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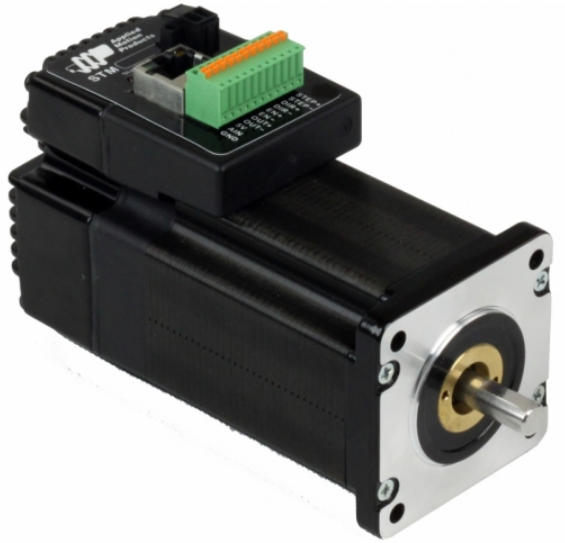
Product Datasheet

www.Applied-Motion.com

STM24IP-3EE

NEMA 24 Integrated Drive+Motor w/ EtherNet/IP & Encoder

1pc. - 626.00
50pc. - 469.50



Product Features

- *Sophisticated current control*
- *Anti-resonance*
- *Torque ripple smoothing*
- *Microstep emulation*
- *NEMA 24 frame size*
- *Q programming control mode for stand-alone operation*
- *Capable of all “S” control modes*
- *Fast 10/100 Ethernet for programming and communications (UDP & TCP)*
- *EtherNet/IP industrial networking built in*
- *Built-in incremental encoder*

Description

The STM24IP-3EE integrated stepper is a drive+motor unit, fusing a NEMA 24 step motor and a sophisticated 6.0 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 STM24IP-3EE integrated stepper incorporates EtherNet/IP network communications, the widely used industrial protocol for manufacturing automation applications. With EtherNet/IP users can control, configure and query the drive using an open, standards-based, industrial Ethernet connection at speeds up to 100 MBits/sec. All STM24IP units run the same control modes as STM24Q units, with the addition that all drive+motor features can be accessed over EtherNet/IP, including more than 100 commands and 130 registers for controlling motion, I/O, configuration, polling, math, register manipulation, and Q programming. Setup and configuration of the STM24IP is done using Applied Motion's *ST Configurator™* software, while Q programs are created using the *Q Programmer™* 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 STM24IP 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 under all conditions. 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.

Each STM24IP 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 STM24IP-3EE comes with a fast 10/100 MBit Ethernet port for programming and EtherNet/IP communications. The same port also supports TCP and UDP protocols for sending commands from Applied Motion's proprietary serial command language (SCL).

All STM24IP models are CE approved and RoHS compliant.

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

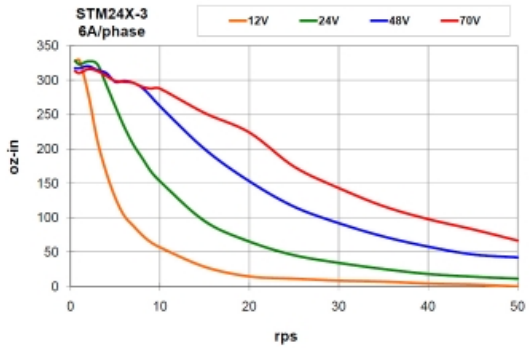
Part Number:	STM24IP-3EE
Supply Voltage:	12-70 VDC
Supply Voltage Type:	DC
Control Modes:	Streaming Commands Analog Positioning Encoder Following Q Programming EtherNet/IP
Communication Ports:	Ethernet EtherNet/IP
Encoder Feedback:	Yes
Step Resolution:	Full Half Microstepping Microstep Emulation
Idle Current Reduction:	0-90%
Setup Method:	Software setup
Digital Inputs:	3
Digital Outputs:	1
Analog Inputs:	1 single-ended
Circuit Protection:	Short circuit Over-voltage Under-voltage Over-temp
Status LEDs:	1 red, 1 green
Frame Size:	NEMA 24
Holding Torque:	340 oz-in
Step Angle:	1.8 deg
Rotor Inertia:	1.27E-02 oz-in-sec^2
Length:	4.94 inches
Weight:	56 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:	STM24_speed-torque.pdf
Manuals:	STM24 Hardware Manual_920-0044E.pdf STM23_24_Ethernet_Quicksetup_920-0058B.pdf Host Command Reference Rev I.pdf
Datasheet:	http://s3.amazonaws.com/applied-motion-pdf/STM24IP-3EE.pdf
Family Datasheet:	STM24-IP.eds
2D Drawing:	STM24X-3X_2D.pdf STM24IP-3EE_3D_.pdf
3D Drawing:	STM24IP-3E_Simple.igs
Application Notes:	APPN0024_AOIs-for-RSLogix5000.zip APPN0023_MicroLogix-to-EtherNet-IP-drive.zip APPN0022_CompactLogix-to-EtherNet-IP-drive.zip APPN0021_5V-Keepalive-Circuit.pdf APPN0019_Analog-positioning-using-Q-program.zip

