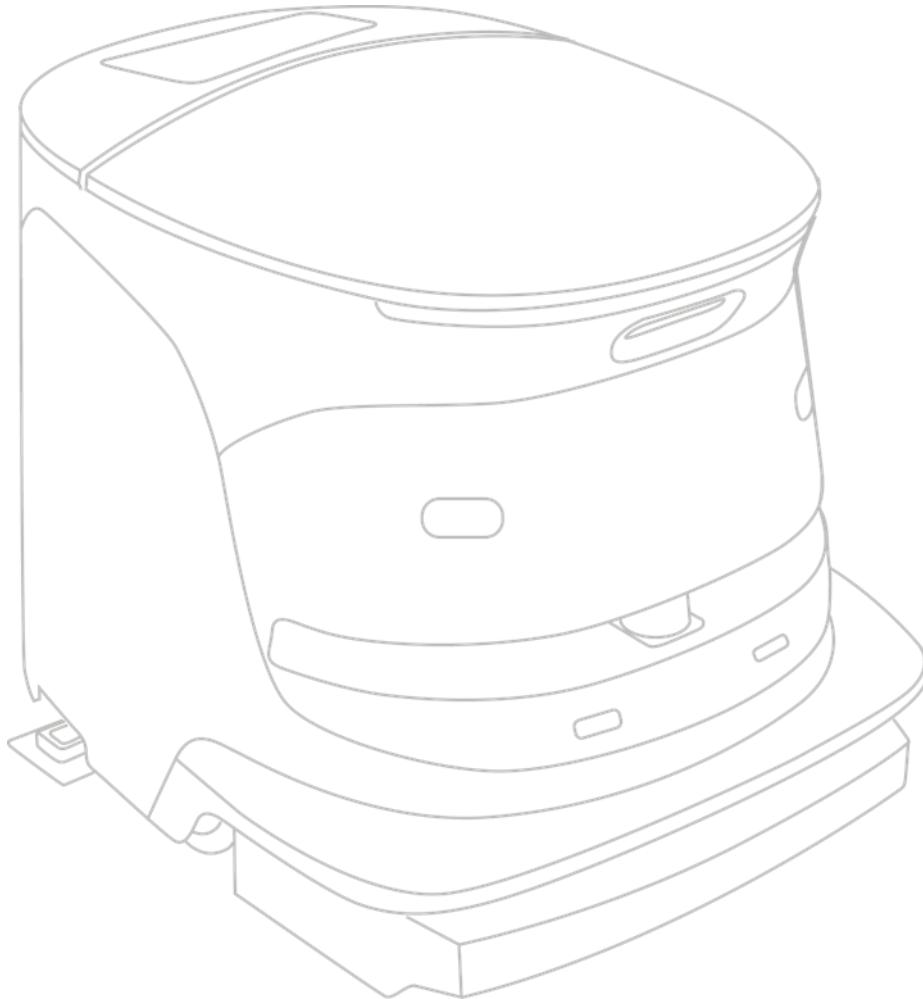


PRODUCT MANUAL



ALL-IN-ONE InstantClean Intelligent Cleaning Robot

Note: Please read this instruction manual carefully before using the product.

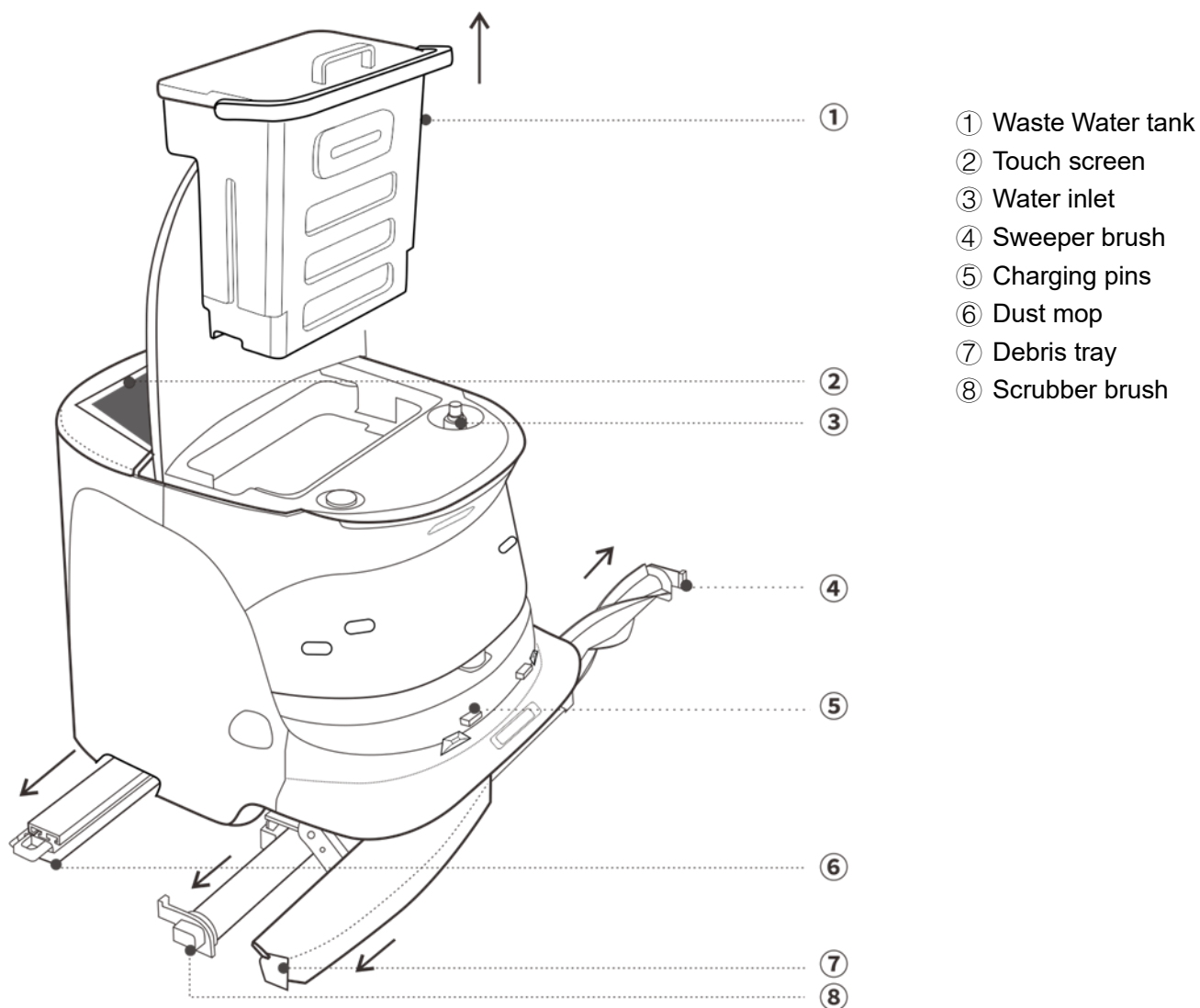
Latest updates may cause the actual operations to be different from the instructions provided by this manual. If you have any questions, please contact after-sales technical service.

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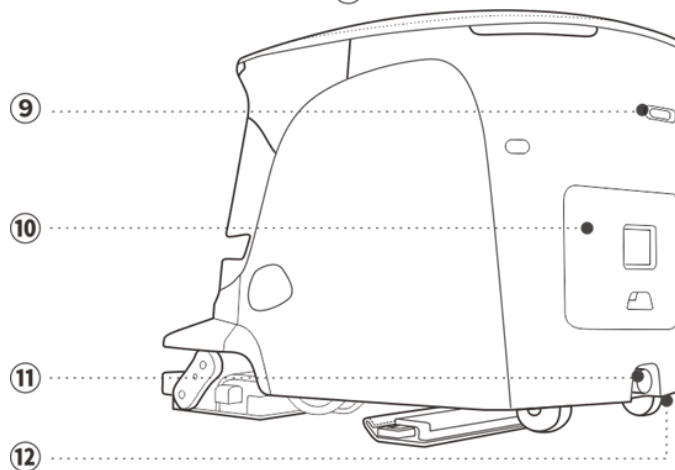
Product Introduction

1.1 Composition of Robot



- ⑨ IoT & Memory Card Slot
- ⑩ Maintenance port
- ⑪ Emergency stop button
- ⑫ Power switch

For details on sensor distribution, please refer to the Product Specifications part.

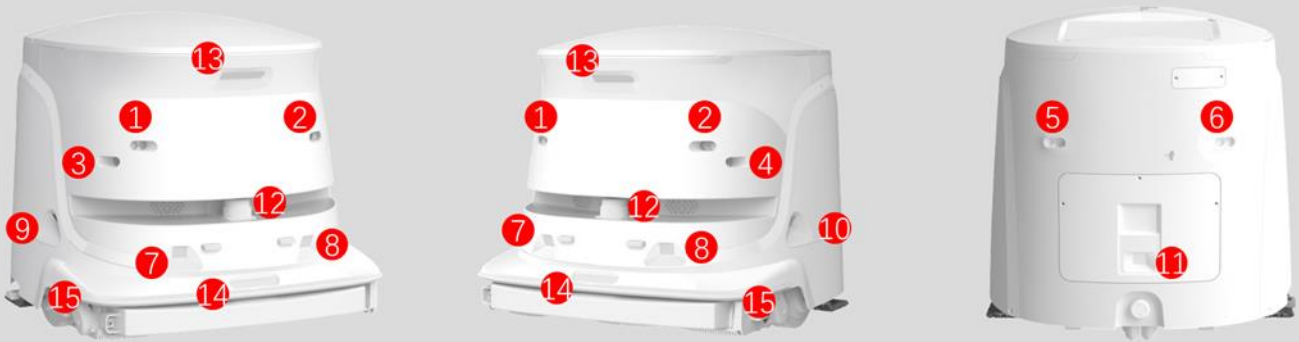


1.2 Product Specifications

Model		S55
Dimension		650mm*580mm*550mm (L*W*H)
Weight(without water)		70kg
Cleaning Performance	Modes & Efficiency	Standard Scrub: ~1197 m ² /h
		Power Scrub: ~1197 m ² /h
		Standard Sweep & Vacuum: ~1368 m ² /h
		Eco Sweep & Vacuum: ~1368 m ² /h
		Sweep, Vacuum & Mop: ~1368 m ² /h
		Standard Dust Mop: ~1368 m ² /h
	Mode Switching	Supports quick switch without replacing cleaning components
	Maximum Suction Power	15 KPa
	Cleaning Width	Scrub Mode: 520mm (Brush Width)
		Mop Mode: 540mm (Dust Mop Width) / 580mm (Optional)
	Edge Cleaning	10cm *The actual distance may vary depending on the environment and deployment situation
	Clear Water Tank	22L
	Waste Water Tank	15L
	Water Runtime	Standard Scrub: 4.5h
Power Scrub: 2.5h		
Debris Tray	1L	
Cleaning Components Quick Replacement	Supported	
Appearance	Material	ABS
	Color	Black & Silver, Black & White
	Water & Dust Proof Level	IP43
Embedded Screen	Screen Size	10.1 Inches
	Resolution	1920*1200
Wireless Communication	4G	LTE Cat4
	WiFi	802.11b/g/n/ac
Dynamic System	Gradability	Max Climbing Angle: 6° Max Operating Angle: 8°
	Obstacle Crossing	Non-Cleaning & Standard Mop Mode: 20mm Other Modes: 5mm *Not recommended for frequent use in environments with raised or uneven ground
	Gap Crossing	35mm
	Passability	Minimum 700mm (Doors、 Gates, or aisle within 1 meter in length)

