

## ST5-Q-NN

DC Advanced Microstep Drive w/ Q Programming



### Product Features

- Programmable microstepping drive with advanced current control
- Q Programmer™ for robust motion control programming
- 744 lines of stored program capability
- Math calculations using analog and digital parameters
- Supports all "S" drive control modes as well
- Modbus/RTU for easy PLC and HMI communication
- Compatible with many 3rd party HMIs
- Wide current range 0.1 to 5.0 A/phase (peak of sine) with idle current reduction
- Advanced anti-resonance algorithm
- Torque ripple smoothing
- 8 digital inputs, 4 digital outputs, optically isolated
- 2 analog inputs, +/-10 volt range
- RS-232 cable and mating connectors included

## Description

The ST5-Q-NN stepper drive is a DC-powered microstepping drive for controlling two-phase, bipolar step motors. It offers advanced current control and a sophisticated 3rd generation anti-resonance algorithm that electronically dampens motor and system resonances to improve motor smoothness and usable torque over a wide speed range. The drive also employs electronic torque ripple smoothing and microstep emulation to greatly reduce motor noise and vibration. The drive must be powered from 24-48 VDC and can output up to 5.0 A/phase (peak-of-sine) to the step motor. Over-voltage, over-temperature and over-current protection features prevent damage while running in adverse conditions. The drive is complemented by a specifically matched set of NEMA 11 through NEMA 23 frame stepper motors (see Related and Recommended products below).

The ST5-Q-NN can operate in all of the same control modes as the S model (pulse & direction, velocity, streaming commands, SiNet Hub operation), plus it has the ability to run stand-alone Q programs stored in non-volatile memory. Q programs are created using the [Q Programmer™](#) software, which provides multi-tasking, math functions, conditional processing, data register manipulation, and more features in a robust yet simple text-based programming language. The drive is setup and configured using Applied Motion's [ST Configurator™](#) software. Preconfigured motor setup files included with *ST Configurator™* make it easy to set up the drive for optimum results.

For connecting to external devices such as control signals, incremental encoders, limit switches, proximity or photoelectric sensors, PLC I/O, lamps, and other devices, the drive comes with 8 digital inputs, 4 digital outputs, and 2 single-ended analog inputs (analog inputs can be wired together as 1 differential analog input). Adjustable digital filters are present on the digital inputs for enhanced reliability in noisy environments.

The drive comes with an RS-232 port for configuration, serial communications and programming.

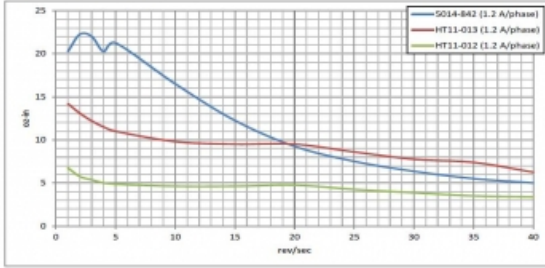
All ST drives are CE approved and RoHS compliant.

## Specifications

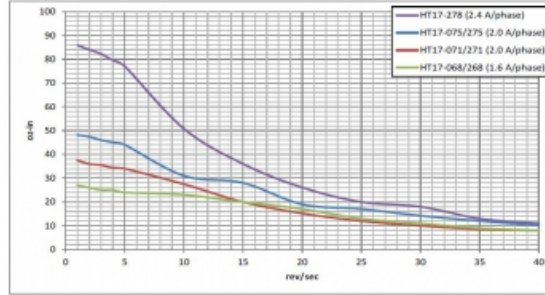
<b>Model Number:</b>	ST5-Q-NN
<b>Part Number:</b>	5000-128
<b>Supply Voltage:</b>	24-48 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Step & Direction Velocity (Oscillator) Streaming Commands Analog Positioning Encoder Following Q Programming SiNet Hub Compatible Modbus RTU
<b>Output Current:</b>	0.1-5.0 A/phase
<b>Communication Ports:</b>	RS-232
<b>Encoder Feedback:</b>	No
<b>Step Resolution:</b>	Full Half Microstepping Microstep Emulation
<b>Idle Current Reduction:</b>	0-90%
<b>Setup Method:</b>	Software setup
<b>Digital Inputs:</b>	8
<b>Digital Outputs:</b>	4
<b>Analog Inputs:</b>	1 differential or 2 single-ended
<b>Dimensions:</b>	5.0 x 3.0 x 1.75 inches
<b>Weight:</b>	10.4 oz
<b>Operating Temperature Range:</b>	0-70 °C
<b>Ambient Temperature Range:</b>	0-55 °C
<b>Ambient Humidity:</b>	90% max, non-condensing
<b>Status LEDs:</b>	1 red, 1 green
<b>Circuit Protection:</b>	Short circuit Over-voltage Under-voltage Over-temp

