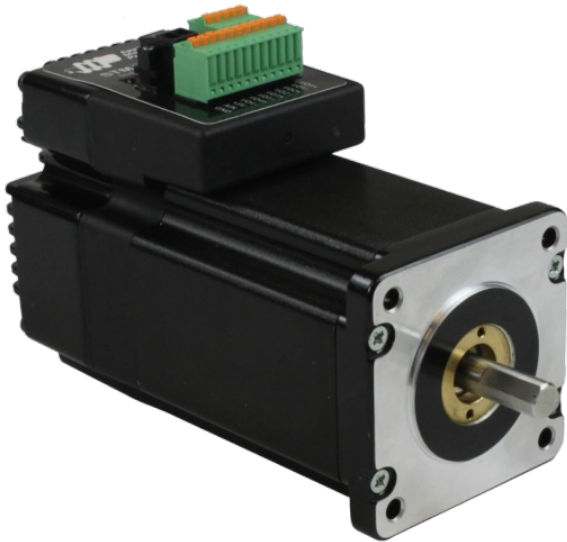


## STM24QF-3RE

NEMA 24 Integrated Drive+Motor w/ Q Programming & Encoder

1pc. - 572.00  
50pc. - 429.00



### **Product Features**

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 24 frame size*
- *Q programming mode for stand-alone control*
- *Modbus/RTU for easy PLC and HMI communication*
- *Capable of all "S" control modes*
- *RS-485 port for programming and communications*
- *Built-in incremental encoder*



## Description

The STM24QF-3RE integrated stepper is a drive+motor unit, fusing a NEMA 24 step motor and a sophisticated, 6.0 A/phase (peak-of-sine) step motor 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 STM24QF-3RE integrated stepper can operate in all of the same control modes as S models, plus the ability to run a Q program stored in non-volatile memory. Q programs are created using Applied Motion's [Q Programmer™](#) software, which provides powerful commands for motion, I/O, conditional processing, multi-tasking, math functions, and more. All STM24 integrated steppers are setup and configured using Applied Motion's [ST Configurator™](#) software.

An integral 1000-line (4000 count/rev) incremental encoder is housed inside the same enclosure as the drive electronics, providing protection from dust and debris. The integration of the encoder means the stepper can perform special functions not available otherwise. Stall Detection notifies the system as soon as the required torque is too great for the motor, which results in a loss of synchronization between the rotor and stator, also known as stalling. Stall Prevention actually prevents stalling of the step motor by dynamically adjusting motor speed to maintain synchronization of the rotor to the stator. This unique feature allows step motors to operate in a much broader range of applications than previously available to step motors, such as torque-control applications. The Stall Prevention feature also performs static position maintenance, which maintains the position of the motor shaft when at rest.

The STM24QF-3RE comes with 4 digital I/O points, called Flex I/O points, because each point can be individually defined as an input or an output. As inputs, the Flex I/O points 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. When defined as digital outputs, the Flex I/O points can be connected to PLC inputs, counters, lights, relays, or other devices. The unit also comes with 1 analog input that accepts 0-5 VDC signals, which can be used for velocity and position control.



















The STM24QF-3RE comes with an RS-485 port for programming and serial communications.

Please note that a VL series gearhead purchased for this motor will require a special mounting adaptor and 2 weeks lead time. Please contact customer service for the price of this adaptor.

## Specifications

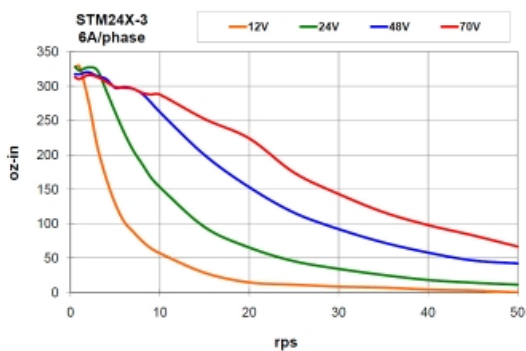
<b>Part Number:</b>	STM24QF-3RE
<b>Supply Voltage:</b>	12-70 VDC
<b>Supply Voltage Type:</b>	DC
<b>Control Modes:</b>	Streaming Commands Analog Positioning Encoder Following Q Programming Modbus
<b>Communication Ports:</b>	RS-485
<b>Encoder Feedback:</b>	Yes
<b>Step Resolution:</b>	Full Half Microstepping Microstep Emulation
<b>Idle Current Reduction:</b>	0-90%
<b>Setup Method:</b>	Software setup
<b>Digital Inputs:</b>	4 Flex I/O (shared with outputs)
<b>Digital Outputs:</b>	4 Flex I/O (shared with inputs)
<b>Analog Inputs:</b>	1 single-ended
<b>Circuit Protection:</b>	Short circuit Over-voltage Under-voltage Over-temp
<b>Status LEDs:</b>	1 red, 1 green
<b>Frame Size:</b>	NEMA 24
<b>Holding Torque:</b>	340 oz-in
<b>Step Angle:</b>	1.8 deg
<b>Rotor Inertia:</b>	1.27E-02 oz-in-sec <sup>2</sup>
<b>Length:</b>	4.94 inches
<b>Weight:</b>	56 oz
<b>Operating Temperature Range:</b>	0 to 70 °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

