

## ST10-IP-EN

DC EtherNet/IP Advanced Microstep Drive



### Product Features

- Programmable microstepping drive with advanced current control and built-in EtherNet/IP networking
- Full Q programming functionality with Q Programmer™ software
- 744 lines of stored program capability
- Math calculations using analog and digital parameters
- Access all commands and data registers from EtherNet/IP network
- Wide current range 0.1 to 10.0 A/phase (peak of sine) with idle current reduction
- Advanced anti-resonance algorithm
- Torque ripple smoothing
- Microstepping and Microstep Emulation
- 8 digital inputs, 4 digital outputs, optically isolated
- 2 analog inputs, +/-10 volt range
- Fast 10/100 Ethernet for programming and communications
- Also supports Ethernet UDP & TCP communication protocols

## Description

The ST10-IP-EN 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 24-80 VDC and can output up to 10.0 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 23 and NEMA 34 frame stepper motors (see Related and Recommended products below).

The ST10-IP-EN incorporates EtherNet/IP network communications, the widely used industrial protocol for manufacturing automation applications. With EtherNet/IP users can control, configure and query the drive using an open, standards-based, industrial Ethernet connection at speeds up to 100 MBits/sec. The ST-IP drives run all of the same control modes as ST-Q drives, with the addition that all drive features can be accessed over EtherNet/IP, including more than 100 commands and 130 registers for controlling motion, I/O, configuration, polling, math, register manipulation, and Q programming.

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.

In addition to EtherNet/IP the drive supports Ethernet TCP and UDP protocols for sending commands from Applied Motion's proprietary Serial Command Language (SCL). The same 10/100 Mbit Ethernet port on the drive is also used for configuring and programming the drive using the [ST Configurator™](#) and [Q Programmer™](#) software applications, respectively.

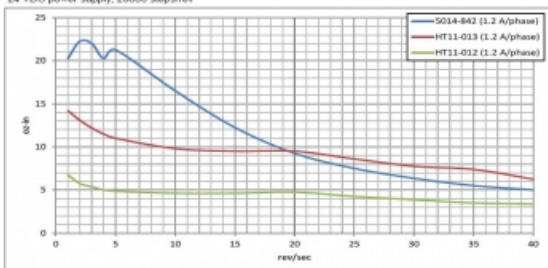
All ST drives are CE approved and RoHS compliant.

## Specifications

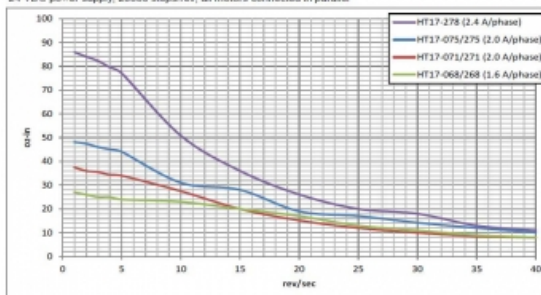
<b>Model Number:</b>	ST10-IP-EN
<b>Part Number:</b>	5000-181
<b>Supply Voltage:</b>	24-80 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Streaming Commands Analog Positioning Encoder Following Q Programming EtherNet/IP Modbus TCP
<b>Output Current:</b>	0.1-10.0 A/phase
<b>Communication Ports:</b>	Ethernet EtherNet/IP
<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

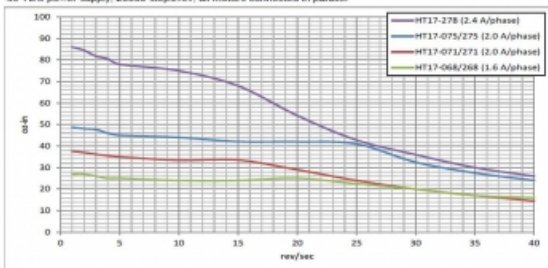
**HT11-012, HT11-013, 5014-842**  
24 VDC power supply, 20000 steps/rev



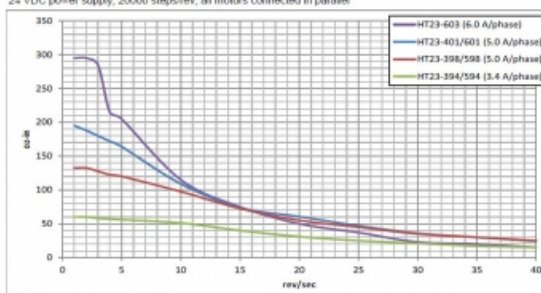
**HT17**  
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