# Torque Curves

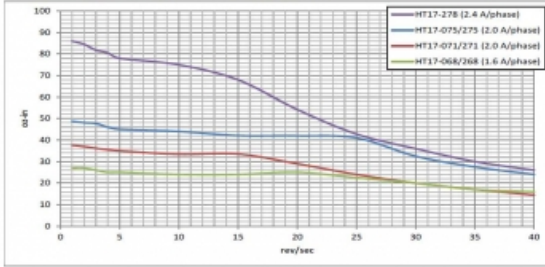
**HT11-012, HT11-013, 5014-842**  
24 VDC power supply, 20000 steps/rev



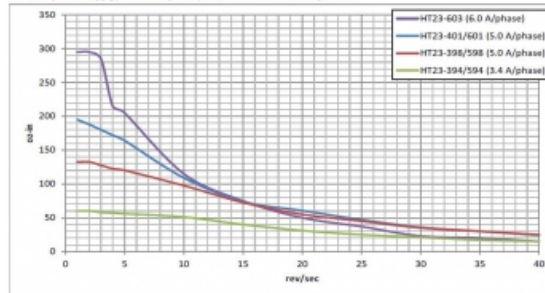
**HT17**  
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



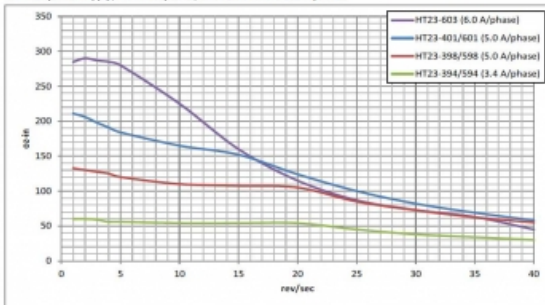
**HT17**  
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



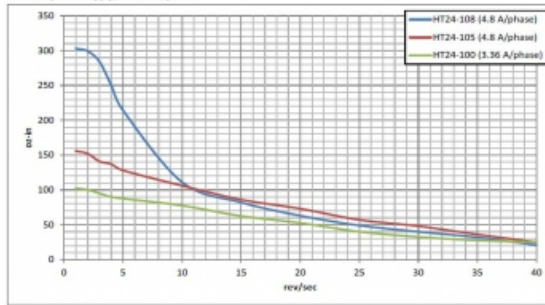
**HT23**  
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



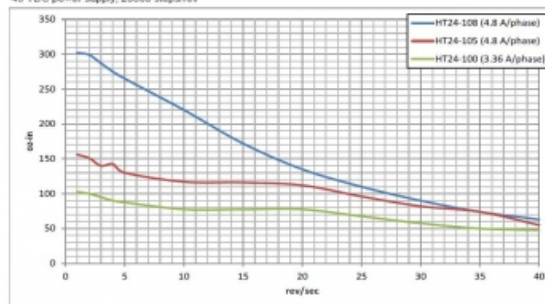
**HT23**  
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



