

BTST2.5 Stepper Driver

Microstepping step/dir driver with stall detection for NEMA 11 to NEMA 23 motors

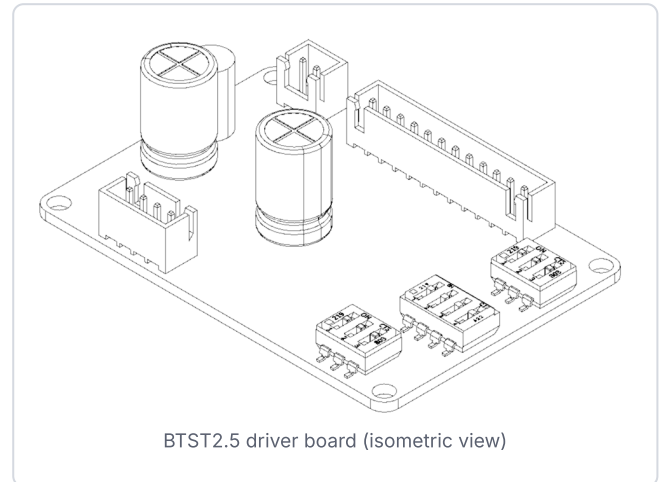
The Barronic Technologies **BTST2.5** is a compact, board-level microstepping driver for NEMA 11, 14, 17 and 23 stepper motors. It accepts step and direction commands through optically isolated differential inputs and drives each motor phase at up to 2.5 A peak from a 24 V supply.

Microstep resolution of up to 256 gives low-vibration, low-noise operation at both low and high speeds. Stall detection, auto-tuning and standstill current reduction are built in, and the maximum run current is set with on-board switches.

Soft start, reverse polarity protection, undervoltage lockout and thermal protection with automatic retry protect the driver and the machine it runs in.

Features and benefits

- ▶ **Up to 256 microsteps** for smooth, precise motion
- ▶ **2.5 A peak** maximum current per phase
- ▶ **Low vibration and noise** at low and high speeds
- ▶ **Step/dir interface** with stall detection
- ▶ **Optically isolated differential** inputs and outputs
- ▶ **Auto-tuning** to the connected motor
- ▶ **Configurable maximum run current** and standstill current reduction
- ▶ **Soft start**; operation begins 10 ms after startup
- ▶ **Protection**: reverse polarity, thermal with auto retry, UVLO at 21 V



In the box: BTST2.5 driver and user manual.

Sold separately: cabling.

For further information contact

barronicttechnologies@gmail.com

24 V Supply voltage	2.5 A Max current per phase (peak)	256 Microsteps, maximum	-20 to 80 °C Operating temperature
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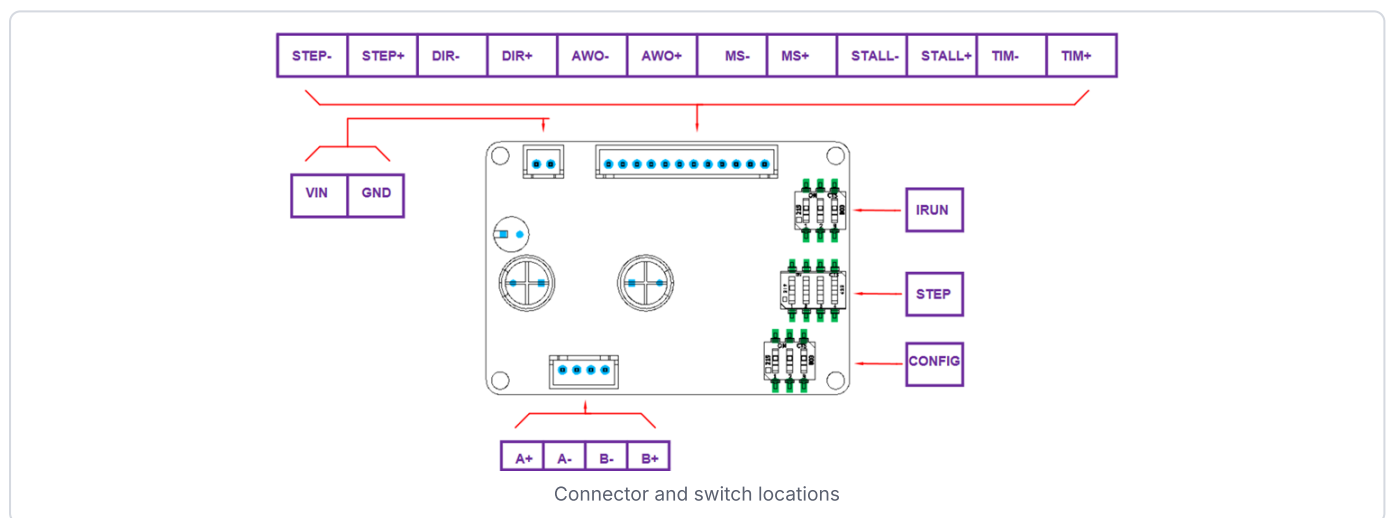
Industries

