

PLEASE READ COMPLETE DATASHEET BEFORE USE

(follow specific setup instructions (ref. 1.6))

FEATURES:

- Two phase bipolar (chopper) pulse width modulating technology
- 1/8 Permanent micro stepping drive
- +5v logic output for the use of limit switches, digitizing probe, etc...
- Modularity - Can be used in combination with multiple stepper motor drives
- Maximum 30VDC @ 2.5 amps/phase motor output
- For use with stepper motors rated at 2.0 amps / phase or higher

1.1 CONNECTING POWER SUPPLY TO DRIVE BOARD:

- Connect suitable power supply at **VBB** terminal (please note polarity)
- 24vdc @ 2-6amp switching power supply recommended
- 12vdc min. (risk of overheating at lower voltages)
- 30vdc max. (although driver is rated up to 35vdc, power supplies over 30vdc are not recommended due to variations in output)

1.2 SELECTING STEPPER MOTORS:

WARNING: INCORRECT WIRING OF THE STEPPER MOTOR TO THE DRIVE BOARD CAN LEAD TO IMMEDIATE DAMAGE OF DRIVE BOARD - DO NOT CONNECT OR DISCONNECT MOTORS WHILE POWER IS ON

4 Wire, 6 Wire, and 8 Wire stepper motors can be used with stepper motor drive

4 Wire motors are recommended as they are by their manufacture true bipolar motors and easier to properly connect to stepper motor drive

2~3 amps / phase stepper motors will yield the best performance

Do not use stepper motors rated at less than 2.0 amps / phase

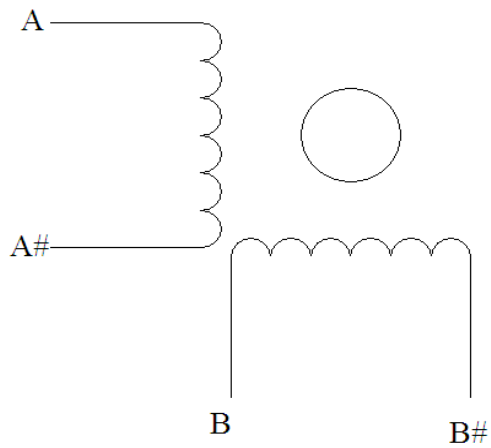
If using 6 or 8 wire motors, connected using series wiring method, reduce labeled amperage rating by **50%**

(i.e. a motor rated at 4 amps should thus be considered now rated at 2 amps)

It is critical to obtain a proper motor coil diagram of any motor you wish to utilize (making cross connections between the two coils will destroy the control circuitry)

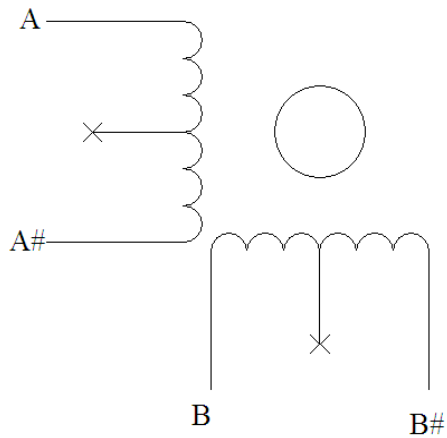
1.8 deg per step resolution is the industry standard for most automation grade stepper motors and is recommended for most applications

4 WIRE STEPPER DIAGRAM



Each wire is connected to its corresponding terminal block location (i.e. A# wire is connected at **A#** location).

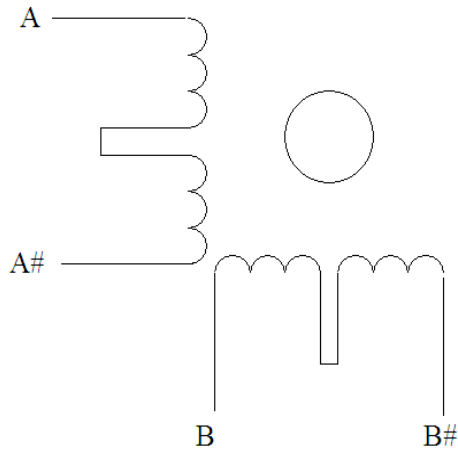
6 WIRE STEPPER DIAGRAM (SERIES WIRING)



Center wire of each coil not connected (insulate termination)

Remaining wires are connected to their corresponding terminal block location (i.e. A# wire is connected at **A#** location).

8 WIRE STEPPER DIAGRAM



2 center wires of each coil connected (insulate connection)

Remaining wires are connected to their corresponding terminal block location (i.e. A# wire is connected at A# location).