	Default Speed	Standard / Power Scrub: 0.6m/s Standard Sweep & Vacuum / Eco Sweep & Vacuum / Sweep Vacuum & Mop: 0.7m/s Standard Dust Mop: 0.8m/s Non-Cleaning Moving: 1.2m/s
	Max Speed	1.2m/s
	Applicable Floorings	Marble / Terrazzo / Ceramic Tiles / PVC / Short Pile Carpet (<5.5mm), etc
HEPA	HEPA	H13 (99.97%)
Charging System	Battery Cell Material	Lithium Iron Phosphate
	Battery Rated Voltage & Capacity	25.6V / 40Ah
	Standard Runtime (From 100% to 10% Battery Capacity)	Standard Scrub: 4.5h Power Scrub: 3.5h Standard Sweep & Vacuum & Sweep Vacuum & Mop: 4.5h Eco Sweep & Vacuum: 19.5h Standard Dust Mop: 28h
	Charger	Electrode Contact Charger in Front 100-240V AC
	Charging Time	<4h
	Charging Method	Automatically Recharge when the Battery Capacity is 10%
	Battery Life	2000 Charge and Discharge Cycles
Noise	Working Noise	Scrub: 55dB Mop: 45dB
Other Modules	Speakers	Dual Speakers Supports Voice Reminders, Broadcasting and Working Music
	Emergency Stop Button	Located below the rear end of the Robot
	Power Switch	Located on the bottom right side of the Emergency Stop Button
	Light Strip	Front and rear light strips. Supports signaling in colors and flashes
Path Planning & Navigation	Cleaning Path	Zigzag
	Perception Methods and Range	Multi Sensors with 360 ° Fusion Perception. Perception Range: 0.02-50m *Detailed sensor specifications can be found in the sensor section table below
Working Environment	Working Conditions	Temperature 0~40 ° Humidity 5%~85% RH Altitude below 2000m
	Terrain Limitations	Minimum area requirement for creating a cleaning area: >5 square meters Minimum area for path generation within the cleaning area: 1 * 1m (L * W)
Software Applications	In-Robot APP	Supported
	Website Server	Supported

Sensor Specifications



No.	Sensor	Location	Installation Height	Measuring Range	FOV
1	Ultrasound	Front	34.5cm	0.02~0.25m (0.3m)	60°
2	Ultrasound	Front			
3	Ultrasound	Front	31.7 cm		
4	Ultrasound	Front	35.2cm		
5	Ultrasound	Rear			
6	Ultrasound	Rear			
7	Solid State Line Laser	Front	17.1cm	0.025-0.3m	50°
8	Solid State Line Laser	Front	21.1cm	0.025-0.3m	
9	Solid State Line Laser	Left			
10	Solid State Line Laser	Right			
11	Solid State Line Laser	Rear	17.1cm	0.025-0.3m	
12	LiDAR	Front	23.7cm	0.05 ~ 50m	± 108.8°
13	Depth Camera	Front	46cm	0.2~4m	H73.8° V58.8° D86.4°
14	Depth Camera	Front	15.8cm		
15	Bumper strip	Front	14.2cm	/	/

1.3 What's In The Box

ITEM	QUANTITY	PLACEMENT
Cleaning Robot	1	Inside the Packaging Box
Scrubber Brush	1	Installed on the Robot
Sweeper Brush	1	Installed on the Robot
Debris Tray	1	Installed on the Robot
HEPA Filter	1	Installed on the Robot
Waste Water Tank with Lid	1	Installed on the Robot
Mop Pad	1	Installed on the Robot
Maintenance Brush	1	Inside the Waste Water Tank
Cleaning Brush	1	Inside the Waste Water Tank
Funnel	1	Inside the Waste Water Tank
Mop Pad	4	Inside the Waste Water Tank
Charging Dock	1	Styrofoam (Top)
HEPA Filter	5	Styrofoam (Top)
Quick Guide	1	Styrofoam (Top)
Water Hose (with Connector)	1	Styrofoam (Top)
Power Cord	1	Styrofoam (Top)
Remote Control	1	Styrofoam (Top)
Remote Control Battery	2	Styrofoam (Top)
Remote Control USB-A	1	Installed on the Robot
Charging Dock Tray	1	Styrofoam (Top)
Tool Kit (5 screws & 2 wrenches included)	1(set)	Styrofoam (Top)
Certificate of Compliance	1	Styrofoam (Top)

**The actual items received may be different than the items listed above, please refer to the actual items received.*

Precautions Before Use

2.1 About Safety Instructions

READ AND UNDERSTAND THESE SAFETY WARNINGS AND ALL INSTRUCTIONS PRIOR TO UNPACKING AND USING THE MACHINE.

Warnings presented here are intended to warn the user of potential harm to the user and other people as well as damage to property. Always adhere to them to reduce the potential for harm. This manual also provides safety warnings, correct handling procedures, and other regulatory information for using the machine, battery, and battery charger. The warnings provided in this manual do not cover all possible situations that may arise. The safety of pedestrians and people in the surroundings will be the first priority in any circumstances (such as when the machine does not operate properly, when the machine has tripped over, etc.).

Always adhere to warnings regarding machine installation, maintenance, and use and store this manual where it can always be referred to. iKitbot operators are advised to take normal health and safety precautions suitable for their environment.

In the following emergencies, immediately press the emergency stop button and turn off the main power switch.

- The machine is in a hazardous state (example: emitting smoke, is inoperable, has fallen over, etc.)
- The machine comes close to inflicting harm on surrounding people or things.
- The machine is operating (behaving) unpredictably or is operating in a manner that is inconsistent with this manual.

2.2 Description of Symbols & Pictorial Indication

Please be sure you understand these symbols and their correlating meanings before reading the remainder of this manual.

- **Danger:** Indicates "content that is highly likely to cause death or serious injury to people."
- **Warning:** Indicates "content that may cause death or serious injury."
- **Caution:** Indicates "content that may cause minor personal injury or property damage."
- **Note:** Indicates a potentially hazardous situation that could result in property damage or damage to equipment.

Please follow all warnings and instructions marked on the equipment and in the manual.

DANGER

WARNING

CAUTION

NOTE

2.3 Safety Instructions Before Use

This robotic device is a commercial cleaning robot intended for indoor environments. Please read and follow the instructions below carefully.

WARNING

- Do not use the robot immediately after an extreme temperature change (such as moving from a cold outdoor environment to a warm indoor environment).
- Do not use the robot in dusty, humid, rainy, dusty environments or near magnetic fields.
- Do not use the robot during thunderstorms or lightning weather.
- Do not use the robot in an environment that is flammable, explosive, or near a heat source. Avoid exposing the robot to direct sunlight for a long time.

CAUTION

- Avoid using the robot in areas surrounded by glass doors, glass walls, or glass floors.
- Avoid using the robot in narrow spaces (the robot can automatically avoid chairs and tables with a height of 0.6~0.8m).
- Avoid using the robot where there are low hanging objects or decorations (the objects or decorations should be >500mm higher than the robot).
- Avoid using the robot where there are loose cables and hoses.
- Avoid using the robot in places with stairs, steps or height differences >5cm.
- Avoid operating in single-lane aisles that are too narrow.
- Avoid starting the robot too close to obstacles (it is recommended to keep it within a radius of 2m).
- Avoid using robots during busy times.
- This cleaning robot is suitable for cleaning the following floor materials: epoxy floor, ceramic tile, marble, wooden floor and other hard floors.
- This cleaning robot is not suitable for cleaning the following types of garbage: small particles and fine dust; garbage higher than 2cm; soft water
- pipes or loose wires, etc. Forcibly cleaning the above types of garbage will cause damage to the machine.

NOTE

- Please use the robot within the temperature range of 5°C ~40°C, and store the device and its accessories within the temperature range of 0°C ~50°C.
- The floor of the robot's operating area should be solid, smooth, and flat. It is not recommended to use the robot on carpets (longer than 5.5mm), soft or grooved floors, or outdoors, as this will reduce the robot's performance or cause the robot to fall.
- Since the robot can move and perform various actions autonomously, please pay special attention: Do not move on a sloped surface to prevent accidental tipping or uncontrolled operation of the robot, which may cause personal injury, damage to the robot, and damage to equipment, facilities, and items. If the robot is moving on a sloped road, it needs to be supervised by a dedicated person. Do not use

the robot in an environment that is flammable, explosive, or near a heat source.

- Please pay attention to the locations with stairs or steps, and avoid moving the robot in such areas to prevent it from falling.
- When using full glass doors or full glass walls, please be sure to attach a safety and recognizable sign between 22cm and 25cm from the ground. People (especially children) should keep a safe distance from the robot (more than 1 meter away from the robot) to prevent personal injury or robot damage caused by the operation of the robot. Provide the robot with sufficient movement space to prevent collision with surrounding objects and damage to the robot or surrounding objects.

2.4 Robot Operation

WARNING

- Do not allow liquids or any foreign objects to come into contact with the robot's charging metal plates.
- Be careful not to allow dust to adhere to the LiDAR sensor, depth camera, or other sensors.
- Do not cover the robot's sensors.
- When using automatic cleaning mode, ensure that the operator can respond promptly to alerts or notifications received on the app.
- When using the robot, make sure its wheels are always in contact with the ground.
- In areas where the robot cannot be operated or moved due to lack of power, move the robot to a safer location.
- Do not perform any operations not specified in this manual.
- Only use the battery charger provided with your robot to charge your robot's batteries.
- Do not place any decorations that may obstruct the operation of the robot or the emergency stop button.
- When replacing the sweeper brush, scrubbing brush, dust mop, or emptying the debris tray, please lower the cleaning mechanism before operating.
- Before starting the cleaning task, make sure the HEPA filter is properly installed to avoid dust contamination and damage inside the machine.
- Do not use a pressure washer to clean the robot.
- Do not use the Robot to collect hazardous or explosive waste.
- When lifting the robot off the floor, always use two people at the same time.
- Do not allow infants, children, or pets to approach the robot, or place their feet or hands near the bottom of the robot while it is operating.
- Be careful not to allow babies, children or pets to come into contact with the robot.
- Do not tilt or move the robot while there is water in the tank.
- Do not apply excessive pressure to the screen or any surface of the robot to avoid damage.
- Do not drop, drop, compress, bend, poke, cut, microwave, burn, or paint your robot.
- Do not move the robot on a slope to avoid tripping and causing injury or damage.

