

STM17Q

Integrated Motor

Ordering Options

STM23Q-2AN

STM Series
 Frame Size 23
 Q – Basic version

Motor Size
 2=0.9 N.m max
 3=1.5 N.m max

Communications
 A=RS-232
 B=RS-485

Feedback
 N=None
 E=1000-line encoder

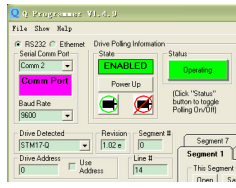
Description

The STM17Q Integrated Motor is designed to run in Q Program mode for stand-alone operation, operate with host serial communications, or both. In addition to the control options of the S version, very complex operation can be achieved.

Control Options

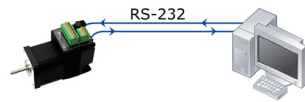
Q Programming

- Create and edit stand-alone programs
- Provides Multi-tasking
- Math Functions
- Internal Data Register access
- Complex operations like Repeat Loops and IF.THEN type routines
- Program operation while communicating with Host Controller

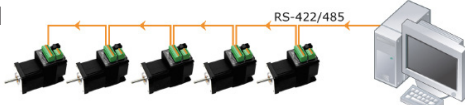


Host Control

- Accepts serial commands from host PC or PLC with RS-232



- Real time control & up to 32 axes with RS-422/485



Connections - Inputs & Outputs

STEP & DIR - high-speed digital inputs

- step & direction/encoder following
- 5 to 24 volt logic

EN - low-speed digital input

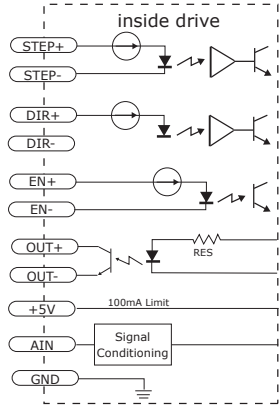
- enable
- 5 to 24 volt logic

OUT - optically isolated, digital output

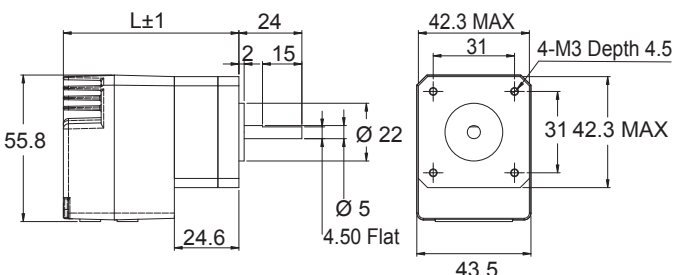
- fault detection
- 30 volts

AIN - analog input

- analog speed & positioning modes
- 0-5 volts



Mechanical Drawings



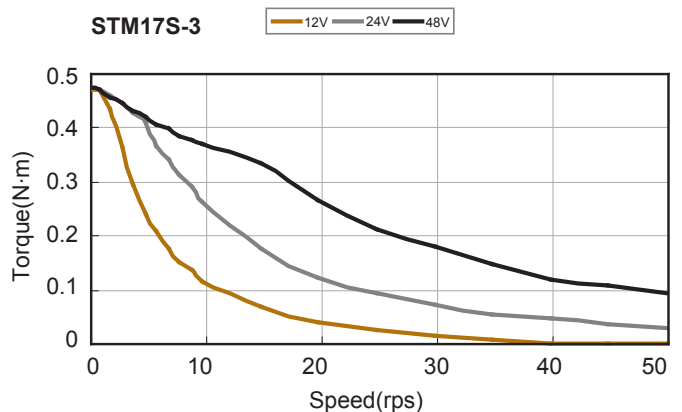
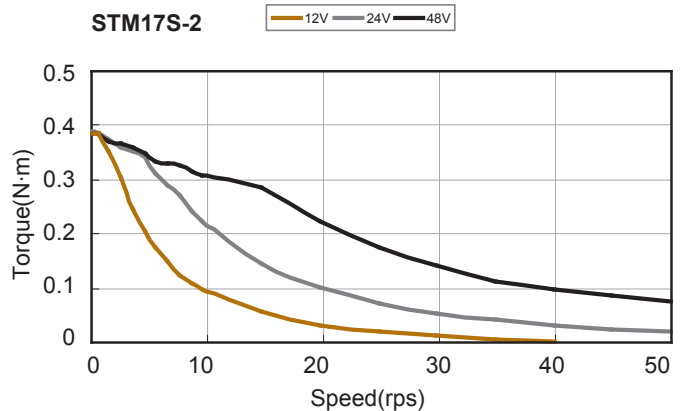
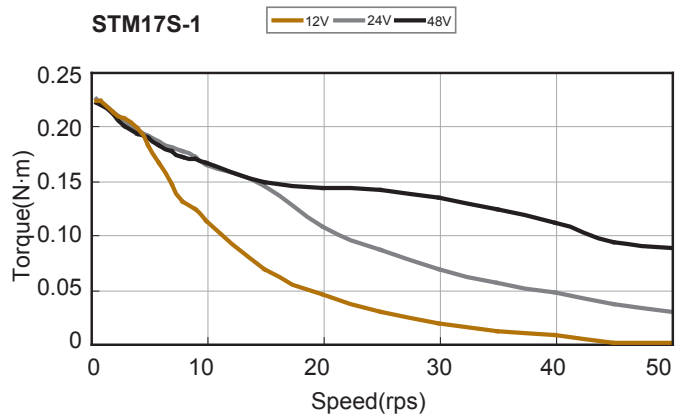
Model	Length (L) in mm
STM17X-1	67
STM17X-2	72.5
STM17X-3	81

Encoder Options

The optional encoder integrated into the housing of the motor adds extra functions with no increase in unit size.

- Stall Detection – detects motor stalling and triggers a fault
- Stall Prevention – prevents motor stalling and provides position maintenance when the motor is stopped

Torque Curves



Software

The **ST Configurator** software simplifies the set-up and configuration of the STM Integrated Motor. Motor settings, control option and optional encoder settings are configured and downloaded to the drive.

SCL (Serial Command Language) Setup Utility is a small terminal program that will stream serial commands directly to the drive to test and verify the commands and their operation.

Q Programmer allows creation of sophisticated programs for stand-alone operation of Q drives. Programs can be created, edited and saved to files or downloaded to drive. Programs can also be opened from files or uploaded from the drive.

Features

Dynamic Current Control - By configuring running current, accel current, and idle current, the motion is smoother and the motor runs cooler.

Anti-Resonance – The STM17 calculates a system's natural frequency and applies damping to control resonance. This improves mid-range stability, allows higher speeds and greater torque utilization, and also improves settling times.

Micro-Step Emulation – By synthesizing coarse, low-resolution pulses into fine high-resolution micro-steps, low-resolution systems can still provide smooth motion.

Command Signal Smoothing – By softening the effect of immediate changes in velocity and direction, the motion of the motor is less jerky. This also reduces wear on mechanical components.

Auto Set-up and Self-Test – At start-up the drive measures motor parameters and uses this information to optimize the system's performance. It also checks internal and external power supply voltages and diagnoses open motor phases.

Technical Specifications

Power Amplifier

Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 16 KHz
Power Supply	External 12 - 48 volts power supply required
Input Voltage Range	10 - 55 volts min/max (nominal 12 - 48 volts)
Protection	Over-voltage, under-voltage, over-temp, internal motor shorts (phase-to-phase, phase-to-ground)
Idle Current Reduction	Reduction range of 0 - 90% of running current after a delay selectable in milliseconds
Ambient Temperature	0 - 40°C (32 - 104°F) when mounted to a suitable heatsink
Humidity	90% non-condensing

Controller

Current Control	Advanced digital current control provides excellent high speed torque
Microstep Resolution	Software selectable from 200 to 51200 steps/rev in increments of 2 steps/rev
Speed Range	Speeds up to 50 rps
Distance Range	Over 10,000,000 revolutions (at 200 steps/rev)
Noise Filtering	Programmable hardware digital noise filter, software noise filter
Serial Commanding	Supports Serial Command Language (SCL)
Encoder Feedback	Optional 4000 counts/rev encoder feedback
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Step Input STEP+/-	Inputs: optically isolated, 5 - 24 volts, min. pulse width 250 ns., max. pulse frequency 2 MHz Functions: Step, CW Step, A Quadrature, CW Limit, CW Jog, general purpose input; adjustable bandwidth digital noise rejection filter
Direction Input DIR+/-	Inputs: optically isolated, 5 - 24 volts, min. pulse width 250 ns., max. pulse frequency 2 MHz Functions: DIR, CCW Step, B Quadrature, CCW Limit, CCW Jog, general purpose input; adjustable bandwidth digital noise rejection filter
Enable Input EN+/-	Inputs: optically isolated, 5 - 24 volts, min. pulse width 100 us., max. pulse frequency 10 KHz Functions: Enable, general purpose input; adjustable bandwidth digital noise rejection filter
Output OUT+/-	Open Collector, 30 volts, 100 mA max, maximum pulse frequency 10 KHz Functions: Fault, and general purpose programmable
Analog Input AIN	Input: 0 - 5 volts (AIN referenced to GND); Functions: analog control modes and general purpose analog usage; programmable for signal range, offset, dead band and filtering
Analog Input Resolution	12 bits
Comm. Interface	RS-232 or RS-422/485
+ 5 volt User Output	4.8 - 5 volts @ 100mA maximum