Applied Motion Products, Inc.
404 Westridge Dr.
Watsonville, CA 95076, USA

1-800-525-1609
Tel (831) 761-6555

Product Datasheet

www.Applied-Motion.com

ST5-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 5.0 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 ST5-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 24-48 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-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.

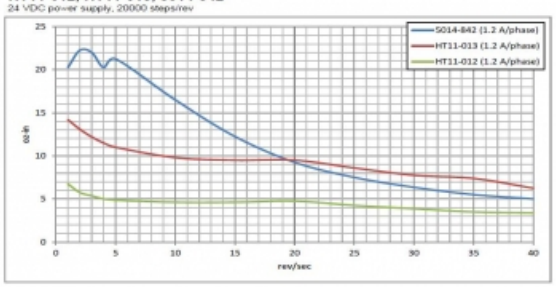
All ST drives are CE approved and RoHS compliant.

Specifications

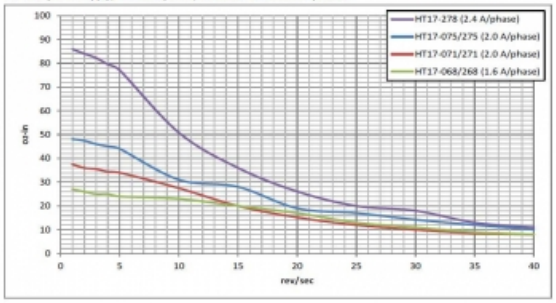
Model Number:	ST5-IP-EN
Part Number:	5000-183
Supply Voltage:	24-48 VDC
Supply Voltage Type:	DC
Control Modes:	Streaming Commands Analog Positioning Encoder Following Q Programming EtherNet/IP Modbus TCP
Output Current:	0.1-5.0 A/phase
Communication Ports:	Ethernet EtherNet/IP
Encoder Feedback:	No
Step Resolution:	Full Half Microstepping Microstep Emulation
Idle Current Reduction:	0-90%
Setup Method:	Software setup
Digital Inputs:	8
Digital Outputs:	4
Analog Inputs:	1 differential or 2 single-ended
Dimensions:	5.0 x 3.0 x 1.75 inches
Weight:	10.4 oz
Operating Temperature Range:	0-70 °C
Ambient Temperature Range:	0-55 °C
Ambient Humidity:	90% max, non-condensing
Status LEDs:	1 red, 1 green
Circuit Protection:	Short circuit Over-voltage Under-voltage Over-temp

Torque Curves

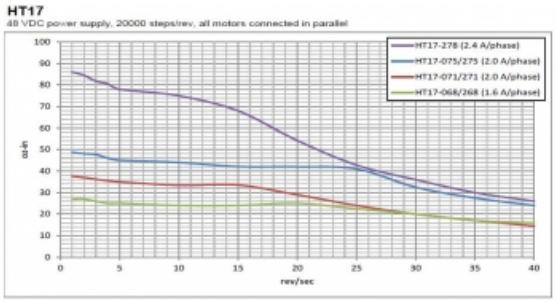
HT11-012, HT11-013, 5014-842
24 VDC power supply, 20000 steps/rev



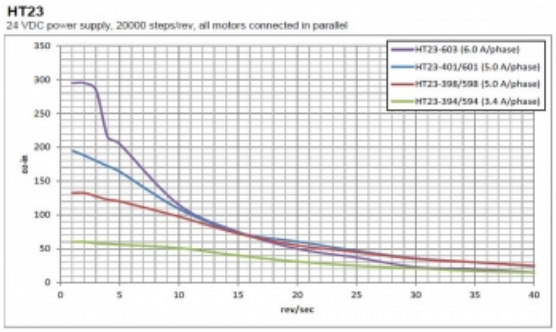
HT17
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



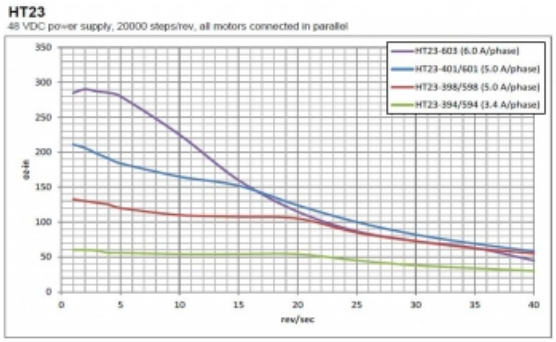
HT17
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



