

TSL-BLDC-2838 Brushless DC Motor

Specification Sheet | 12 V / 24 V Options | 8000 rpm Series

Item	Specification
Motor type	Brushless DC motor
Series / frame	BLDC28 series, 27.8 mm diameter frame
Main model	TSL-BLDC-2838
Available versions	12 V version / 24 V version
Typical speed versions	8000 rpm series
Control functions	PWM speed control, FG feedback, brake input, F/R direction control
Lead wires	6 wires: red, purple, black, yellow, blue, white

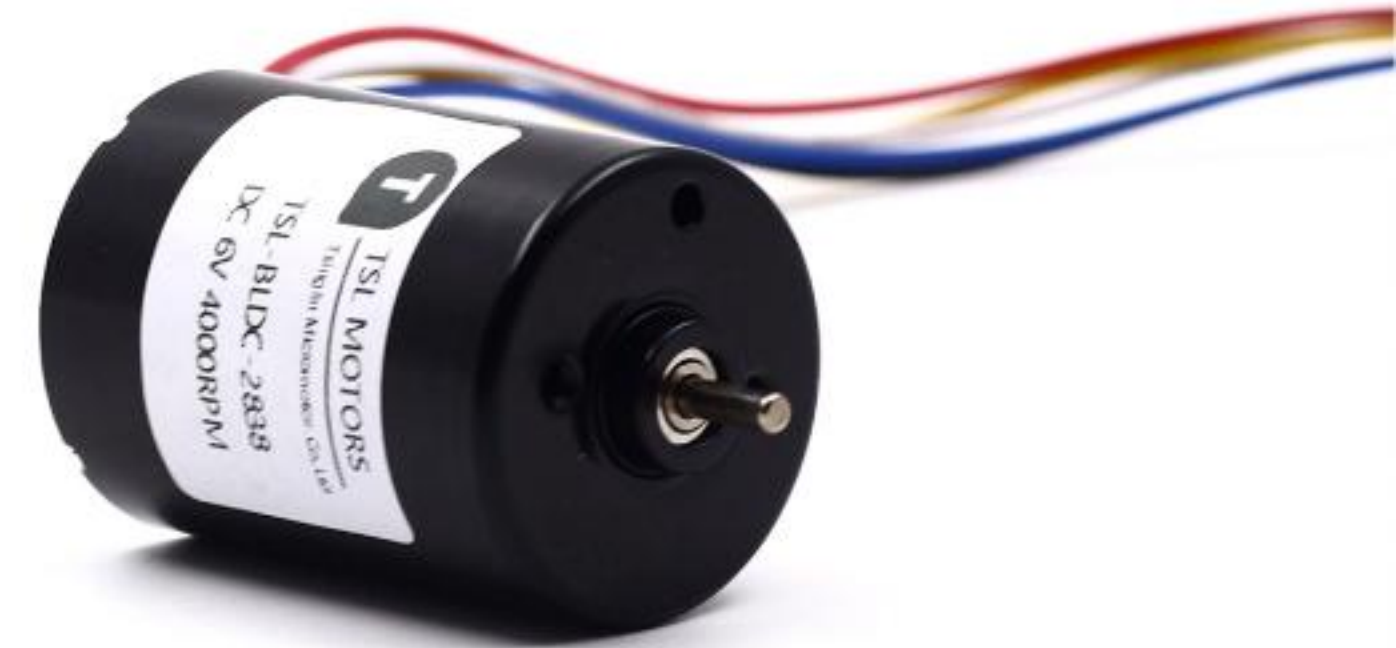
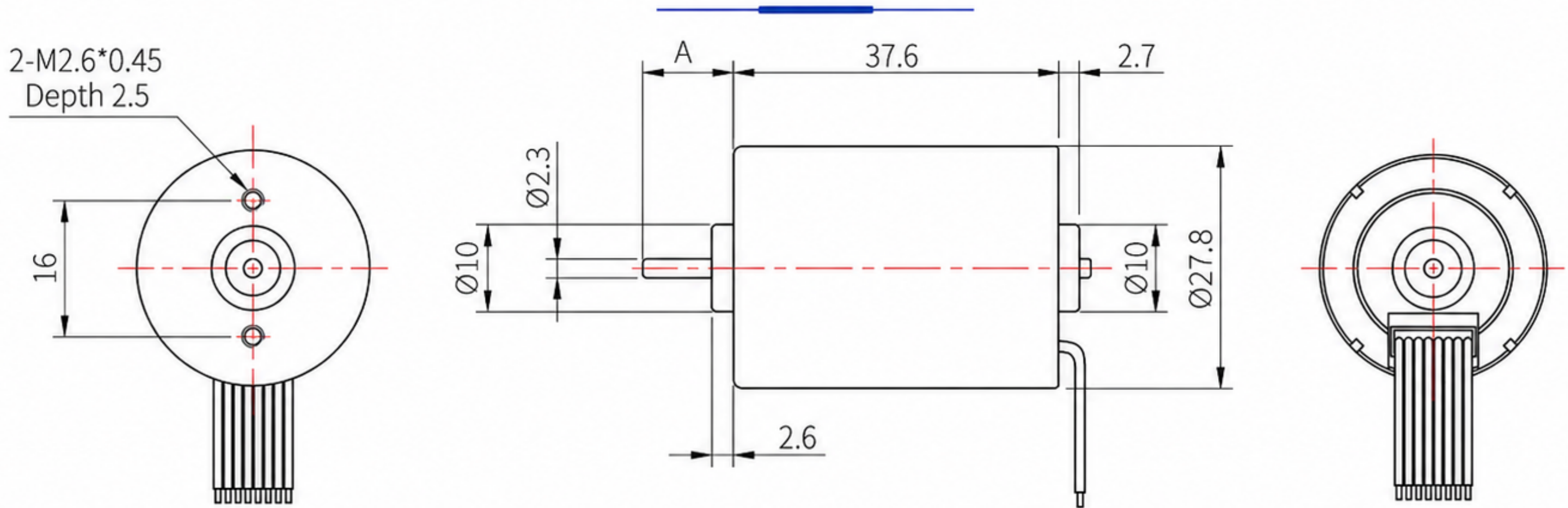