CAUTION

- This cleaning robot is for indoor use only.
- This cleaning robot can only be stored indoors.
- Lifting and long-distance movement must be performed with the machine turned off. Lifting or moving the machine in emergency stop state can easily cause the machine to lose its position. Use the auxiliary positioning function to regain the position before restarting the task.
- Do not attempt to disassemble the robot. Only authorized professionals are allowed to do so.
- If the cleaning mechanism is clogged with garbage or entangled, please be sure to perform the cleaning operation under the guidance of a professional and do not forcibly pull or pull to damage the cleaning mechanism.
- To ensure product reliability and safety, please use only authorized accessories.
- This device is not intended for use by physically or mentally challenged persons (including children), or operators who lack experience and knowledge. If the robot falls over, press the emergency stop button and then turn off the robot's main power switch.
- Do not insert any objects into the robot.
- When using the water filling pipe to fill the clean water tank, please note that the water pressure requirement is 0.05MPa (minimum) and 0.8MPa (maximum).
- Use room temperature water not exceeding 60°C for cleaning.
- If the robot does not operate normally (abnormal sound, smell, voice, smoke, etc.), please immediately press the emergency stop button to stop the robot operation, turn off the main power switch, and contact customer support.

2.5 Battery and Charging Dock

DANGER

- Before using the charging dock, please make sure you fully understand the contents of this manual and operate it correctly.
- Please use a power supply with proper grounding that complies with local laws and regulations and the requirements of this manual; otherwise, electric shock may occur to personnel and the robot may be damaged.
- Do not smoke near batteries or place objects near batteries that may cause flames or sparks.
- Do not connect the charging contact piece to other metal objects.
- Improper handling of the battery may cause battery explosion, fire, leakage, corrosion, etc. If there is liquid leakage from the battery or charging dock, do not touch it with your bare hands.
- It is forbidden to touch or operate the robot while it is charging.
- Do not drop or hit the charging dock.

WARNING

- Make sure the ground where the charging dock is deployed is flat, without any bumps or slopes.
- Make sure that the charging dock is not deployed in a dark and humid place. An overly humid environment may cause damage to the internal circuits or electronic components of the charging dock.
- AC power cord and charging dock configured with the robot to charge the robot.
- Please use the matching charging dock to charge the robot.
- Do not use the charging dock to charge other devices.
- Make sure not to cover the charging dock with fabric, etc. to maintain adequate heat dissipation. Do not use or place near heat sources or in direct sunlight.
- Check whether the voltage provided is suitable for the charging dock.
- Make sure there is no foreign matter or other objects adhering to the charging dock.
- Do not use the charger or power cord if it is damaged.
- If not in use for a long time or for maintenance, be sure to unplug the charging dock from the socket.
- If the charger does not work properly, takes longer than usual to charge, or produces sparks, smoke, or strange smells, please unplug it from the socket immediately and contact customer support.
- Do not step on or subject the power cord to excessive force while it is connected to the charging dock.
- If you hear thunder, unplug the charger from the socket.
- The charging dock may become hot, so please be careful when handling it during or after charging.
- If you do not use the robot for a long time, it is recommended that you charge it every 15 days or so to ensure that the battery is always in the best condition.

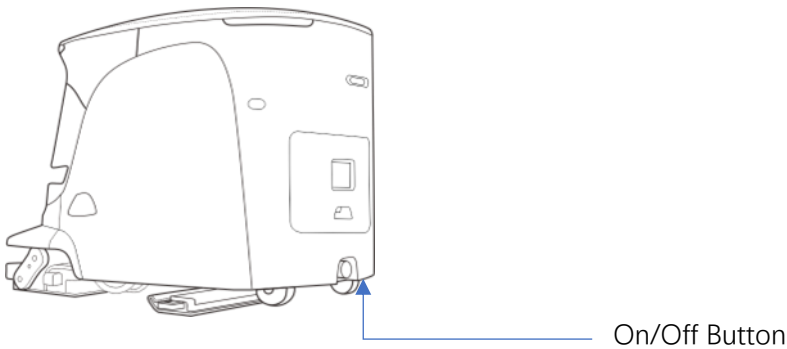
CAUTION

- The charging dock layout area must be close to the wall and open within a radius of 2 meters.
- Do not drop, step on, or place objects on the charger, whether it is connected or not. Do not use it where it may be stepped on.
- When unplugging the power plug, be sure to hold the plug body instead of the power cord. Do not unplug the charging dock by pulling the power cable.

Basic Functions and Buttons

3.1 Power On and Off

The on/off button is located on the lower right side of the emergency stop button on the back, as shown in the figure below. The on/off button is a round metal button. To prevent accidental touch, the on/off button position is designed to be relatively hidden, and the on/off button position can be found by touching it with your hand.



Power on: Press the switch button once to start the machine.

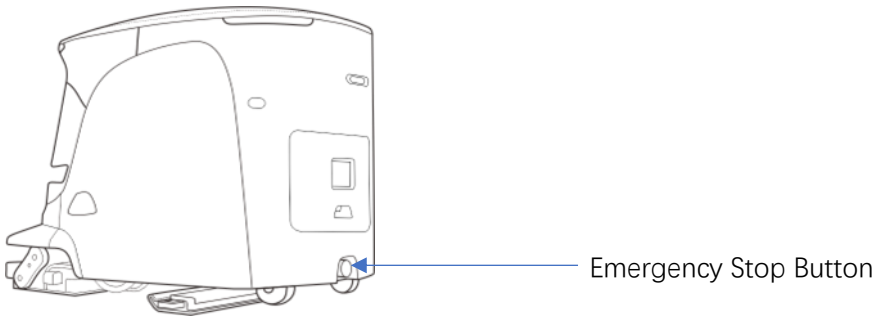
Power off: Press the switch button once to turn off the machine.

Reminder: You can click on the shutdown button on the touch screen. It is recommended to use the software to shut down the machine. In the upper left corner of the software homepage, click the user avatar and a pop-up window will appear. In this pop-up window, you can choose to shut down, restart, and self-check.

3.2 Emergency Stop Button

The emergency stop button can stop the machine immediately in any state and unlock the wheel hub, so that the machine can be pushed manually.

The emergency stop button is located at the bottom back of the machine, as shown in the figure below.



How to use the emergency button

- Press: In an emergency, press the button to stop the machine, unlock the wheel hub, and the machine can be pushed
- Release (rotate to the right and gently pull out): release the machine from emergency stop, the wheel hub is locked, and the machine cannot be pushed

Emergency stop button usage:

- The machine needs to stop when it encounters an emergency during operation
- Need to temporarily push the machine

CAUTION

- Do not press or hit the emergency stop button too hard to avoid damage.
- In non-emergency situations, you can "Pause Task" using the touch screen.

3.3 Charging Dock

Connect the charging dock to the power source and press the charging dock power switch on the side. For the environmental requirements for deploying the charging dock, please refer to Section 4.1 (Preparation). Push the machine to the charging dock and align the metal pins of the machine with the electrode of the charging dock to start charging. If the machine is in the off state, when the machine is on the charging dock, it will be forced to start the machine automatically (turn on).

Lighting on the charging dock

- Green: The charging dock is powered on and the machine is being charged
- Blue: The charging dock is powered but not charging.



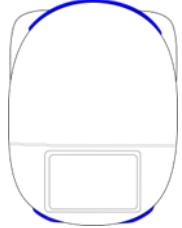



Green indicator light on



Blue indicator light on

3.4 Indicator Light Strip

There are two sets of light strips on the front and back of the machine, which will flash in different colors to remind you when the machine is working.

	
Solid blue: Not charging, in standby mode, cleaning mode in progress	Solid green: Charging
	
Flashing on one side: Turn reminder	Red: Emergency stop status and other alarms

Deployment

4.1 Preparation

4.1.1 Install Charging Dock

Before installing the charging dock, please pay attention to the following installation

CAUTION

requirements:

- Power supply: Choose an installation location that has a power socket nearby and is not too far from the power socket to facilitate power supply from the charging dock.
- Floor: The floor should be flat and smooth for easy installation, not prone to shaking, and easy for the robot to reach.
- Wall: The wall on which the back is fixed must be flat, firm and not easy to loosen.
- Space: Reserve at least 2 x 2m of space at the charging dock, and there should be no obstacles in the surrounding space to ensure that the robot can leave and return to the dock normally. Try to choose a location with few pedestrians or a protected area.

NOTE

- It must be used in an indoor environment, not in outdoor places.
- Do not choose a location with strong light or direct sunlight.
- Do not choose a location with direct light sources, such as light strips, spotlights, etc.
- Within the height range of the charging dock, try not to place reflective objects such as glass, mirrors, etc. on the surrounding walls.
- If the back panel of the charging dock is made of glazed tiles and painted wood, it is necessary to verify the recharging of the machine on site. If the recharging fails, the charging dock location needs to be changed.

Take out the charging dock and power cord from the box, connect the charging dock to the power source, and the blue light will be on. For the settings of the charging dock on the machine APP, please refer to section <4.2 Map Management>. After completing the settings of the charging dock on the APP, the machine can automatically return to the charging dock for charging after completing a task or using Navigation feature.

4.1.2 Prepare the Machine

① Visual Inspection

Check the appearance of the machine for obvious scratches or cracks, including the top cover, left and right-side shells, front and back shells, and all random accessories.

② Accessories

When unpacking, the following parts have been installed inside the machine. Please check them one by one:

- Sweeper brush
- Scrubber brush
- Debris tray
- Dust mop
- Waste water tank (with HEPA)
- Dust bag (if any)



Sweeper brush



Scrubber brush



Debris tray



Dust mop



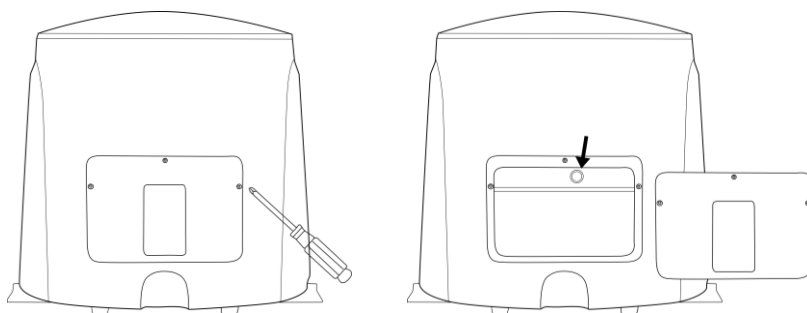
Waste water tank



Dust bag (if any)

③ Turn on the Battery Switch

Normally, the battery power inside the machine will be turned off to ensure transportation safety when the machine leaves the factory. Before starting the machine, you need to open the maintenance cover at the back of the machine to turn on the battery power.



