

## ST10-S

DC Advanced Microstep Drive

1pc. - 405.00  
50pc. - 303.75


### Product Features

- Compact microstepping drive with advanced current control
- Step (pulse) & direction, CW/CCW pulse, or A/B quadrature pulse control
- On-board oscillator with analog speed reference
- Versatile joystick operation
- Streaming serial command mode (SCL)
- 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
- 3 digital inputs, 1 digital output, optically isolated
- 1 analog input, 0-5 volt range
- RS-232 cable and mating connectors included



### Description

The ST10-S 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-S can operate in the following control modes: step (pulse) & direction, velocity (oscillator), streaming serial commands (SCL), and operation with an Applied Motion 4-axis or 8-axis SiNet Hub. All ST drives are 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 step & direction control signals, incremental encoders, limit switches, proximity or photoelectric sensors, PLC I/O, lamps, and other devices, the drive comes with 3 digital inputs, 1 digital output, and 1 single-ended 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.

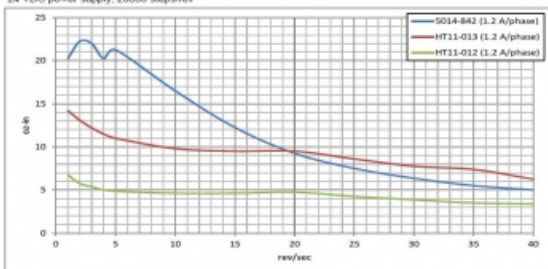
All ST drives are CE approved and RoHS compliant.

## Specifications

<b>Model Number:</b>	ST10-S
<b>Part Number:</b>	5000-127
<b>Supply Voltage:</b>	24-80 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Step & Direction Velocity (Oscillator) Streaming Commands SiNet Hub Compatible
<b>Output Current:</b>	0.1-10.0 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>	3
<b>Digital Outputs:</b>	1
<b>Analog Inputs:</b>	1
<b>Dimensions:</b>	3.65 x 3 x 1.125 inches
<b>Weight:</b>	7.1 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