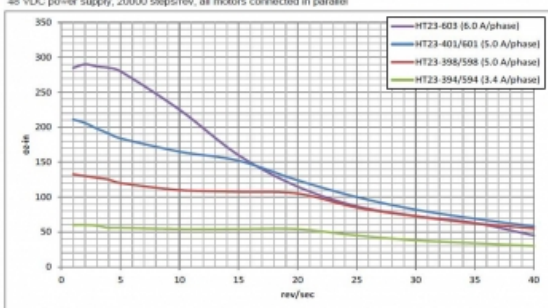
**HT17**  
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



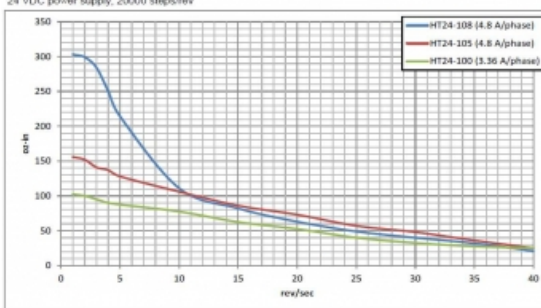
**HT23**  
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



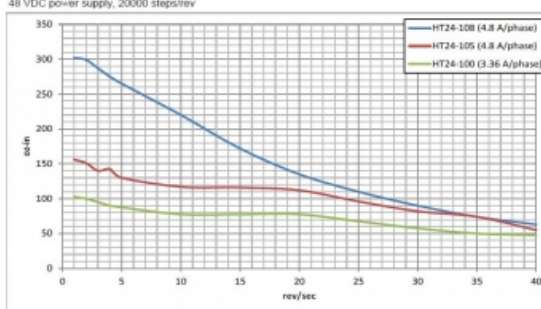
**HT23**  
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



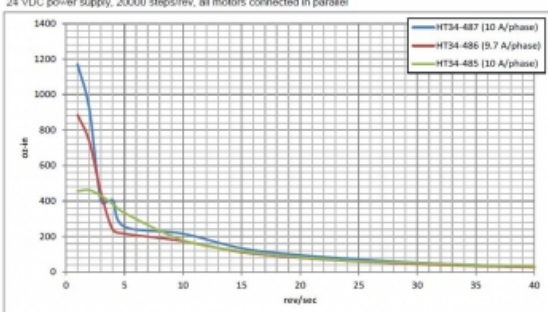
**HT24**  
24 VDC power supply, 20000 steps/rev



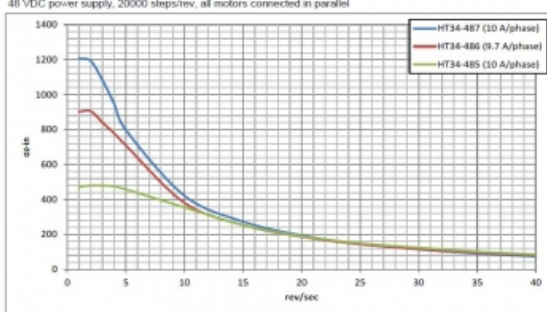
**HT24**  
48 VDC power supply, 20000 steps/rev



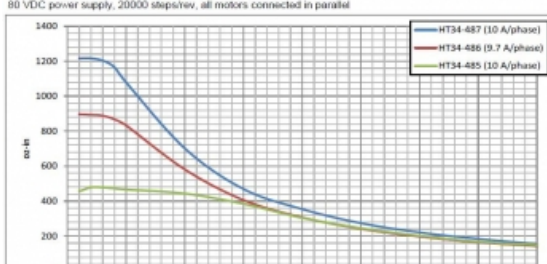
**HT34-485/486/487 with ST10**  
24 VDC power supply, 20000 steps/rev, all motors connected in parallel

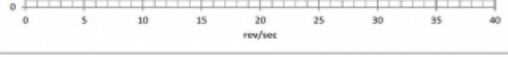


**HT34-485/486/487 with ST10**  
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



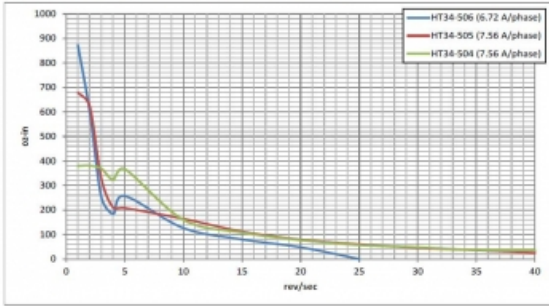
**HT34-485/486/487 with ST10**  
80 VDC power supply, 20000 steps/rev, all motors connected in parallel