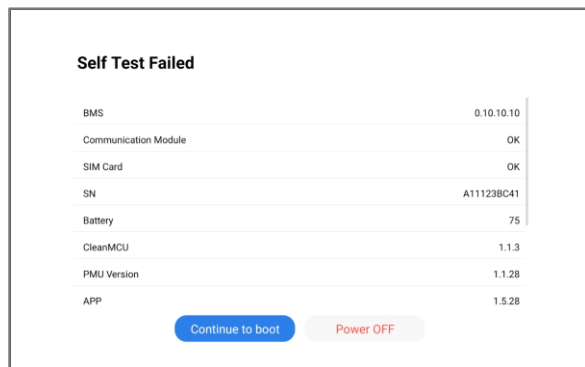
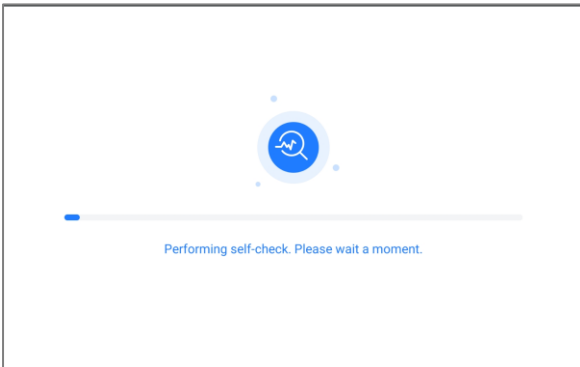
- Use the provided Phillips screw tool to open the back cover of the machine.
- There is a physical switch on the machine battery.
- If the battery switch is not turned on, the device cannot be turned on even if it is pushed onto a charging dock for charging.

④ Start the Machine

After turning on the battery switch, you can try to start the machine directly. For the startup method, please refer to section <3.1 Power on and off>. Or push the machine onto the charging dock for automatic forced startup.

⑤ Self-Test

When you start the machine, it will perform a self-check to ensure that the internal hardware is in good condition. After the self-check is complete, you will be taken to the login interface. If an alarm or error occurs during the self-check, please contact the after-sales technician immediately.



⑥ Check the Battery Level

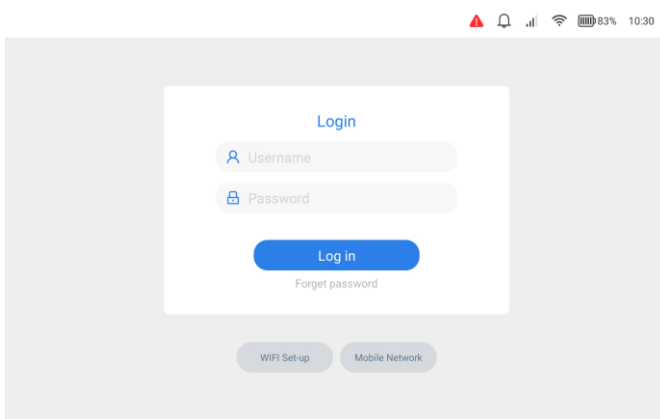
After turning on the device, check the battery level on the display. If the battery level is less than 20%, charge it to at least 45% before proceeding.

Power and operation

- the machine power is less than 5%, it will automatically shut down.
- the machine battery is less than 10%, no new tasks can be executed.
- the battery level of the machine is lower than 10%, the current task ends and the machine automatically returns to charging.

4.1.3 Connect Network

When using the machine for the first time, you can connect via WLAN or 4G network. In some cases, the machine will come with a SIM card and can be for local use. If the machine is not equipped with a SIM card or needs to use another SIM card, please consult the local network operator to set up the APN.



At the bottom of the login page, you can choose to enter the WiFi and 4G network settings

WLAN

- a) Click to enter WLAN settings
- b) Connect to a WIFI hotspot with good signal in the venue
- c) Go back to the Cleanbot APP login page and check if the WIFI signal appears in the upper right corner, which means the connection is successful.

4G Network

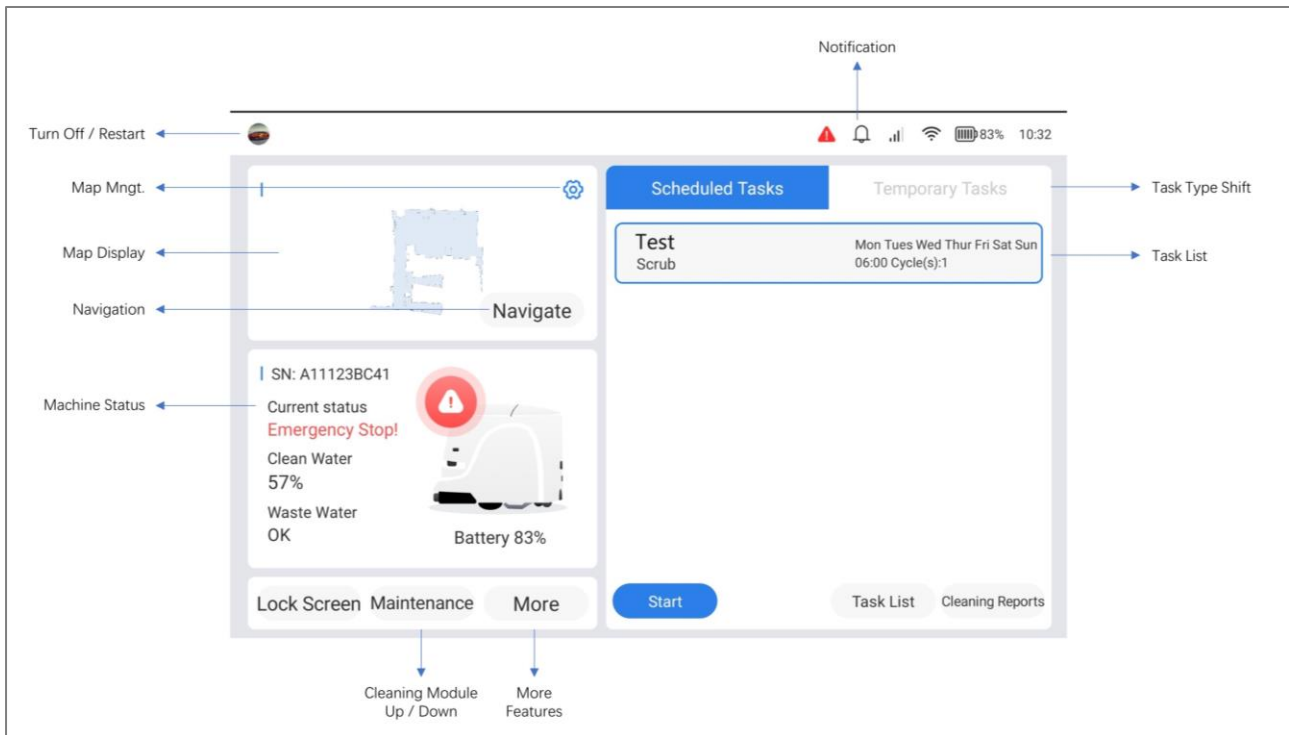
- a) Click to enter 4G network settings
- b) Add APN by following region categories
 - For Japan, please add APN and set the APN item to [ctm-mobile]
 - For Europe and America, please add APN and set the APN item to [data64100 3]
 - In Mainland China, no APN setting is required
- c) After setting, click [Save]
- d) Go back to the Clean APP login page and check if the 4G signal appears in the upper right corner, which means the connection is successful.

4.1.4 User Login

Please contact the sales representative or after-sales technical service for the required machine login username and password. If you forget your user password, please contact after-sales technical service immediately to recover the password.

4.1.5 Home Page

Home page layout and some features:



The home page of the machine APP has many functions, which is convenient for daily operation. The functions of the home page are roughly divided into 4 areas:

① Status Bar

The top status bar displays the logged-in user information, alarm center, 4G network, WLAN, battery and time information. Click the user portrait to enter the pop-up window to select the restart and shutdown functions. Click the alarm center to view recent alarm notifications.

② Map

This area displays the map where the real-time task is located. Click the gear button to enter the map management interface. The one-key navigation function can quickly command the machine to go to the charging dock and other docking points.

③ Machine Status

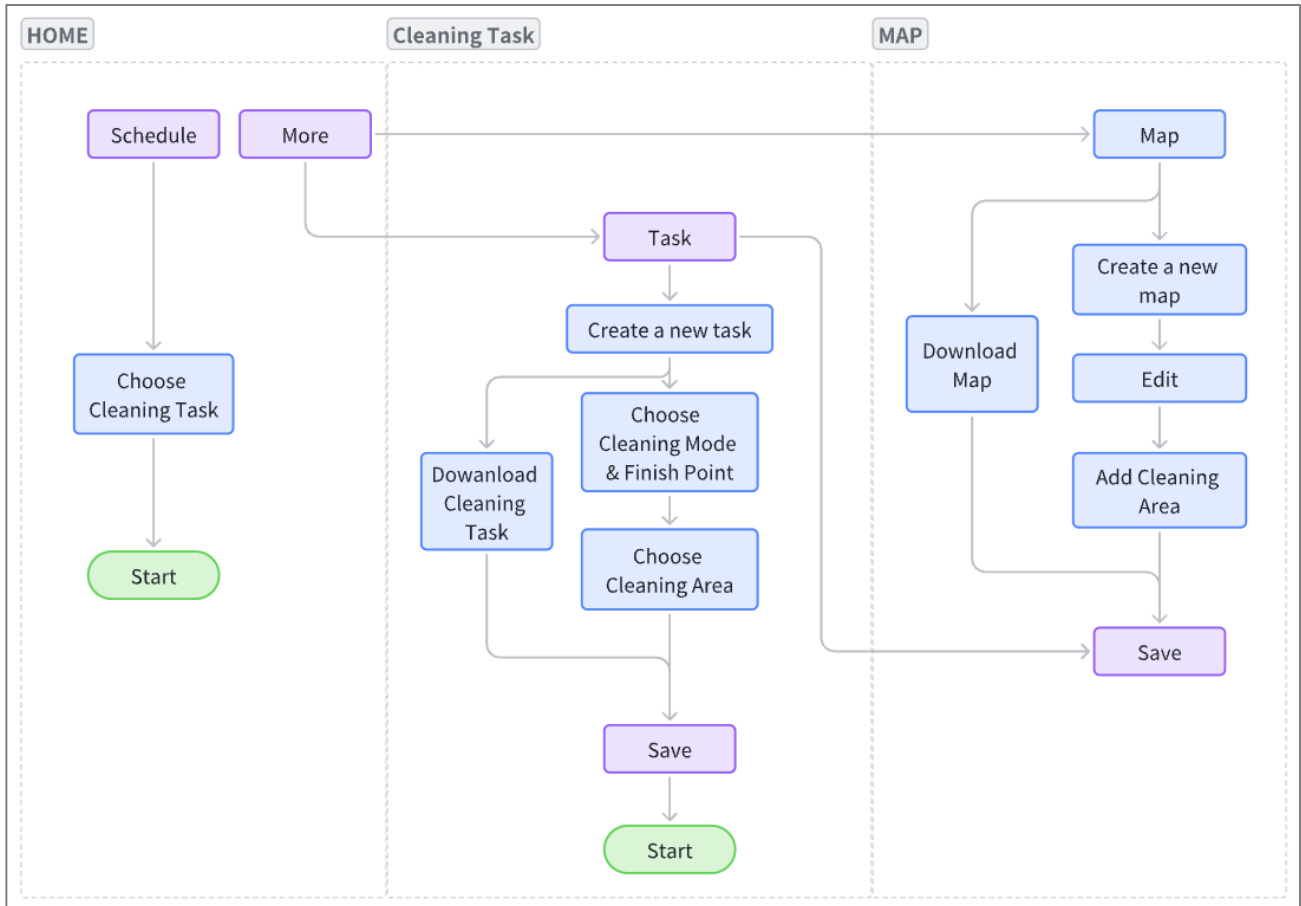
This area displays the real-time status of the machine. You can decide whether further operation is needed on the machine based on various indicators, such as sewage treatment, maintenance of parts, etc. Click the "Maintenance" button below to lower the cleaning mechanism in front of the machine to maintain the roller brush and debris tray. Please follow the prompts of the APP.