**HT24**  
24 VDC power supply, 20000 steps/rev



**HT24**  
48 VDC power supply, 20000 steps/rev



















# Software

**Software:** [SCL Utility](#)  
[ST Configurator™](#)

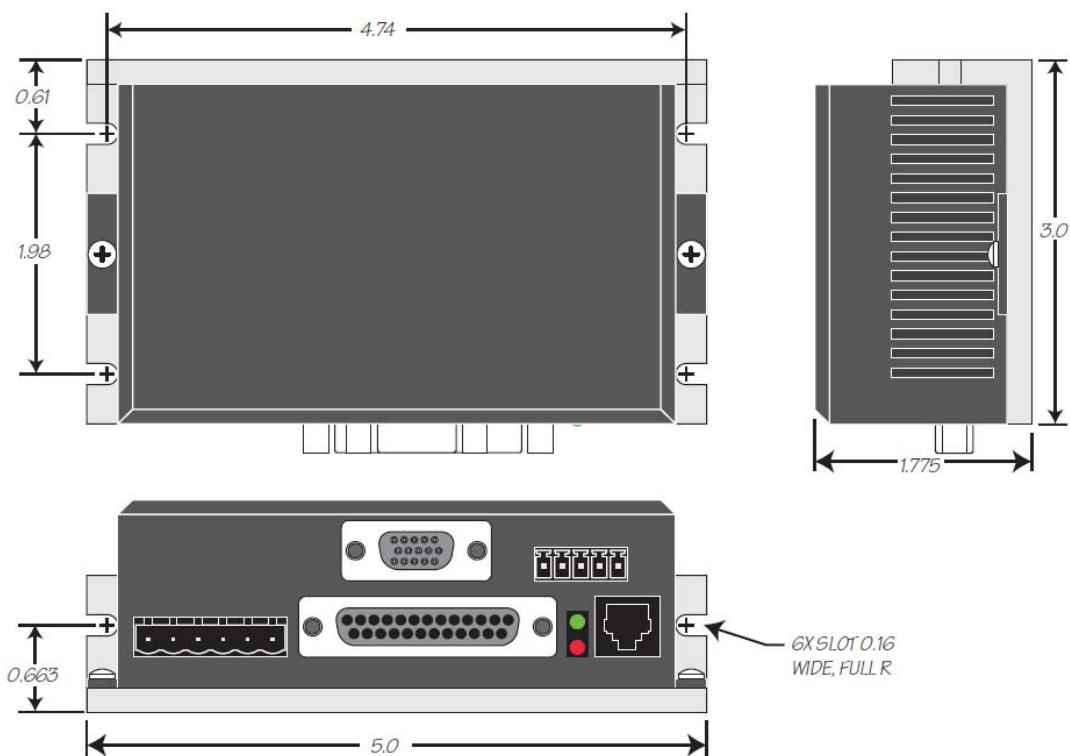
**Sample Code:** [scldemo.zip](#)

## Downloads

<b>Manuals:</b>	<ul style="list-style-type: none"> <li> <a href="#">ST5-10-QSi_Hardware_Manual_920-0004F-opt-.pdf</a></li> <li> <a href="#">ST5_10_Q_QuickSetupGuide_920-0007F.pdf</a></li> <li> <a href="#">ModbusManual_920-0072F.pdf</a></li> <li> <a href="#">Host-Command-Reference_920-0002R.pdf</a></li> </ul>
<b>Product PDF - S3 Link:</b>	<a href="http://s3.amazonaws.com/applied-motion-pdf/ST5-Q-NN.pdf">http://s3.amazonaws.com/applied-motion-pdf/ST5-Q-NN.pdf</a>
<b>Datasheet:</b>	 <a href="#">ST-Datasheet_925-0007.pdf</a>
<b>2D Drawing:</b>	<ul style="list-style-type: none"> <li> <a href="#">ST5_10_Dimensions.pdf</a></li> <li> <a href="#">ST_T_simple_3D.pdf</a></li> </ul>
<b>3D Drawing:</b>	 <a href="#">ST5_10-Q_Si_C_SIMPLE.igs</a>
<b>Speed-Torque Curves:</b>	 <a href="#">ST_Speed_Torque_revF.pdf</a>
<b>Agency Approvals:</b>	 <a href="#">ST-Q-Si-C-IP_CE_DOC.pdf</a>
<b>Application Notes:</b>	<ul style="list-style-type: none"> <li> <a href="#">APPN0034B-ModbusRTU-from-Proface-HMI-with-Q.zip</a></li> <li> <a href="#">APPN0026B-LabVIEW-communication-using-streaming-commands.zip</a></li> <li> <a href="#">APPN0019_Analog-positioning-using-Q-program.zip</a></li> <li> <a href="#">APPN0018_EZ-Series-Touchpanel-HMI.zip</a></li> <li> <a href="#">APPN0016_Simple-25-pin-mating-connections.pdf</a></li> <li> <a href="#">APPN0015_Make-a-serial-programming-cable.pdf</a></li> </ul>

