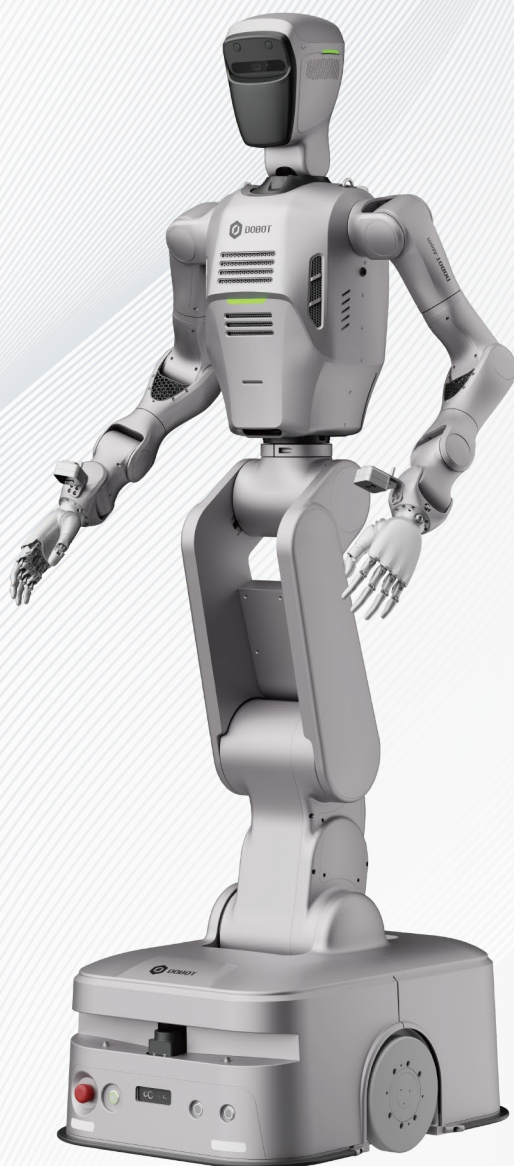




DOBOT ATOM-W

Wheeled Humanoid Robot

User Guide



Original Instructions

Issue: V1.0

Date: 2026-08-07

SHENZHEN DOBOT CORP LTD | China

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Before using our product, please thoroughly read and understand the contents of this document and related technical documents that are published online, to ensure that the robot is used on the premise of fully understanding the robot and related knowledge. Please use this document with technical guidance from professionals. Even if follow this document or any other related instructions, damages or losses may happen in the using process DOBOT shall not be considered as a guarantee regarding all security information contained in this document.

The user has the responsibility to make sure following the relevant practical laws and regulations of the country, in order that there is no significant danger in the use of the robot.

SHENZHEN DOBOT CORP LTD

Address: Room 1003, Building 2, Chongwen Garden, Nanshan iPark, Liuxian Blvd, Nanshan District, Shenzhen, Guangdong Province, China

Website: www.dobot-robots.com

Preface

Purpose

This document introduces the features, technical specifications, and installation instructions for the DOBOT ATOM-W wheeled humanoid robot, making it easier for you to understand and operate it.

Intended audience

This document is intended for:

- Customer
- Sales Engineer
- Installation and Commissioning Engineer
- Technical Support Engineer

Revision history

Date	Version	Revision history
2026/08/07	V1.0	The first release

Symbol conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 DANGER	Indicates a hazard with a high level of risk which, if not avoided, could result in death or serious injury.
 WARNING	Indicates a hazard with a medium level or low level of risk which, if not avoided, could result in minor or moderate injury, robot damage.
 NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in robot damage, data loss, or unanticipated result.
 NOTE	Provides additional information to emphasize or supplement important points in the main text.

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1. Safety Precautions

1.1 Disclaimer

The ATOM-W Wheeled Humanoid Robot is a product developed by SHENZHEN DOBOT CORP LTD (hereinafter referred to as "DOBOT"). It is a humanoid robot based on embodied AI operation models and edge AI computing power, designed to perform tasks such as "collection, training, and inference" in specific application scenarios. However, as robotics technology has not yet reached full maturity, special attention must be paid to the safety-related instructions described in this document during actual operation.

All safety information contained in this document shall not be construed as a warranty by DOBOT. Even if all safety instructions are followed, the robot may still cause injury or damage.

- DOBOT is not responsible for any damage incurred during the transportation and handling of the robot.
- Natural wear and tear of components and battery aging are considered normal risks. DOBOT assumes no liability for such risks.
- It is strictly prohibited to disassemble, modify, or perform unauthorized repairs on the robot. DOBOT shall not be liable for any robot malfunctions or damages resulting from such actions.
- The ATOM-W Wheeled Humanoid Robot is only intended for use by individuals aged 18 and above who possess the corresponding cognitive and behavioral capabilities. Individuals who do not meet these requirements must use the robot under the guidance and supervision of a guardian and must read this document carefully before use. DOBOT assumes no responsibility for any robot damage or personal injury resulting from failure to follow the product instructions or from other improper operations.
- It is strictly prohibited to operate the robot under unrecommended environmental conditions. DOBOT shall not be liable for any robot damage caused by inappropriate [operating environments](#).
- DOBOT reserves the final right of interpretation regarding the ATOM-W robot and the right to update its terms and conditions.

1.2 Operating environment

Recommended environment

- -5°C to 40°C, standard atmospheric pressure, no condensation
- Indoor use.
- Hard, flat, and obstacle-free ground surface.

Unsuitable environments



Do not operate the robot in the following environments!

- Humid, dusty, or chemically corrosive environments.
- Environments with electromagnetic interference or Wi-Fi signal interference.
- Complex, slippery, or cluttered environments, or areas with sharp objects.
- Icy surfaces or soft ground (e.g., thick sponge).

1.3 Transport and installation

- During transport, secure the packaging to ensure the robot is not tilted or shaken.
- When lifting or moving the robot, use appropriate and reliable lifting equipment. Operations must be performed by personnel holding valid operation certificates as per relevant national regulations, or by personnel authorized by the company.
- Do not move or transport the robot while it is powered on.
- Ensure the packing/unpacking area is clear of obstructions to allow personnel to evacuate promptly in case of an emergency.
- During installation, support the robot to avoid impacts that could cause surface scratches or functional damage.
- It is strictly prohibited to alter or remove any nameplates, instructions, icons, or markings on the robot.
- It is strictly prohibited to obstruct the robot's sensor areas (head, wrists, waist), as this may reduce perception accuracy and pose a risk of system malfunction.
- Personnel responsible for the installation, operation, maintenance, and servicing of the robot must undergo rigorous training, be fully aware of all safety precautions, and master the correct operation and maintenance procedures.

1.4 Usage instructions

Before use

- The operator must ensure they are in good physical and mental condition.
- The operator must be familiar with the robot's various operating modes and emergency stop procedures.
- Only original parts of the robot should be used, and all parts must be in proper appearance and functional condition.
- Check whether the battery pack and the remote control have sufficient charge.
- Check that the robot's exterior is intact and that its limbs can move flexibly.
- Inspect the robot's interior for any foreign objects (such as water, oil, sand, etc.).
- Check that surfaces such as the robot's LiDAR and cameras are unobstructed.
- Regular daily inspections and periodic maintenance must be performed. Replace faulty components promptly.

During use

- Keep the robot within your line of sight at all times.
- Do not touch the robot while it is powered on.
- A qualified professional must monitor the robot throughout its operation. This ensures the operator can regain control immediately in case of an unexpected event.
- When operating the robot, avoid wearing loose clothing or jewelry. Keep fingers, hair, and clothing away from the robot's joints, gaps, and moving parts to prevent pinching or entanglement.
- Stop the robot and power it off promptly when the battery is low. This prevents

damage from falls caused by an automatic shutdown due to insufficient power.

- The robot generates heat during operation. Do not touch the motor surfaces while it is running to prevent burns.
- During debugging, ensure no personnel or other equipment (including the computer used for debugging) remains within the robot's hazard zone.
- When the robot is in motion, ensure the surrounding area is clear. Always use a tether or protective stand to prevent falls, which may damage the robot or cause injury to personnel.
- Do not continue using the robot if it is damaged.
- Avoid making drastic adjustments to the robot's posture on surfaces with insufficient friction.
- In case of a malfunction, contact DOBOT's technical support engineer in time.

After Use

- Power off the robot immediately after use.

1.5 Emergencies

In the event of abnormal robot operation or any other emergency, all robot motion can be stopped by using the emergency stop button on the chassis, the emergency stop button on the robot's back, or the handheld remote controller.

For specific instructions on executing an emergency stop of the robot, please refer to [Abnormal stop](#).

According to IEC 60204-1 and ISO 13850, emergency stop devices are not safeguards. They serve as supplementary protective measures and are not intended to prevent injuries.

NOTICE

The reliability of emergency stop via the remote controller depends on network conditions and other factors. If the robot is used in high-risk scenarios, it is recommended to use the emergency stop button on the robot body.

2. Product Introduction

2.1 Overview

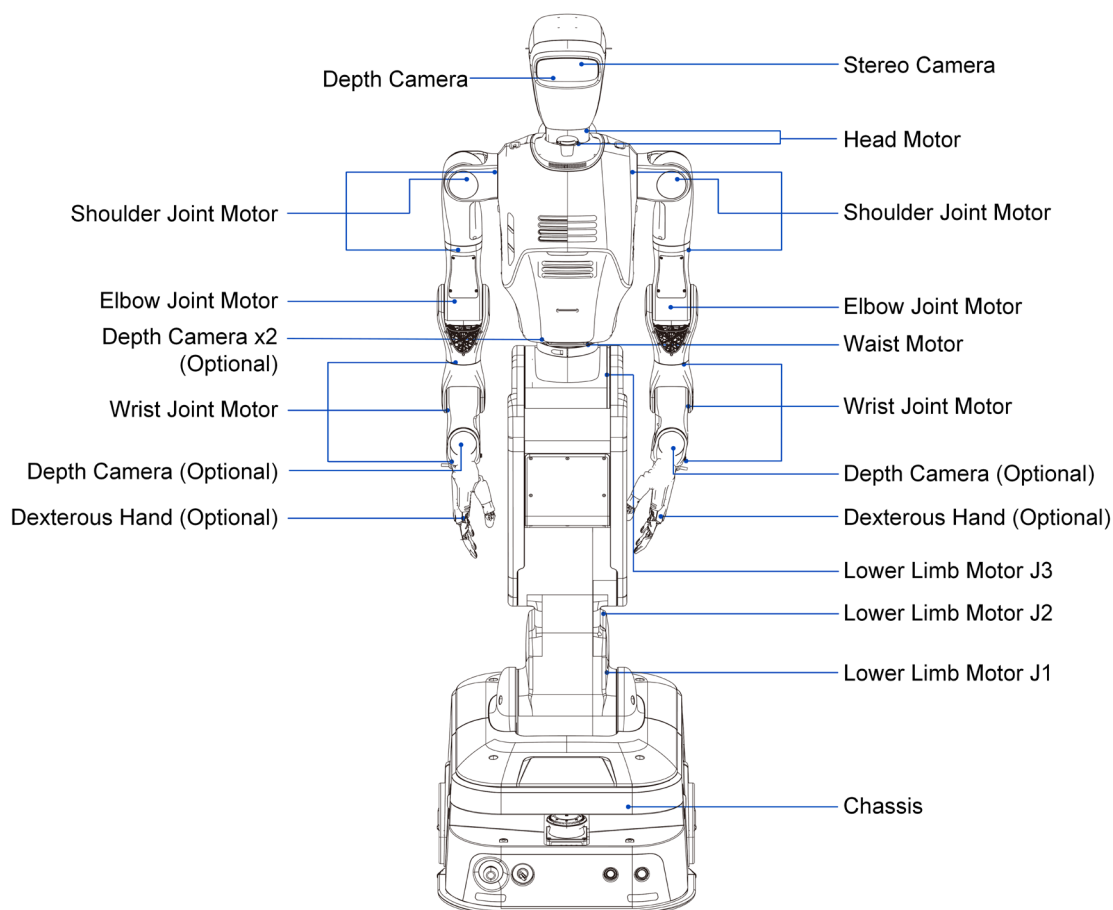
The DOBOT ATOM-W, developed by DOBOT, is an embodied wheeled humanoid robot and a true powerhouse for industrial applications. It features a 7-degree-of-freedom (DOF) industrial-grade bionic arm ($\pm 0.05\text{mm}$ precision), a human-like articulated head, and an optional five-fingered dexterous hand. Its mobile chassis achieves a repetitive positioning accuracy of $\pm 10\text{mm}$, capable of autonomous stable movement and high-dynamic motion in complex scenarios. Powered by embodied intelligence manipulation model and AI edge computing, it enables “collection, training, and inference” for specific application scenarios.

2.2 Appearance

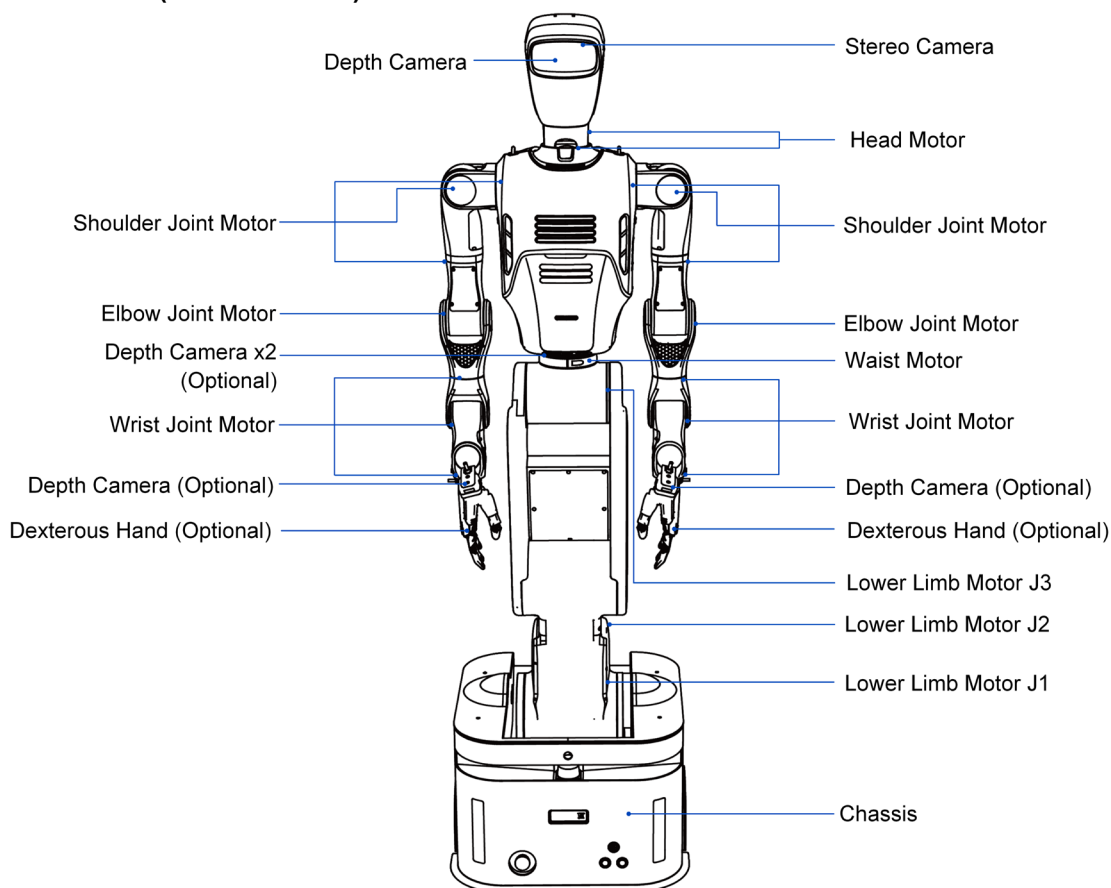
2.2.1 Robot

The ATOM-W wheeled humanoid robot is currently equipped with two different chassis types. You can refer to the actual chassis in use for its appearance and operating instructions.

