
PUDU MT1 Max Operation Guide

Document Version: V5.0

Model: MTBC03

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Purpose





This manual introduces how to use and maintain the PUDU MT1 Max. It is intended for users, sales personnel, technical support engineers, and installation and commissioning engineers.

Revision History

Date	Revision History
2026.02.27	Initial release

Symbol Conventions

The following symbols may appear in this manual, and their meanings are as follows.

Symbol	Description
 Danger	Indicates a high potential hazard that, if not avoided, will result in death or serious injury.
 Warning	Indicates a moderate or low potential hazard that, if not avoided, could result in minor injury to personnel, damage to the robot, etc.
 Caution	Indicates a potential risk that, if these texts are ignored, could result in damage to the robot, data loss, or unpredictable results.
 Notes	Indicates additional information to the main text, emphasizing and supplementing the main text.

Contents

PURPOSE	1
REVISION HISTORY	1

SYMBOL CONVENTIONS	1
1、 INTENDED USE	5
2、 SAFETY INSTRUCTIONS	5
2.1 USAGE PRECAUTIONS	5
2.2 ENVIRONMENTAL PRECAUTIONS	6
2.3 POWER SUPPLY PRECAUTIONS.....	8
3、 PRODUCT COMPONENTS	8
3.1 PACKING LIST	8
3.2 APPEARANCE AND PARTS.....	9
3.3 PERFORMANCE PARAMETERS	10
4、 PRODUCT USAGE	12
4.1 POWER ON, POWER OFF, PAUSE, START	12
4.1.1 Power On, Power Off.....	12
4.1.2 Pause	12
4.1.3 Start	13
4.2 HANDLE USAGE	13
4.3 WORK MODES.....	14
4.3.1 Manual Cleaning	14
4.3.2 Automatic Cleaning	15
4.3.3 Scheduled Task Settings	16
4.4 CLEANING MODES	16
4.6 ROBOT CHARGING	17
4.7 VIEWING DEVICE STATUS.....	18
4.8 SETTINGS	18
4.9 COMMON FUNCTIONS	19
5、 PRODUCT MAINTENANCE & TROUBLESHOOTING	24
5.1 DAILY CLEANING.....	24
5.1.1 Cleaning Sensors and the Underside of the Robot	24
5.1.2 Cleaning the Dustbox and Air Filter	25
5.1.3 Cleaning the Side Brush and Brush.....	27
5.2 CONSUMABLE REPLACEMENT	28
5.3 TROUBLESHOOTING	29
AFTER-SALES POLICY	29



1、 Intended Use



The PUDU MT1 Max is a professional sweeping robot positioned for complex, large-scale environments, supporting autonomous charging. The product's core advantage lies in its ability to meet the cleaning needs of various hard floor types. Its primary target scenarios include complex areas such as airports, railway stations, residential courtyards, and parking garages. While reducing costs and increasing efficiency for customers, it also enhances the overall cleanliness and quality of the environment.

2、 Safety Instructions

2.1 Usage Precautions

1. This product is a wheeled autonomous cleaning robot and is limited to use in flat environments; do not use it on rugged or non-hardened ground.
2. Do not use the robot in environments above 45°C or below -10°C; the charging environment temperature must be maintained above 0°C.
3. Please avoid exposure to direct sunlight.
4. Do not use the machine for cleaning tasks in rain, snow, or extreme weather conditions.
5. If the robot accidentally enters an incorrect position due to factors such as obstruction, please pause the task immediately and push it back to the correct route before resuming.
6. Do not pull or drag the robot while it is running; if you need to push or carry the robot, please click the screen to pause it first.
7. Do not push the robot in reverse while it is powered on.
8. Do not block the robot's sensors, as this may lead to abnormal movement or loss of positioning.
9. Do not hit the device or apply excessive force to the screen, as this may cause damage.
10. Do not place loads on the robot, do not place open-flame stoves, and do not carry any flammable solids, gases, or liquids.
11. Temporary settings and adjustments are prohibited while the robot is in motion; all operations should be

performed after clicking the screen to pause the robot.

12. Do not perform cleaning or maintenance work while the machine is powered on and running.
13. Before use, please clear all cables and wires from the floor to avoid dragging them during operation.
14. To ensure safety, please make sure the robot operates at a speed of 1.2 m/s or below.
15. Recognition blind spots exist in the robot's automatic obstacle avoidance system; it is strictly forbidden to suddenly block the robot while it is traveling at high speeds, as this may cause safety accidents.
16. When transporting the robot, ensure the dustbin is emptied; do not tilt or flip the machine during transport, as this may damage the body..

2.2 Environmental Precautions

1. Do not use or charge the robot in hazardous environments such as high-temperature, high-pressure, flammable, or explosive areas to avoid personal injury or equipment damage.
2. Do not dispose of the robot or its accessories as general household waste. Please comply with local laws regarding the disposal of this robot and its accessories and support recycling initiatives.
3. This robot is suitable for use on flat ground; it is not suitable for environments with steps, excessive slopes, or overly cramped spaces.
4. It is not recommended to use the robot on surfaces with heavy oil stains or standing water.
5. Power cords and other debris scattered on the floor may trip or entangle the robot; please remove them before use.
6. When using this product in areas with floor protrusions (such as door sills or floor sockets), ensure the height of the protrusions is less than 20mm. If there are speed bumps, their height must be less than 50mm.
7. The passage width for the robot should be greater than 75cm; for long corridors, a width greater than 85cm is recommended for optimal fluidity.
8. The robot's maximum climbing angle is 8° (in non-cleaning mode). To prevent risks associated with the robot sliding or rolling back, avoid pausing the robot on a slope.
9. The robot only supports cleaning on flat ground (in cleaning mode); do not use the robot for cleaning operations on visible slopes (greater than 3°).
10. Guardrails or other protective barriers must be added at stair edges, downhill entrances, or any locations where there is a risk of the robot falling..



Ground Conditions	Illustration
<p>The maximum climbing angle designed for the robot is 8° (in non-cleaning status). To prevent potential risks caused by the robot slipping backwards, you should avoid pausing the machine while the robot is going uphill.</p>	
<p>The robot only supports cleaning operations on flat surfaces. Do NOT perform cleaning tasks on visible slopes exceeding 3°.</p>	
<p>Environments with solid black surfaces (e.g., baseboards), mirrored surfaces (e.g., walls), or full transparency at a height of 14–22 cm may interfere with lidar reflections, causing abnormal navigation. These scenarios require assessment by</p>	

technical support and may necessitate site modifications, such as applying stickers, to ensure proper reflection.	
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2.3 Power Supply Precautions

