Applied Motion Products

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Product Datasheet
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# TSM17C-1CG

*NEMA 17 Integrated CANopen Step Servo Motor w/ Q Programming*

*1pc. - $517.00*
*50pc. - $387.75*



## Product **Features**

- *Step servo technology featuring space vector current control*
- *NEMA 17 frame size*
- *CANopen Protocol – CiA 301 and 402 standards*
- *Network speeds up to 1 Mbps*
- *Dual connectors for easy networking*
- *"Boost" torque of 25-50% higher than holding torque*
- *RS-232 port for configuration and servo tuning*
- *Built-in 20,000 count/rev encoder for closed-loop control*

## Description

The TSM17C-1CG integrated step servo is a drive+motor unit, fusing a NEMA 17 step motor and a servo drive into a single device. It is specifically designed to operate on a CANopen communication network and conforms to CAN in Automation (CiA) 301 and 402 specifications. It supports Profile Position, Profile Velocity, and Homing modes, as well as the ability to run stored Q programs via Applied Motion-specific CANopen objects. Power to the drive, located at the rear of the motor, must be supplied by an external DC supply. See Related and Recommended Products below for compatible 24 and 48 volt DC power supplies.

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

This TSM17 CANopen step servo comes with 8 digital inputs, 4 digital outputs, and 1 analog input. The digital inputs accept signals of 5-24 VDC and can be used for connecting end-of-travel limit switches, PLC outputs, sensors, or many other signal types. The digital outputs can be connected to PLC inputs, counters, lights, relays, or other devices. The analog input accepts 0-5 VDC signals and can be used as an additional sensor input.

The TSM17C-1CG features two communication ports that can be used for either RS-232 or CANbus connections. An integral 5000-line (20,000 count/rev) incremental encoder is housed inside the same enclosure as the drive electronics and used for closed-loop servo control to attain highly accurate position and velocity control. Encoder counts can be accessed over the network or from within the Q program using SCL registers.
All TSM17 units are setup, configured and tuned using Applied Motion's Step Servo Quick Tuner software with built in Q Programmer.

## Specifications

| | |
|---|---|
| **Part Number** | TSM17C-1CG |
| **Supply Voltage** | 12-48 VDC |
| **Supply Voltage Type** | DC |
| **Control Modes** | • Q Programming<br>• CANopen |
| **Communication Ports** | • CANopen |
| **Encoder Feedback** | Yes |
| **Step Resolution** | • Microstepping |
| **Idle Current Reduction** | Based on Torque demand |
| **Setup Method** | Software setup |
| **Digital Inputs** | 8 |
| **Digital Outputs** | 4 |
| **Analog Inputs** | 1 single-ended |
| **Circuit Protection** | • Short circuit<br>• Over-voltage<br>• Under-voltage<br>• Over-temp |
| **Status LEDs** | 1 red, 1 green |
| **Frame Size** | NEMA 17 |
| **Holding Torque** | 40 oz-in |
| **Step Angle** | 1.8 deg |
| **Rotor Inertia** | 5.38E-04 oz-in-sec$^2$ |
| **Length** | 2.74 inches |
| **Weight** | 9.88 oz |
| **Operating Temperature Range** | 0-85 °C |
| **Ambient Temperature Range** | 0-40 °C |
| **Ambient Humidity** | 90% max, non-condensing |
| **Insulation Class** | Class B (130 °C) |
| **Maximum Radial Load** | 10 lbs |
| **Maximum Thrust Load** | Less than 1/2 lbs |
| **Shaft Run Out** | NA |
| **Radial Play** | NA |
| **End Play** | NA |
| **Perpendicularity** | NA |
| **Concentricity** | NA |

## Software

| | |
|---|---|
| **Software Downloads** | • SCL Utility<br>• Step Servo Quick Tuner |
| **Sample Code** | • scldemo.zip |