④ Tasks

This area contains two types of task lists: scheduled tasks and temporary tasks. You can switch between

them by clicking the tabs above the list. Select a task in the list and click "Start Task" below to start the task directly. If you need to modify the configuration of a task, you need to click Task Management below to enter the corresponding scheduled/temporary task management interface to make the modification. Once the machine is ready, you can start creating and managing maps and missions.

The map and task management logic of this product is shown below:



4.2 Map Management

Before using the machine, you need to create a map. The map is obtained by using the LiDAR to scan the environment, and the machine can be controlled manually or remotely to scan the environment. There are two ways to create a map:

1. Directly create a new map
 - a) Create a new map in map management
2. Download maps from the cloud
 - a) The map can only be downloaded after the same robot has been operating normally at the venue to ensure the accuracy of the map.
 - b) Functional points and floor information in the map will also be downloaded.

4.2.1 Create a Map

Environment

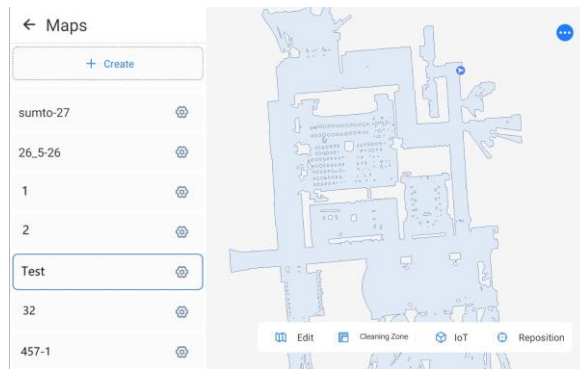
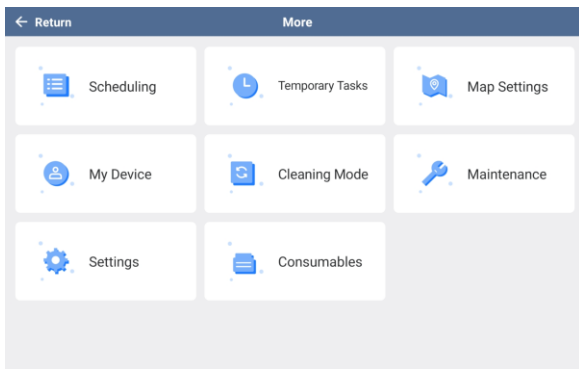
Before scanning the environment, make sure the environment is clear and there are no temporary obstacles in the area, such as temporary furniture, electrical appliances, etc. If there are temporary obstacles in the venue, you need to edit the map after completing the map scan and delete these temporary obstacles on the map.

Initial Point Selection

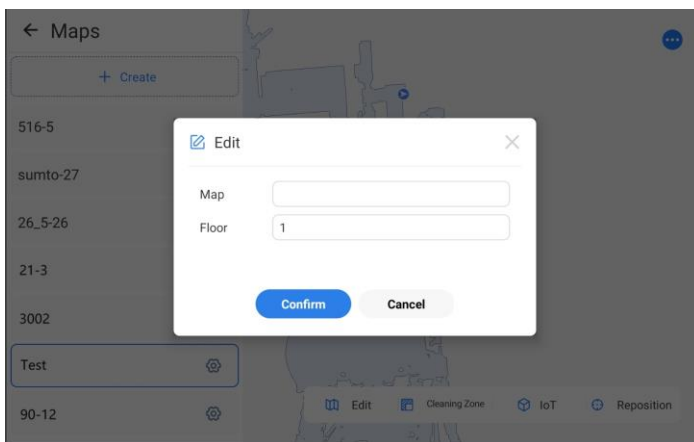
- Try to start mapping at a location that has abundant feature points, is fixed, and is close to the center of the scene, such as a fixed wall or a corner.
- Do not start mapping near movable flower pots/shelves, doorways that may be opened at any time, near high-reflection obstacles, or in corridors without obvious eigenvalues.
- Don't start drawing directly facing the transparent glass.
- After finding a suitable starting point, adjust the direction of the machine so that its head faces the long straight wall vertically. This will create a more regularly-shaped map.

Scanning Steps

- 1) Press the emergency stop button and push the machine to the initial point. After reaching the initial point, release the emergency stop button.
- 2) On the home page, click [More] - [Map Management] - [Create] to start creating a map.



- 3) Enter the map name and floor information to start drawing the map. At this point, you can push the machine directly or control the machine with a remote control to scan and create the map.



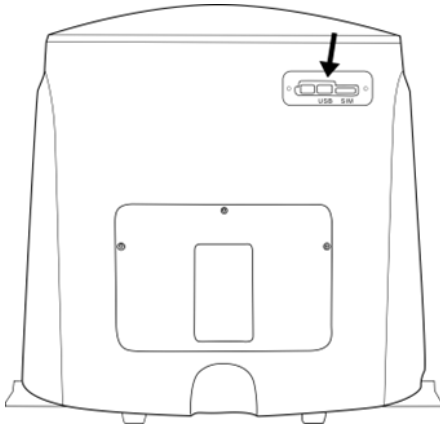
Manual Mode: Push the machine directly to scan. Please note that when pushing the machine to scan, the operator must stand behind the machine and there must be no obstructions at the front LiDAR position.

Remote Control Mode: Please activate the Remote Control Mode as follows.

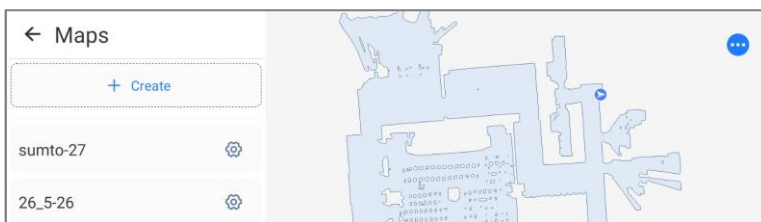
Remote control buttons



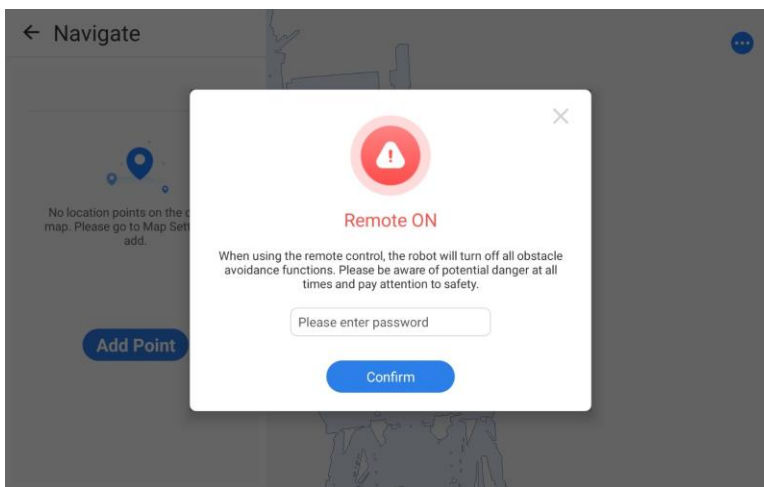
- a) The remote control USB stick has been pre-inserted into the slot (next to the SIM slot)



b) On the robot screen, click [More] - [Map Settings] - [New Map]



- c) Find the switch on the remote control and turn it on. The power indicator on the remote control will light up.
- d) Click [Remote Control] in the upper right corner of the screen and enter the initial password [123456] to start using the remote control.



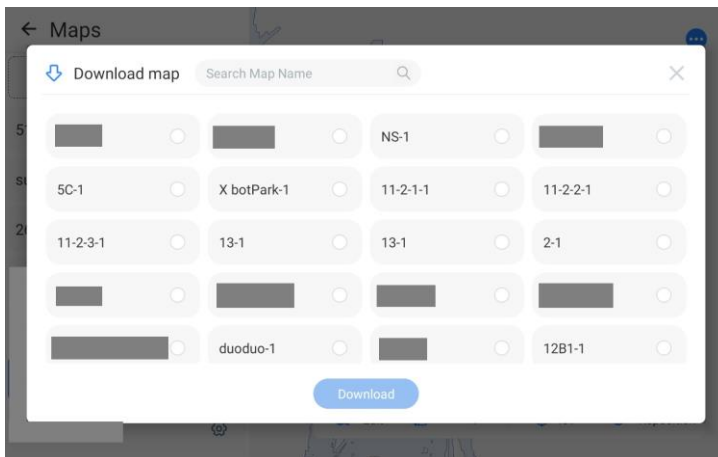
- e) Before you start using the remote control, read the warning message carefully.
 - f) After entering the remote control mode, operate the joystick or direction keys on the left side of the remote control to control the robot to move forward, backward, and rotate left and right.
Note: The other buttons are currently non-functional.
 - g) After scanning the map, click on the robot interface to exit remote control mode and save the map. At this point, the remote control has been cut off.
 - h) After use, turn off the remote control.
- 4) Save the map

NOTE

- The machine is equipped with a LiDAR that can scan a space within a range of 20m. Do not control the robot too close to a wall or other obstacles to avoid collision.
- The LiDAR is embedded in the casing in front of the machine, so there might be some blind spots.
- Make sure to move the robot over all areas that need to be cleaned so that the map includes all the areas you want to clean. You can immediately check the map image on the robot to confirm that it has been scanned.
- In areas such as wall corners, corners, and pillars, the robot can be moved and rotated to fully scan the corner area.
- If you encounter a circular corridor area, be sure to scan the corridor completely more than once.
- Once you've finished scanning, click [Save Map] immediately so you don't forget it.