## 2D Drawings

### Mechanical Outline



## Products in the Series *Modbus RTU Products*

Model Number	Supply Voltage	Control Modes	Output Current	Communication Ports	Encoder Feedback	1pc.
	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$608.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$732.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$968.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$1339.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	No	\$334.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	No	\$354.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	No	\$466.00
	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$325.00
	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$617.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$752.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$982.00
		Step & Direction, Analog Torque / Velocity, Streaming Commands				

	48-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$1434.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	Yes	\$420.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	NA	RS-232	Yes	\$528.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	Yes	\$677.00
	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$342.00
	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$625.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$823.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$1075.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	No	\$330.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	NA	RS-232	No	\$438.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	No	\$587.00
	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$494.00
	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$635.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$844.00

	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$1170.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$427.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$536.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$686.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	Yes	\$926.00
	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$502.00
	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$498.00
	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$691.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$925.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$1146.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	No	\$337.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	No	\$446.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	No	\$596.00
	12-70 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$708.00

	15-30 VDC	Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$308.00
	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$505.00
	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$701.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$946.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$1241.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	Yes	\$416.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	Yes	\$424.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	NA	RS-232	Yes	\$547.00
	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$325.00
	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$502.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$661.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$916.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-232	Yes	\$1237.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232	No	\$326.00

		Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU				
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-232	No	\$346.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	NA	RS-232	No	\$457.00
	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$317.00
	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$509.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$682.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$929.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$1332.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$424.00
	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$432.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	Yes	\$556.00
	15-30 VDC	Step & Direction, Streaming Commands, Encoder Following, Q Programming, Velocity Control, Modbus RTU	NA	RS-485	Yes	\$334.00
<a href="#">ST10-Q-NE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus RTU	0.1-10.0 A/Phase	RS-232	Yes	\$696.00
<a href="#">ST10-Q-NF</a>	24-80 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus RTU	0.1-10.0 A/Phase	RS-232	Yes	\$668.00

<a href="#">ST10-Q-NN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	0.1-10.0 A/Phase	RS-232	No	\$618.00
<a href="#">ST10-Q-RE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-10.0 A/Phase	RS-232, RS-485	Yes	\$828.00
<a href="#">ST10-Q-RN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-10.0 A/Phase	RS-232, RS-485	No	\$756.00
<a href="#">ST5-Q-NE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	0.1-5.0 A/Phase	RS-232	Yes	\$648.00
<a href="#">ST5-Q-NF</a>	24-48 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus RTU	0.1-5.0 A/Phase	RS-232	Yes	\$636.00
<a href="#">ST5-Q-NN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	0.1-5.0 A/Phase	RS-232	No	\$560.00
<a href="#">ST5-Q-RE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-5.0 A/Phase	RS-232, RS-485	Yes	\$750.00
<a href="#">ST5-Q-RN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-5.0 A/Phase	RS-232, RS-485	No	\$684.00
<a href="#">STF03</a>	12-48 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	0.1-3.0 A/Phase	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$185.00
<a href="#">STF06</a>	12-48 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	0.1-6.0 A/Phase	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$198.00
<a href="#">STF10</a>	24-70 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	0.1-10.0 A/Phase	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$211.00
<a href="#">SV2A3-Q-RE</a>	78-139 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	NA	\$623.00
<a href="#">SV2A5-Q-RE</a>	78-139 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	NA	\$779.00
		Streaming Commands, Analog Positioning				

<a href="#">SV2B3-Q-RE</a>	156-264 VAC	Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	NA	\$623.00
<a href="#">SV2B5-Q-RE</a>	156-264 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	NA	\$779.00
<a href="#">SV2D10-Q-AE</a>	24-60 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming	NA	RS-232	NA	\$431.00
<a href="#">SV2D10-Q-RE</a>	24-60 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	NA	RS-485	NA	\$431.00