- **Model 1 (Large chassis)**

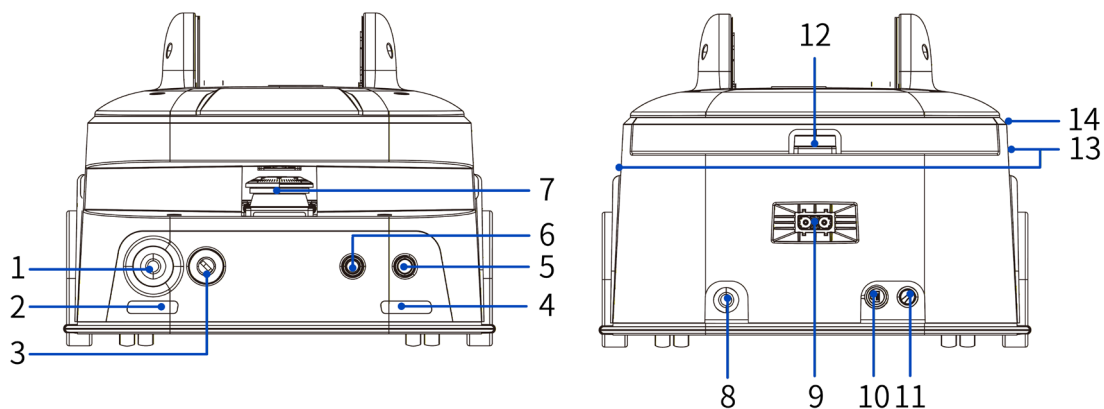


• **Model 2 (Small chassis)**



2.2.2 Chassis

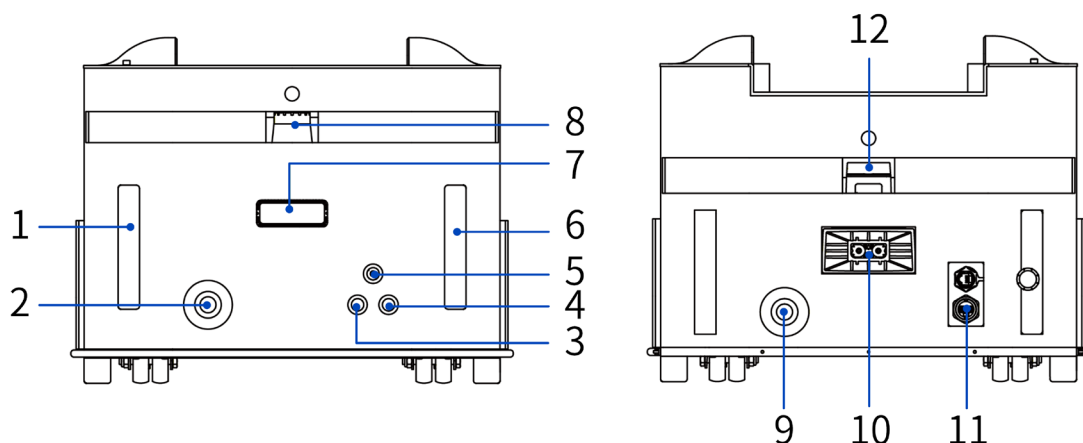
• **Model 1 (Large chassis)**



No.	Name	Description
1&8&13	Emergency stop button	One emergency stop button on each side: front, back, left, and right. Press: Immediately stop all mechanical operations of the device. Rotate and release: Restore mechanical operation and initiates an automatic system self-check.

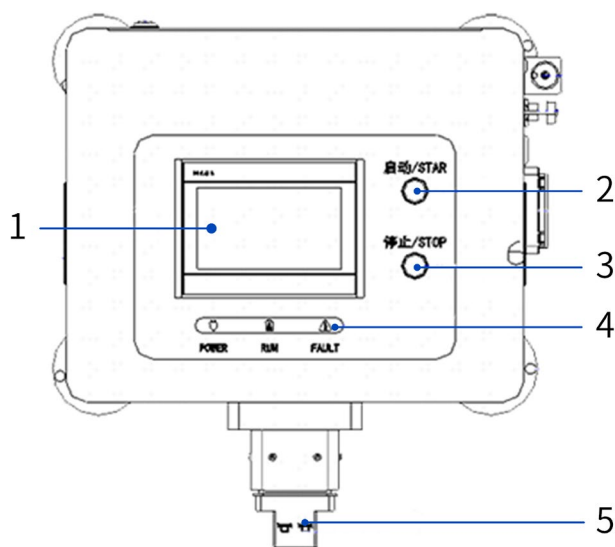
No.	Name	Description
2 & 4	Indicator	Green: Robot is executing a task. Red: Emergency stop, bumper triggered, or fault. Blue: Upgrading or protective stop. Yellow: Idle or waiting for executing task.
3	Power key switch	Turn the key to ON to power on the robot; turn it to OFF to power off. After the robot is powered on, a voice prompt will say: Press the RESUME key to switch to automatic task mode. If the RESUME key is not pressed, the robot will remain in a protective stop state and will not be able to execute tasks automatically. : Robot power key switch. Please keep it in a safe place. When the robot is not in use, the key can be removed for safekeeping.
5	Confirm button	Activate the robot's motion status.
6	Maintenance button	Used to switch between Maintenance and Automatic modes. Press: Maintenance mode. Motors are disabled, allowing manual pushing of the robot. Release: Light off. Task mode. Motors enabled, robot cannot be pushed.
7 & 12	LiDAR	Enable positioning and navigation via laser scanning.
9	Charging port	Used for connecting the device to charge.
10	Debug port	For connecting debugging cables (user-restricted).
11	Manual/Auto switch	When set to Auto , the robot is in automatic task mode. When set to Manual , the robot is in manual control mode and can be operated remotely via the App.
14	Touchscreen	When switching between Manual and Auto modes, or after recovering from an emergency stop, enter the password on the touchscreen and press Confirm to restore motion. : For other detailed operations on the touchscreen, please refer to the manufacturer's <i>chassis user manual</i>.

- Model 2 (Small chassis)



No.	Name	Description
1 & 6	Indicator	Yellow: Normal standby with no task. Green: Task in progress, or charging. Red (1-second blink): Obstacle encountered or fault detected. Red (3-second blink): Low battery.
2 & 9	Emergency stop button	Press: Immediately stops all mechanical operations of the device. Rotate and release: Restores mechanical operation and initiates an automatic system self-check.
3	Maintenance button	Used to switch between Maintenance and Automatic modes. Press: Maintenance mode. Motors are disabled, allowing manual pushing of the robot. Release: Light off. Task mode. Motors enabled, robot cannot be pushed.
4	Confirm button	Activate the robot's motion status.
5	Power button	Device power switch.
7	3D camera	Acquire 3D environmental data for autonomous navigation and obstacle avoidance.
8 & 12	LiDAR	Enable positioning and navigation via laser scanning.
10	Charging port	Used for connecting the device to charge.
11	Debug port	For connecting debugging cables (user-restricted).

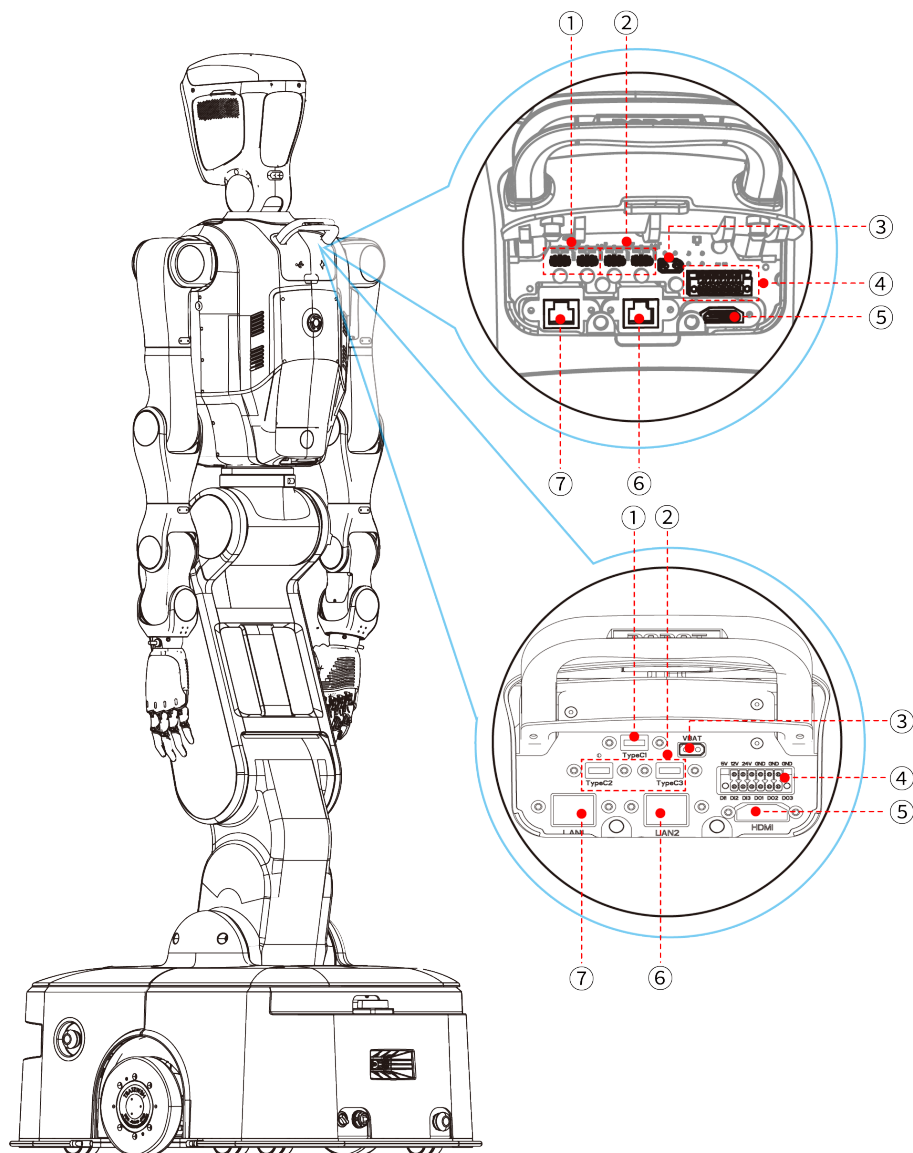
2.2.3 Charging station



No.	Name	Description
①	Display screen	Show current charging status, network configuration, and fault information/logs.
②	Start button	Initiate manual device charging.
③	Stop button	Stop manual device charging.
④	Status indicators	Used to indicate the charging station status. When the charging station is powered on, the POWER indicator light is on. When the charging station is charging, the RUN indicator light is on. When the charging station has a fault, the FAULT indicator light is on.
⑤	Charging port	Used for docking with the device for charging.

2.3 External interface

The wheeled robots currently have two different types of external interfaces. On both types, the interface is located in the same position beneath the silicone cover on the back of the robot. These interfaces are designed for secondary development and debugging purposes. Please refer to the external interface description based on the actual product you are using.



No.	Interface type	Qty. (Refer to the actual unit)	Silkscreen (Refer to the actual unit)	Description
①	Type-C (Reinforced)	2	TypeC1 TypeC2	Support USB 3.0 host, 5V/1.0A power output (connected to PC1, expanded to 2 ports via a hub chip), and can connect to an external docking station for peripherals such as a keyboard, mouse, etc.
		1	TypeC1	
②	Type-C (Reinforced)	2	TypeC3 TypeC4	Support USB 3.0 host, 5V/1.0A power output (connected to PC2, expanded to 2 ports via a hub chip), and can connect to an external docking station for peripherals such as a keyboard, mouse, etc.
			TypeC2 TypeC3	
③	XT30	1	VBAT	Reserved for internal use.  : This interface terminal is electrically live. Insulated gloves must be worn when touching it to avoid the risk of electric shock.
④	GPIO*	1	/	Provide 3 DI (Digital Input) channels, 3 DO (Digital Output) channels, and offers 5V/12V/24V power output interfaces.
⑤	HDMI	1	HDMI	Connected to PC2 for convenient external monitor connection.
⑥	RJ45 (1000 BASE-T)	1	LAN2	Gigabit Ethernet (connected to PC2). Use this port when stable, high-speed wired internet access is required for secondary development via PC2*.
⑦	RJ45 (1000 BASE-T)	1	LAN1	Gigabit Ethernet (connected to the switch). Use this port when secondary development requires accessing API interface data from PC1*.

★ PC1: Dedicated to ATOM-W motion control programs, not open to external access.

★ PC2: Developers are only permitted to use PC2 for secondary development. You can access the PC2 desktop via the built-in Remote Desktop Connection in Windows. The IP address of PC2 is 192.168.8.13, and the port is 3390. Please contact technical support for the initial username and password.

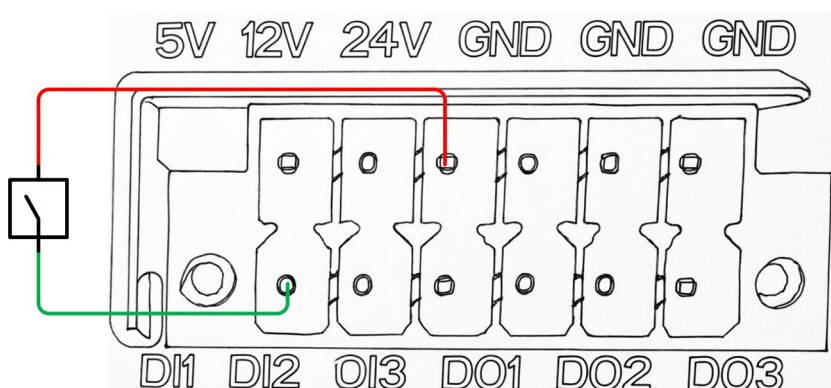
★ The functions corresponding to each pin number on the GPIO module are as follows:

Pin No.	Function	Pin No.	Function
1	DI1	7	DO1
2	+5VDC_OUT	8	GND
3	DI2	9	DO2
4	+12VDC_OUT	10	GND
5	DI3	11	DO3
6	+24VDC_OUT	12	GND

GPIO wiring instruction:

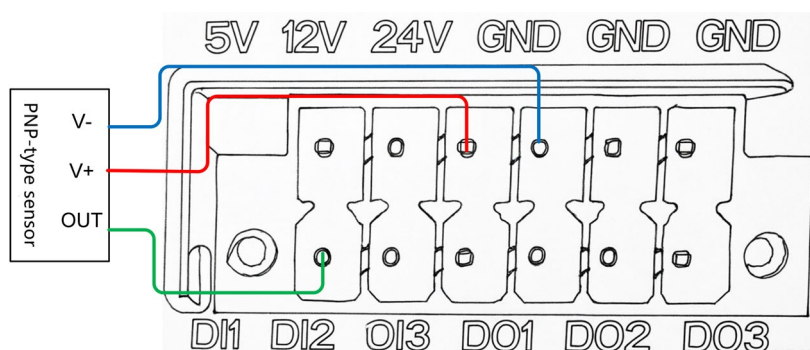
- **Passive dry contact connected to DI**

DI is connected to a simple switch. The wiring method is shown in the figure below.



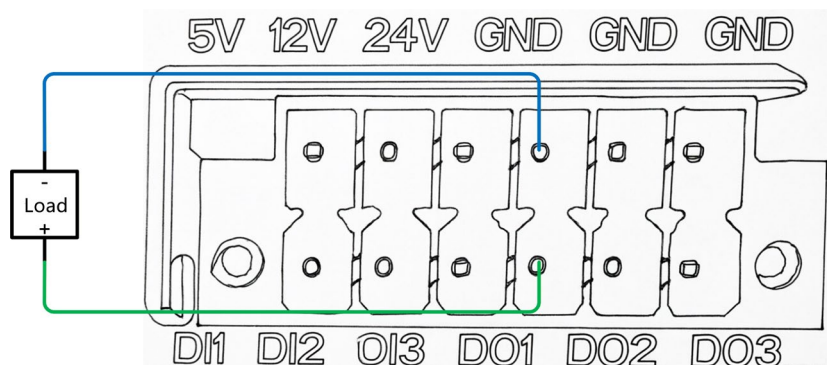
- **PNP-type sensor connected to DI**

For DI connected to an external PNP three-wire sensor, the wiring is shown below.



- **24V load connected to DO**

When the DO is connected to an external load, the wiring method is shown in the figure below.

