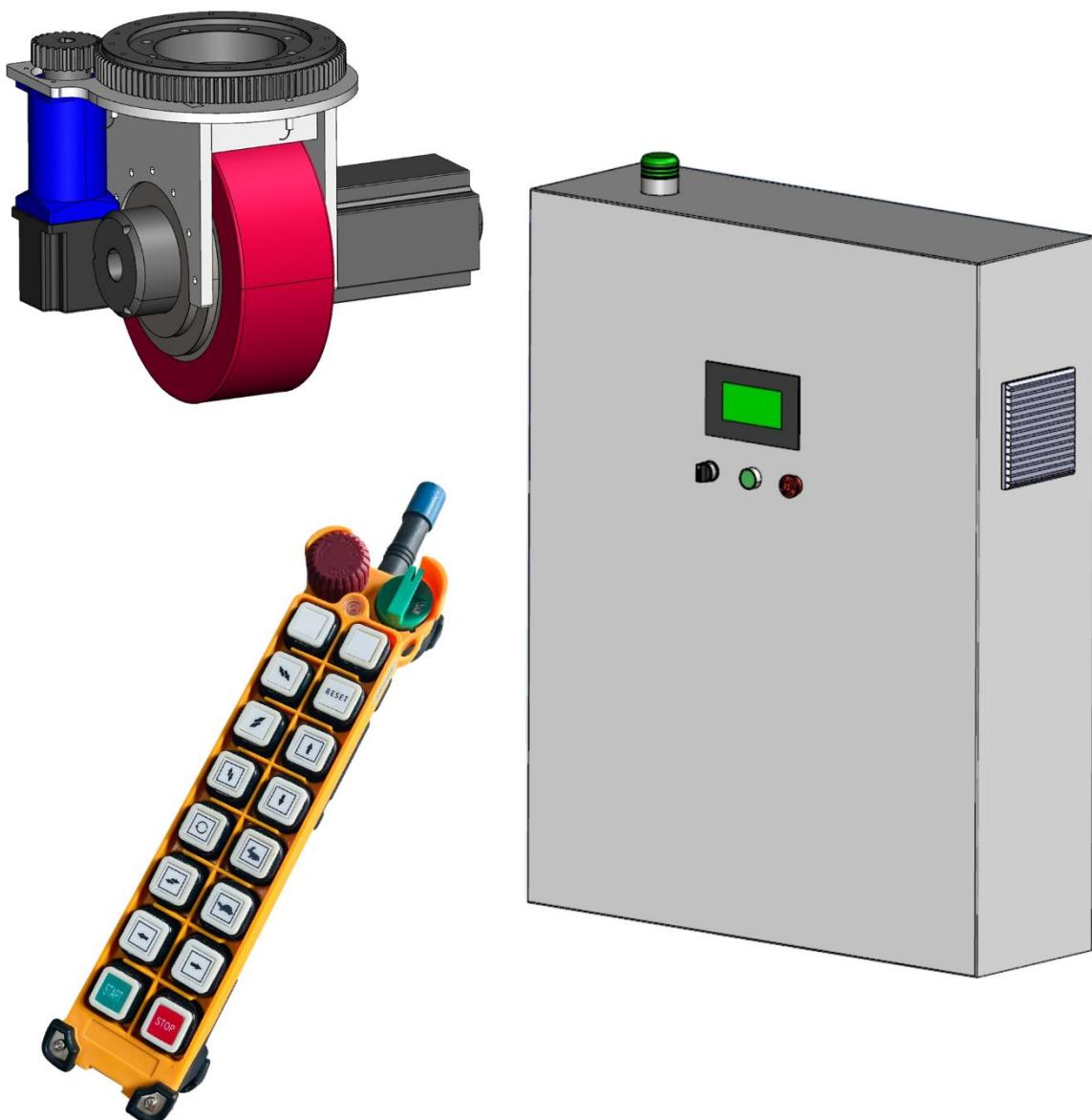


# OMNI-Directional 2-Drive System Series



## 1 Introduction

Thank you for choosing our omni-directional drive system series result of years of experience and guarantee excellent quality.

Before using this product, read through this manual, it contains all the necessary instructions for the identification of the omni-directional drive system, installation, maintenance and storage.

The omni-directional drive system are designed exclusively to perform the function shown in this manual and any other use is considered improper.

Guangzhou Wisdom Wheel Science Technology Ltd. based in China, can not be held responsible for damage caused to third parties or things, or damage of omni-directional drive system or its components caused by:

- Improper installation
- Changes in the transmission or its components.
- (In case you need to make some changes to drive system, request a written authorization to Guangzhou Wisdom Wheel Science Technology Ltd.).
- Improper or inadequate use
- Insufficient or improper maintenance

### ATTENTION:



PAY ATTENTION TO INFORMATION IN REPORTED.  
IF YOU DO NOT FOLLOW THE INSTRUCTION YOU  
MAY SERIOUS INJURY TO PERSON OR TO THE PRODUCT

### IMPORTANT:



READ CAREFULLY THE INFORMATION IN REFER TO  
AND FOLLOW CAREFULLY THEM.

