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Product Datasheet

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STM17R-3NN

NEMA 17 Integrated Drive+Motor

Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 17 frame size*
- *Step & direction or CW/CCW pulse control modes*
- *Dip switch setup (no software required)*

Description

The STM17R-3NN integrated stepper is a drive+motor unit, fusing a NEMA 17 step motor and a sophisticated 2.0 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 STM17R-3NN is designed for step & direction control from an external controller. The external controller can be a motion controller, PLC, or other device that provides two digital outputs: one output for digital pulses to control position and velocity of the motor, and a second output to control the direction of the motor, CW and CCW. Some controllers provide two pulses outputs – referred to as CW/CCW pulse or pulse-pulse – instead of pulse & direction. The STM17R works with these controllers as well simply by changing one of the setup dip switches on the drive.

Note that STM17R integrated steppers are not available with any communication options (such as Ethernet, RS-485, etc.) or additional control modes (such as velocity, streaming commands or Q programming). For these and other functions see other models in the STM17 integrated stepper family .

The STM17R-3NN is the single-shaft version of the STM17R. A double-shaft version is also available, STM17R-3ND , as well as a version with a 1000-line, incremental encoder assembled to the rear shaft, STM17R-3NE .

Each STM17R integrated stepper comes with 3 digital inputs and 1 digital output. Two of the digital inputs (labeled STEP and DIR) accept signals of 5-24 VDC and are used for controlling position and velocity of the motor, either via pulse & direction or CW/CCW pulse outputs from an external controller. The third digital input (EN) accepts signals of 5-24 VDC and can be used to enable/disable power to the motor shaft. The digital output (OUT) can be used to indicate drive and motor faults by connecting it to an available digital input on the external controller.

To facilitate connecting I/O signals and DC power to the STM17R, a mating connector with 12-inch flying leads is included with each unit.

All STM17R integrated steppers are RoHS and CE compliant.

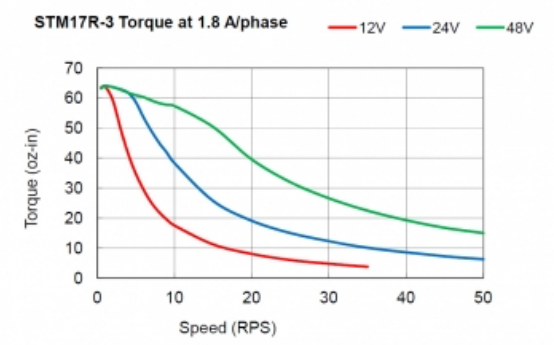
Specifications

Part Number:	STM17R-3NN
Supply Voltage:	12-48 VDC
Supply Voltage Type:	DC
Control Modes:	Step & Direction
Encoder Feedback:	No
Step Resolution:	Full Half Microstepping Microstep Emulation
Idle Current Reduction:	50% or 90% of running current, switch selectable
Setup Method:	Switch / potentiometer
Digital Inputs:	3
Digital Outputs:	1
Circuit Protection:	Short circuit Over-voltage Under-voltage Over-temp
Status LEDs:	1 red/green
Frame Size:	NEMA 17
Holding Torque:	68 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	1.16E-03 oz-in-sec^2
Length:	2.64 inches
Weight:	14.7 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 ºC)

Downloads

Speed-Torque Curves:	STM17R_speed-torque.pdf
Manuals:	STM17R_Hardware_Manual 920-0054B-opt-.pdf STM17R-QuickSetupGuide_920-0055.pdf
Product PDF - S3 Link:	http://s3.amazonaws.com/applied-motion-pdf/STM17R-3NN.pdf
Datasheet:	STM-Datasheet-925-0009.pdf
2D Drawing:	STM17R-3NN_WEB_RevB.pdf
3D Drawing:	STM17R-3NN_10-22-13.igs
Agency Approvals:	STM17_23_24_CE_DOC.pdf

Torque Curves



Products in the Series *STM-R Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
STM17R-3ND	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00
STM17R-3NE	NEMA 17	12-48 VDC	Step & Direction	68	NA	Yes	$204.00
STM17R-3NN	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00
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

Products in the Series *STM17 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc.
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
STM17Q-1AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-232	Yes	$416.00
STM17Q-1AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-232	No	$326.00
STM17Q-1RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-485	Yes	$424.00
STM17Q-1RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	31	RS-485	No	$334.00
STM17Q-2AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-232	Yes	$420.00
STM17Q-2AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-232	No	$330.00
STM17Q-2RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-485	Yes	$427.00
STM17Q-2RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	54	RS-485	No	$337.00
STM17Q-3AE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-232	Yes	$424.00
STM17Q-3AN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-232	No	$346.00
STM17Q-3RE	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-485	Yes	$432.00
STM17Q-3RN	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus RTU	68	RS-485	No	$354.00
STM17R-3ND	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00
STM17R-3NE	NEMA 17	12-48 VDC	Step & Direction	68	NA	Yes	$204.00
STM17R-3NN	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	$118.00
STM17S-1AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	Yes	$380.00
STM17S-1AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-232	No	$290.00
STM17S-1RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	Yes	$390.00
STM17S-1RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	31	RS-485	No	$300.00
STM17S-2AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	Yes	$389.00
STM17S-2AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-232	No	$299.00
STM17S-2RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming	54	RS-485	Yes	$397.00

			Commands				
STM17S-2RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	54	RS-485	No	$307.00
STM17S-3AE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	Yes	$394.00
STM17S-3AN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-232	No	$316.00
STM17S-3RE	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	Yes	$402.00
STM17S-3RN	NEMA 17	12-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	68	RS-485	No	$324.00