

MOONS'

moving in better ways



Stepper Products

General Catalogue

Integrated Step-Servo Motor
Step-Servo Motor & Driver
Integrated Stepper Motor
Stepper Driver
Stepper Motor

Dawn of MOONS' 3A Era

1st A Motion Products & Motion Control Products for Manufacturing Automation

MOONS' is a leading manufacturer of the key parts, components and system level products used in manufacturing automation including: Stepper Motor and Drive, Brushless Motor and Drive, AC Servo Motor and Drive, Integrated solutions. We continue to play a major role in the manufacturing automation field with us moving forward to being a system level provider of total motion control solutions.

2nd A Intelligent LED Driver & Control Technologies for LED Lighting Management Automation

3rd A Online Asset Monitoring, Fault Detection and Diagnosis Solutions for EAM Automation



MOONS' Business Philosophies

- Customer satisfaction
- Employee satisfaction

MOONS' aims to enhance customer satisfaction through the provision development of innovative solutions, manufacture of high quality products, and ontime delivery and outstanding customer support.

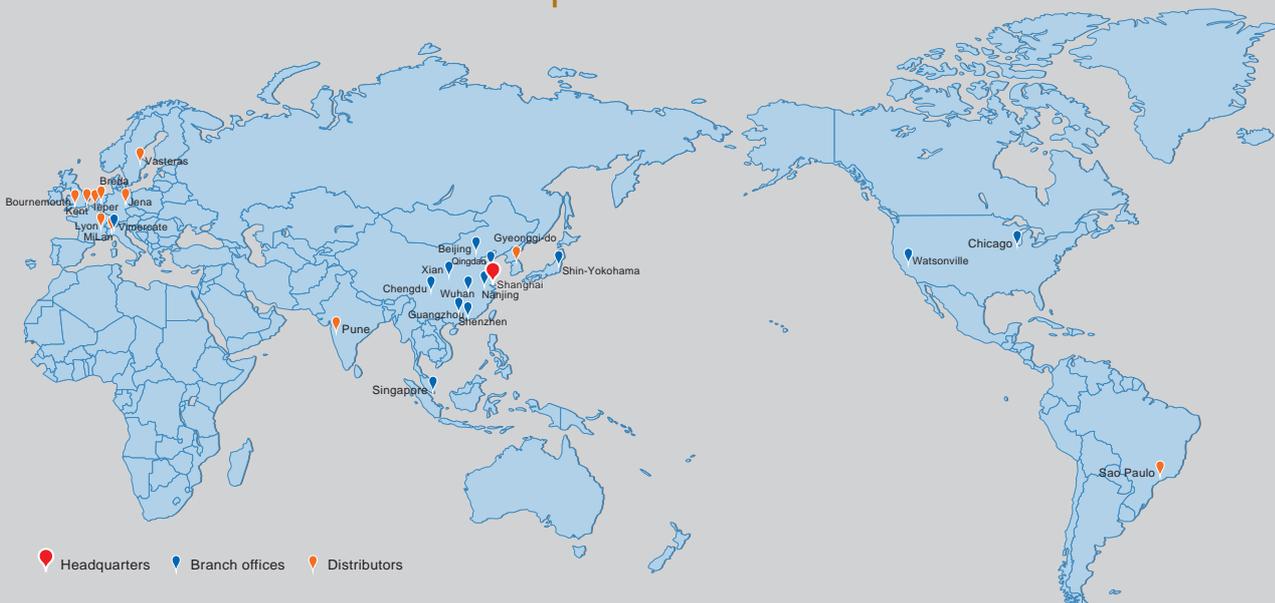
- Partnership

MOONS' values and respects our employees input and encourages them to grow together with the company. We have been working to develop tools and trainings to build a thriving culture of excellence internally to support the future growth of our employees and the company.

- Partnership

MOONS' strongly believes in a true integrated partnership between all partners in business including customers, distributors and all these in supply chain. As a result of our this philosophy, we endeavor to provide the best value contribution to all partners, which can help our partners improve their competitiveness to achieve the win-win situation.

Worldwide service map





moving in better ways

To demonstrate our commitment to our community and our customers, **MOONS'** has adopted as our official slogan: "Moving in Better Ways". These words have following meanings to **MOONS'**:

- **MOONS'** is an excellent global manufacturer of control motor & control motor drive system
- **MOONS'** is a leading global supplier of intelligent LED lighting control system and drive solutions
- **MOONS'** is a well-recognized reliable provider of system solutions for the intelligent system management in large asset-intensive industrial enterprises

We provide superior motion control systems to our global customers through optimizing of product design, engineering, and manufacturing. This is done by strengthening process and quality control and constantly creating solutions using motion control products that are more energy efficient and environmental friendly.

We provide leading-edge LED lighting drivers, controls and management solutions. Our leading lighting control technology makes the drive professional, convenient to use, and more energy efficient in reducing costs and enhancing profits for global customers.

We provide management system solutions for large asset-intensive industries including power generation, petrochemical, metallurgy, coal and large scale agriculture.

- **We are an ambitious and enterprising company**

MOONS' never stops the on-going accelerated pace to improve processes and increase efficiency. Through scientific management methodologies and tools and incorporating advanced technology with senior management experience, we constantly optimize management processes that enable **MOONS'** to maintain on-going growth in competitive markets.

- **We are a cooperative and thriving group**

All members of our team are able to incorporate the concept of moving in better ways during work, they continually upgrade our collective values, and strive for excellence in the process of doing business to improve expertise and gain better opportunities.

Motion Control Products and Solutions

MOONS' provides a wide range of motion control products and solutions serving the fields of printing, intelligent stage lighting, textile machinery, consumer appliance, banking equipment, factory automation, electronics, semiconductor equipment, packaging machinery, medical equipment and measuring equipment, to name a few.

Entering into the hybrid stepper motor business in 1997, **MOONS'** has grown to where it is now one of the top 5 global manufacturers of stepper motors, and an integrated provider of related motion control products and solutions.

MOONS' has been and is concentrating on technological advancement, product design innovation and improvement for standard and customized motion control products and solutions. Cutting edge technologies, product improvement and scientifically proven management systems permit **MOONS'** to exceed customers' requirements around the world. **MOONS'** supports our growing customer base by providing exceptional quality, application engineering, rapid prototyping, regional warehousing and competitive pricing.



Introduction to Stepper Motors

A stepper motor is an electromechanical device which converts electrical pulses into discrete mechanical movements. The shaft of a stepper motor rotates in discrete step increments when electrical command pulses are applied to it in the proper sequence.

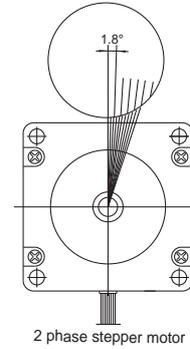
Stepper motors are the easiest devices for precise positioning control. They are widely being used in various application for position and speed via all kinds of control signals such as digital, analog, communication etc.

■ Features

◇ Precise Positioning Control

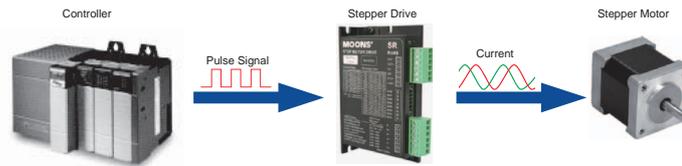
A stepper motor rotates with a fixed step angle, just like the second hand of a clock. This angle is called "basic step angle." MOONS' offers several types of "basic step angle" as standard motors: 2-phase stepping motors with a basic step angle of 0.9° and 1.8° and 3-phase stepping motors with a basic step angle of 1.2°.

Besides the standard motor, MOONS' also has stepper motors available with other "basic step angle." They are 0.72°, 1.5°, 3.6° and 3.75°, these motors are not listed in this catalogue, please contact MOONS' for details.



◇ Easy Control with Pulse Signals

A system configuration for high accuracy positioning is shown below. The rotation angle and speed of the stepping motor can be controlled accurately using pulse signals from the controller.

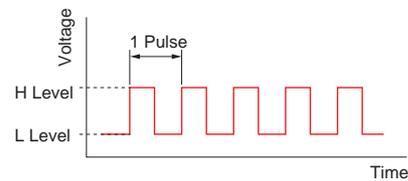


■ What is a Pulse Signal?

A pulse signal is an electrical signal whose voltage level changes repeatedly between ON and OFF.

Each ON/OFF cycle is counted as one pulse. A command with one pulse causes the motor output shaft to turn by one step.

The signal levels corresponding to voltage ON and OFF conditions are referred to as "H" and "L," respectively.



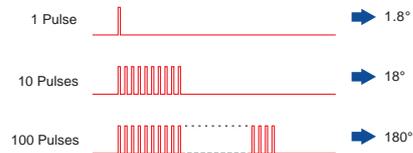
■ The length of Rotation is Proportional to the Number of Pulses

The length of rotation of the stepping motor is proportional to the number of pulse signal (pulse number) given to the driver.

The relationship of the stepper motor's rotation (rotation angle of the motor output shaft) and pulse number is expressed as follows:

$$\theta = \theta_s \times A$$

θ : Rotation angle of the motor output shaft [deg]
 θ_s : Step angle [deg/step]
 A : Pulse number [pulses]



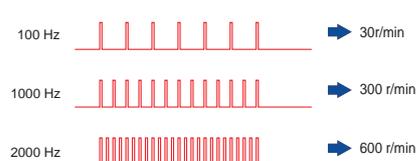
■ The Speed is Proportional to the Pulse Frequency

The speed of the stepper motor is proportional to the frequency of pulse signals given to the driver.

The relationship of the pulse frequency [Hz] and motor speed [r/min] is expressed as follows:

$$N = \frac{\theta_s}{360} \times f \times 60$$

N : Speed of the motor output shaft [r/min]
 θ_s : Step angle [deg/step]
 f : Pulse frequency [Hz]
 (Number of pulses input per second)



- Efficient Integrated TSM
- Integrated SSM
- Step-Servo IP65 Integrated TXM
- Motor & Drive RS
- Motor & Drive SS
- Integrated Stepper Motor STM-R Pulse Input With Controller
- STM With Controller
- SWM IP65 Pulse Input With Controller
- AC Input SRAC Pulse Input With Controller
- 2-Phase Stepper Drive STAC
- DC Input SR Pulse Input
- STF Field Bus With Controller
- ST
- 3-Phase Stepper Drive AC Input
- DC Input
- Stepper Motor 2-Phase
- 3-Phase
- UL
- Accessories Power Supplies
- Cables
- Appendix Software
- Glossary

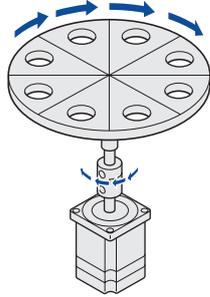
◇ Generating High Torque with a Compact Size

Stepper motors generate high torque with a compact size.

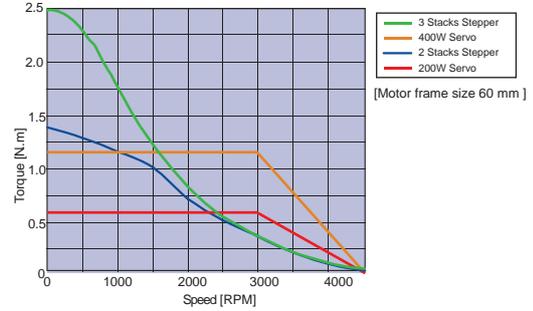
These features give them excellent acceleration and response, which in turn makes these motors well-suited for torque-demanding applications where the motor must be started and stopped frequently.

To meet the need for greater torque at low speed, MOONS' also has geared motors option.

- Frequent Starting/Stopping is Possible

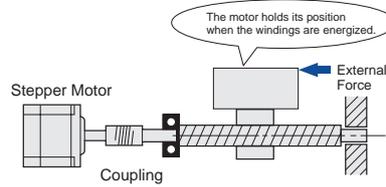


- Speed VS Torque Characteristics comparison between servo and stepper with same motor size.



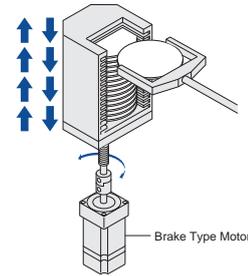
◇ The Motor Holds Itself at a Stopped Position

Stepper motor has full torque at stand-still as long as the windings are energized. This means that the motor can be held at a stopped position without using a mechanical brake.



◇ Motor with Electromagnetic Brake

Once the power is cut off, the self-holding torque of the motor is lost and the motor can no longer be held at the stopped position in vertical operations or when an external force is applied. In lift and similar applications, an electromagnetic brake type motor is required.

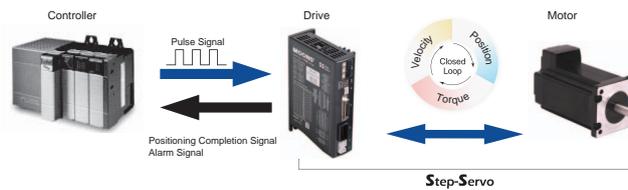


◇ Closed Loop Servo Control Stepper Motors

Step-Servo

The **Step-Servo** is an innovative revolution for the world of stepping motor, it enhances the stepping motor with servo technology to create a product with exceptional feature and broad capability.

