



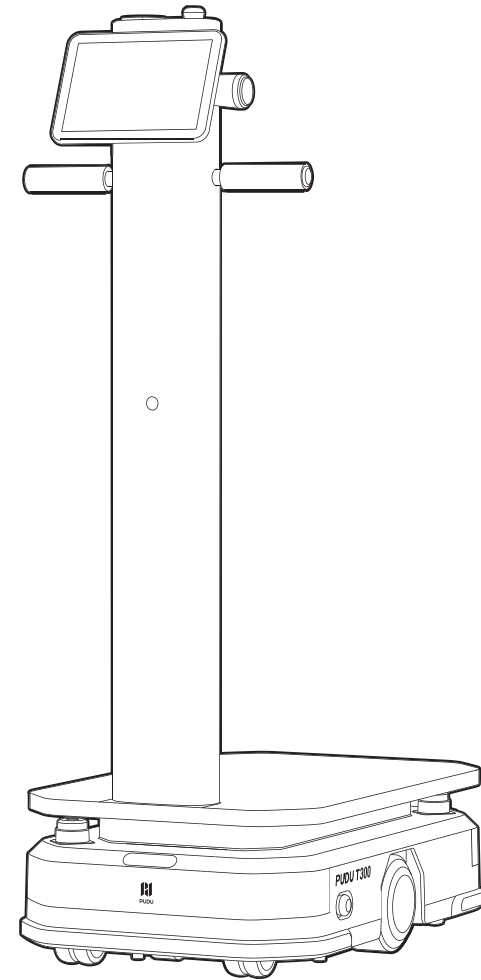
Q Pudu Robotics



www.pudurobotics.com



Operation Guide



PUDU T300 User Manual

User Manual ^{V1.0}

Model: WTID01 WTIDL1

用户手册 ^{V1.0}

User Manual

目录

中文简体

01/06

English

07/14

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1. 安全说明

1.1 用电须知

- 禁用非原厂充电器对机器人充电。如果发现充电器损坏，请及时更换充电器。
- 首次使用，请将电池电量充满至 100% 状态。
- 当机器人剩余电量低于 20% 时，请及时充电。长时间低电量运行会缩短电池使用寿命。
- 确保电源电压符合充电器上标注的电压，否则可能导致充电器损坏。

1.2 使用须知

- 禁止遮挡机器人传感器，否则可能导致机器人行走不正常或定位丢失。
- 禁止在机器人开机运行状态下对机器人进行清理和维护工作。
- 禁止在机器人上置放明火炉具以及易燃易爆物品。
- 机器人运动过程中请勿取放物品，以免造成意外碰撞所带来的财产损失和人身伤害。
- 请勿在机器人运动过程中推动、搬运机器人，以免机器人运行异常。
- 未经专业培训人员不得擅自拆卸和维修机器人。若机器人出现故障，请及时联系深圳市普渡科技有限公司技术支持工程师。
- 搬运机器人时，不能超过当地法律或法规所允许单人搬运的最大重量。搬运过程中请始终保持机器人的直立姿态。

1.3 环境须知

- 请勿在高温高压或易燃易爆等危险场景使用机器人或对机器人进行充电操作，以免发生人身伤害或损坏设备。
- 请勿在潮湿、地面有任何液体或粘稠物的环境下使用机器人，以免对机器人造成损坏。
- 请勿在有明文规定禁止使用无线设备的场所使用机器人，否则会干扰其它电子设备或导致其它危险。
- 请勿将机器人及其附件作为普通的生活垃圾处理。请遵守本机器人及其附件处理的本地法令，并支持回收行动。
- 需在本手册声明的产品工作环境条件下使用机器人，否则可能存在设备运行异常或其它危险。

