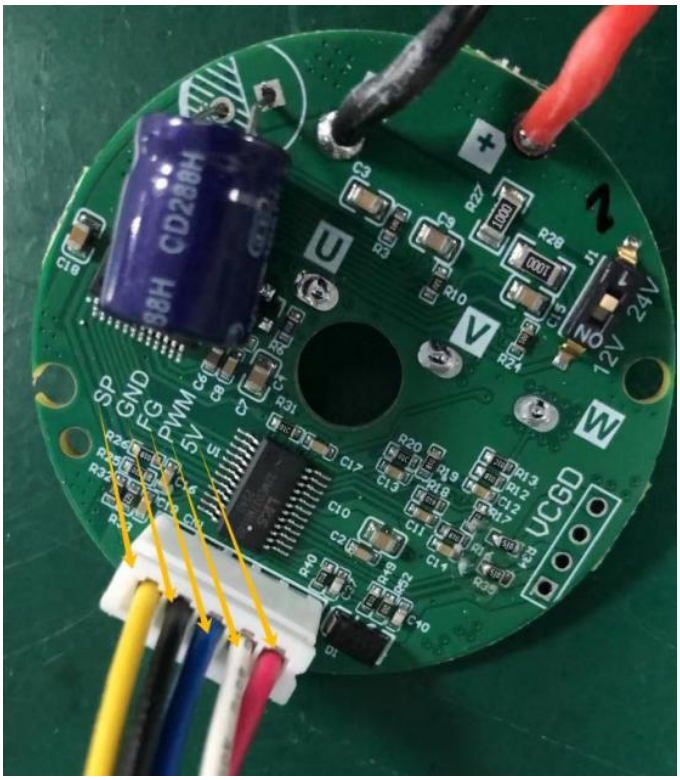
SHENZHEN BODEN TECHNOLOGY DEVELOPMENT CO., LTD.

BD-05T1040LBL Wire Connection Instructions

No.	Wire Color	Signal Name	Description
1	Thick Red	Power +	DC Power Positive
2	Thick Black	Power –	DC Power Negative
3	Yellow	SP	Analog speed-control input
4	Thin Black	GND	Ground / Common
5	Blue	FG	Speed feedback signal. Standard square-wave BLDC motor: 4-pole motor outputs 12 pulses per revolution.
6	White	PWM	PWM speed-control input. Recommend 1 kHz–10 kHz. Motor begins to run when the duty cycle exceeds 10%.
7	Thin Red	5V	5V output for external potentiometer speed control.



Electrical Characteristics

No.	Item	Specification	Notes / Details
1	BLDC Motor	Brushless DC motor	—
2	Speed Control	Adjustable	Supports VR (potentiometer) speed control or PWM speed control (1 kΩ–30 kΩ).
3	Controller Over-Temperature Protection	95 ± 5°C	Controller stops when this temperature is exceeded.
4	Controller Temperature Recovery	85 ± 5°C	Automatic restart once temperature drops.
5	Overvoltage Protection	≤ 32 ± 1V	If the detected input voltage is below 15 ± 1V, the controller operates normally; otherwise, the motor cannot start.
6	Startup Undervoltage Protection	≥ 15 ± 1V	Motor will only start when the input voltage is above this level.
7	Operating Undervoltage Protection	≤ 14 ± 1V	If input voltage falls below 14 ± 1V, the controller delays 500 ms, then shuts down to protect the motor.
8	Level-1 Overcurrent Limit	10 ± 3A / 1500 ms	—
9	Level-2 Overcurrent Limit	15 ± 3A / 600 ms	—
10	Level-3 Overcurrent Limit	25 ± 3A / 40 ms	—
11	Level-4 Overcurrent Limit	30 ± 3A / 30 ms	—
12	Protection Lock	Enabled	When protection is triggered, turn the speed-control potentiometer to minimum to unlock; or reduce PWM duty cycle to <6% to clear the protection state.
13	Startup Time	< 0.2 s	From power-on command to motor rotation <90 ms; full startup <0.2 s.