The **Step-Servo** greatly improves the performance to be much more Intelligent, Efficient, Compact, Accurate, Fast and Smooth.



Efficient Integrated TSM	Step-Servo
IP65 Integrated SSM	
IP65 Integrated TXM	
Motor & Drive RS	Step-Servo
Motor & Drive SS	
Pulse Input STM-R	Integrated Stepper Motor
IP65 With Controller With Controller SWM	
Pulse Input SRAC	2-Phase Stepper Drive
With Controller STAC	
Pulse Input SR	2-Phase Stepper Drive
Field Bus STF	
With Controller ST	3-Phase Stepper Drive
AC Input	
DC Input	3-Phase Stepper Drive
2-Phase	
3-Phase	Stepper Motor
UL	
Power Supplies	Accessories
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■ Stepper Motor Category

Stepper motors come in different types including the basic type, encoder type, IP65 type, Integrated type with drive and controller, brake type and geared type. The availability of all options can also be combined together as the most optimize and compact motion control unit, for example, MOONS' can offer encoder and geared type, IP65 integrated with drive, controller and encoder, all combinations are available per request.

<p>◇ Basic Type</p> <p>A basic model that is easy to use and designed with a balanced set of functions and characteristics.</p>	
<p>◇ Encoder Type</p> <p>Encoder type stepper gives the possibility for closed loop control, encoder feedback signals can be used for position verification and enhanced performance as stall detection and stall prevention depending on the features of the drive.</p>	
<p>◇ IP65 Type</p> <p>IP65 type stepper motors with the feature of dust proof and resistant to low pressure water jets, are ideal for applications in wet factory environments such as the food and beverage industry or outdoor use.</p> <p>IP65 specifies a product that is dust tight (no ingress of dust; complete protection against contact) and protected against water jets (water projected by a nozzle from any direction shall have no harmful effects).</p>	
<p>◇ Integrated Type with Drive and Controller</p> <p>Integrated stepper motors offer a space-saving design that reduces wiring and saves on cost over separate motor and drive components. For controller type, you only need cable connection for Power and necessary communication or sensor depending on application, it also cost for host controller and make it easy for you to setup sofiscated motion control system.</p>	
<p>◇ Brake Type</p> <p>These motors incorporate a non-excitation type electromagnetic brake. When the power is accidentally cut off due to power outage or other unexpected event, the electromagnetic brake holds the load in position to prevent it from dropping or moving. Brake type steppers are wildy used in vertical axis application.</p>	
<p>◇ Geared Type</p> <p>These motors incorporate a dedicated position-control gearhead with reduced backlash to make the most of the high controllability of the motors.</p> <p>The gearhead ensures highly accurate, smooth operation even in applications where a large torque is received.</p>	

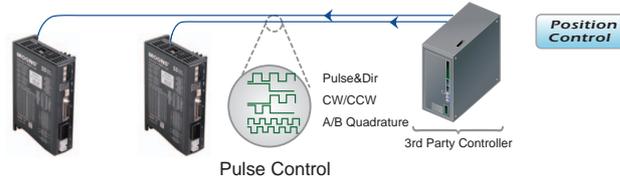
Efficient Integrated TSM
Integrated SSM
Step-Servo IP65 Integrated TXM
Motor & Drive RS
Motor & Drive SS
Integrated Stepper Motor
Pulse Input With Controller STM-R
With Controller STM
IP65 With Controller SWM
Pulse Input With Controller SRAC
AC Input With Controller STAC
2-Phase Stepper Drive
Pulse Input SR
DC Input Field Bus STF
With Controller ST
3-Phase Stepper Drive
AC Input
DC Input
Stepper Motor
2-Phase
3-Phase
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Control Modes for Drives

With MOONS' advanced stepper drive technology, each stepper motor can be operated under various control modes as position control, velocity control or torque control. MOONS' stepper drive accepts all types of control signals including digital, analog and Industrial network communications. Built-in controller Q drive supports stand alone operation for single axis motion by stored sophisticated program execution.

◇ Pulse Control

Pulse control is a traditional way to command a stepper motor in position and velocity control. The length of rotation is proportional to the number of pulses as well as the speed is proportional to the pulse frequency.



Three most popular pulse control digital signal types are Pulse & Direction, CW/CCW Pulse and A/B Quadrature.

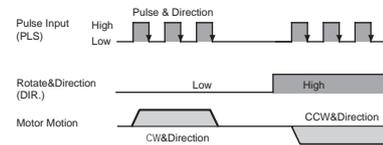
■ Pulse & Direction

When the Pulse input is turned ON while the DIR input is ON, the motor will rotate by one step in one direction.

When the Pulse input is turned ON while the DIR input is OFF, the motor will rotate by one step the other direction.

*Direction definition of DIR input can be configured via MOONS' software.

The chart below shows motor configured as while the DIR input is ON, the motor will rotate by CW direction.

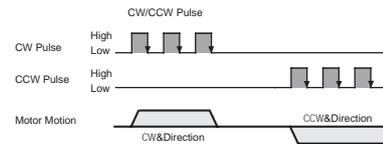


■ CW/CCW Pulse

When the X1 input is turned ON, the motor will rotate by one step in One direction. When the X2 input is turned ON, the motor will rotate by one step in the other direction.

*Direction definition can be configured via MOONS' software.

The chart below shows motor configured as while the X1 input is ON, the motor will rotate by one step in CW direction.

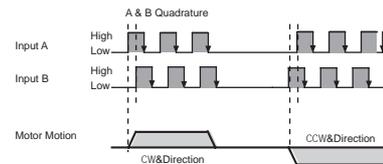


■ A & B Quadrature

The motor will move according to signals that are fed to the drive from a two channel incremental master encoder.

Direction definition can be configured via MOONS' software. Direction is determined via which channel leads the other.

The chart below shows motor configured as while X1 Leads X2, the motor will rotate by CW direction.



◇ Analog Control

MOONS' stepper drive has the ability to accept analog signal for position and analog control, **Step-Servo** can also use analog signal for torque control.

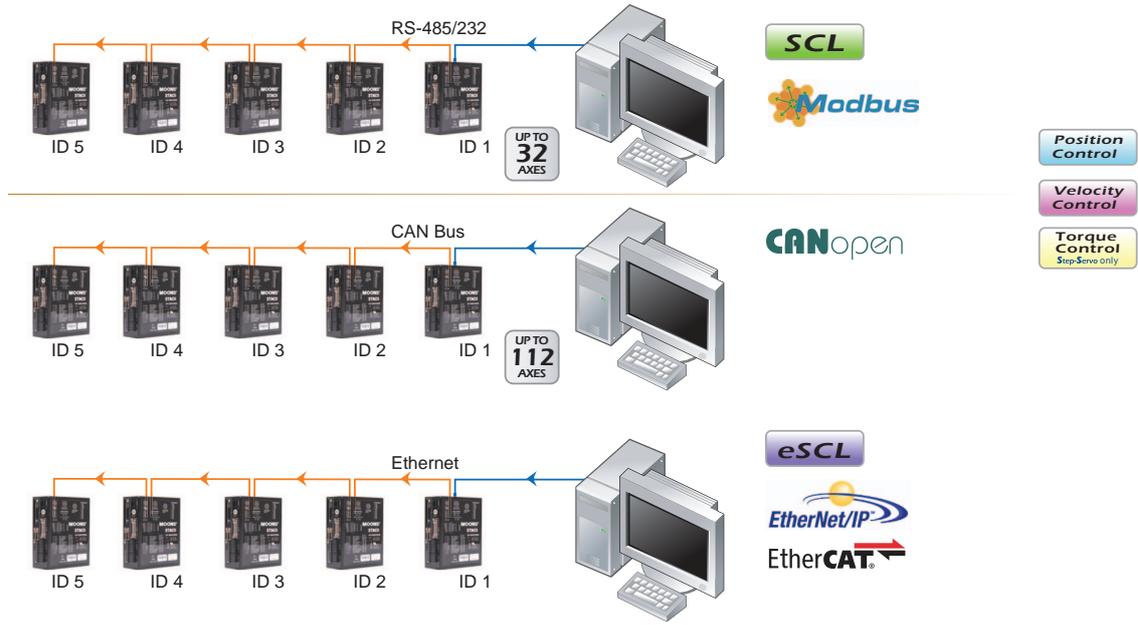


Analog Control

- Position Control
- Velocity Control
- Torque Control (Step-Servo only)

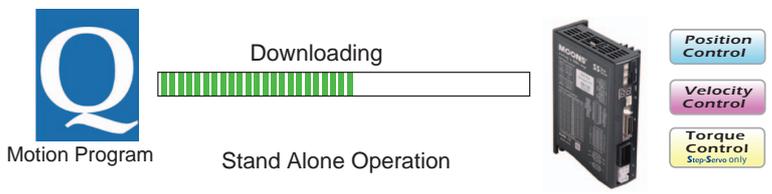
◇ Field Bus Control

MOONS' stepper drive supports all popular Industrial network communications including RS-485, Modbus, CAN , Ethernet and EtherCAT.



◇ Stand Alone Operation

MOONS' Built-in controller Q drive supports stand alone operation for single axis motion by stored sofiscated program execution. It has the ability to run up to 744 lines of stored Q program in non-volatile memory. Q programs are created using the Q Programmer software, which provides multi-tasking, math calculations using analog and digital parameters, conditional processing, data register manipulation, and more features in a robust yet simple text-based programming language.



Step-Serve	Efficient Integrated TSM
	Integrated SSM
	IP65 Integrated TSM
	Motor & Drive RS
	Motor & Drive SS
Integrated Stepper Motor	Pulse Input With Controller STM-R
	With Controller STM
	IP65 With Controller With Controller SWM
2-Phase Stepper Drive	Pulse Input With Controller SRAC
	With Controller STAC
	Pulse Input SR
	Field Bus With Controller STF
	With Controller ST
3-Phase Stepper Drive	AC Input
	DC Input
Stepper Motor	2-Phase
	3-Phase
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Overview of MOONS' Stepper Products

Closed Loop Step-Servo

TSM Series - Integrated Step-Servo



Frame Size: 28mm, 42mm, 56mm, 60mm, 86mm
Input Voltage(Typical): TSM11:24VDC TSM17:12-48VDC
 TSM23/24:12-70VDC TSM34: 24-70VDC
Encoder: Incremental 20000 counts/rev
 (only TSM11 encoder 4096 counts/rev)

Enhanced Intelligence:
 ■ Automatic load inertia detection
 ■ Extended homing and software limit

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control, Daisy Chain
- Stand alone operation

Inputs and Outputs:

- P Type- 4 Digital Inputs, 3 Digital Outputs, Encoder Outputs
- S/Q/C/IP Type- 8 Digital Inputs, 4 Digital Outputs, 1 Analog Input

Communication:



SSM Series - Integrated Step-Servo



Frame Size: 42mm, 56mm, 60mm
Input Voltage(Typical): SSM17: 12-48VDC SSM23/24: 12-70VDC
Encoder: Incremental 20000 counts/rev

Easy Wiring with Spring Connectors

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control
- Stand alone operation

Inputs and Outputs:

- S/Q Type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input
- C Type- 3 Digital Inputs, 1 Digital Output

Communication:



TXM Series - IP65 Type Integrated Step-Servo



Frame Size: 60mm, 86mm
Input Voltage(Typical): TXM24: 12-70VDC TXM34: 24-70VDC
Encoder: Incremental 20000 counts/rev

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control(Daisy Chain for RS-485 and CANopen)
- Stand alone operation

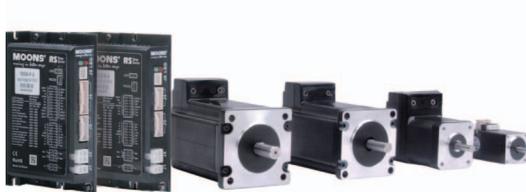
Inputs and Outputs:

- S/Q/IP Type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input
- C Type- 5 Digital Inputs, 3 Digital Outputs

Communication:



RS Series - Step-Servo Motor & Drive Package



Motor Frame Size: 28mm, 42mm, 56mm, 60mm, 86mm
Input Voltage(Typical): 24-70VDC
Encoder: Magnetic 4096 counts/rev

Enhanced Intelligence:

- Automatic load inertia detection and switch set stiffness
- Extended homing and software limit

Control Modes:

- Pulse Control
- SCL Command Control
- Stand alone operation

Inputs and Outputs:

- P Type- 4 Digital Inputs, 3 Digital Outputs, Encoder Outputs
- S/Q Type- 4 Digital Inputs, 3 Digital Outputs

Communication:



Efficient Integrated TSM
 Integrated SSM
 IP65 Integrated TXM
 Motor & Drive RS
 Motor & Drive SS
 Pulse Input STM-R
 With Controller With Controller With Controller
 STM
 IP65 With Controller With Controller
 SWM
 Pulse Input Pulse Input
 SRAC
 With Controller
 STAC
 AC Input
 Pulse Input
 SR
 2-Phase Stepper Drive
 Field Bus
 STF
 DC Input
 With Controller
 ST
 AC Input
 3-Phase Stepper Drive
 DC Input
 2-Phase
 Stepper Motor
 3-Phase
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SS Series - Step-Servo Motor & Drive Package