2. 产品组成

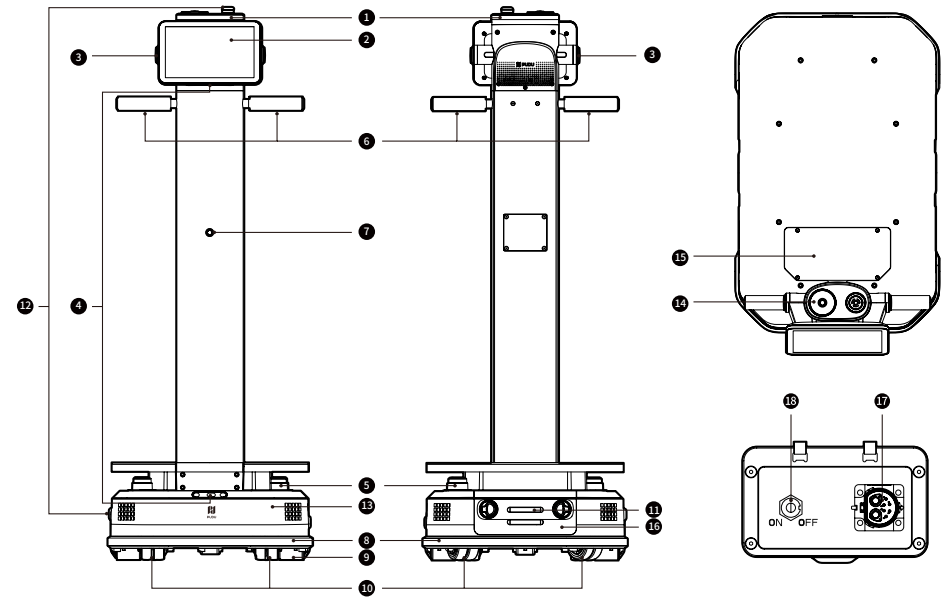
2.1 简介

PUDU T300 是应用于工业场景物料转运、商用场景大负载搬运的配送机器人。以载重底盘为核心，装配操作屏幕，便于用户使用。机器最大负载可达到 300 kg，运载空间开放、灵活，可搭配不同配件满足不同的运载需求。同时具有丰富的接口，便于硬件拓展与 IOT 互联。

2.2 发货清单

整机 × 1、《PUDU T300 用户手册》× 1、合格证 × 1、充电器 × 1。

2.3 外观部件及介绍



- | | |
|----------|---------|
| ① 指示灯 | ⑩ 辅助轮 |
| ② LCD 屏幕 | ⑪ 充电电极 |
| ③ 快捷按钮 | ⑫ 急停开关 |
| ④ RGBD | ⑬ 开关机按键 |
| ⑤ 激光雷达 | ⑭ 顶视相机 |
| ⑥ 把手 | ⑮ 接口窗 |
| ⑦ 前视相机 | ⑯ 电池仓 |
| ⑧ 碰撞开关 | ⑰ 充电口 |
| ⑨ 驱动轮 | ⑱ 制动器开关 |

2.4 技术规格

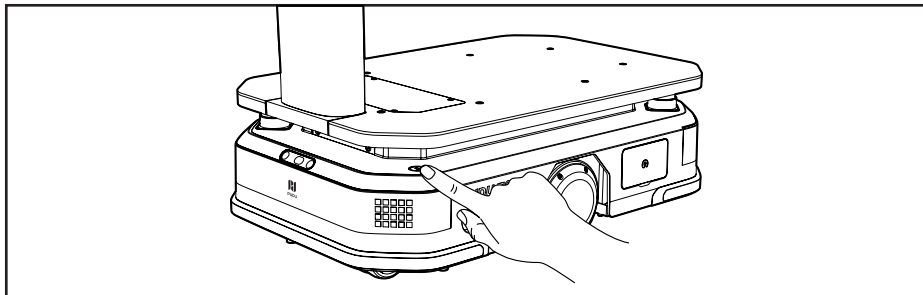
产品特性	描述
工作电压	DC 20.8 V~29.2 V
电池容量	30 Ah
最大负载	300 kg
充电时间	约 2 h (0 % 到 90 %)
续航时间	12 h (空载巡航) ; 6 h (最大负载)
整机重量	65 kg (WTID01) ; 81 kg (WTIDL1)
屏幕规格	10.1 寸 LCD 屏
整机尺寸	835 × 500 × 1350 mm
巡航速度	0.2 m/s~1.2 m/s (可调节)
导航方式	视觉定位、激光定位
最小通过宽度	60 cm
最大越障高度	20 mm
最大过缝宽度	35 mm
操作系统	Android
音响功率	10 W × 2 立体声音响
工作环境	温度: 0 °C ~ 40 °C; 湿度: ≤ 85% RH
储存环境	温度: -20 °C ~ 60 °C; 湿度: ≤ 85% RH
工作海拔	< 2000 m
路面要求	室内环境, 平坦光滑地面
充电器电源输入	AC 100 V~240 V, 50/60 Hz
充电器电源输出	29.2 V, 15 A

