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1. Safety Instructions

1.1 Instructions for Electricity Usage

- Do not charge your robot using non-original chargers. If the charger is damaged, replace it immediately.
- Please fully charge the battery to 100% before first use.
- To maximize the efficiency and battery life of the robot, always keep the battery level above 10%.
- A battery level lower than 10% means that the robot will soon run out of power and needs to be charged as quickly as possible.
- A battery level lower than 2% means that the battery is under protection. In this case, the robot will be unable to perform tasks and must be charged before it can be used again.
- If the machine has not been used for a long time, please charge it fully before using it again
- It is strictly forbidden to disassemble the battery without authorization, as it may cause safety accidents such as electric shock, short circuit, fire, explosion, or personal injury due to the battery falling.
- It is prohibited to use sharp tools to make contact with the surface of the battery box, as this may scratch or damage the battery.

1.2 Instructions for Use

1.2.1 Please pay attention before use:

- Please ensure that you have received training from technical support or an administrator and have been authorized to use this machine.
- This auto-cleaning wheeled robot can only be used indoors on flat surfaces. Do not use it outdoors on any rugged ground or unpaved ground.
- For safety, the wheels are locked by default. To move the robot, please press the button on the screen, grip the handles with both hands, and use the joystick to control the robot's forward or backward movement.
- If the robot inadvertently enters the wrong position due to obstructions or other factors, please pause the task promptly and push it back to the correct route before resuming the task.
- Do not pull the robot during operation. If you need to push or move the robot, please click the screen to pause it first.
- Do not push the robot in the opposite direction while it is powered on.
- Do not obstruct the robot's sensors, as this may result in abnormal movement or loss of positioning.
- Do not hit or apply force to the screen, as this may damage the device.
- Do not load items onto the robot, and do not place open flames or cooking appliances on it. Do not store any combustible solids, gases, or liquids on the robot.
- Do not make temporary adjustments while the robot is moving. All operations should be conducted after clicking the screen to pause the robot's movement.
- Maintenance or cleaning tasks should not be performed while the robot is in operation.
- To ensure safety, please ensure that the robot operates at a speed of 1.0 m/s or below.
- The robot's automatic obstacle avoidance may have blind spots; it is strictly prohibited to suddenly obstruct the robot while it is moving at high speed, as this may cause safety accidents.

1.2.2 Please check before use:

- Check if all components are intact and undamaged, and ensure that the cleaning parts are properly installed.
- Verify that the emergency stop button is released.
- Ensure that there are no cables or other items on the floor in the environment to prevent dragging during the robot's operation.
- Make sure that the area to be cleaned has its entrance open and that any obstacles have been removed to avoid preventing the robot from accessing the area and causing missed spots.

1.2.3 If you are operating the robot while standing on the platform:

- The maximum load for the platform is 150 kg. Please ensure that a single person does not exceed this weight limit and do not allow multiple people to stand on the platform to avoid danger.
- Make sure you are stable and holding on properly before starting the joystick. Do not jump off the platform directly while the robot is moving. Please wait until the robot has come to a complete stop before stepping off the platform.
- During movement, keep your eyes forward and be aware of your surroundings to avoid collisions with obstacles and pedestrians. When moving backward, continuously check the area behind you.
- In case of an emergency that requires you to stop the cleaning machine quickly, immediately press the red emergency stop button.
- Operate at a low speed on slopes or smooth surfaces.
- Do not operate the robot while under the influence of alcohol or drugs that impair your mental clarity.
- It is prohibited to use the platform for transporting goods; the platform is only for the user to stand on while operating the robot.

1.3 Instructions for Environment

- Do not use the robot at a temperature above 40°C (104°F) or below 0°C (32°F).
- Do not use or charge the robot in hazardous environments such as high temperature, high pressure, flammable, explosive conditions, or where there are open flames, to prevent personal injury or damage to the equipment.
- Do not dispose of the robot and its accessories as regular household waste. Please comply with local regulations regarding the disposal of this robot and its accessories, and support recycling efforts.
- This robot is designed for use on flat surfaces. It is not suitable for environments with steps, steep slopes, or very tight spaces.
- It is not recommended to use the robot on heavily soiled surfaces or where there is standing water.
- Loose power cords and other debris on the floor may trip or entangle the robot; please remove these before use.
- When using this product in environments with protrusions on the floor (such as thresholds or floor sockets), please ensure that the height of the protrusion is less than 20mm.
- The robot requires a passage width greater than 85cm, and for long corridors, a width greater than 90cm is recommended for optimal movement.
- The maximum climbing angle of the robot is 8° (when not in cleaning mode). To avoid potential risks from slipping back, the robot should not be paused on ramps.
- The robot is intended for cleaning on flat surfaces only (when in cleaning mode). Do not use the robot on slopes greater than 5°.
- Fences or other barriers should be added in areas where there is a risk of the robot falling, such as edges of stairs or inclines.
- Do not park the product in prohibited areas such as fire exits or evacuation routes.