1.3 CONNECTING BOARD TO COMPUTER

Typically your computers parallel port (DB25 or DB9) will be used as a signal source for controlling stepper motor drive, in conjunction with CAM software.

All signals are Active Low

NOTE: Drive is permanently set at 1/8 step, keep this in mind when performing step per unit calculations

The most common arrangement is to utilize the computers DB25 parallel port

- Pin 2 is connected to **STEP**
- Pin 3 is connected to **DIR**
- Pins 18-25 are connected to **SIG GND** (signal ground)

It is critical, regardless of port utilized, that signal connection is well grounded, thus the preference for the use of the DB25 port, as it provides ample signal grounding via pins 18-25

The use of a DB25 (LPT) breakout board greatly simplifies the process of accessing required pins (available directly from www.aliencnc.com)

It is critical that the connection between computer parallel port and motor drive board be direct without the use of adapters (signal splitters/converters - i.e. USB to DB25 (gender changers are acceptable))

1.4 ADDITIONAL TERMINAL ACCESS INFORMATION

+5V - is to be used as logic voltage source only, not to be used to power external devices (typically only used to create HIGH signal line).

GND - Access to signal ground

1.5 ADDITIONAL SAFETY NOTES:

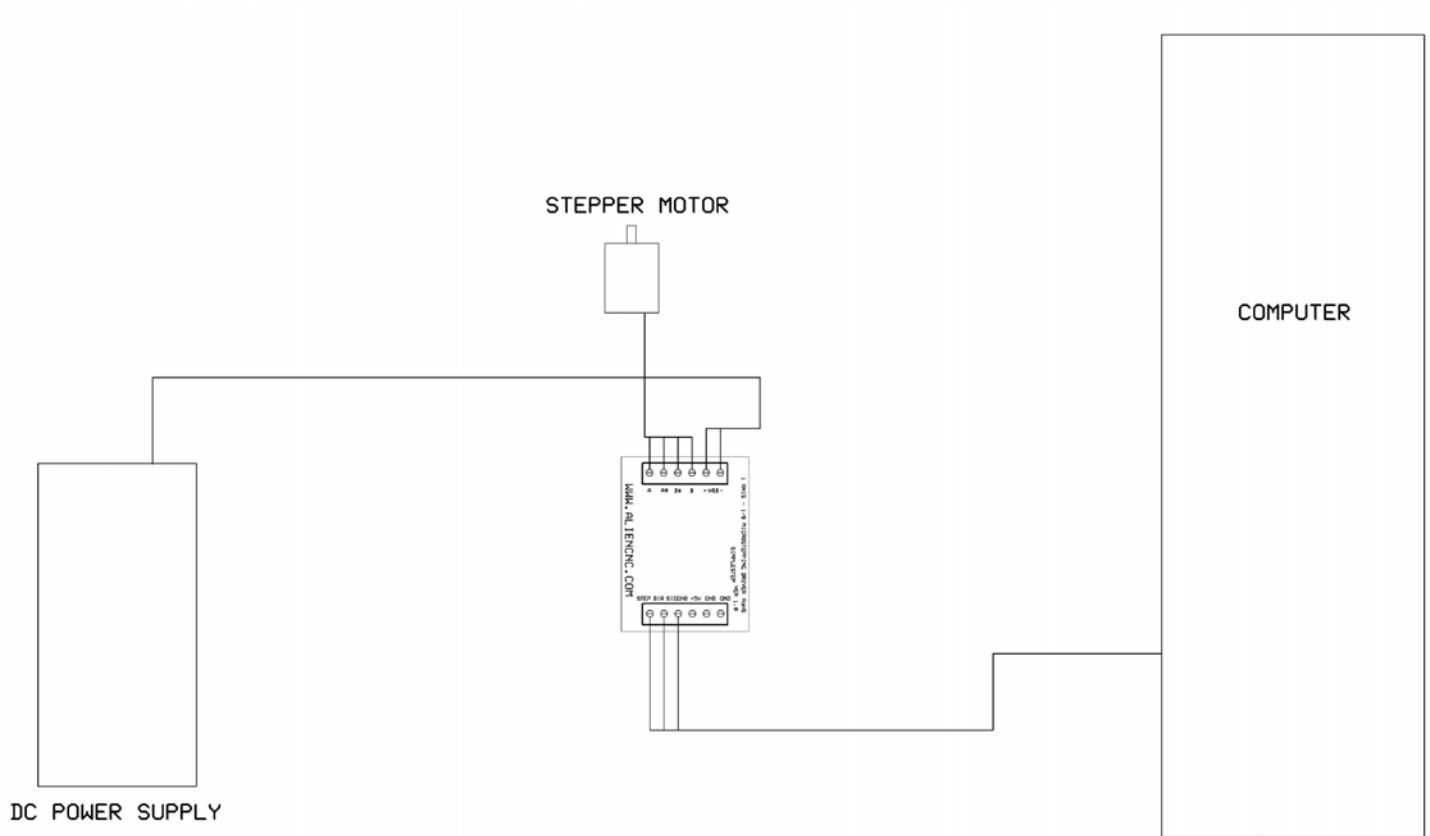
Always properly ground oneself when handling stepper motor drive board