## 2 Drive Wheel (2 sets)

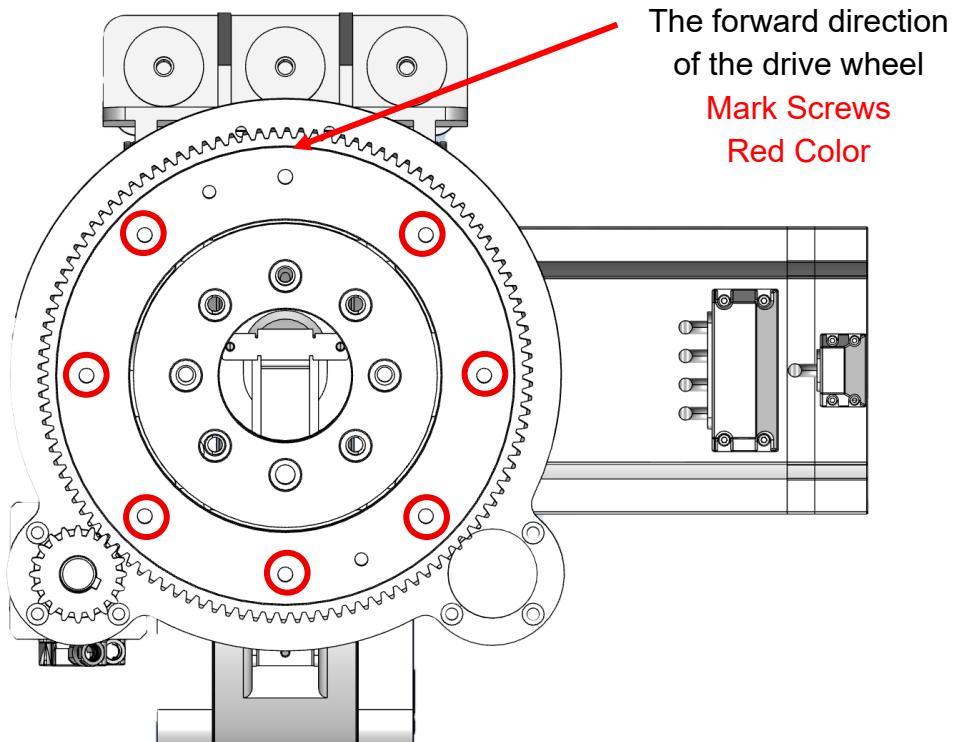
### 2.1 Mechanical Installation

The ZL-B27 series wheel is mounted in horizontal position must be mounted on non-distorting base with tolerance of planarity < 0.06 mm.

Align the gear box before tightening the fastening screws.

Check all fastening screws for correct torque (see Tab.1).

