

# Introduction and usage of common motors

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This article is used to explain the motor parameters, recommended supply voltage, and the recommended wiring method for connecting this motor to a four-way motor driver board.

## Introduction and usage of common motors

1. 310 motor
2. Encoder speed measurement TT motor
3. L-type 520 motor

## 1. 310 motor

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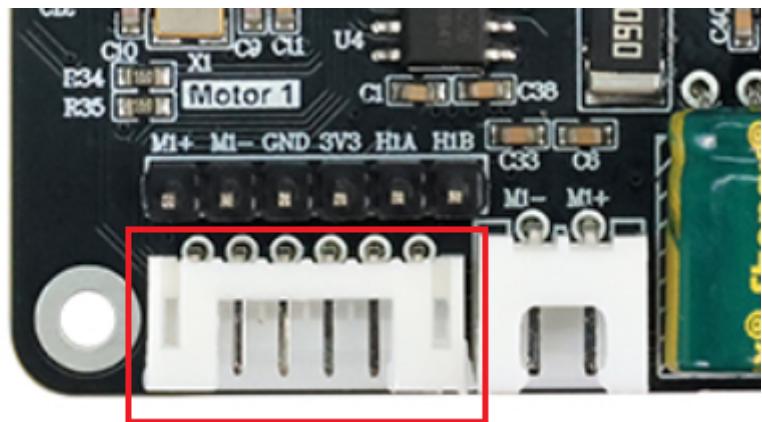


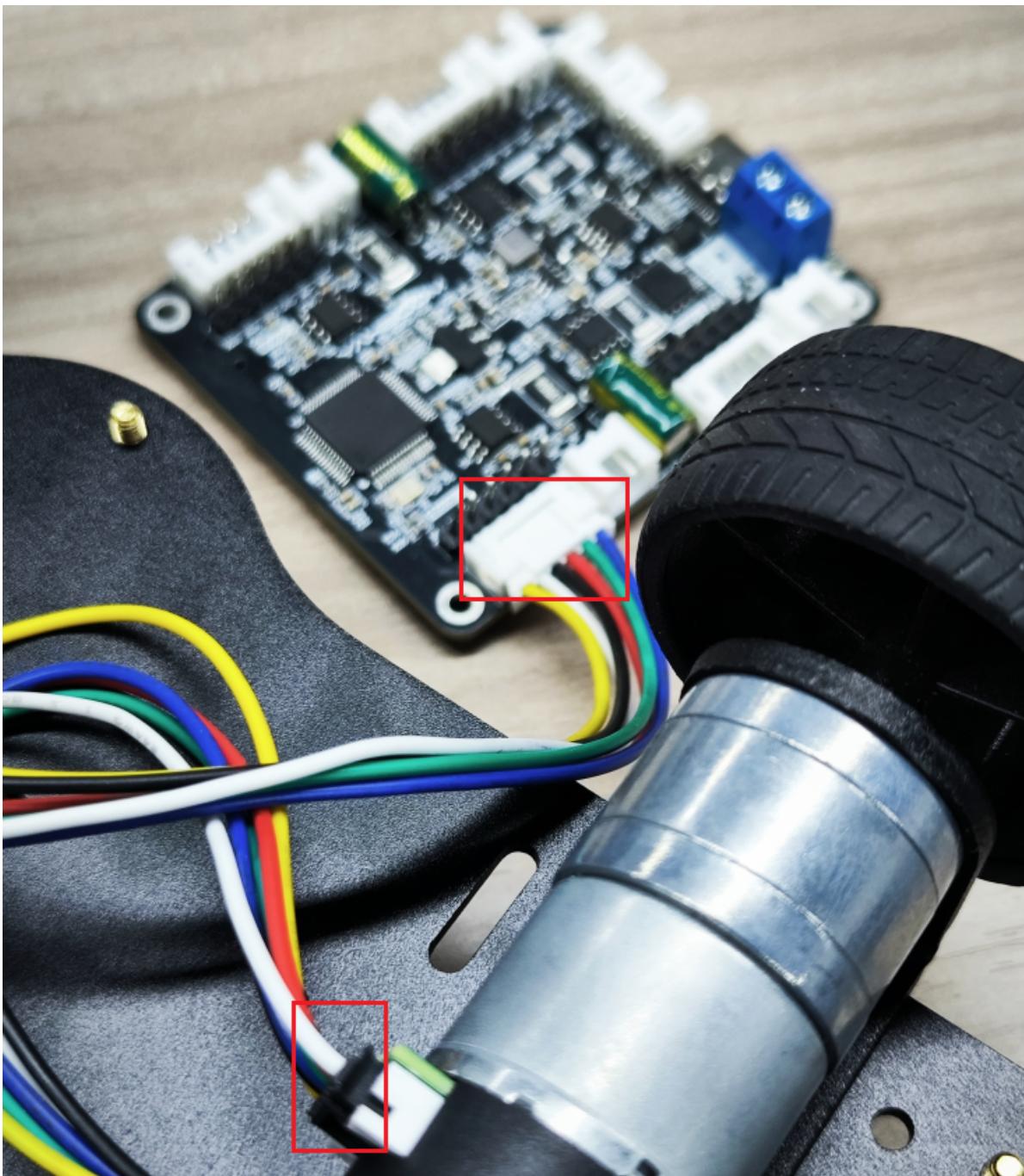
Parameter	Value/Description
Motor model	MD310Z20_7.4V
Stall current	$\leq 1.4A$
Motor rated voltage	7.4V
Rated current	$\leq 0.65A$
Motor type	Permanent magnet brush
Gear set reduction ratio	1:20
Output shaft	3mm diameter D-type eccentric shaft
Encoder type	AB phase incremental Hall encoder
Stall torque	$\geq 1.0\text{kg}\cdot\text{cm}$
Encoder supply voltage	3.3-5V
Rated torque	$0.4\text{kg}\cdot\text{cm}$
Number of magnetic ring lines	13 lines
Speed before deceleration	9000rpm
Interface type	PH2.0 6Pin
Function	With pull-up shaping, the microcontroller can directly read the signal pulse
Speed after deceleration	$450\pm 10\text{rpm}$
Rated power	4.8W
Weight of single motor	About 70g