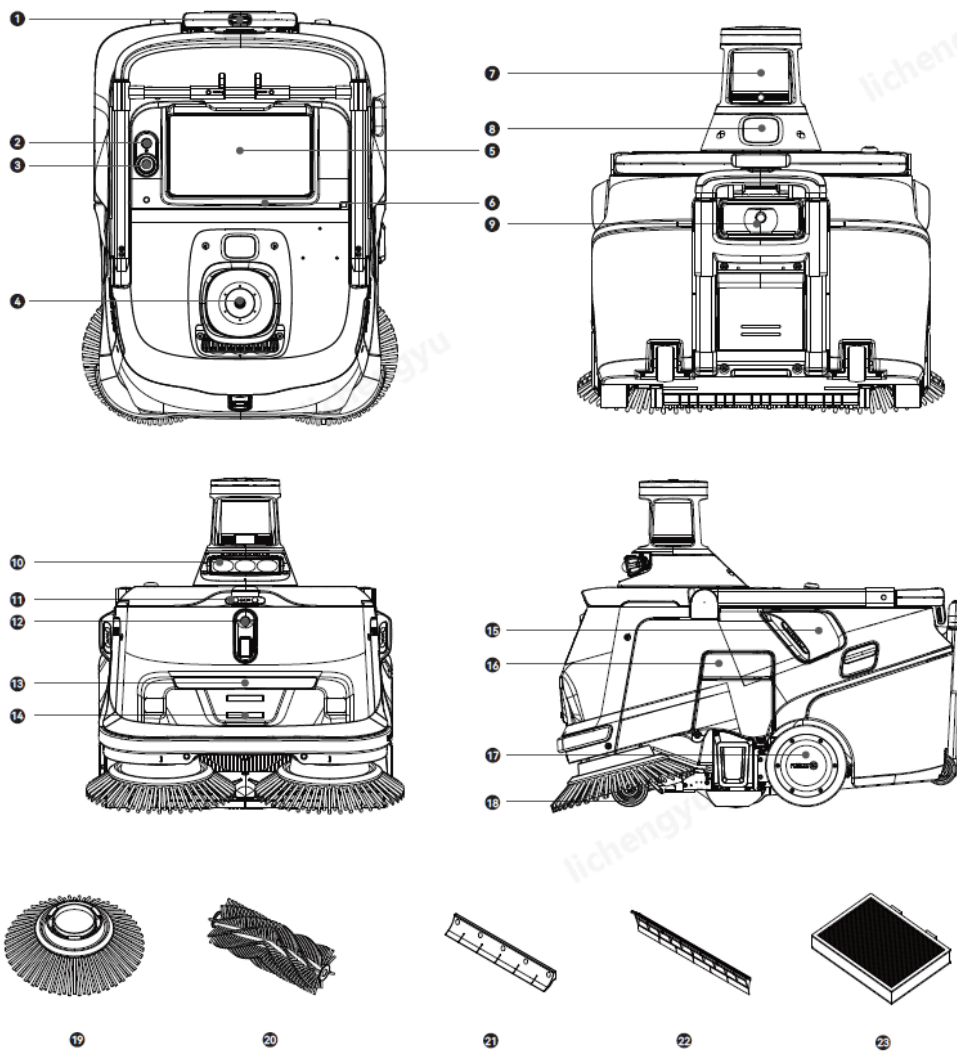
1. Fully charge the robot to 100% before its first use.
2. To ensure operational efficiency and battery longevity, always maintain the battery level above 10%.
3. When the battery drops below 10%, the robot enters a low-battery state and must be charged as soon as possible.
4. When the battery drops below 2%, it enters battery protection mode; the robot will be unable to perform tasks and must be recharged before use.

3、 Product Components

3.1 Packing List

Main unit x 1, Charger x 1, Sweeping side brush x 2, Sweeping roller brush x 1, "PUDU MT1 Max User Manual" x 1, Certificate of Conformity x 1, Positioning code x 1, Heightened Warning Light x1

3.2 Appearance and Parts



No.	Description
1	Handlebar / Handrail
2	Power Button (On/Off)
3	Emergency Stop Button
4	VSLAM Camera
5	LCD Screen
6	Screen Protector / Screen Cover
7	3D LiDAR
8	Drop Sensor / Cliff Sensor

9	RGB Camera
10	Clearance Light / Outline Marker Light
11	RGB-D
12	RGB Camera
13	RGB-D Fill Light
14	Charging Electrode / Charging Contact
15	RGB-D
16	Charging Port Cover / Flip Cover
17	Driving Wheel
18	Universal Wheel / Caster
19	Sweeping Side Brush
20	Removable Sweeping Roller Brush
21	Dustbin Rubber Strip
22	Roller Brush Compartment Front Rubber Strip
23	Air Filter

3.3 Performance Parameters

Product Features	Description
Product Model	MTBC03
Working Voltage	DC 23V~29.2V
Power Input	AC 100 V ~ 240 V, 50/60 Hz
Power Output	Max: 29.2 V, 20 A
Battery Capacity	60Ah
Charging Time	Approx. 3.5h
Runtime / Battery Life*	5-10h

Cleaning Capacity	Paper scraps, plastic film, and other debris
Net Weight	Approx. 85kg
Dimensions	840600675mm
Housing Material	PC+ABS
Screen Specifications	10.1-inch LCD Screen
Navigation Method	LiDAR and Vision Fusion Positioning
Cruising Speed	0.2 m/s ~ 1.2 m/s (Adjustable)
Operating Noise (Cleaning)	<75 dB
Minimum Passage Width	75 cm
Maximum Obstacle Clearance Height	20 mm or common speed bumps below 50mm
Maximum Climbing Angle	8°
Maximum Gap Width	30mm
Cleaning Width (including side brushes)	Approx. 70cm
Dustbin Capacity	Approx. 35L
Operating System	Android
Communication Network	Supports 4G, Wi-Fi, Bluetooth, Lora or 2.4G (Optional)
Mobile App	Supported
Operation Mode	Manual Mode, Auto Mode
Automatic Charging	Supported (Charging station required)
Working Environment (Excluding charging)	Temp: -10°C ~ 45 °C; Humidity: ≤ 90% RH
Charging Environment	Temp: 0°C ~ 40 °C; Humidity: ≤ 90% RH
Storage Environment	Temp: -20 °C ~ 70 °C; Humidity: ≤ 90% RH
Operating Altitude	< 2000 m
Applicable Flooring	Polished concrete, epoxy resin, rubber, regular masonry, ceramic tile, and other hardened floors
Protection Rating / IP Rating	IP54

(* The battery life of each cleaning mode is calculated under the standard gear, with the battery level from 100% to 10%.)

4、Product Usage

4.1 Power On, Power Off, Pause, Start

4.1.1 Power On, Power Off

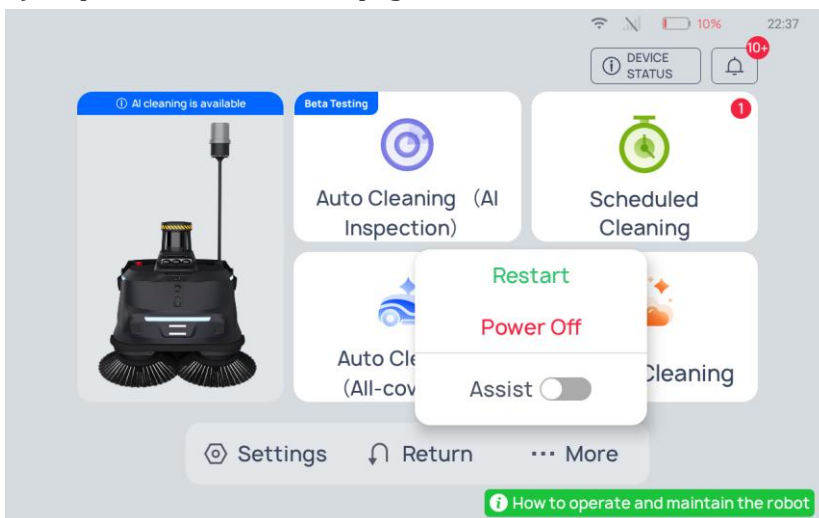
Power On:

Press and hold the power button for about 3 seconds, the bottom strip light will show blue.



Power Off, there are 2 methods:

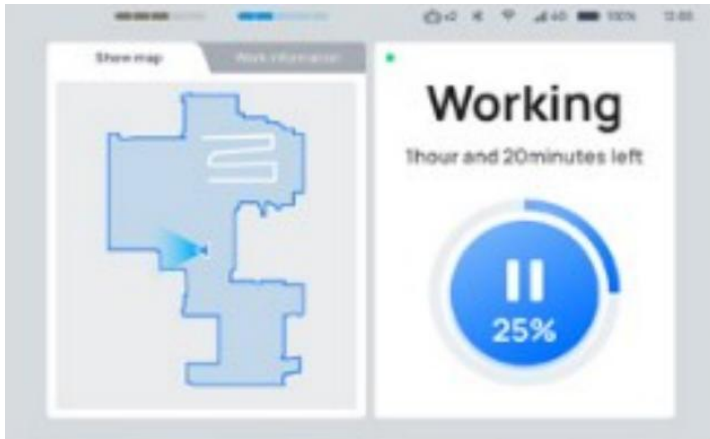
- 1) Press and hold the power button for about 10 seconds to start the power off operation. A black screen indicates successful power off.
- 2) Tap "More" on the home page to select "Power Off" or restart the robot.



4.1.2 Pause

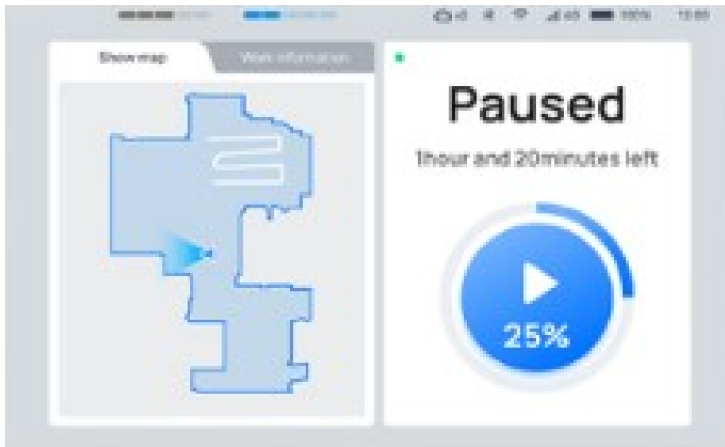
During the robot's Auto-Cleaning operation, touch to wake up the screen, and tap the Pause button to stop

the robot.



4.1.3 Start

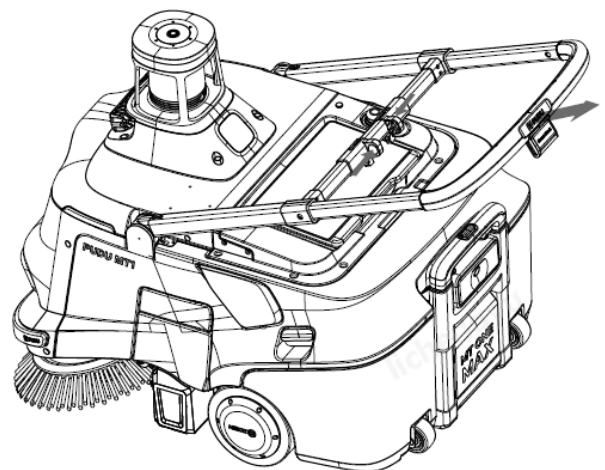
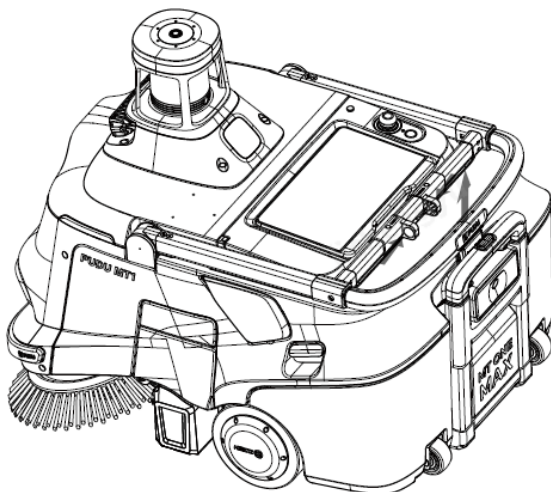
If you need to continue running, tap the Start button on the screen, and the robot will resume the task.



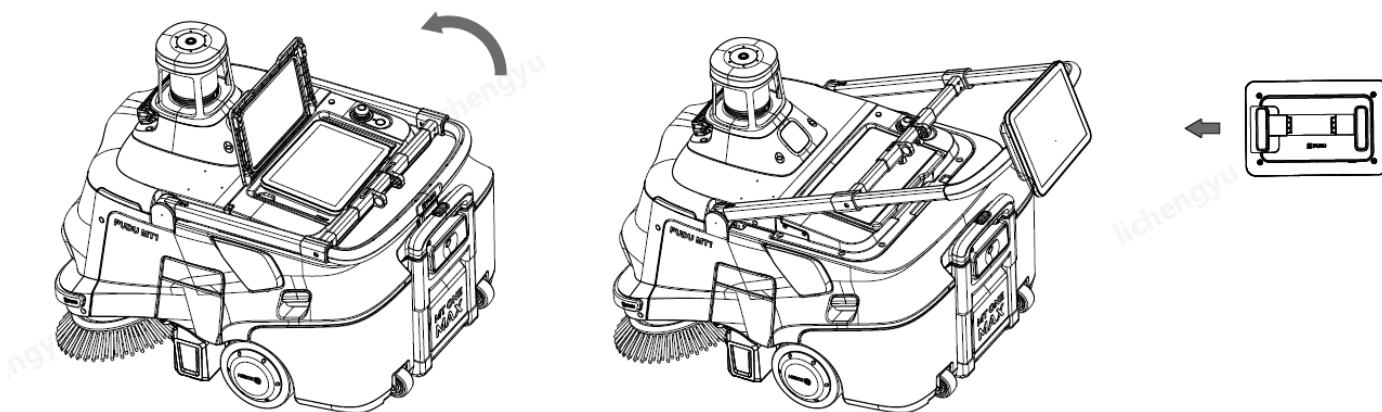
4.2 Handle Usage

When you need to push the robot, please lift the handrail.

When the robot is idle or operating automatically, please put the handrail down.



When you need to operate the screen, you can open the protective cover and operate it directly, or detach the screen from the top of the body and hold it or fix it on the handrail to operate.



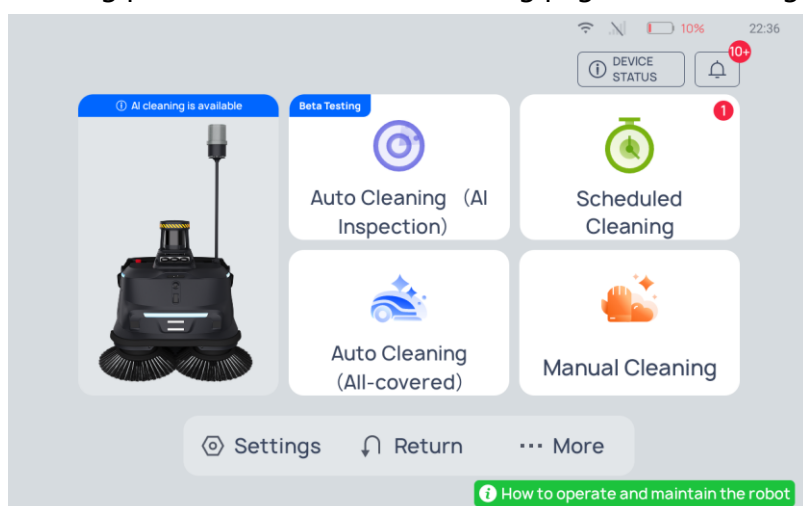
* The robot handle and screen feature a detachable design.

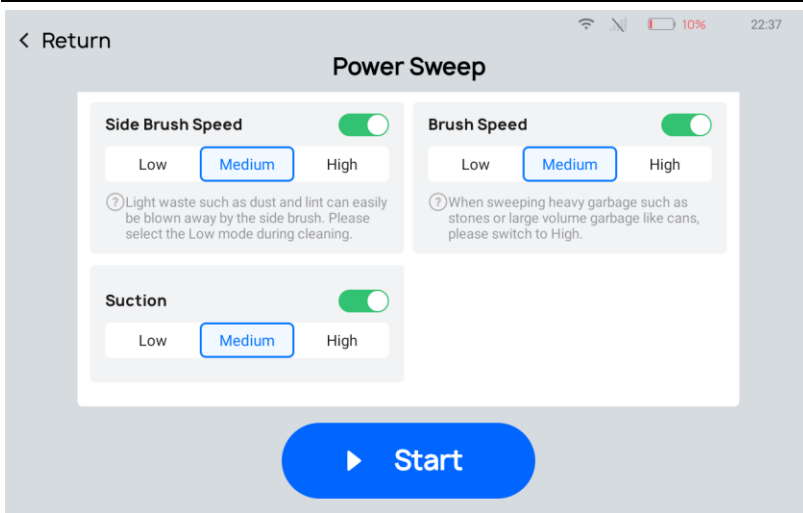
4.3 Work Modes

4.3.1 Manual Cleaning

After clicking "Manual Cleaning" on the home page, adjust to the desired cleaning level and click "Start Cleaning" to push the robot for the cleaning task (Note: During manual cleaning, the handlebar must be raised, the screen fixed on the handlebar, and then the robot pushed to clean).

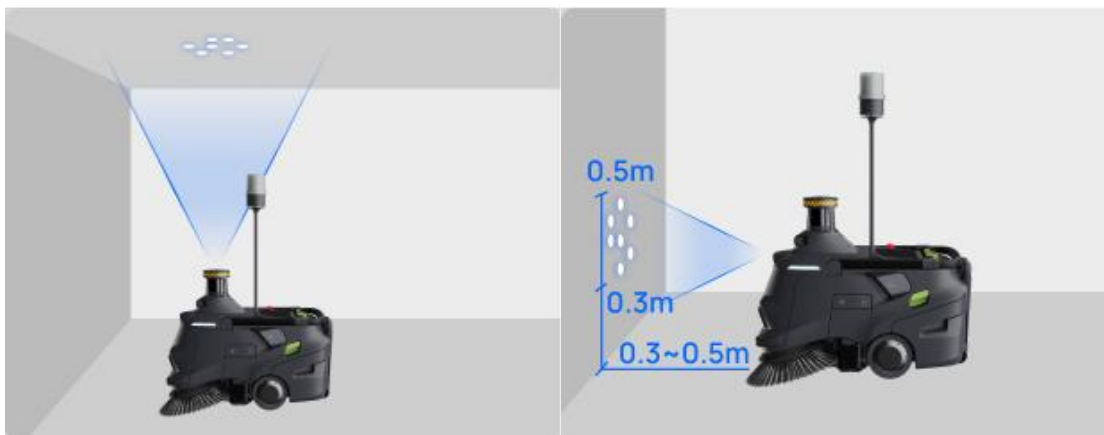
Select the appropriate preset cleaning scenario based on the site conditions without manually adjusting cleaning parameters; on the task editing page, click cleaning parameters and select "Special Scenarios."



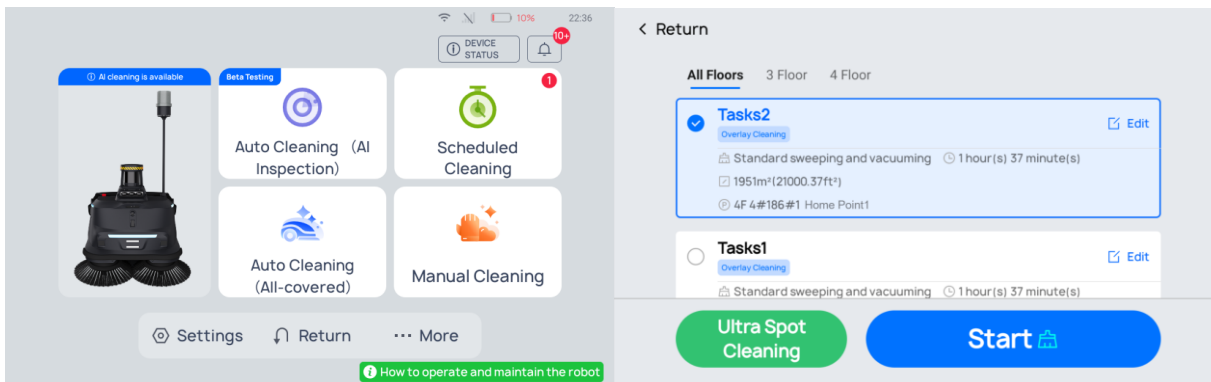


4.3.2 Automatic Cleaning

Before starting an automatic cleaning task, ensure the robot is powered on and positioned directly below or in front of the visual marker (depending on the marker's placement) to ensure successful positioning at the starting point.

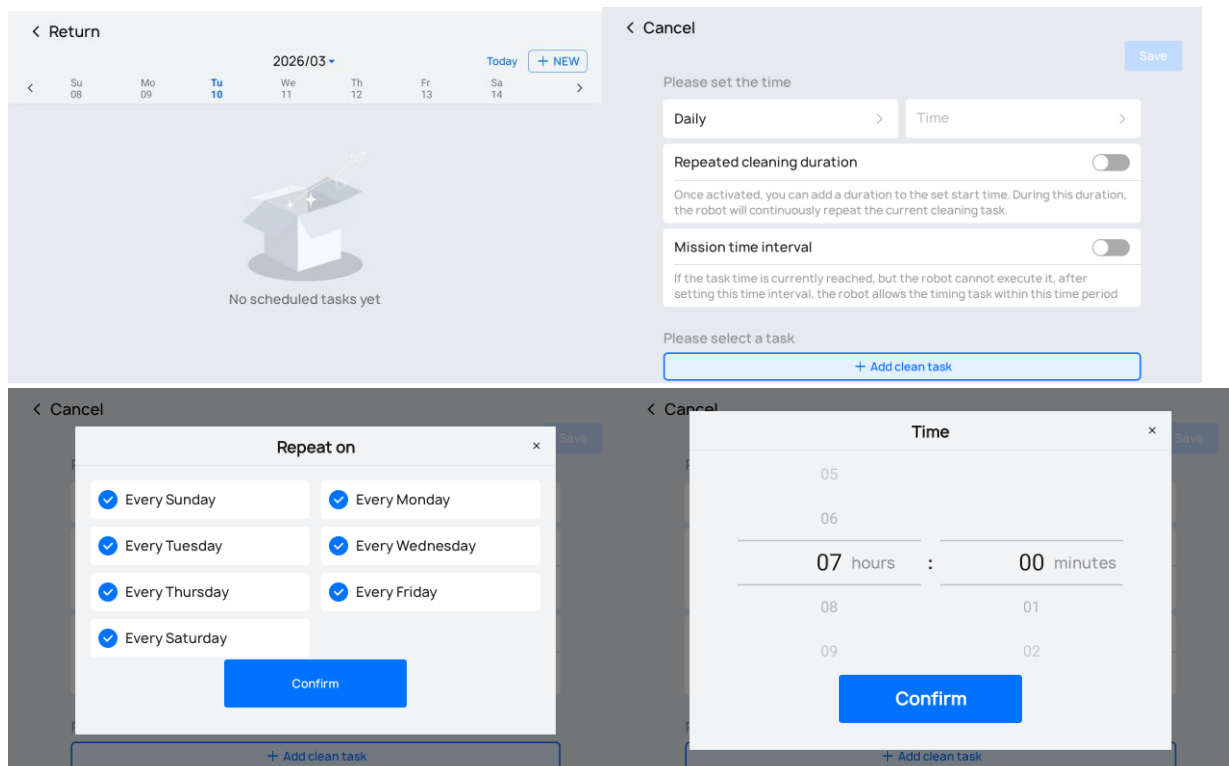


After clicking "Automatic Cleaning" on the homepage, select the cleaning task to be executed (pre-configured by delivery personnel). If no selection is made, the default task will be executed. Click "Start Cleaning" to begin the task. (Note: For automatic cleaning, the handle must be lowered and the screen returned to the screen compartment; otherwise, the task cannot start normally.)



4.3.3 Scheduled Task Settings

The robot supports scheduled task settings. Once configured, the robot will automatically execute tasks at the set time, provided that positioning is normal and the battery level is sufficient.



4.4 Cleaning Modes

The PUDU MT1 Max is an AI-powered cleaning robot designed for large-scale environments and high-intensity sweeping; it uses side brushes to sweep debris inward and a roller brush to flick the debris into the dustbin.



Before cleaning, please ensure that the corresponding cleaning components are installed:

1. Side Brush
2. Roller Brush

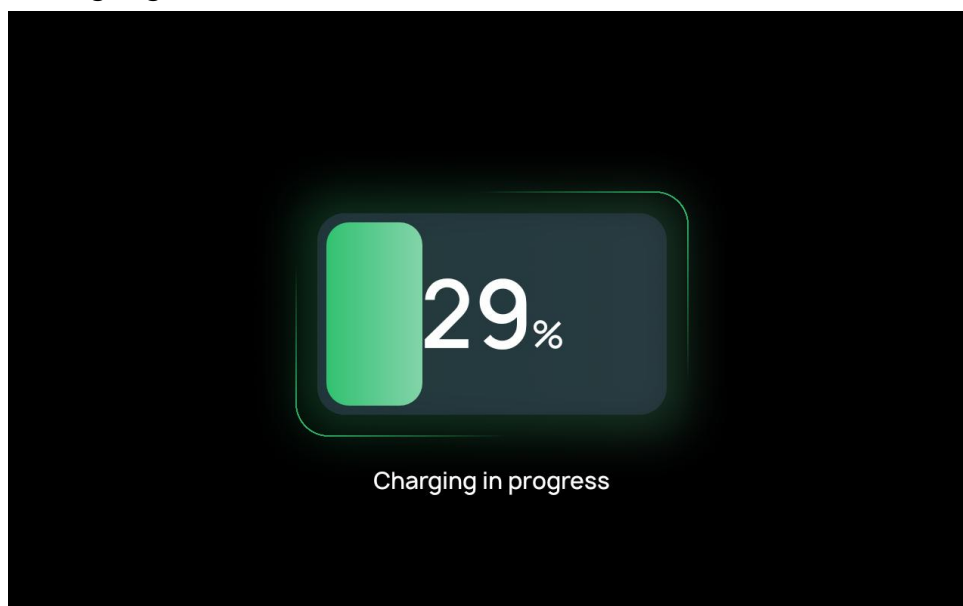


4.5 Robot Charging

MT1 Max supports both manual and automatic charging.

Charging Method	
<p>Manual Charging</p> <p>Connect the robot's charging interface to the charging cable. Ensure the body's charging port is connected to the charging cable. If successful, the robot will prompt that it is charging.</p>	
<p>Automatic Charging</p> <p>The robot supports automatic charging, which requires the optional purchase and installation of a workstation or charging pile, deployed according to the corresponding equipment's instructions. Once deployed, the robot can perform fully autonomous recharging throughout the entire process.</p>	 <p>Robot docking with the charging station.</p>

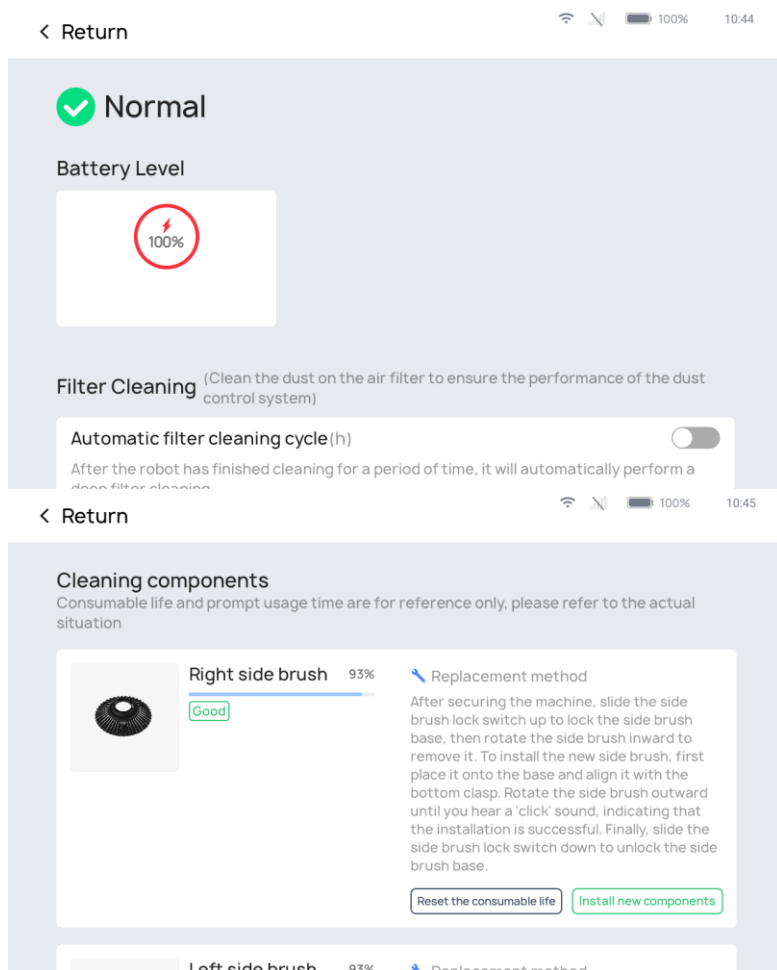
Charing Page



4.6 Viewing Device Status

Tap "Device Status" on the home page to enter the Device Status page.

On this page, you can check the robot's battery level and the remaining usage time of the corresponding consumables.



4.7 Settings

Settable items include the following:

Settings Item	Description
Task Management	Add, modify, and delete cleaning tasks.
Cleaning Report	View records of the robot's past cleaning reports.
Network	Configure network settings and connections.
Map	Create new maps, edit existing maps, etc.
Language	Select the corresponding national language.
Version Upgrade	Check for the latest software version upgrades.
Speed	Set speeds for different cleaning modes; default speed is 0.5 m/s.

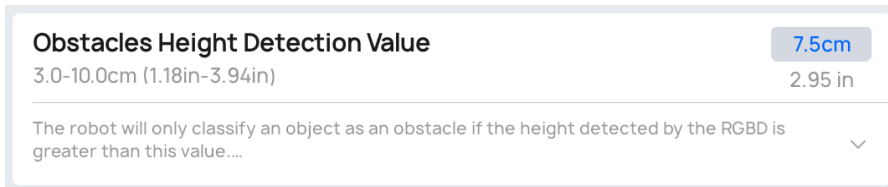
Screen Lock Protection	Enable or disable screen lock; modify screen lock password and duration.
Debugging	Adjust internal parameters (accessible only to technical support personnel). The company assumes no responsibility for accidents caused by unauthorized operation.
Voice / Audio	Enable or disable voice broadcasts during cleaning; configure content and volume.
Time	Set the robot's system time.
Version Upgrade	Display and click to update the robot's software version.
Debugging	Adjust internal parameters (accessible only to technical support personnel). The company assumes no responsibility for accidents caused by unauthorized operation.
Others	Other robot settings.

4.8 Common Functions

4.8.1 Cleaning Task Settings

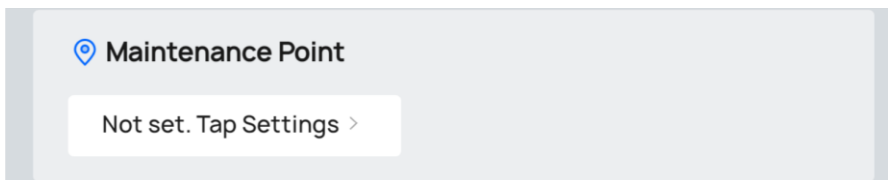
01 Confirm the minimum sum of length and width for RGBD obstacle determination

Based on the site conditions, confirm the sum of the height of common debris and the length and width of low obstacles in the site to ensure that larger debris is not falsely detected as an obstacle.



02 Select maintenance point

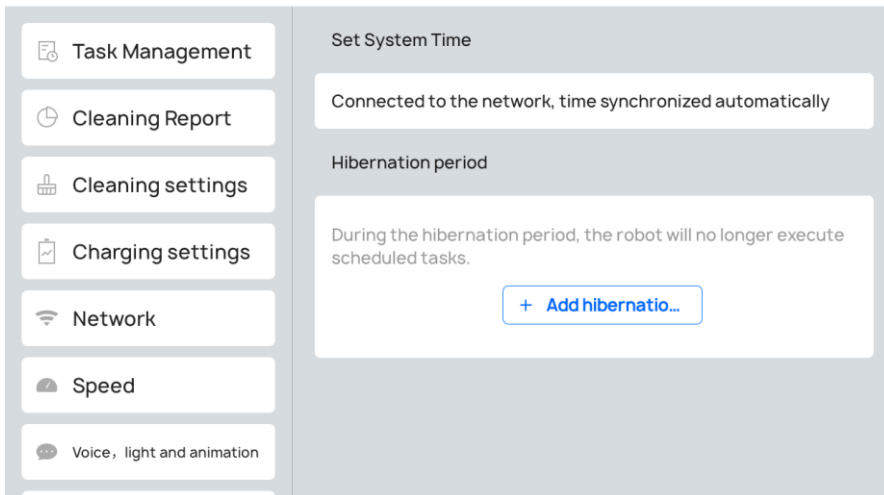
Add maintenance points during mapping, and select them when editing tasks. After setting, when the robot encounters exceptions or errors where it cannot continue cleaning but can move normally, it can go to the maintenance point automatically and wait for manual assistance.



03 Sleep time period

Supports configuring sleep time on the robot end by date. Scheduled tasks set within the sleep time will not start automatically. Also supports batch setting of sleep time for robots in the same store on Pudulink and merchant platforms.