3. 产品使用

3.1 按键说明

开机:

将机器人移动至开机点, 长按电源开关 3 秒, 指示灯显示蓝色, 表示开机成功。



03

关机:

长按电源开关 3 秒, 弹出关机提示框, 点击“关机”按键后, 头部灯带和屏幕熄灭, 表示关机成功。

暂停:

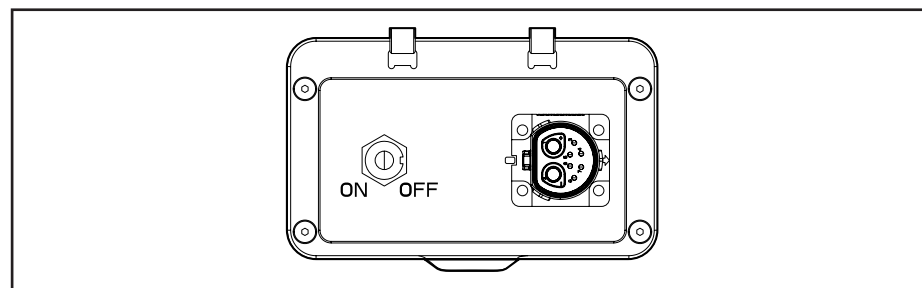
机器人运动过程中可通过单击屏幕暂停当前任务。再次单击屏幕可恢复当前任务。

急停:

机器人运动过程中出现紧急情况时可按压紧急停止开关, 使机器人停止运动。顺时针旋转紧急停止开关, 按界面提示恢复机器人运行。

制动器开关:

制动器开关仅用于在机器人停止后生效。当制动器开关为“ON”的状态时, 机器在急停状态下, 为保证安全, 电机会自动刹停。若想推动机器人, 则需要将置于制动器开关置于“OFF”。



3.2 充电与电池更换

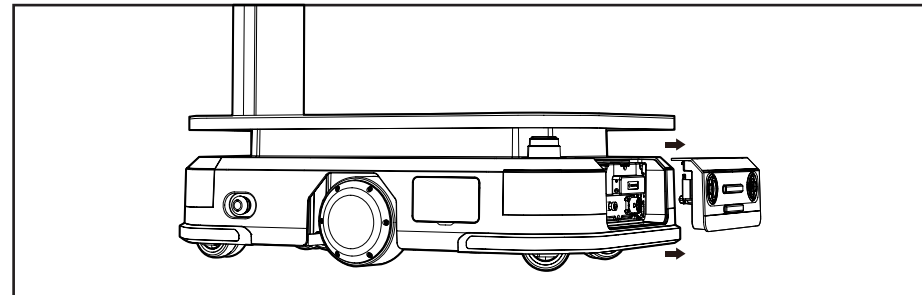
充电:

T300 支持充电器充电与充电桩充电。

- 充电器充电: 将配套充电器插入机器人充电口, 即可进行充电。
- 充电桩充电: 根据充电桩选配件部署指引部署充电桩后, 将机器人正常开机。点击机器人界面首页“一键回充”按钮即可进行回充。

