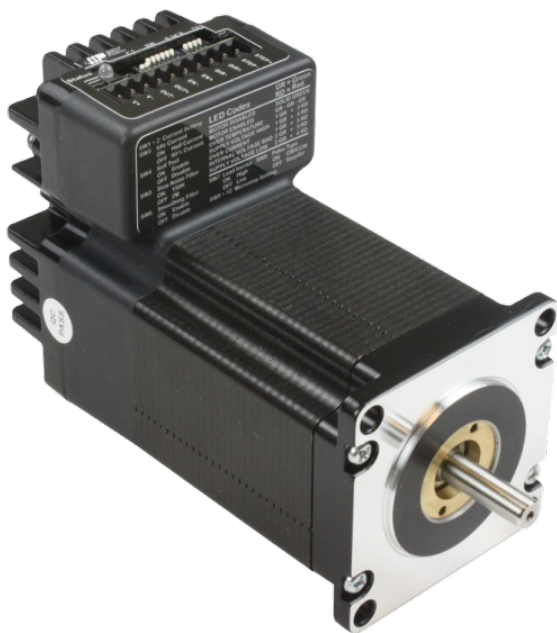


## STM23R-2NN

NEMA 23 Integrated Drive+Motor

1pc. - 172.00  
50pc. - 172.00



### Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 23 frame size*
- *Step & direction or CW/CCW pulse control modes*
- *Dip switch setup (no software required)*



## Description

The STM23R-2NN 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 STM23R-2NN 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 pulse outputs – referred to as CW/CCW pulse or pulse-pulse – instead of pulse & direction. The STM23R works with these controllers as well simply by changing one of the setup dip switches.

*Note that STM23R 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 [STM23 integrated stepper family](#) .*

The STM23R-2NN is a single-shaft version of the STM23R. A double-shaft version is also available, [STM23R-2ND](#) , as well as a version with a 1000-line, incremental encoder assembled to the rear shaft [STM23R-2NE](#) .

Each STM23R 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 STM23R, a mating connector with 12-inch flying leads is included with each unit.

All STM23R integrated steppers are RoHS compliant.

## Specifications

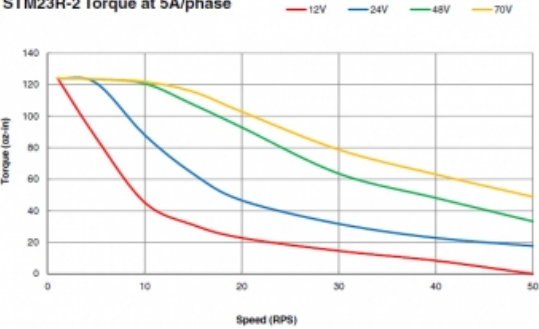
<b>Part Number:</b>	STM23R-2NN
<b>Supply Voltage:</b>	12-70 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Step & Direction
<b>Encoder Feedback:</b>	No
<b>Step Resolution:</b>	Full Half Microstepping Microstep Emulation
<b>Idle Current Reduction:</b>	50% or 90% of running current, switch selectable
<b>Setup Method:</b>	Switch / potentiometer
<b>Digital Inputs:</b>	3
<b>Digital Outputs:</b>	1
<b>Circuit Protection:</b>	Short circuit Over-voltage Under-voltage Over-temp
<b>Status LEDs:</b>	1 red/green
<b>Frame Size:</b>	NEMA 23
<b>Holding Torque:</b>	125 oz-in
<b>Step Angle:</b>	1.8 deg
<b>Rotor Inertia:</b>	3.68E-03 oz-in-sec <sup>2</sup>
<b>Length:</b>	3.35 inches
<b>Weight:</b>	30 oz
<b>Operating Temperature Range:</b>	0 to 85 °C
<b>Ambient Temperature Range:</b>	0 to 40 °C
<b>Ambient Humidity:</b>	90% max, non-condensing
<b>Insulation Class:</b>	Class B (130 °C)