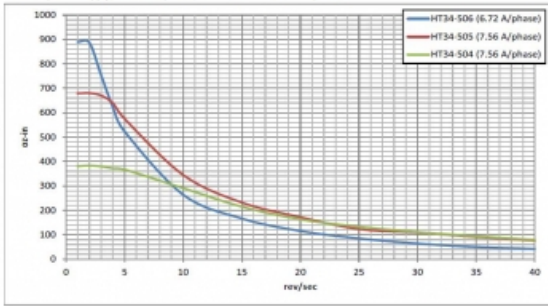
**HT34-504/505/506 with ST10**

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



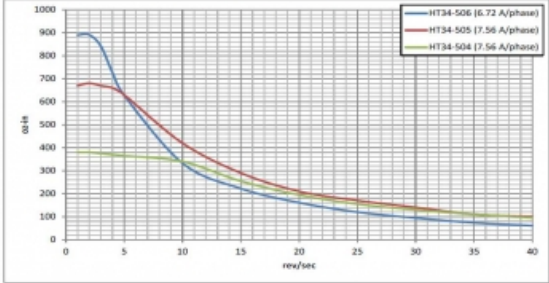
**HT34-504/505/506 with ST10**

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



**HT34-504/505/506 with ST10**

60 VDC power supply, 20000 steps/rev, all motors connected in parallel



**Software**

**Software:**

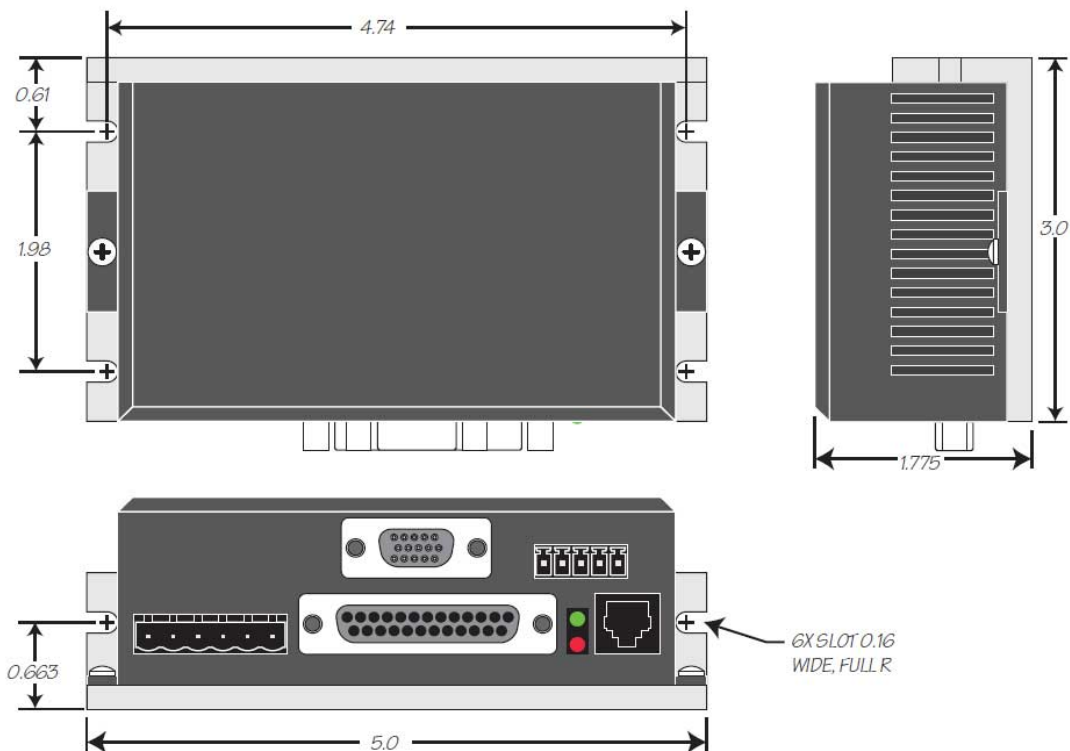
[SCL Utility](#)  
[ST Configurator™](#)

## Downloads

<b>Manuals:</b>	<a href="#">ST5-10-QSi_Hardware_Manual_920-0004F-opt-.pdf</a> <a href="#">ST5_10_IP_QuickSetupGuide_920-0048D.pdf</a> <a href="#">Host-Command-Reference_920-0002R.pdf</a>
<b>Product PDF - S3 Link:</b>	<a href="http://s3.amazonaws.com/applied-motion-pdf/ST10-IP-EN.pdf">http://s3.amazonaws.com/applied-motion-pdf/ST10-IP-EN.pdf</a>
<b>Datasheet:</b>	<a href="#">ST-Datasheet_925-0007.pdf</a> <a href="#">EtherNet-IP-White-Paper_920-0050.pdf</a> <a href="#">ST10IP_6-20-17.eds</a>
<b>2D Drawing:</b>	<a href="#">ST5_10_Dimensions.pdf</a> <a href="#">ST_T_simple_3D.pdf</a>
<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>	<a href="#">APPN0046A-EtherNet-IP-Add-On-Instructions-for-RSLogix.zip</a> <a href="#">APPN0024_AOIs-for-RSLogix5000.zip</a> <a href="#">APPN0023_MicroLogix-to-EtherNet-IP-drive.zip</a> <a href="#">APPN0022_CompactLogix-to-EtherNet-IP-drive.zip</a> <a href="#">APPN0021_5V-Keepalive-Circuit.pdf</a> <a href="#">APPN0016_Simple-25-pin-mating-connections.pdf</a>