 INDUSTRIAL AUTOMATION	 MOTOR CONTROL	 MEDICAL	 AGRICULTURE	 PACKING
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Specifications

POWER INPUT		CONTROL	
Supply voltage	24 V	Command interface	Step / direction
Undervoltage lockout (UVLO)	21 V	Inputs and outputs	Optically isolated, differential
Reverse polarity protection	Yes	Microstep resolution	Up to 256 (STEP switch)
Soft start	Yes	Stall detection	Yes, STALL output
Startup	Operation begins 10 ms after startup	Auto-tuning	Yes
MOTOR OUTPUT		PROTECTION, ENVIRONMENT AND MECHANICAL	
Max current per phase	2.5 A (peak)	Thermal protection	Yes, with auto retry
Run current	Maximum run current configurable (IRUN switch)	Operating temperature	-20 to 80 °C
Standstill current reduction	Yes	Board size	65 × 45 mm, 19.0 mm high
Motors supported	NEMA stepper motors: NEMA 11, NEMA 14, NEMA 17, NEMA 23	Cabling	Sold separately

Connections



I/O connector (12-pin)

Pos.	Signal	Description
1, 2	STEP-, STEP+	Step pulse input
3, 4	DIR-, DIR+	Direction input
5, 6	AWO-, AWO+	All windings off input
7, 8	MS-, MS+	Microstep select input
9, 10	STALL-, STALL+	Stall detection output
11, 12	TIM-, TIM+	Timing output

Positions are numbered left to right as shown in the drawing above. All I/O signals are optically isolated differential pairs.

Power connector (2-pin)

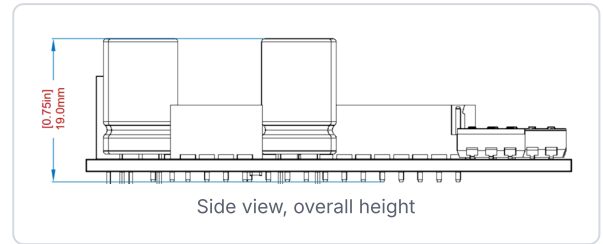
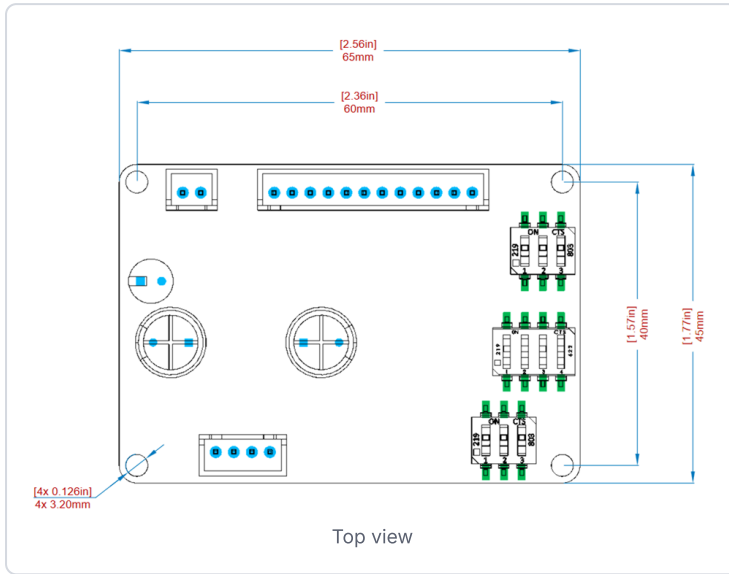
Pos.	Signal	Description
1	VIN	Supply, 24 V
2	GND	Supply ground

