

STM23C-3CN

NEMA 23 Integrated CANopen Drive+Motor



Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 23 frame size*
- *DS301 and DSP402 supported*
- *Profile position and velocity modes*
- *Several homing modes*
- *Objects for Q programming*
- *Objects for data registers*
- *RS-232 port for programming*



Description

The STM23C-3CN integrated stepper is a drive+motor unit, fusing a NEMA 23 step motor and a sophisticated 5.0 A/phase (peak-of-sine) stepper drive into a single device. Power to the drive, located at the rear of the motor, must be supplied by an external DC supply. See Related and Recommended Products below for compatible 24 and 48 volt DC [power supplies](#) .

The STM23C-3CN integrated stepper is designed to operate on a CANopen communication network and conforms to Can in Automation (CiA) DS301 and DSP402 specifications. It supports Profile Position, Profile Velocity, and Homing modes, as well as the ability to run stored Q programs via Applied Motion-specific CANopen objects. All STM23 units are setup and configured using Applied Motion's [ST Configurator™](#) software.

Each STM23 integrated stepper comes with 3 digital inputs, 1 digital output, and 1 analog input. The digital inputs accept signals of 5-24 VDC and can be used for connecting pulse & direction signals, end-of-travel limit switches, jog switches, quadrature encoder signals, PLC outputs, sensors, or many other signal types. The digital output can be connected to PLC inputs, counters, lights, relays, or other devices. The analog input accepts 0-5 VDC signals and can be used for velocity and position control.

The STM23C-3CN comes with an RS-232 port for programming and a CANopen port for network communications.

Specifications

Part Number:	STM23C-3CN
Supply Voltage:	12-70 VDC
Supply Voltage Type:	DC
Control Modes:	CANopen
Communication Ports:	RS-232 CANopen
Encoder Feedback:	No
Step Resolution:	Full Half Microstepping Microstep Emulation
Idle Current Reduction:	0-90%
Setup Method:	Software setup
Digital Inputs:	3
Digital Outputs:	1
Circuit Protection:	Short circuit Over-voltage Under-voltage Over-temp
Status LEDs:	1 red, 1 green
Frame Size:	NEMA 23
Holding Torque:	210 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	6.51E-03 oz-in-sec ²
Length:	4.50 inches
Weight:	42 oz
Operating Temperature Range:	0 to 85 °C
Ambient Temperature Range:	0 to 40 °C
Ambient Humidity:	90% max, non-condensing
Insulation Class:	Class B (130 °C)

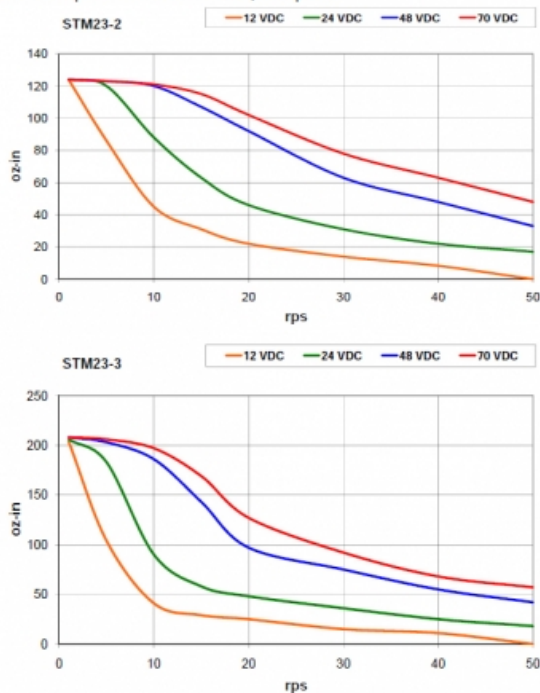
Downloads

Speed-Torque Curves:	 STM23-speed-torque.pdf
Manuals:	 STM23 Hardware Manual_920-0021F-opt-.pdf  STM23C-STM24C_QuickSetup_920-0043.pdf  CANopen_Manual_920-0025L.pdf  Host-Command-Reference_920-0002R.pdf
Product PDF - S3 Link:	http://s3.amazonaws.com/applied-motion-pdf/STM23C-3CN.pdf
Datasheet:	 STM-Datasheet-925-0009.pdf  CANopen_FAQ2.pdf  STM-CANopen-EDS.eds
2D Drawing:	 STM23X-3CX_3D.pdf  STM23X-3CX Rev B.pdf
3D Drawing:	 STM23C-3Cx.zip
Agency Approvals:	 STM17_23_24_CE_DOC.pdf
Application Notes:	 APPN0015_Make-a-serial-programming-cable.pdf

Torque Curves

Torque-Speed Curves

Note: all torque curves were measured at 20,000 steps/rev.