4.2.2 Download Map

When a machine obtains a map through scanning in a place, and creates and executes a task, the map information and task information stored locally on the machine will be synchronized to the cloud platform. If the machine is unfortunately damaged and needs to be replaced with a new device, the map download feature can be used directly during the deployment phase. The downloaded maps and tasks will retain the original information and can be used directly.



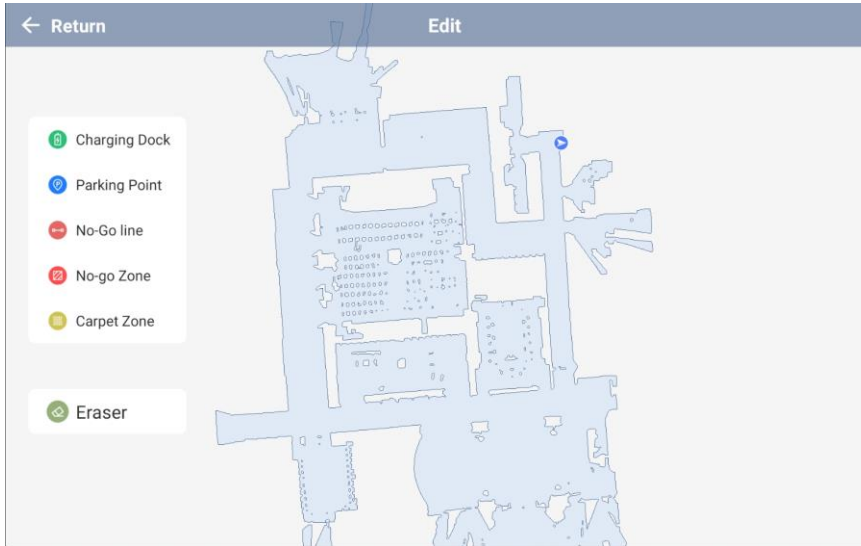
Please Note:

- Confirm that the cloud platform already has a map of the venue.
- Multiple maps can be downloaded.
- Only one map can be downloaded at a time.
- After downloading the map, the functional areas and functional points, IOT, floors and other information in the map will also be downloaded.

4.2.3 Edit a Map

After scanning the map, it must be further processed to facilitate the machine to perform tasks. Or after downloading the map, it must be further processed as needed.

Map Editing:



Charging Dock	You can add the location of a charging dock to the map. You can only add one charging dock to a map. The machine will automatically return to the charging dock location after completing a task or using the [Navigate] function.
Stops	The location where the machine needs to temporarily stop, such as a water change point, maintenance point, display point, etc. You can add multiple stop points. After adding a stop point, you can use the [Navigate] function to command the machine to go to the stop point.
No-go Line	Used to plan lines that prohibit machines from passing. When creating a map, you must determine which locations are not allowed for machines to pass, and use prohibited lines to plan when editing the map, such as: stairways (to prevent machines from falling), in front of fragile exhibits, etc.
No-go Zone	When no-entry lines are not convenient for planning the no-entry range, no-entry zones can be used to plan a large area where machines are prohibited from entering.
Carpet Area	The carpet area is a special area where the machine will forcibly prohibit the use of the floor scrubbing mode (no water) to avoid damage to the carpet. The carpet area can be cleaned using the vacuuming mode.
Eraser	When creating a map, the graphics obtained through LiDAR scanning sometimes contain areas that do not need to be cleaned, or there are temporary obstacles or human bodies during scanning, causing some noise in the scanned map. You must record this information during the operation and use the eraser function to erase it when editing the map.

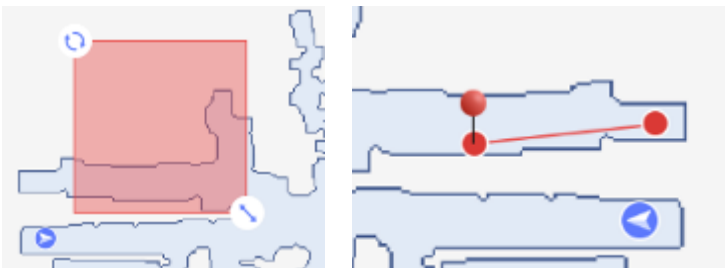
Map Editing Steps:

- ① **Erase unnecessary spots and areas on the map**
- ② **Add charging dock**



Push the robot to the connected charging dock, click [Add], the robot will automatically record the location and direction of the charging dock.

- ③ **Add no-go lines/areas**



If you do not want your robot to enter an area, you can set a no-go zone. Please follow the steps below to create a no-go zone.

- Walls, stairs, door gaps, glass walls /doors, steps, decorations, flower beds, plants, ground sockets, billboards, or other spaces that you think are dangerous and do not want the robot to enter are recommended to add corresponding no-go zones to ensure the safety of the machine's operating environment.
- Areas can be resized and positioned using dragging and zooming in/out.
- If the environment contains a lot of glass walls, and the map shows a lot of exterior space that the lidar sees through the glass, you will need to create a no-go zone to cover all of the exterior space to avoid false recognition when performing the mission.
- Try to create a no-go zone that is as close to the actual edge of the obstacle as possible. If the no-go zone has too much impact on edge cleaning, you can adjust the position of the no-go zone slightly inside the area.
- If you are not sure about the exact location of the obstacle, you can push the machine to the side of the obstacle for actual comparison.

- ④ **Add Carpet Area**

Only suitable for short-pile carpets (<5.5mm). If there is no carpet area, you can skip this step.

- ⑤ **Save the map**

NOTE

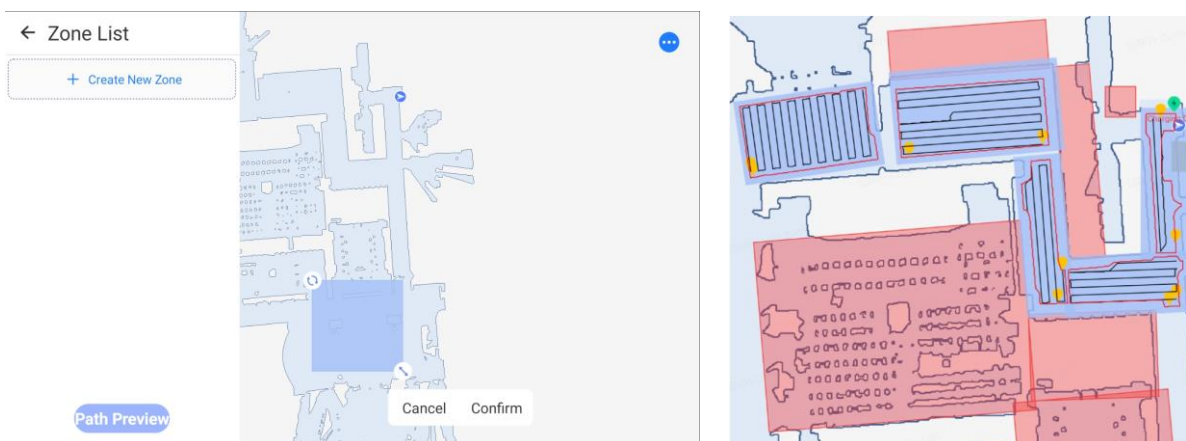
- After scanning the map, you must edit the map and add charging dock, otherwise the machine cannot perform any task.
- Although the machine has a powerful sensor system that can identify most obstacles and avoid them, it is still the safest way to avoid risks by adding no-go lines and no-go areas. It is recommended to plan no-go areas in advance for all dangerous areas in the environment.
- When using the eraser function, if you encounter noise that you are not sure whether is a temporary obstacle or a human body, you can push the machine to the uncertain noise location, compare it with the actual environment, and then erase it.

4.2.4 Add a Cleaning Zone

After editing the map, you can proceed to the next step in the map management interface: adding cleaning areas. You can add several cleaning areas. When creating tasks later, you can select some or all of the cleaning areas for task planning.



Click [Cleaning Zone] to enter the cleaning area editing page. When creating a new cleaning area, you can use a rectangle or polygon to plan the area, and you can use drag and zoom in /out to adjust the size of the work area. When planning a cleaning area, the edges of the rectangle/polygon should be close to the edge of the area that actually needs to be cleaned, or slightly overlap to ensure that the machine's path covers the area as much as possible.



You can create multiple workspaces to cover different areas. After creation, click [Path Preview] to check whether the path planning of the selected area is as expected.

NOTE

- The minimum space required to generate a path is 5 square meters.
- If you are not satisfied with the generated path, you can adjust the workspace and regenerate it.
- Within the cleaning area, the minimum terrain limit for generating a path is 1*1m due to the size of the machine and the safety of movement. If you find that there is a small area in the area where no path is generated, you can check whether the area is a very narrow corner, the space between large objects, etc.

4.2.5 IoT Devices

The IoT function supports the communication settings of elevator and gate modules. The configuration of this function is relatively complex, please contact a sales representative or after-sales technical service to add IoT devices.

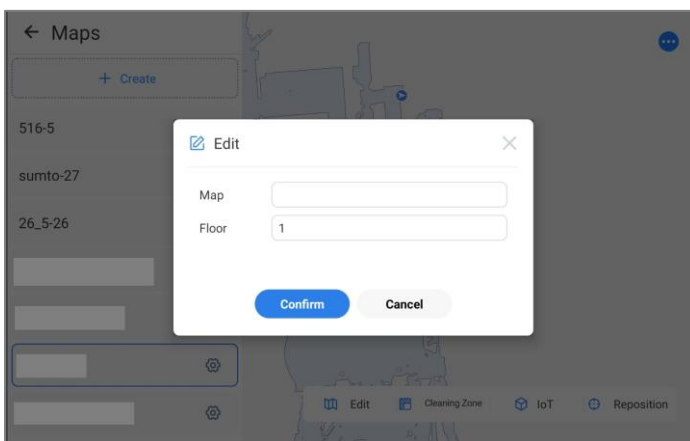
4.2.6 Delete a Map

Enter map management, select the map you want to rename, click the gear on the right, select [Delete], and you can delete the map.



4.2.7 Modify Map Information

Enter map management, select the map that needs to be modified, click the gear on the right, select [Modify], and you can rename the map and modify the floor information.

