

MULTI AXIS DRIVER MX3660



KEY FEATURES:



- Power up to 3 stepper motors of NEMA 17, 23, 24.
- Option for 4th axis
- Sophisticated stepper motor control based on the latest DSP technology
- Built-in breakout board and I/O's
- Supply voltage 20 – 60 V DC
- 1.45 - 6.0A (PEAK) output current per axis
- 8 micro step settings for each axis
- 8 output current settings for each axis
- 4 I/O's for relay control or more axis
- Damping and anti resonance
- Input pulse smoothing for less jittering, higher torque, and quicker response
- Simple and individual micro step & output current configuration via DIP switches for each axis
- Extra low motor heating & noise
- Real 1/64 microsteps for extra smooth motor movement
- 50% automatic idle current reduction
- Compact size and easy setup
- Fault output

INTRODUCTION:

The Leadshine MX3660 is a high performance 3-axis stepper drive with built-in breakout board and I/O's based on the latest DSP technology. It is specially designed for EASY and RAPID control of up to three 2-phase (1.8°) in frame sizes NEMA 17, 23, 24. The MX3660 3-axis stepper drive operates under 20-60 V DC input voltage and can output up to 6.0A current (peak of sinusoidal) per axis. It takes step & direction control and is easy to implement for OEM applications.

By adopting Leadshine advanced stepper motor control technology, the MX3660 3-axis stepper drive can power stepper motors in high precision, at extra smoothness, and with extra low motor heating & noise. It is featured with anti-resonance, multi-stepping, vibration suppression, input command smoothing, 50% idle current reduction, etc.

The MX3660 3-axis stepper drive is easy to configure. Via the 6-pin DIP switch of each of the 3 stepper drive modules, a user can easily set the output current and micro step to one of their 8 available settings, 1.45-6.0A and full step - 1/64 respectively. Each axis can have its own current & micro step configurations to satisfy different requirements for the controlled stepper motor. For example, a user can set axis X at 1/8 micro step & 4.25A for a NEMA 24 motor, axis Y at 10 micro step & 2.72A to drive a NEMA 23 motor, and axis Z at 1/16 micro step & 1.45A to for a NEMA 17 motor.

The MX3660 3-axis stepper drive is integrated with a breakout board with a DB25 connector and built-in I/O's. This allows convenient, easy and quick connection for controllers (e.g. PC-based control systems, motion controllers, PLC's...) and external devices (limit switches, VFD...). It simplifies system setup, save installation space & time, minimize wiring, increase reliability, and cut costs. In addition, the MX3660 offers a built-in digital "smoother" to allow filtering/smoothing of "noise" pulses for better system performance (application dependent).

The MX3660 adopts modular designs. If any of the three stepper drive modules malfunctions, it can get simply replaced by a Leadshine SDM660 stepper drive module at minimal costs.

APPLICATIONS:

The Leadshine MX3660 3-axis stepper drive can be easily and rapidly implemented in stepper control systems for OEM applications such as CNC routers / engravers, CNC mills, CNC Cutters, laser cutters / markers /, CNC welders, CNC water jets, X-Y tables, lathes, dispensing machines, medical equipment, scientific instruments...

Its unique design with built-in breakout board and I/O's fits seamlessly in many applications powered by many popular CNC systems such as Mach3, EMC, WinCNC, etc.

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SPECIFICATION SUMMARY:

Model	MX3660
Axis No.	3 (option to 4th axis)
Phase	2 (also works for 4-phase and 0.9° stepper motors)
Control Type	Step & Direction
Supply Voltage	20 - 60 V DC
Supply Voltage Type	DC
Suggested power supply voltage	24-54 VDC
Output Current	1.41 - 6.00 A (V1.0b); 1.45 - 6.00 A (V1.0a)
Max. Input Frequency (Per Axis)	200 KHz
Micro Step Resolution	Full, Half, 1/4, 1/8, 1/10, 1/16, 1/32, 1/64
Output Current (Per Axis)	1.41A, 2.12A, 2.83A, 3.54A, 3.96A, 4.24A, 4.95A, 6.0A (V1.0b) 1.45A, 2.08A, 2.72A, 3.37A, 4.05A, 4.72A, 5.35A, 6.0A (V1.0a)
# of Digital Inputs	13
# of Digital Outputs	4
# of Analog Outputs	1
DB 25 Signal Voltage	3.3-5 V DC
Digital Input Voltage	0-12 V DC
Digital Output Voltage	0-24 V DC
Analog Output Signal Voltage	0-8.9 V DC (at 10 V DC supplied voltage)
Minimum Step Width	2.5 μ s
Minimum Direction Setup Time	5 μ s
Idle Current Percentage	50%
Protection	Over current; over-voltage; emergency protection activated
Dimension	162 X 77.5 X 37 mm (6.38 X 3.1 X 1.46 Inch)
Weight	450g (0.99 lb)
Compliance / Certification	RoHS

ELECTRICAL SPECIFICATIONS:

Electrical Specifications Stepper drive module ($T_j = 25^\circ\text{C}/77^\circ\text{F}$)

Parameters	MX3660			
	Min	Typical	Max	Unit
Output current	1.45	-	6.00 (Peak)	A
Input voltage	20	48	60	VDC
Logic signal current	7	10	16	mA
Pulse input frequency	0	-	200	kHz
Microstep resolution	200		12800	steps / rev
Isolation resistance	100			M Ω

Electrical Specifications Breakout Board

Input voltage	20 – 60 V DC (24 – 54 V DC recommended)
ESTOP, Input 1, 2, 3, 4	Optical Isolation, 12 V source, 10 mA max.
Output 1, 2, 3, 4	Optical Isolation, 24 V, 70 mA max.
Analog supply voltage	5 – 15 V DC
0 – 10 V Analog Output	0 to (Analog Supply Voltage – 1.1 V DC); 20 mA max.

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OPERATING ENVIRONMENT:

Cooling	Natural cooling or forced cooling	
Operating Environment	Environment	Avoid dust, oil fog and corrosive gases
	Ambient temperature	0 °C – 40 °C (32 - 104 °F)
	Humidity	40 – 90 % RH
Storage Temperature	Operating Temperature (Heat Sink)	70 °C (158 °F) Max
		-20 – 65 °C (-4 – 149 °F)

MECHANICAL SPECIFIKATION (unit: mm):

