

Model Number:
ST10-Q-RE



Sub Title:

DC Advanced Microstep Drive w/ Q Programming & Encoder Input

Agency Approvals: RoHS, CE

- 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 & HMI communication
- Compatible with many 3rd party HMIs
- Wide current range 0.1 to 10.0 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
- Encoder feedback connector for Stall Prevention & Stall Detection.
- RS-232 cable and mating connectors included.
- RS-485 port for serial networking up to 32 axes.

Product Description:

The ST10-Q-RE -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 ST5-Q 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 Motions *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, PCL 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. It also comes with an RS-485 port for streaming serial commands over serial networks with up to 32 axes.

The ST10-Q-RE comes with an encoder feedback connector for applications that demand a higher level of position control than ordinary open-loop step motor systems can provide. Use our double-shaft step motors with incremental encoders and activate either Stall Detection or Stall Prevention in the drive. Stall Detection notifies the system as soon as the required torque is too great for the motor, which results in a loss of synchronization between the rotor and stator, also known as stalling. Stall Prevention automatically adjusts motor speed to maintain synchronization of the rotor to the stator under all conditions. This unique feature allows step motors to operate in a much broader range of applications than previously possible, such as torque-control. The Stall Prevention feature also performs static position maintenance, which maintains the position of the motor shaft when at rest. Additionally, the inclusion of the optional encoder allows the motor to be precisely homed to the index (marker) pulse.

All ST drives are CE approved and RoHS compliant.

Specifications:

Model Number:	ST10-Q-RE
Supply Voltage:	24-80 VDC
Supply Voltage Type:	DC
Control Modes:	

- Step & Direction
- Velocity (Oscillator)
- Streaming Commands
- Analog Positioning
- Encoder Following

- Q Programming
- Modbus RTU

Output Current: 0.1-10.0 A/phase
Communication Ports: RS-232 & RS-485
Encoder Feedback: Yes
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 Temp. Range: 0-70 °C
Ambient Temp. 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