

ST5-Q-NN DC ADVANCED MICROSTEP DRIVE W/Q PROGRAMMING

Product Features

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.

ST5-Q-NN

DC ADVANCED MICROSTEP DRIVE W/Q PROGRAMMING

SPECIFICATIONS	
Model Number	ST5-Q-NN
Part Number	5000-128
Supply Voltage	24-48 VDC
Supply Voltage Type	DC
Control Modes	<ul style="list-style-type: none"> • Step & Direction • Velocity (Oscillator) • Streaming Commands • Analog Positioning • Encoder Following • Q Programming • SiNet Hub Compatible • Modbus
Output Current	0.1-5.0 A/Phase
Communication Ports	RS-232
Encoder Feedback	No
Step Resolution	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Short circuit • Over-voltage • Under-voltage • Over-temp

ST5-Q-NN DC ADVANCED MICROSTEP DRIVE W/Q PROGRAMMING

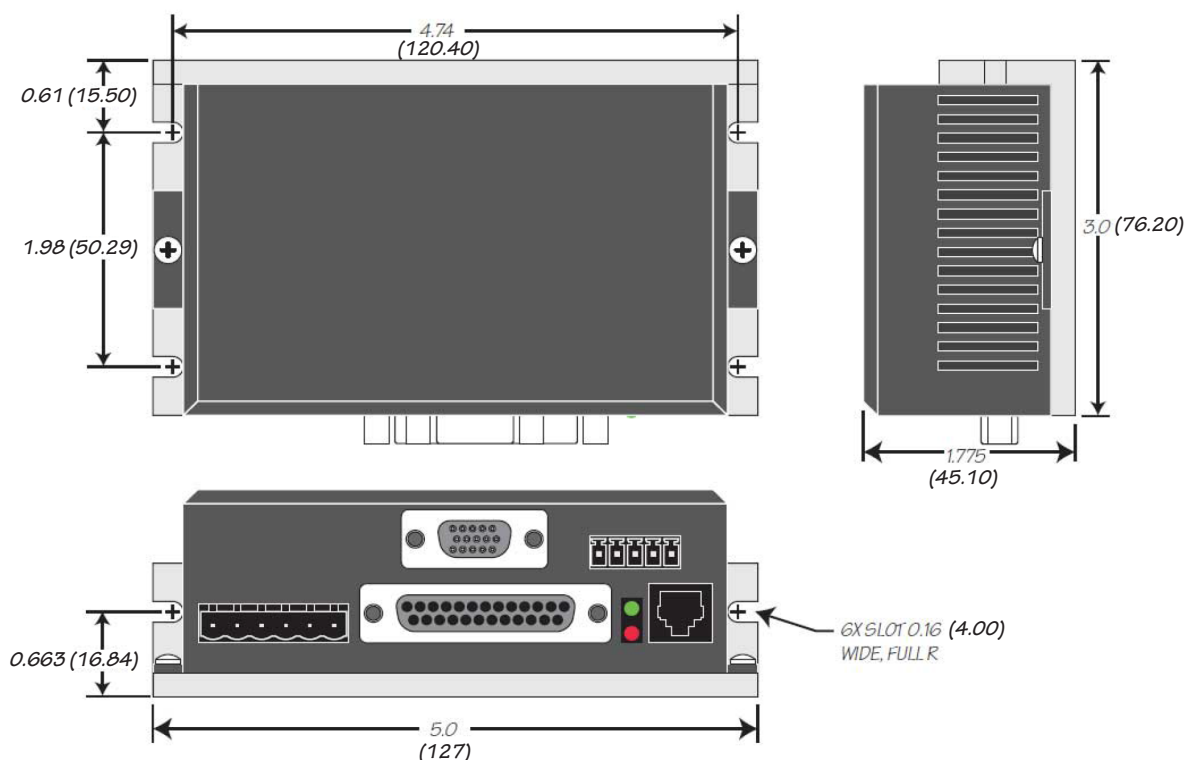
DOWNLOADS & SOFTWARE

Manuals	ST5 10-Q QuickSetup 920-0007E.pdf Host Command Reference Rev I.pdf ST5-10-QSi Hardware Manual 920-0004F.pdf ModbusManual 920-0072.pdf
Datasheet	ST Datasheet 925-0007.pdf
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.pdf
Agency Approvals	ST-Q-Si-C-IP CE DOC.pdf
Application Notes	APPN0021 5V-Keepalive-Circuit.pdf APPN0019 Analog-positioning-using-Q-program.zip APPN0018_EZ-Series-Touchpanel-HMI.zip APPN0016_Simple-25-pin-mating-connections.pdf APPN0015_Make-a-serial-programming-cable.pdf
Software Downloads	SCL Utility ST Configurator™
Sample Code	scldemo.zip

All Downloads and Software can be downloaded from [TWHC website](http://www.twhc.com)

2D DRAWING

Mechanical Outline



ST5-Q-NN

DC ADVANCED MICROSTEP DRIVE W/Q PROGRAMMING

PRODUCTS IN THE SERIES *MODBUS PRODUCTS*

MODEL NUMBER	SUPPLY VOLTAGE	CONTROL MODES	OUTPUT CURRENT	COMMUNICATION PORTS
ST5-Q-NN	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
ST5-Q-NN	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

PRODUCTS IN THE SERIES *ST STEPPER DRIVES*

MODEL NUMBER	SUPPLY VOLTAGE	CONTROL MODES	OUTPUT CURRENT	COMMUNICATION PORTS
ST5-Q-NN	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