## Downloads

| | |
|---|---|
| **Manuals** | TSM17C Hardware Manual_EN-AMP_920-0085A.pdf<br>TSM17C_Quick Set-up guide_EN-AMP10.14_920-0078A.pdf<br>Host_Command_Reference_Rev I.pdf<br>ModbusManual_920-0072E.pdf |
| **Datasheet** | No datasheets available for this product. |
| **2D Drawing** | TSM17C-1CG_RevA.pdf |
| **3D Drawing** | TSM17C-1CG.igs |
| **Speed-Torque Curves** | There are currently no Speed-Torque Curves documents available for this product. |
| **Agency Approvals** | There are no related agency approval documents at this time. |
| **Application Notes** | APPN0018_EZ-Series-Touchpanel-HMI.zip<br>APPN0019_Analog-positioning-using-Q-program.zip<br>APPN0034_ModbusRTU from Proface HMI with Q_0.zip |

## Pricing

| | **TSM17C-1CG**<br>Part No. TSM17C-1CG |
|---|---|
| **1pc.** | $517.00 |
| **25pc.** | $444.62 |
| **50pc.** | $387.75 |
| **100pc.** | Contact us for 100+ piece pricing. |

## Products in the Series *Integrated Step Servo Products*

* Closeout priced products are highlighted in green.

* Items with web only pricing are highlighted in yellow.

| Part Number | Frame Size | Supply Voltage | Control Modes | Holding Torque (oz-in) | Communication Ports | Encoder Feedback | 1pc./50pc. |
|---|---|---|---|---|---|---|---|
| TSM17C-1CG | NEMA 17 | 12-48 VDC | Q Programming CANopen | 40 | CANopen | Yes | $517.00 / $387.75 |
| TSM17C-2CG | NEMA 17 | 12-48 VDC | Q Programming CANopen | 59 | CANopen | Yes | $521.00 / $390.75 |
| TSM17C-3CG | NEMA 17 | 12-48 VDC | Q Programming | 72 | CANopen | Yes | $524.00 / |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TSM17C-3CG | NEMA 17 | 12-48 VDC | CANopen | 73 | CANopen | Yes | $393.00 |
| TSM17P-1AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 40 | RS-232 | Yes | $353.00 /<br>$264.75 |
| TSM17P-2AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 59 | RS-232 | Yes | $355.00 /<br>$266.25 |
| TSM17P-3AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 73 | RS-232 | Yes | $358.00 /<br>$268.50 |
| TSM17Q-1AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 40 | RS-232 | Yes | $382.00 /<br>$286.50 |
| TSM17Q-1RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 40 | RS-485 | Yes | $388.00 /<br>$291.00 |
| TSM17Q-2AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 59 | RS-232 | Yes | $385.00 /<br>$288.75 |
| TSM17Q-2RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 59 | RS-485 | Yes | $391.00 /<br>$293.25 |
| TSM17Q-3AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 73 | RS-232 | Yes | $388.00 /<br>$291.00 |
| TSM17Q-3RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 73 | RS-485 | Yes | $394.00 /<br>$295.50 |
| TSM23C-2CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 142 | CANopen | Yes | $532.00 /<br>$399.00 |
| TSM23C-3CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 212 | CANopen | Yes | $546.00 /<br>$409.50 |
| TSM23C-4CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 340 | CANopen | Yes | $601.00 /<br>$450.75 |
| TSM23P-2AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 142 | RS-232 | Yes | $367.00 /<br>$275.25 |
| TSM23P-3AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 212 | RS-232 | Yes | $378.00 /<br>$283.50 |
| TSM23P-4AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 340 | RS-232 | Yes | $420.00 /<br>$315.00 |
| TSM23Q-2AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 142 | RS-232 | Yes | $477.00 /<br>$357.75 |
| TSM23Q-2RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 142 | RS-485 | Yes | $484.00 /<br>$363.00 |
| TSM23Q-3AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 212 | RS-232 | Yes | $491.00 /<br>$368.25 |
| | | | Analog Torque / Velocity | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TSM23Q-3RG | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 212 | RS-485 | Yes | $499.00 /<br>$374.25 |
| TSM23Q-4AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 340 | RS-232 | Yes | $546.00 /<br>$409.50 |
| TSM23Q-4RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 340 | RS-485 | Yes | $554.00 /<br>$415.50 |

## Products in the Series *Modbus Products*

* Closeout priced products are highlighted in green.