Motor Frame Size: 28mm, 42mm, 56mm, 60mm, 86mm
Input Voltage(Typical): 24-70VDC
Encoder: Incremental 20000 counts/rev
 (only AM11SS motor encoder 4096 counts/rev)

Position Control

Velocity Control

Torque Control

Enhanced Intelligence:

- Automatic load inertia detection and switch set stiffness
- Extended homing and software limit

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control(Daisy Chain for RS-485, CANopen and EtherCAT)
- Stand alone operation

Inputs and Outputs:

- P/R Type- 6 Digital Inputs, 2 Digital Outputs, Encoder Outputs
- S/Q/C/EC Type- 8 Digital Inputs, 4 Digital Outputs, 2 Analog Inputs

Communication:



◇ Integrated Stepper Motor

STM-R Series - Pulse Input Type Integrated Stepper Motor



Frame Size: 42mm, 56mm
Input Voltage(Typical): STM17R: 12-48VDC STM23R: 12-70VDC
Encoder Option: Incremental 4000 counts/rev
Microstep Resolution: Switch set, up to 25600 steps/rev
Control Modes:

Position Control

- Pulse Control

Inputs and Output:

- 3 Digital Inputs, 1 Digital Output



STM Series - Controller Type Integrated Stepper Motor



Frame Size: 28mm, 42mm, 56mm, 60mm
Input Voltage(Typical):

- STM11 - 24VDC
- STM17 - 12-48VDC
- STM23/24 - 12-70VDC

Encoder Option: Incremental 4000 counts/rev

- Stall Detection
- Stall Prevention

Microstep Resolution: Software set, up to 51200 steps/rev

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control
- Stand alone operation

Inputs and Outputs:

- STM11 4 digital Inputs, 2 Outputs
- SF/QF Type- 4 Configurable digital Inputs/Outputs, 1 Analog Input
- S/Q/IP Type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input
- C Type- 3 Digital Inputs, 1 Digital Output

Communication:



SWM Series - IP65 Type Integrated Stepper Motor



Frame Size: 60mm
Input Voltage(Typical): 12-70VDC
Encoder Option: Incremental 4000 counts/rev
Microstep Resolution: Software set, up to 51200 steps/rev
Control Modes:

Position Control

Velocity Control

- Stall Detection
- Stall Prevention
- Pulse Control
- Analog Control
- Field Bus Control(Daisy Chain for RS-485 and CANopen)
- Stand alone operation

Inputs and Outputs:

- SF/QF Type- 4 Configurable digital Inputs/Outputs, 1 Analog Input
- S/Q/IP Type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input

Communication:



Efficient Integrated TSM
Integrated SSM
Step-Servo IP65 Integrated TXM
Motor & Drive RS
Motor & Drive SS
Integrated Stepper Motor STM-R
STM
IP65 SWM
AC Input SRAC
2-Phase Stepper Drive STAC
Pulse Input SR
DC Input STF
Field Bus ST
3-Phase Stepper Drive AC Input
DC Input
2-Phase Stepper Motor
3-Phase
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◇ Two Phase Stepper Drive

SRAC Series - AC Input Stepper Drive



- Input Voltage(Typical):** AC120V/240V
Drive Output Current: Up to 8Amp(Peak of Sine)
Microstep Resolution: Switch set, up to 25600 steps/rev
Control Modes:
- Pulse Control
- Inputs and Outputs:**
- 3 Digital Inputs, 1 Digital Output
- Supported Motor Frame Size:** 56mm, 60mm, 86mm

Position Control

STAC Series - AC Input Controller Type Stepper Drive



- Input Voltage(Typical):** AC120V/240V
Drive Output Current: Up to 2.5Amp(Peak of Sine)
Encoder Option: Incremental
- Stall Detection
 - Stall Prevention
- Microstep Resolution:** Software set, up to 51200 steps/rev
Control Modes:
- Pulse Control
 - Analog Control
 - Field Bus Control
 - Stand alone operation
- Inputs and Outputs:**
- S/Q/C Type- 4 Digital Inputs, 2 Digital Outputs, 1 Analog Input
 - Q-A/IP Type- 12 Digital Inputs, 6 Digital Outputs, 1 Analog Input

Position Control

Velocity Control



Supported Motor Frame Size: 56mm, 60mm, 86mm

SR Series - DC Input Stepper Drive



- Input Voltage(Typical):**
- SR2/SR2-Plus/SR3-mini: 12- 48VDC
 - SR4/SR4-Plus: 24-48VDC
 - SR8/SR8-Plus: 24-80VDC
- Drive Output Current:** Up to 7.8Amp(Peak of Sine)
Microstep Resolution: Switch set, up to 51200 steps/rev
Control Modes:
- Pulse Control
- Inputs and Outputs:**
- 3 Digital Inputs, 1 Digital Output
- Supported Motor Frame Size:**
- 20mm, 28mm, 35mm, 42mm, 56mm, 60mm, 86mm

Position Control

STF Series - Intelligent field bus control Stepper Drive



- Input Voltage(Typical):** DC12V/24V/48V
Drive Output Current: Up to 10Amp(Peak of Sine)
Microstep Resolution: Software set, up to 51200 steps/rev
Control Modes:
- Field Bus Control
 - Stand alone operation
- Inputs and Outputs:**
- 8 Digital Inputs, 4 Digital Outputs
- Communication:**

Position Control

Velocity Control



Supported Motor Frame Size:

- 20mm, 28mm, 35mm, 42mm, 56mm, 60mm, 86mm

ST Series - DC Input Controller Type Stepper Drive



Input Voltage(Typical): DC24V/48V
Drive Output Current: Up to 10Amp(Peak of Sine)

Encoder Option: Incremental
 ■ Stall Detection
 ■ Stall Prevention

Microstep Resolution: Software set, up to 51200 steps/rev

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control
- Stand alone operation

Inputs and Outputs:

- S type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input
- Q/C/IP- 8 Digital Inputs, 4 Digital Outputs, 2 Analog Inputs

Communication:



Supported Motor Frame Size:

- 28mm, 35mm, 42mm, 56mm, 60mm, 86mm

Position Control

Velocity Control

◇ Three Phase Stepper Drive

AC Input Stepper Drive and DC Input Stepper Drive



Drive Input Voltage(Typical):

- AC 120V/240V
- DC 24V/48V

Control Modes:

- Pulse Control
- Analog Control
- Stand alone operation

Inputs and Outputs:

- 3 Digital Inputs, 1 Digital Output

Supported Motor Frame Size: 60mm, 86mm

Step-Servo	Efficient Integrated TSM
	Integrated SSM
	IP65 Integrated TXM
	Motor & Drive RS
	Motor & Drive SS
Integrated Stepper Motor	Pulse Input STM-R
	With Controller With Controller STM
	IP65 With Controller With Controller SWM
AC Input	Pulse Input With Controller SRAC
	With Controller With Controller STAC
	DC Input
DC Input	Pulse Input SR
	Field Bus STF
	With Controller With Controller ST
3-Phase Stepper Drive	AC Input
	DC Input
Stepper Motor	2-Phase
	3-Phase
	UL
Accessories	Power Supplies
	Cables
Appendix	Software
	Glossary

◇ Stepper Motor

Standard Motors

2-Phase Basic Type



20mm 28mm 35mm 42mm 56mm 60mm 86mm 110mm

2-Phase PowerPlus Series Type



56mm

2-Phase IP65 Type



56mm 60mm 86mm

2-Phase Encoder Type



42mm 56mm 60mm 86mm

2-Phase Brake Type



42mm 60mm 86mm

3-Phase Basic Type



60mm 86mm

Planetary Reducer Motors Type



20mm 28mm 42mm 57mm(60) 86mm

Efficient Integrated TSM
 Integrated SSM
 IP65 Integrated TXM
 Motor & Drive RS
 Motor & Drive SS
 Pulse Input STM-R
 With Controller With Controller STM
 IP65 With Controller With Controller SWM
 Pulse Input SRAC
 With Controller With Controller STAC
 Pulse Input SR
 Field Bus STF
 With Controller ST
 AC Input
 DC Input
 2-Phase
 3-Phase
 UL
 Power Supplies
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Step-Servo
 Integrated Stepper Motor
 2-Phase Stepper Drive
 3-Phase Stepper Drive
 Stepper Motor
 Accessories
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Stepper General Catalogue

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Glossary	Software	Cables	Power Supplies	UL	3-Phase Stepper Motor	3-Phase Stepper Drive	DC Input	AC Input	With Controller ST	Field Bus STF	Pulse Input SR	With Controller STAC	Pulse Input SRAC	IP65 With Controller SWM	With Controller STM	Pulse Input STM-R	Motor & Drive SS	Motor & Drive RS	IP65 Integrated TXM	Integrated SSM	Efficient Integrated TSM
Appendix	Accessories	Stepper Motor	2-Phase Stepper Drive	3-Phase Stepper Drive	2-Phase Stepper Drive	AC Input	DC Input	AC Input	IP65 With Controller SWM												

Step-Servo



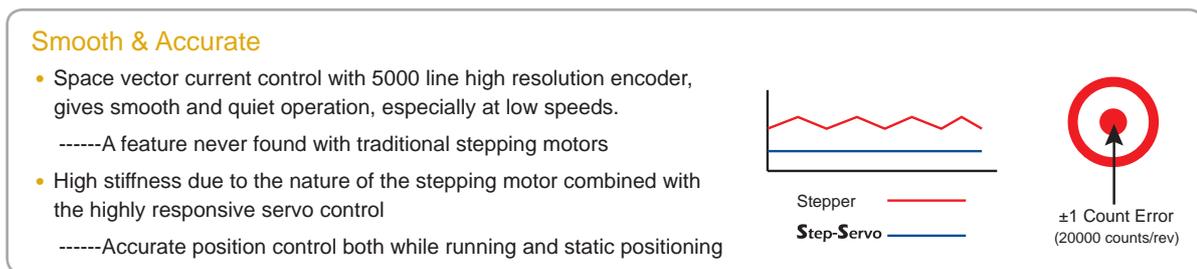
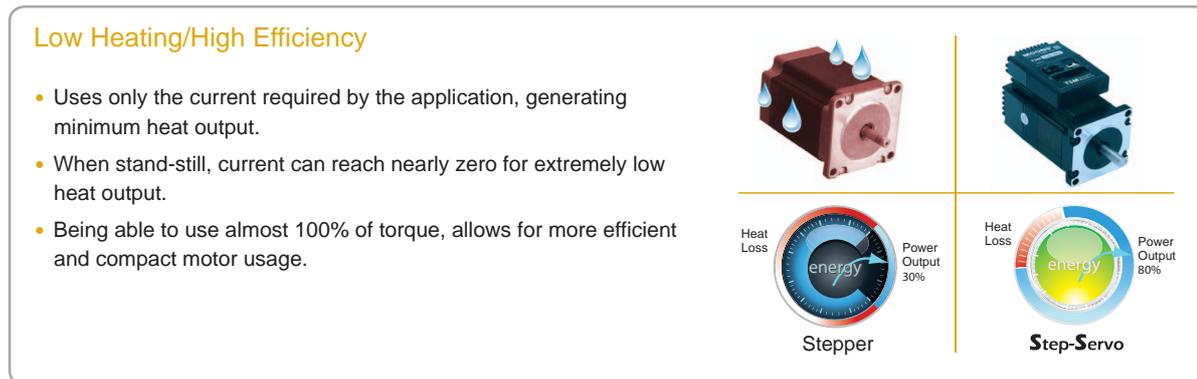
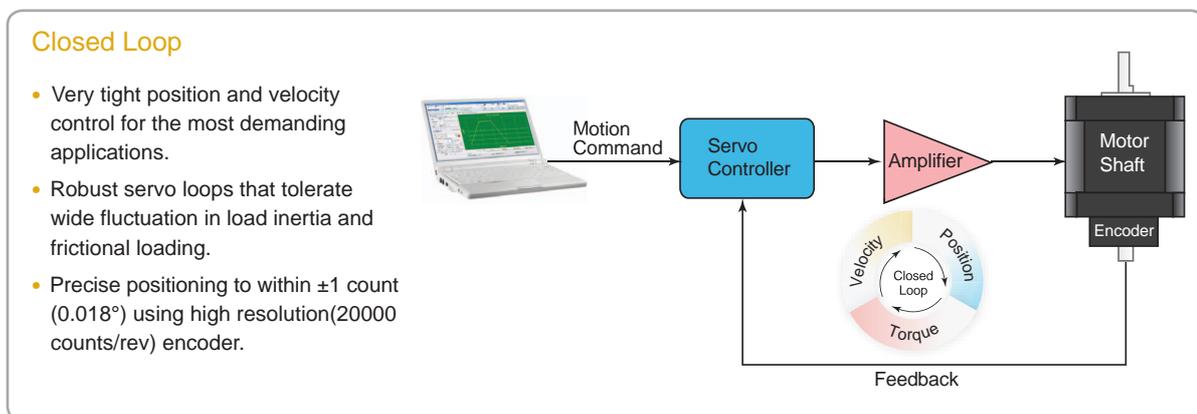
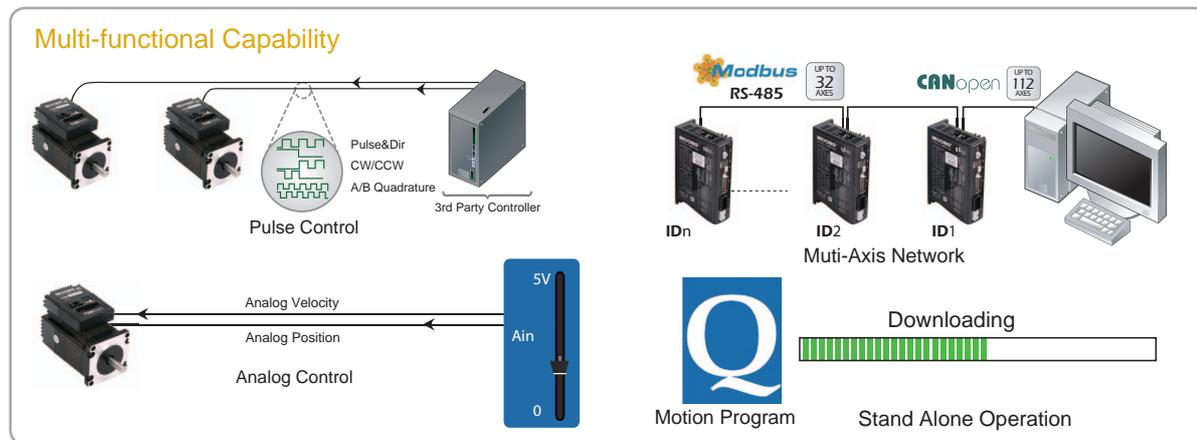
Integrated TSM	Efficient Integrated TSM
Integrated SSM	Integrated SSM
IP65 Integrated TXM	IP65 Integrated TXM
Motor & Drive RS	Motor & Drive RS
Motor & Drive SS	Motor & Drive SS