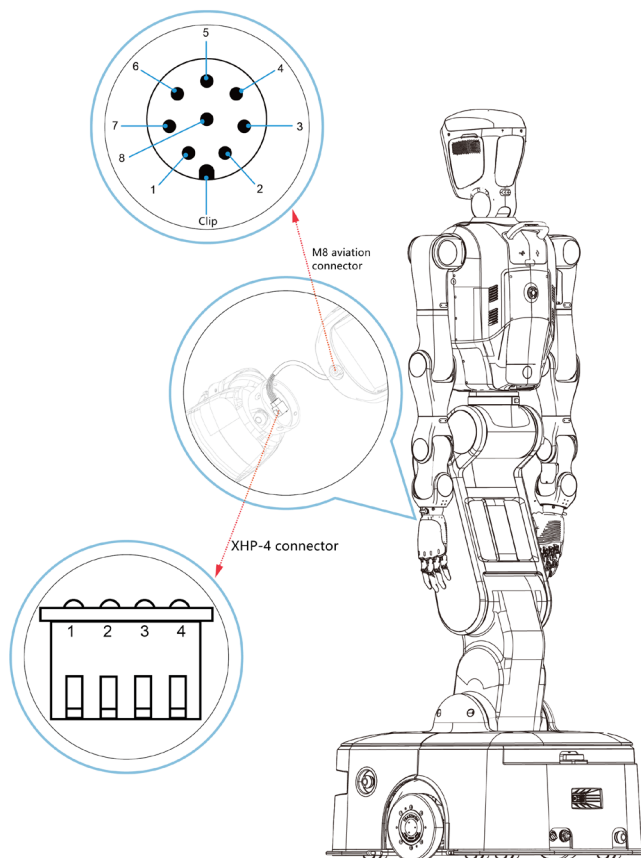


NOTE

When driving an inductive load, a protection diode must be connected in parallel (with the diode's cathode connected to the load's positive terminal and the anode to the load's negative terminal) to prevent damage to the output circuit.

2.4 Aviation connector and connector definitions

The locations and pin definitions of the M8 aviation connector and the XHP-4 connector are as follows:

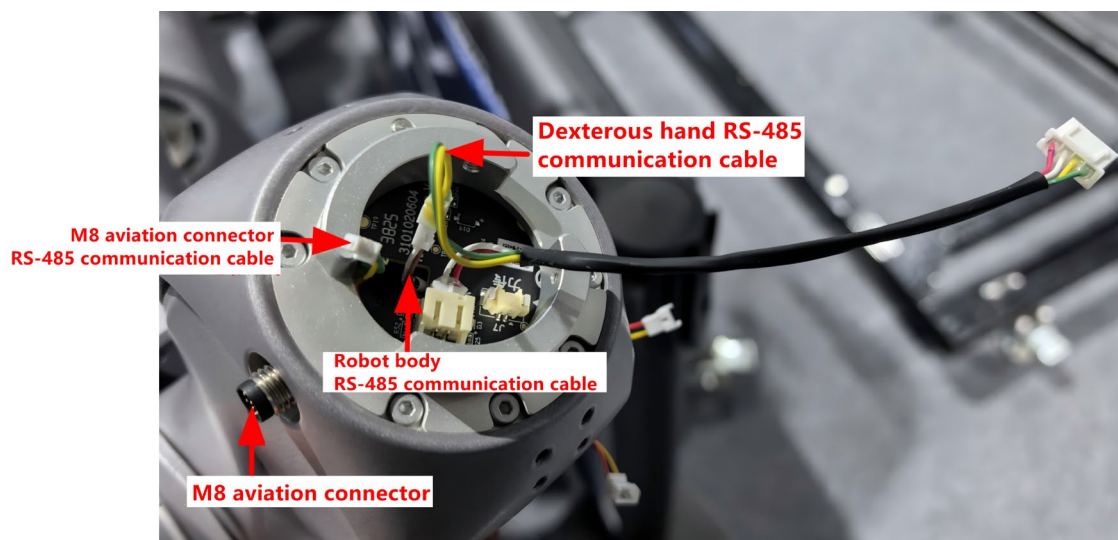


M8 aviation connector			
Pin	Name	Definition	
1	485A	RS485 bus A signal	
2	485B	RS485 bus B signal	
3	/	/	
4	/	/	
5	24VDC	Power positive, maximum current 2A	
6	/	/	
7	/	/	
8	GND	Power supply (-)	
XHP-4 connector			
Pin	Name	Definition	Color
1	24VDC	Power positive, maximum current 2A	Red
2	GND	Power supply (-)	White
3	485A	RS485 bus A signal	Yellow
4	485B	RS485 bus B signal	Green

M8 aviation connector usage instructions:

The M8 aviation connector is located at the robot wrist, as shown in the figure below. The RS485 communication cable for the dexterous hand has been properly connected to the robot body's RS485 communication cable at the factory.

If the dexterous hand is not required but the M8 aviation connector needs to be used, first disconnect the RS485 cable of the dexterous hand, and then connect the RS485 cable from the robot body to the RS485 cable of the M8 aviation connector.



2.5 Hand accessories

The hand accessories are compatible with the OYMotion dexterous hand, the Linker dexterous hand, or the DH gripper. Schematic diagrams for each are shown below.



ROH-A001

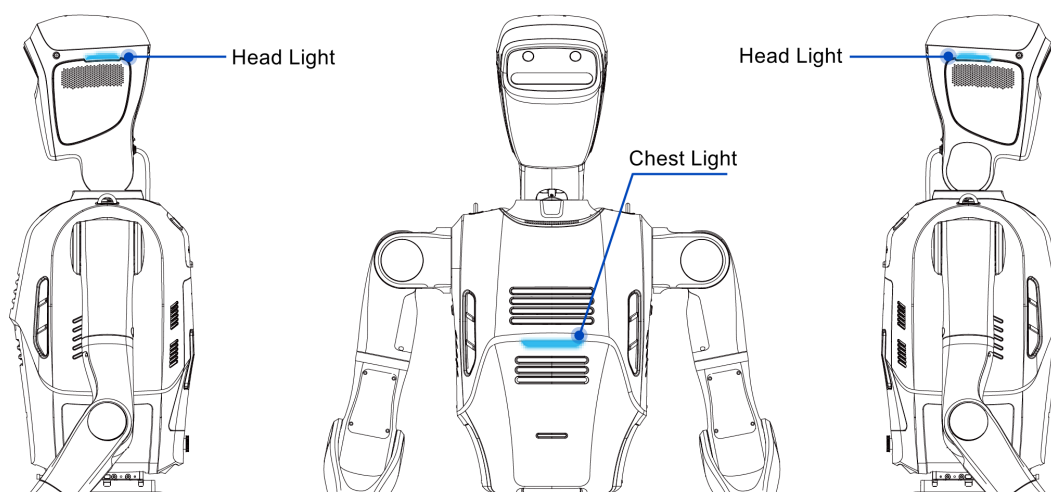


Linker Hand O6



**DH-Robotics gripper
AG-160-95**

2.6 Indicator



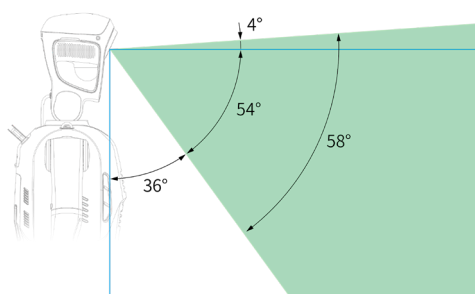
Light status	Device status
OFF	Device is not powered on, or the power distribution board is faulty.
Blue (Slow flash)	Device is booting up.
Blue (Steady on)	Device is disabled with no active alarms.
Red (Quick flash)	CAN board or servo communication lost. Contact technical support for troubleshooting.
Red (Slow flash)	Other alarms excluding CAN/servo communication loss (e.g., servo or feedback over-limit alarm, BMS error, enable failure). Contact technical support for troubleshooting.
Green (Steady on)	Device is enabled and all systems are normal.
Yellow (Steady on)	Warning condition (e.g., low battery or JSON file error detected).

3. Core Components Introduction

3.1 Camera

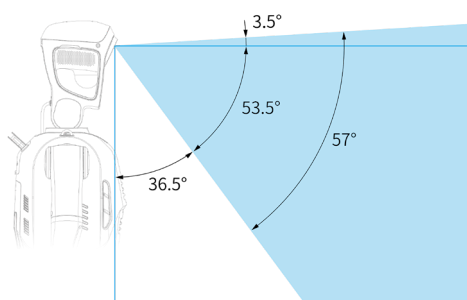
a) Head-mounted depth camera field of view

The ATOM-W is equipped with a head-mounted depth camera, enabling the robot to perceive and understand its surroundings with greater accuracy. The head-mounted depth camera has a field of view as shown in the figure below:



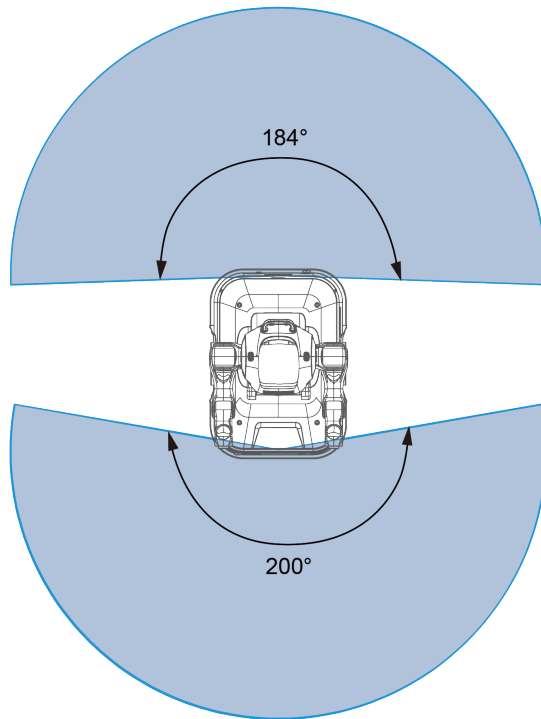
b) The field of view of the head high-definition stereo camera

The ATOM-W is equipped with a head-mounted stereo camera, working in conjunction with the depth camera to enhance the robot's spatial perception and obstacle detection capabilities. The head stereo camera has a field of view as shown in the figure below:



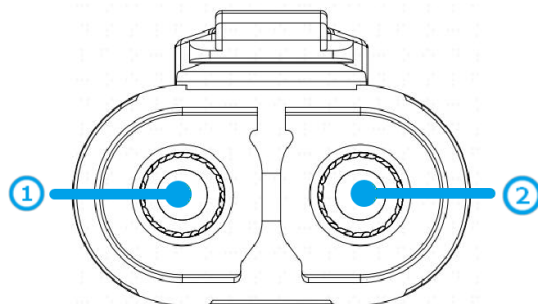
3.2 LiDAR

The ATOM-W is equipped with a chassis-mounted LiDAR, which captures accurate environmental data in real time, and provides the robot with environmental awareness. The chassis-mounted LiDAR has a field of view as shown in the figure below:



3.3 Chassis

The charging port for the chassis is located on the rear panel and is used to charge the battery inside the chassis.



No.	Function	Wire diameter / color
1	Power-	10AWG/black
2	Power+	10AWG/Red

3.4 Charging station

The front of the charging station has a display screen, which is used to show the current charging status, configure network settings, and display error information and logs of the charging station.



No.	Description
①	Display current charging parameters, status, and error causes.
②	Module information, used to display the operating status of the charging module. ⚠️: For general users, no settings in this module need to be adjusted. This module provides a configuration interface for users with specific requirements. Use the following settings with caution.
③	Battery information, indicating various information from the battery BMS. ⚠️: This module can only query correct information when the robot and charging station are communicating via CAN.
④	Setting interface, used to configure user information, display time, and network. ⚠️: The settings module has two access levels: general user and administrator. The available settings vary depending on the user's permission level.
⑤	The Logs interface, including Alarm Logs, Operation Logs, and Work Logs. It records all events and their timestamps during the current charging session, allowing users to track all operations and output statuses of the charging station throughout the charging process.
⑥	Tap to start/stop charging.

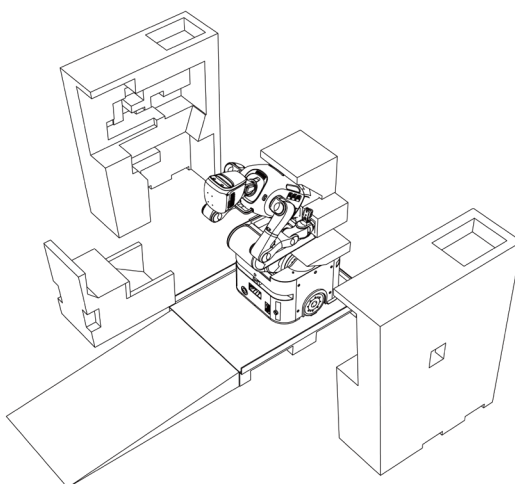
4. Quick Start

NOTE

The images in this chapter use the large chassis as an example. The installation procedure for the small chassis version is the same. Please refer to the actual product appearance.

4.1 Unpacking

1. Upon receiving the robot, please check the outer packaging to ensure it is in good condition. If any damage is found, promptly contact the logistics company and your local supplier.
2. After opening the outer packaging, please verify the items against the unpacking checklist included with the product shipment. If any items are missing, promptly contact after-sales support for a replacement.



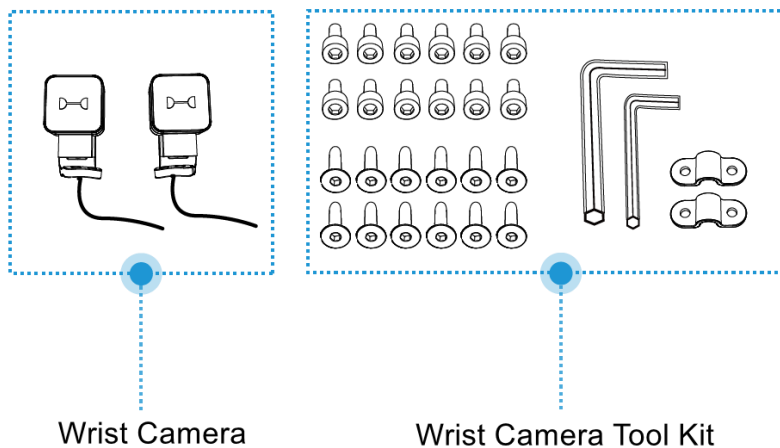
4.2 Installation

1. Prepare the robot

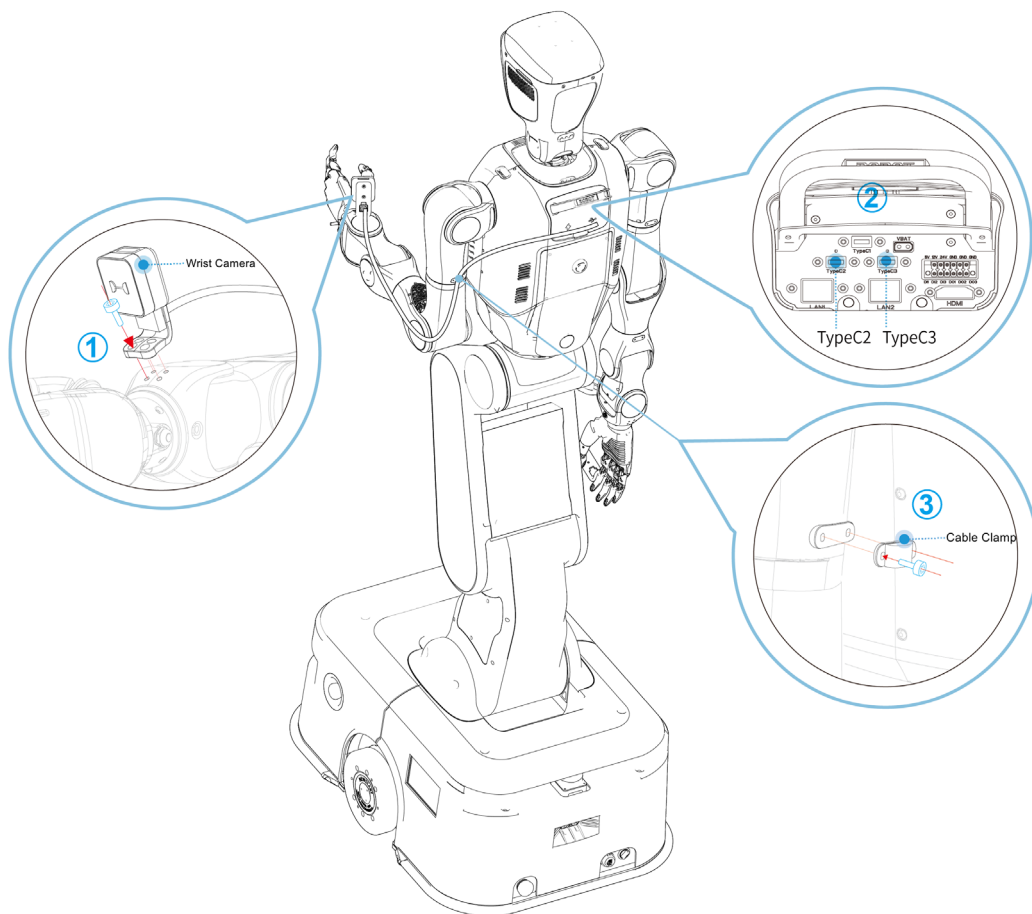
Push the robot down the packaging ramp into the operating environment.

