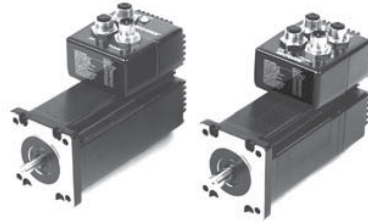
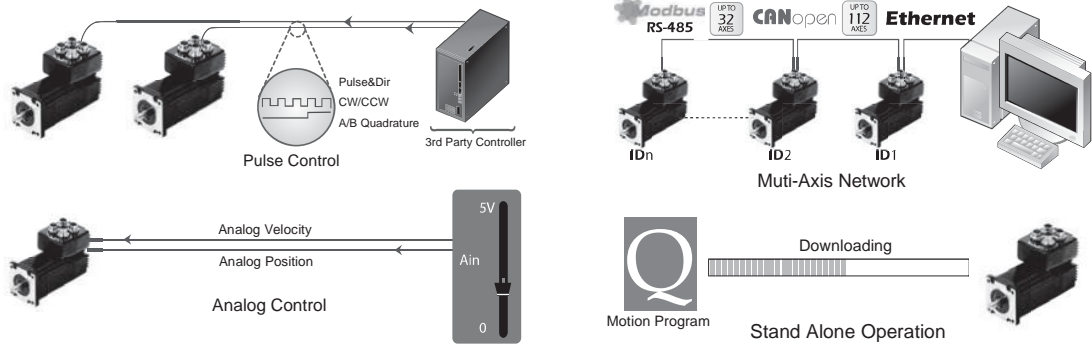


IP65 Type Integrated Step-Servo-TXM Series



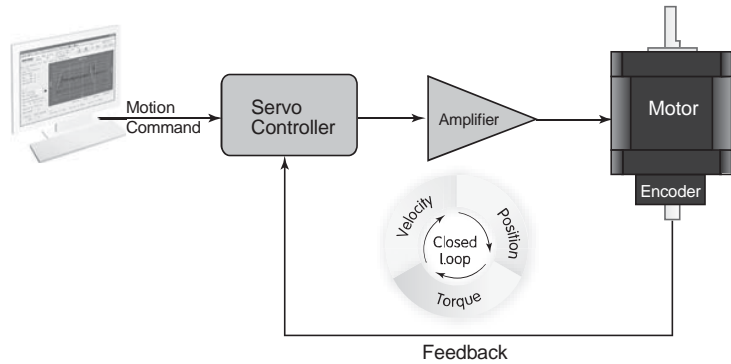
■ Features

Multi-functional Capability

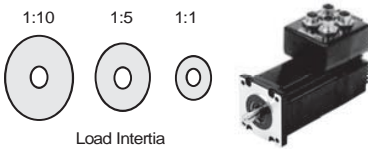


Closed Loop

- Very tight position and velocity control for the most demanding applications.
- Robust servo loops that tolerate wide fluctuation in load inertia and frictional loading.
- Precise positioning to within ± 1 count (0.018°) using high resolution (20000 counts/rev) encoder.



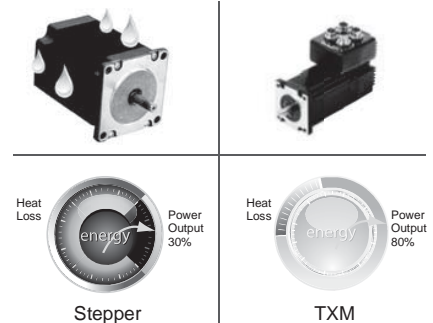
Easy Tuning



- Pre-defined tuning parameters for maximum control performance and stability.
- Easy selection list provides the level of control desired.
- In most cases NO extra manual tuning is required.

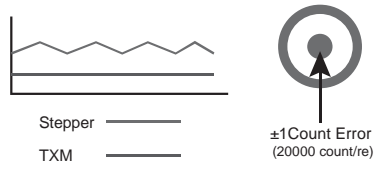
Lower Heating/High Efficiency

- Uses only the current required by the application, generating minimum heat output.
- When stand-still, current can reach nearly zero for extremely low heat output.
- Being able to use almost 100% of torque, allows for more efficient and compact motor usage.

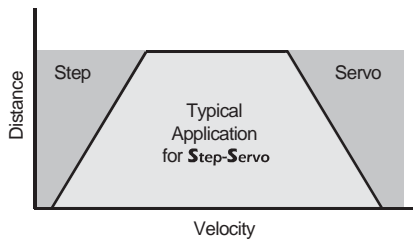


Smooth & Accurate

- Space vector current control with 5000 line high resolution encoder, gives smooth and quiet operation, especially at low speeds.
 - A feature never found with traditional stepping motors
- High stiffness due to the nature of the stepper motors combined with the highly responsive servo control
 - Accurate position control both while running and static positioning



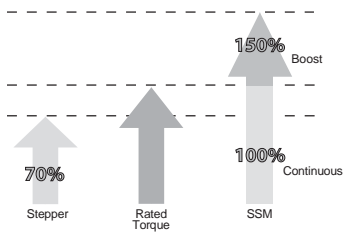
Fast Response



- When performing fast point-to-point moves, the high torque output and advanced servo control provides a very responsive system far exceeding what can be done with a conventional stepper system.