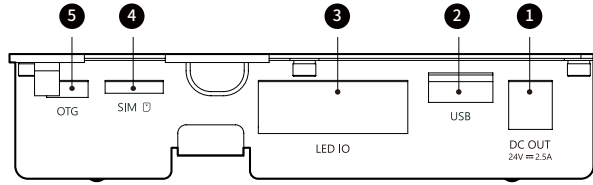
电池更换:

在机器人关机状态下, 打开电池仓盖。解除连接在电池上的供电连接器, 即可更换电池。更换电池后, 连接供电连接器, 并盖上电池仓盖, 即可开机使用。



04

3.3 接口说明



T300 在接口窗下设置了对外接口，可用于硬件扩展与设备调试。具体接口规格如下：

序号	名称	描述
1	对外供电接口	24 V (电池电压)，最大输出电流 2.5 A。接口插针直径 Ø2.5 mm
2	USB	USB 2.0，用于外接设备的数据通信
3	LED IO	用于连接托盘选配件的 LED 灯
4	SIM 卡槽	可插入 nano 型号的 sim 卡
5	OTG	用于设备调试

3.4 任务场景

为适应不同的业务场景，机器人提供了多种模式选择。机器人开机后的首页页面，用户可根据不同的使用场景进行选择。

模式	说明
配送模式	用户可将多个目标点的物料放置在机器人上，并操作屏幕发送任务进行物料配送。机器人可以自己规划最佳路径，将物品送达全部目标点。配送完成后自动返回至待命点。
巡航模式	用户可设定路径，机器人会沿着预先设定的路径循环运行，并可停留于路径上的逗留点，便于机器人在行驶过程中的物料取放。
顶升模式 *	用户可设定取货点与放货点，机器人会自动前往取货点识别并顶起货物，并将货物运送搬运至目的地后自动卸下。

⚠ 顶升模式仅 WTIDL1 型号支持。

机器人详细使用方法请参见《PUDU T300 用户操作指南》。

4. 维护与保养

维护部件	机器人状态	检查周期	检查或维护方法
驱动轮及辅助轮	关机	一周	使用洁净布擦拭表面。并检查轮子表面是否磨损，按需进行更换。
视觉传感器及激光雷达	关机	一周	使用洁净布或镜头清洁用品进行清洁。如遇到突发污渍情况，请务必及时处理，以免遮挡传感器造成机器人运行异常。
机身外壳	关机	一个月	使用洁净布擦拭表面。并检查安装情况。确保外壳平整，且固定牢靠。
指示灯与音响	开机	一个月	检查所有指示灯和声音警告是否正常工作。
急停开关	开机	一个月	检查急停按钮是否正常工作。
制动器开关	开机	六个月	将制动器开关至于“OFF”档位，并轻轻向前推动机器人，检查制动器开关是否正常工作。 注意：在检查之后再再次开启制动器。
安全贴纸和铭牌	关机	六个月	检查机器人上的安全贴纸、标签和铭牌是否完好无损且清晰可见。

5. 售后服务

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普渡科技售后服务热线：400-0826-660，售后邮箱：techservice@pudutech.com。

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1. Safety Instructions

1.1 Electrical requirements

- It is strictly prohibited to use chargers other than the original charger to charge the robot. If the charger is found to be faulty, please replace it as soon as possible.
- Please fully charge the battery to 100% before first use.
- Be sure to charge the robot as soon as it has less than 20% power remaining. Working at low battery levels for long periods will shorten the battery's service life.
- Make sure that the power supply voltage complies with the voltage range on the charger, otherwise the charger may be damaged.

1.2 Use requirements

- Do not block the robot sensor. Otherwise, the robot may fail to move properly or get lost.
- Cleaning or maintenance work is prohibited while the robot is powered on.
- Do not place cookers with naked flames or flammable or explosive items on the robot.
- Do not pick up or place any items while the robot is moving, to avoid property losses or personal injury caused by accidental collisions.
- Do not push or carry the robot while it is moving, to prevent it from running abnormally.
- The robot must not be disassembled or repaired by anyone other than trained professionals. In case of any fault with the robot, please contact a technical support engineer immediately.
- When moving the robot, please observe the requirements on the maximum allowed weight for a single person stipulated by local laws or regulations. While the robot is being moved, please be sure to always keep it in an upright position.