Figure 1. Product appearance



Performance parameters and outline drawings are for reference only. Shaft, lead wire, connector, voltage, speed, mounting, and other specifications can be customized according to customer requirements.

Mechanical Dimensions



Unit	mm	Body diameter	27.8
Body length	37.6	Shaft diameter	2.3
Front boss diameter	10	Mounting holes	2-M2.6×0.45, depth 2.5
Hole spacing	16	Note	Dimension A depends on shaft option and can be customized.



Outline drawing is for reference only. Shaft extension, connector style, lead wire length, and mounting details can be customized according to customer requirements.

Performance Parameters

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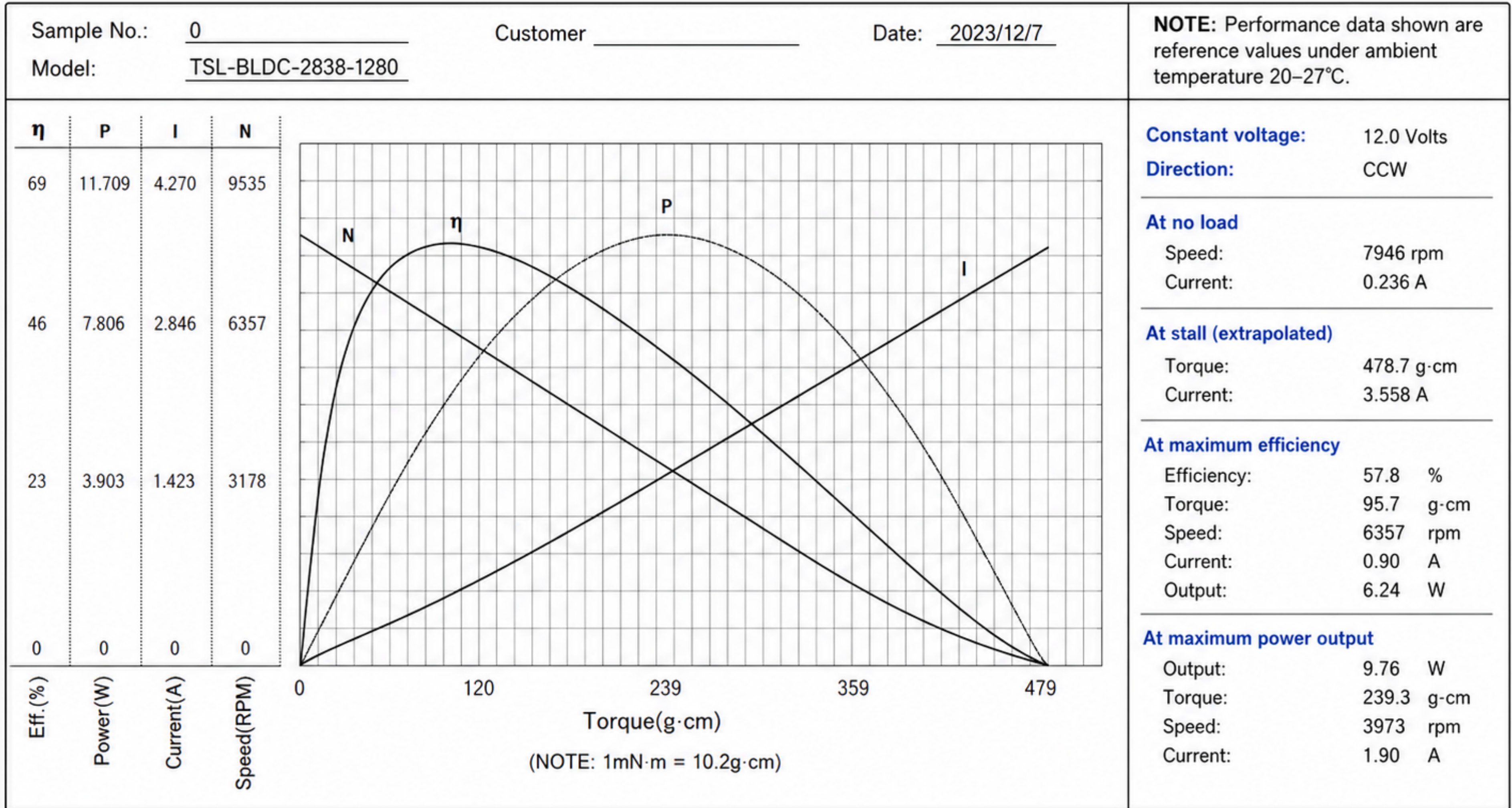
Typical Performance Data

Model	Voltage		No-Load		At Maximum Efficiency				At Maximum Power				Stall	
	Operating range	Nominal	Speed	Current	Speed	Current	Torque	Output	Speed	Current	Torque	Output	Torque	Current
	V	V	r/min	A	r/min	A	g·cm	W	r/min	A	g·cm	W	g·cm	A
TSL-BLDC-2838-24120	14.5–26.0 V	24 V	11543 r/min	0.156 A	9625 r/min	0.783 A	126.27 g·cm	12.05 W	6249 r/min	1.89 A	379.96 g·cm	21.736 W	759.9 g·cm	3.928 A
TSL-BLDC-2838-12120	9.0–14.0 V	12 V	11543 r/min	0.312 A	9625 r/min	1.56 A	126.27 g·cm	12.05 W	6249 r/min	3.78 A	379.96 g·cm	21.736 W	759.9 g·cm	7.8 A