* Items with web only pricing are highlighted in yellow.

| Part Number | Frame Size | Supply Voltage | Control Modes | Holding Torque (oz-in) | Communication Ports | Encoder Feedback | 1pc./50pc. |
|---|---|---|---|---|---|---|---|
| 5000-128 | NA | 24-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | NA | RS-232 | No | $467.00 /<br>$350.25 |
| 5000-130 | NA | 24-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | NA | RS-232 | Yes | $540.00 /<br>$405.00 |
| 5000-132 | NA | 24-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | NA | RS-232<br>RS-485 | No | $570.00 /<br>$427.50 |
| 5000-134 | NA | 24-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | NA | RS-232<br>RS-485 | Yes | $625.00 /<br>$468.75 |
| 5000-138 | NA | 24-80 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | NA | RS-232 | No | $515.00 /<br>$386.25 |
| 5000-140 | NA | 24-80 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | NA | RS-232 | Yes | $580.00 /<br>$435.00 |
| 5000-142 | NA | 24-80 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | NA | RS-232<br>RS-485 | No | $630.00 /<br>$472.50 |
| | | | Step & Direction | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5000-144 | NA | 24-80 VDC | Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | NA | RS-232<br>RS-485 | Yes | $690.00 /<br>$517.50 |
| STM17Q-1AE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-232 | Yes | $391.00 /<br>$293.25 |
| STM17Q-1AN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-232 | No | $290.00 /<br>$217.50 |
| STM17Q-1RE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-485 | Yes | $403.00 /<br>$302.25 |
| STM17Q-2AE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-232 | Yes | $403.00 /<br>$302.25 |
| STM17Q-2AN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-232 | No | $299.00 /<br>$224.25 |
| STM17Q-2RE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-485 | Yes | $415.00 /<br>$311.25 |
| STM17Q-2RN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-485 | No | $311.00 /<br>$233.25 |
| STM17Q-3AE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-232 | Yes | $420.00 /<br>$315.00 |
| STM17Q-3AN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-232 | No | $314.00 /<br>$235.50 |
| STM17Q-3RE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-485 | Yes | $432.00 /<br>$324.00 |
| STM17Q-3RN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-485 | No | $326.00 /<br>$244.50 |
| STM23Q-2AE | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | 125 | RS-232 | Yes | $571.00 /<br>$428.25 |
| STM23Q-2AN | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | 125 | RS-232 | No | $422.00 /<br>$316.50 |
| STM23Q-2RE | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 125 | RS-485 | Yes | $603.00 /<br>$452.25 |
| STM23Q-2RN | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 125 | RS-485 | No | $486.00 /<br>$364.50 |
| | | | Streaming Commands<br>Analog Positioning | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| STM23Q-3AE | NEMA 23 | 12-70 VDC | Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | 210 | RS-232 | Yes | $591.00 / $443.25 |
| STM23Q-3AN | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>SiNet Hub Compatible<br>Modbus | 210 | RS-232 | No | $447.00 / $335.25 |
| STM23Q-3RE | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 210 | RS-485 | Yes | $610.00 / $457.50 |
| STM23Q-3RN | NEMA 23 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 210 | RS-485 | No | $504.00 / $378.00 |
| STM24QF-3AE | NEMA 24 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 340 | RS-232 | Yes | $623.00 / $467.25 |
| STM24QF-3AN | NEMA 24 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 340 | RS-232 | No | $499.00 / $374.25 |
| STM24QF-3RE | NEMA 24 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 340 | RS-485 | Yes | $682.00 / $511.50 |
| STM24QF-3RN | NEMA 24 | 12-70 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 340 | RS-485 | No | $539.00 / $404.25 |
| SWM24QF-3AE | NEMA 24 | 12-70 VDC | Step & Direction<br>Analog Torque / Velocity<br>Velocity (Oscillator)<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 340 | RS-232 | Yes | $790.00 / $592.50 |
| TSM17C-1CG | NEMA 17 | 12-48 VDC | Q Programming<br>CANopen | 40 | CANopen | Yes | $517.00 / $387.75 |
| TSM17C-2CG | NEMA 17 | 12-48 VDC | Q Programming<br>CANopen | 59 | CANopen | Yes | $521.00 / $390.75 |
| TSM17C-3CG | NEMA 17 | 12-48 VDC | Q Programming<br>CANopen | 73 | CANopen | Yes | $524.00 / $393.00 |
| TSM17P-1AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 40 | RS-232 | Yes | $353.00 / $264.75 |
| TSM17P-2AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 59 | RS-232 | Yes | $355.00 / $266.25 |
| TSM17P-3AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 73 | RS-232 | Yes | $358.00 / $268.50 |
| TSM17Q-1AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 40 | RS-232 | Yes | $382.00 / $286.50 |
| TSM17Q-1RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 40 | RS-485 | Yes | $388.00 / $291.00 |
| TSM17Q-2AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 59 | RS-232 | Yes | $385.00 / $288.75 |
| | | | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TSM17Q-2RG | NEMA 17 | 12-48 VDC | Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 59 | RS-485 | Yes | $391.00 /<br>$293.25 |
| TSM17Q-3AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 73 | RS-232 | Yes | $388.00 /<br>$291.00 |
| TSM17Q-3RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 73 | RS-485 | Yes | $394.00 /<br>$295.50 |
| TSM23C-2CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 142 | CANopen | Yes | $532.00 /<br>$399.00 |
| TSM23C-3CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 212 | CANopen | Yes | $546.00 /<br>$409.50 |
| TSM23C-4CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 340 | CANopen | Yes | $601.00 /<br>$450.75 |
| TSM23P-2AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 142 | RS-232 | Yes | $367.00 /<br>$275.25 |
| TSM23P-3AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 212 | RS-232 | Yes | $378.00 /<br>$283.50 |
| TSM23P-4AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 340 | RS-232 | Yes | $420.00 /<br>$315.00 |
| TSM23Q-2AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 142 | RS-232 | Yes | $477.00 /<br>$357.75 |
| TSM23Q-2RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 142 | RS-485 | Yes | $484.00 /<br>$363.00 |
| TSM23Q-3AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 212 | RS-232 | Yes | $491.00 /<br>$368.25 |
| TSM23Q-3RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 212 | RS-485 | Yes | $499.00 /<br>$374.25 |
| TSM23Q-4AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 340 | RS-232 | Yes | $546.00 /<br>$409.50 |
| TSM23Q-4RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 340 | RS-485 | Yes | $554.00 /<br>$415.50 |