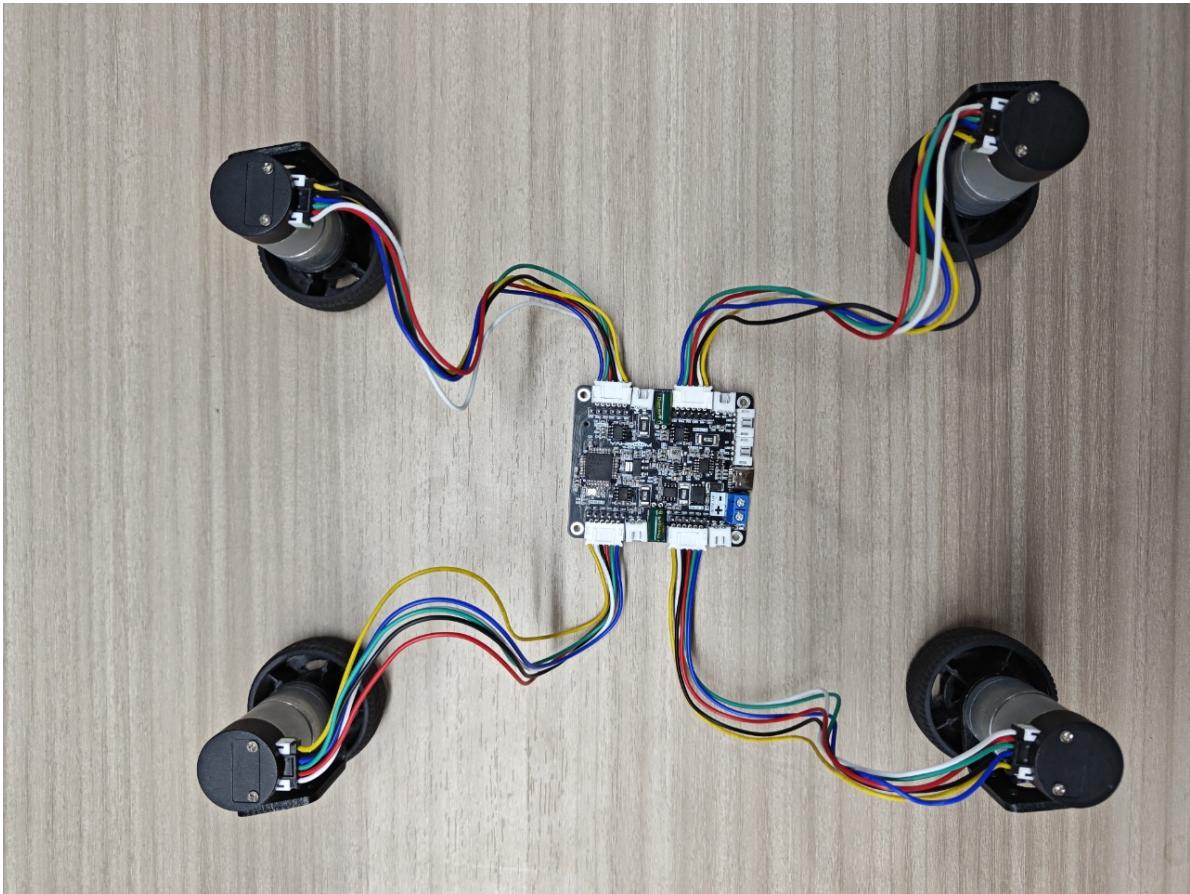
Recommended power supply: **7.4V**. It can be connected to a voltage between 4.2~8.4V, and **7.4V voltage is recommended.**