2. Installing the wrist camera

The wrist camera is an optional accessory. If ordered, it and its accompanying parts will be shipped with the main product. Please verify the items against the packing list and contact your supplier if anything is missing.



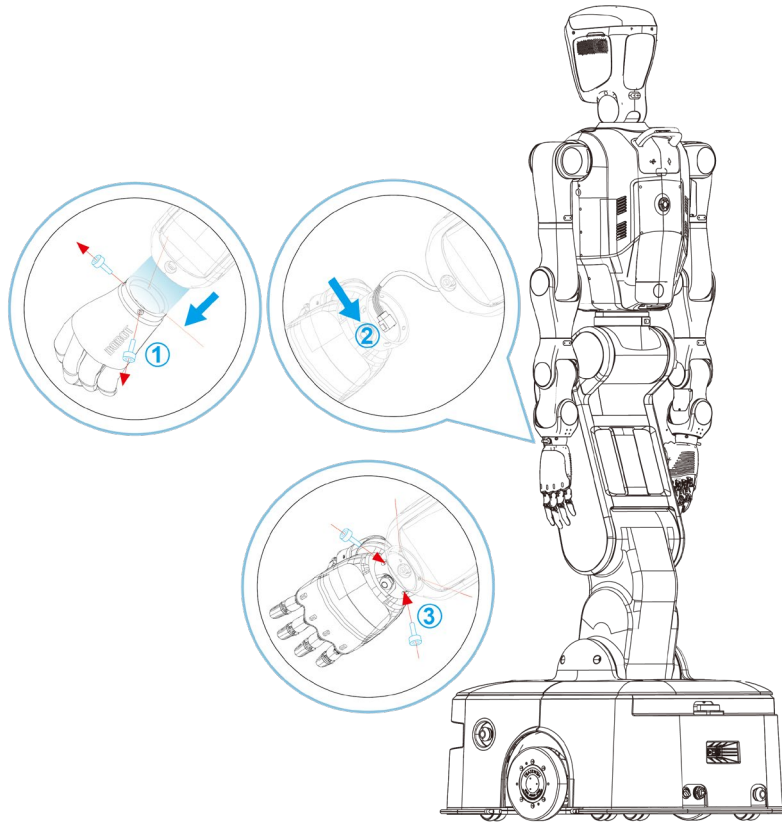
3. Wrist camera installation instructions:



- ① Secure the wrist camera to the pre-drilled screw holes on the robot's wrist using the provided hex socket head cap screws.
- ② Connect the communication cable included with the wrist camera to the TypeC2 or TypeC3 port on the robot's back.
- ③ Organize the wrist camera communication cable, and secure it to the reserved position on the robot elbow using the cable holder from the wrist camera toolkit.

4. Replacing the dexterous hand

The 6-DoF dexterous hand is an optional accessory. If ordered, it is pre-installed on the robot before shipment. To replace the dexterous hand, follow these steps:



- ① Remove the 4 mounting screws securing the standard rubber hand to the robot.
- ② Prepare the 6-DOF dexterous hand (optional accessory, sold separately), and connect the communication cable that comes with the robot arm to the XHP-4 interface of the dexterous hand. For the pin definitions of the XHP-4 interface on the dexterous hand, please refer to the instructions for the [Aviation connector and connector definitions](#).
- ③ Reattach the dexterous hand to the robot arm using the mounting screws.
- ④ After replacing the dexterous hand, turn it on using the App.

4.3 Charging

NOTICE

- Use only the official DOBOT charging station provided. Third-party chargers are prohibited.
- Before connecting to AC power, ensure the AC voltage matches the charger's rated input voltage to prevent damage to the charging station.
- Ensure the charging voltage and current are compatible with the robot, and that the charging port is properly connected.
- If smoke, unusual odor, overheating, or deformation occurs during charging, immediately disconnect the charger.
- After pressing the **Start** button, charging should begin within 30 seconds. If not, contact technical support for troubleshooting.

Charging is required for first-time use or whenever prompted by the robot.

1. Before charging, connect the charging station's power cable to the mains socket.
2. Before charging, press the **LB+A** buttons on the remote controller to engage damping mode, or press the **LB+B** buttons to engage zero-torque mode.
3. Push the robot to the front of the charging station, align the chassis charging port with the charging port of the station, then press the **Start** button on the station to begin manual charging of the chassis.
4. Charging will stop automatically once fully charged, or you can press the **Stop** button to halt charging.

4.4 Power on

Before powering on, ensure the emergency stop buttons on both the chassis and the robot's upper body are released.

1. Press the power button on the chassis. The indicator light will turn from on to off; the robot's chest and head lights will flash blue slowly, indicating that the robot is performing a self-check.
2. After the robot passes the self-check, [connect to the App](#) to check for any errors. If there are no errors, perform the "Enable" operation in the App. Once enabled, the robot will enter the zero-torque status.
3. After [Connecting to remote controller](#), you can use it to switch the robot's operating mode.

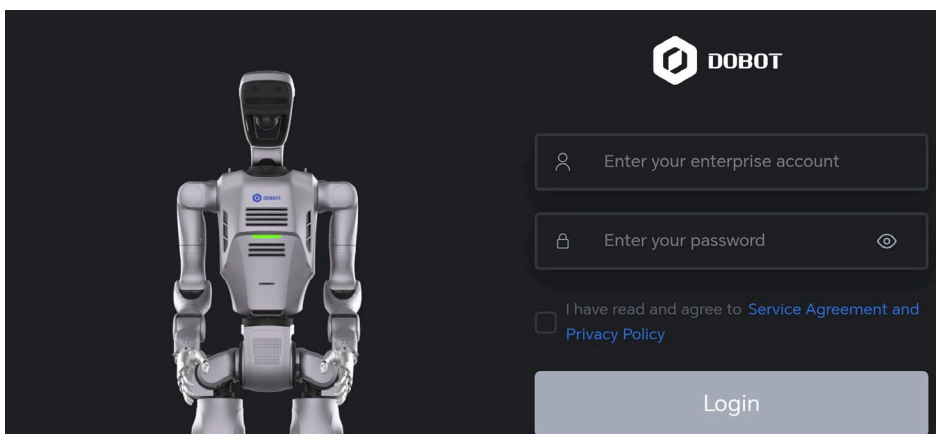
4.5 Connection

4.5.1 Connect to App

NOTICE

For first-time use, the robot must be connected to the App.

1. **Download the App:** Please contact DOBOT technical support to obtain the **DOBOT Ex** App installation package and install it.
2. **Log in to the App:** Use the enterprise account and password provided by sales team to log in.

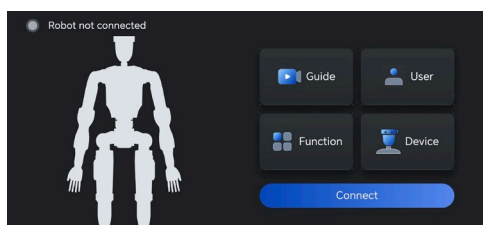


NOTE

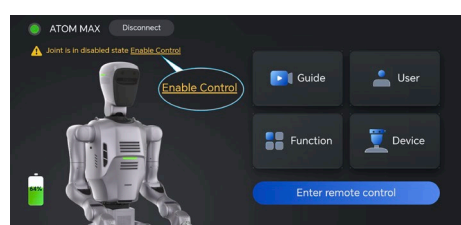
If you do not have a corporate account, please contact DOBOT sales service personnel to obtain one.

3. Connect to the robot:

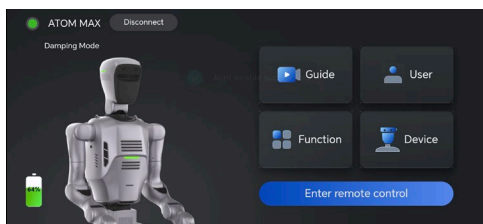
- ① Turn on the phone's WiFi switch and connect to the WiFi named "ATOM-W + SN code" (default password: 12345678).
- ② Click the "Connect" button on the initial interface of the **DOBOT Ex** App. When the interface displays the ATOM-W appearance, it indicates that the connection has been completed.



Robot not connected



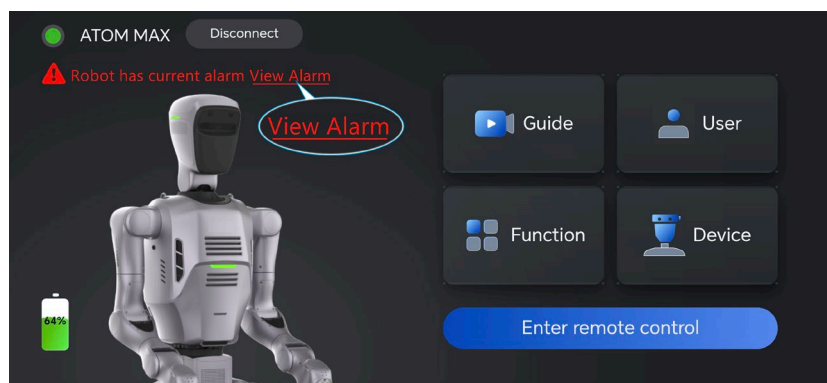
Robot connected (disabled)



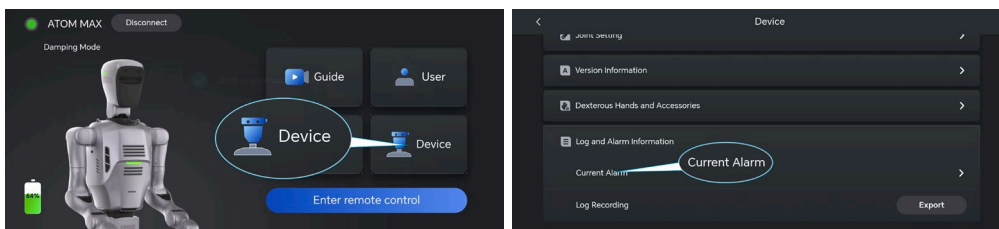
The robot connected (enabled)

4. Check the robot alarm information:

- After successfully connecting to the robot, alarm messages will be displayed on the App's home page; tap "View Alarm" to jump to the alarm information page.

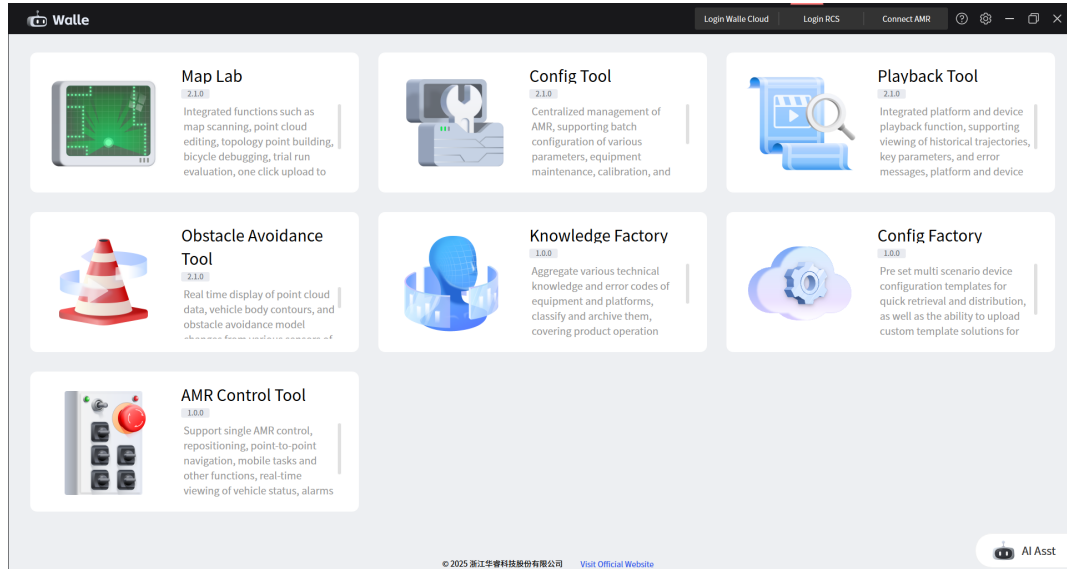


- After successfully connecting to the robot, go to the "Device" page in the App and tap "Current Alarm" to view alarm information.

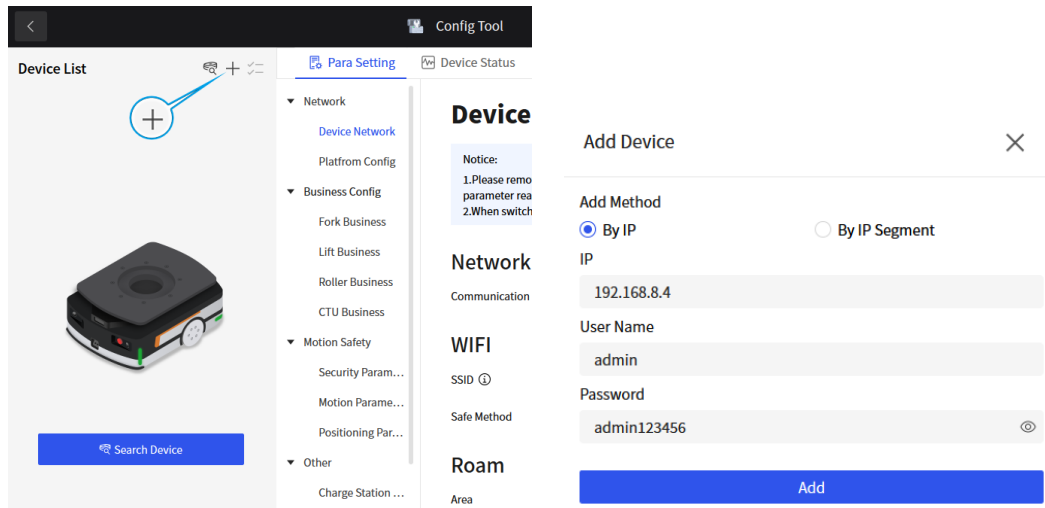


4.5.2 Connecting to mapping software

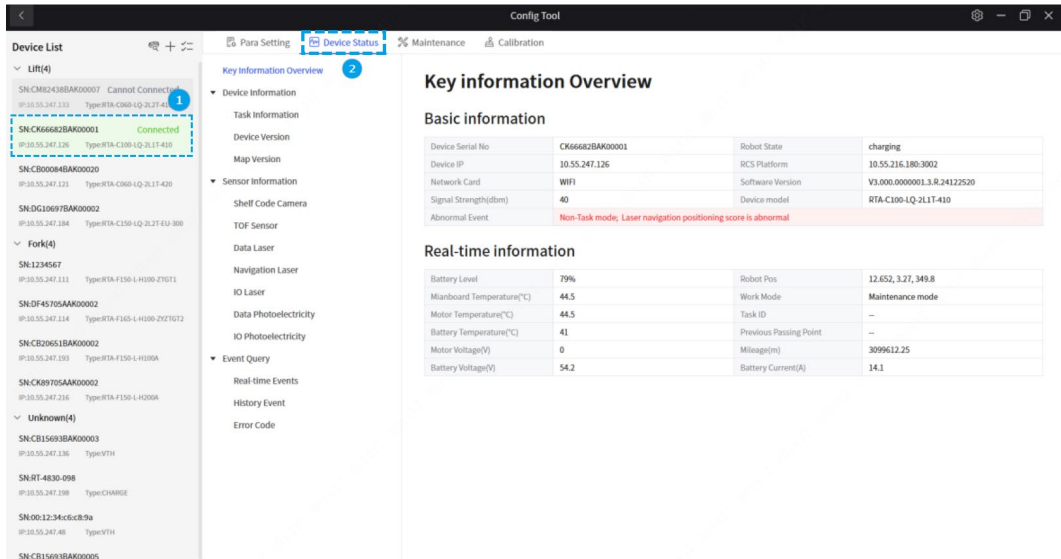
1. Before connecting to the mapping software, make sure the computer is connected to the robot via Ethernet cable or WiFi.
2. Please contact DOBOT technical support to obtain the mapping software **Walle** installation package, then download and install it.
3. Double-click to open the Walle software and enter the main interface.



