
TSM17P-2AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	59	RS-232	Yes	$355.00 / $266.25
TSM17P-3AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	73	RS-232	Yes	$358.00 / $268.50
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	$382.00 / $286.50
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	$388.00 / $291.00
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	$385.00 / $288.75
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	$388.00 / $291.00
TSM17Q-3RG	NEMA 17	12-48 VDC	Analog Torque / Velocity Streaming Commands Analog Positioning Encoder Following Q Programming Velocity Control	73	RS-485	Yes	$394.00 / $295.50

			Modbus				
TSM23C-2CG	NEMA 23	12-70 VDC	Q Programming CANopen	142	CANopen	Yes	$532.00 / $399.00
TSM23C-3CG	NEMA 23	12-70 VDC	Q Programming CANopen	212	CANopen	Yes	$546.00 / $409.50
TSM23C-4CG	NEMA 23	12-70 VDC	Q Programming CANopen	340	CANopen	Yes	$601.00 / $450.75
TSM23P-2AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	142	RS-232	Yes	$367.00 / $275.25
TSM23P-3AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	212	RS-232	Yes	$378.00 / $283.50
TSM23P-4AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	340	RS-232	Yes	$420.00 / $315.00
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	$477.00 / $357.75
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	$484.00 / $363.00
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	$491.00 / $368.25
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	$499.00 / $374.25
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	$546.00 / $409.50
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	$554.00 / $415.50

Products in the Series *STM17 Integrated Steppers*

* Closeout priced products are highlighted in green.

* Items with web only pricing are highlighted in yellow.

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque (oz-in)	Communication Ports	Encoder Feedback	1pc./50pc.
STM17C-3CE	NEMA 17	12-48 VDC	CANopen	68	RS-232 CANopen	Yes	$513.00 / $384.75
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	$391.00 / $293.25
STM17Q-1AN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	31	RS-232	No	$290.00 / $217.50
			Streaming Commands				

STM17Q-1RE	NEMA 17	12-48 VDC	Analog Positioning Encoder Following Q Programming Modbus	31	RS-485	Yes	$403.00 / $302.25
STM17Q-1RN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	31	RS-485	No	$302.00 / $226.50
STM17Q-2AE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-232	Yes	$403.00 / $302.25
STM17Q-2AN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-232	No	$299.00 / $224.25
STM17Q-2RE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-485	Yes	$415.00 / $311.25
STM17Q-2RN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	54	RS-485	No	$311.00 / $233.25
STM17Q-3AE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-232	Yes	$420.00 / $315.00
STM17Q-3AN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-232	No	$314.00 / $235.50
STM17Q-3RE	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-485	Yes	$432.00 / $324.00
STM17Q-3RN	NEMA 17	12-48 VDC	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus	68	RS-485	No	$326.00 / $244.50
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	$326.00 / $244.50
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	$336.00 / $252.00
STM17S-1RN	NEMA 17	12-48 VDC	Step & Direction Velocity (Oscillator) Streaming Commands	31	RS-485	No	$251.00 / $188.25
STM17S-2AE	NEMA 17	12-48 VDC	Step & Direction Velocity (Oscillator) Streaming Commands	54	RS-232	Yes	$335.00 / $251.25
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	$345.00 / $258.75
STM17S-2RN	NEMA 17	12-48 VDC	Step & Direction Velocity (Oscillator) Streaming Commands	54	RS-485	No	$259.00 / $194.25
STM17S-3AE	NEMA 17	12-48 VDC	Step & Direction Velocity (Oscillator) Streaming Commands	68	RS-232	Yes	$347.00 / $260.25

STM17S-3AN	NEMA 17	12-48 VDC	Step & Direction Velocity (Oscillator) Streaming Commands	68	RS-232	No	$260.00 / $195.00
STM17S-3RE	NEMA 17	12-48 VDC	Step & Direction Velocity (Oscillator) Streaming Commands	68	RS-485	Yes	$358.00 / $268.50
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	$517.00 / $387.75
TSM17C-2CG	NEMA 17	12-48 VDC	Q Programming CANopen	59	CANopen	Yes	$521.00 / $390.75
TSM17C-3CG	NEMA 17	12-48 VDC	Q Programming CANopen	73	CANopen	Yes	$524.00 / $393.00
TSM17P-1AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	40	RS-232	Yes	$353.00 / $264.75
TSM17P-2AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	59	RS-232	Yes	$355.00 / $266.25
TSM17P-3AG	NEMA 17	12-48 VDC	Step & Direction Encoder Following	73	RS-232	Yes	$358.00 / $268.50
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	$382.00 / $286.50
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	$388.00 / $291.00
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	$385.00 / $288.75
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	$388.00 / $291.00
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	$394.00 / $295.50
TSM23C-2CG	NEMA 23	12-70 VDC	Q Programming CANopen	142	CANopen	Yes	$532.00 / $399.00
TSM23C-3CG	NEMA 23	12-70 VDC	Q Programming CANopen	212	CANopen	Yes	$546.00 / $409.50
TSM23C-4CG	NEMA 23	12-70 VDC	Q Programming CANopen	340	CANopen	Yes	$601.00 / $450.75
TSM23P-2AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	142	RS-232	Yes	$367.00 / $275.25
TSM23P-3AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	212	RS-232	Yes	$378.00 / $283.50
TSM23P-4AG	NEMA 23	12-70 VDC	Step & Direction Encoder Following	340	RS-232	Yes	$420.00 / $315.00
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	$477.00 / $357.75

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	$484.00 / $363.00
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	$491.00 / $368.25
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	$499.00 / $374.25
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	$546.00 / $409.50
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	$554.00 / $415.50