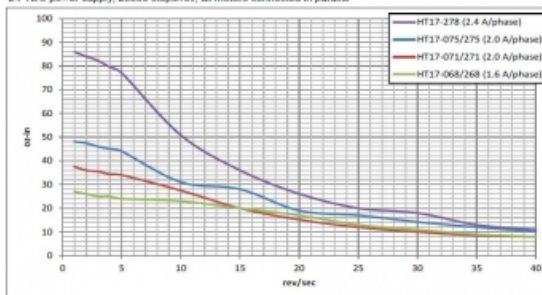
# Torque Curves

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



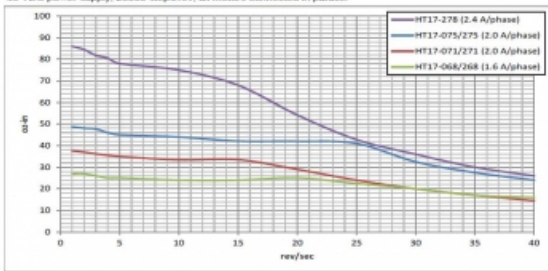
**HT17**

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



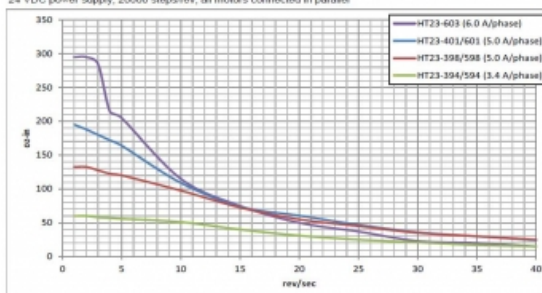
**HT17**

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



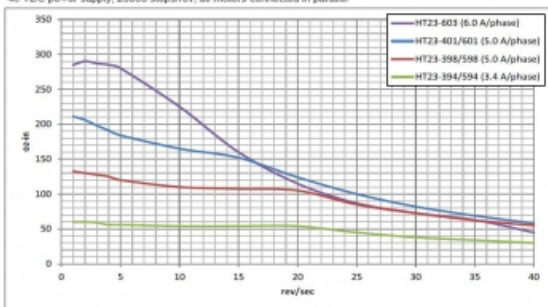
**HT23**

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



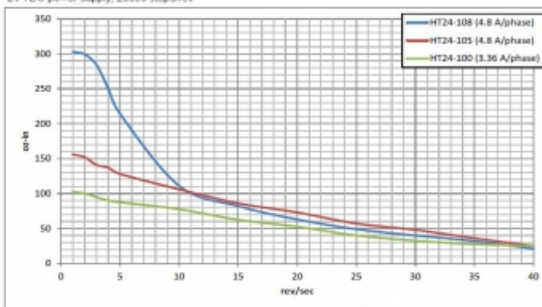
**HT23**

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



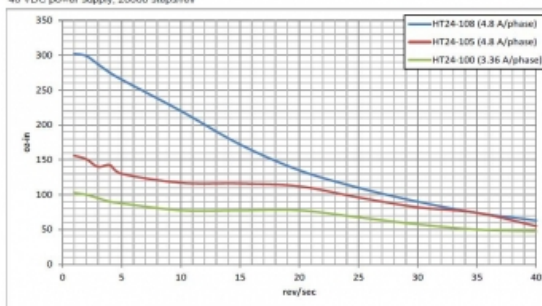
**HT24**

24 VDC power supply, 20000 steps/rev



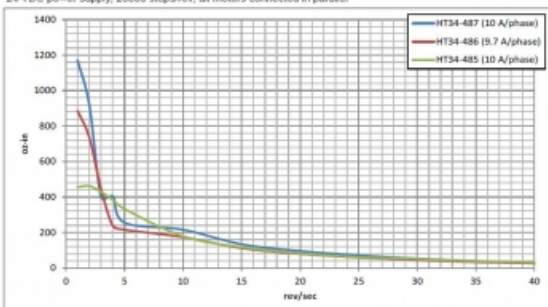
**HT24**

48 VDC power supply, 20000 steps/rev



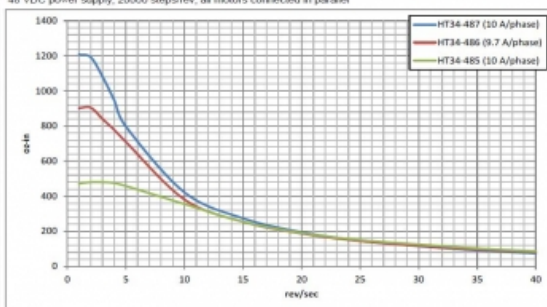
**HT34-485/486/487 with ST10**

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



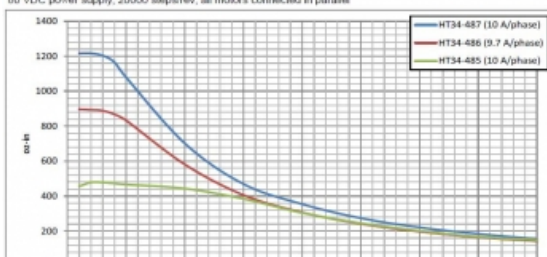
**HT34-485/486/487 with ST10**

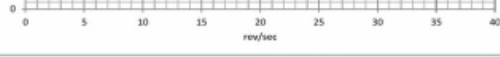
48 VDC power supply, 20000 steps/rev, all motors connected in parallel



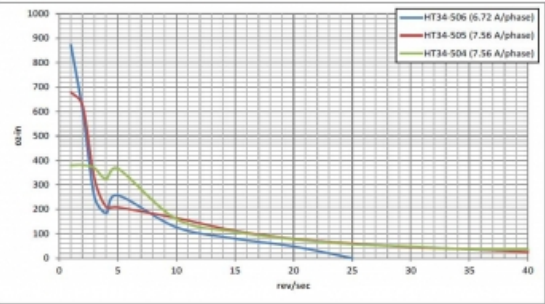
**HT34-485/486/487 with ST10**

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

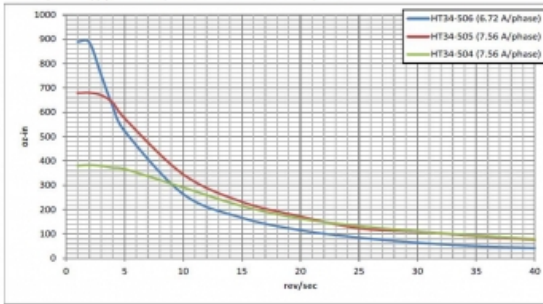




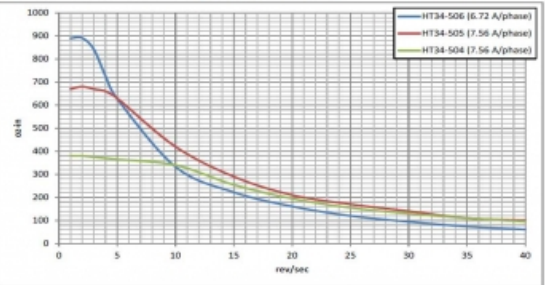
**HT34-504/505/506 with ST10**  
24 VDC power supply, 20000 steps/rev, all motors connected in parallel