4. Click "Config Tool". On the configuration tool interface, click the + symbol in the upper-left corner to enter the device addition screen. Select "By IP" as the addition method, then enter the robot's IP address, username, and password.
IP: 192.168.8.4, username: admin, password: admin123456.



5. Double-click the added robot device to automatically connect to the robot. You can then check the chassis status on the "Device Status" tab.



- Return to the main interface, click "Map Lab", then click the "Connect AMR" button in the upper-right corner. In the pop-up window, enter the robot's IP address, username, and password.

Connect AMR

×

Device IP

Please input device IP

User Name

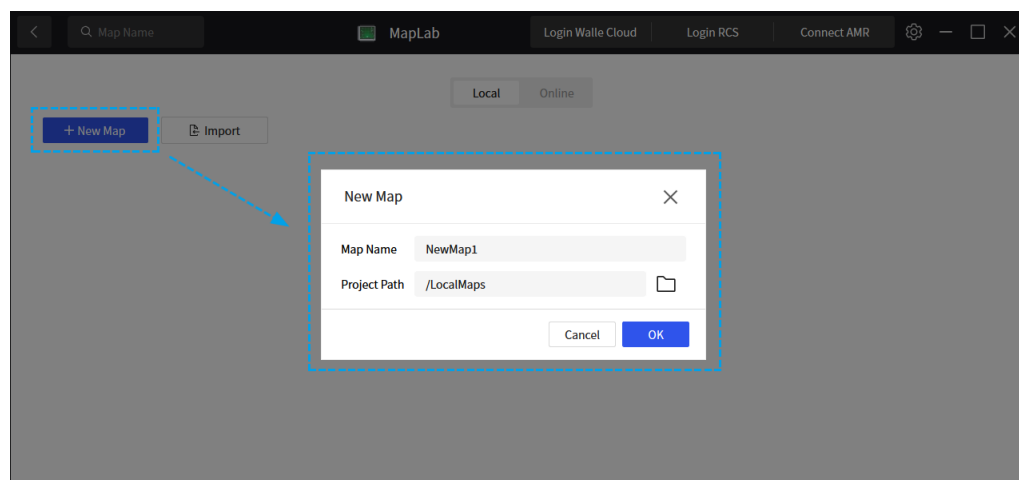
Password

Login

Before the chassis can operate autonomously, operations such as map creation, path editing, and task configuration are required. For detailed operation steps, refer to the manufacturer's *Chassis Mapping Guide*.

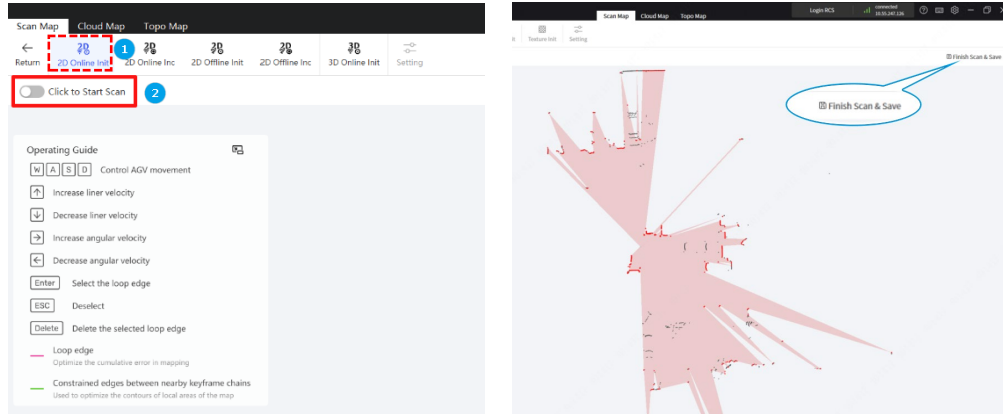
4.5.3 New map

- Before creating a new map, [connect to the mapping software](#). On the Map Lab page, click "New Map", enter a name and save path for the new map, and then enter the scanning interface.



- On the scanning interface, select "2D Online Init" and click "Start to Start Scan".

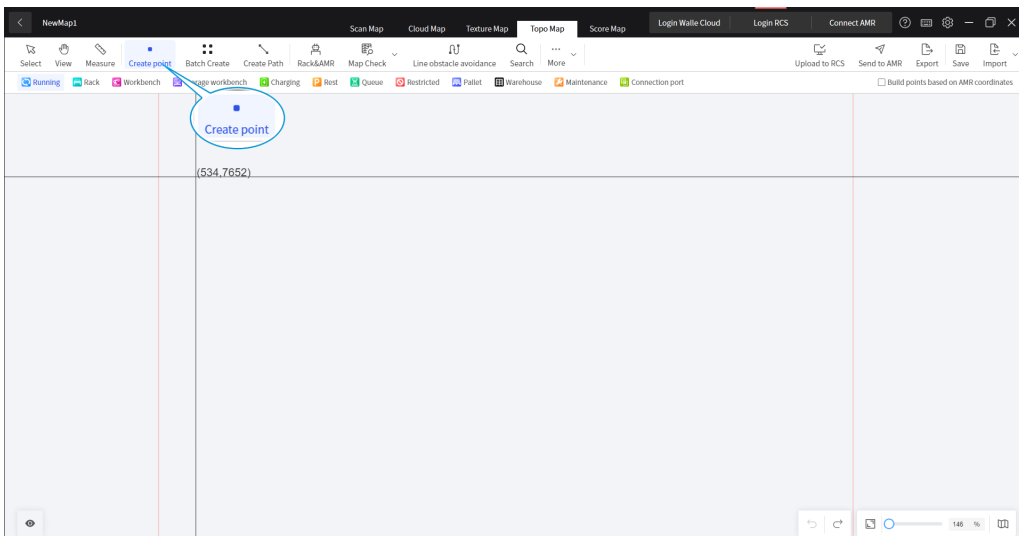
Before starting scanning, press the confirm button on the chassis. You can either use the keyboard to control the chassis movement to complete the scan, or press the emergency stop button on the chassis and manually push the robot to complete the scan. After scanning is complete, click "Finish & Save" in the upper-right corner of the interface to save the map.



- Click "Topo Map" to enter the main interface, click "Create point", and add points to the map.

NOTICE

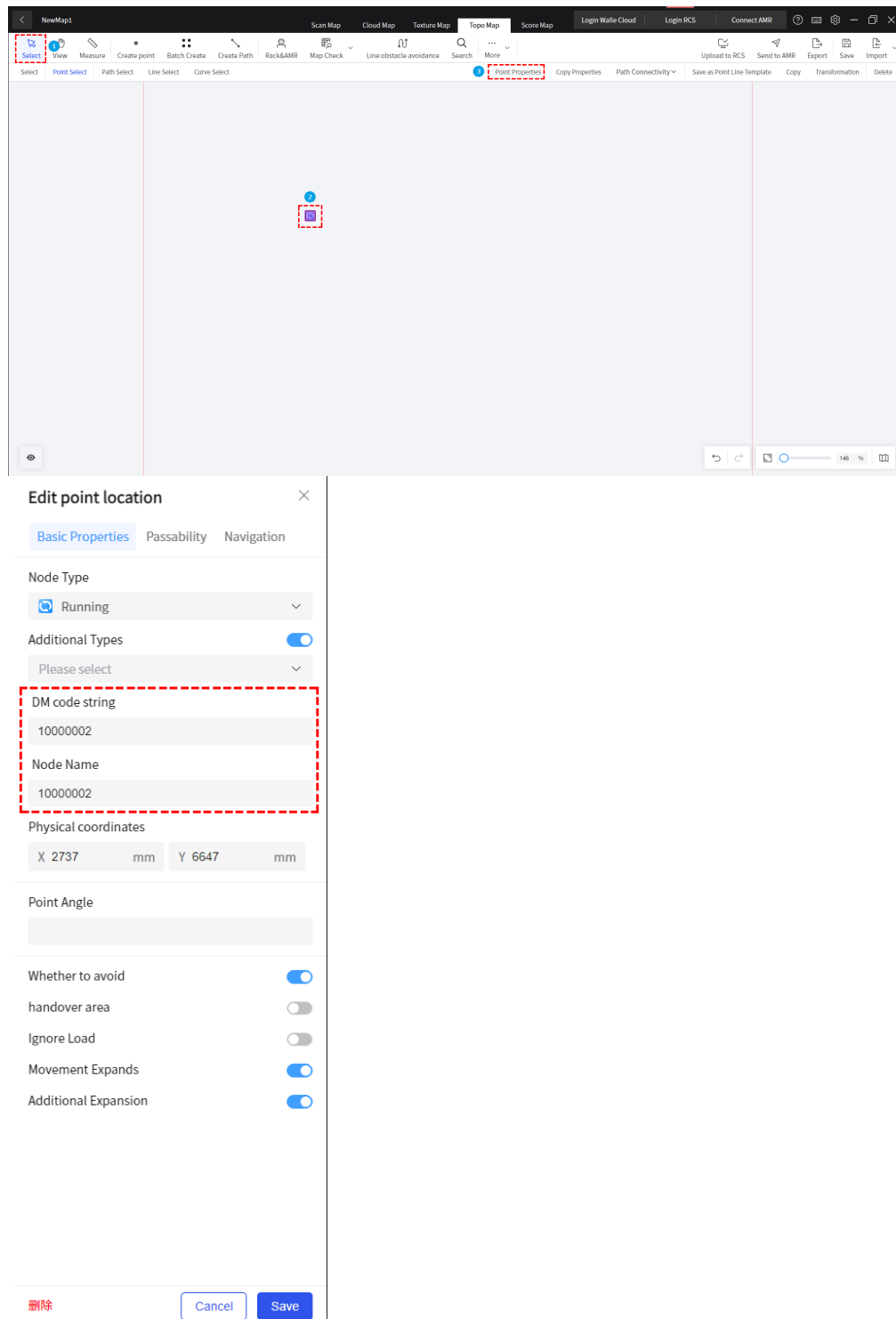
If no points have been added to the map, it cannot be deployed to the chassis.



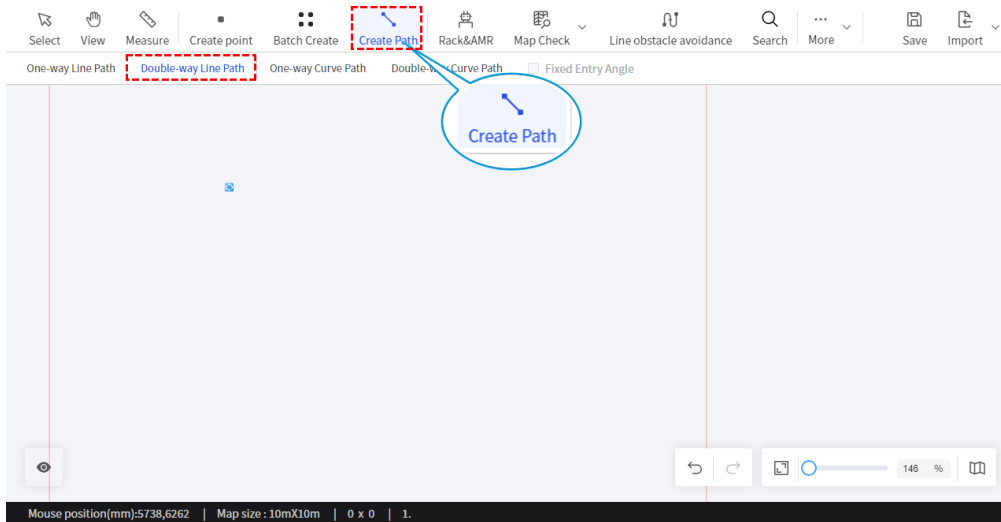
- In the "Topo Map" interface, click "Select" to pick the point you wish to configure, then click "Point Properties" to set its ID and name. Once done, click "Save".

NOTICE

The point ID is a unique identifier for each point; it must not be duplicated within a map, and the SDK uses the point ID for identification when sending control commands.



5. In the "Topo Map" interface, click "Create Path", then select "Double-way Line Path" to connect the points with straight lines in both directions.



6. In the "Topo Map" interface, click "Select", choose the path whose properties you want to set, click "Path Properties", configure the properties, and then click "Save".

The default running speed is 2 m/s. It is recommended to change it to 0.5 m/s.

Straight path

10000002->10000005

10000005->10000002

Navigation&Obstacle Avoidance

Passability

Navigation mode

Default navigation mode

Line obstacle avoidance

Routine obstacle avoidance1

Turn off the sensor

Please enter

Running speed

0.5

m/s

Route cost weight

1

Forward direction of the device

Default (unlimited)

Left line width

-1

mm

Right_line_width

-1

mm

Distance from starting point

-1

mm

Endpoint extension distance

-1

mm

Free navigation

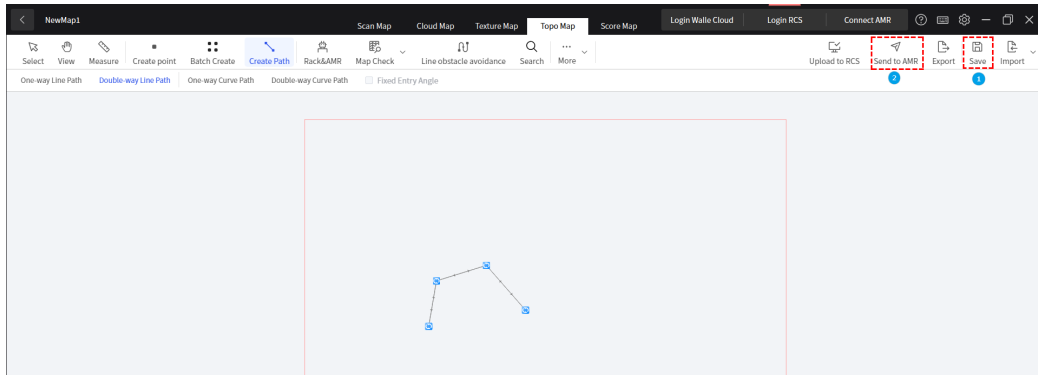
Whether to Bypass Obstacle

删除

Cancel

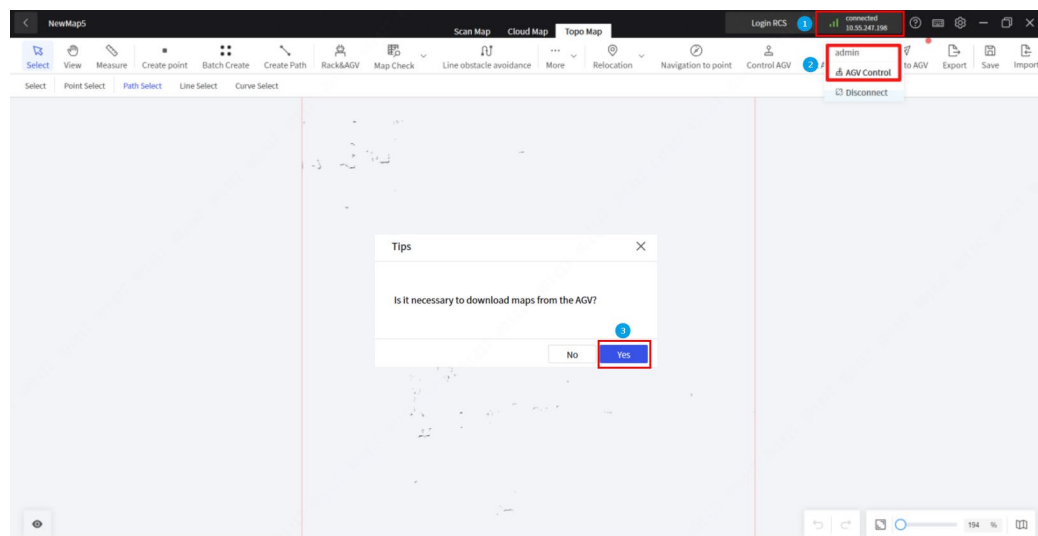
Save

7. Repeat [Step 3](#) to [Step 6](#) to set points and paths until the map editing is completed. In the "Topo Map" interface, first click "Save", then click "Send to AMR" to transfer the map to the AMR.