Integrated Stepper Motor	STM-R	Pulse Input	
	STM	With Controller	
	SWM	IP65 With Controller	
	SRAC	Pulse Input AC Input	
	STAC	With Controller	
	SR	Pulse Input	
	STF	Field Bus DC Input	
	ST	With Controller	
	3-Phase Stepper Drive	AC Input	AC Input
		DC Input	DC Input
Stepper Motor	2-Phase	2-Phase	
	3-Phase	3-Phase	
	UL	UL	
Accessories	Power Supplies	Power Supplies	
	Cables	Cables	
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	Glossary	Glossary	

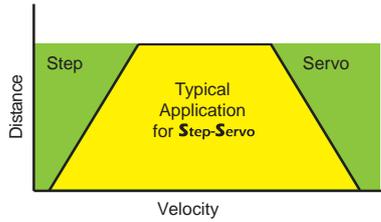
Closed Loop Step-Servo

The **Step-Servo** is an innovative revolution for the world of stepper motor, it enhances the stepper motors with servo technology to create a product with exceptional feature and broad capability.

■ Features



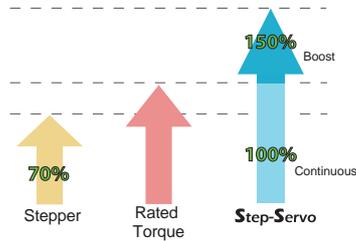
Fast Response



- 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.

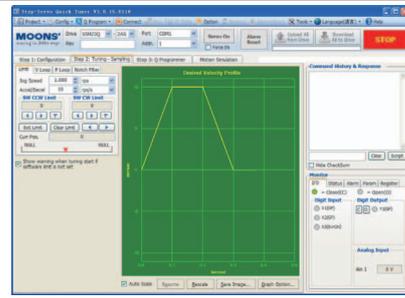
High Torque

- Because the **Step-Servo** 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.

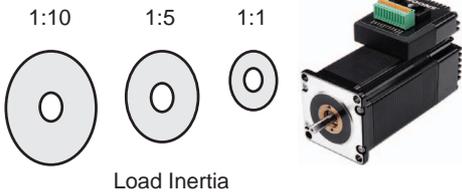


Motion Monitoring

- 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.



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.

PC Based Software



- MOONS' **Step-Servo** products support following software application make it easy to configure, tuning, testing and evaluation.
- **Step-Servo** Quick Tuner
 - Q Programmer
 - RS-485 Bus Utility
 - CANopen Test Tool

Efficient Integrated TSM	IP65 Integrated TSM	IP65 Motor & Drive RS	Motor & Drive SS	Pulse Input With Controller STM-R	With Controller With Controller STM	IP65 With Controller SWM	Pulse Input With Controller SRAC	With Controller With Controller STAC	Pulse Input With Controller SR	Field Bus With Controller STF	With Controller With Controller ST	AC Input With Controller 3-Phase Stepper Drive	DC Input With Controller 2-Phase Stepper Drive	DC Input With Controller 3-Phase Stepper Drive	2-Phase Stepper Drive	3-Phase Stepper Drive	UL Stepper Motor	Power Supplies Accessories	Cables Accessories	Software Appendix	Glossary Appendix
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Overview of Closed Loop Step-Servo

TSM Series - Integrated Step-Servo



Frame Size: 28mm, 42mm, 56mm, 60mm, 86mm
Input Voltage(Typical): TSM11:24VDC TSM17:12-48VDC
 TSM23/24:12-70VDC TSM34: 24-70VDC
Encoder: Incremental 20000 counts/rev
 (only TSM11 encoder 4096 counts/rev)

Enhanced Intelligence:

- Automatic load inertia detection
- Extended homing and software limit

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control, Daisy Chain
- Stand alone operation

Inputs and Outputs:

- P Type- 4 Digital Inputs, 3 Digital Outputs, Encoder Outputs
- S/Q/C/IP Type- 8 Digital Inputs, 4 Digital Outputs, 1 Analog Input

Communication:



SSM Series - Integrated Step-Servo



Frame Size: 42mm, 56mm, 60mm
Input Voltage(Typical): SSM17: 12-48VDC SSM23/24: 12-70VDC
Encoder: Incremental 20000 counts/rev

Easy Wiring with Spring Connectors

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control
- Stand alone operation

Inputs and Outputs:

- S/Q Type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input
- C Type- 3 Digital Inputs, 1 Digital Output

Communication:



TXM Series - IP65 Type Integrated Step-Servo



Frame Size: 60mm, 86mm
Input Voltage(Typical): TXM24: 12-70VDC TXM34: 24-70VDC
Encoder: Incremental 20000 counts/rev

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control(Daisy Chain for RS-485 and CANopen)
- Stand alone operation

Inputs and Outputs:

- S/Q/IP Type- 3 Digital Inputs, 1 Digital Output, 1 Analog Input
- C Type- 5 Digital Inputs, 3 Digital Outputs

Communication:



RS Series - Step-Servo Motor & Drive Package



Motor Frame Size: 28mm, 42mm, 56mm, 60mm, 86mm
Input Voltage(Typical): 24-70VDC
Encoder: Magnetic 4096 counts/rev

Enhanced Intelligence:

- Automatic load inertia detection and switch set stiffness
- Extended homing and software limit

Control Modes:

- Pulse Control
- SCL Command Control
- Stand alone operation

Inputs and Outputs:

- P Type- 4 Digital Inputs, 3 Digital Outputs, Encoder Outputs
- S/Q Type- 4 Digital Inputs, 3 Digital Outputs

Communication:



SS Series - Step-Servo Motor & Drive Package



Motor Frame Size: 28mm, 42mm, 56mm, 60mm, 86mm
Input Voltage(Typical): 24-70VDC
Encoder: Incremental 20000 counts/rev
 (only AM11SS motor encoder 4096 counts/rev)

- Position Control
- Velocity Control
- Torque Control

Enhanced Intelligence:

- Automatic load inertia detection and switch set stiffness
- Extended homing and software limit

Control Modes:

- Pulse Control
- Analog Control
- Field Bus Control(Daisy Chain for RS-485, CANopen and EtherCAT)
- Stand alone operation

Inputs and Outputs:

- P/R Type- 6 Digital Inputs, 2 Digital Outputs, Encoder Outputs
- S/Q/C/EC Type- 8 Digital Inputs, 4 Digital Outputs, 2 Analog Inputs

Communication:

SCL CANopen Modbus EtherCAT

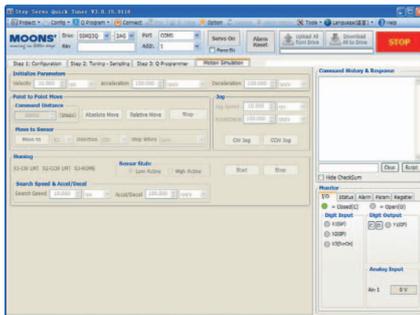
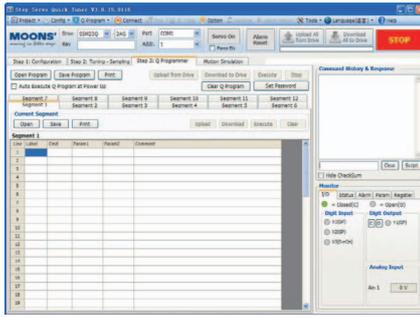
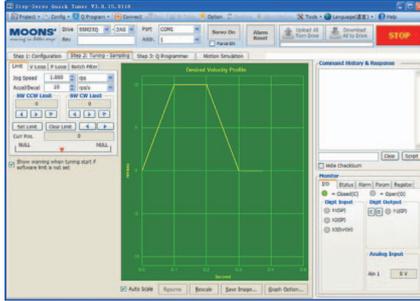
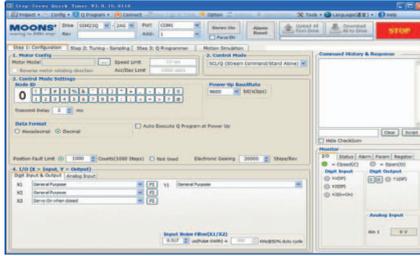


Efficient Integrated TSM	Step-Servo	IP65 Integrated TXM	Motor & Drive RS	Motor & Drive SS	Integrated Stepper Motor	AC Input	DC Input	3-Phase Stepper Drive	Stepper Motor	Accessories	Appendix
					IP65 With Controller STM	With Controller STAC	With Controller STF	With Controller ST	2-Phase	Power Supplies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

Step-Servo Quick Tuner

Software

Efficient Integrated TSM	Step-Servo
IP65 Integrated SSM	Step-Servo
IP65 Integrated TXM	Step-Servo
Motor & Drive RS	Step-Servo
Motor & Drive SS	Step-Servo
Pulse Input With Controller STM-R	Integrated Stepper Motor
With Controller STM	Integrated Stepper Motor
IP65 With Controller SWM	Integrated Stepper Motor
Pulse Input With Controller SRAC	AC Input
With Controller STAC	AC Input
Pulse Input SR	2-Phase Stepper Drive
Field Bus STF	DC Input
With Controller ST	DC Input
AC Input	3-Phase Stepper Drive
DC Input	3-Phase Stepper Drive
2-Phase	Stepper Motor
3-Phase	Stepper Motor
UL	Stepper Motor
Power Supplies	Accessories
Cables	Accessories
Software	Appendix
Glossary	Appendix



Software Features

- Friendly Interface
- Easy setup within just three steps
- Drive setup and configuration
- Servo Tuning and Sampling
- Built-in Q Programmer to create and edit stand-alone programs for Q-compatible drivers
- Motion testing and monitoring
- Write and save SCL command scripts
- Online help integrated
- Support all **Step-Servo** products in TSM/SSM/TXM/SS/RS Series

About this software

Step-Servo Quick Tuner is the PC based software application used to configure, and perform servo tuning, drive testing and evaluation of the **Step-Servo**. System servo control gains, drive functionality, and I/O configuration are set with **Step-Servo** Quick Tuner. It also contains an oscilloscope function to help set the servo control gains. The **Step-Servo** Quick Tuner provides seamless communication with all models whether they have RS-232, RS-485, CANopen or Ethernet communications.

System Requirements

Microsoft Windows 7, Windows 8, Windows 10, 32-bit or 64-bit, Windows XP.



