DYNAMIC SOLUTIONS

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Leadshine Stepper Motor Driver 3DM580S

Features:

The Leadshine Stepper Motor Driver 3DM580S is a digital stepper drive based on an advanced control algorithm for smooth motor operation, reduced noise, lower heating, and improved torque stability. It supports step and direction or CW/CCW control, 20 to 50VDC suggested supply voltage, up to 74VDC maximum voltage, 500kHz pulse input frequency, DIP switch or software current and microstep setup, anti-resonance, soft-start, self-test, fault output, and configurable command smoothing for CNC and automation applications.

Specifications	
Brand	Leadshine
Model	3DM580S
Product Type	Stepper Motor Driver
Control Mode	Step and direction, CW/CCW double pulse
Suggested Supply Voltage	20 to 50VDC
Maximum Supply Voltage	74VDC
Output Current	0.5A to 8.0A, 5.7A RMS max
Supply Voltage	20 to 74VDC, typical 24 to 48VDC
Logic Signal Current	7mA to 16mA, typical 10mA
Maximum Pulse Input Frequency	500kHz
Minimal Pulse Width	1us
Minimal Direction Setup	5us
Isolation Resistance	500MOhm
Microstep Resolution by DIP Switch	200 to 10000
Microstep Resolution by Software	200 to 51200
Output Current by DIP Switch	2.1A to 8.0A
Output Current by Software	0.5A to 8.0A
Idle Current Reduction	50% or 90% by SW5
Motion Modes	Low speed smooth, high speed large torque
Cooling	Natural cooling or forced cooling
Operating Environment	Avoid dust, oil fog, and corrosive gases
Ambient Temperature	0C to 65C, 32F to 149F
Humidity	40% to 90%RH
Operating Temperature	0C to 50C, 32F to 122F
Vibration	10 to 50Hz, 0.15mm
Storage Temperature	-20C to 65C, -4F to 149F

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Weight	Approx. 250g, 8.8oz
Protection	Over voltage, over current
Output	Fault output
Certification	CE, RoHS
Suitable Motor Size	NEMA 17 to NEMA 34
Usage	CNC machines, laser cutters, laser markers, X-Y tables, labeling machines, and stepper motor control

Signal Interface:

Pin Name	I/O	Description
PUL+	I	Pulse signal. In single pulse control mode, this input represents pulse signal. A pulse signal is active at the rising or falling voltage edge, set by DIP switch SW13. In double pulse control mode, set by DIP switch SW14, this signal input represents clockwise pulse and is active at both high voltage level and low voltage level.
PUL-	I	3.5 to 5V for voltage high, 0 to 0.5V for voltage low, same for DIR signals. Pulse width should be set to 1us or longer. Series connect resistors 1kOhm or 2kOhm for current limiting when +12V or +24V respectively, same as DIR and ENA signals.
DIR+	I	Direction signal. In single pulse control mode, this signal low and high voltage levels represent the two directions of motor rotation, clockwise and counterclockwise. In double pulse mode, this signal represents counterclockwise rotation and is active at both voltage high level and low level.
DIR-	I	Minimal DIR signal setup time should be at least 5us.
ENA+	I	Enable signal. This signal is used for enabling or disabling the drive. High voltage level of 3.5 to 5VDC enables the drive and low voltage level of 0 to 0.5VDC disables the drive for NPN control signal.
ENA-	I	PNP and differential control signals are the contrary, low level for enabling. ENA signal requires advance DIR signal minimum 500ms in single pulse mode. By default this signal is left unconnected and enabled.
ALM+	O	Configurable digital output signal. Configurable OC output signal. It takes a sinking or sourcing 20mA current at 5 to 24V.
ALM-	O	Configurable digital output signal. Configurable OC output signal. It takes a sinking or sourcing 20mA current at 5 to 24V.

Pinouts:

Pin Name	Description
GND	Connect to power supply ground connection
+vdc	Connect to power supply positive connection, suggest 24 to 48VDC considering voltage fluctuation and EMF voltage
U	Motor phase U
V	Motor phase V

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