8. On the Map Lab page, click "AMR -> AMR Control", then click "Confirm" in the pop-up window to confirm downloading the map from the AMR.

Check whether the downloaded map matches the created map. If they do not match, map transmission may fail.

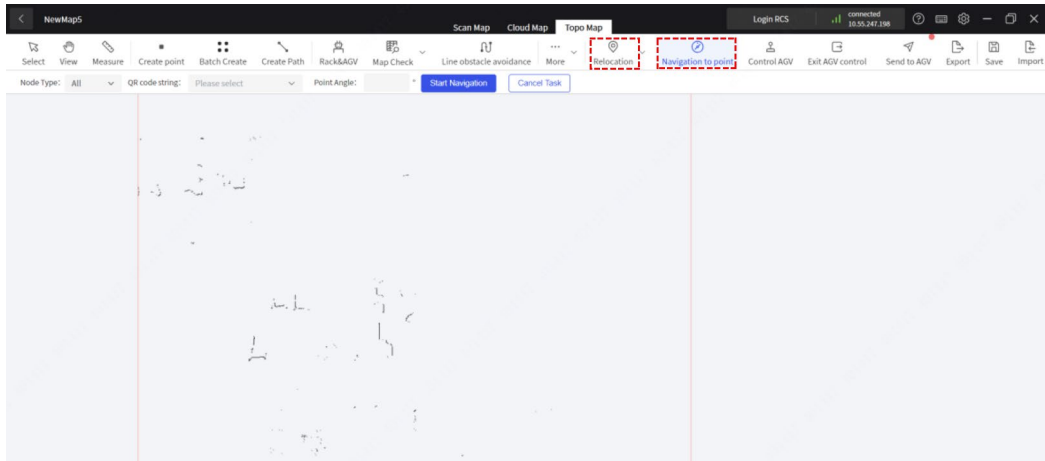


9. If the AGV point positions shown on the downloaded map are inaccurate, you can click **Relocation** to re-locate, or click **Navigate to point** to control the robot to the specified point location. After confirming that the map is accurate, re-save the map to the AGV.



NOTICE

The AGV can only navigate when it is at a point or on a path.



- The map creation is now complete. If the chassis has any alarms, check them on the Robot Configuration Tool page and clear them by pressing the Maintenance and Confirm buttons on the chassis.

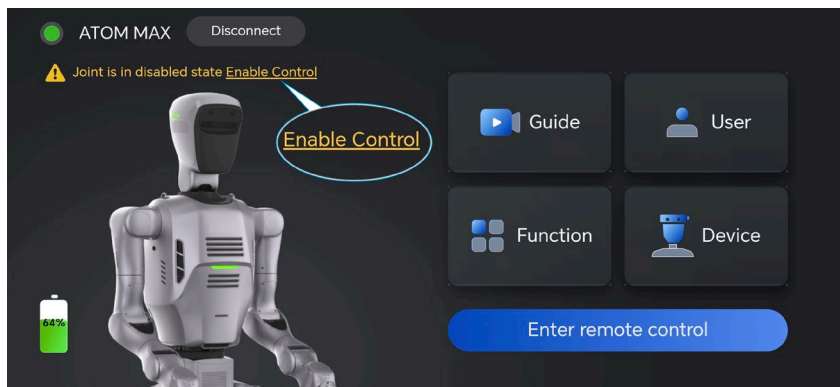


NOTICE

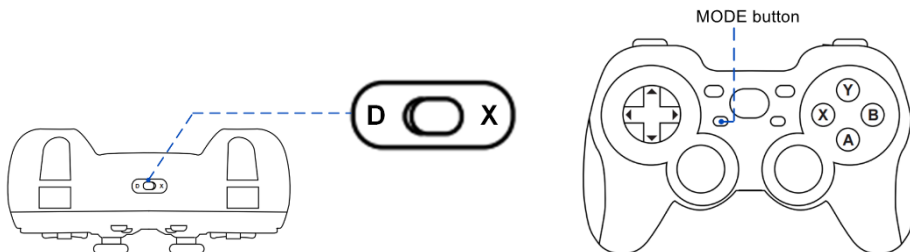
Before navigating with the map, the chassis must be in Auto mode. If it is not, switch the **Auto/Manual** switch to the **Auto** position  and enter the password on the touchscreen to switch to **Auto** mode.

4.5.4 Connecting to remote controller

- After connecting to the App, tap the "Enable" button on the home page to enable the robot.



- Set the sliding switch on top of the remote controller (Logitech F710) to the "X" position, then press the MODE button (the indicator light will turn off).



- The remote controller will automatically connect to the ATOM-W robot.

NOTICE

- The remote controller must be strictly set to "X" mode. After switching modes, the robot must be power-cycled (turned off and on again).
- During the use of the remote controller, the MODE indicator light must remain off.

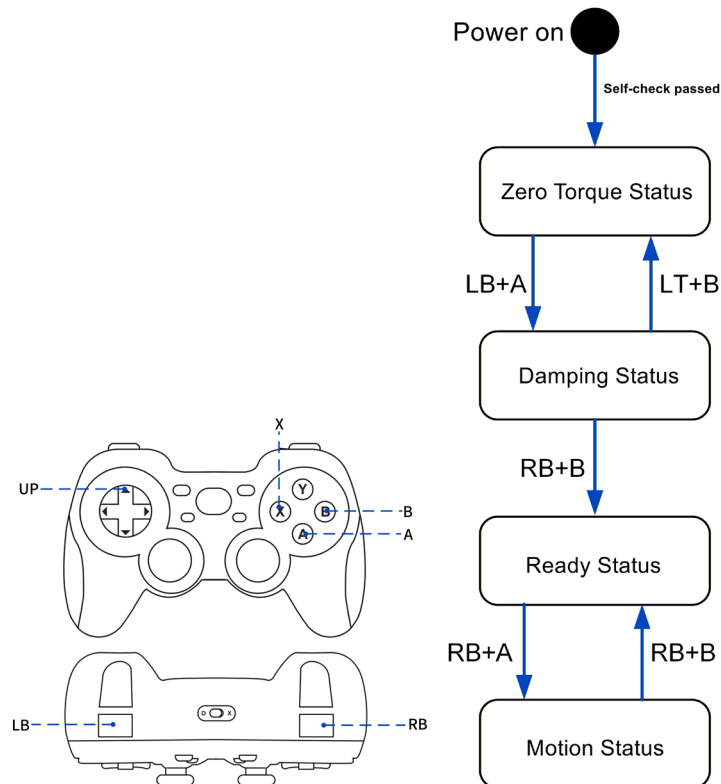
- Before remote-controlling the robot, make sure the chassis is in Manual mode. If the chassis is not in Manual mode, switch the **Manual/Auto** switch to the **Manual** position and enter the password on the touchscreen to switch to **Manual** mode.

4.6 Pre-motion preparation

NOTICE

After [connecting to the App](#), confirm that there is no alarm information on the robot before switching to the motion mode.

Use the remote controller to follow the flowchart below to switch the robot into the motion state. Before entering the motion state, press the Confirm button on the chassis:



4.7 Abnormal stop

In case of unexpected events during robot operation, users can quickly halt the robot using the following methods. Please ensure the robot is protected before performing an emergency stop to avoid accidental damage.

- **Stop via remote controller**

In case of an emergency, press LB + A on the remote controller to set the robot's upper body to damping mode, lock the lower body brakes, and gradually stop the chassis. Press **RB+B** on the remote controller to enter ready status, then press **RB+A**. Finally, press the confirm button on the chassis to switch back to motion control.

- **Chassis emergency stop**

Press the emergency stop button on the chassis. The upper body enters damping status, the lower body locks with brakes, and the chassis immediately brakes to a halt. Release the emergency stop button to switch back to motion control.

- **Robot emergency stop**

Press the emergency stop button on the robot. The upper body enters damping status, the lower body locks with brakes, and the chassis immediately brakes to a halt. Release the emergency stop button to switch back to motion control.


NOTICE

The reliability of emergency stop via the remote controller depends on network conditions. If the robot is used in high-risk scenarios, it is recommended to use the emergency stop button on the robot body.

4.8 Shutdown

Before shutting down, ensure the robot is in its initial startup position, with no arm operations and standing still.

1. Press the **LB+A** buttons on the remote controller to put the robot into damping status.
2. Press the power button on the chassis, the button will pop out, and its indicator light will turn from on to off.


NOTICE

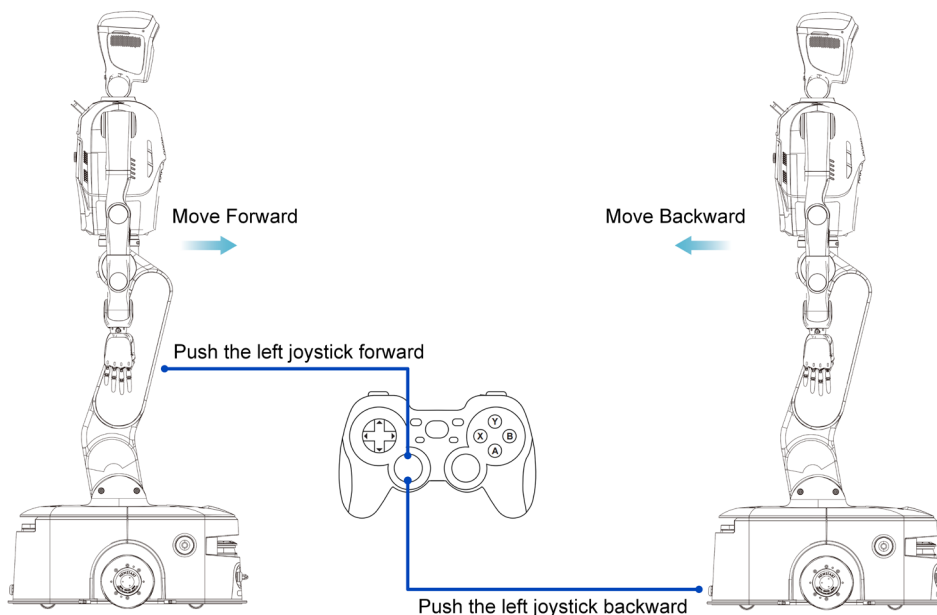
- During shutdown, the robot's lower body may slightly sag, and the arms will immediately lose damping resistance. Before initiating the shutdown process, ensure the arms are not performing any operations or holding any objects to avoid unintended drops.
- Be careful of the robot joints pinching your hand.

5. Control the Robot via Remote controller

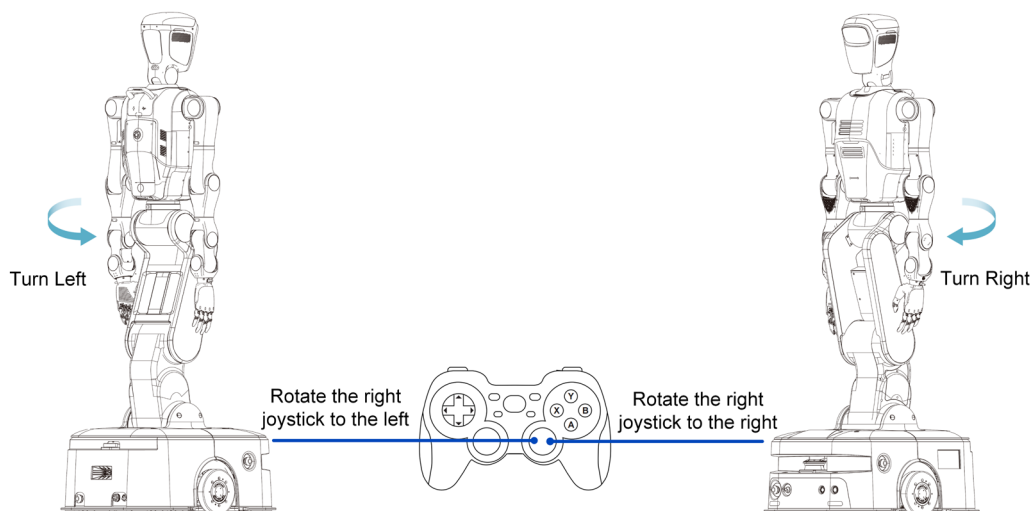
5.1 Robot walking

Before controlling the robot with the remote controller, make sure the MODE button indicator light is off at all times.

- Push the left joystick of the remote controller forward / backward to control the robot to move forward / backward.

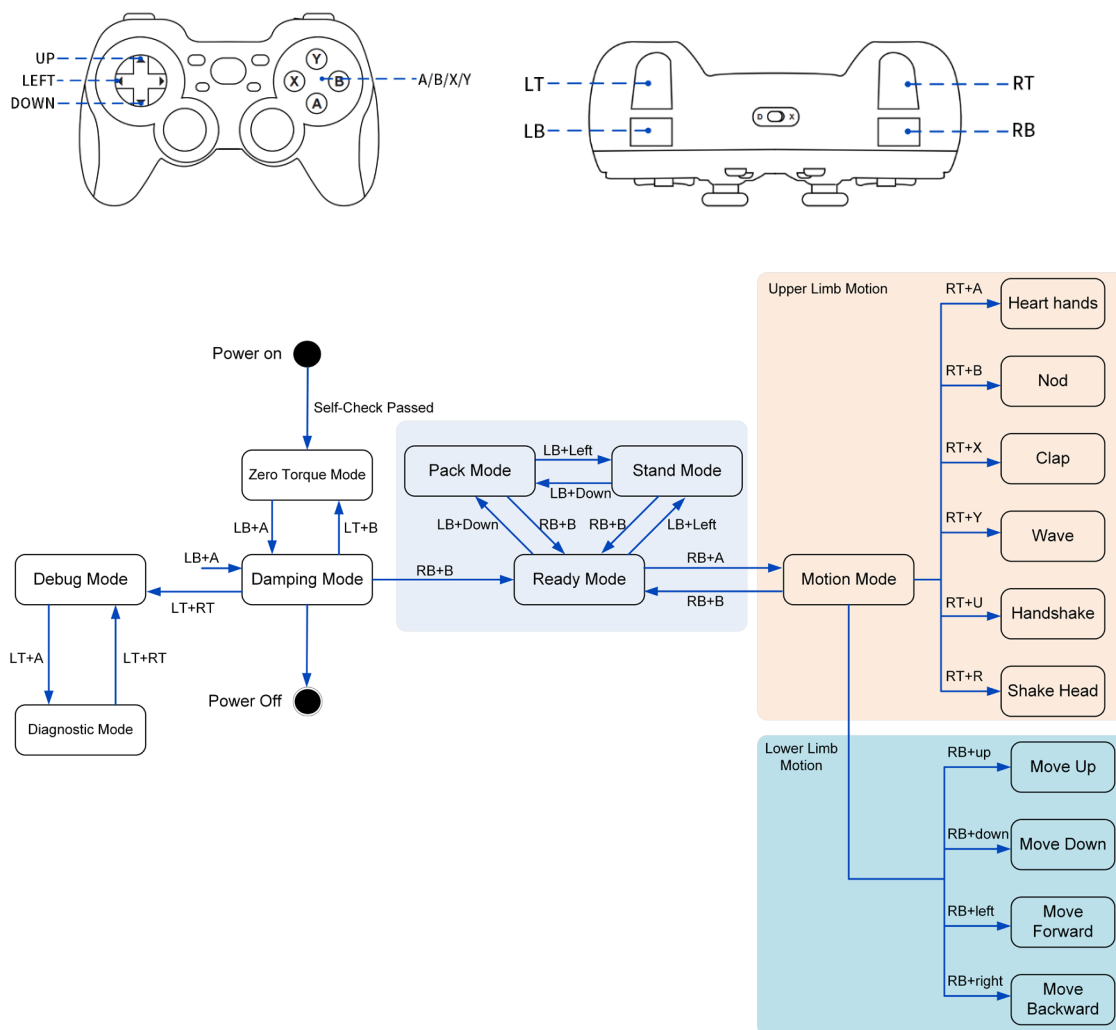


- Rotate the right joystick of the remote controller left / right to control the robot to turn left / right.



