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Data Sheet

STM17C

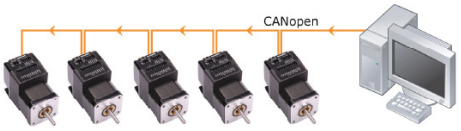
Integrated Motor

Description

The STM17C Integrated Motor is designed for host serial communications and specialized control modes according to CiA DS301 and CiA DSP402. It provides high-resolution step operation with advanced current control.

Control Options

Host Control
- Accepts Serial Commands from host PC or PLC
- Real time control
- Multi-axis capable - up to 127 axes



Supported DSP402 Modes of Operation:
- Profile Position Mode
- Profile Velocity Mode
- Homing Mode

With Q Programmer Sequential Programming, Multi-tasking, and Math & Data Register manipulation are also possible.

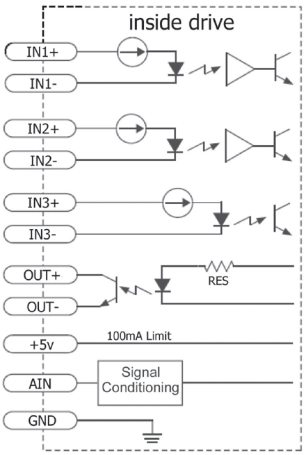
Connections - Inputs & Outputs

IN1 & IN2 - high-speed digital inputs
- CW & CCW Jog, CW & CCW Limits
- 5 to 24 volt logic

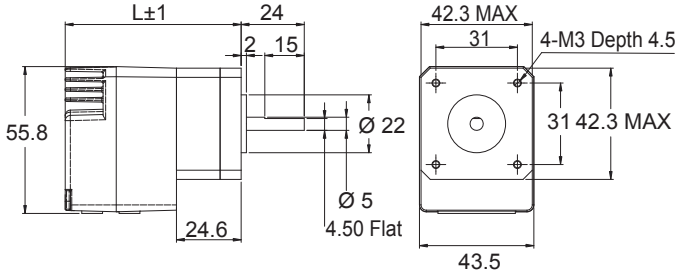
IN3 - low-speed digital input
- enable
- 5 to 24 volt logic

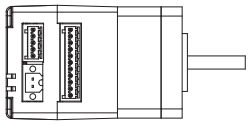
OUT - optically isolated, digital output
- fault detection
- 30 volts

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

Ordering Options

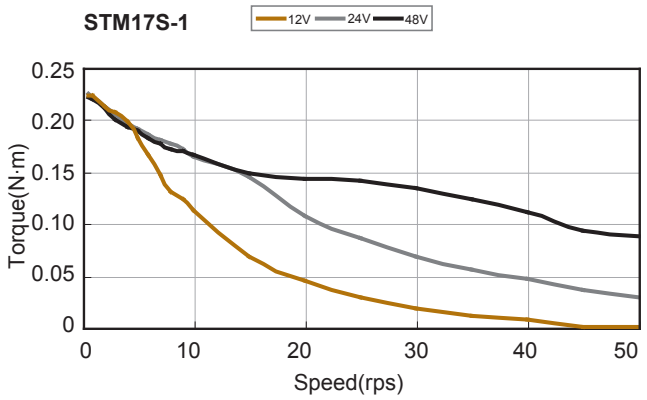
STM17C-2CN

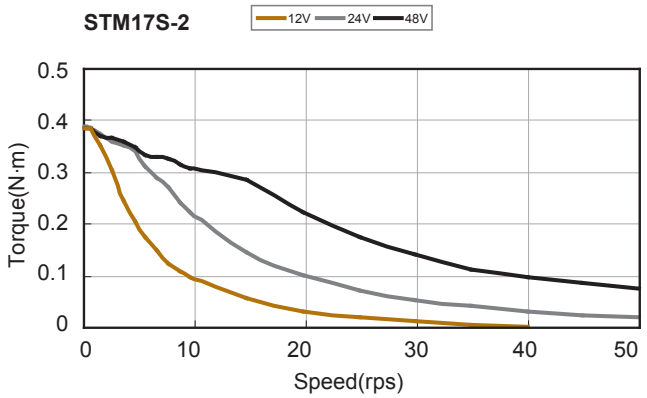
- STM Series / Frame Size 17 / C – CANopen Version
- Motor Size: 1=0.23 N.m max; 2=0.38 N.m max; 3=0.48 N.m max
- Communications: C=CANopen
- Feedback: N=None; E=1000-line encoder

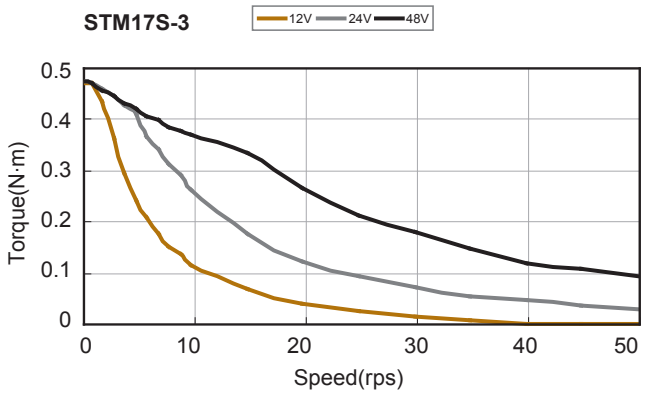
Encoder Options

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.

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.

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.

The **CANopen Data Frame Tool** provides an easy point-and-click way to verify and test drive operation across different CANopen operating modes.

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
Modes of Operation	CANopen (as defined in CiA DSP402): Profile Position, Profile Velocity, Homing; Q Programming
IN1 and IN2 Inputs	Inputs: optically isolated, 5 - 24 volts, min. pulse width 250 ns., max. pulse frequency 3 MHz Functions: CW & CCW Jog, CW & CCW Limits, general purpose input
IN3 Inputs	Input: optically isolated, 5 - 24 volts, min. pulse width 100 us., max. pulse frequency 10 KHz Functions: Motor Enable, Alarm Reset, Speed Select (Oscillator Mode), general purpose input
OUT output	Open Collector, 30 volts, 100 mA max, maximum pulse frequency 10 KHz Functions: Fault, and general purpose programmable
AIN Input	Input: 0-5 volts (AIN referenced to GND) Functions: analog control modes, general purpose analog programmable
Comm. Interface	CANopen, RS-232; selectable speeds: 12.5, 20, 50, 125, 250, 500, 800 kbps and 1Mbps
Analog Input Resolution	12 bits
+ 5 volt User Output	4.8 - 5 volts @ 100mA maximum

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