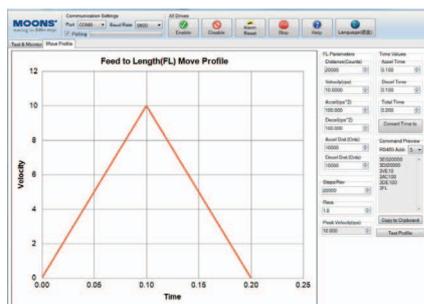
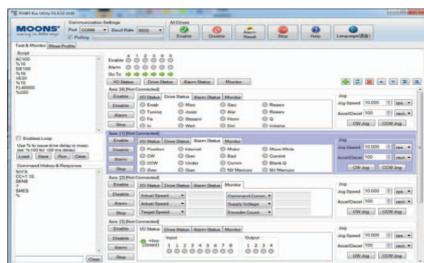
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www.moonsindustries.com

RS-485 Bus Utility

Software



Software Features

- Stream SCL commands from the command line
- Simple interface with powerful capability
- Easy setup with RS-485 for 32 axis network motion control
- Monitoring Status of I/O, drive, alarm and the other nine most useful motion parameters
- Write and save SCL command scripts
- Online help integrated
- Supports all RS-485 drives

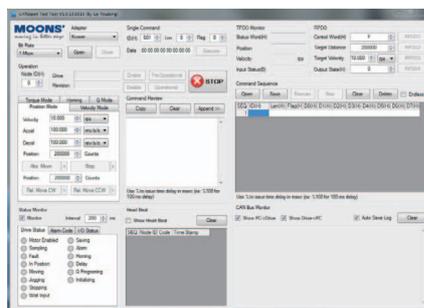
About this software

If you plan to stream serial commands to MOONS' drive using the Serial Command Language (SCL), to build an RS-485 multi-axis network, you'll need a simple terminal emulator to get familiar with and test your command strings and test the network. RS-485 Bus Utility is the ideal choice because it sends command strings as a packet, with minimal delay between characters, and properly terminated with a carriage return. Other terminal applications send each character as it's typed, making them difficult to use with SCL commands.

System Requirements

Microsoft Windows 7, Windows 8, 32-bit or 64-bit, Windows XP.

CANopen Test Tool



Software Features

- Friendly User Interface
- Multiple operation Mode Support
- Multi-Thread, High Performance
- CAN bus monitor and log function
- Kvaser/PEAK/ZLG adapter support

System Requirements

Microsoft Windows 7, Windows 8, Windows 10, 32-bit or 64-bit, Windows XP.



FREE DOWNLOAD
Our software and user manuals can be downloaded from our website:
www.moonsindustries.com

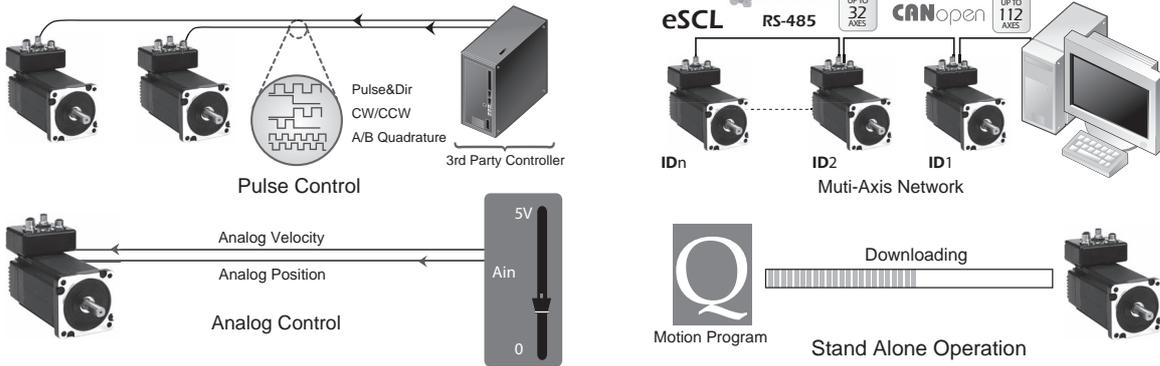
Efficient Integrated TSM	Step-Servo
Integrated SSM	Step-Servo
IP65 Integrated TXM	Step-Servo
Motor & Drive RS	Step-Servo
Motor & Drive SS	Step-Servo
Pulse Input With Controller STM-R	Integrated Stepper Motor
With Controller With Controller STM	Integrated Stepper Motor
IP65 With Controller With Controller SWM	Integrated Stepper Motor
Pulse Input With Controller SRAC	AC Input
With Controller With Controller STAC	AC Input
Pulse Input With Controller SR	DC Input
Field Bus With Controller STF	DC Input
With Controller With Controller ST	DC Input
AC Input	3-Phase Stepper Drive
DC Input	3-Phase Stepper Drive
2-Phase	Stepper Motor
3-Phase	Stepper Motor
UL	Stepper Motor
Power Supplies	Accessories
Cables	Accessories
Software	Appendix
Glossary	Appendix

IP65 Type Integrated Step-Servo-TXM Series



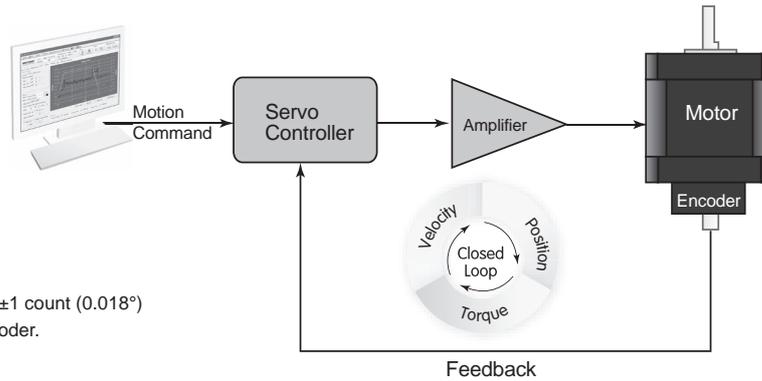
■ Features

Multi-functional Capability

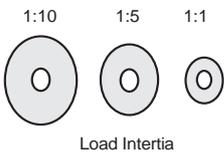


Closed Loop

- Very tight position and velocity control for the most demanding applications.
- Very tight position and velocity control for the most demanding applications.
- Robust servo loops that tolerate wide fluctuation in load inertia and frictional loading.
- For TXM24/34, precise positioning to within ± 1 count (0.018°) using high resolution(20000 counts/rev) encoder.



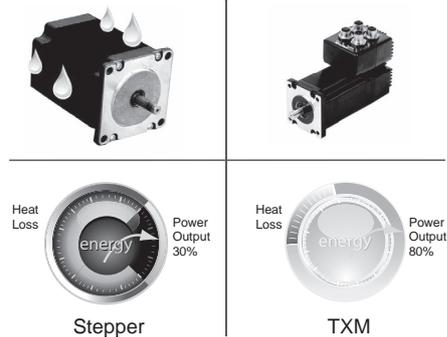
Easy Tuning



- 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

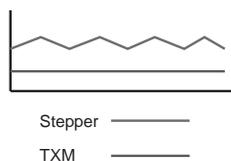
- Uses only the current required by the application, generating minimum heat output.
- When stand-still, current can reach nearly zero for extremely low heat output.
- Being able to use almost 100% of torque, allows for more efficient and compact motor usage.



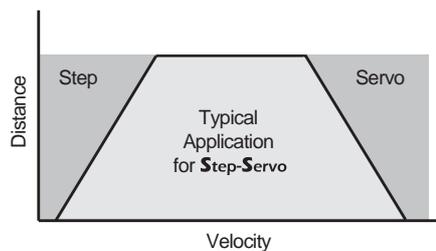
Efficient Integrated TSM
Integrated SSM
IP65 Integrated TXM
Step-Servo
Motor & Drive RS
Motor & Drive SS
Pulse Input With Controller STM-R
With Controller With Controller STM
IP65 With Controller With Controller SWM
Pulse Input With Controller SRAC
AC Input With Controller STAC
2-Phase Stepper Drive SR
DC Input Field Bus STF
With Controller ST
3-Phase Stepper Drive AC Input
DC Input
2-Phase Stepper Drive
3-Phase Stepper Drive
Stepper Motor UL
Power Supplies
Accessories Cables
Software
Appendix Glossary

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.

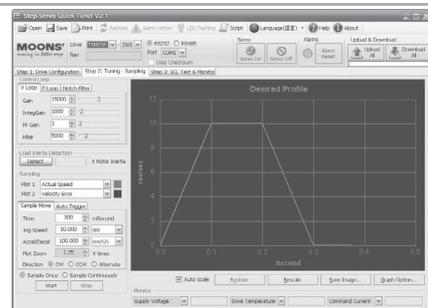
High Torque

- 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.



Key Enhancement

- Up to 3 digital inputs, 1 digital outputs and 1 analog inputs for TXM24S/Q/IP type
- Up to 5 digital inputs, 3 digital outputs and 1 analog inputs for TXM34Q/C type
- A/B/Z differential encoder signal output supported for TXM34P type
- On board daisy chain connection for field bus control(RS-485, Modbus/RTU, CANopen)
- On board daisy chain connection for Ethernet control (TXM34 only)
- Multiple homing features
- Software limit
- AUX Power supply, when the main power cut off, the AUX power can make the control circuits working normally (TXM34 only)
- IP65 protection class

■ TXM Lineup

◇ Torque and Frame size

Model	Frame Size(mm)	Torque(N·m)	Supply Voltage(VDC)
TXM24□-3□G	60	2.5	12-70
TXM34□-1□G	86	2.7	24-70
TXM34□-3□G		5.2	
TXM34□-5□G		6.7	
TXM34□-6□G		8.2	

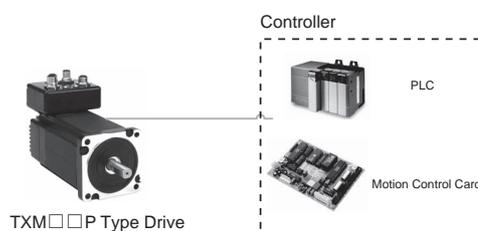
◇ Control Modes

-P Pulse Input type (TXM34 only)

Controlled via pulse generator.

Main Features

- Accepts three types of pulse signal input as Pulse&Direction, CW/CCW and A/B Quadrature
- Encoder signal output, A/B/Z differential

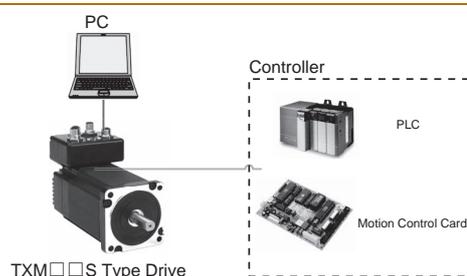


-S Basic Type (TXM24 only)

Controlled via pulse signals, analog signal or MOONS' SCL streaming series commands.

Main Features

- Pulse control
- Analog control
- Host real time control using SCL via RS-232/RS-485
- Up to 32 axes per channel for RS-485
- Host real time control using SCL via Ethernet UDP/TCP



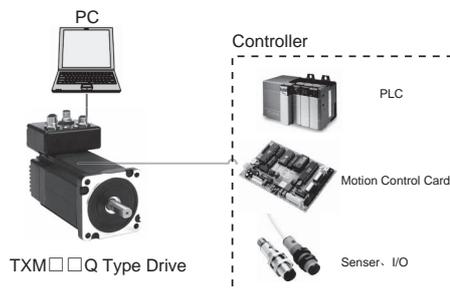
-Q Built-in programmable motion controller

(Includes Modbus/RTU Type)
(Includes Ethernet TCP/UDP type)

Run stand-alone with sophisticated and functional programs. Commands for controlling motion, inputs & outputs, drive configuration and status, as well as math operations, register manipulation, and multi-tasking.

Main Features

- Stand-alone operation plus Serial host control
- Math operations
- Register manipulation
- Multi-tasking
- Modbus/RTU network, up to 32 axes per channel
- Host real time control using SCL via Ethernet UDP/TCP

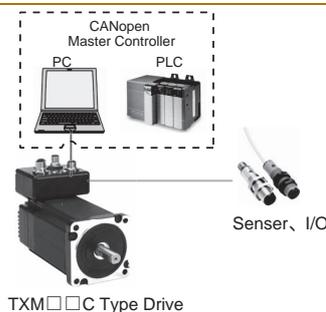


-C CANopen type

Operates on a CANopen communication network and conforms to CiA301 and CiA402. It supports running stored Q programs via MOONS'-specific CANopen objects.

Main Features

- CANopen network
- Up to 112 axes per channel
- Objects for Q programming

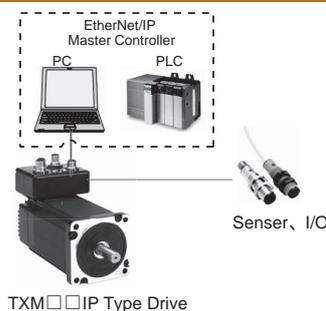


-IP EtherNet/IP type

Operates on a EtherNet/IP communication network. It supports running stored Q programs via MOONS'-specific EtherNet/IP objects.