Installation: 7 pcs – M8 screw locking

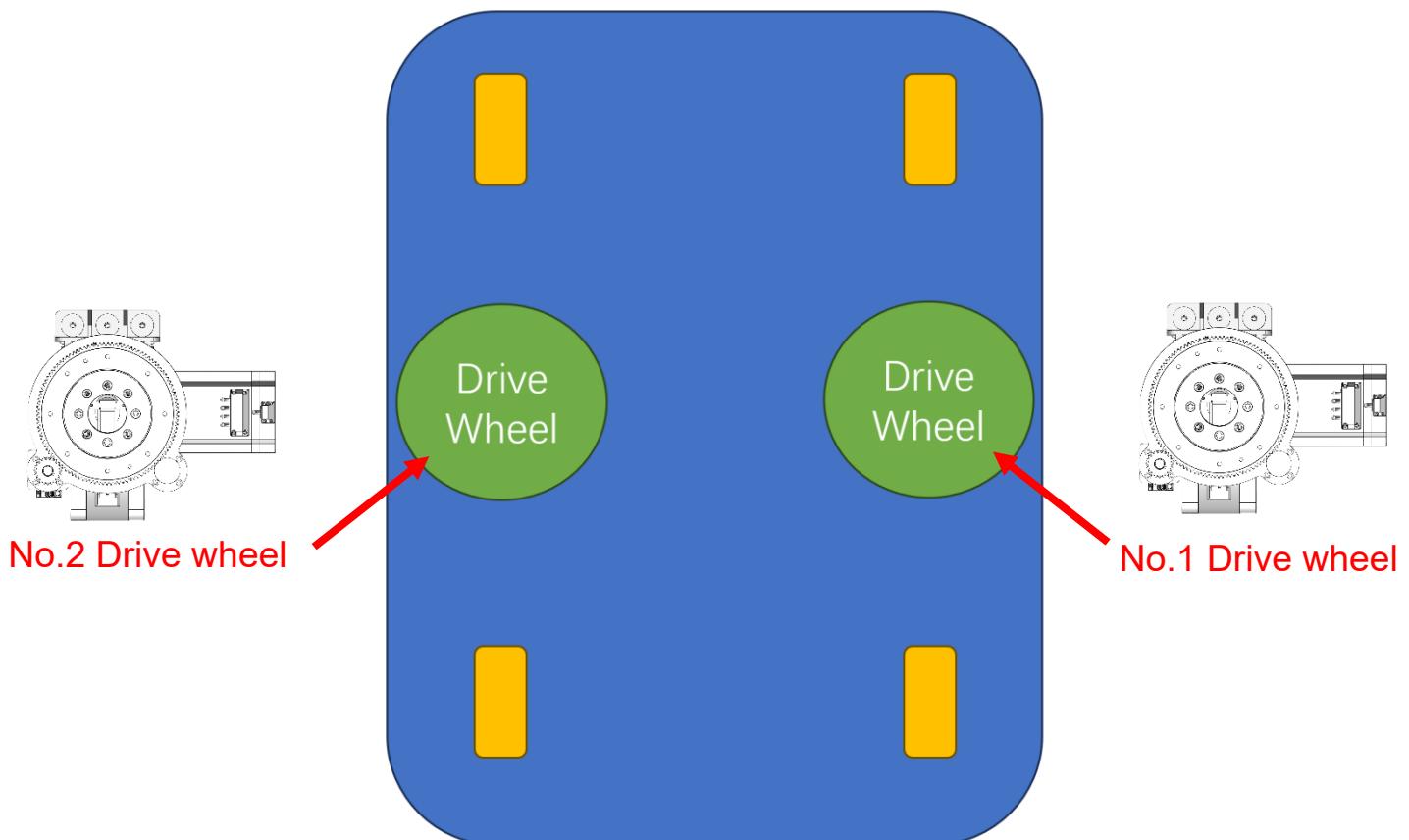


Tab.1

## 2.2 Vehicle Installation Precautions

1. Confirm drive wheel numbers (labeled on each wheel)
2. The marking screws (red mark) for the drive wheels should correspond to the front of the vehicle's mounting holes. (As shown in the figure below)

the **front** of the vehicle



the **rear** of the vehicle

The wheel installation is completed as shown in the picture





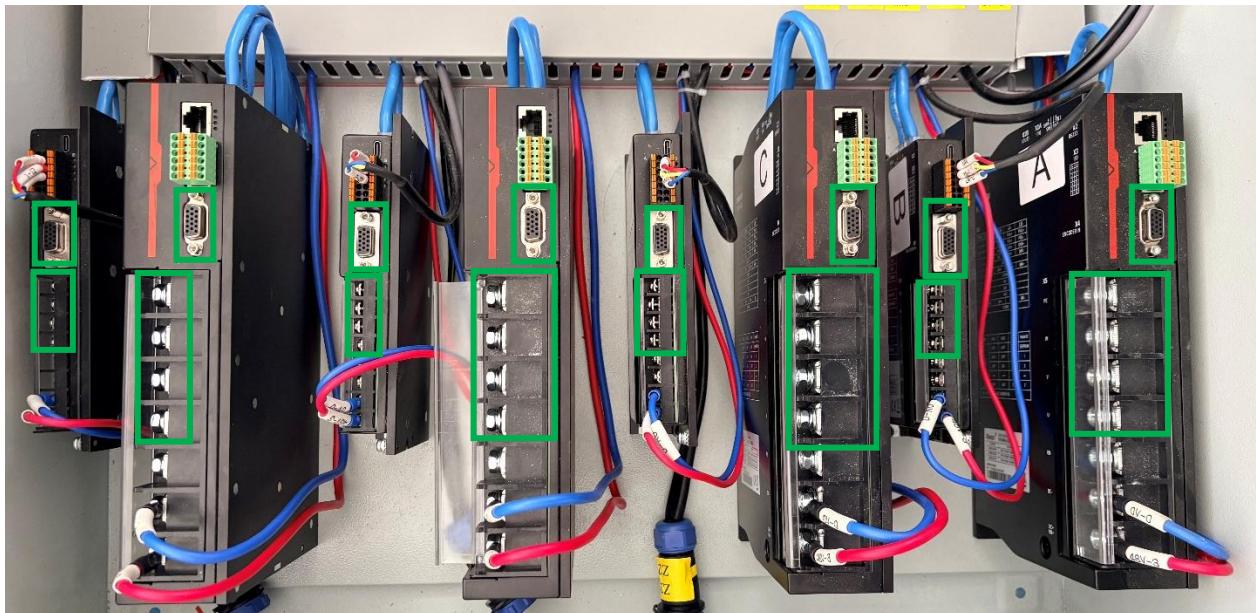
Note: The drive layout must be arranged according to the following pictures otherwise the whole drive system will not work properly

## 2.3 Electrical Installation

### 2.3.1 Motor Driver

This is the motor driver in the control cabinet. White labels (in the red arrow of the picture) is an important symbol used to match the wheel cable.