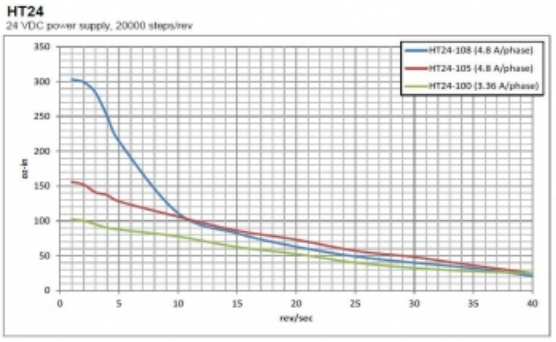
HT23
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



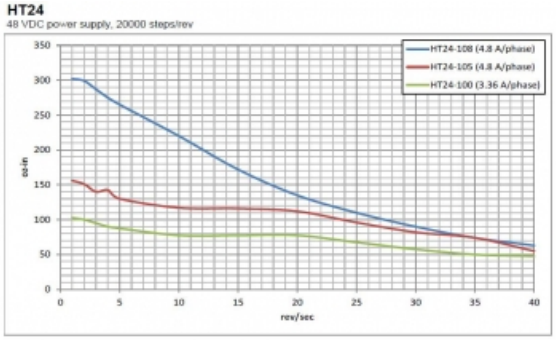
HT23
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



