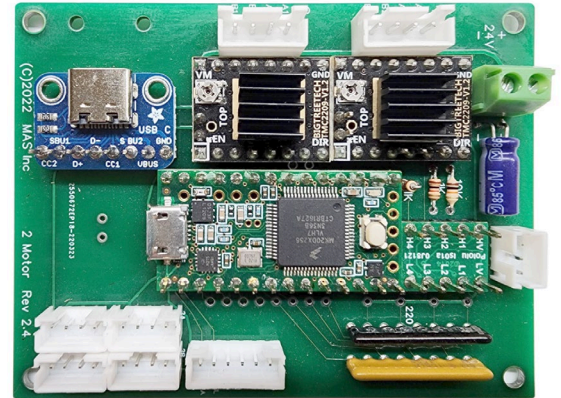


General Specifications

Supply Input	12V to 24V 2A
Dimensions	2.375" X 3.125" (60mm X 80mm) With 3mm mounting holes
Step Resolution	1/8 step
Operating Modes	PC controlled via USB port (USB-C)
Control protocol	Uses Open Source "Command Messenger" Protocol. Additional protocols available upon request.
Motor compatibility.....	Accommodates most NEMA 23 (3") & smaller stepper motors, including bipolar or unipolar-wound motors. Best performance is with motor rated at about ¼ of supply voltage.
Mating Connectors.....	Motors: JST 4-pin, 100 mil pin spacing EOT Sensors: JST 4-pin. 2mm pin spacing NeoPixel: JST 3-pin 2 mm pin spacing
EOT Interface.....	Accepts opto-electronic or mechanical switch inputs, two for each motor (home and end). Signal Levels: <0.8V Vlow; >2V Vhigh (TTL compatible) Optical switch specifications: Transistor optical switch with IC > 1 mA @ IF=20mA. <i>Examples:</i> OPTEK # OPB941W51Z (Mouser # 828-OPB941W51Z) (prewired)
Operating Temperature	-20 to 85 °C PCB copper temperature
Relative Humidity.....	10% to 90% non condensing (operating and storage)

STEP020-B2

Dual 2209 Stepper Board with Sensor Board Interface



MOTOR CONNECTOR

Mating connector: JST connector XHP-4
Digikey part 455-2267-ND

Pin	Function	Notes
1	A1 (winding A)	Marked "A1" on the PCB
2	A2 (winding A)	Marked "A2" on the PCB
3	B2 (winding B)	Marked "B2" on the PCB
4	B1 (winding B)	Marked "B1" on the PCB

EOT CONNECTOR

Mating connector: JST connector PH-4P
Digikey part 455-1164-ND

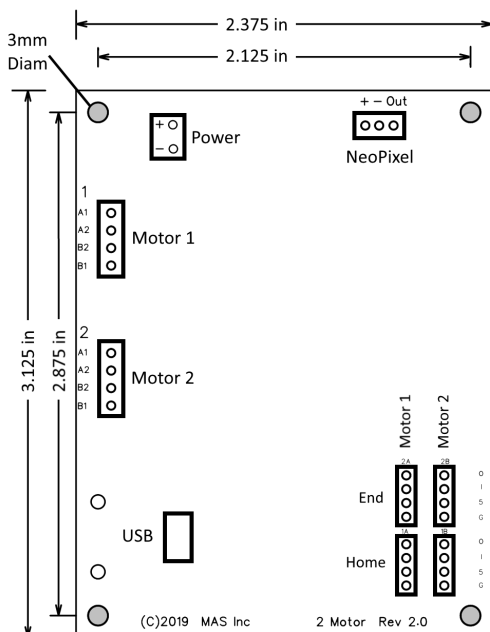
Pin	Name	Notes
1	Anode	Marked "O" on the PCB (red)
2	Output (reflects state)	Marked "I" on the PCB (blue)
3	VCC	Marked "5" on the PCB (white)
4	Cathode / Ground	Marked "G" on the PCB (black/green)

NEOPIXEL CONNECTOR

Mating connector: JST connector PH-3P
Digikey part 455-1126-ND

Pin	Function	Notes
1	+5VDC	Marked "+" on the PCB
2	Ground	Marked "-" on the PCB
3	Data Out	Marked "Out" on the PCB

Mechanical Specifications



Key Features

- Native USB interface
- 1 A continuous, 1.6A peak motor power
- Operates from 12V to 24V
- Over-temperature and over-current protection
- Based on 32 bit ARM architecture
- Auto-homing via single command
- End-of-travel detection for both ends of travel
- Prewired for opto-switch input
- 4 selectable power levels
- Built-in support for neopixel status indicators
- Hardware mediated emergency stop function
- Motor acceleration and speed settings
- Both absolute and relative positioning support
- Support for both cartesian and HBot positioning
- Single-axis and multi-axis positioning commands
- Report commands (position, status, etc.)
- Demo software provided
- Custom programming available

Ordering Information

Name	Part Number
Dual 2209 Stepper Motor Board	STEP020-B2
24VDC Power Supply (option).....	PS-24
Neopixel Indicator strip (option).....	NP-03
Optical Encoder.... (option).....	ENC-01