5.2 Robot posture switch

As described in the flowchart below, use the remote controller's key combinations to switch the robot into different postures or perform skill demonstrations.

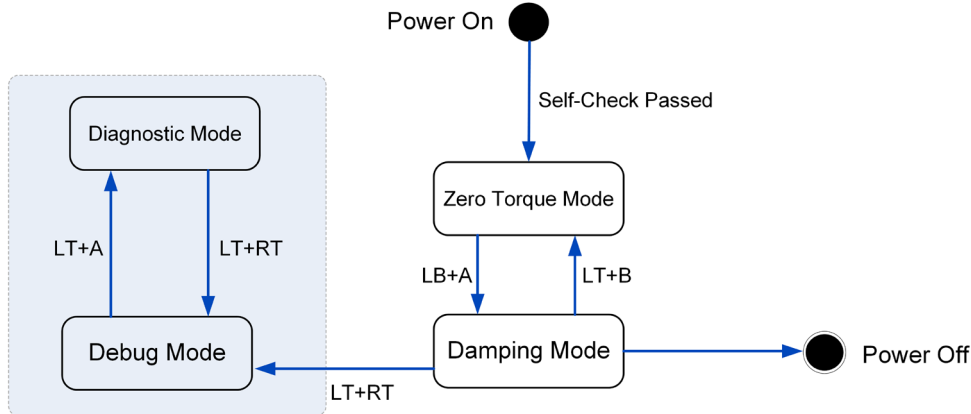


Buttons	Robot status	Description
LB+B	Zero-torque Mode	All motors of the robot stop active motion, and there is no damping feedback when swinging.
LB+A	Damping Mode	Upper limb: All motors stop active movements, with noticeable damping resistance while swinging. Lower limb: Motors are disabled and brakes are engaged upon entering damping status. Chassis: Exit remote control mode and stops moving.
LT+RT	Debug Mode	Development and debugging are conducted based on the low-level control SDK. Real-time operation data (e.g., battery level, motor status, and IMU data) can be retrieved, and motors can be directly controlled.
LT+A	Diagnostic Mode	Perform joint position control to switch the robot to a specified diagnostic pose within 10 seconds. After diagnosis, press the START button on the remote controller to return all joints to the zero position.
RB+B	Ready Mode	Upper limb: Gradually move into a prepared pose for motion within 10 seconds. Lower limb: Enabled status. J1 and J2 remain unchanged. J3 adjusts to maintain the upper body vertical.
RB+A	Motion Mode	Upper limb: Freely movable after entering this status. Lower limb: Use RB + directional buttons to control lifting, lowering, and forward/backward movement. Chassis: Enable remote control mode. Exiting this status disables remote control.
LB+DOWN	Pack Mode	The robot gradually moves into a packing pose within 10 seconds.
LB+LEFT	Stand Mode	The robot gradually moves into a standing pose within 10 seconds.

6. Secondary Development

Follow the steps below to switch the robot to debugging mode for secondary development using the low-level control SDK. You can then implement custom teleoperation, deploy and control reinforcement learning models, and access real-time operating data including battery, motor, and IMU. For specific commands and operating instructions related to secondary development, please refer to the *DOBOT ATOM Series Robot SDK Application Development Guide* and the *DOBOT ATOM Series Robot Teleoperation User Guide*.

- **Switch to debug mode**



1. Press the **LB+A** buttons on the remote controller to put the robot into damping mode.
2. Press the **LT+RT** buttons on the remote controller, ATOM-W enters the debugging mode. After successful switching, the robot will make a voice prompt (NOTE: the voice prompt feature must be enabled in advance on the App's "Voice Assistant" page), and the robot mode on the "Device > Joint Settings" page of the App will show "Debug Mode".
3. Press the **LT+A** buttons, ATOM-W enters diagnostic status and assumes a specific diagnostic posture. Press the **LT+RT** buttons again, ATOM-W returns to the debug mode.

i NOTE

This process is used to confirm whether ATOM has successfully entered the debug mode or for hardware troubleshooting.

- **Interface for debugging**

The interface for debugging is located beneath the fixing ring on the robot's back. You can remove the silicone cover to access it. See [External interface](#) for details.

7. Error Handling

Error	Cause	Solution
The robot cannot be powered on.	The battery pack is depleted. Hardware failure.	Check the battery pack level and charge it, then power on the robot. If the robot still cannot be powered on after charging, please contact technical support.
After the robot is powered on, the self-check fails.	Joint power switch is turned off.	Restart the robot using the battery pack's power button.
The robot's zero point data is incorrect	The zero point data has been lost unexpectedly, or a physical impact resulting in zero point offset	Contact technical support for calibration.  : The robot has completed zero point calibration before leaving the factory. Please do not calibrate the joints during normal use.
Power-on alarm: Bus communication error; joint position out of range SN code parsing error	The emergency stop was pressed, and the joint did not power on, resulting in a communication error SN file missing	Release all emergency stops and restart the robot. Contact technical support to write the SN file. Connect to App , and clear the alarm on the Device -> Log and Alarm Information -> Current Alarm page.
Joint overspeed and overcurrent	The target position of the issued command is far from the current position, and the joint moves to the target position with a large acceleration	Restart the robot.
The dexterous hand does not respond to control	The dexterous hand is disabled by default at the factory	Connect to the App, go to "Devices -> Dexterous Hand and Accessories -> Dexterous Hand Settings", and enable the dexterous hand.
When controlling the script using the SDK, the robot's joints lose control and topics cannot be read.	The cyclonedds version is incompatible	Check whether the cyclonedds version for Python is 0.10.5. If not, update it to 0.10.5. Restart the robot.
The robot is unstable and may lean	The robot's center of gravity is not accurately	Connect to the App, go to Device > Joint Setting > Joint

backward or forward.	calibrated	page, and under the Position tab, adjust the ankle joint offset to correct the center of gravity.
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 NOTE

If you encounter any other abnormal issues during the use of the robot, please contact technical support promptly.

8. Maintenance

Maintenance and repairing must be performed in compliance with all safety instructions in this document.

The purpose of maintenance and repairing is to ensure that the system is kept operational, or to return the system to an operational state in the event of a fault. Repairing includes troubleshooting in addition to the actual repair itself.

Repairing must be performed by an authorized system integrator or DOBOT staff.

Robots or parts returned to DOBOT should follow the instructions below:

- Remove all parts that do not belong to DOBOT.
- Before returning to DOBOT, please make a backup copy of the files. DOBOT will not be responsible for the loss of programs, data or files stored in robot.
- The robot should be restored to its unpacked posture before returning to DOBOT.

8.1 Precautions

The following safety procedures and warnings must be observed when operating the robot:

NOTICE

- Replace faulty components with new components of the same model or equivalent components approved by DOBOT.
- Reactivate all deactivated safety measures immediately after completing maintenance work.
- Record all repairs and save them in the technical document associated with the robot system.
- Take necessary precautions to prevent others from re-powering on the robot during maintenance.
- Prevent water or dust from entering the interior of the robot.

8.2 Robot maintenance

To ensure the robot maintains high performance over the long term, regular maintenance checks must be conducted. The personnel in charge of the maintenance must develop a maintenance plan and carry out the necessary tasks. The inspection items are listed in the table below.

Period			Inspection item	Inspection details
Daily	3 months	6 months		
√			Robot storage	• Store in a dry and cool indoor area, avoiding exposure to sunlight and rain; • For long-term storage, remove the battery pack.

√			Robot appearance	- Check if the body is clean, undamaged, or deformed; - Focus on checking whether the camera and radar are dirty or obstructed.
√			Robot cleaning	- Wipe the robot with a dry and clean soft cloth; - Focus on checking whether the camera and radar are wiped clean.
√			Joint	- Check that there is no abnormal noise or vibration from the joints when the robot is running. - After running, touch the joint housing to check for excessive heat.
√			Battery	- Check if the power indicator light displaying normally; - Check if the chassis battery is sufficiently charged (when not in use for a long time, it is recommended to maintain a 50% charge and recharge every three months).
√			Remote controller	Check if the buttons and joystick of the remote controller are functioning properly;
		√	E-stop button	Press the E-stop button during the robot's movement to observe if the robot performs an emergency brake.

9. Warranty

9.1 Product warranty

Without prejudice to any claim agreement that the user (customer) may reach with the distributor or retailer, the manufacturer shall guarantee the quality of the products to the customer in accordance with the terms and conditions below:

If defects caused by manufacturing and/or improper material occur in a new device and its components after the device is put into use, DOBOT shall provide the necessary spare part, and the user (customer) shall offer personnel to replace the spare part, using another part that represents the latest technology level to replace or repair the related part.

If the device defects are caused by improper handling and/or failure to follow the relevant information set out in the User Guide, the warranty is invalid.

This warranty does not apply to or extend to maintenance (e.g. installation, configuration, software download) performed by the authorized distributor or customer.

The user (customer) must provide the purchase receipt and the purchase date as valid evidence for the warranty. Claims under this warranty must be made within two months of the apparent failure to perform the product warranty.

The ownership of the device or components that are replaced or returned to DOBOT shall remain with DOBOT. Any other claims arising from or related to the device are not covered by this warranty.

Any items in this product warranty do not intend to limit or exclude the legal rights of the customer or to limit or exclude the liability of the manufacturer for the personnel casualty resulting from its negligence. The duration of this product warranty shall not be extended due to the services provided under the product warranty terms. Under the principle of not violating the warranty, DOBOT reserves the right to charge customers for the replacement or maintenance. The foregoing does not imply a change in the burden of proof to the detriment of the client. If there are defects on the device, DOBOT shall not be liable for any damage or loss arising therefrom, including but not limited to loss of production or damage to other production device.

9.2 Disclaimer

DOBOT is committed to improve the reliability and performance of its products, and as such reserves the right to upgrade products without prior notice. DOBOT strives to ensure the contents of the User Guide are precise and reliable, but takes no responsibility for any errors or missing information.

Appendix A Technical Specifications

Product dimensions	Compatible small chassis	Approx. 1785mm (H) × 500mm (W) × 500mm (D)
	Compatible large chassis	Approx. 1772mm (H) × 510mm (W) × 710mm (D)
Weight (excluding dexterous hand/gripper)	Compatible small chassis	Approximately 136 kg
	Compatible large chassis	Approximately 141 kg
Total Degrees of Freedom (DoF) (excluding dexterous hand)		22
Head DOF		2
Arm DoF		7×2
Waist DoF		4
Arm rated payload (each, excluding dexterous hand/gripper)		3.5 kg
Arm max payload (each, excluding dexterous hand/gripper)		5 kg
Arm reach (excluding dexterous hand/gripper)		600 mm
Dexterous hand (optional)		6 DOF
Arm repeated positioning accuracy		±0.05mm
Head vision		Depth camera x 1, Stereo camera x 1
Hand vision (optional)		Depth Camera x 2
Waist vision (optional)		Depth Camera x 2
Hand force sensing (optional)		6-axis force sensor at end-effector
Audio equipment		360° omnidirectional microphone x 1, Neodymium speaker x 2
Battery		55Ah
Chassis speed		1.5 m/s
Navigation method		LiDAR-based navigation
Repeatability		±10 mm (center-to-point)

Battery life	Approx. 10 h
Charging time	≤ 2.5 h (Charging station input: AC 220V, charging from 20% to 100%)
High-performance computing module	Intel i9 (24-core, 32-thread) + Dedicated GPU with large video memory (FP32 GPU computing power: 41.15 TFLOPS)
Repeatability	±10 mm (center-to-point)
Steering type	In-place rotation
Gradeability	3°
Obstacle clearance height	~10mm
Obstacle clearance width	~25mm
Navigation method	Laser SLAM (with 2 LiDAR sensors, front and rear)
Charging method	Support manual charging and automatic docking charging

Appendix B Common Error Code Handling

B.1 Power supply error

ID	Level	Error description	Solution
256	1	Lower body power supply error	Check if the hardware is functioning properly, or contact technical support engineer
257	1	Upper body power supply error	
258	1	24V1 power supply error	
259	1	24V2 power supply error	
260	1	12V power supply error	
261	1	Peripheral power supply error	
262	1	Power supply error at the replenishment port	

B.2 Voltage error

ID	Level	Error description	Solution
263	1	Lower body undervoltage	Check if the hardware is functioning properly, or contact technical support engineer
264	1	Lower body overvoltage	
265	1	Upper body undervoltage	
266	1	Upper body overvoltage	

B.3 Battery error

ID	Level	Error description	Solution
512	1	Cell overvoltage	Single cell voltage exceeds 4.2V. Please verify hardware status or contact technical support.
513	1	Cell undervoltage	Single cell voltage is below 2.5V. Please check if the hardware is functioning properly, or contact technical support for assistance.
514	1	Battery failure	Single cell voltage is below 2V. Please verify hardware status or contact technical support.

ID	Level	Error description	Solution
515	1	Battery pack overvoltage	During charging, the battery pack voltage exceeds 70.5V. Please check if the hardware is functioning properly, or contact technical support for assistance.
516	1	Battery pack undervoltage	The battery pack voltage is below 40V. Please check if the hardware is functioning properly, or contact technical support for assistance.
517	1	Charging overcurrent	During charging, the current exceeds 12A for 20ms. Please check if the hardware is functioning properly, or contact technical support for assistance.
518	1	Discharge overcurrent	During discharging, the current exceeds 100A for 20ms. Please check if the hardware is functioning properly, or contact technical support for assistance.
519	1	Charging short circuit	During charging, the current exceeds 15A for 1.6ms. Please check if the hardware is functioning properly, or contact technical support for assistance.
520	1	Discharge short circuit	During discharging, the current exceeds 120A for 200ms. Please check if the hardware is functioning properly, or contact technical support for assistance.
521	1	Chip over-temperature	The BMS chip's internal temperature monitoring is abnormal. Please check if the hardware is functioning properly, or contact technical support for assistance.
522	1	Battery over-temperature	During charging, the battery temperature exceeds 50°C; during discharging, the battery temperature exceeds 60°C. Please check if the hardware is functioning properly, or contact technical support for assistance.
523	1	Battery low-temperature	During charging, the battery temperature is below 2°C; during discharging, the battery temperature is below -18°C. Please check if the hardware is functioning properly, or contact technical support for assistance.
524	1	PCB Overtemperature	The NTC temperature on the PCB board exceeds 85°C. Please check if the hardware is functioning properly, or contact technical support for assistance.

ID	Level	Error description	Solution
525	1	Open circuit alarm	Battery sampling wire disconnected, or open circuit detected in cell series connection. Check hardware or contact technical support.
526	1	Cell mismatch	Maximum voltage difference between cells exceeds 0.234V. Check hardware or contact technical support.
527	1	MOSFET drive error	MOSFET timeout (typically caused by soft-start error). Check hardware or contact technical support
528	1	MCU abnormal alarm	MCU and BMS chip communication error. Check if the hardware is functioning properly, or contact technical support.
529	1	Sensor alarm	The BMS chip's internal temperature monitoring is abnormal. Please check if the hardware is functioning properly, or contact technical support for assistance.