The green box of the picture are the interfaces that need to be connected to each motor driver



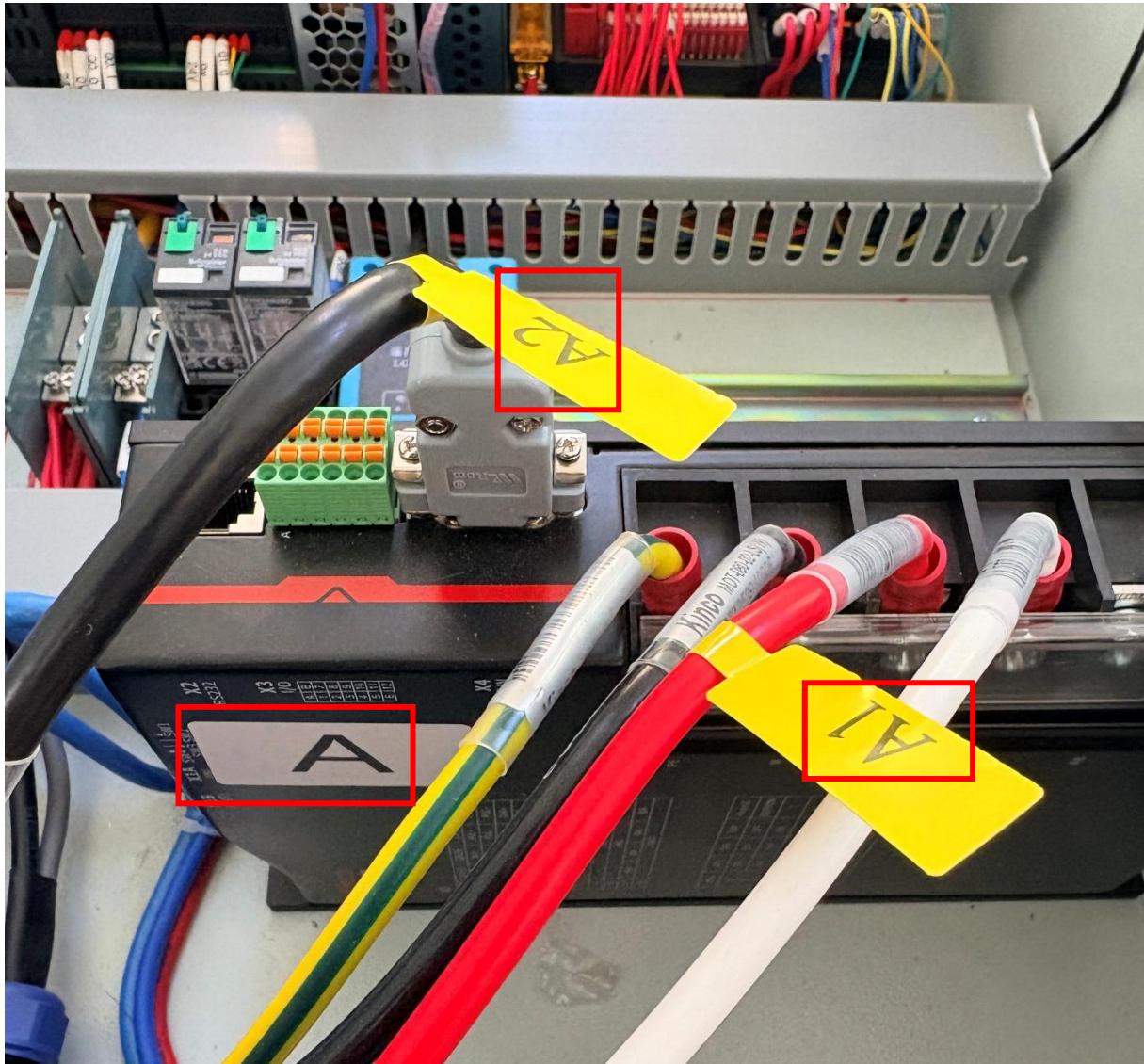
### 2.3.2 Cable Connection

- ① Open the control cabinet
- ② Please carefully check the yellow label of the wheel cable (A1/A2, B1/B2...) and the white label of the motor driver(A/B/C/D) and match them one by one.

For example: Yellow label (A1/A2) of the cable corresponds to white label (A) of the motor driver.

Please see the picture below:

The picture of the completed connection of the motor driver (A) is shown below

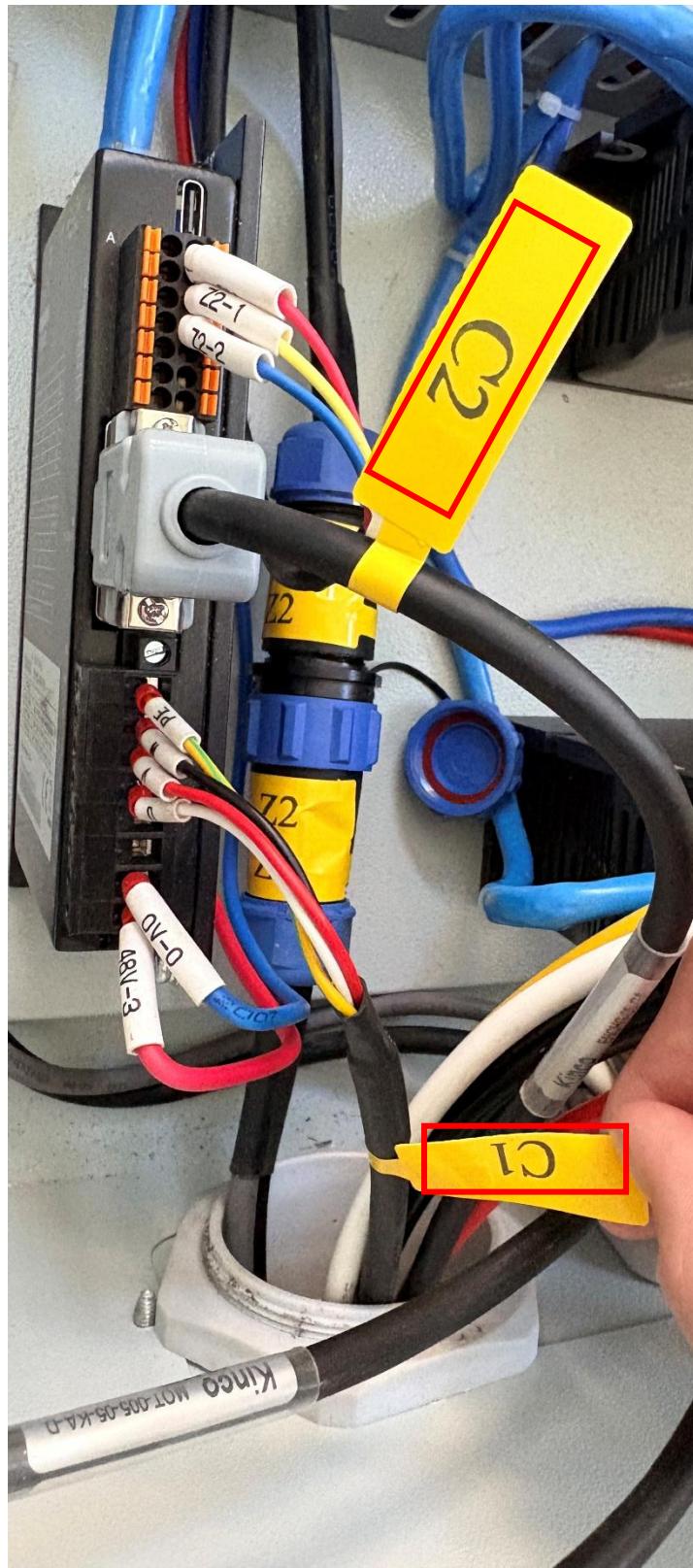


The picture of the completed connection of the motor driver (C) is shown below

The installation space for the small-size driver is limited. It is recommended to first remove the mounting screws securing the drive within the control cabinet before performing the wiring.

After completing the wiring, reinstall the small-size driver.

C



- ③ Please insert the power cables (U/V/W/PE) and encoder cables of the 4set drive wheels one by one as shown below or tighten the screws with tools.

About the motor power cable (U/V/W/PE), connect the power cables on the terminals motors carefully placing the end of the cable between the nut and locking nut with a spanner and tighten the bottom nut with the other than making sure the nut not to turn the terminals.

Please note that the U/V/W/PE positions correspond one to one, otherwise the motor driver may be damaged.

- ④ The connection between the drive wheel and the limit steering system of the control cabinet is shown in the figure. We have marked the cables with yellow labels, please check them in detail.

For example Z1 to Z1, Z2 to Z2



### 3 The Light

#### The state of the light's representation:

Yellow(flapping): Mode switching / Drive wheel self-check process

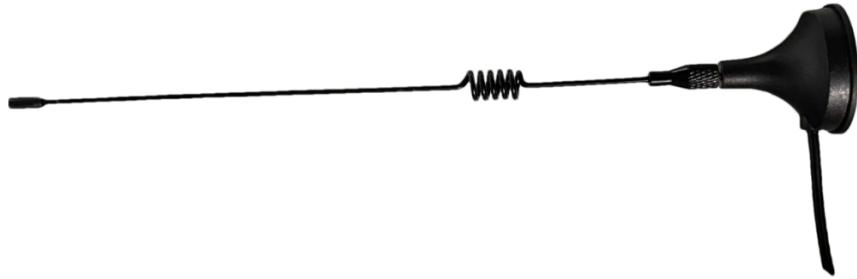
Yellow(always): The drive system is at rest, no operation

Green(always): The drive system is in motion

Red(always): Abnormal situation of the drive system

### 4 Signal Antennas

The antenna must be placed on the outside of the frame to avoid poor signal reception.



### 5 Remote Control

#### Status Indicator:

Green: normal connection

Red: abnormal connection

In the Red state, there is no response when the remote control is pressed. You can press the start button on the remote control or the start button on the control panel on the control cabinet again.

If there is still no response, turn off the power and turn it on again.

### 6 Turn On The Drive System

- ① Make sure the main power switch in the control cabinet is turn on
- ② Check the emergency stop button (OFF) on the control cabinet
- ③ Turn on the power switch of the control cabinet, and waiting for the touch screen to enter the system interface
- ④ Press the "Start" button (Green) on the remote control or green button on the control panel to connect the wireless remote to the drive system.