1.4 Instructions for Transportation

- Before transporting the robot, please ensure that the clean water tank, wastewater tank, and waste container are completely emptied.
- Do not use forklifts or other equipment to lift and move the robot directly; instead, use the original robot pallet for transportation.
- It is strictly prohibited to tip the robot during transport, as this may damage the body of the machine.

2. Product Components

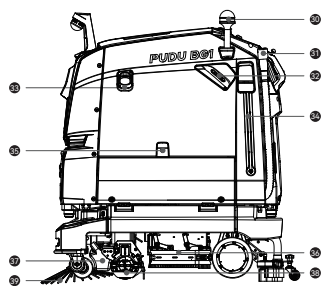
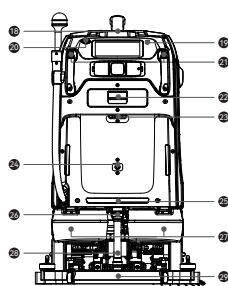
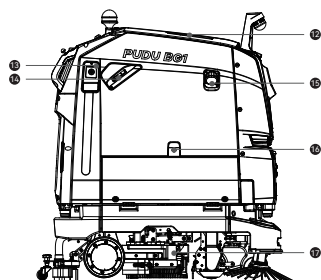
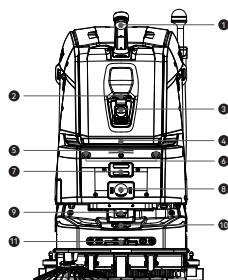
2.1 Introduction

PUDU BG1 Pro robot is an AI-Native Large Scrubber-Dryer Robot designed specifically for large-scale environments. It supports multiple functions, including washing, sweeping, vacuuming, dust mopping , and polishing, offering unprecedented floor cleaning capabilities. It efficiently meets the deep cleaning needs of various hard surfaces and is suitable for retail supermarkets, commercial complexes, factories, warehouses, and transportation hubs. Through quick and efficient deep cleaning of floors, the BG1 Pro not only enhances the quality of the cleaning environment but also helps customers significantly reduce costs and improve operational efficiency.

2.2 Packaging List

Robot x1, Charger x1, Side Brush x1, Sweeping Rolling Brush x1, Disk brush x2, Squeegee x1, Waste Container x1, Cleaning Solution Container x2, "PUDU BG1 Pro User Manual" x1, Certificate of Compliance x1, Positioning code x1, Water Filling Hose x1, Filter x2

2.3 Appearance and Components



- 1 3D LIDAR
- 2 RGBD
- 3 Front Projection Light
- 4 Front Fill Light
- 5 AI Camera
- 6 DToF Array Modular
- 7 charging electrode plate
- 8 automatic water inlet
- 9 LIDAR
- 10 RGBD
- 11 LIDAR
- 12 sewage tank cover
- 13 Semi-automatic Water Inlet
- 14 RGBD
- 15 Outline Light
- 16 RGB Camera
- 17 Extended Disc Brush
- 18 VSLAM Camera
- 19 Power On/Off Button
- 20 Emergency Stop Button

- 21 Control Joystick
- 22 Storage Box
- 23 RGBD
- 24 AI Camera
- 25 Fill Light
- 26 LIDAR
- 27 Dual Cleaning Agent Boxes
- 28 Suction Pipe
- 29 Squeegee
- 30 Warning Light
- 31 drain pipe
- 32 RGBD
- 33 Outline Light
- 34 Clean Water Level Gauge
- 35 RGB Camera
- 36 Disk brush
- 37 Dust Box
- 38 Sweeping Roller Brush
- 39 Side Brush

