G251 10 MICROSTEP DRIVE
USERS MANUAL REV-7 AUGUST 7, 2008

GECKODRIVE INC.
14662 FRANKLIN AVE.
SUITE# E
TUSTIN, CALIFORNIA 92780
1-714-832-8874

TERMINAL BLOCK: The G251 uses a 12-position 3.5mm spacing terminal block. The wire gage must be between 16 and 26 (AWG). Use stranded wire with the insulation stripped back 0.2" (5mm). Do not solder tin the wire strands! Do not exceed 30 in-oz (0.2 Nm) torque on the terminal screws.

POWER SUPPLY GROUND (TERM 1): Connect the motor DC power supply GROUND (- output) to this terminal

POWER SUPPLY +VDC (TERM 2): Connect the motor DC power supply +VDC (+ output) to this terminal. The power supply voltage must be between +15VDC and +50VDC. An unregulated power supply can be used. Voltages higher than +60VDC or reversed power supply polarity will destroy the drive.

I-SET (TERM 3, 4): Connect the current set resistor between these two terminals. Select a 1/4W resistor value to match the motors rated phase current. The resistor value in Ohms is 1,000 times the motors rated phase current in Amps. Example: A 1.8A per phase motor requires a 1.8K resistor (1,800 Ohms). Always use a current set resistor even if 3.5A is selected (drive maximum current). If no current set resistor is used for 3.5A then automatic standby current will be 100% instead of the expected 71%.

PHASE A (TERM 5)
PHASE /A (TERM 6): Connect one motor winding from PHASE A to PHASE /A.

PHASE B (TERM 7)
PHASE /B (TERM 8): Connect the other motor winding from PHASE B to PHASE /B.

Be very careful to not short the phase outputs to each other or anything else. Be careful to wire the motor correctly per the motor manufacturers wiring diagram to the drive. Insure you have the correct series or parallel wiring connections if 8-wire motors are used. Insure you have the 2 unused wires insulated and not touching anything if 6-wire motors are used. Failure to do so will destroy the drive.

DIRECTION (TERM 9): This is the DIRECTION input to the drive. It can be driven with 3.3V or 5V logic. The input current is -1mA for logic a '0' and zero for a logic '1' if 3.3V logic is used. It is –1mA and +0.67mA if 5V logic is used. The input is Schmitt triggered and low-pass filtered (1uS). Use **SIGNAL GND (TERM 12)** for the logic ground.

STEP (TERM 10): This is the STEP input to the drive. It can be driven with 3.3V or 5V logic. The input current is -1mA for a logic '0' and zero for a logic '1' if 3.3V logic is used. It is –1mA and +0.67mA if 5V logic is used. The input is Schmitt triggered and low-pass filtered (1uS). Use **SIGNAL GND (TERM 12)** for the logic ground.

DISABLE (TERM 11): This is the DISABLE input to the drive. It freewheels the step motor when it is taken to a logic '0'. The motor runs normally if it is left unconnected or taken to a logic '1'. It can be driven with 3.3V or 5V logic. The input current is -1mA for a logic '0' It is Schmitt triggered and low-pass filtered (1uS). Use **SIGNAL GND (TERM 12)** for the logic ground.

SIGNAL GND (TERM 12): This is the logic ground terminal.

POWER LED: This is the power indicator LED and it is always lit when there is power connected to the drive.

ADJUST TRIMPOT: This single turn trimpot adjusts the drive for maximum motor smoothness at low speeds. Set the motor speed to about half a revolution a second, then turn the ADJUST trimpot +/- quarter turn. Between these two limits will be a position where the motor turns with the least vibration. The default setting is at half scale of the trimpot CW/CCW limits. Use a very small screwdriver to adjust this trimpot.

HEATSINK: The maximum rated drive mounting plate temperature is 75C (167F). It is recommended to keep the drive temperature below 55C (131F) for best long-term reliability. Mount the drive on a heatsink when the motor phase is 2A or more. The mounting plate is electrically connected to power supply ground **(TERM 1)**.

ENVIRONMENTAL: Keep the drive free of contamination such as metal chips, water, dirt or other contaminants. These contaminants can short out the electronic components on the drive and can cause malfunction or damage to the drive.

G251 10 MICROSTEP DRIVE
SPECIFICATIONS, PINOUT AND DIMENSIONS

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GECKODRIVE G251

MAIN CONNECTOR:

1   GND
2   +VDC
3   I-SET
4   I-SET
5   PHASE A
6   PHASE /A
7   PHASE B
8   PHASE /B
9   DIRECTION
10 STEP
11 DISABLE
12 SIGNAL GND

CURRENT SET RESISTOR:

CONNECT 1/4W RESISTOR FROM
"I-SET" (TERM. 3) TO "I-SET" (TERM. 4).
MOTOR PHASE CURRENT = 1 AMP
PER 1,000 OHMS.

SPECIFICATIONS:

SUPPLY VOLTAGE	+15VDC MIN, +50VDC MAX
PHASE CURRENT	0A TO 3.5A
I-SET RESISTOR	1,000 OHMS PER AMP
POWER DISSIPATION	3.3W AT 3.5A AND 50VDC
RESOLUTION	10 MICROSTEPS PER FULL STEP
STEP/DIR INPUT	0V TO 3.3V MIN, 0V TO 5V MAX
STEP/DIR CURRENT	1mA
STEP PULSE RATE	0Hz TO 300kHz
STEP PULSE WIDTH	1 MICROSECOND MIN
AUTO STANDBY	70% OF SET CURRENT

MID-BAND RESONANCE COMPENSATION
MICROSTEP TO FULL STEP MORPHING
12A, 60V DISCRETE N-CHANNEL MOSFETS
1.675" X 1.325" X 0.500" SIZE

WEIGHT	0.45 OZ (12.5 GRAMS)
TEMPERATURE	0C TO 75C