- ⑤ The 2set drive wheels to perform a self-check program (The self-check process is about 54 seconds). Yellow light flashes.
- ⑥ Yellow light is on. Omni-directional drive system ready for operation

**Speed acceleration and reduction:**

Press once to toggle fast/slow / Long press to continuously accelerate/decelerate

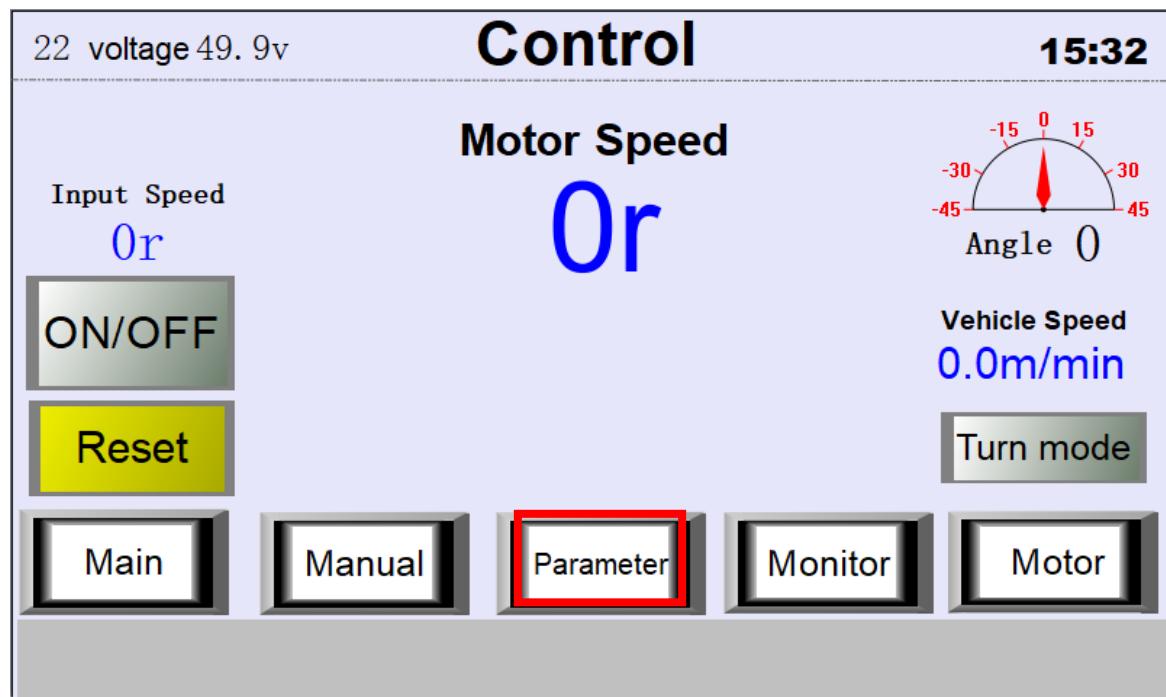
The project's drive configuration consists of 2 drive wheels + 4 casters.

We recommend switching to directional movement mode by first decelerating and proceeding slowly until the casters align correctly before accelerating.

Otherwise, the casters will experience friction, causing the vehicle to drift off course and generate wheel-surface friction noise.

## 7 Adjustment Of Wheelbase – important

In order to ensure that the drive system can be matched to different sizes of platforms, the operator can set it up in the control panel of the control meter cabinet as follows:

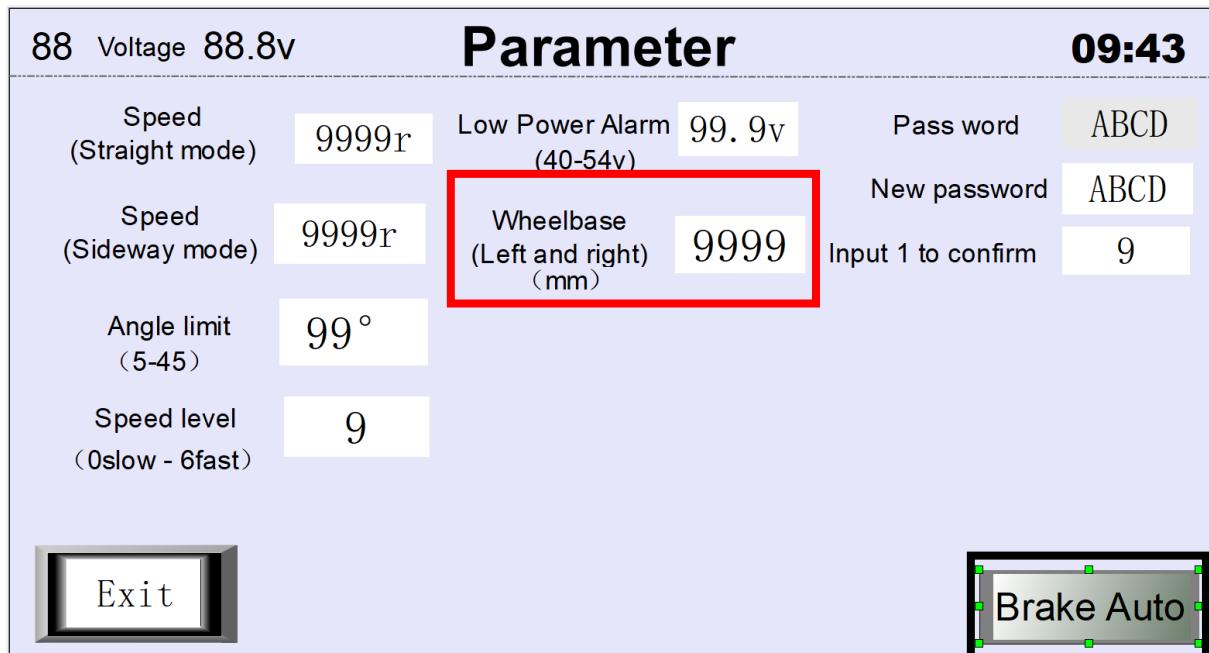


- ① Click "Parameter" to bring up the user login screen.



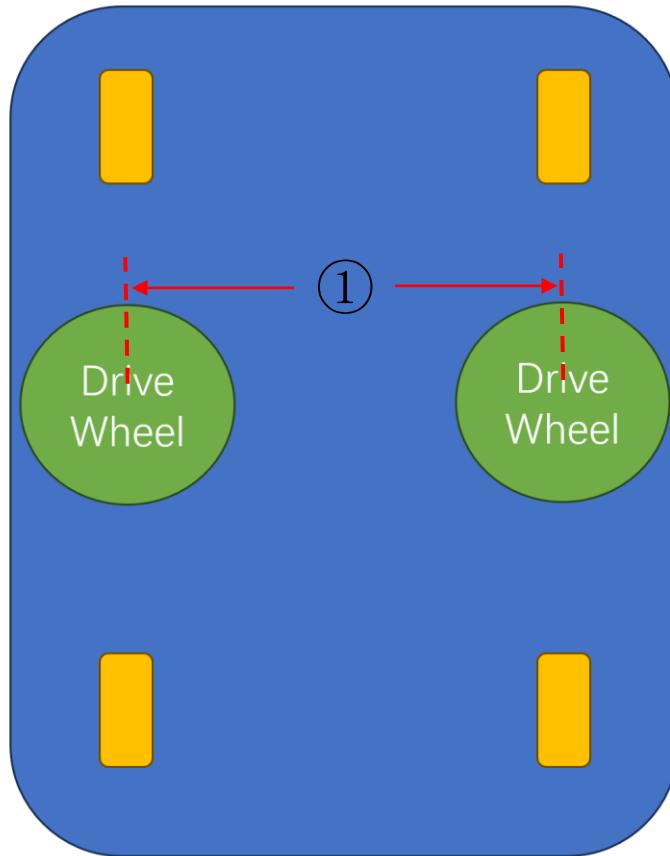
- ② Enter the initial password: 1111 and click “登录”.

- ③ The following screen appears, and the red boxes indicate the changes made.



- ④ Brake: ON / OFF( Click to toggle. Gray indicates the brake function is enabled; orange indicates the brake function is disabled.)

⑤ How to properly measure and enter wheelbase – important



① is the value of wheelbase (Left and right) in millimeter

Measurement method: From center point A to center point B

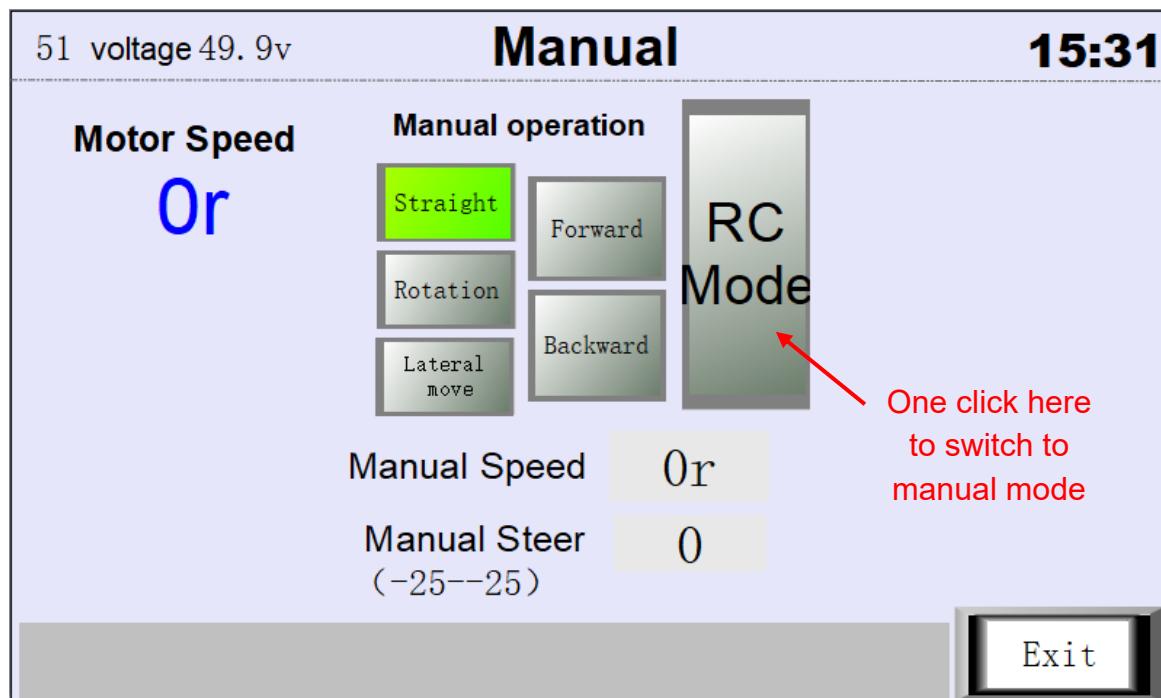
After obtaining the precise value, input it into the touchscreen and press Enter.