## Products in the Series *STM17 Integrated Steppers*

* Closeout priced products are highlighted in green.

* Items with web only pricing are highlighted in yellow.

| Part Number | Frame Size | Supply Voltage | Control Modes | Holding Torque (oz-in) | Communication Ports | Encoder Feedback | 1pc./50pc. |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| STM17C-3CE | NEMA 17 | 12-48 VDC | CANopen | 68 | RS-232<br>CANopen | Yes | $513.00 / $384.75 |
| STM17C-3CN | NEMA 17 | 12-48 VDC | CANopen | 68 | RS-232<br>CANopen | No | $408.00 / $306.00 |
| STM17Q-1AE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-232 | Yes | $391.00 / $293.25 |
| STM17Q-1AN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-232 | No | $290.00 / $217.50 |
| STM17Q-1RE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-485 | Yes | $403.00 / $302.25 |
| STM17Q-1RN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 31 | RS-485 | No | $302.00 / $226.50 |
| STM17Q-2AE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-232 | Yes | $403.00 / $302.25 |
| STM17Q-2AN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-232 | No | $299.00 / $224.25 |
| STM17Q-2RE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-485 | Yes | $415.00 / $311.25 |
| STM17Q-2RN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 54 | RS-485 | No | $311.00 / $233.25 |
| STM17Q-3AE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-232 | Yes | $420.00 / $315.00 |
| STM17Q-3AN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-232 | No | $314.00 / $235.50 |
| STM17Q-3RE | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-485 | Yes | $432.00 / $324.00 |
| STM17Q-3RN | NEMA 17 | 12-48 VDC | Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Modbus | 68 | RS-485 | No | $326.00 / $244.50 |
| STM17R-3ND | NEMA 17 | 12-48 VDC | Step & Direction | 68 | NA | No | $118.00 / $ 118.00 |
| STM17R-3NE | NEMA 17 | 12-48 VDC | Step & Direction | 68 | NA | Yes | $192.00 / $ 192.00 |
| STM17R-3NN | NEMA 17 | 12-48 VDC | Step & Direction | 68 | NA | No | $117.00 / $ 117.00 |
| STM17S-1AE | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 31 | RS-232 | Yes | $326.00 / $244.50 |
| STM17S-1AN | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 31 | RS-232 | No | $242.00 / $181.50 |
| STM17S-1RE | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 31 | RS-485 | Yes | $336.00 / $252.00 |
| STM17S-1RN | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 31 | RS-485 | No | $251.00 / $188.25 |