The two parameters **reduction ratio and number of magnetic ring lines** in the main parameter table are required. These two parameters may be modified when using a four-way motor driver board.

The 310 motor in the chassis package has a PH2.0-6PIN double-head cable. The black end can be connected to the 310 motor, and the white end can be connected to the PH2.0-6PIN encoder motor interface on the four-way motor driver board. At this time, the motor type configuration also selects `$mtype:2#`, the model of the 310 motor.







## 2. Encoder speed measurement TT motor

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Parameter	Value/description
Model	13-wire metal single-axis TT motor
Motor model	130 motor
Motor type/brush material	Brushed copper brush
Reduction ratio	1:45
Rated voltage	6V
No-load current	0.08A
Rated current	0.3A
Stalled current	1.1A
Torque	1.2N.m
Speed before deceleration	16000±5%rpm
Speed after deceleration	355±5%rpm
Encoder type	Hall AB phase encoder
Encoder power supply	3.3-5V
Encoder line number	13 lines
Maximum count for one wheel rotation	2340
Special functions	Built-in pull-up shaping, MCU can read directly

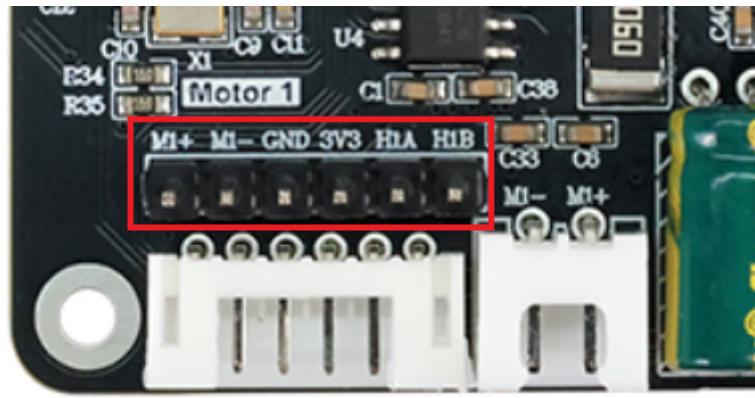
Recommended power supply: **7.4V**. Can be connected to 5~13V, **recommended to use 7.4V voltage power supply.**

The two parameters **reduction ratio and encoder line number** in the main parameter table are required. These two parameters may be modified when using the four-way motor driver board.

Recommended wiring: Use the PH2.0-6PIN to DuPont line cable and connect it to the IO socket of the four-way motor driver board.