B.4 File parsing error

ID	Level	Error description	Solution
1280	1	Failed to parse the alarm_host.json file	The system reported a file error. Please contact technical support
1281	1	Failed to parse the alarm_servo.json file	The system reported a file error. Please contact technical support
1282	1	Failed to parse the Offset.json file	Joint offset file error. Please contact technical support.
1283	1	Failed to parse the equipment_config.json file	Peripheral configuration file error. Please contact technical support
1284	1	Failed to parse the robotType.json file	Robot type file error. Please contact technical support
1285	1	Failed to parse the snCode.json file	SN code file error. Please contact technical support
1286	1	Failed to parse the is_virtual.json file	Virtual axis file error. Please contact technical support
1287	1	Failed to parse the offset.json.default file	Factory joint offset backup file error. Please contact technical support

1288	1	Failed to parse the Offset.json.bak file	User joint offset backup file error. Please contact technical support
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B.5 File modification error

ID	Level	Error description	Solution
1289	1	Failed to modify the Offset.json file	Joint offset file error. Please contact technical support
1290	1	Failed to modify the offset.json.default file	Factory joint offset file error. Please contact technical support
1291	1	Failed to modify the offset.json.bak file	User joint offset backup file error. Please contact technical support
1292	1	Failed to modify the equipment_config.json file	Peripheral configuration file error. Please contact technical support
1293	1	Failed to modify the is_virtual.json file	Virtual axis file error. Please contact technical support

B.6 Other errors

ID	Level	Error description	Solution
1294	1	Enable failed	Enable failed. Please contact technical support
1295	1	CAN1 board offline	Joint offset file error. Please contact technical support.
1296	1	CAN2 board offline	Factory joint offset file error. Please contact technical support
1297	1	Position limit exceeded	Servo position limit exceeded. Please contact technical support
1298	1	Speed limit exceeded.	Servo speed limit exceeded. Please contact technical support
1299	1	Torque limit exceeded	Servo torque limit exceeded. Please contact technical support
1300	1	Zero calibration failed	Zero calibration failed. Please contact technical support
1301	1	Bus communication error	Bus communication error. Please contact technical support

ID	Level	Error description	Solution
1302	1	Failed to switch modes	Mode switch failed. Please contact technical support
1303	1	IMU zero calibration failed	IMU zero calibration failed. Please contact technical support
1304	1	Log file compression failed	Log file compression failed. Please contact technical support
1305	1	Joint offset modification failed	Joint offset modification failed. Please contact technical support
1306	1	Dexterous hand configuration file error	Dexterous hand configuration file error. Please contact technical support
1307	1	Position over-limit file error	Position limit file error. Please contact technical support
1308	1	Speed over-limit file error	Speed limit file error. Please contact technical support
1309	1	Torque over-limit file error	Torque limit file error. Please contact technical support
1310	1	Position over-limit file modification failed	Position over-limit file modification failed. Contact technical support engineer
1311	1	Speed over-limit file modification failed	Speed over-limit file modification failed. Contact technical support engineer
1312	1	Torque over-limit file modification failed	Torque over-limit file modification failed. Contact technical support engineer
1314	1	Failed to parse AtomOs.version file	AtomOs.version file parsing failed. Please contact technical support engineer
1315	1	Power heartbeat error	Power heartbeat error. Please contact technical support engineer
1316	1	Bms heartbeat error	Bms heartbeat error. Please contact technical support engineer
8752	1	Hardware overcurrent protection	The actual current value collected by the servo exceeds 90% of the hardware maximum sampling current. Check whether the hardware is functioning properly, or contact

ID	Level	Error description	Solution
			technical support engineer
8992	1	Software overcurrent protection	Power off and restart, or contact technical support engineer
9040	1	Module overload protection	Check if the hardware is functioning properly, or contact technical support engineer
9088	1	Zero-point current offset too large protection	Reset the zero-point current offset
12592	1	Driver input phase lost	Check if the hardware is functioning properly, or contact technical support engineer
12816	1	Voltage between PN is too high	The servo detects that the bus voltage exceeds the set threshold. Check whether the hardware is functioning properly, or contact technical support engineer
12832	1	Voltage between PN is too low	The servo detects that the bus voltage is below the set threshold. Check whether the hardware is functioning properly, or contact technical support engineer
12928	1	Servo and motor power matching error	Check if the hardware is functioning properly, or contact technical support engineer
13184	1	Driver output phase sequence error protection	Wire in the correct phase order
17168	1	Driver over-temperature protection	Check if the hardware is functioning properly, or contact technical support engineer
17169	1	Damaged or uninstalled temperature measuring resistors	Check if the hardware is functioning properly, or contact technical support engineer
21008	1	Driver board recognition error protection	Check if the hardware is functioning properly, or contact technical support engineer
21120	1	FPGA configuration error	System error, please contact technical support engineer

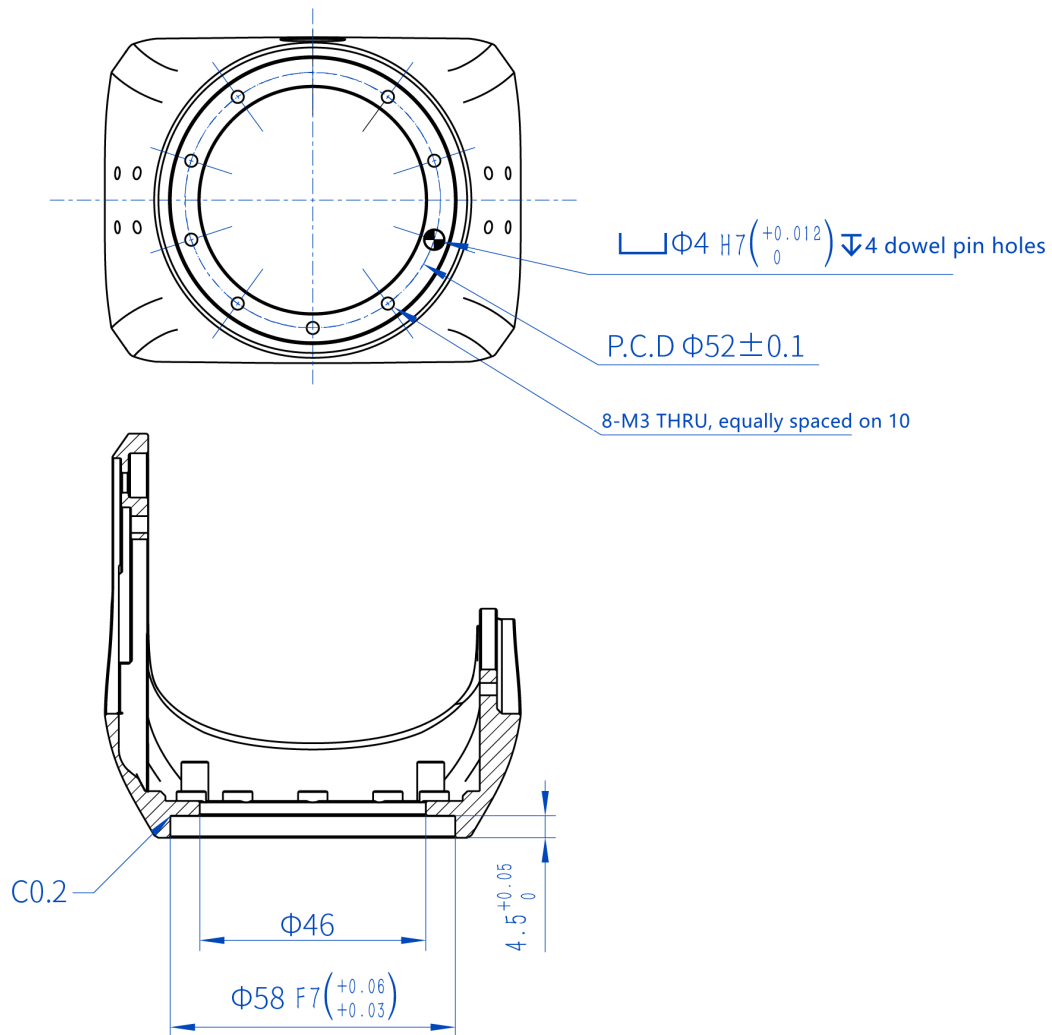
ID	Level	Error description	Solution
21121	1	Internal error	System error, please contact technical support engineer
21122	1	STO safety wiring error protection	System error, please contact technical support engineer
21569	1	Driver board connection error correction	Check if the hardware is functioning properly, or contact technical support engineer
25378	1	Repeated assignment of DI functions	Check the DI group parameters to ensure the same function is not assigned to multiple DIs
25379	1	DO function assignment exceeds limit	Check if the communication cables are securely connected
25382	1	Software position upper and lower limits setting error	Set the correct values for 0x607D-01h and 0x607D-02h
25383	1	Home position offset setting error	Set the correct values for 0x607D-01h and 0x607D-02h, and ensure that the origin offset value (0x607C) falls between them
28961	1	Stalled motor overheat protection	Check whether the brake is properly released or whether the motor is stuck due to mechanical failure
29056	1	Motor overload protection	Check whether the end load of the robot exceeds the robot's rated load, or contact the relevant technical personnel to replace the motor
29568	1	Encoder communication disconnection error protection	Check the encoder wiring, or replace/repair the encoder
29569	1	Encoder malfunction	Check if the hardware is functioning properly, or contact technical support engineer
29570	1	Encoder battery error protection	Please contact technical support engineer
29571	1	Encoder battery power supply error	System error, please contact technical support engineer
29572	1	Main encoder CRC check error	System error, please contact technical support engineer

ID	Level	Error description	Solution
29573	1	Auxiliary encoder disconnection error	System error, please contact technical support engineer
29574	1	Auxiliary encoder internal error	System error, please contact technical support engineer
29575	1	Auxiliary encoder CRC check error	System error, please contact technical support engineer
29576	1	PWM output buffer error	Replace the driver
29577	1	Brake power supply error	Check whether the brake is connected or damaged
29584	1	Large deviation of joint position	Check production parameters Check encoder installation Check the transmission mechanism
30080	1	Servo bus communication error	System error, please contact technical support engineer
30081	1	Unburned XML configuration file	System error, please contact technical support engineer
30082	1	Synchronization cycle configuration error	System error, please contact technical support engineer
30083	1	Master station synchronization signal lost	System error, please contact technical support engineer
30084	1	Excessive synchronization cycle error	System error, please contact technical support engineer
33920	1	Exceeding maximum speed protection	Check whether the motor wire sequence connection is correct
33921	1	Difference between the set speed and current speed exceeds the range	Check if the hardware is functioning properly, restart the controller, or contact technical support engineer
33922	1	Motor stall protection	Check whether the motor angle is normal or whether the motor is damaged
34321	1	Excessive position deviation protection	System error, please contact technical support engineer
34322	1	Position command out of	Enter the correct parameters

ID	Level	Error description	Solution
		range protection	
34323	1	Excessive deviation from fully closed-loop position	Check if the hardware is functioning properly, or contact technical support engineer
65282	1	Angle identification failure	Check if the hardware is functioning properly, or contact technical support engineer
65344	1	Parameter identification failure	Check if the hardware is functioning properly, or contact technical support engineer

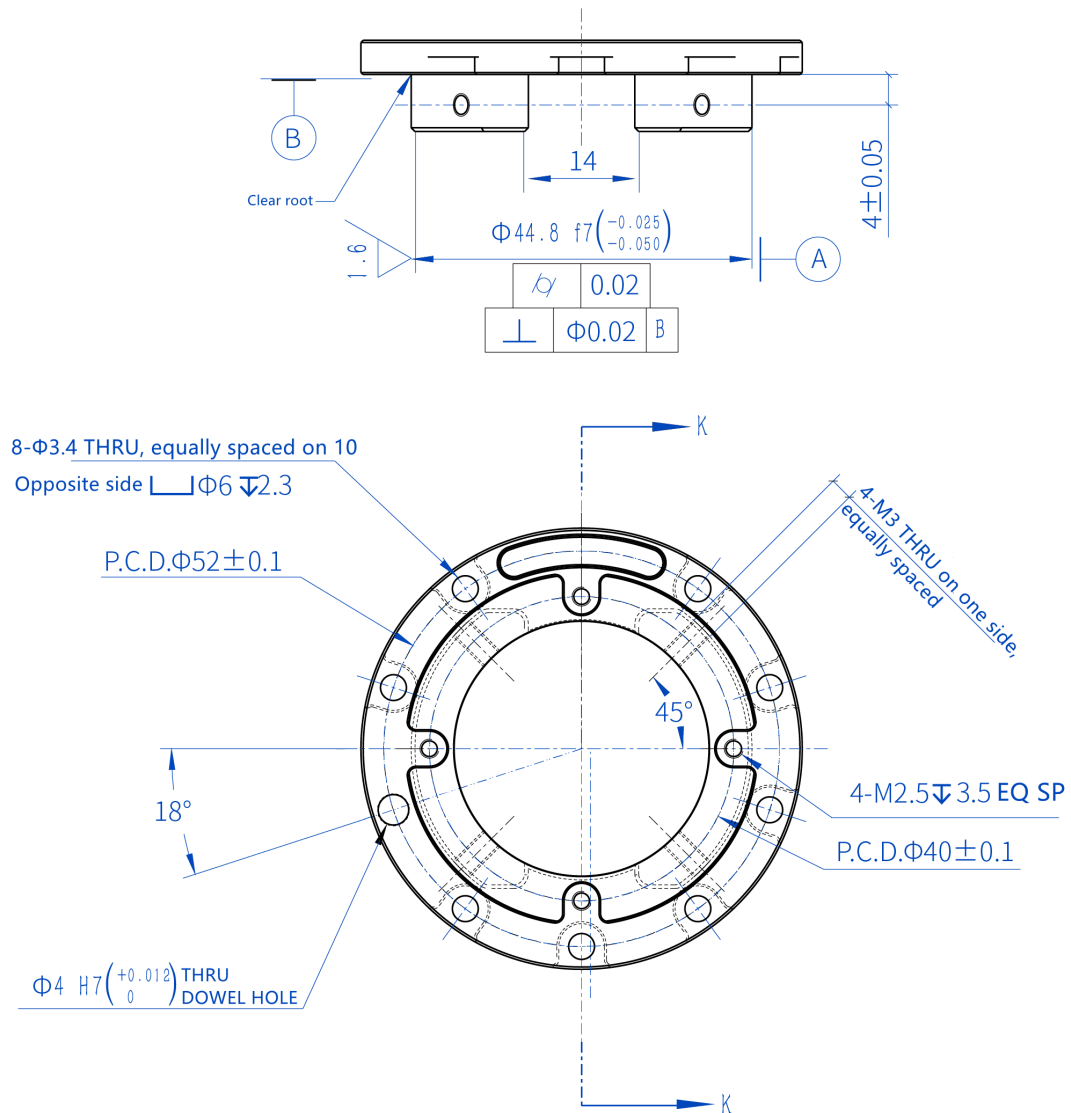
Appendix C End Flange Dimensions

C.1 Robot arm end flange



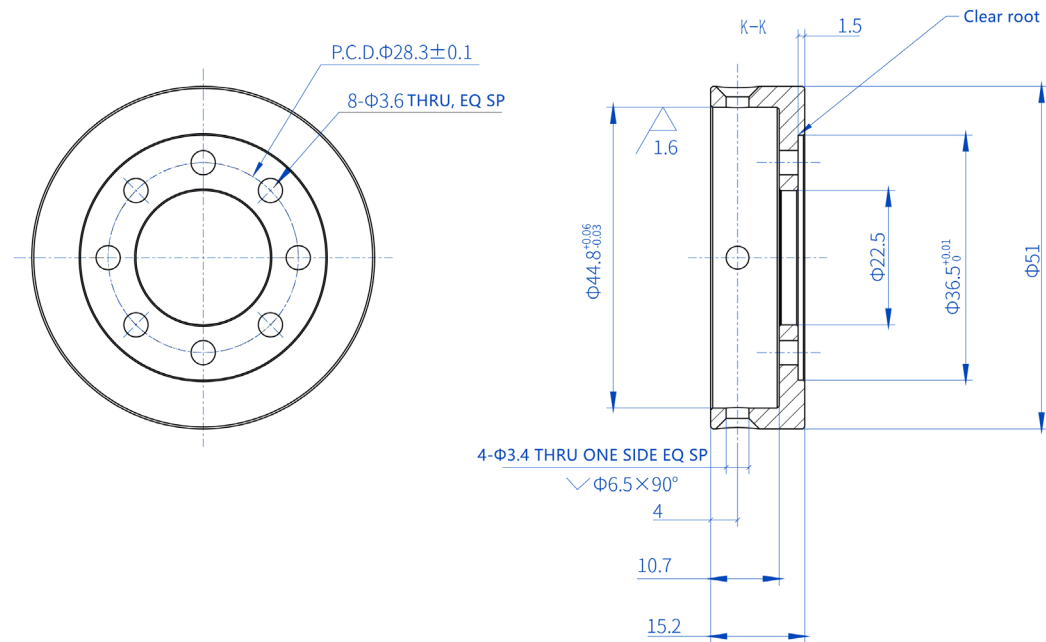
C.2 OYMotion dexterous hand (ROH-A001)

Unit: mm



C.3 LinkerBot dexterous hand (Linker Hand O6)

Unit: mm



C.4 DH-Robotics gripper (AG-160-95)

Unit: mm

