

TSM17Q-3AG

NEMA 17 Integrated StepSERVO™ Motor w/ Q Programming & Modbus/RTU

1pc. - 418.00
50pc. - 313.50



Product Features

- StepSERVO™ 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 StepSERVO™ 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](#) .

StepSERVO 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 StepSERVO 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 StepSERVO 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.

What's in the Box?

- TSM17Q-3AG integrated motor
- Mating power connector (2-pin)
- 3004-308-2M I/O cable (for details see Accessories below)
- 3004-259 programming cable
- Screwdriver
- Quick Setup Guide (also available in Downloads)

NOT included:

- DC power supply (required), see Power Supplies below
- Additional accessories available below

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
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 °C)
Maximum Radial Load:	10 lbs
Maximum Thrust Load:	Less than 1 lbs

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:	http://s3.amazonaws.com/applied-motion-pdf/TSM17Q-3AG.pdf
2D Drawing:	TSM17Q-3AG_RevA.pdf
3D Drawing:	TSM17-3.igs
Application Notes:	StepSERVO Tuning Guide_962-0002A.pdf APPN0034B-ModbusRTU-from-Proface-HMI-with-Q.zip APPN0026B-LabVIEW-communication-using-streaming-commands.zip APPN0019_Analog-positioning-using-Q-program.zip APPN0018_EZ-Series-Touchpanel-HMI.zip

Software

Software:	SCL Utility Step-Servo Quick Tuner
Sample Code:	scldemo.zip

Pricing

TSM17Q-3AG	
Part No. TSM17Q-3AG	
1pc.	\$418.00
25pc.	\$359.48
50pc.	\$313.50
100pc.	Request a Quote for 100+ piece pricing.

Products in the Series *StepSERVO™ Integrated Motors*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1 pc.
IP-2EG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	142	Ethernet, EtherNet/IP	Yes	\$575.00
IP-3EG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	212	Ethernet, EtherNet/IP	Yes	\$585.00
IP-4EG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	340	Ethernet, EtherNet/IP	Yes	\$595.00
Q-1RM	NEMA 11	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus	9.2	RS-485	Yes	\$257.00
Q-2RM	NEMA 11	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus	11.3	RS-485	Yes	\$264.00
Q-3RM	NEMA 11	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus	17.7	RS-485	Yes	\$271.00
C-1CG	NEMA 17	12-48 VDC	Q Programming, CANopen	40	CANopen	Yes	\$547.00
C-2CG	NEMA 17	12-48 VDC	Q Programming, CANopen	59	CANopen	Yes	\$551.00
C-3CG	NEMA 17	12-48 VDC	Q Programming, CANopen	73	CANopen	Yes	\$554.00
P-1AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	40	RS-232	Yes	\$378.00
P-2AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	59	RS-232	Yes	\$380.00
P-3AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	73	RS-232	Yes	\$383.00
Q-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
Q-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
Q-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
Q-2RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-485	Yes	\$421.00
Q-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
Q-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
C-2CG	NEMA 23	12-70 VDC	Q Programming, CANopen	142	CANopen	Yes	\$562.00
C-3CG	NEMA 23	12-70 VDC	Q Programming, CANopen	212	CANopen	Yes	\$576.00
C-4CG	NEMA 23	12-70 VDC	Q Programming, CANopen	340	CANopen	Yes	\$631.00
IP-2AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	142	RS-232	Yes	\$392.00
IP-3AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	212	RS-232	Yes	\$403.00
IP-4AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	340	RS-232	Yes	\$445.00
Q-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