## Downloads

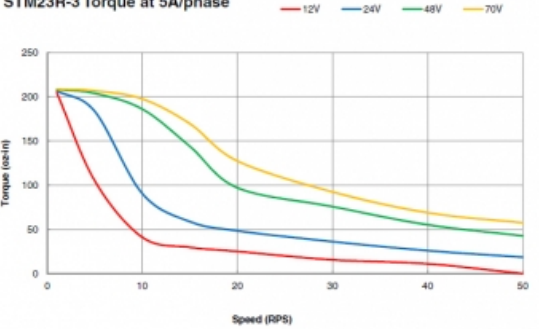
Speed-Torque Curves:	 <a href="#">STM23R-speed-torque.pdf</a>
Manuals:	 <a href="#">STM23R Hardware Manual 920-0056C.pdf</a>  <a href="#">STM23R_Quicksetup_Guide_920-0057B.pdf</a>
Datasheet:	<a href="http://s3.amazonaws.com/applied-motion-pdf/STM23R-2NN.pdf">http://s3.amazonaws.com/applied-motion-pdf/STM23R-2NN.pdf</a>
Family Datasheet:	 <a href="#">STM-Datasheet-925-0009.pdf</a>
2D Drawing:	 <a href="#">STM23R-2NN_WEB_RevB.pdf</a>
3D Drawing:	 <a href="#">STM23R-2NN_10-22-13.igs</a>

## Torque Curves

STM23R-2 Torque at 5A/phase



STM23R-3 Torque at 5A/phase



## Pricing

STM23R-2NN Part No. STM23R-2NN	
1pc.	\$172.00
25pc.	\$172.00
50pc.	\$172.00
100pc.	<a href="#">Contact us</a> for 100+ piece pricing.

## Products in the Series *STM-R Integrated Steppers*

Part Number ↕	Frame Size ↕	Supply Voltage ↕	Control Modes ↕	Holding Torque ↕	Communication Ports ↕	Encoder Feedback ↕	1pc./50pc. ↕
<a href="#">STM17R-3ND</a>	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	\$118.00 / \$118.00
<a href="#">STM17R-3NE</a>	NEMA 17	12-48 VDC	Step & Direction	68	NA	Yes	\$192.00 / \$192.00
<a href="#">STM17R-3NN</a>	NEMA 17	12-48 VDC	Step & Direction	68	NA	No	\$117.00 / \$117.00
<a href="#">STM23R-2ND</a>	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	\$172.00 / \$172.00
<a href="#">STM23R-2NE</a>	NEMA 23	12-70 VDC	Step & Direction	125	NA	Yes	\$219.00 / \$219.00
<a href="#">STM23R-2NN</a>	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	\$172.00 / \$172.00
<a href="#">STM23R-3ND</a>	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	\$189.00 / \$189.00
<a href="#">STM23R-3NE</a>	NEMA 23	12-70 VDC	Step & Direction	210	NA	Yes	\$230.00 / \$230.00
<a href="#">STM23R-3NN</a>	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	\$189.00 / \$189.00