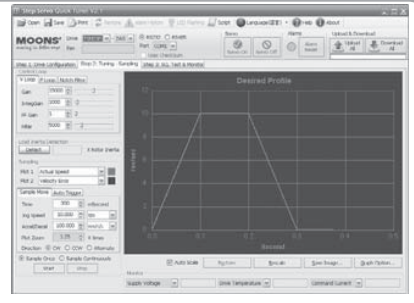
High Torque

- Because the TXM operates in full servo mode, all the available torque of the motor can be used.
- The motor can provide as much as 50% more torque in many applications. High torque capability often eliminates the need for gear reduction.
- Boost torque capability can provide as much as 50% more torque for short, quick moves.



Motion Monitoring

- For difficult control situations where performing a precise move is necessary, the **Step-Servo** Quick Tuner provide an easy to use interface for performing and monitoring the motion profile.
- Many common parameters such as Actual Speed or Position Error can be monitored to evaluate system performance.
- The monitoring is interactive with the servo tuning capability so that optimum performance can be achieved.




Step-Servo	Integrated TSM
	Integrated SSM
	IPBS Integrated TXM
Integrated Stepper Motor	Motor & Drive SS
	Pulse Input STM-H
	With Controller STM
	With Controller SWM
2-Phase Stepper Drive	IPBS Pulse Input SRAC
	With Controller STAC
	Pulse Input SR
	With Controller ST
3-Phase Stepper Drive	AC Input
	DC Input
	DC Input
Stepper Motor	2-Phase
	3-Phase
	Power Supplies
Accessories	Cables
	Software
Appendix	Glossary

TXM24 - IP65 Type Integrated Step-Servo

■ Specifications

Power Amplifier	
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Output Torque	TXM24□-3□G: Up to 2.4N•m Continuous(3.0 N•m Boost)
Power Supply	External 12 - 70 VDC power supply required
Protection	Over-voltage, under-voltage, over-temp, motor/wiring shorts (phase-to-phase, phase-to-ground)



Controller	
Electronic Gearing	Software selectable from 200 to 51200 steps/rev in increments of 2 steps/rev
Encoder Resolution	20000 counts/rev
Speed Range	Up to 3600 rpm
Filters	S/Q Type: Digital input noise filter, Analog input noise filter, Smoothing filter, PID filter, Notch filter C/IP Type: PID filter, Notch filter
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Modes of Operation	TXM24S: Step & direction, CW/CCW pulse, A/B quadrature pulse, velocity (oscillator, joystick), streaming commands(SCL) TXM24Q: All TXM24S modes of operation plus stored Q program execution TXM24C: CANopen CiA 301 CiA 402, plus running stored Q programs via MOONS'-specific CANopen objects TXM24IP: Ethernet/IP, plus running stored Q programs
Digital Inputs	S/Q/IP Type: Adjustable bandwidth digital noise rejection filter on all inputs STEP+/-: Optically isolated, 5-24 volt. Minimum pulse width = 250 ns, Maximum pulse frequency = 2 MHz Function: Step, CW step, A quadrature (encoder following), CW limit, CW jog, start/stop (oscillator mode), general purpose input DIR+/-: Optically isolated, 5-24 volt. Minimum pulse width = 250 ns, Maximum pulse frequency = 2 MHz Function: Direction, CCW step, B quadrature (encoder following), CCW limit, CCW jog, direction (oscillator mode), general purpose input EN+/-: Optically isolated, 5-24 volt. Minimum pulse width = 100 μs, Maximum pulse frequency = 10 KHz Function: Enable, alarm/fault reset, speed 1/speed 2 (oscillator mode), general purpose input C Type: IN1+/-: Optically isolated, 5-24 volt. Minimum pulse width = 250 ns, Maximum pulse frequency = 2 MHz Function: CW limit, CW jog, general purpose input IN2+/-: Optically isolated, 5-24 volt. Minimum pulse width = 250 ns, Maximum pulse frequency = 2 MHz Function: CCW limit, CCW jog, general purpose input IN3, IN4, IN5: Optically isolated, 5-24 volt. Minimum pulse width = 100 μs, Maximum pulse frequency = 10 KHz Function: CCW limit, CCW jog, general purpose input
Digital Output	S/Q/IP Type: OUT+/-: Optically isolated, 30V/100 mA max. Function: Fault, motion, tach, in position, brake, or general purpose programmable C Type: OUT1: Optically isolated, 30V/100 mA max. Function: Fault, general purpose programmable OUT2: Optically isolated, 30V/100 mA max. Function: Motion, tach, in position, general purpose programmable OUT3: Optically isolated, 30V/100 mA max. Function: Brake, general purpose programmable
Analog Input	AIN referenced to GND. Range = 0 to 5 VDC. Resolution = 12 bits. (Not present on TXM24C).
Communication Interface	S Type: RS-232, RS-485 or Ethernet Q Type: RS-232, RS-485, Modbus/RTU or Ethernet C Type: CANOpen & RS-232 IP Type: EtherNet/IP