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| STM17S-2AE | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 54 | RS-232 | Yes | $335.00 / $251.25 |
| STM17S-2AN | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 54 | RS-232 | No | $249.00 / $186.75 |
| STM17S-2RE | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 54 | RS-485 | Yes | $345.00 / $258.75 |
| STM17S-2RN | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 54 | RS-485 | No | $259.00 / $194.25 |
| STM17S-3AE | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 68 | RS-232 | Yes | $347.00 / $260.25 |
| STM17S-3AN | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 68 | RS-232 | No | $260.00 / $195.00 |
| STM17S-3RE | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 68 | RS-485 | Yes | $358.00 / $268.50 |
| STM17S-3RN | NEMA 17 | 12-48 VDC | Step & Direction<br>Velocity (Oscillator)<br>Streaming Commands | 68 | RS-485 | No | $270.00 / $202.50 |
| TSM17C-1CG | NEMA 17 | 12-48 VDC | Q Programming<br>CANopen | 40 | CANopen | Yes | $517.00 / $387.75 |
| TSM17C-2CG | NEMA 17 | 12-48 VDC | Q Programming<br>CANopen | 59 | CANopen | Yes | $521.00 / $390.75 |
| TSM17C-3CG | NEMA 17 | 12-48 VDC | Q Programming<br>CANopen | 73 | CANopen | Yes | $524.00 / $393.00 |
| TSM17P-1AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 40 | RS-232 | Yes | $353.00 / $264.75 |
| TSM17P-2AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 59 | RS-232 | Yes | $355.00 / $266.25 |
| TSM17P-3AG | NEMA 17 | 12-48 VDC | Step & Direction<br>Encoder Following | 73 | RS-232 | Yes | $358.00 / $268.50 |
| TSM17Q-1AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 40 | RS-232 | Yes | $382.00 / $286.50 |
| TSM17Q-1RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 40 | RS-485 | Yes | $388.00 / $291.00 |
| TSM17Q-2AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 59 | RS-232 | Yes | $385.00 / $288.75 |
| TSM17Q-2RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 59 | RS-485 | Yes | $391.00 / $293.25 |
| TSM17Q-3AG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 73 | RS-232 | Yes | $388.00 / $291.00 |
| TSM17Q-3RG | NEMA 17 | 12-48 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 73 | RS-485 | Yes | $394.00 / $295.50 |
| TSM23C-2CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 142 | CANopen | Yes | $532.00 / $399.00 |
| TSM23C-3CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 212 | CANopen | Yes | $546.00 / $409.50 |

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| TSM23C-4CG | NEMA 23 | 12-70 VDC | Q Programming<br>CANopen | 340 | CANopen | Yes | $601.00 / $450.75 |
| TSM23P-2AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 142 | RS-232 | Yes | $367.00 / $275.25 |
| TSM23P-3AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 212 | RS-232 | Yes | $378.00 / $283.50 |
| TSM23P-4AG | NEMA 23 | 12-70 VDC | Step & Direction<br>Encoder Following | 340 | RS-232 | Yes | $420.00 / $315.00 |
| TSM23Q-2AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 142 | RS-232 | Yes | $477.00 / $357.75 |
| TSM23Q-2RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 142 | RS-485 | Yes | $484.00 / $363.00 |
| TSM23Q-3AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 212 | RS-232 | Yes | $491.00 / $368.25 |
| TSM23Q-3RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 212 | RS-485 | Yes | $499.00 / $374.25 |
| TSM23Q-4AG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 340 | RS-232 | Yes | $546.00 / $409.50 |
| TSM23Q-4RG | NEMA 23 | 12-70 VDC | Analog Torque / Velocity<br>Streaming Commands<br>Analog Positioning<br>Encoder Following<br>Q Programming<br>Velocity Control<br>Modbus | 340 | RS-485 | Yes | $554.00 / $415.50 |