## 2D Drawings

### Mechanical Outline



## Products in the Series *Modbus TCP Products*

Model Number	Supply Voltage	Control Modes	Output Current	Communication Ports	Encoder Feedback	1pc.
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$690.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$1006.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$702.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	Yes	\$542.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet	Yes	\$942.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$714.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	No	\$452.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet	Yes	\$995.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet	Yes	\$629.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	Yes	\$562.00
		Step & Direction, Analog Torque / Velocity, Streaming Commands,				

	24-70 VDC	Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$1231.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet	Yes	\$641.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	No	\$472.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	Yes	\$953.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$1302.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet	Yes	\$654.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	Yes	\$691.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$743.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$1393.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	No	\$601.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$814.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$1495.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus TCP	NA	Ethernet, Ethernet, dual-port	Yes	\$905.00

<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-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="#">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
<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-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="#">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="#">SV2A5-Q-EE</a>	78-139 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	NA	\$790.00
<a href="#">SV2B3-Q-EE</a>	156-264 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	NA	\$634.00
<a href="#">SV2B5-Q-EE</a>	156-264 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	NA	\$790.00
<a href="#">SV2D10-IP-DE</a>	24-60VDC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	\$478.00

<u>SV2D10-Q- DE</u>	24-60VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet, Ethernet, dual-port	NA	\$431.00
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## Products in the Series *EtherNet/IP Products*

Model Number	Supply Voltage	Control Modes	Output Current	Communication Ports	Encoder Feedback	1pc.
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$690.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$642.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$1291.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$702.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet, EtherNet/IP	No	\$552.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet	Yes	\$1028.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$1362.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$714.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$751.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$803.00
		Step & Direction, Analog Torque / Velocity, Streaming Commands				

	24-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$1453.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet, EtherNet/IP	No	\$661.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$874.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$1555.00
	24-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$965.00
	48-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	Yes	\$1066.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$630.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$1025.00
	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	NA	Ethernet, EtherNet/IP	No	\$540.00
	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control, Modbus TCP	NA	Ethernet, EtherNet/IP	Yes	\$1078.00
<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
		Streaming Commands, Analog Positioning				

<a href="#">ST5-IP-EE</a>	24-48 VDC	Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	0.1-5.0 A/Phase	Ethernet, EtherNet/IP	Yes	\$786.00
<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="#">STAC5-IP-E120</a>	94-135 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.5-5.0 A/Phase	Ethernet, EtherNet/IP	Yes	\$852.00
<a href="#">STAC5-IP-E220</a>	94-265 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.5-2.55 A/Phase	Ethernet, EtherNet/IP	Yes	\$852.00
<a href="#">STAC5-IP-N120</a>	94-135 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.5-5.0 A/Phase	Ethernet, EtherNet/IP	No	\$791.00
<a href="#">STAC5-IP-N220</a>	94-265 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.5-2.55 A/Phase	Ethernet, EtherNet/IP	No	\$791.00
<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-IP-DE</a>	78-139 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	\$680.00
<a href="#">SV2A5-IP-DE</a>	78-139 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	\$836.00
<a href="#">SV2B3-IP-DE</a>	156-264 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	\$680.00
<a href="#">SV2B5-IP-DE</a>	156-264 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	\$836.00
<a href="#">SV2D10-IP-DE</a>	24-60VDC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	\$478.00

## 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="#"><u>ST5-IP-EN</u></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="#"><u>ST5-Plus</u></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="#"><u>ST5-Q-EE</u></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="#"><u>ST5-Q-EN</u></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="#"><u>ST5-Q-NE</u></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="#"><u>ST5-Q-NF</u></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="#"><u>ST5-Q-NN</u></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="#"><u>ST5-Q-RE</u></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="#"><u>ST5-Q-RN</u></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="#"><u>ST5-S</u></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="#"><u>ST5-Si-NE</u></a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	\$695.00
<a href="#"><u>ST5-Si-NF</u></a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	\$727.00
<a href="#"><u>ST5-Si-NN</u></a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	No	\$588.00