Torque Curves

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



Software

Software:	SCL Utility ST Configurator™
Sample Code:	C_sharp_UDP_example.zip VB6_UDP_example.zip VB6_TCP_example.zip

Pricing

	STM24IP-3EE Part No. STM24IP-3EE
1pc.	$626.00
25pc.	$538.36
50pc.	$469.50
100pc.	Contact us for 100+ piece pricing.

Products in the Series *EtherNet/IP Products*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
5000-181	NA	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	No	$659.00 / $494.25
5000-182	NA	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	Yes	$710.00 / $532.50
5000-183	NA	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	No	$607.00 / $455.25
5000-184	NA	24-48 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	Yes	$655.00 / $491.25
5000-185	NA	24-80 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	NA	$597.00 / $447.75
5000-194	NA	94-135 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	Yes	$710.00 / $532.50
5000-195	NA	94-265 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	Yes	$710.00 / $532.50
5000-196	NA	94-135 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	No	$659.00 / $494.25
5000-197	NA	94-265 VAC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	No	$659.00 / $494.25
5000-222	NA	108-132 VAC	Streaming Commands, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	NA	$710.00 / $532.50
5000-223	NA	108-242 VAC	Streaming Commands, Q Programming, EtherNet/IP	NA	Ethernet, EtherNet/IP	NA	$710.00 / $532.50
SSM23IP-2EG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	142	Ethernet, EtherNet/IP	Yes	$575.00 / $431.25
SSM23IP-3EG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	212	Ethernet, EtherNet/IP	Yes	$585.00 / $438.75
SSM23IP-4EG	NEMA 23	12-70 VDC	Step & Direction, Analog Torque / Velocity, Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP, Velocity Control	340	Ethernet, EtherNet/IP	Yes	$595.00 / $446.25
STM23IP-2EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	125	Ethernet, EtherNet/IP	Yes	$525.00 / $393.75
STM23IP-2EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	125	Ethernet, EtherNet/IP	No	$450.00 / $337.50
STM23IP-3EE	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	210	Ethernet, EtherNet/IP	Yes	$535.00 / $401.25
STM23IP-3EN	NEMA 23	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	210	Ethernet, EtherNet/IP	No	$460.00 / $345.00
STM24IP-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	Yes	$626.00 / $469.50
STM24IP-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	No	$551.00 / $413.25

Products in the Series *STM24 Integrated Steppers*

Part Number	Frame Size	Supply Voltage	Control Modes	Holding Torque	Communication Ports	Encoder Feedback	1pc./50pc.
STM24IP-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	Yes	$626.00 / $469.50
STM24IP-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, EtherNet/IP	340	Ethernet, EtherNet/IP	No	$551.00 / $413.25
STM24Q-3EE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	Yes	$576.00 / $432.00
STM24Q-3EN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming	340	Ethernet	No	$501.00 / $375.75
STM24QF-3AE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	Yes	$564.00 / $423.00
STM24QF-3AN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-232	No	$489.00 / $366.75
STM24QF-3RE	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	Yes	$572.00 / $429.00
STM24QF-3RN	NEMA 24	12-70 VDC	Streaming Commands, Analog Positioning, Encoder Following, Q Programming, Modbus	340	RS-485	No	$497.00 / $372.75
STM24S-3EE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	Yes	$486.00 / $364.50
STM24S-3EN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	Ethernet	No	$411.00 / $308.25
STM24SF-3AE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	Yes	$474.00 / $355.50
STM24SF-3AN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-232	No	$399.00 / $299.25
STM24SF-3RE	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	Yes	$482.00 / $361.50
STM24SF-3RN	NEMA 24	12-70 VDC	Step & Direction, Velocity (Oscillator), Streaming Commands	340	RS-485	No	$407.00 / $305.25

Products in the Series *STM23 Integrated Steppers*

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

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