Main Features

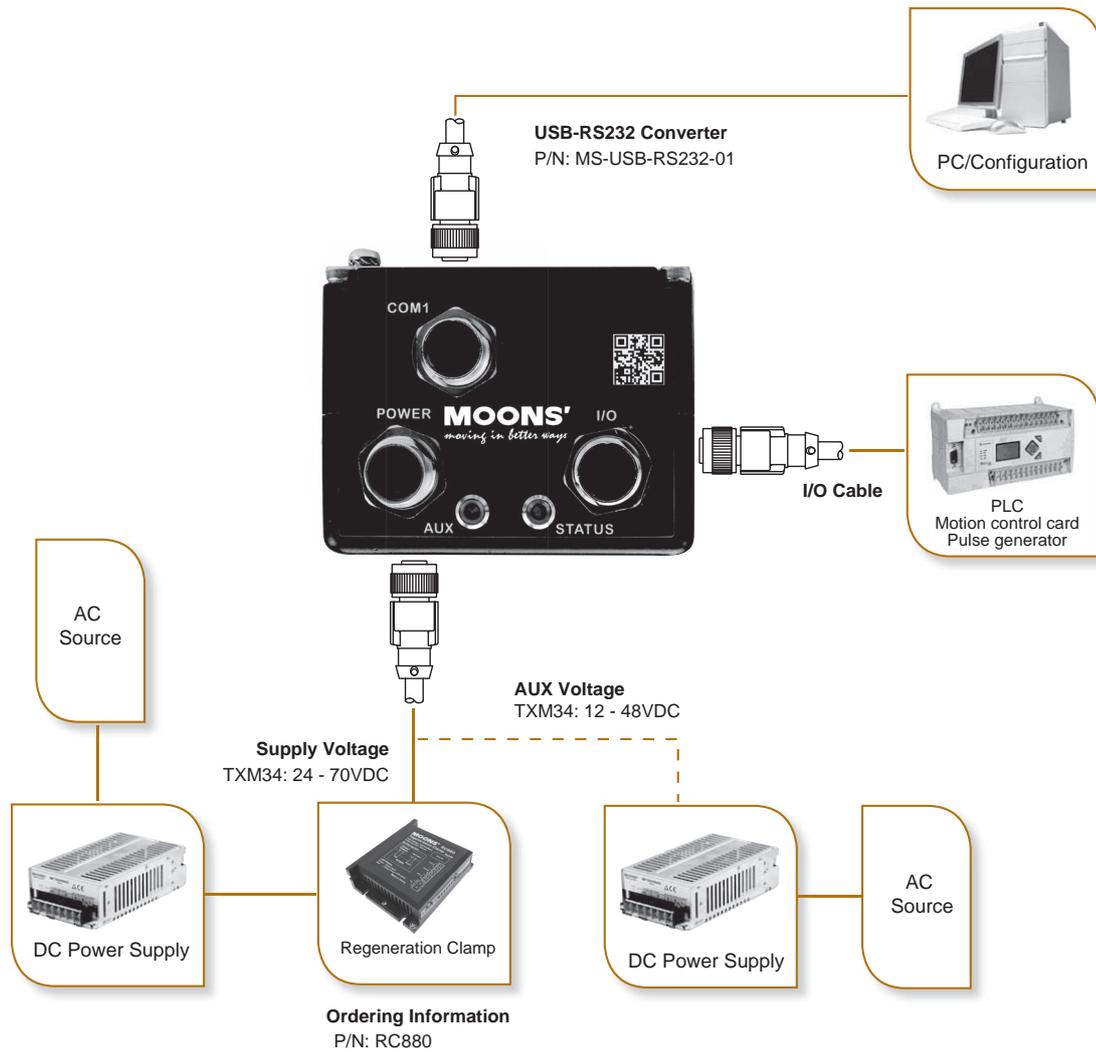
- EtherNet/IP network
- Objects for Q programming



Step-Servo	Efficient Integrated TSM
Step-Servo	Integrated SSM
Step-Servo	IP65 Integrated TXM
Step-Servo	Motor & Drive RS
Step-Servo	Motor & Drive SS
Integrated Stepper Motor	Pulse Input With Controller STM-R
Integrated Stepper Motor	With Controller With Controller STM
Integrated Stepper Motor	IP65 With Controller With Controller SWM
AC Input	Pulse Input With Controller SRAC
AC Input	With Controller With Controller STAC
DC Input	2-Phase Stepper Drive SR
DC Input	Field Bus With Controller STF
DC Input	With Controller With Controller ST
3-Phase Stepper Drive	AC Input
3-Phase Stepper Drive	DC Input
3-Phase Stepper Drive	2-Phase Stepper Drive
3-Phase Stepper Drive	3-Phase Stepper Drive
3-Phase Stepper Drive	UL
Accessories	Power Supplies
Accessories	Cables
Accessories	Software
Appendix	Glossary

■ **System configuration**

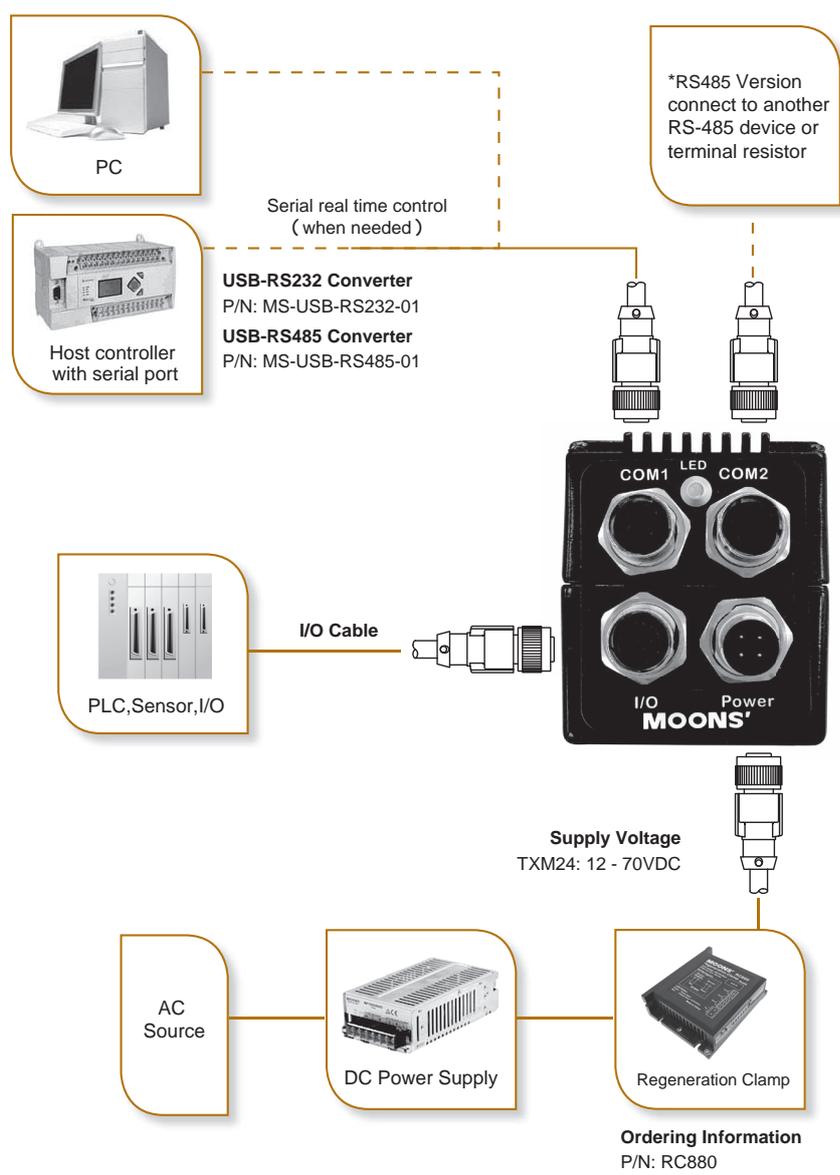
◇ -P Pulse Input type(TXM34 only)



◇ **Optional Accessories**

P/N	Catagory	Technical Specification
RC880	Regeneration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
MS-USB-RS-485-01	USB Converter	USB-RS-485
MS-USB-CAN-01	USB Converter	USB-CAN

◇ -S Basic type with series communication(TXM24 only)

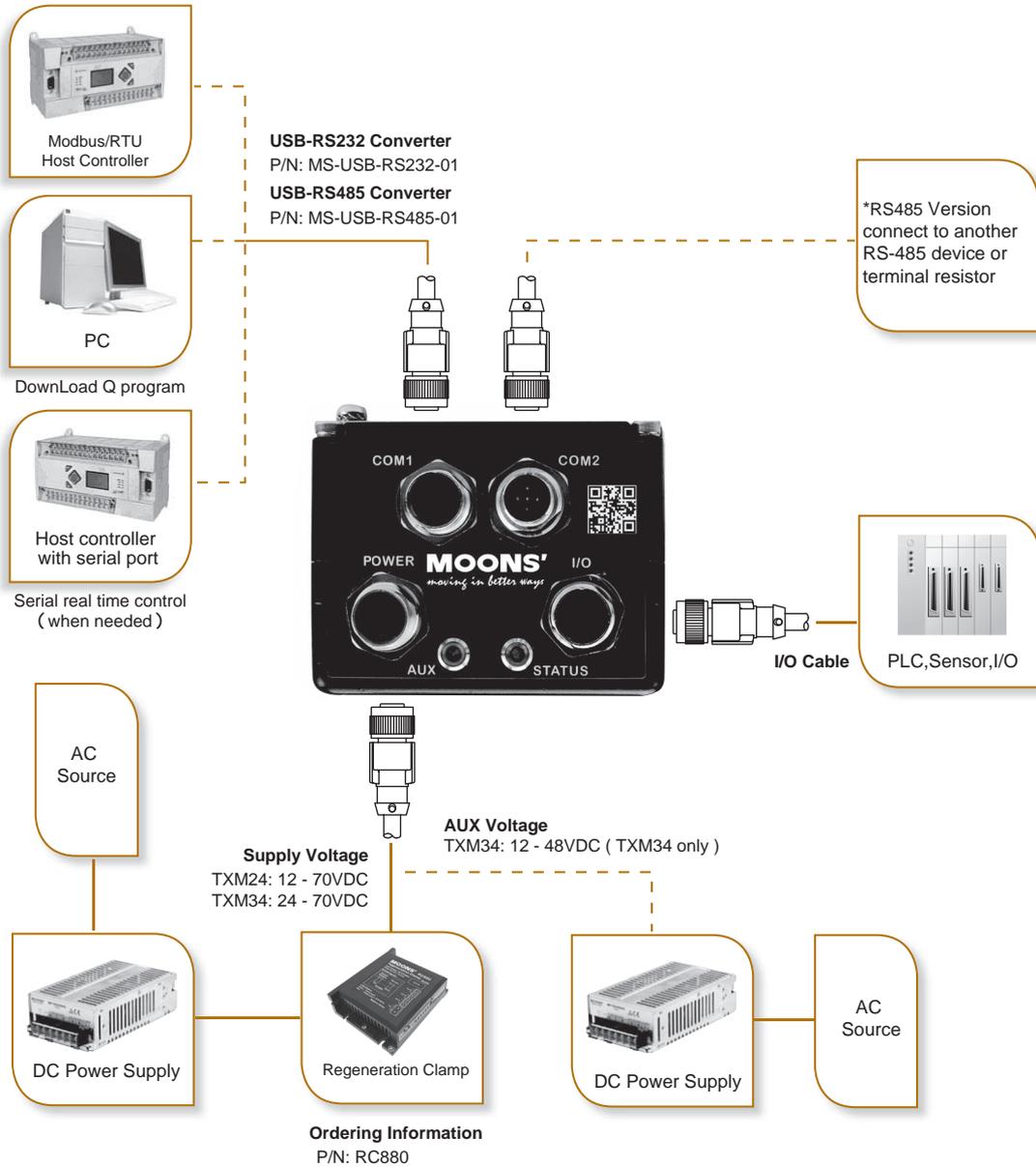


◇ Optional Accessories

P/N	Category	Technical Specification
RC880	Regeneration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
MS-USB-RS-485-01	USB Converter	USB-RS-485
MS-USB-CAN-01	USB Converter	USB-CAN

- Efficient Integrated TSM
- Integrated SSM
- Step-Servo IP65 Integrated TXM
- Motor & Drive RS
- Motor & Drive SS
- Integrated Stepper Motor Pulse Input With Controller STM-R
- With Controller STM
- IP65 Pulse Input With Controller SWM
- AC Input SRAC
- 2-Phase Stepper Drive With Controller STAC
- Pulse Input SR
- DC Input Field Bus STF
- With Controller ST
- 3-Phase Stepper Drive AC Input
- DC Input
- 2-Phase Stepper Motor
- 3-Phase Stepper Motor
- UL
- Power Supplies
- Cables
- Software
- Glossary