## 8 Control Panel Operation

In order to ensure that the drive system can be matched to different sizes of platforms, the operator can set it up in the control panel of the control cabinet as follows:

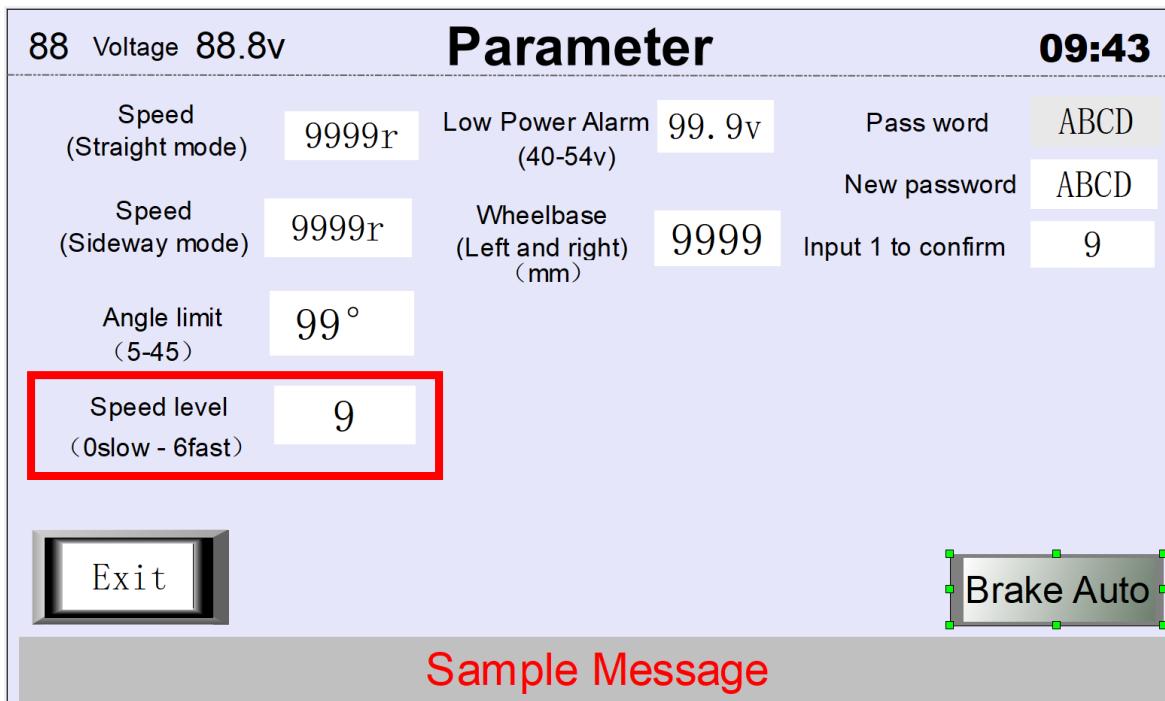
### 8.1 Manually

In the event of an emergency where the batteries of the remote control are dead or inoperable, can switch between wireless and manual remote control



## 8.2 Speed Level

Click to switch



## 8.3 Monitor and motor

Diagnostic Interface for Identifying Technical Issues with Drive Wheels

## 9 Last Information

All the precautions listed in this manual must be strictly observed.

It is not possible to Guangzhou Wisdom Wheel Science Technology Ltd. to provide and inform the operator of all the situations and problems which might arise in the use or maintenance of this product.

Our goal with this handbook is to help to develop and implement virtually all those habits in order to work safely.

Your technical knowledge on this drive wheel, precautions, respect the most basic safety rules and your good sense will be useful for resolve any situation.

Remember that safety is your concern and your responsibility.

## 10 Contact Information

Address: Room 201, Second Floor, Building E, No. 8 Longhe West Road, Baiyun District, Guangzhou, China

Tel.: +86-18011855485

Whatsapp: +86-18011855485

E-mail: [sales2@zhlun.com](mailto:sales2@zhlun.com)