## Products in the Series *ST Stepper Drives*

Model Number	Supply Voltage	Control Modes	Output Current	Communication Ports	Encoder Feedback	1pc.
<a href="#">ST10-C-CE</a>	24-80 VDC	CANopen	0.1-10.0 A/Phase	RS-232, CANopen	Yes	\$818.00
<a href="#">ST10-C-CN</a>	24-80 VDC	CANopen	0.1-10.0 A/Phase	RS-232, CANopen	No	\$757.00
<a href="#">ST10-IP-EE</a>	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	0.1-10.0 A/Phase	Ethernet, EtherNet/IP	Yes	\$852.00
<a href="#">ST10-IP-EN</a>	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	0.1-10.0 A/Phase	Ethernet, EtherNet/IP	No	\$791.00
<a href="#">ST10-Plus</a>	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-10.0 A/Phase	RS-232	No	\$322.00
<a href="#">ST10-Q-EE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	0.1-10.0 A/Phase	Ethernet	Yes	\$871.00
<a href="#">ST10-Q-EN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	0.1-10.0 A/Phase	Ethernet	No	\$792.00
<a href="#">ST10-Q-NE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus RTU	0.1-10.0 A/Phase	RS-232	Yes	\$696.00
<a href="#">ST10-Q-NF</a>	24-80 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus RTU	0.1-10.0 A/Phase	RS-232	Yes	\$668.00
<a href="#">ST10-Q-NN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	0.1-10.0 A/Phase	RS-232	No	\$618.00
<a href="#">ST10-Q-RE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-10.0 A/Phase	RS-232, RS-485	Yes	\$828.00
<a href="#">ST10-Q-RN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-10.0 A/Phase	RS-232, RS-485	No	\$756.00
<a href="#">ST10-S</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	0.1-10.0 A/Phase	RS-232	No	\$274.00
<a href="#">ST10-Si-NE</a>	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	Yes	\$756.00
<a href="#">ST10-Si-NF</a>	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	Yes	\$763.00
<a href="#">ST10-Si-NN</a>	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	No	\$696.00
<a href="#">ST5-C-CE</a>	24-48 VDC	CANopen	0.1-5.0 A/Phase	RS-232, CANopen	Yes	\$702.00
<a href="#">ST5-C-CN</a>	24-48 VDC	CANopen	0.1-5.0 A/Phase	RS-232, CANopen	No	\$649.00
<a href="#">ST5-IP-EE</a>	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	0.1-5.0 A/Phase	Ethernet, EtherNet/IP	Yes	\$786.00
		Streaming Commands, Analog				

<a href="#">ST5-IP-EN</a>	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	0.1-5.0 A/Phase	Ethernet, EtherNet/IP	No	\$728.00
<a href="#">ST5-Plus</a>	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-5.0 A/Phase	RS-232	No	\$295.00
<a href="#">ST5-Q-EE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	0.1-5.0 A/Phase	Ethernet	Yes	\$737.00
<a href="#">ST5-Q-EN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	0.1-5.0 A/Phase	Ethernet	No	\$677.00
<a href="#">ST5-Q-NE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	0.1-5.0 A/Phase	RS-232	Yes	\$648.00
<a href="#">ST5-Q-NF</a>	24-48 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control, Modbus RTU	0.1-5.0 A/Phase	RS-232	Yes	\$636.00
<a href="#">ST5-Q-NN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	0.1-5.0 A/Phase	RS-232	No	\$560.00
<a href="#">ST5-Q-RE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-5.0 A/Phase	RS-232, RS-485	Yes	\$750.00
<a href="#">ST5-Q-RN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	0.1-5.0 A/Phase	RS-232, RS-485	No	\$684.00
<a href="#">ST5-S</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	0.1-5.0 A/Phase	RS-232	No	\$247.00
<a href="#">ST5-Si-NE</a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	\$695.00
<a href="#">ST5-Si-NF</a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	\$727.00
<a href="#">ST5-Si-NN</a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	No	\$588.00