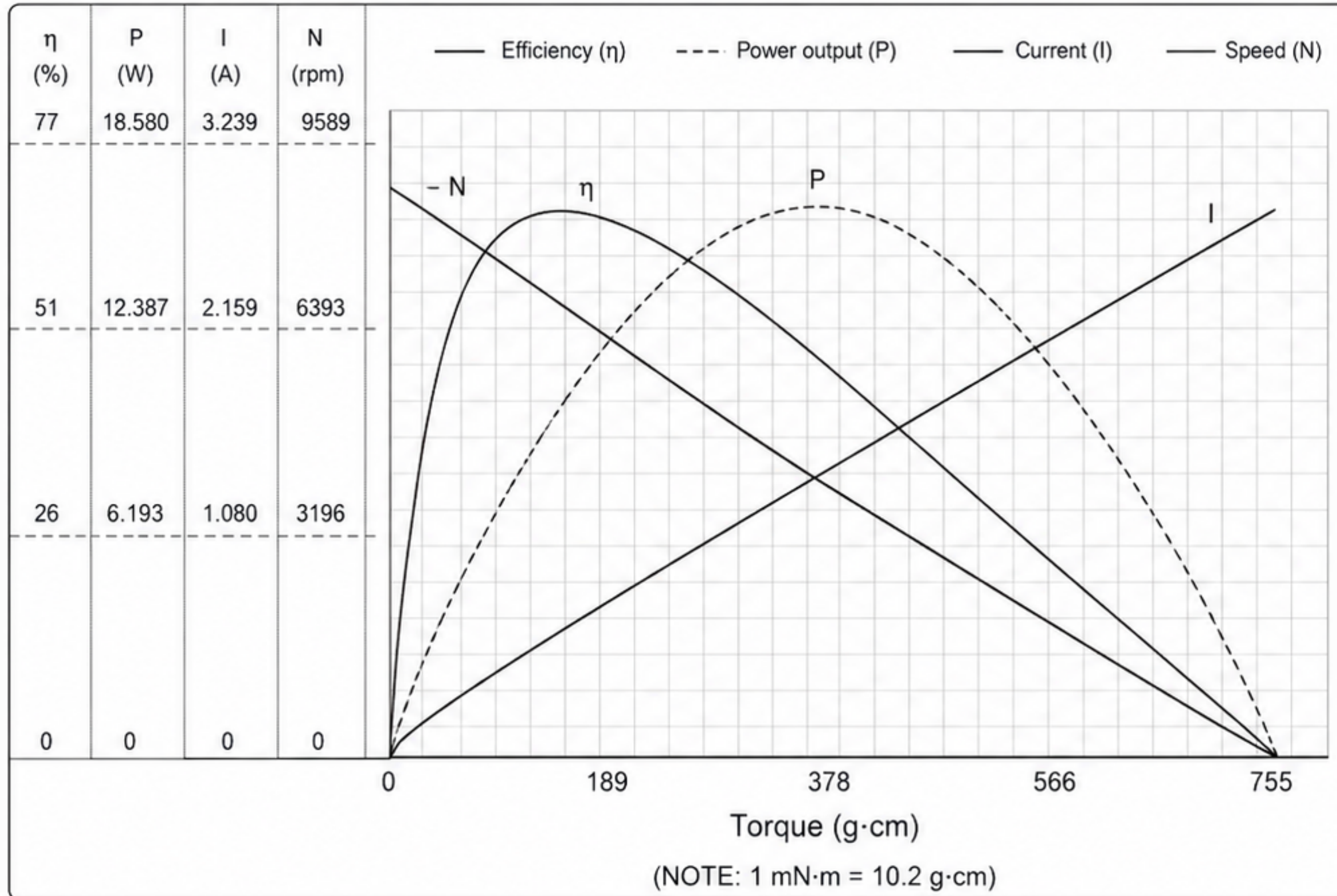
Typical data shown above are reference values measured under standard test conditions. Performance may vary depending on load, voltage, temperature, and customization requirements.

12 V 8000 rpm Performance Curve




24 V 8000 rpm Performance Curve

Sample No.: 0 Customer: _____ Date: 2023/12/7
 Model: TSL-BLDC-2838-2480



Constant voltage:	24.0 Volts	
Direction:	CCW	
At no load		
Speed:	7991	rpm
Current:	0.131	A
At stall (extrapolated)		
Torque:	755.3	g·cm
Current:	2.699	A
At maximum efficiency		
Efficiency:	64.2	%
Torque:	151.1	g·cm
Speed:	6392	rpm
Current:	0.64	A
Output:	9.91	W
At maximum power output		
Output:	15.48	W
Torque:	377.6	g·cm
Speed:	3996	rpm
Current:	1.41	A

 Performance data shown are reference values under ambient temperature 20–27°C.