Motor connector (4-pin)

Pos.	Signal	Description
1	A+	Motor phase A
2	A-	Motor phase A
3	B-	Motor phase B
4	B+	Motor phase B

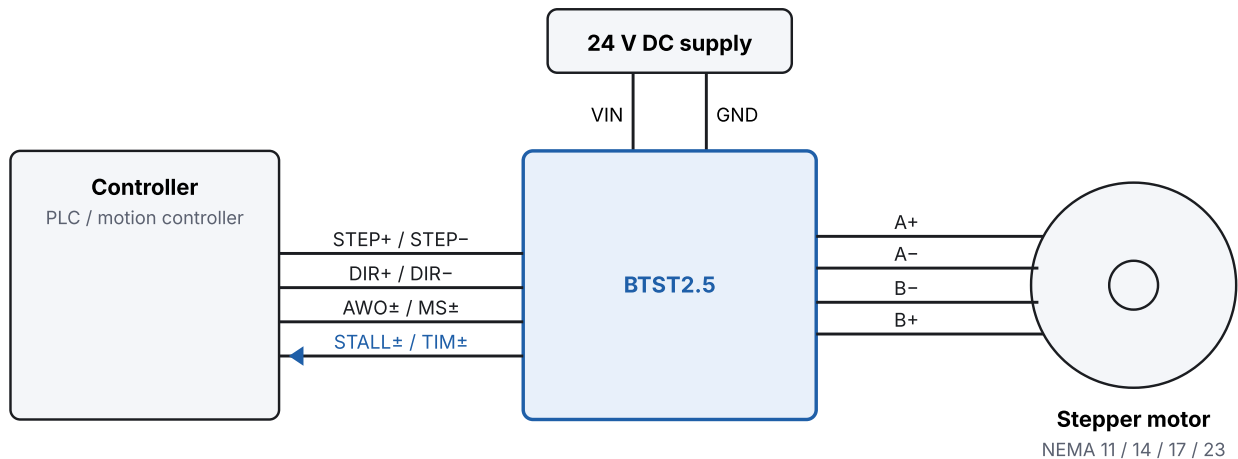
Note the order of positions 3 and 4 (B- before B+).

Dimensions



Dimensions in mm [inches]. Board 65 × 45 mm, 19.0 mm high. Four Ø3.20 mm mounting holes on 60 × 40 mm centres.

Typical connection



Inputs and outputs are optically isolated differential pairs. Power the driver from a 24 V supply on VIN and GND. Cabling is sold separately.

Settings

Switch	Type	Function
IRUN	3-position DIP	Maximum motor run current
STEP	4-position DIP	Microstep resolution, up to 256
CONFIG	3-position DIP	Driver configuration

For further information, contact barronicttechnologies@gmail.com.

Protection

- ▶ **Undervoltage lockout:** the driver does not operate below 21 V.
- ▶ **Reverse polarity protection** on the supply input.
- ▶ **Thermal protection with auto retry:** the driver stops on overtemperature and retries automatically.
- ▶ **Soft start** at power-up; operation begins 10 ms after startup.

Functions

Stall detection

The driver detects a motor stall and signals it on the isolated STALL output.

Standstill current reduction

Motor current is reduced while the motor is at standstill, lowering heat in the motor and driver.

Auto-tuning

The driver tunes itself to the connected motor for low-vibration, low-noise running at low and high speeds.