1.3 Environmental requirements

- Do not use or charge the robot in dangerous environments with high temperature, high pressure, or risks of flames or explosions, so as to avoid personal injury or damage to the product.
- Do not use the robot in a humid environment or in the presence of liquid or viscous substances on the ground, so as to avoid damage to the robot.
- Do not use the robot in locations where wireless devices are explicitly prohibited, as this may interfere with other electronic devices or cause other hazards.
- Do not dispose of the robot and its accessories as ordinary domestic waste. Please comply with local regulations on the disposal of the robot and its accessories and support recycling.
- It is necessary to use the robot under the product operating environment declared in this manual. Otherwise, there may be abnormal operation of the equipment or other hazards.

2. Product Components

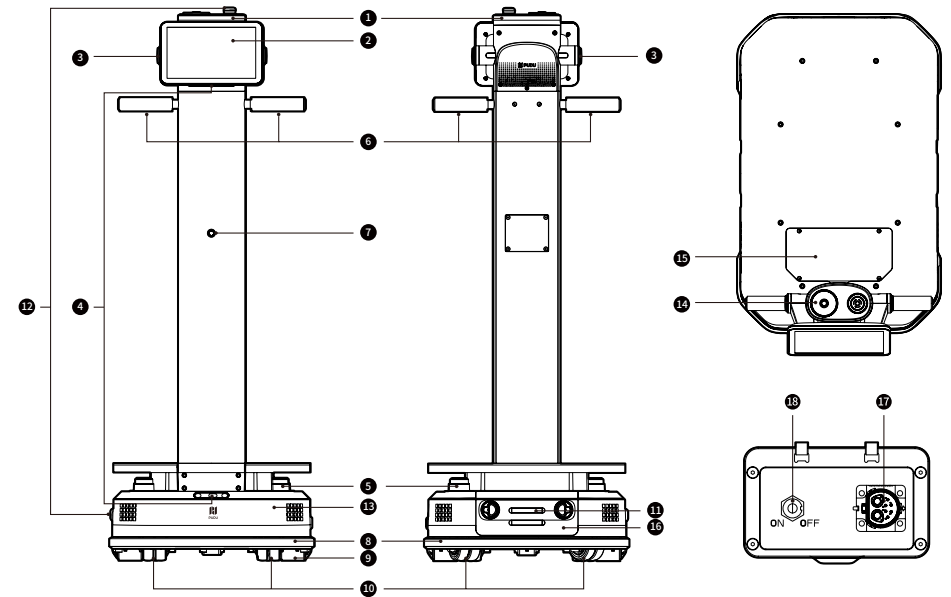
2.1 Overview

PUDU T300 is a delivery robot applied to material transfer in industrial scenarios and large load handling in commercial scenarios. It is equipped with a load carrier chassis as the core and an operation screen for user-friendly use. The maximum load of the robot can reach 300 kg, and the carrying space is open and flexible, which can be matched with different accessories to meet different carrying needs. Meanwhile, it has rich interfaces, which is convenient for hardware expansion and IOT interconnection.

2.2 Packaging list

Robot ×1, PUDU T300 User Manual ×1, Quality Certificate ×1, Charger ×1.

2.3 Appearance and Components



- | | |
|---------------------|----------------------------|
| ① Indicator light | ⑩ Auxiliary wheels |
| ② LCD screen | ⑪ Charging electrode plate |
| ③ Shortcut button | ⑫ Emergency stop switch |
| ④ RGBD | ⑬ Power switch |
| ⑤ Lidar | ⑭ Top view camera |
| ⑥ Handles | ⑮ Interface window |
| ⑦ Front view camera | ⑯ Battery box |
| ⑧ Collision sensor | ⑰ Charging port |
| ⑨ Drive wheels | ⑱ Brake switch |