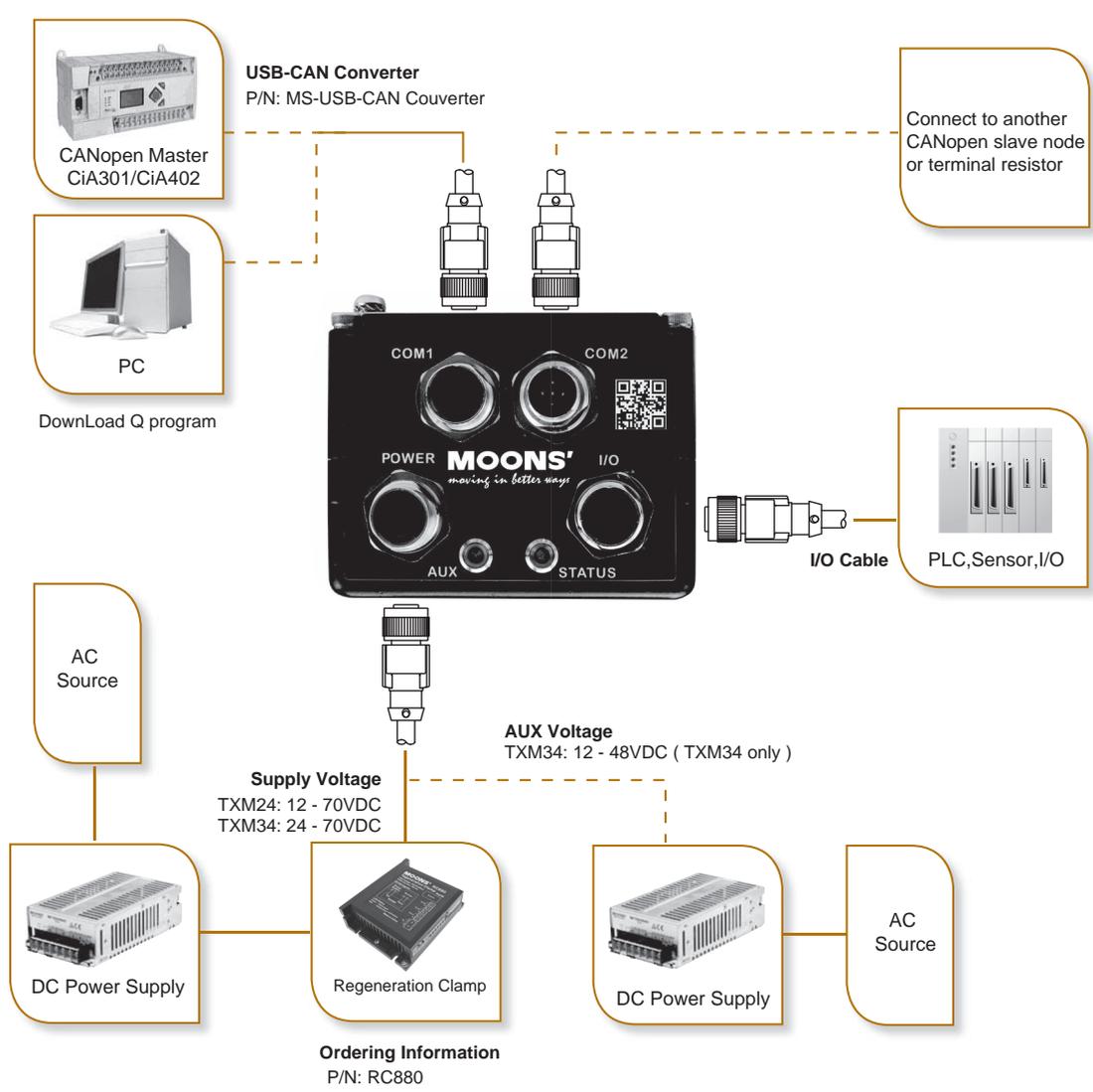
- ◇ -Q Built-in programmable motion controller
(Includes Modbus/RTU Type)
(Includes Ethernet TCP/UDP type))



◇ Optional Accessories

P/N	Catagory	Technical Specification
RC880	Regeneration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
MS-USB-RS-485-01	USB Converter	USB-RS-485
MS-USB-CAN-01	USB Converter	USB-CAN

◇ -C CANopen type



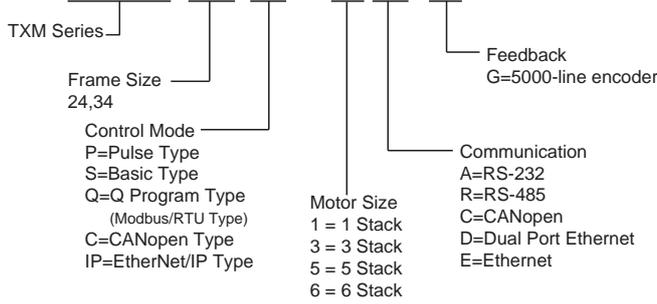
◇ Optional Accessories

P/N	Category	Technical Specification
RC880	Regeneration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
MS-USB-RS-485-01	USB Converter	USB-RS-485
MS-USB-CAN-01	USB Converter	USB-CAN

Step-Servo	Efficient Integrated TSM
	Integrated SSM
	IP65 Integrated TXM
Step-Servo	RS Motor & Drive
	SS Motor & Drive
	STM-R Pulse Input With Controller
	STM With Controller With Controller
	SWM IP65 With Controller With Controller
Integrated Stepper Motor	SRAC Pulse Input With Controller
	STAC With Controller
	SR Pulse Input
	STF Field Bus
AC Input	ST With Controller
	STF Field Bus
	ST With Controller
2-Phase Stepper Drive	AC Input
	DC Input
	DC Input
3-Phase Stepper Drive	AC Input
	DC Input
	DC Input
Stepper Motor	2-Phase
	3-Phase
	UL
Accessories	Power Supplies
	Cables
Appendix	Software
	Glossary

■ Numbering System

TXM 34 P - 1 A G



■ Ordering Information

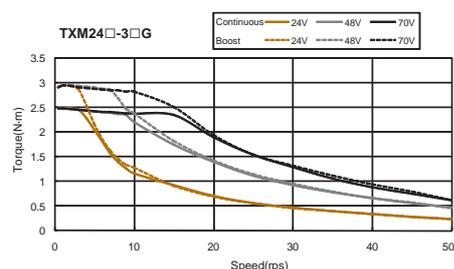
Model	Torque	Control	I/O(*)	RS-232	RS-485/422	Modbus/RTU	CANopen	Ethernet	EtherNet/IP
TXM24S-3AG	2.5N.m	S	3DI,1DO,1AI	√					
TXM24S-3RG					√				
TXM24S-3EG								√	
TXM24Q-3AG		Q		√		√			
TXM24Q-3RG					√	√			
TXM24Q-3EG								√	
TXM24IP-3EG	IP					√	√		
TXM24C-3CG	C	5DI,3DO	√			√			
TXM34P-1AG	2.7N.m	P	4DI,3DO,EO	√					
TXM34Q-1AG		Q	5DI,3DO,1AI	√		√			
TXM34Q-1RG					√	√			
TXM34Q-1DG								√	
TXM34C-1CG		C		√			√		
TXM34IP-1DG		IP						√	√
TXM34P-3AG	5.2N.m	P		4DI,3DO,EO	√				
TXM34Q-3AG		Q	5DI,3DO,1AI	√		√			
TXM34Q-3RG					√	√			
TXM34Q-3DG								√	
TXM34C-3CG		C		√			√		
TXM34IP-3DG		IP						√	√
TXM34P-5AG	6.7N.m	P		4DI,3DO,EO	√				
TXM34Q-5AG		Q	5DI,3DO,1AI	√		√			
TXM34Q-5RG					√	√			
TXM34Q-5DG								√	
TXM34C-5CG		C		√			√		
TXM34IP-5DG		IP						√	√
TXM34P-6AG	8.2N.m	P		4DI,3DO,EO	√				
TXM34Q-6AG		Q	5DI,3DO,1AI	√		√			
TXM34Q-6RG					√	√			
TXM34Q-6DG								√	
TXM34C-6CG		C		√			√		
TXM34IP-6DG		IP						√	√

■ **Frame size 60mm**

Model	Basic type	TXM24S-3□G
	Q program type (Includes Modbus/RTU type)	TXM24Q-3□G
	CANopen type	TXM24C-3CG
	EtherNet/IP type	TXM24IP-3EG
Holding Torque	N·m	2.5
Rotor Inertia	g·cm ²	900
Supply Voltage	VDC	12-70
Encoder Resolution	counts/rev	20000
Maximum Speed	RPM	3600
Mass	g	2090

Enter A(RS-232) or R(RS-485) or E(Ethernet) in the box(□) within the model name

■ **Torque Curves**



■ **Electrical Specifications**

	Basic Type TXM24S-3 □ G	Q program Type TXM24Q-3 □ G	CANopen Type TXM24C-3CG	EtherNet/IP Type TXM24IP-3EG
Control Command	Pulse input Analog signal SCL/eSCL	Pulse input Analog signal SCL/eSCL Q Program Modbus/RTU	Q program CANopen	Q program EtherNet/IP
Communication	RS-232 or RS-485 or Ethernet	RS-232 or RS-485 or Ethernet	RS-232&CANopen	Ethernet
Protocol	SCL	Modbus/RTU or SCL	CANopen	EtherNet/IP
Pulse signal type	Pulse+Direction CW/CCW Pulse A/B Quadrature	Pulse+Direction CW/CCW Pulse A/B Quadrature	-	-
Maximum Input Pulse Frequency	2MHz, Minimum Pulse Width=250ns	2MHz, Minimum Pulse Width=250ns	-	-
Digital Input	3	3	5	3
Digital Output	1	1	3	1
Analog Input	1	1	-	1
Digital Input Specification	Optical Isolated, 5-24VDC			
Digital Output Specification	Optical Isolated, 30VDC/100mA			
Analog Input Specification	AIN referenced to GND, Range 0-5VDC, Resolution: 12bits		-	AIN referenced to GND, Range 0-5VDC, Resolution: 12bits
Supply Voltage	12-70VDC			
Protection	Over-voltage, under-voltage, over-temp, motor/wiring shorts (phase-to-phase, phase-to-ground)			

Enter A(RS-232) or R(RS-485) or E(Ethernet) in the box(□) within the model name

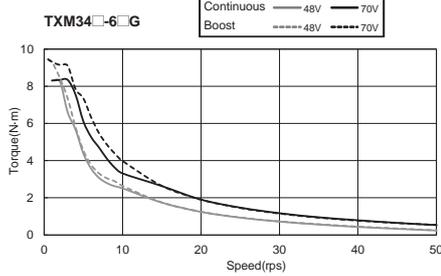
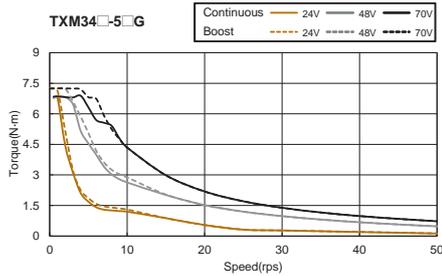
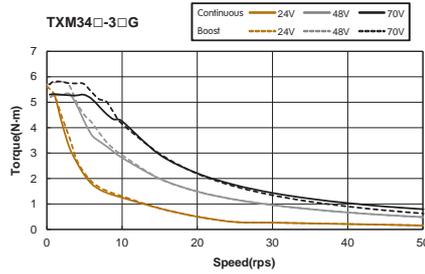
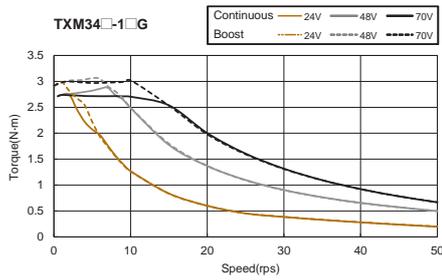
- Efficient Integrated TSM
- Integrated SSM
- Step-Servo IP65 Integrated TXM
- Motor & Drive RS
- Motor & Drive SS
- Integrated Stepper Motor Pulse Input STM-R
- With Controller With Controller STM
- IP65 With Controller With Controller SWM
- AC Input Pulse Input With Controller SRAC
- With Controller With Controller STAC
- DC Input Pulse Input SR
- Field Bus STF
- With Controller With Controller ST
- 3-Phase Stepper Drive AC Input
- DC Input
- 2-Phase Stepper Motor
- 3-Phase
- UL
- Power Supplies
- Accessories Cables
- Software
- Appendix Glossary

■ Frame size 86mm

Model	Pulse input type	TXM34P-1AG	TXM34P-3AG	TXM34P-5AG	TXM34P-6AG
	Q program type (Includes Modbus/RTU type)	TXM34Q-1□G	TXM34Q-3□G	TXM34Q-5□G	TXM34Q-6□G
	CANopen type	TXM34C-1CG	TXM34C-3CG	TXM34C-5CG	TXM34C-6CG
	Ethernet IP	TXM34IP-1DG	TXM34IP-3DG	TXM34IP-5DG	TXM34IP-6DG
Holding Torque	N·m	2.7	5.2	6.7	8.2
Rotor Inertia	g·cm ²	915	1480	2200	3660
Supply Voltage	VDC	24-70			
Encoder Resolution	counts/rev	20000	20000	20000	20000
Maximum Speed	RPM	3600	3600	3600	3600
Mass	g	4600	6800	9000	11400

Enter A(RS-232) or R(RS-485) or D(Dual port Ethernet) in the box(□) within the model name