Part #	Frame Size	Supply Voltage	Control Modes / Velocity, Streaming Commands, Analog Positioning,	Holding Torque	Communication Ports	Encoder Feedback	1pc.
Q-2AG	NEMA 23	12-70 VDC	Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-485	Yes	\$514.00
Q-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
Q-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
Q-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
Q-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
S-2AG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	142	RS-232	Yes	\$427.00
S-2RG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	142	RS-485	Yes	\$433.00
S-3AG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	212	RS-232	Yes	\$439.00
S-3RG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	212	RS-485	Yes	\$446.00
S-4AG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	340	RS-232	Yes	\$485.00
S-4RG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	340	RS-485	Yes	\$491.00
C-1CG	NEMA 24	12-70 VDC	Q Programming, CANopen	116	RS-232, CANopen	Yes	\$824.00
C-3CG	NEMA 24	12-70 VDC	Q Programming, CANopen	340	RS-232, CANopen	Yes	\$868.00
IP-1EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	116	Ethernet, EtherNet/IP	Yes	\$854.00
IP-3EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	340	Ethernet, EtherNet/IP	Yes	\$898.00
Q-1AG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	116	RS-232	Yes	\$763.00
Q-1EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control	116	Ethernet	Yes	\$785.00
Q-1RG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	116	RS-485	Yes	\$774.00
Q-3AG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-232	Yes	\$807.00
Q-3EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control	340	Ethernet	Yes	\$829.00
Q-4EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control	340	Ethernet	Yes	\$837.00

Model	NEMA 24 Frame Size	12-70 VDC Supply Voltage	Control Modes Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	Holding Torque 340	Communication Ports RS-485	Encoder Feedback Yes	Price 1pc.
S-1AG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	116	RS-232	Yes	\$636.00
S-1EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	116	Ethernet	Yes	\$658.00
S-1RG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	116	RS-485	Yes	\$647.00
S-3AG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	340	RS-232	Yes	\$672.00
S-3EG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	340	Ethernet	Yes	\$694.00
S-3RG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Velocity Control	340	RS-485	Yes	\$683.00

Products in the Series *Modbus Products*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
Q-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
Q-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
Q-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
Q-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
Q-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
Q-140	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus	NA	RS-232	Yes	\$580.00
Q-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
Q-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
Q-1AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	Yes	\$347.00
Q-1AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	No	\$272.00
Q-1RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	Yes	\$353.00
Q-2AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	Yes	\$350.00
Q-2AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	No	\$275.00
Q-2RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	Yes	\$356.00
Q-2RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	No	\$281.00
Q-3AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	Yes	\$353.00
Q-3AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	No	\$288.00
Q-3RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	Yes	\$360.00
Q-3RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	No	\$295.00

Order	Frame Size	Supply Voltage	Programming, Modbus Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
Q-2AE	NEMA 23	12-70 VDC	Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	Yes	\$440.00
Q-2AN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	No	\$365.00
Q-2RE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	125	RS-485	Yes	\$447.00
Q-2RN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	125	RS-485	No	\$372.00
Q-3AE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	210	RS-232	Yes	\$456.00
Q-3AN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	210	RS-232	No	\$381.00
Q-3RE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	210	RS-485	Yes	\$463.00
Q-3RN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	210	RS-485	No	\$388.00
QF-3AE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	\$564.00
QF-3AN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	No	\$489.00
QF-3RE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	Yes	\$572.00
QF-3RN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	No	\$497.00
QF-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
C-1CG	NEMA 17	12-48 VDC	Q Programming, CANopen	40	CANopen	Yes	\$547.00
C-2CG	NEMA 17	12-48 VDC	Q Programming, CANopen	59	CANopen	Yes	\$551.00
C-3CG	NEMA 17	12-48 VDC	Q Programming, CANopen	73	CANopen	Yes	\$554.00
P-1AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	40	RS-232	Yes	\$378.00
P-2AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	59	RS-232	Yes	\$380.00
P-3AG	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	73	RS-232	Yes	\$383.00
Q-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
Q-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
Q-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
Q-2RG	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-485	Yes	\$421.00
Q-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
Q-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

Model	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	Price
Q-2CG	NEMA 23	12-70 VDC	Q Programming, CANopen	212	CANopen	Yes	\$562.00
Q-4CG	NEMA 23	12-70 VDC	Q Programming, CANopen	340	CANopen	Yes	\$631.00
IP-2AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	142	RS-232	Yes	\$392.00
IP-3AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	212	RS-232	Yes	\$403.00
IP-4AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	340	RS-232	Yes	\$445.00
IQ-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
IQ-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
IQ-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
IQ-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
IQ-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
IQ-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