

MX4660

Multi Axis Stepper Drive



MX series Multi Axis Stepper Motor Drive
 With built-in Break Out Board
Model MX4660



1. Product Description

Introduction:

Leadshine MX4660 is a 4-axis stepper drive with built-in breakout board and I/O's. It is specially designed to allow easy and rapid implementation for full control of 4 stepper motors of frame sizes 17, 23, 24. By taking step & direction commands, the MX4660 can be easily controlled by motion controllers, PLC's, CNC software. This makes it ideal for many applications in industries such as CNC machinery for easy, quick and cost-effective implementation.

Based on the latest DSP technology and Leadshine's advance stepper control algorithm, the MX4660 adopts features such as anti-resonance, multi-stepping, input pulse smoothing, automatic idle current reduction. It offers high precision, excellent torque, extra low noise, very low motor heating, and smooth driven motor movement. With the working voltage of 20-60VDC and output current up to 6.0A, the MX4660 can drive 4 two-phase stepper motors from NEMA 17 to 24 in full power with high reliability.

The MX4660 is easy to configure without the use of software. With the four DIP switches (one for each axis), a user can easily configure the output current to one of the eight 1.41-6.0A settings, and the micro stepping resolution to one of the eight 200-12,800 (full to 1/64 step) settings. Each axis can have its configurations different from any of other axes to meet its own control requirements.

A Leadshine MX4660 stepper drive has one E-Stop input, one analog input (0-10 VDC), one fault output, 8 general digital inputs, and 6 general digital outputs. This allows quick and easy I/O connections such as E-Stop, home/limit switches, VFD..., to save installation space & time, minimize wiring, increase system reliability, and cut costs. Through the 4 high-speed general digital outputs (200 kHz), the MX4660 also allows control expansion for 2 additional axes, which is ideal to control 5-axis and 6-axis machines/devices.

The MX4660 adopts modular design with 4 individual stepper drive boards. If any the drive boards malfunctions, a user can easily replace it with a SDM660 stepper drive module at minimal cost.

Applications:

The Leadshine MX4660 4-axis stepper drive can be easily and rapidly implemented into the stepper control systems for OEM applications such as CNC machines, dispensing machines, medical equipment or 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, Mach4, EMC, WinCNC, etc.

MX4660

Multi Axis Stepper Drive

2. Features:

- Full control for up to 4 stepper motors of NEMA 17, 23, 24, or 34
- Sophisticated stepper motor control based on the latest DSP technology
- Built-in breakout board and I/O's
- Supply voltage 20 – 60 V DC
- 1.41 - 6.0A (PEAK) output current per axis
- 8 micro step settings of 200-12,800 (full to 1/64) for each axis
- 8 output current settings for each axis
- Step & direction control
- Compact size, easy setup and quick configuration
- 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 micro steps for extra smooth motor movement
- Automatic idle current reduction to 50%
- 8 general digital inputs including 4 high-speed (200 kHz) ones for 5th and 6th axis control
- 6 general digital outputs (4x200kHz and 2x20kHz)
- E-stop input and Fault output
- 200 kHz maximum frequency for each axis
- Two 12 VDC auxiliary power outputs

3. Technical Specification

Specification Summary	
Driver model	MX4660
Axis No.	4 (option to 5th and 6th 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
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 (corresponding RMS current settings: 1.0A, 1.5A, 2.0A, 2.5A, 2.8A, 3.0A, 3.5A, 4.25A)
# of Digital Inputs	8
# of Digital Outputs	6
# of Analog Input	1
# of E-Stop Input	1
# of Fault Output	1
# of 12 VDC Auxiliary Outputs	2
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	0-10 V DC
Minimum Step Width	2.5 µs
Minimum Direction Setup Time	4 µs
Idle Current Percentage	50%
Protection	Over current; over-voltage
Dimension	220x77.5x40 mm (8.66x3.05x1.57 Inch)
Weight	660 g (1.46 lb)
Compliance / Certification	RoHS

MX4660

Multi Axis Stepper Drive

Electrical Specifications				
Stepper Drive Module				
Parameters	Min	Typical	Max	Unit
Output current	1.41	-	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			MΩ
Break Out Board				
Input voltage	20 – 60 V DC (24 – 54 V DC recommended)			
ESTOP, Input 1, 2, 3, 4, 5, 6, 7, 8	Optical Isolation; ESTOP and Inputs 5-8 are 12V sourcing with max. 10mA load; pull up voltage or the power voltage of Inputs 1-4 are adjustable, depending on the input voltage of OPTO1 and OPTO2			
Output 1, 2, 3, 4, 5, 6	Optical Isolation, 24 V, 70 mA max.; Output 1-4 200kHz max.; Output 5-6 20kHz max.			
+10V DC	5 – 15 V DC, 50mA Min.			
0 – 10 V Analog Output	0 to (Analog Supply Voltage – 1.1 V DC); 20 mA max.			

4. Environment:

Storage ambient condition Requirement	
Item	MX 4660
Temperature	-20 – 65°C
Humidity	40% - 90 %RH (free from condensation)
Atmospheric environment	Avoid dust, oil fog and corrosive gases

Installation ambient condition Requirement	
Item	MX 4660
Temperature	0°C – 40°C
Humidity	40% - 90 %RH (free from condensation)
Atmospheric environment	Avoid dust, oil fog and corrosive gases
Operating Temperature	70°C Max.
Cooling	natural or forced cooling

5. Mechanical Specifications:

