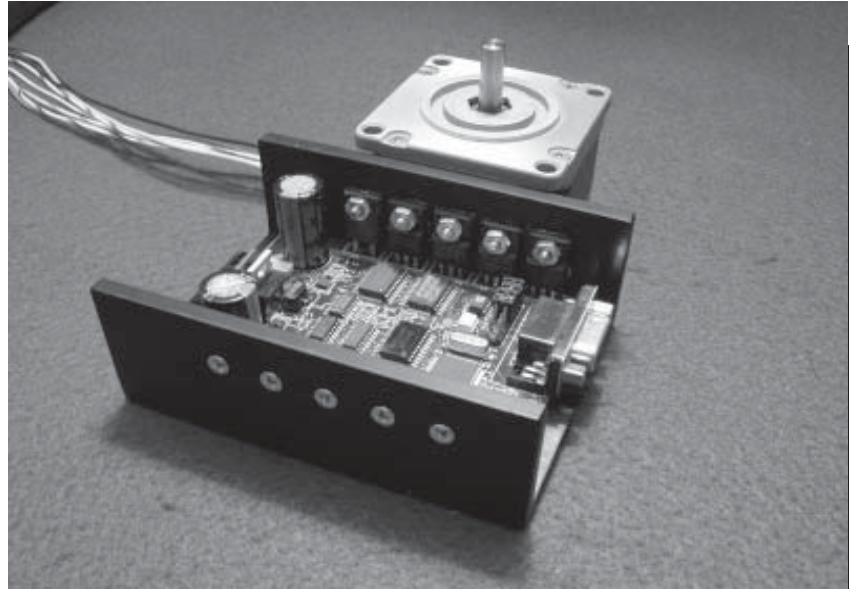


Precision Motion Controls

SMD Microstepping Drive



The SMD (small drive) is a bipolar microstepping drive with Pulse Width Modulation amplifier(PWM) switching at 20 KHz frequency. The drive regulates the current in the motor windings using three different techniques: charging, discharging and circulating. It minimizes ripple current and motor heat caused by the PWM.

The drive requires a single D. C. voltage supply. It can deliver 8 amps peak current at output stages. The current is set with a external single resistor. 8 different step resolutions and 6 harmonic waveform selections are accessible from a dip switch.

A standard 9 pin D connector with optically isolated step, direction, remote disable inputs and a fault output makes this drive easy to interface to Indexers on the market. The drive has phase to phase and phase to ground short circuit protection to protect the drive against fault operations.

The drive's small dimension and easy interface makes it an ideal choice for OEM cost conscious applications.

Features

- 24-60 single supply
- Microstepping smoothness motion
- Short circuit protection
- Current waveform selection
- Optically coupled inputs
- Speeds to 50 rev/sec
- Auto-standby current reduction
- 2Mz step input rate
- Motor generated energy protection

Drive Specifications

Performance

- Repeatability: ± 5 arc-seconds (unidirectional), typical unloaded motor
- Accuracy: ± 5 arc-minutes (bidirectional), typical unloaded motor
- Step-to-Step Accuracy: ± 20 arc-seconds (unidirectional), unloaded motor
- Waveform Selection: pure sine, $\pm 2\%$, $\pm 4\%$ 3rd harmonic included
- Resolution: selectable 25600, 12800, 6400, 3200, 50000, 25000, 5000, 1000 microstep per revolution

Amplifier

- Type: 20KHz fixed frequency, variable duty cycle PWM, current controlled H bridge MOSFET construction.
- No. of phase: 2
- Protection: phase to phase and phase to ground short circuit. When condition(s) occur, the drive is shut down. Power must be recycled to resume operation.
- Auto standby: motor current drops to 50% of preset value if no pulses are received for 1 second. Rated current is resumed upon receipt of next step pulse.
- Self test: dip switch selectable. The motor rotates 0.7 revolutions per second
- Step: input, optically isolated. 330 ohm resistor connects to diode on the drive. Accepts 5V, 10 mA signal (typical), min. 200 nanosecond pulse width 50% duty cycle.
- Direction: input, optically isolated. Accepts 5V, 10 mA signal (typical). 50 usec min. applies only to setup and hold time.
- Disable: input, accepts 5V, 10mA signal (typical). Amplifier is disabled when signal stays high, 10msec. minimum.
- Fault output: optically isolated. 25VDC with 5 mA maximum current.
- Current: 1-8Amp. One external resistor sets current.

Motors

- Type: 2 phase hybrid permanent magnet 1.8 degree stepping motors
- Size: NEMA 17-34 recommended
- Inductance: 1 mH minimum. 1 to 10 mH recommended.
- leads: 4, 6, 8 wires.

Environmental – Operating

- Driver: 0 to 60 °C measured at the heatsink
- Motor: 100 °C measured at the motor case
- Ambient: 10 to 40 °C, 0 to 95% humidity, non-condensing

Environmental – Storage

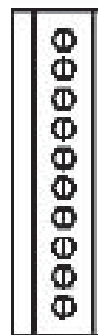
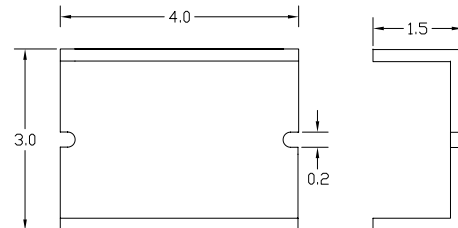
- Motor + Driver: -40 to +80 °C, 0 to 95% humidity, non-condensing

Power

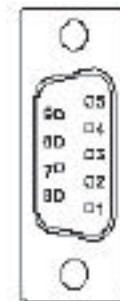
- 24-60 VDC typical, 80V maximum, 5 amp current typical.

Physical Dimension

- Weight 3 Lb.
- Dimension: 4' x 3' x 1.5'



B-
B+
A-
A+
ISET-
ISET+
DUMP
GND
VDC-
VDC+



1. Step+
2. Direction+
3.
4. Fault+
5. Fault-
6. step-
7. Direction-
8. Disable+
9. Disable-

Precision Motion Controls

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