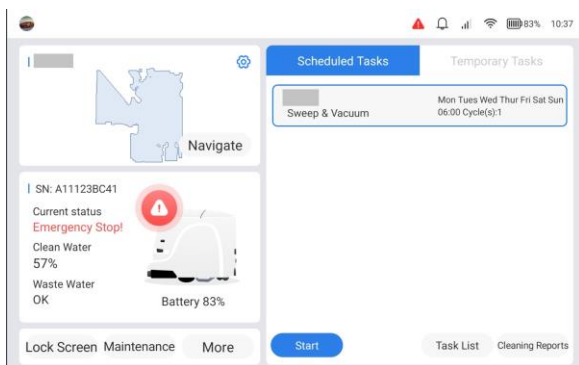


4.3 Task Management

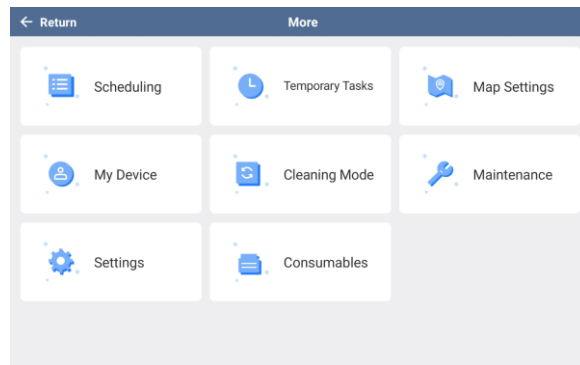
This device supports two types of tasks:

- Temporary tasks: Temporary tasks are non-scheduled tasks. After they are created, you can click Start Task immediately, or wait until needed to manually start the task. This type of task will not be automatically executed at a certain time.
- Scheduled tasks: Scheduled tasks are tasks that can be started at any time set to your desire. After setting up a scheduled task and enabling it, the task will automatically start at the set time.

Creating tasks for both types is similar. You can access the management page for both types of tasks on the home page and in the [More] function.



Front Page



More Features

4.3.1 Create a Task

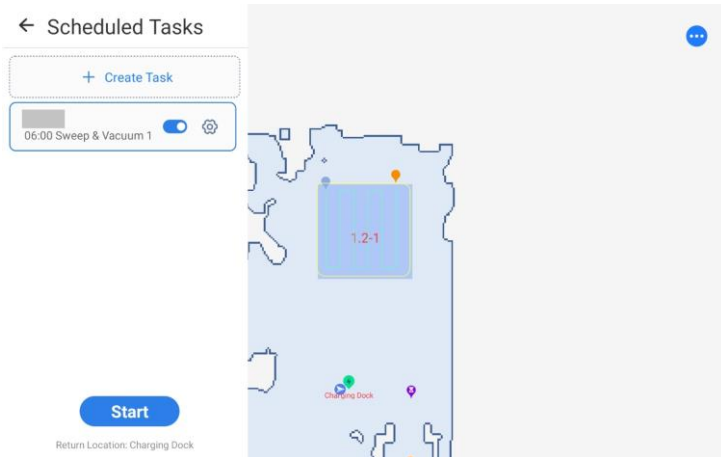
You can create tasks in two ways:

- Create a new task directly
- Download tasks from cloud
 - a) Before downloading the task, the map used must also be downloaded from the cloud.
 - b) There must be a machine of the same model that has performed the task normally at the site.

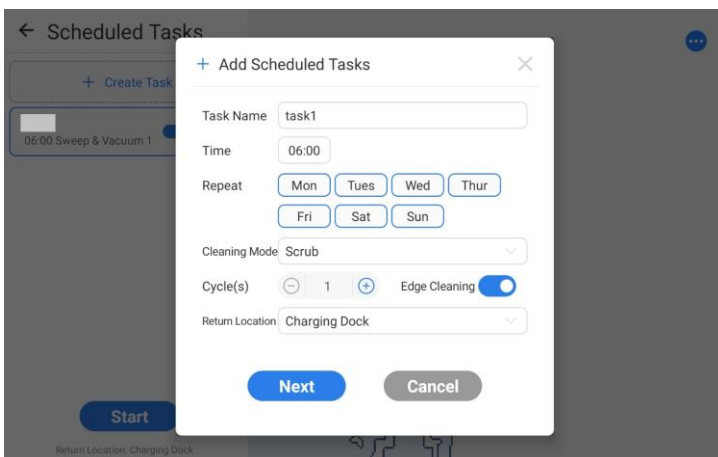
Creation steps

The steps for creating temporary tasks and scheduled tasks are almost the same.
Scheduled tasks require setting the time and cycle for automatic execution of the task.

- 1 Enter the task management page
- 2 Click [New Task] to start creating a task.

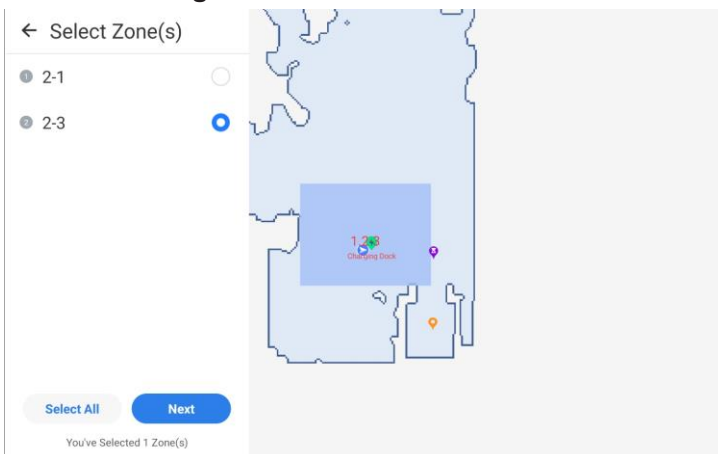


- 3 Enter task information



For both types of tasks, you can directly select and click [Start Task] to execute the task immediately. For scheduled tasks, the robot will automatically execute the task at the scheduled time.

- 4 Select cleaning zone

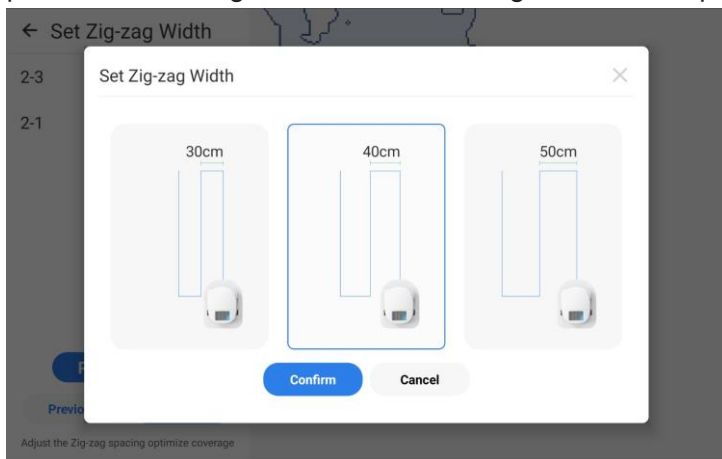


⑤ Set the cleaning sequence



⑥ Set the cleaning path spacing

The machine will clean along a bow-shaped path. The distance between the bow-shaped paths will affect the path generation and the efficiency of the machine. The smaller the distance, the denser the paths that can be generated, and the longer the time required for cleaning.

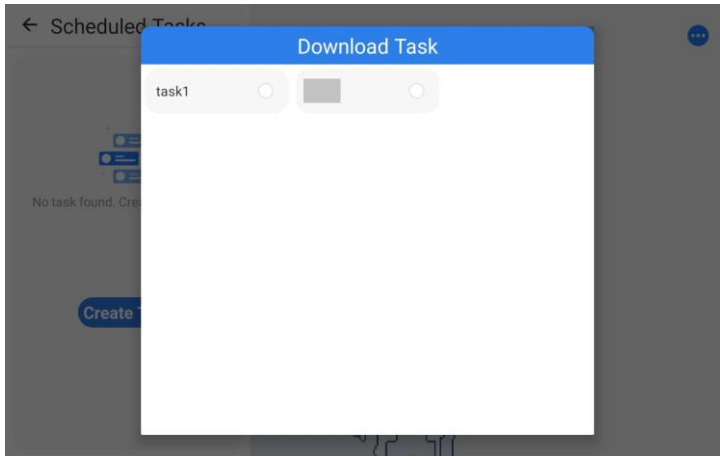


⑦ Save Task

4.3.2 Download Tasks

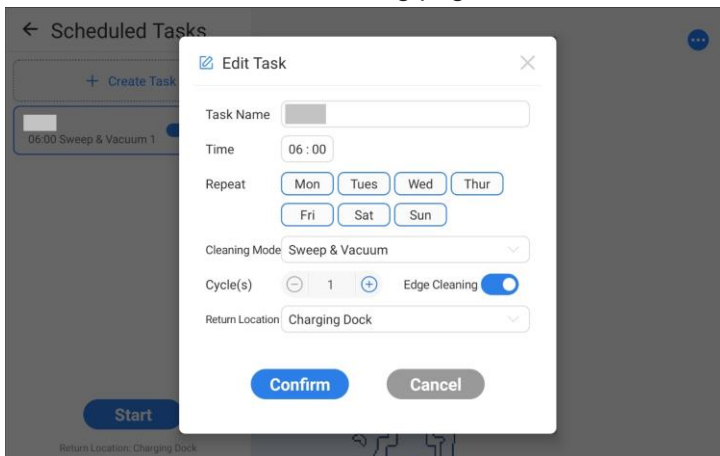
After downloading the map, you can download the tasks associated with the map. Note again:

- a) Before downloading the task, the map used must also be downloaded from the cloud
- b) There must be a machine of the same model that has performed the task normally at the site.



4.3.3 Edit Task Info

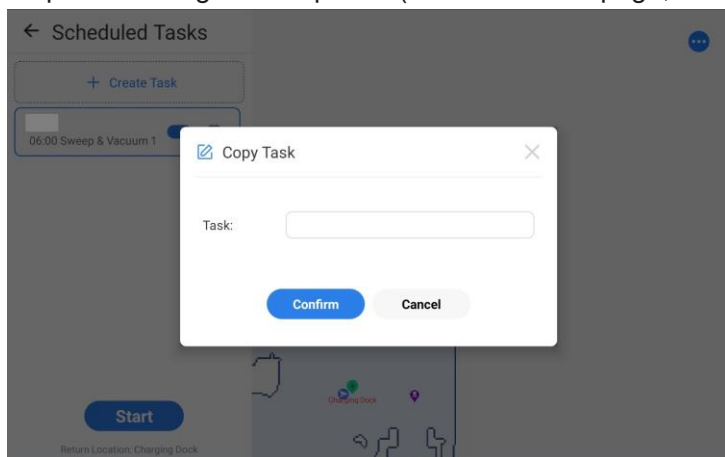
Enter task management, select the task, click the gear on the right, an edit button will appear, click it to enter the task information editing page.