**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™](#)

Sample Code:  [scldemo.zip](#)

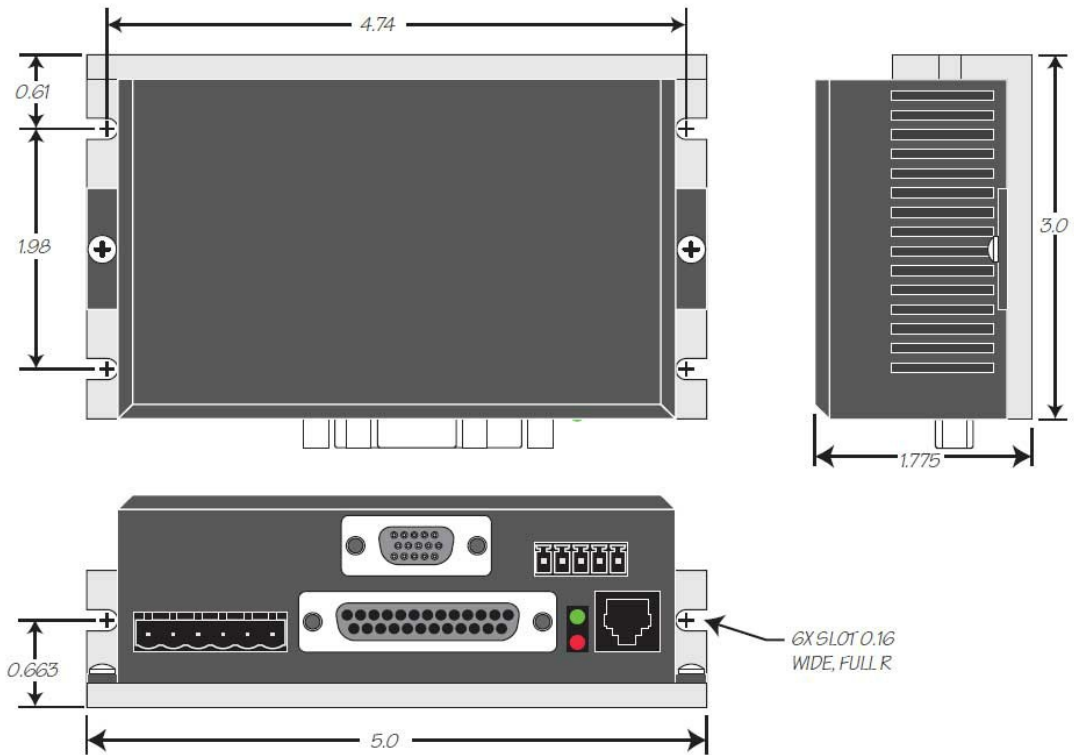
## Downloads

<b>Manuals:</b>	<a href="#"> ST5_10_S_QuickSetup_Guide_920-0001F.pdf</a> <a href="#"> Host Command Reference Rev I.pdf</a> <a href="#"> ST5-10-S_C_HardwareManual_920-0027_RevD.pdf</a>
<b>Datasheet:</b>	<a href="http://s3.amazonaws.com/applied-motion-pdf/ST10-S.pdf">http://s3.amazonaws.com/applied-motion-pdf/ST10-S.pdf</a>
<b>Family Datasheet:</b>	<a href="#"> ST_Datasheet_925-0007.pdf</a>
<b>2D Drawing:</b>	<a href="#"> ST5_10_Dimensions.pdf</a> <a href="#"> ST_S_Simple.pdf</a>
<b>3D Drawing:</b>	<a href="#"> ST5-10-S_SIMPLE_MODEL_B.igs</a>
<b>Speed-Torque Curves:</b>	<a href="#"> ST_speed-torque.pdf</a>
<b>Agency Approvals:</b>	<a href="#"> ST10-S_Plus_LVD_CE_DOC.pdf</a> <a href="#"> ST5_10-S_Plus EMC_CE_DOC.pdf</a>
<b>Application Notes:</b>	<a href="#"> APPN0021_5V-Keepalive-Circuit.pdf</a> <a href="#"> APPN0018_EZ-Series-Touchpanel-HMI.zip</a> <a href="#"> APPN0015_Make-a-serial-programming-cable.pdf</a>

## Pricing

ST10-S Part No. 5000-127	
1pc.	\$405.00
25pc.	\$348.30
50pc.	\$303.75
100pc.	<a href="#">Contact us</a> for 100+ piece pricing.