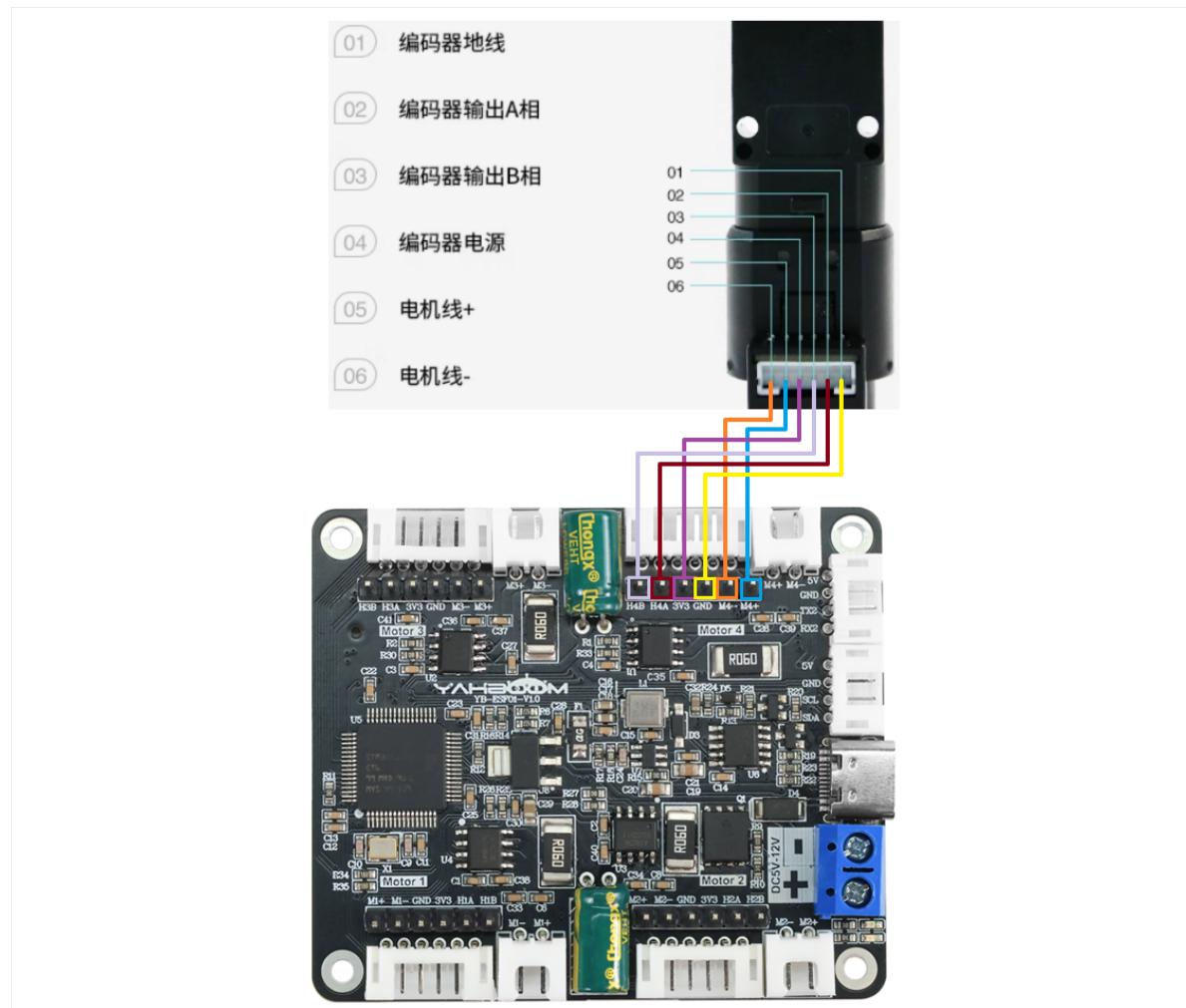


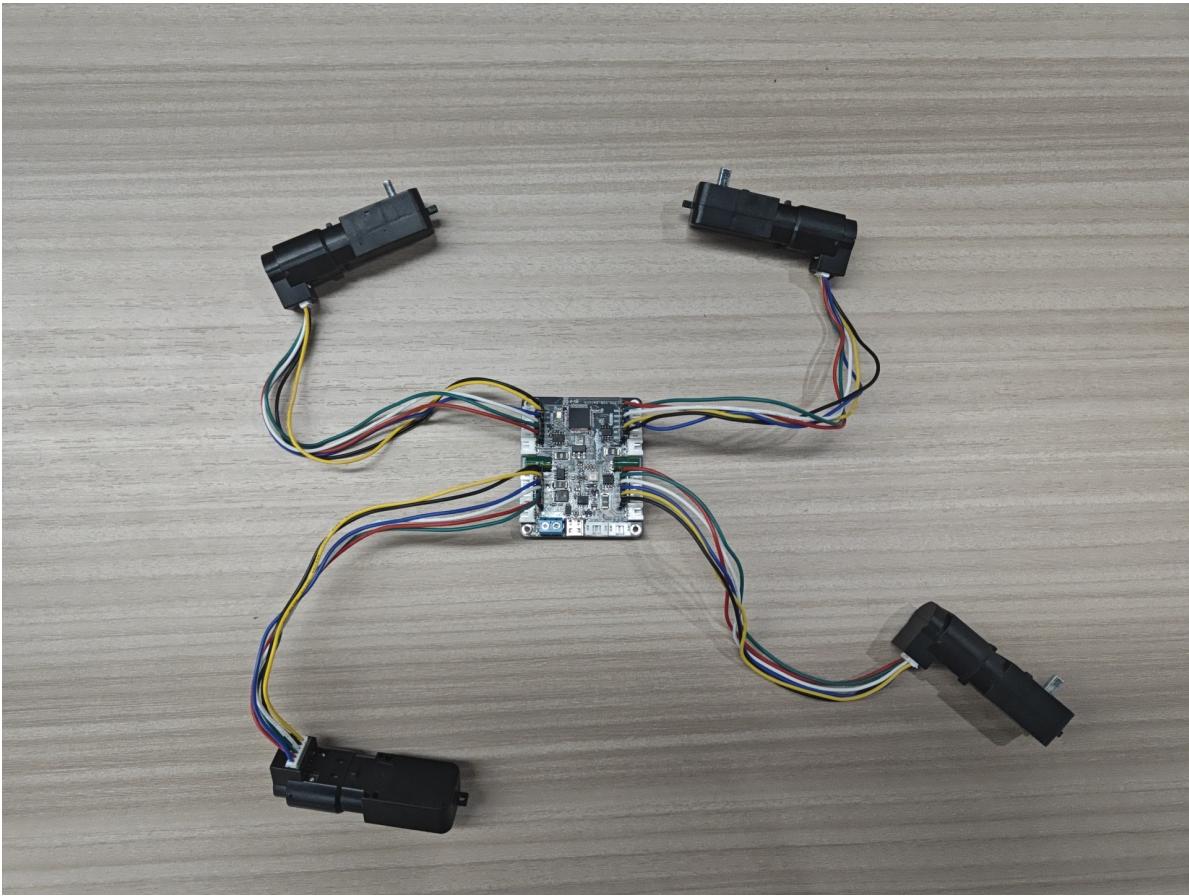
PH2.0-6Pin单头排线



Wiring instructions for encoder speed measurement TT motor:

When the A phase of the encoder TT motor is connected to the A phase of the four-way motor driver board, and the B phase is connected to the B phase, then when configuring the motor type, you should select `$mttype:3#`, the model of the TT motor with encoder.





### 3. L-type 520 motor

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Parameter	Value/Description
Model	L-type 520 motor
Starting voltage	6V
Rated voltage	12V
Reduction ratio	1:40
Number of magnetic ring lines	11 lines
No-load current	$\geq 450\text{mA}$
No-load speed	300r/min $\pm 5\%$
Rated torque	4.4KG.CM
Rated speed	150r/min
Stall torque	10KG.CM
Stall current	4A

Recommended power supply: **12V**.

The two parameters **reduction ratio and encoder line number** in the main parameter table are required. These two parameters may be modified when using the four-way motor driver board.

Recommended wiring: The chassis package of the purchased L-type 520 motor uses a black PH2.0-6PIN double-head cable, one end is connected to the motor, and the other end is directly connected to the PH2.0-6PIN encoder motor interface on the four-way motor driver board. This wiring is the most convenient, but it can be found that the A on the motor corresponds to the B phase of the four-way motor driver board. Therefore, when configuring the motor type on the four-way motor driver board, you should select `$mtype:1#`, the model of the 520 motor.