## Products in the Series *STM23 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
<a href="#">STM23C-3CE</a>	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	Yes	\$535.00 / \$401.25
<a href="#">STM23C-3CN</a>	NEMA 23	12-70 VDC	CANopen	210	RS-232, CANopen	No	\$460.00 / \$345.00
<a href="#">STM23IP-2EE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	125	Ethernet, EtherNet/IP	Yes	\$525.00 / \$393.75
<a href="#">STM23IP-2EN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	125	Ethernet, EtherNet/IP	No	\$450.00 / \$337.50
<a href="#">STM23IP-3EE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	210	Ethernet, EtherNet/IP	Yes	\$535.00 / \$401.25
<a href="#">STM23IP-3EN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	210	Ethernet, EtherNet/IP	No	\$460.00 / \$345.00
<a href="#">STM23Q-2AE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	Yes	\$440.00 / \$330.00
<a href="#">STM23Q-2AN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	No	\$365.00 / \$273.75
<a href="#">STM23Q-2EE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	125	Ethernet	Yes	\$452.00 / \$339.00
<a href="#">STM23Q-2EN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	125	Ethernet	No	\$377.00 / \$282.75
<a href="#">STM23Q-2RE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	125	RS-485	Yes	\$447.00 / \$335.25
<a href="#">STM23Q-2RN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	125	RS-485	No	\$372.00 / \$279.00
<a href="#">STM23Q-3AE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	210	RS-232	Yes	\$456.00 / \$342.00
<a href="#">STM23Q-3AN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	210	RS-232	No	\$381.00 / \$285.75
<a href="#">STM23Q-3EE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	210	Ethernet	Yes	\$468.00 / \$351.00
<a href="#">STM23Q-3EN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	210	Ethernet	No	\$393.00 / \$294.75
<a href="#">STM23Q-3RE</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	210	RS-485	Yes	\$463.00 / \$347.25
<a href="#">STM23Q-3RN</a>	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	210	RS-485	No	\$388.00 / \$291.00
<a href="#">STM23R-2ND</a>	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	\$172.00 / \$172.00
<a href="#">STM23R-2NE</a>	NEMA 23	12-70 VDC	Step & Direction	125	NA	Yes	\$219.00 / \$219.00
<a href="#">STM23R-2NN</a>	NEMA 23	12-70 VDC	Step & Direction	125	NA	No	\$172.00 / \$172.00
<a href="#">STM23R-3ND</a>	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	\$189.00 / \$189.00
<a href="#">STM23R-3NE</a>	NEMA 23	12-70 VDC	Step & Direction	210	NA	Yes	\$230.00 / \$230.00
<a href="#">STM23R-3NN</a>	NEMA 23	12-70 VDC	Step & Direction	210	NA	No	\$189.00 / \$189.00
<a href="#">STM23S-2AE</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	125	RS-232	Yes	\$350.00 / \$262.50
<a href="#">STM23S-2AN</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub	125	RS-232	No	\$275.00 /

<a href="#">STM23S-2-EE</a>	NEMA 23	12-70 VDC	Streaming Commands, SiNet Hub Compatible	125	RS-485	No	\$206.25
<a href="#">STM23S-2-EE</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	Ethernet	Yes	\$362.00 / \$271.50
<a href="#">STM23S-2-EN</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	Ethernet	No	\$287.00 / \$215.25
<a href="#">STM23S-2-RE</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	RS-485	Yes	\$357.00 / \$267.75
<a href="#">STM23S-2-RN</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	125	RS-485	No	\$282.00 / \$211.50
<a href="#">STM23S-3-AE</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	210	RS-232	Yes	\$366.00 / \$274.50
<a href="#">STM23S-3-AN</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, SiNet Hub Compatible	210	RS-232	No	\$291.00 / \$218.25
<a href="#">STM23S-3-EE</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	Ethernet	Yes	\$378.00 / \$283.50
<a href="#">STM23S-3-EN</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	Ethernet	No	\$303.00 / \$227.25
<a href="#">STM23S-3-RE</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	RS-485	Yes	\$373.00 / \$279.75
<a href="#">STM23S-3-RN</a>	NEMA 23	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	210	RS-485	No	\$298.00 / \$223.50
<a href="#">STM24IP-3-EE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	Yes	\$626.00 / \$469.50
<a href="#">STM24IP-3-EN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	No	\$551.00 / \$413.25
<a href="#">STM24Q-3-EE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	Yes	\$576.00 / \$432.00
<a href="#">STM24Q-3-EN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	No	\$501.00 / \$375.75
<a href="#">STM24S-3-EE</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	\$486.00 / \$364.50
<a href="#">STM24S-3-EN</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	No	\$411.00 / \$308.25