4.3.4 Copy a Task

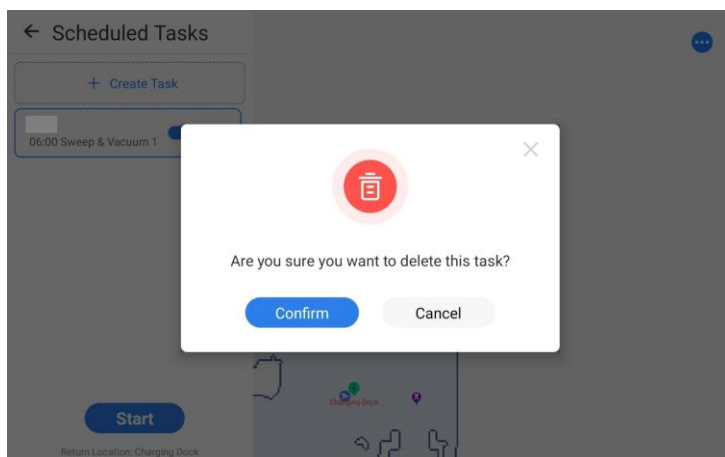
Enter task management, select the task, click the gear on the right, and a copy button will appear. Click it to copy the task.

Note: If you edit the current map (such as changing or expanding the restricted area), all tasks under this map need to regenerate paths. (On the task list page, edit all tasks separately and then save.)



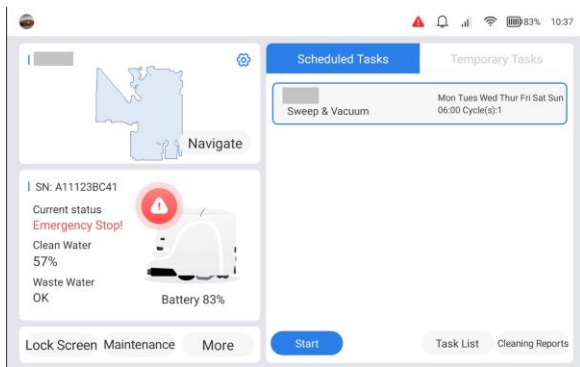
4.3.5 Deleting a Task

Enter task management, select the task, click the gear on the right, and a delete button will appear. Click it to delete the task.

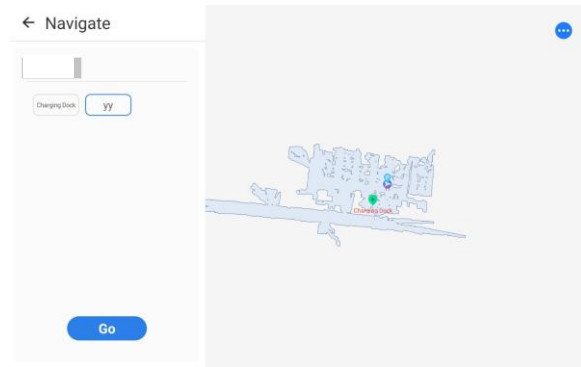


4.4 Navigation

The Navigation feature can command the machine to go directly to the specified location. During an operation, you need to pause the task first, and then use the Navigation feature. The navigation point needs to be set in map editing, see <4.2.3 Edit a map> for details. The Navigation button is in the upper left corner of the homepage.



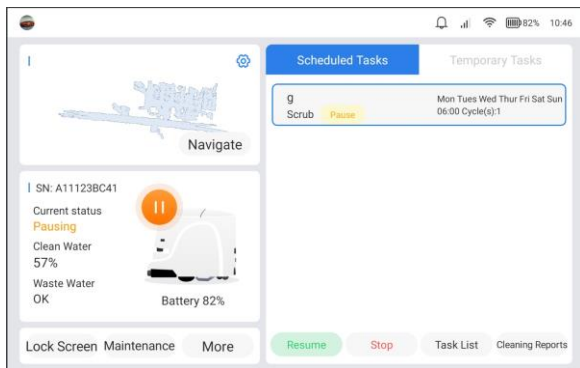
Home page



Navigation point list

4.5 Pause a Task

After the task is started, you can click the "Pause Task" button on the following pages to pause the task in progress. After locking the screen, you need to double-click the screen with your finger and enter the login page for the Pause button to appear.



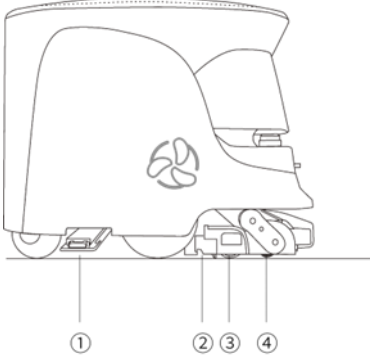
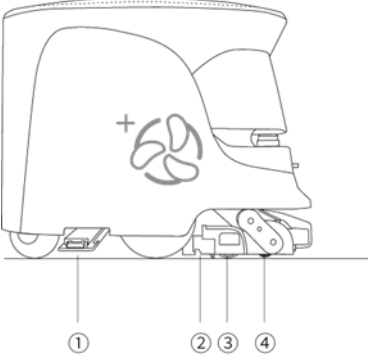
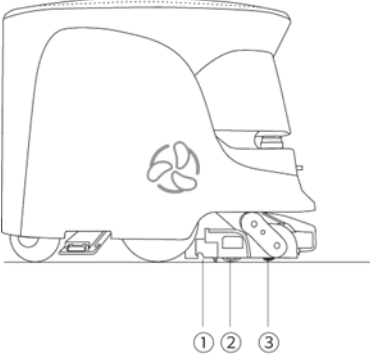
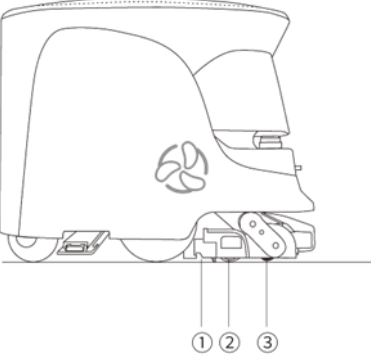
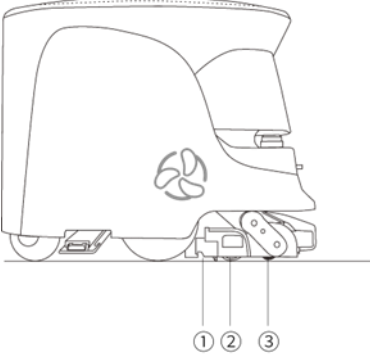
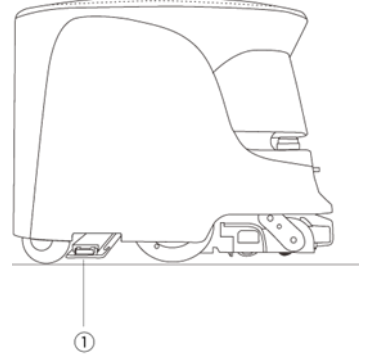
Home page



Login page

4.6 Cleaning Mode

4.6.1 Cleaning Mode Overview

<p>1. Standard Scrub</p>  <p>①Dust mop, ②Vacuum, ③Scrubber brush, ④ sweeper brush start working at the same time and water is injected</p>	<p>2. Power Scrub</p>  <p>①Dust mop, ②Vacuum, ③Scrubber brush, ④Sweeper brush start working at the same time and water is injected. In this mode, the brush speed and vacuum power will be increased.</p>
<p>3. Standard Sweep & Vac</p>  <p>①Vacuum, ②Scrubber brush, and ③Sweeper brush start working at the same time</p>	<p>4. Eco Sweep & Vac</p>  <p>①Vacuum, ②Scrubber brush, and ③Sweeper brush start working at the same time. The vacuum power will be slightly reduced in this mode.</p>
<p>5. Sweep, Vac & Mop</p>  <p>①Dust mop, ②Vacuum, ③Scrubber brush, ④ Sweeper brush start working at the same time</p>	<p>6. Standard Dust Mop</p>  <p>①Only dust mop is working</p>

4.6.2 Customizable Cleaning Modes

For existing cleaning modes, you can customize some parameters, including speed, sweeper brush /scrubber brush speed, vacuum suction power and water injection. **After the cleaning mode is changed, it will be globally applied to the established tasks.**

The screenshot displays the 'Cleaning Mode' settings interface. On the left, a list of cleaning modes is shown, with 'Vacuum & Dust Mop' selected and highlighted in blue. The main area on the right shows the configuration options for this mode:

- Moving Speed:** Radio buttons for 0.6, 0.7 (selected), and 0.8.
- Sweeping Brush RPM:** Radio buttons for Low (selected) and High.
- Scrubber Brush RPM:** Radio buttons for Low (selected) and High.
- Vacuum Suction Power:** Radio buttons for Low and High (selected).
- Mop Pad:** Radio buttons for Auto (selected) and Lift Up when charging.

A 'Set as default' button is located at the bottom of the configuration panel.

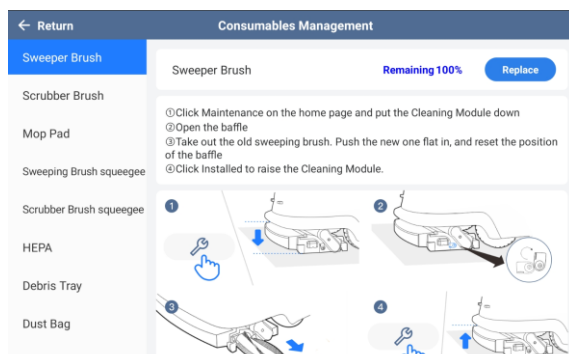
4.7 Consumables Management

Under normal use, the machine consumables have corresponding consumption cycles. The following are the recommended replacement cycles for each consumable component. You can refer to the cycle time provided in the following table to check whether the consumables need to be replaced. For some low-consumption components, you can check whether they need to be replaced.

Part Name		Recommended replacement cycle
Sweeper Brush Set	Sweeper Brush	6 months
	Sweeper Squeegee	12 months
	Synchronous Belt	12 months
Scrubber Brush Set	Scrubber Brush	3-6 months
	Scrubber Squeegee	3-6 months
	Synchronous Belt	12 months
Mop Pad		3-6 months
Waste Water Tank Set	Waste Water Tube	12 months*
	Rubber Seal Ring 1	12 months*
	Rubber Seal Ring 2	12 months*
Clean Water Tank Set	Rubber Stopper	12 months*
	Peristaltic Pump Tubing	12 months
HEPA		Every 2 weeks/month*
Dust Bag		weekly

**The replacement of this type of parts depends on the actual damage. If the recommended replacement time is reached but the part is still in good condition, it can continue to be used for 3-6 months.
For specific inspection methods, please refer to the relevant contents of the Maintenance Manual.*

The consumables management page allows you to view the usage of consumables. If the remaining life is less than 10%, it is recommended to prepare consumables in advance for replacement and maintenance. Each time you replace consumables, you need to perform maintenance operations in the APP and enter the consumables management page to confirm the replacement of the corresponding consumables. The machine will update the consumables' remaining life time.



4.8 Device Information and Upgrades

In [More] - [Settings], you can view the machine information and perform software updates. When there is an important update, the technician will contact the equipment manager to perform the upgrade. Please be sure to perform the upgrade under the guidance of the technician to avoid operating errors that may cause the machine to malfunction.