2.4 Technical Specifications

Feature	specs	
Product Name	Commercial Cleaning Robot	
Model	BGBC02	
Weight	approx. 348.5kg (Unloaded)	approx. 768.64 lbs (Unloaded)
Robot dimensions (L×W×H)	1195 x 760 x 1303mm (with squeegee)	47.0 x 29.9 x 51.3 in (with squeegee)
	1120 x 660 x 1303mm (without squeegee)	44.1 x 25.9 x 51.3 in (without squeegee)
Enclosure material	ABS + LLDPE	
Operating voltage	DC 41.6 - 57.2V	
Battery capacity	90Ah	
Charging time	Automatic Voltage Detection: High voltage (AC ≥ 180V): about 3h; Low voltage (AC ≤ 180V): about 4.5h	Automatic Voltage Detection: High voltage (AC ≥ 180V): about 3h; Low voltage (AC ≤ 180V): about 4.5h
Power input	AC 100V ~ 240V, 50/60Hz	
Power output	56V, 35A	
Auto parking	Supported	
Navigation method	3D Lidar + 3D VSLAM Fusion Positioning	
AI Cleaning	Supported	
Cleaning Capability	scrubbing, sweeping, vacuuming, dust mopping , and polishing	
Run-time*	Sweeping & Scrubbing: Max 7.5h	
Cruise speed	0.2m/s ~ 1.0m/s	0.66 ~ 3.28ft/s
Cleaning Width (with side brushes)	708mm	
Washing Width	550mm	
Disk Brush Extension (Right)	Supported	
Water Tank Capacity	Clean Water Tank: 75L	Clean Water Tank: 19.81Gal (US)
	Waste Water Tank: 60L	Waste Water Tank: 15.85Gal (US)
Agent Tank Capacity	Dual Agent Tanks, total approx. 7L	Dual Agent Tanks, total approx.1.85Gal (US)
Waste Water Basket Capacity	3L	0.79Gal (US)
PH Level	Water Tank: pH 6 ~ 8	
	Cleaning Agent Waterway: pH 2 ~ 12	
Clean Water Discharge Method	Manual drainage supported	
Waste Water Discharge Method	Manual gravity discharge, electric discharge with pump; automatic discharge (requires work station)	
Trashbin Capacity	5L	1.32Gal (US)
Cleaning Noise Level	approx.75dB (A) (depending on cleaning mode)	
Minimum Passage Width	850mm	
Maximum Obstacle Height	25mm	
Maximum Climbing Angle	Cleaning Task: 5°	
	Non-Cleaning Task, Movement Only: 8°	
Screen Specification	10.1- inch LCD screen	
Communication Network	Supports 4G, Wi-Fi, Bluetooth communication, Lora or 2.4G (optional)	
Mobile App	Supported	
Operation Modes	Manual Mode, Automatic Mode	
Automatic Charging & Water Refill	Supported (requires work station)	
Operating Environment	Temperature: 0°C ~ 40°C; Humidity: ≤ 90% RH	Temperature: 32°F ~ 104°F; Humidity: ≤ 90% RH
	Temperature: 0°C ~ 40°C; Humidity: ≤ 90% RH	Temperature: 32°F ~ 104°F; Humidity: ≤ 90% RH
Charging Environment	Temperature: 0°C ~ 40°C; Humidity: ≤ 90% RH	Temperature: 32°F ~ 104°F; Humidity: ≤ 90% RH
Storage Environment	Temperature: -20°C ~ 70°C; Humidity: ≤ 90% RH	Temperature: -4°F ~ 158°F; Humidity: ≤ 90% RH
Operating Elevation	< 2500m	
Applicable Floors	Disc Brush: Regular hard surfaces such as tile, antique brick, terrazzo, polished concrete, square brick, etc. Pads(optional): Hard surfaces that are easy to scratch, such as PVC, epoxy resin, marble, and coated tiles.	
Protection Level	IPX4	

(* The battery life for each cleaning mode is calculated under standard settings, with power level from 100% to 10%)

3. Product Usage

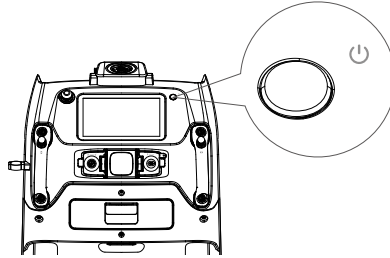
3.1 Button Instructions

Power On:

Press and hold the power button for approximately 12 seconds; the bottom light strip will display blue.

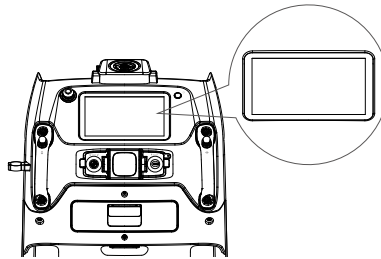
Power Off:

Press and hold the power button for approximately 12 seconds to initiate the shutdown process. The screen will go black when the shutdown is successful.