■ Torque Curves



■ Electrical Specifications

	Pulse input type TXM34P-■AG	Q program type TXM34Q-■□G	CANopen type TXM34C-■CG	Ethernet IP type TXM34IP-■DG
Control Command	Pulse input	Pulse input Analog signal SCL/eSCL Q Program Modbus/RTU	Q program CANopen	Q program EtherNet/IP
Communication	RS-232	RS-232 or RS-485 or Ethernet	RS-232&CANopen	Ethernet
Protocol	-	Modbus/RTU or SCL or eSCL	CANopen	EtherNet/IP
Pulse signal type	Pulse+Direction CW/CCW Pulse A/B Quadrature	Pulse+Direction CW/CCW Pulse A/B Quadrature	-	-
Maximum Input Pulse Frequency	2MHz, Minimum Pulse Width=250ns	2MHz, Minimum Pulse Width=250ns	-	-
Digital Input	4	5	5	5
Digital Output	3	3	3	3
Analog Input	-	1	1	1
Encoder Output	20,000 counts/rev A/B/Z Differential	-	-	-
Digital Input Specification	Optical Isolated, 5-24VDC			
Digital Output Specification	Optical Isolated, 30VDC/100mA			
Analog Input Specification	-	AIN referenced to GND, Range 0-5VDC, Resolution: 12bits		
Supply Voltage	Main power: 24-70VDC AUX power: 12-48VDC			
Protection	Over-voltage, under-voltage, over-temp, motor/wiring shorts (phase-to-phase, phase-to-ground)			

Enter motor length 1,3,5,6 in the box(■) within the model name

Enter A(RS-232) or R(RS-485) or D(Dual port Ethernet) in the box(□) within the model name

■ Communication Specifications

◇ General Specifications

		TXM Integrated Step-Servo
Insulation Class		Class B(130°C)
Insulation Resistance		100MΩ/DC500V
Dielectric Strength		500VAC 1 minute
Operating Environment	Ambient Temperature	0~+40°C(non-freezing)
	Ambient Humidity	90% or less(non-condensing)
	Atmosphere	No corrosive gases, dust, water or oil
Degree of Protection		IP65

◇ CANopen Specifications

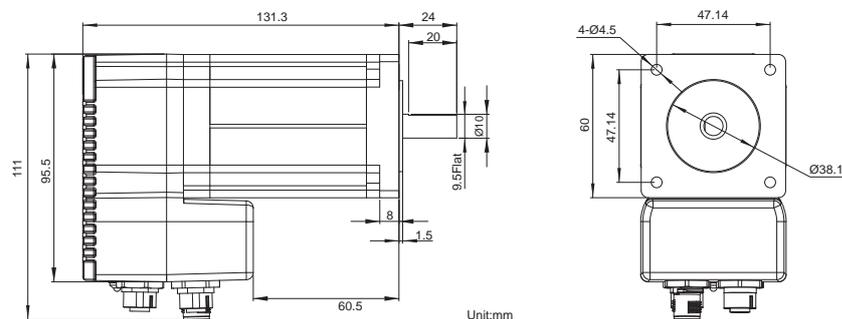
Interface	CANopen CiA301 CiA402
Bit Rate(bps)	1M/800K/500K/250K/125K/50K/20K/12.5K
Maximum Distance	Due to transmission bit rate
Maximum Slave Nodes	112 axes per channel
Communication Cable	Twisted Shielded Cable
Node ID Setting	Via Step-Servo Quick Tuner

■ Dimensions(Unit:mm)

◇ Frame size 60mm

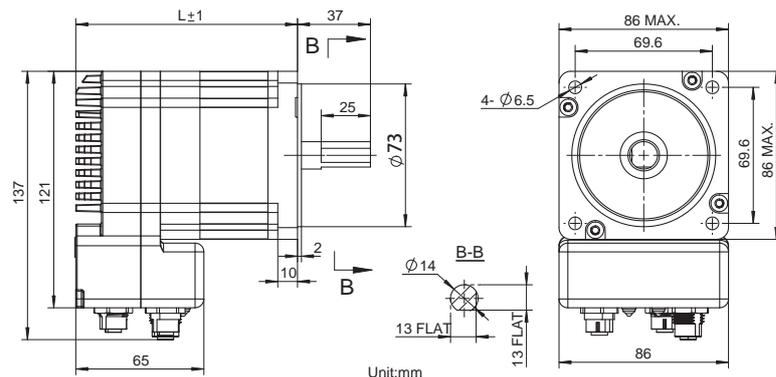
Model	"L"	"M"	Shaft
TXM24□-3□G	131.3	60.5	10

* 8mm diameter shaft available per request



◇ Frame size 86mm

Model	"L"	Shaft
TXM34□-1□G	112.5	14
TXM34□-3□G	143	
TXM34□-5□G	172.5	
TXM34□-6□G	203	



◇ RS-485 or Modbus/RTU Specifications

Interface	RS-485 or Modbus/RTU
Baud Rate(bps)	9600/19200/38400/57600/115200
Maximum Distance	Due to transmission baud rate
Maximum Connections	32 axes per channel
Communication Cable	Twisted Shielded Cable
Address Setting	Via Step-Servo Quick Tuner

◇ Ethernet Specifications

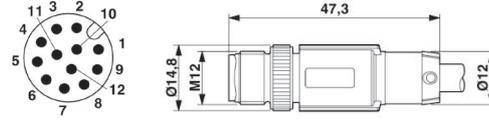
Interface	Ethernet(eSCL)
Baud Rate(bps)	100Mbps
Maximum Distance	100 meters between 2 devices
Communication Cable	Twisted Shielded Cable (CAT5e Cable)
IP Address Setting	Via Step-Servo Quick Tuner

Efficient Integrated TSM	IP65 Integrated TXM	Motor & Drive RS	Motor & Drive SS	Pulse Input With Controller STM-R	With Controller With Controller STM	IP65 With Controller With Controller SWM	Pulse Input With Controller SRAC	With Controller With Controller STAC	Pulse Input SR	Field Bus With Controller STF	With Controller ST	AC Input 3-Phase Stepper Drive	DC Input 2-Phase Stepper Drive	DC Input 3-Phase Stepper Drive	2-Phase Stepper Drive	3-Phase Stepper Drive	UL Stepper Motor	Power Supplies Accessories	Cables	Software	Glossary Appendix
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TXM24 Series Cable

I/O Cable

P/N	Vendor	Description
1430048	Phoenix Contact	12pin, 1.5m, shielded, A-coded



-S/Q/IP Type

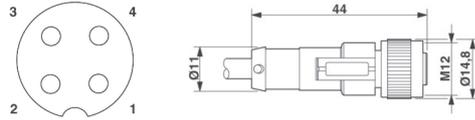
Pin No.	Assignment	Description	Color
1	Step+	High Speed Digital Input	BN
3	Step-		WH
5	Dir+	High Speed Digital Input	PK
8	Dir-		GY
6	En+	X3 Digital Input	YE
4	En-		GN
11	OUT+	Digital Output	GY/PK
12	OUT-		RD/BU
9	+5V	+5V Analog Voltage	RD
10	AIN	Analog Input	VT
7	GND	Analog Input Ground	BK
2	N/C	-	BU

-C Type

Pin No.	Assignment	Description	Color
1	X1+	High Speed Digital Input	BN
3	X1-		WH
5	X2+	High Speed Digital Input	PK
8	X2-		GY
4	X3	X3 Digital Input	GN
6	X4	X4 Digital Input	YE
7	X5	X5 Digital Input	BK
10	XCOM	X Input COM	VT
11	Y1	Y1 Digital Output	GY/PK
12	Y2	Y2 Digital Output	RD/BU
9	Y3	Y3 Digital Output	RD
2	YCOM	Y Output COM	BU

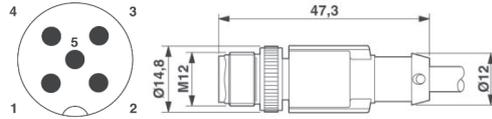
Power Cable

P/N	Vendor	Description
1536285	Phoenix Contact	1.5m, unshielded, A-coded



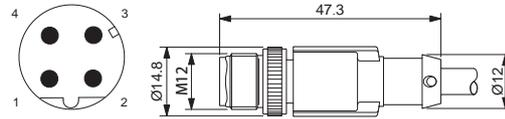
RS-232/RS-485/CANopen Communication Cable

P/N	Vendor	Description
1518960	Phoenix Contact	1.5m, unshielded, A-coded



Ethernet Communication Cable

P/N	Vendor	Description
1407356	Phoenix Contact	1m, CAT5e shielded, D-coded

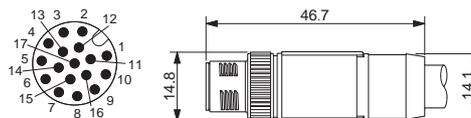


Efficient Integrated TSM	Step-Servo
Integrated SSM	Step-Servo
IP65 Integrated TXM	Step-Servo
Motor & Drive RS	Step-Servo
Motor & Drive SS	Step-Servo
Pulse Input STM-R	Integrated Stepper Motor
With Controller STM	Integrated Stepper Motor
IP65 With Controller SWM	Integrated Stepper Motor
Pulse Input With Controller SRAC	AC Input
With Controller STAC	AC Input
Pulse Input SR	2-Phase Stepper Drive
Field Bus STF	DC Input
With Controller ST	DC Input
AC Input	3-Phase Stepper Drive
DC Input	3-Phase Stepper Drive
2-Phase	Stepper Motor
3-Phase	Stepper Motor
UL	Stepper Motor
Power Supplies	Accessories
Cables	Accessories
Software	Appendix
Glossary	Appendix

■ **TXM34 Series Cable**

◇ I/O Cable

P/N	Vendor	Description
1430200	Phoenix Contact	17 PIN, 1.5m, shielded, A-coded



-P Type

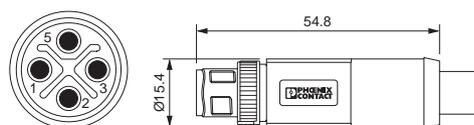
Pin No.	Assignment	Description	Color
1	X1+	High Speed Digital Input	BN
3	X1-		WH
6	X2+	High Speed Digital Input	YE
4	X2-		GN
5	X3	X3 Digital Input	PK
8	X4	X4 Digital Input	GY
7	XCOM	X Digital Input COM	BK
10	YCOM	Y Digital Output COM	VT
9	ENC A+	Encoder Output A	RD
2	ENC A-		BU
11	ENC B+	Encoder Output B	GY/PK
12	ENC B-		RD/BU
13	ENC Z+	Encoder Output Z	WH/GN
14	ENC Z-		BN/GN
15	Y1	Y1 Digital Output	WH/YE
16	Y2	Y2 Digital Output	YE/BN
17	Y3	Y3 Digital Output	WH/GY

-Q/C Type

Pin No.	Assignment	Description	Color
1	X1+	High Speed Digital Input	BN
3	X1-		WH
6	X2+	High Speed Digital Input	YE
4	X2-		GN
5	X3+	X3 Digital Input	PK
8	X3-		GY
7	X4+	X4 Digital Input	BK
10	X4-		VT
9	X5+	X5 Digital Input	RD
2	X5-		BU
11	Y1	Y1 Digital Output	GY/PK
12	Y2	Y2 Digital Output	RD/BU
13	Y3	Y3 Digital Output	WH/GN
14	YCOM	Y Digital Output COM	BN/GN
15	GND	Analog Input Ground	WH/YE
16	+5V	+5V Analog Voltage	YE/BN
17	AIN	Analog Input	WH/GY

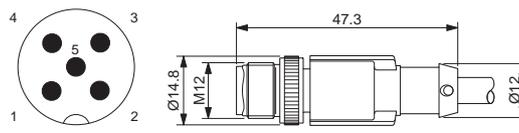
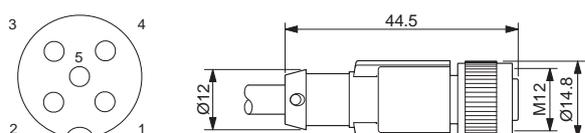
◇ Power Cable

P/N	Vendor	Description
1408835	Phoenix Contact	1m, shielded, S-code



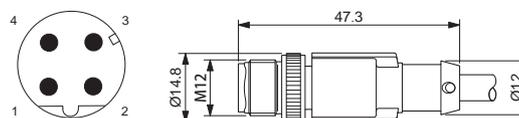
◇ RS-232/RS-485/CANopen Communication Cable

P/N	Vendor	Description	COM Port
1407805	Phoenix Contact	3m, plug, shielded, A-code	COM1
1407788		3m, Socket, shielded, A-code	COM2



◇ Ethernet Communication Cable

P/N	Vendor	Description
1407356	Phoenix Contact	1m, CAT5e shielded, D-code



Efficient Integrated TSM
Integrated SSM
IP65 Integrated TXM
Motor & Drive RS
Motor & Drive SS
Integrated Stepper Motor
STM-R Pulse Input With Controller
STM With Controller
IP65 SWM With Controller
SRAC Pulse Input With Controller
2-Phase Stepper Drive
STAC With Controller
SR Pulse Input
DC Input
STF Field Bus
ST With Controller
3-Phase Stepper Drive
AC Input
DC Input
2-Phase Stepper Drive
3-Phase Stepper Drive
UL
Power Supplies
Cables
Software
Glossary