<b>Speed-Torque Curves:</b>	 <a href="#">STM24_speed-torque.pdf</a>
<b>Manuals:</b>	 <a href="#">STM24 Hardware Manual_920-0044E.pdf</a>  <a href="#">Host Command Reference Rev I.pdf</a>  <a href="#">ModbusManual_920-0072E.pdf</a>  <a href="#">STM23_24_S_Q_QuickSetup_920-0020E.pdf</a>
<b>Datasheet:</b>	<a href="http://s3.amazonaws.com/applied-motion-pdf/STM24QF-3RE.pdf">http://s3.amazonaws.com/applied-motion-pdf/STM24QF-3RE.pdf</a>
<b>Family Datasheet:</b>	 <a href="#">STM-Datasheet-925-0009.pdf</a>
<b>2D Drawing:</b>	 <a href="#">STM24_3D_Model-Simple.pdf</a>  <a href="#">STM24X-3X_2D.pdf</a>
<b>3D Drawing:</b>	 <a href="#">STM24_3D_model.igs</a>
<b>Agency Approvals:</b>	 <a href="#">STM17_23_24_CE_DOC.pdf</a>
<b>Application Notes:</b>	 <a href="#">APPN0019_Analog-positioning-using-Q-program.zip</a>  <a href="#">APPN0018_EZ-Series-Touchpanel-HMI.zip</a>  <a href="#">APPN0027A ModbusRTU from Automation Direct PLC.zip</a>  <a href="#">APPN0029 ModbusRTU from Proface HMI.zip</a>  <a href="#">APPN0030-ModbusRTU from Beijer Electronics HMI.zip</a>  <a href="#">APPN0032-ModbusRTU from Panasonic PLC 1.zip</a>  <a href="#">APPN0033 ModbusRTU from Automation Direct HMI 0.zip</a>  <a href="#">APPN0034 ModbusRTU from Proface HMI with Q 0.zip</a>

## Torque Curves

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



## Software

**Software:** [SCL Utility](#)  
[ST Configurator™](#)

**Sample Code:**

- [scldemo.zip](#)
- [APPN0027A ModbusRTU from Automation Direct PLC.zip](#)
- [APPN0029 ModbusRTU from Proface HMI.zip](#)
- [APPN0030-ModbusRTU from Beijer Electronics HMI.zip](#)
- [APPN0032-ModbusRTU from Panasonic PLC\\_0.zip](#)
- [APPN0033 ModbusRTU from Automation Direct HMI.zip](#)
- [APPN0034 ModbusRTU from Proface HMI with Q.zip](#)

## Pricing

	<b>STM24QF-3RE</b> Part No. STM24QF-3RE
<b>1pc.</b>	\$572.00
<b>25pc.</b>	\$491.92
<b>50pc.</b>	\$429.00
<b>100pc.</b>	<a href="#">Contact us</a> for 100+ piece pricing.

## Products in the Series *Modbus Products*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
<a href="#">5000-128</a>	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	No	\$467.00 / \$350.25
<a href="#">5000-130</a>	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	Yes	\$540.00 / \$405.00
<a href="#">5000-132</a>	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	No	\$570.00 / \$427.50
<a href="#">5000-134</a>	NA	24-48 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	Yes	\$625.00 / \$468.75
<a href="#">5000-138</a>	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	No	\$515.00 / \$386.25
<a href="#">5000-140</a>	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	NA	RS-232	Yes	\$580.00 / \$435.00
<a href="#">5000-142</a>	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	No	\$630.00 / \$472.50
<a href="#">5000-144</a>	NA	24-80 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	NA	RS-232, RS-485	Yes	\$690.00 / \$517.50
<a href="#">STM17Q-1AE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	Yes	\$347.00 / \$260.25
<a href="#">STM17Q-1AN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-232	No	\$272.00 / \$204.00
<a href="#">STM17Q-1RE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	31	RS-485	Yes	\$353.00 / \$264.75
<a href="#">STM17Q-2AE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	Yes	\$350.00 / \$262.50
<a href="#">STM17Q-2AN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-232	No	\$275.00 / \$206.25
<a href="#">STM17Q-2RE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	Yes	\$356.00 / \$267.00
<a href="#">STM17Q-2RN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	54	RS-485	No	\$281.00 / \$210.75
<a href="#">STM17Q-3AE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	Yes	\$353.00 / \$264.75
<a href="#">STM17Q-3AN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-232	No	\$288.00 / \$216.00
<a href="#">STM17Q-3RE</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	Yes	\$360.00 / \$270.00
<a href="#">STM17Q-3RN</a>	NEMA 17	12-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	68	RS-485	No	\$295.00 / \$221.25
<a href="#">STM20Q-2AE</a>	NEMA 20	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, SiNet	125	RS-232	Yes	\$440.00 /