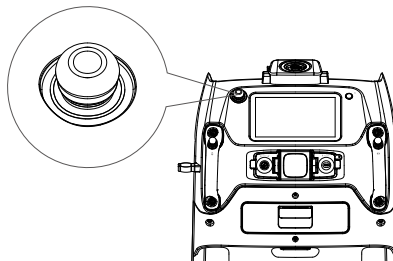
Pause:

During the robot's operation, you can tap the screen to pause the current task. Tapping the screen again will resume the current task.



Emergency Stop:

In the event of an emergency during the robot's operation, you can press the emergency stop switch to halt the robot's movement. Rotate the emergency stop switch clockwise, and follow the on-screen instructions to restore the robot's operation.

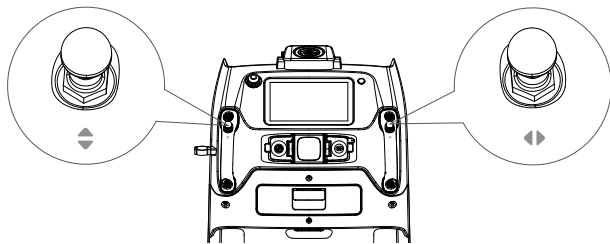


Note:

Before starting the automatic cleaning task, please ensure that the robot is powered on and is positioned directly below or in front of the visual marker code (depending on the placement of the code) to ensure the robot can successfully locate its initial point.

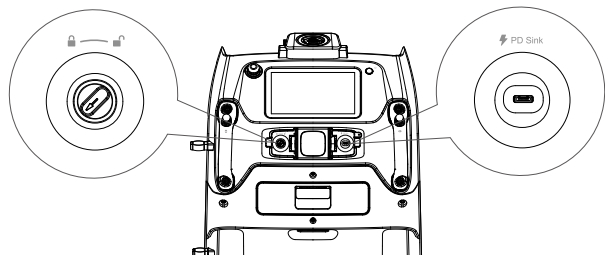
3.2 Operating Instructions

To ensure safety, the wheels are locked by default.
If you need to move the robot, please tap "Move Robot" on the screen, grip the handrails with both hands, and use the joystick to control the robot's forward or backward movement.



If the robot cannot be powered on due to low battery, please follow these steps:

1. Prepare a power bank that supports PD protocol and open the cover as shown in the diagram.
2. Connect it to the charging port shown in the diagram.
3. Operate the button shown in the diagram to display a green light, then push the robot.



3.3 Other Components

For detailed information, please refer to the maintenance video tutorial available inside the machine.

4. Maintenance and Care

4.1 Common Issues and Solutions

- 1. Unable to Power On: Check if the battery is depleted. If the battery is empty, it needs to be charged.
- 2. Unable to Sweep Debris:
 - a. The debris bin is full; it needs to be removed and emptied before continuing operation.
 - b. Check if the bristles of the rolling brush are severely worn. If they are, the rolling brush component needs to be replaced.
- 3. Unable to Discharge Waste: Ensure that the wastewater pipe is not blocked. If it is blocked, clear any obstructions and clean the wastewater tank before proceeding with waste discharge.

4.2 Regular Maintenance

Maintenance Component	Inspection Frequency	Maintenance Method
Wastewater Tank	Every 2-3 days	Rinse the wastewater tank with clean water and then empty it.
Drive Wheels and Auxiliary Wheels	Once a week	Clean the surface with a clean cloth and check for hair entanglement.
Visual Sensors and Lidar	Once a week	Clean with a soft dry cloth or lens cleaning products.
Disk Brush	Once a week	Rinse the surface and corners with clean water to remove dirt.
Sweeping Roller Brush	Once a week	Rinse the surface and corners with clean water to remove dirt.
Squeegee	Once a week	Rinse the surface and corners with clean water to remove dirt.
Filter Box	Once a week	Rinse the dirt inside the floor washing filter box with clean water.
Debris Bin	Every 15 days	Clean out any remaining debris inside the debris bin; if necessary, you can rinse it with water. Make sure to dry it completely before reinstalling.

5. After-sales Service

Shenzhen Pudu Technology Co., Ltd. undertakes to provide free product warranty services during the product's warranty period (different parts of the product may have different warranty periods). The customer does not need to pay any fees for the spare parts. Standard fees apply if the warranty period has expired or in cases where free product warranty is not applicable. Customers can call the after-sales service hotline to learn more about the after-sales service policy and for product maintenance, or refer to the PUDU BG1 Pro User Guide for detailed after-sales service policies.

Pudu Technology after-sales service email: techservice@pudutech.com.