Physical	
Ambient Temperature	0 to 40°C (32 to 104°F) When mounted to a suitable heat sink
Humidity	90% Max., non-condensing
Mass	TXM24□-3□G: approximately 1800 g
Rotor Inertia	TXM24□-3□G: 900 g•cm ²

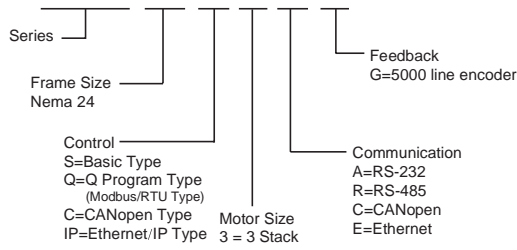
■ Connection interface

Power Port			RS-232 Communication Port			
	Pin.	Description		Pin.	Description	
	1	Power Supply+		1	Data Receive RX	
	2	Power Supply-		2	+5V 50mA	
	3	Power Supply+		3	Data Transmit TX	
	4	Power Supply-		4	GND	
			5			NC
RS-485 or Modbus Communication Port			CAN Communication Port			
	Pin.	Description		Pin.	Description	
	1	Data Receive RX+		1	Serial Transmit TX	
	2	Data Receive RX-		2	Serial Receive RX	
	3	Data Transmit TX+		3	GND	
	4	Data Transmit TX-		4	CAN H	
			5			CAN L
Ethernet Communication Port						
	Pin.	Description				
	1	Data Transmit TX+				
	2	Data Receive RX+				
	3	Data Transmit TX-				
I/O Port						
S/Q/IP Type			C Type			
Pin.	Description		Pin.	Description		
1	STEP+		1	Input X1+		
3	STEP -		3	Input X1 -		
5	DIR+		6	Input X4		
8	DIR-		4	Input X3		
6	EN+		5	Input X2+		
4	EN-		8	Input X2 -		
11	OUT +		7	Input X5		
12	OUT-		10	XCOM		
9	+5V 50mA		11	Output Y1		
2	N/C		12	Output Y2		
10	AIN		9	Output Y3		
7	GND		2	YCOM		

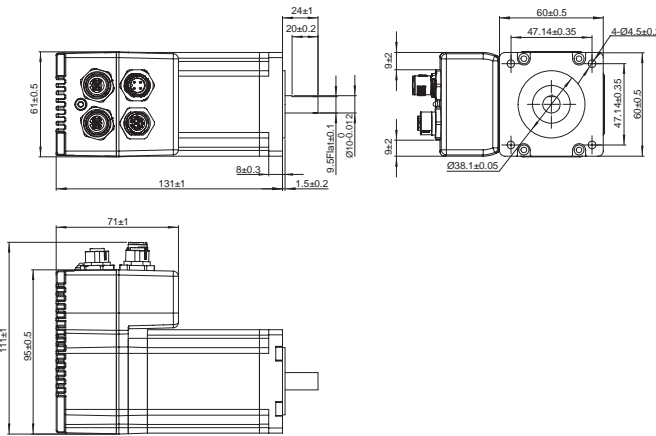
Step-Servo	Integrated TSM
	Integrated SSM
	Integrated TXM
Step-Servo	IP65 Motor & Drive SS
	IP65 Motor & Drive SSM
Integrated Stepper Motor	STM-FR Pulse Input
	STM With Controller
	STM With Controller
AC Input	SRAC Pulse Input
	STAC With Controller
	SR Pulse Input
DC Input	ST With Controller
	ST Pulse Input
3-Phase Stepper Drive	AC Input
	DC Input
	2-Phase Stepper Drive
Stepper Motor	2-Phase
	3-Phase
	Power Supplies
Accessories	Cables
	Software
Appendix	Glossary

■ Numbering System

TXM 24 S-3 A G

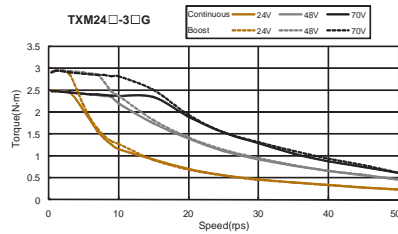


■ Dimensions(Unit:mm)



* 8 mm diameter shaft available per request.

■ Torque Curve



■ Ordering Information

Model	Torque	Control	RS-232	RS-485	Modbus/RTU	CANopen	Ethernet	EtherNet/IP	Daisy Chain	
TXM24S-3AG	2.4N·m	S	✓							
TXM24S-3RG				✓					✓	
TXM24S-3EG								✓		
TXM24Q-3AG		Q	✓							
TXM24Q-3RG				✓	✓				✓	
TXM24Q-3EG								✓		
TXM24C-3CG		C	✓				✓			✓
TXM24IP-3EG		IP						✓		