Lead Wire Definition

Wire Color and Signal Function

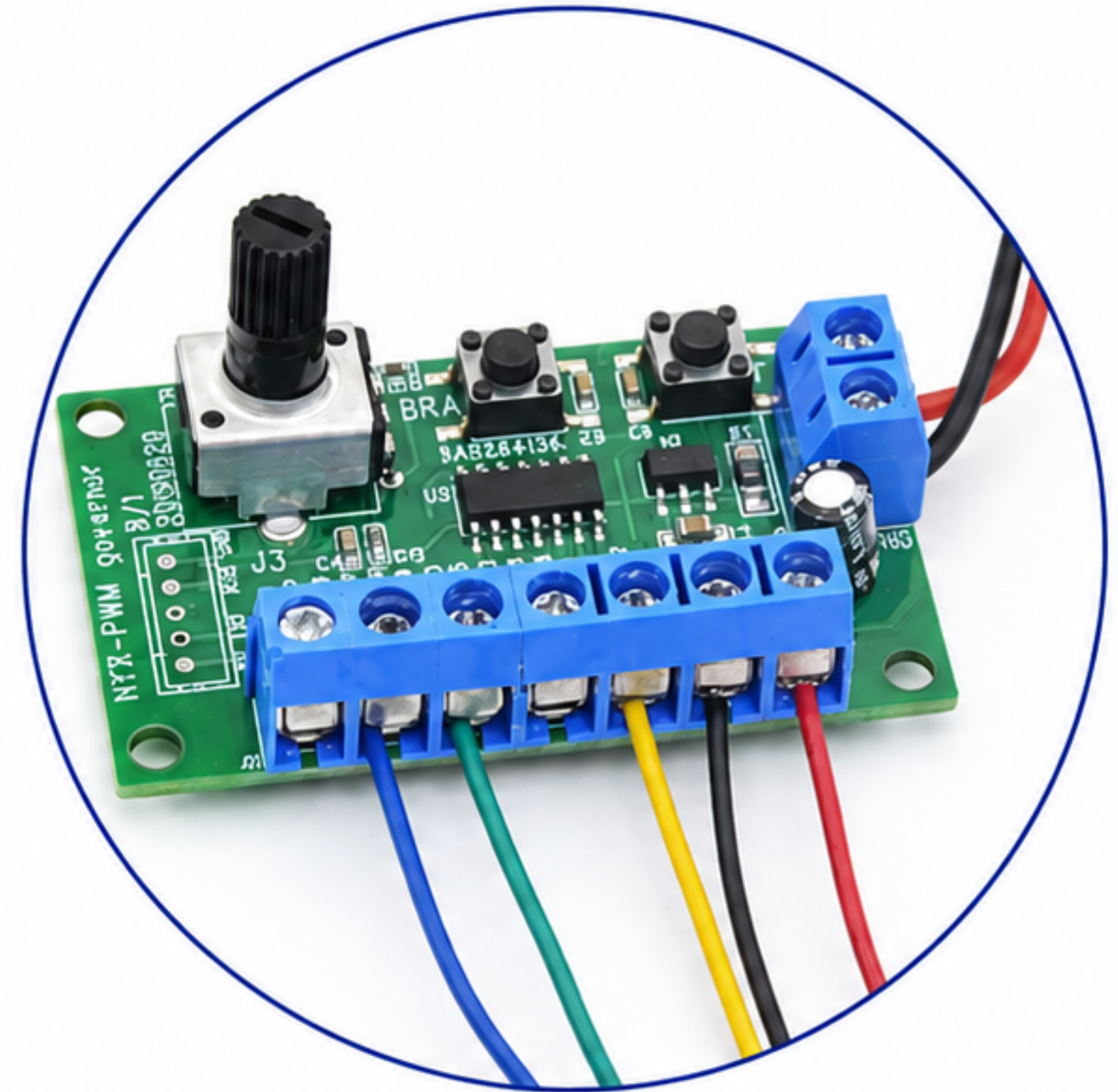
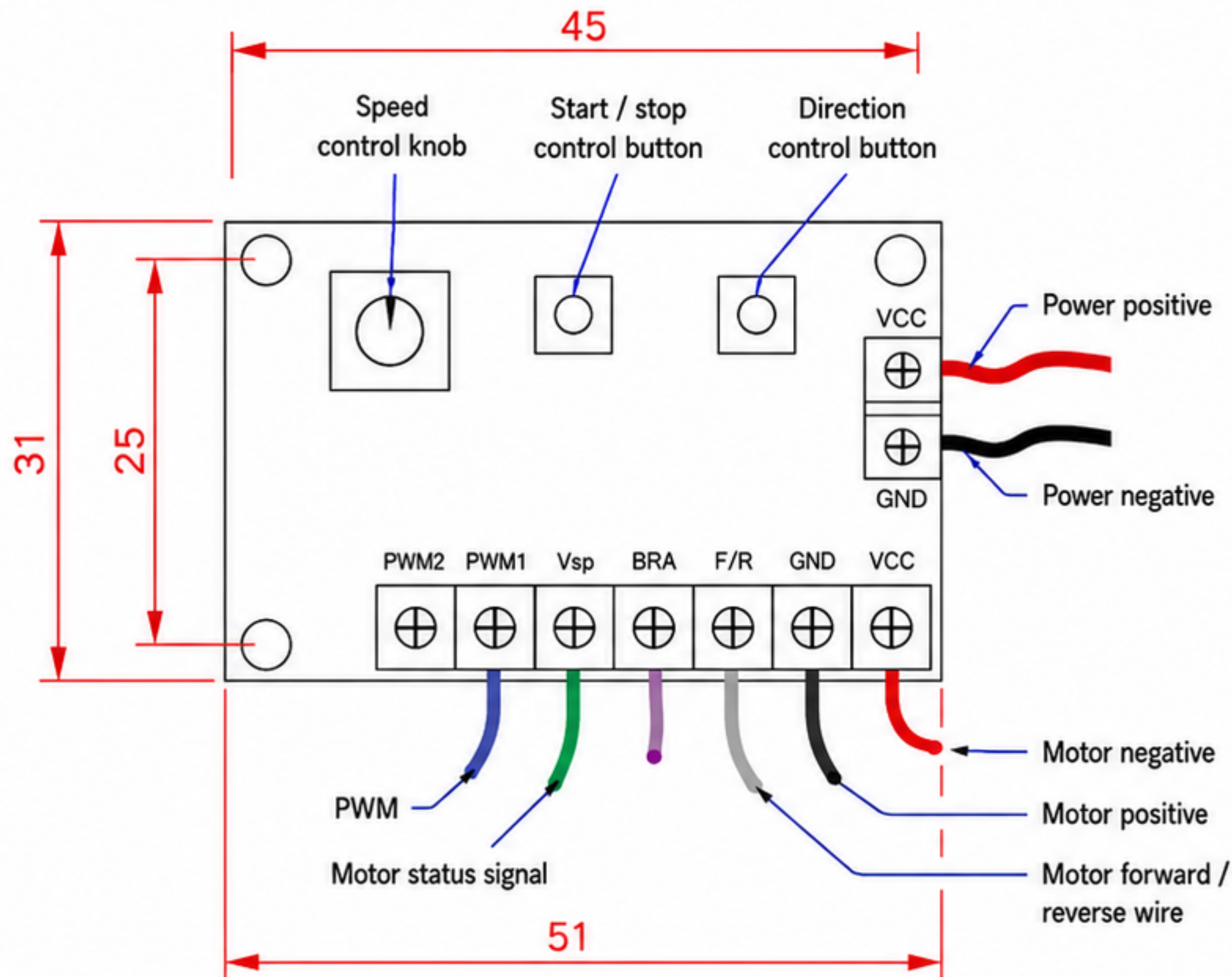
	Red wire — VCC (Power positive)
	Purple wire — BRA (Brake control input)
	Black wire — GND (Power negative)
	Yellow wire — FG (Speed signal output)
	Blue wire — PWM (Pulse width modulation signal input)
	White wire — F/R (Forward / reverse control signal input)

Electrical Interface (typical)

No.	Wire color	Signal	Electrical parameter	Range / level	Direction	Description
1	Red	VCC	Power positive	6–26 V	Input	Power supply positive input
2	Purple	BRA	High level (VIH) / Low level (VIL)	4.0–5.3 V / 0–0.5 V	Input	Brake control input, low-level braking
3	Black	GND	Power negative	0 V	Input	Power supply negative input
4	Yellow	FG	High-level drive current Low-level drive current High-level output (VOH) Low-level output (VOL)	< 200 μ A < 100 μ A > 3.8 V < 0.3 V	Output	Hall speed signal output; 9 pulse signals per revolution for speed measurement

Motor speed can be calculated from the FG pulse output.

Optional Speed Controller Wiring



! This controller wiring page is for reference only. Different controller versions and terminal arrangements may vary.