2.4 Technical specifications

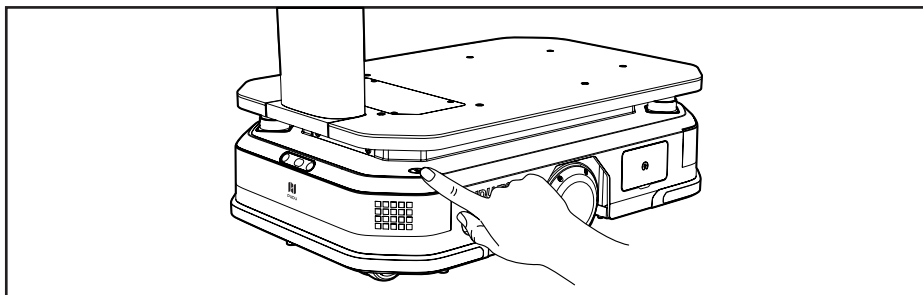
Product Feature	Description	
Operating voltage	DC 20.8 V~29.2 V	
Battery capacity	30 Ah	
Max. load	300 kg	661.39pounds
Charging time	About 2 h (from 0% to 90%)	
Battery life	12 h (None load); 6 h (Max. load)	
Overall weight	65 kg (WTID01); 81 kg (WTIDL1)	143.30 pounds (WTID01); 178.57 pounds (WTIDL1)
Screen specifications	10.1" LCD screen	
Overall dimensions	835 × 500 × 1350 mm	32.87 × 19.69 × 53.15 inches
Cruise speed	0.2–1.2 m/s (adjustable)	0.66-3.94 ft/s (adjustable)
Navigation method	Visual-SLAM, Laser-SLAM	
Min. Path Clearance	60 cm	23.62 inches
Max. surmountable height	20 mm	0.79 inch
Max surmountable gap	35 mm	1.38 inches
Operating system	Android	
Speaker power	10 W × 2 stereo speaker	
Working environment	Temperature: 0° C to 40° C; humidity: ≤ 85% RH	
Storage environment	Temperature: -20° C to 60° C; humidity: ≤ 85% RH	
Operating altitude	< 2000 m	6561.68 ft
Road surface requirements	Indoor environment with flat, smooth surfaces	
Charger power input	AC 100 V~240 V, 50/60 Hz	
Charger power output	29.2 V, 15 A	

3.Product Instructions

3.1 Button description

Powering on:

Move the robot to the startup location. Press and hold the power switch for 3 second, and the Indicator light of the robot will turn blue, indicating that the robot has been successfully powered on.



09

Powering off:

Press and hold the power switch for 3 seconds, and a shutdown prompt will pop up. Click "Power off" and the light strip on the top of the robot and the screen will turn off, indicating that the robot has been successfully powered off.

Pause:

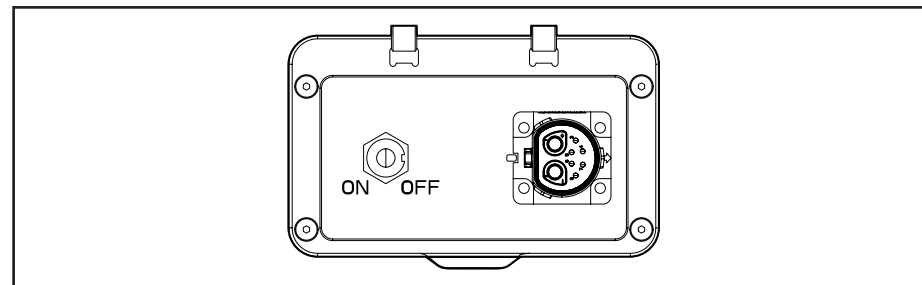
While the robot is moving, the current task can be paused by tapping the screen. Tapping the screen again will resume the current task.

Emergency stop:

In case of an emergency while the robot is moving, press the emergency stop switch to stop the robot. Turn the emergency stop switch clockwise and follow the on-screen prompts to resume the robot's operation.

Brake switch:

The brake switch is only used to take effect after the robot has stopped. When the brake switch is "ON", the motor will automatically stop for safety during an emergency stop. If you want to push the robot, you need to set the brake switch to "OFF".