Software:	ST Configurator™
Sample Code:	 CANopen_Example.zip

Products in the Series *CANopen Products*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
5000-136	NA	24-48 VDC	CANopen	NA	RS-232, CANopen	No	\$649.00
5000-137	NA	24-48 VDC	CANopen	NA	RS-232, CANopen	Yes	\$702.00
5000-146	NA	24-80 VDC	CANopen	NA	RS-232, CANopen	No	\$757.00
5000-147	NA	24-80 VDC	CANopen	NA	RS-232, CANopen	Yes	\$818.00
STF03-R	NA	12-48 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	NA	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$185.00
STF06-R	NA	12-48 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	NA	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$198.00
STF10-R	NA	24-70 VDC	Streaming Commands, Q Programming, CANopen, EtherNet/IP, Modbus RTU, Modbus TCP, EtherCAT	NA	RS-485, CANopen, Ethernet, EtherNet/IP, EtherCAT, Ethernet, dual-port	No	\$211.00
STM17C-3CE	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	Yes	\$564.00
STM17C-3CN	NEMA 17	12-48 VDC	CANopen	68	RS-232, CANopen	No	\$474.00
STM23C-3CE	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	Yes	\$642.00
STM23C-3CN	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	No	\$552.00
STM24C-3CE	NEMA 24	12-70 VDC	CANopen	340	RS-232, CANopen	Yes	\$796.00
STM24C-3CN	NEMA 24	12-70 VDC	CANopen	340	RS-232, CANopen	No	\$706.00
SV2A3-C-CE	NA	78-139 VAC	CANopen	NA	CANopen	NA	\$642.00
SV2A5-C-CE	NA	78-139 VAC	CANopen	NA	CANopen	NA	\$798.00
SV2B3-C-CE	NA	156-264 VAC	CANopen	NA	CANopen	NA	\$642.00
SV2B5-C-CE	NA	156-264 VAC	CANopen	NA	CANopen	NA	\$798.00
TSM17C-1CG	NEMA 17	12-48 VDC	CANopen	40	CANopen	Yes	\$656.00
TSM17C-2CG	NEMA 17	12-48 VDC	CANopen	59	CANopen	Yes	\$661.00
TSM17C-3CG	NEMA 17	12-48 VDC	CANopen	73	CANopen	Yes	\$665.00
TSM23C-2CG	NEMA 23	12-70 VDC	CANopen	142	CANopen	Yes	\$674.00
TSM23C-3CG	NEMA 23	12-70 VDC	CANopen	212	CANopen	Yes	\$691.00
TSM23C-4CG	NEMA 23	12-70 VDC	CANopen	340	CANopen	Yes	\$757.00
TSM34C-1CG	NEMA 34	24-70 VDC	CANopen	382	CANopen	Yes	\$702.00
TSM34C-3CG	NEMA 34	24-70 VDC	CANopen	736	CANopen	Yes	\$773.00
TSM34C-5CG	NEMA 34	24-70 VDC	CANopen	949	CANopen	Yes	\$864.00
TSM34C-6CG	NEMA 34	48-70 VDC	CANopen	1161	CANopen	Yes	\$966.00
TXM24C-1CG	NEMA 24	12-70 VDC	CANopen	116	CANopen	Yes	\$989.00
TXM24C-3CG	NEMA 24	12-70 VDC	CANopen	340	CANopen	Yes	\$1042.00
TXM34C-1CG	NEMA 34	24-70 VDC	CANopen	382	CANopen	Yes	\$1190.00
TXM34C-3CG	NEMA 34	24-70 VDC	CANopen	736	CANopen	Yes	\$1261.00
TXM34C-5CG	NEMA 34	24-70 VDC	CANopen	949	CANopen	Yes	\$1352.00
TXM34C-6CG	NEMA 34	48-70 VDC	CANopen	1161	CANopen	Yes	\$1454.00

Products in the Series *STM23 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
STM23C-3CE	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	Yes	\$642.00
STM23C-3CN	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	No	\$552.00
STM23IP-2EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	125	Ethernet, EtherNet/IP	Yes	\$630.00
STM23IP-2EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	125	Ethernet, EtherNet/IP	No	\$540.00
STM23IP-3EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	210	Ethernet, EtherNet/IP	Yes	\$642.00
STM23IP-3EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	210	Ethernet, EtherNet/IP	No	\$552.00
STM23Q-2AE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	125	RS-232	Yes	\$528.00
STM23Q-2AN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	125	RS-232	No	\$438.00
STM23Q-2EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	125	Ethernet	Yes	\$542.00
STM23Q-2EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	125	Ethernet	No	\$452.00
STM23Q-2RE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	125	RS-485	Yes	\$536.00
STM23Q-2RN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	125	RS-485	No	\$446.00
STM23Q-3AE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	210	RS-232	Yes	\$547.00
STM23Q-3AN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus RTU	210	RS-232	No	\$457.00
STM23Q-3EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	210	Ethernet	Yes	\$562.00
STM23Q-3EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	210	Ethernet	No	\$472.00
STM23Q-3RE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	210	RS-485	Yes	\$556.00
STM23Q-3RN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	210	RS-485	No	\$466.00
STM23R-2ND	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	\$179.00
STM23R-2NE	NEMA 23	12-70 VDC	Step & Direction	125	NA	Yes	\$268.00
STM23R-2NN	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	\$179.00
STM23R-3ND	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	\$190.00

STM23R-3NE	NEMA 23	12-70 VDC	Step & Direction	210	NA	Yes	\$272.00
STM23R-3NN	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	\$190.00
STM23S-2AE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	125	RS-232	Yes	\$420.00
STM23S-2AN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	125	RS-232	No	\$330.00
STM23S-2EE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	Ethernet	Yes	\$434.00
STM23S-2EN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	Ethernet	No	\$344.00
STM23S-2RE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	RS-485	Yes	\$428.00
STM23S-2RN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	RS-485	No	\$338.00
STM23S-3AE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	210	RS-232	Yes	\$439.00
STM23S-3AN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	210	RS-232	No	\$349.00
STM23S-3EE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	Ethernet	Yes	\$454.00
STM23S-3EN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	Ethernet	No	\$364.00
STM23S-3RE	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	RS-485	Yes	\$448.00
STM23S-3RN	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	RS-485	No	\$358.00
STM24IP-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	340	Ethernet, EtherNet/IP	Yes	\$751.00
STM24IP-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Modbus TCP	340	Ethernet, EtherNet/IP	No	\$661.00
STM24Q-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	340	Ethernet	Yes	\$691.00
STM24Q-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus TCP	340	Ethernet	No	\$601.00
STM24S-3EE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	\$583.00
STM24S-3EN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	No	\$493.00