HT24
24 VDC power supply, 20000 steps/rev



HT24
48 VDC power supply, 20000 steps/rev



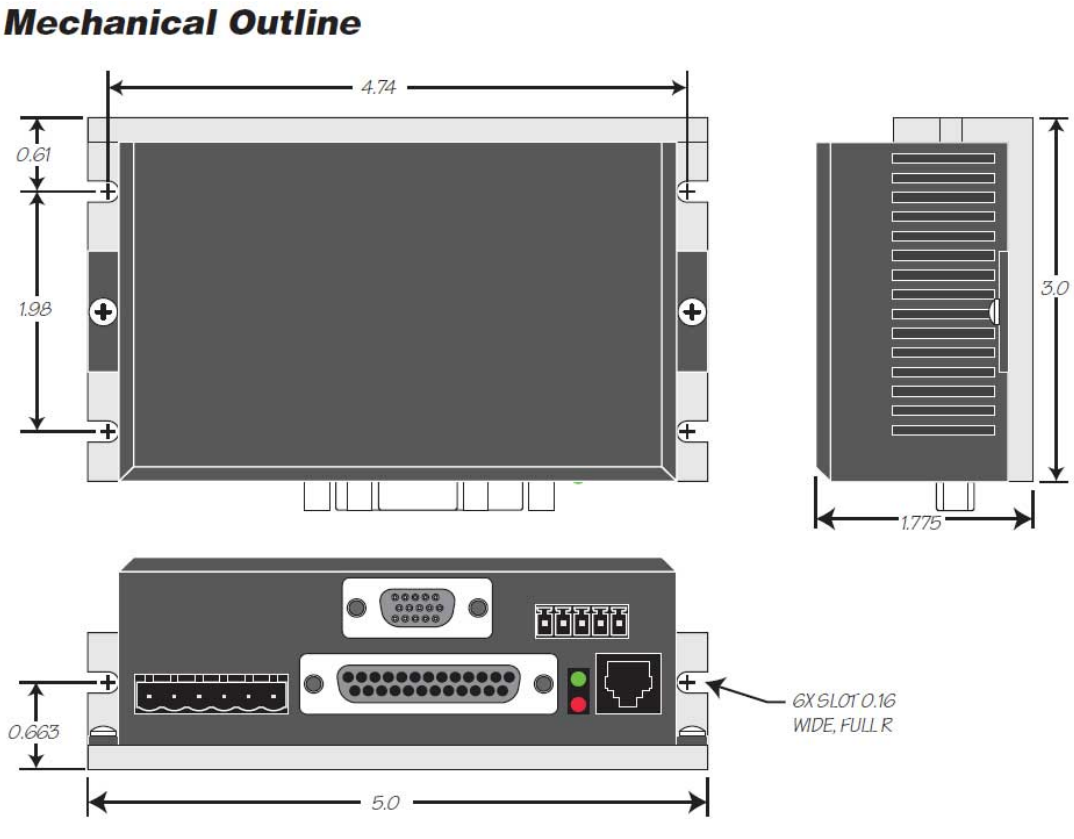
Software

Software:	SCL Utility ST Configurator™

Downloads

Manuals:	ST5-10-QSi_Hardware Manual_920-0004F-opt-.pdf ST5_10_IP_QuickSetupGuide_920-0048D.pdf Host-Command-Reference_920-0002R.pdf
Product PDF - S3 Link:	http://s3.amazonaws.com/applied-motion-pdf/ST5-IP-EN.pdf
Datasheet:	ST-Datasheet_925-0007.pdf EtherNet-IP-White-Paper_920-0050.pdf ST5IP_6-20-17.eds
2D Drawing:	ST5_10 Dimensions.pdf ST_T_simple_3D.pdf
3D Drawing:	ST5_10-Q_Si_C_SIMPLE.igs
Speed-Torque Curves:	ST_Speed_Torque_revF.pdf
Agency Approvals:	ST-Q-Si-C-IP_CE_DOC.pdf
Application Notes:	APPN0046A-EtherNet-IP-Add-On-Instructions-for-RSLogix.zip APPN0024_AOIs-for-RSLogix5000.zip APPN0023_MicroLogix-to-EtherNet-IP-drive.zip APPN0022_CompactLogix-to-EtherNet-IP-drive.zip APPN0021_5V-Keepalive-Circuit.pdf APPN0016_Simple-25-pin-mating-connections.pdf

2D Drawings



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

ST10-IP-EE	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
ST10-IP-EN	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
ST10-Q-EE	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
ST10-Q-EN	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
ST5-IP-EE	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
ST5-IP-EN	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
ST5-Q-EE	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
ST5-Q-EN	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
STF03	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
STF06	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
STF10	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
SV2A5-Q-EE	78-139 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	NA	$790.00
SV2B3-Q-EE	156-264 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	NA	$634.00
SV2B5-Q-EE	156-264 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet	NA	$790.00
SV2D10-IP-DE	24-60VDC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	$478.00

SV2D10-Q-DE	24-60VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	NA	Ethernet, Ethernet, dual-port	NA	$431.00

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	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
ST10-IP-EE	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
ST10-IP-EN	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,				

ST5-IP-EE	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
ST5-IP-EN	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
STAC5-IP-E120	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
STAC5-IP-E220	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
STAC5-IP-N120	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
STAC5-IP-N220	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
STF03	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
STF06	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
STF10	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
SV2A3-IP-DE	78-139 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	$680.00
SV2A5-IP-DE	78-139 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	$836.00
SV2B3-IP-DE	156-264 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	$680.00
SV2B5-IP-DE	156-264 VAC	Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP, Ethernet, dual-port	NA	$836.00
SV2D10-IP-DE	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.
ST10-C-CE	24-80 VDC	CANopen	0.1-10.0 A/Phase	RS-232, CANopen	Yes	$818.00
ST10-C-CN	24-80 VDC	CANopen	0.1-10.0 A/Phase	RS-232, CANopen	No	$757.00
ST10-IP-EE	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
ST10-IP-EN	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
ST10-Plus	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-10.0 A/Phase	RS-232	No	$322.00
ST10-Q-EE	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
ST10-Q-EN	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
ST10-Q-NE	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
ST10-Q-NF	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
ST10-Q-NN	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
ST10-Q-RE	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
ST10-Q-RN	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
ST10-S	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	0.1-10.0 A/Phase	RS-232	No	$274.00
ST10-Si-NE	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	Yes	$756.00
ST10-Si-NF	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	Yes	$763.00
ST10-Si-NN	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	No	$696.00
ST5-C-CE	24-48 VDC	CANopen	0.1-5.0 A/Phase	RS-232, CANopen	Yes	$702.00
ST5-C-CN	24-48 VDC	CANopen	0.1-5.0 A/Phase	RS-232, CANopen	No	$649.00
ST5-IP-EE	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				

ST5-IP-EN	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
ST5-Plus	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-5.0 A/Phase	RS-232	No	$295.00
ST5-Q-EE	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
ST5-Q-EN	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
ST5-Q-NE	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
ST5-Q-NF	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
ST5-Q-NN	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
ST5-Q-RE	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
ST5-Q-RN	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
ST5-S	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	0.1-5.0 A/Phase	RS-232	No	$247.00
ST5-Si-NE	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	$695.00
ST5-Si-NF	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	$727.00
ST5-Si-NN	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	No	$588.00