## Mechanical Outline



## Products in the Series *ST Stepper Drives*

Model Number	Supply Voltage	Control Modes	Output Current	Communication Ports	Encoder Feedback	1pc./50pc.
<a href="#">ST10-C-CE</a>	24-80 VDC	CANopen	0.1-10.0 A/Phase	RS-232, CANopen	Yes	\$682.00 / \$511.50
<a href="#">ST10-C-CN</a>	24-80 VDC	CANopen	0.1-10.0 A/Phase	RS-232, CANopen	No	\$631.00 / \$473.25
<a href="#">ST10-IP-EE</a>	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.1-10.0 A/Phase	Ethernet, EtherNet/IP	Yes	\$710.00 / \$532.50
<a href="#">ST10-IP-EN</a>	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.1-10.0 A/Phase	Ethernet, EtherNet/IP	No	\$659.00 / \$494.25
<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	\$440.00 / \$330.00
<a href="#">ST10-Q-EE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-10.0 A/Phase	Ethernet	Yes	\$726.00 / \$544.50
<a href="#">ST10-Q-EN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-10.0 A/Phase	Ethernet	No	\$660.00 / \$495.00
<a href="#">ST10-Q-NE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	0.1-10.0 A/Phase	RS-232	Yes	\$580.00 / \$435.00
<a href="#">ST10-Q-NF</a>	24-80 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control	0.1-10.0 A/Phase	RS-232	Yes	\$557.00 / \$417.75
<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	0.1-10.0 A/Phase	RS-232	No	\$515.00 / \$386.25
<a href="#">ST10-Q-RE</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	0.1-10.0 A/Phase	RS-232, RS-485	Yes	\$690.00 / \$517.50
<a href="#">ST10-Q-RN</a>	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	0.1-10.0 A/Phase	RS-232, RS-485	No	\$630.00 / \$472.50
<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	\$405.00 / \$303.75
<a href="#">ST10-Si-NE</a>	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	Yes	\$630.00 / \$472.50
<a href="#">ST10-Si-NF</a>	24-80 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Si Programming, Q Programming, SiNet Hub Compatible, Velocity Control	0.1-10.0 A/Phase	RS-232	Yes	\$636.00 / \$477.00
<a href="#">ST10-Si-NN</a>	24-80 VDC	Si Programming	0.1-10.0 A/Phase	RS-232	No	\$580.00 / \$435.00
<a href="#">ST5-C-CE</a>	24-48 VDC	CANopen	0.1-5.0 A/Phase	RS-232, CANopen	Yes	\$585.00 / \$438.75
<a href="#">ST5-C-CN</a>	24-48 VDC	CANopen	0.1-5.0 A/Phase	RS-232, CANopen	No	\$541.00 / \$405.75
<a href="#">ST5-IP-EE</a>	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.1-5.0 A/Phase	Ethernet, EtherNet/IP	Yes	\$655.00 / \$491.25
<a href="#">ST5-IP-EN</a>	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	0.1-5.0 A/Phase	Ethernet, EtherNet/IP	No	\$607.00 / \$455.25
<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	\$346.00 / \$259.50
<a href="#">ST5-Q-EE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-5.0 A/Phase	Ethernet	Yes	\$614.00 / \$460.50
<a href="#">ST5-Q-EN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming	0.1-5.0 A/Phase	Ethernet	No	\$564.00 / \$423.00
<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	0.1-5.0 A/Phase	RS-232	Yes	\$540.00 / \$405.00
<a href="#">ST5-Q-NF</a>	24-48 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Velocity Control	0.1-5.0 A/Phase	RS-232	Yes	\$530.00 / \$397.50
<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	0.1-5.0 A/Phase	RS-232	No	\$467.00 / \$350.25

<a href="#">ST5-Q-RE</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	0.1-5.0 A/Phase	RS-232, RS-485	Yes	\$625.00 / \$468.75
<a href="#">ST5-Q-RN</a>	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	0.1-5.0 A/Phase	RS-232, RS-485	No	\$570.00 / \$427.50
<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	\$302.00 / \$226.50
<a href="#">ST5-Si-NE</a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	Yes	\$579.00 / \$434.25
<a href="#">ST5-Si-NF</a>	24-48 VDC	Step & Direction, Streaming Commands, Analog Positioning, Encoder Following, Si Programming, Q Programming, SiNet Hub Compatible, Velocity Control	0.1-5.0 A/Phase	RS-232	Yes	\$606.00 / \$454.50
<a href="#">ST5-Si-NN</a>	24-48 VDC	Si Programming	0.1-5.0 A/Phase	RS-232	No	\$490.00 / \$367.50