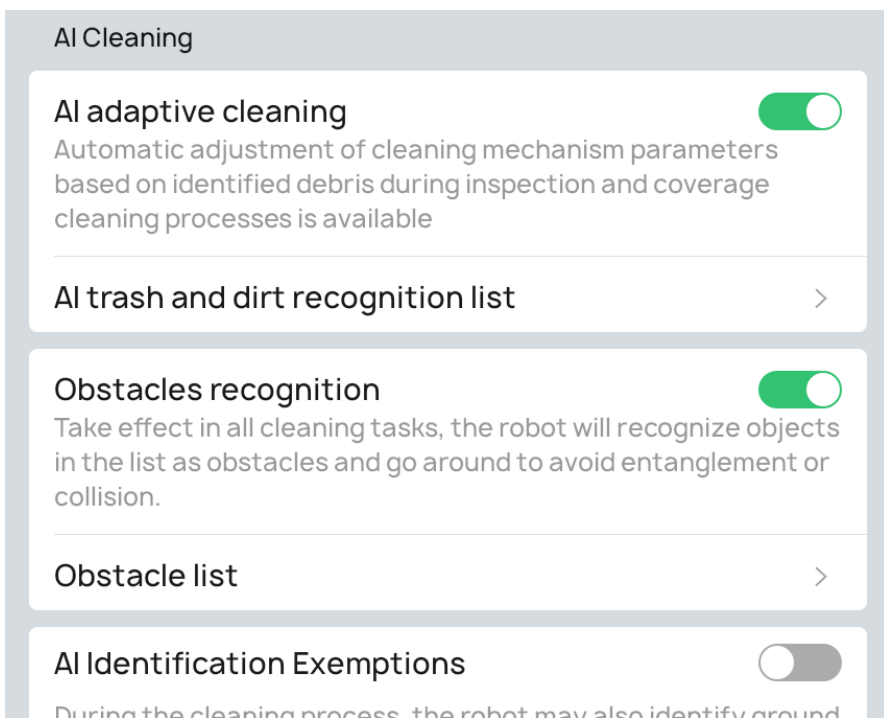
< Return



04 AI Cleaning

(1) Supports recognition of debris and stains with automatic adjustment of cleaning mechanism parameters. In patrol cleaning mode, it supports proactive navigation to identified debris for cleaning; specific types of debris and stains for proactive recognition can be selected from a list.

(2) Supports obstacle recognition and avoidance; specific obstacle types for avoidance can be selected from a list.









< Return

AI trash and dirt recognition list

Save

Once selected, this type of waste will be identified and cleaned during inspections. If there are frequently occurring types of waste in your area that are not listed, we welcome you to provide feedback to the regional agent.





 White paper <input type="checkbox"/> <input checked="" type="checkbox"/>	 Paper box fragments <input type="checkbox"/> <input checked="" type="checkbox"/>
 Plastic film <input type="checkbox"/> <input checked="" type="checkbox"/>	 Beverage bottle <input type="checkbox"/> <input checked="" type="checkbox"/>
 Paper board container <input type="checkbox"/> <input checked="" type="checkbox"/>	 Leaf <input type="checkbox"/> <input checked="" type="checkbox"/>

< Return

Obstacle list

Save

Effective during cleaning tasks and inspection cleaning tasks, the system will identify obstacles and navigate around them to avoid entanglement or collisions. If there are frequently occurring types of obstacles in your area that are not listed, feel free to provide feedback to your regional agent, and we will consider whether to add these types.

 Plastic strapping <input type="checkbox"/> <input checked="" type="checkbox"/>	 Shoes <input type="checkbox"/> <input checked="" type="checkbox"/>
 Floor mat <input type="checkbox"/> <input type="checkbox"/>	 wheel stop <input type="checkbox"/> <input type="checkbox"/>

05 Ultra Spot Clean

Supports Ultra Spot Clean for automated tasks. Based on debris/stain recognition heatmap data from the task, it performs high-speed cleaning in areas with a higher probability of generating waste.

< Return

All Floors 3 Floor 4 Floor

Tasks2 Edit

Overlay Cleaning

Standard sweeping and vacuuming 1 hour(s) 37 minute(s)

1951m²(21000.37ft²)

4F 4#186#1 Home Point1

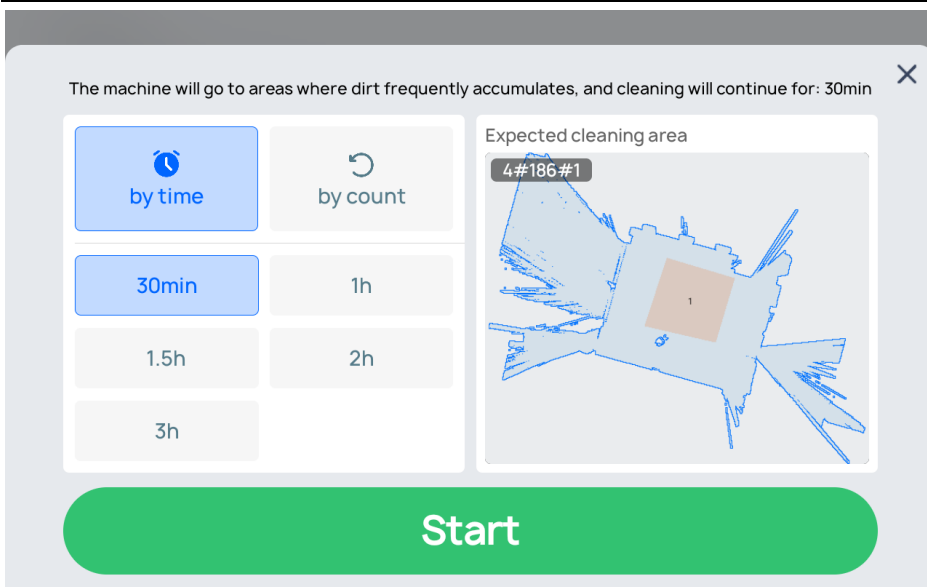
Tasks1 Edit

Overlay Cleaning

Standard sweeping and vacuuming 1 hour(s) 37 minute(s)

Ultra Spot
Cleaning

Start 



06 AI Auto/Manual Exemption

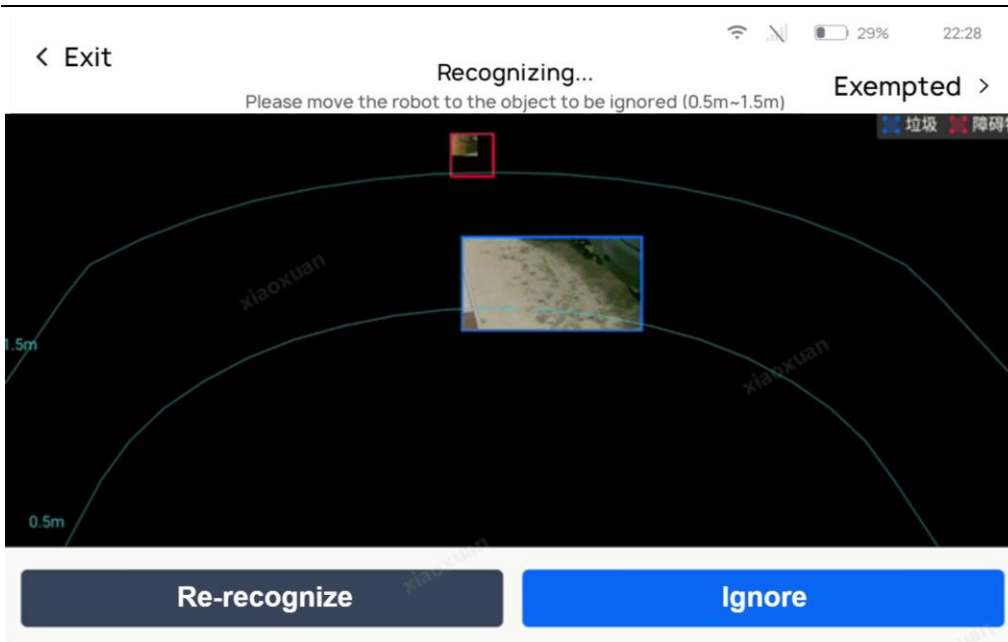
Supports "exemption" processing for floor patterns or designs prone to being misidentified as stains through two methods: manual validation or automatic learning. Once exempted, the robot will no longer trigger false identifications at that location in subsequent cleaning tasks.