<a href="#">STM23Q-2AE</a>	NEMA 23	12-70 VDC	Encoder Following, Q Programming, SiNet Hub Compatible, Modbus	125	RS-232	Yes	\$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-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-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="#">STM24QF-3AE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	\$564.00 / \$423.00
<a href="#">STM24QF-3AN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	No	\$489.00 / \$366.75
<a href="#">STM24QF-3RE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	Yes	\$572.00 / \$429.00
<a href="#">STM24QF-3RN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	No	\$497.00 / \$372.75
<a href="#">SWM24QF-3AE</a>	NEMA 24	12-70 VDC	Step & Direction, Analog Torque / Velocity, Velocity (Oscillator), Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	\$772.00 / \$579.00
<a href="#">TSM17C-1CG</a>	NEMA 17	12-48 VDC	Q Programming, CANopen	40	CANopen	Yes	\$547.00 / \$410.25
<a href="#">TSM17C-2CG</a>	NEMA 17	12-48 VDC	Q Programming, CANopen	59	CANopen	Yes	\$551.00 / \$413.25
<a href="#">TSM17C-3CG</a>	NEMA 17	12-48 VDC	Q Programming, CANopen	73	CANopen	Yes	\$554.00 / \$415.50
<a href="#">TSM17P-1AG</a>	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	40	RS-232	Yes	\$378.00 / \$283.50
<a href="#">TSM17P-2AG</a>	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	59	RS-232	Yes	\$380.00 / \$285.00
<a href="#">TSM17P-3AG</a>	NEMA 17	12-48 VDC	Step & Direction, Encoder Following	73	RS-232	Yes	\$383.00 / \$287.25
<a href="#">TSM17Q-1AG</a>	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	40	RS-232	Yes	\$412.00 / \$309.00
<a href="#">TSM17Q-1RG</a>	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	40	RS-485	Yes	\$418.00 / \$313.50
<a href="#">TSM17Q-2AG</a>	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-232	Yes	\$415.00 / \$311.25
<a href="#">TSM17Q-2RG</a>	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	59	RS-485	Yes	\$391.00 / \$293.25
<a href="#">TSM17Q-3AG</a>	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	73	RS-232	Yes	\$418.00 / \$313.50
<a href="#">TSM17Q-3RG</a>	NEMA 17	12-48 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	73	RS-485	Yes	\$424.00 / \$318.00
<a href="#">TSM23C-2CG</a>	NEMA 23	12-70 VDC	Q Programming, CANopen	142	CANopen	Yes	\$562.00 /

<a href="#">TSM23C-2CG</a>	NEMA 23	12-70 VDC	Q Programming, CANopen	142	CANopen	Yes	\$421.50
<a href="#">TSM23C-3CG</a>	NEMA 23	12-70 VDC	Q Programming, CANopen	212	CANopen	Yes	\$576.00 / \$432.00
<a href="#">TSM23C-4CG</a>	NEMA 23	12-70 VDC	Q Programming, CANopen	340	CANopen	Yes	\$631.00 / \$473.25
<a href="#">TSM23P-2AG</a>	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	142	RS-232	Yes	\$392.00 / \$294.00
<a href="#">TSM23P-3AG</a>	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	212	RS-232	Yes	\$403.00 / \$302.25
<a href="#">TSM23P-4AG</a>	NEMA 23	12-70 VDC	Step & Direction, Encoder Following	340	RS-232	Yes	\$445.00 / \$333.75
<a href="#">TSM23Q-2AG</a>	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-232	Yes	\$507.00 / \$380.25
<a href="#">TSM23Q-2RG</a>	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	142	RS-485	Yes	\$514.00 / \$385.50
<a href="#">TSM23Q-3AG</a>	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	212	RS-232	Yes	\$521.00 / \$390.75
<a href="#">TSM23Q-3RG</a>	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	212	RS-485	Yes	\$529.00 / \$396.75
<a href="#">TSM23Q-4AG</a>	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-232	Yes	\$576.00 / \$432.00
<a href="#">TSM23Q-4RG</a>	NEMA 23	12-70 VDC	Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Velocity Control, Modbus	340	RS-485	Yes	\$584.00 / \$438.00



## Products in the Series *STM24 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
<a href="#">STM24IP-3EE</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-3EN</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-3EE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	Yes	\$576.00 / \$432.00
<a href="#">STM24Q-3EN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	No	\$501.00 / \$375.75
<a href="#">STM24QF-3AE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	\$564.00 / \$423.00
<a href="#">STM24QF-3AN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	No	\$489.00 / \$366.75
<a href="#">STM24QF-3RE</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	Yes	\$572.00 / \$429.00
<a href="#">STM24QF-3RN</a>	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	No	\$497.00 / \$372.75
<a href="#">STM24S-3EE</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	\$486.00 / \$364.50
<a href="#">STM24S-3EN</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	No	\$411.00 / \$308.25
<a href="#">STM24SF-3AE</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	Yes	\$474.00 / \$355.50
<a href="#">STM24SF-3AN</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	No	\$399.00 / \$299.25
<a href="#">STM24SF-3RE</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	Yes	\$482.00 / \$361.50
<a href="#">STM24SF-3RN</a>	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	No	\$407.00 / \$305.25