It is highly recommend that the stepper motor drive board is properly enclosed in an instrument case before use (contact with debris may damage board).

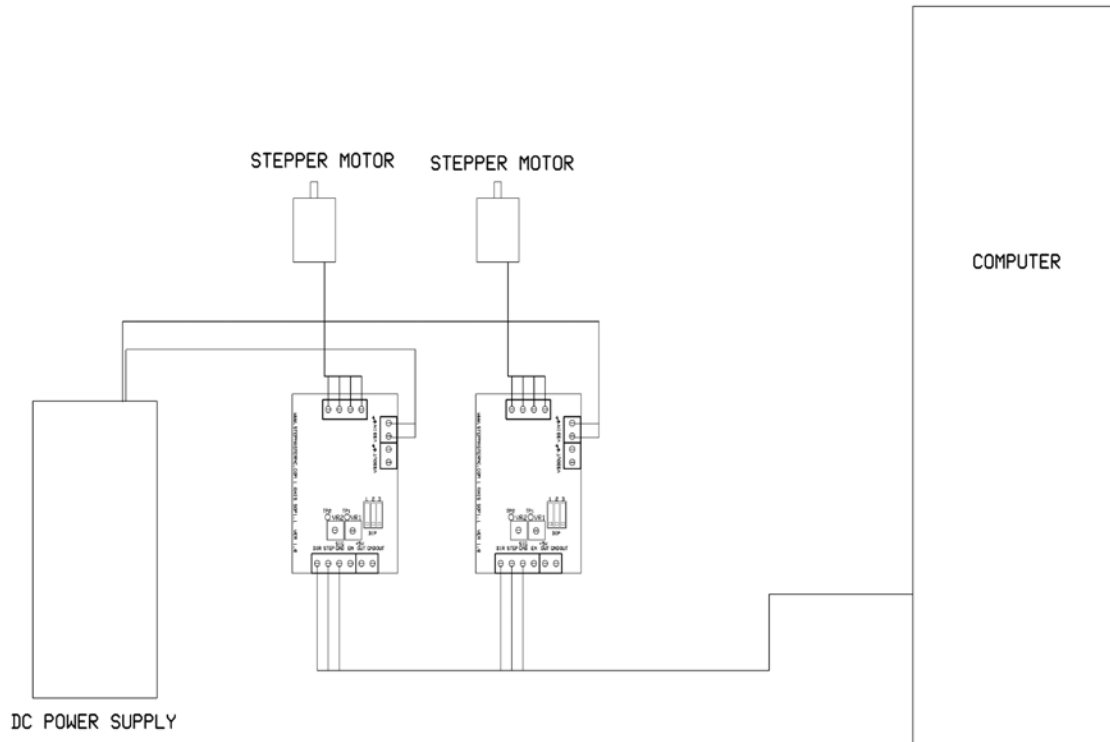
1.6 SETUP CHECKLIST (FOLLOW EXPLICITLY)

- Ground yourself with the use of grounding wrist band. (ref. 1.5)
- Setup output pin configuration on chosen control software. (ref. 1.3)
- Connect Stepper motor. (ref 1.2)
- Connect power supply. (ref. 1.1)
- Turn power on to confirm correct connection of stepper wires - motor should lock up (if not re-examine stepper motor wiring diagram and re-wire)
- Turn power off
- Connect signal wires between computer and drive board (ref. 1.3)
- Turn power on
- Attempt to jog axis with software (if axis turns in opposite direction of desired direction - attempt axis rotation reversal via software- if unable to do so switch 2 wires for one coil (i.e. switch A with A#, do not switch wires between coils)
- You are now done and able to begin using your new stepper motor drive

1.7 BASIC SETUP LAYOUT



1.8 CONNECTION OF ADDITIONAL STEPPER MOTOR DRIVES



Note: Power Connection is not daisy chained (power connection is made directly from original power source)