AI Identification Exemptions

During the cleaning process, the robot may also identify ground wear, markings, decorations, etc. as dirt. After turning on this function, the targets that have been repeatedly identified as dirty but cannot be cleaned will be automatically exempted. The spot-cleaning and AI adaptive adjustment of cleaning parameters functions will not take effect on exempted targets.

Manual Exemption [>](#)

Exempting misidentified trash and obstacles will allow the robot to automatically ignore them during subsequent cleaning, making the cleaning process smoother.



4.8.2 Product Interaction Settings

01 Multi-language Switching

Switch the language of the operating system



02 Metric and Imperial Unit Switching

When enabled, imperial units will be displayed

Units

Display both metric and imperial units concurrently

Default: Off; in the off state, only metric units are displayed. When enabled, both metric and imperial units will be displayed simultaneously.

03 Play voice and music during operation

< Return

Cleaning settings

Charging settings

Network

Speed

Voice, light and animation

Maps

Language and Units

Password and Security

Volume

Volume slider

Voice/Music

Sound Playback Interval(s) 10

Play voice when cleaning

The robot can play the custom voice while cleaning automatically

Play music when cleaning

The robot can play the custom music while cleaning automatically
No music, please import the music firstly

< Return

Cleaning settings

Charging settings

Network

Speed

Voice, light and animation

Maps

Language and Units

Password and Security

Import Music

Broadcasting bee sounds during cleaning

When the robot is automatically cleaned, the bee sound can be broadcast

Buzzing sound 1.mp3

Buzzing sound 2.mp3

Play music when returning to the pile

When the robot returns to the pile, you can play music
No music, please import the music firstly

Import Music

5、Product Maintenance & Troubleshooting

5.1 Daily Cleaning

5.1.1 Cleaning Sensors and the Underside of the Robot

Sensors are the robot's eyes. If they are obscured by dust, the robot will clean blindly; therefore, regular cleaning is required.

Cleaning	Wipe with a soft, clean cloth
----------	-------------------------------

Method	
Period	3-5 weeks
Body Sensor Diagram	

5.1.2 Cleaning the Dustbox and Air Filter

Accumulation of garbage and dust can breed bacteria and affect cleaning effectiveness. Please clean it in time.

Cleaning Method	<ol style="list-style-type: none"> 1. Dustbox: Take out the dustbox to empty the garbage when it is full or regularly. 2. Air Filter: Use the dust scraping handle for daily cleaning. Put a garbage bag over it and pat it gently on a regular basis. Replace it directly if it is too dirty. Washing with water is not recommended.
Period	Clean every 2 days, or clean once or multiple times a day depending on the degree of dirt.
Cleaning	Dustbox

Illustration



Fan Filter

(1) Manual Dust Shaking



(2) Electric Dust Shaking



(3) Remove and Clean



5.1.3 Cleaning the Side Brush and Brush

Hair and fine fabrics will entangle on the side brush and brush during operation. Failure to clean them for a long time will affect the cleaning effectiveness and even the service life of the motor.

Cleaning Method	Use a brush or hands to clean the side brush and brush, and remove tangles.
Period	Clean every 2 days, or clean once or multiple times a day depending on the degree of entanglement.
Cleaning Illustration	Side Brush Cleaning



Roller Brush Cleaning



5.2 Consumable Replacement

Part Illustration	Location	Part Name	Maintenance Method	Maintenance Period
		Side Brush	Clean	1 time/day
			Replace	6-12 months
		Brush	Clean	1 time/day
			Replace	6-12 months

		Air Filter	Scrape Dust	1 time/day
			Clean	1 time/day
			Replace	3-6 months
		Front Rubber Strip	Replace	6-12 months
		Rear Rubber Strip	Replace	6-12 months

(The replacement timing for the aforementioned consumables can be determined by referring to the "Consumables" status page on the robot's status screen.)

5.3 Troubleshooting

Fault	Troubleshooting Steps
Unable to power on	<ol style="list-style-type: none"> 1. Check if the robot's battery is too low, and use the power adapter to charge the robot; 2. If the power adapter cannot charge, the battery may be exhausted (left for more than 30 days), take out the battery and use the battery direct charging cable to charge the battery.
Unable to sweep garbage	<ol style="list-style-type: none"> 1. Check if the dustbin is full. If so, pull out the dustbin and empty the debris before proceeding operation. 2. For heavier debris, the side brush gear can be adjusted to "Powerful" mode.
Garbage being scattered	If the debris is lightweight and being blown away by the airflow from the side brushes, the side brush gear can be adjusted to "Eco" mode.

After-Sales Policy

Shenzhen Pudu Technology Co., Ltd. promises to provide free product warranty services starting from the date of product activation within the valid warranty period (warranty periods may vary for different components), and customers are not required to pay after-sales service fees. For cases exceeding the warranty period or not falling under the free warranty service, fees will be charged according to standard prices. Customers should contact the official after-sales service hotline to arrange repairs.

Pudu Technology will provide warranty service if the following conditions are met::

1、 Within the product warranty period:

- 1) Non-human quality issues occur under normal use.
- 2) No unauthorized disassembly or repair; no water or foreign object ingress; no collision or drop.
- 3) The product serial number, factory labels, and other markings show no signs of tearing or tampering.
- 4) Valid proof of purchase, receipts, and order numbers are provided.
- 5) Damaged spare parts replaced during the warranty period belong to Pudu Technology.

2、 Pudu Technology will charge for repairs in any of the following situations:

- 1) The product exceeds the warranty period.
- 2) The product serial number, factory labels, or other markings are torn, tampered with, or unrecognizable.
- 3) Quality issues caused by collisions or burning not resulting from the product's own quality, or ingress of foreign objects (water, oil, sand, etc.).
- 4) Damage caused by unauthorized modification, disassembly, opening of the shell, or repairs not guided by official instructions.
- 5) Damage caused by incorrect installation, use, charging, or storage not in accordance with the product manual and installation guide.
- 6) Damage caused by using cleaning detergents not specified in official instructions.
- 7) Failure of accessories or components other than the main warranty parts.
- 8) Faults or damage caused by force majeure (such as earthquakes, fires, or wars).

After-sales Service Consultation:

If you have any questions, please contact Pudu Technology Headquarters:

Official After-sales Email: techservice@pudutech.com

Official After-sales Hotline: 400-0826-660