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Product Datasheet

www.Applied-Motion.com

TXM24Q-3RG

IP65 Rated NEMA 24 Integrated StepSERVO™ Motor w/ Q Programming & Modbus/RTU

1pc. - 818.00
50pc. - 613.50



Product Features

- *StepSERVO™ technology featuring space vector current control*
- *Rated IP65 for wet and dusty environments*
- *M12 connectors*
- *NEMA 24 frame size*
- *Modbus/RTU for easy PLC and HMI communication*
- *Q programming control mode for stand-alone operation*
- *“Boost” torque of 25-50% higher than holding torque*
- *RS-485 port for programming and communications*
- *Built-in 20,000 count/rev encoder for closed-loop control*

Description

The TXM24Q-3RG integrated StepSERVO™ is a drive+motor unit, fusing a NEMA 24 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 TXM StepSERVO can be applied in systems where a traditional stepper would not be capable of achieving the high accuracy required.

The TXM24Q-3RG integrated StepSERVO motor features Q programmability for stand-alone operation as well as streaming command capability for dynamic system configuration and host communication. All drive+motor features can be accessed over the serial RS-485 connection, including more than 100 commands and 130 registers for controlling motion, I/O, configuration, polling, math, register manipulation, and Q programming. This integrated StepSERVO can be operated in several different control modes, including Streaming Command mode using either SCL, 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 TXM24 units are setup, configured and tuned using Applied Motion's Step-Servo Quick Tuner software with built in Q Programmer.

Each TXM24 integrated StepSERVO 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 TXM24Q-3RG comes with an RS-485 port for programming and communications. Commands can be streamed to this integrated motor using Applied Motion's proprietary serial command language (SCL).

All TXM24 models are RoHS compliant. The TXM motors also meet IP65 standards to ensure reliable operation in wet and dusty installation environments.

What's in the Box?

- TXM24Q-3RG integrated motor
- Quick Setup Guide (also available in Downloads)

NOT included:

- DC power supply (required), see Power Supplies below
- Mating cables (required), see Accessories below
- Regen clamp (optional), see Accessories below
- Additional accessories available below

Specifications

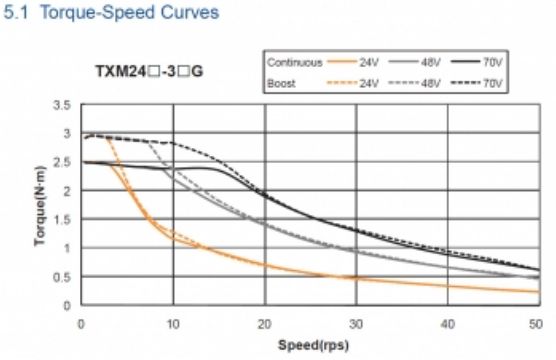
Part Number:	TXM24Q-3RG
Supply Voltage:	12-70 VDC
Supply Voltage Type:	DC
Control Modes:	Step & Direction Analog Torque / Velocity Streaming Commands Analog Positioning Encoder Following Q Programming Velocity Control Modbus
Communication Ports:	RS-485
Encoder Feedback:	Yes
Setup Method:	Software setup
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 24
Holding Torque:	340 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	1.27E-02 oz-in-sec^2
Length:	5.15 inches
Weight:	70.55 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)

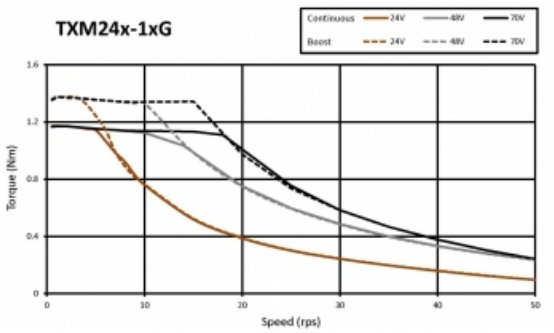
Downloads

Speed-Torque Curves:	TXM24-3_IP-Q-S_TorqueCurve.pdf
Manuals:	920-0092A_TXM24-S-Q_Quick_Setup-AMP.pdf Host Command Reference Rev I.pdf TXM24IP-Q-S-Ethernet-Hardware Manual_920-0089C.pdf ModbusManual_920-0072E.pdf
Datasheet:	http://s3.amazonaws.com/applied-motion-pdf/TXM24Q-3RG.pdf
2D Drawing:	TXM24Q-3RG_RevA.pdf
3D Drawing:	TXM24IP-Q-S-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

Torque Curves

5.1 Torque-Speed Curves





Note: all torque curves were measured at 20,000 steps/rev.
Note: 6 amp rating is continuous, 7.5 amp rating is boost

Software

Software:	Step-Servo Quick Tuner

Pricing

	TXM24Q-3RG Part No. TXM24Q-3RG
1pc.	$818.00
25pc.	$703.48
50pc.	$613.50

100pc.	Request a Quote for 100+ piece pricing.

TXM24Q-3RG

Part No. TXM24Q-3RG

Products in the Series *TXM StepSERVO™ IP65 Rated Integrated Motors*

er	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
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-3RG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-485	Yes	$818.00
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 *StepSERVO™ Integrated Motors*

r	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
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
P-2AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	142	RS-232	Yes	$392.00
P-3AG	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	212	RS-232	Yes	$403.00
P-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
			Analog Torque / Velocity, Streaming				

	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
	NEMA 23	12-70 VDC	Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	42	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-3RG	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q	340	RS-485	Yes	$818.00

er	Frame Size	Supply Voltage	Programming, Velocity Control, Modbus Control Modes	Holding Torque	Communication Ports	Encoder Feedback	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