3.2 Charging and Battery Replacement

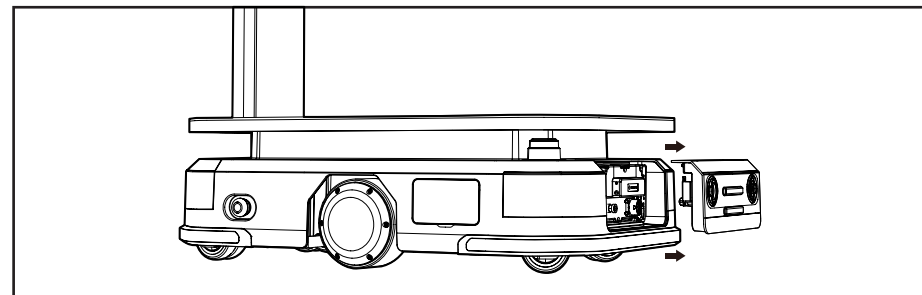
Charging:

The T300 supports charging with a charger or a charging pile.

- Using charger: Simply insert the matching charger into the robot's charging port to start charging.
- Using charging pile: After deploying the charging pile according to the deployment instructions, start the robot normally. Click on the "Return to Charging" button on the robot's interface to initiate the return to charging process.

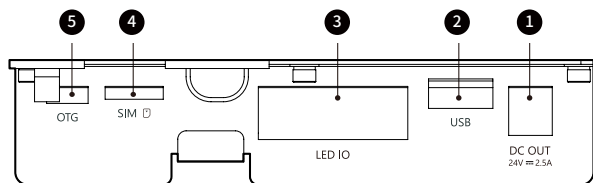
Battery Replacement:

When the robot is powered off, open the battery compartment cover. Disconnect the power connector attached to the battery in order to replace the battery. After that, reconnect the power connector and close the battery compartment cover before turning on the robot for use.



10

3.3 Interface Description



Under the interface window, there are external interfaces that can be used for hardware expansion and device debugging. The specific interface specifications are as follows:

No.	Name	Description
1	Power supply interface	24V (battery voltage), maximum output current of 2.5A. DC plug pin diameter: Ø2.5mm
2	USB	USB 2.0, for data communication with external devices
3	LED IO	Used for LED lights of accessories trays.
4	SIM card slot	Supports Nano SIM card
5	OTG	Used for device debugging

3.4 Mode Introduction

The robot comes with various modes to cater to different scenarios, including Delivery mode, Cruise mode, and Lifting mode.

Mode	Description
Delivery mode	Users can place materials for multiple destinations on the robot and use the screen to send tasks for materials delivery. The robot can plan the best path by itself and deliver the items to all destinations. After the delivery is completed, it will automatically return to the standby point.
Cruise mode	The user can set the path, and the robot will run along the pre-set path in a cycle. In addition, the robot can stop at a stop point on the cruise path, to make it easier for the user to pick up and place materials while the robot is running.
Lifting mode *	Users can set lifting points and lifting down points. The robot will automatically go to the lifting point to identify and lift the materials, and then automatically unload the materials after transporting them to the destination.



The lifting mode is only supported by the WTIDL1 model.

For detailed instructions on using the robot, please refer to the PUDU T300 Operation Guide.

4. Maintenance and Servicing

Part to maintain	Robot status	Checking frequency	Inspection and maintenance method
Drive wheels and auxiliary wheels	Powered off	One week	Please wipe the surface with a clean cloth. Check the wheel surface for wear and replace if necessary.
Visual sensor, and LiDAR	Powered off	One week	Please wipe the surface with a clean cloth. If there is sudden dirt or damage, please handle it in time to avoid blocking the sensor and causing abnormal operation of the robot.
Robot body	Powered off	One month	Please wipe the surface with a clean cloth. And check the installation. Make sure the housing is flat and securely fixed.
Indicator lights and sound	Powered on	One month	Check that all indicator lights and audible warnings are working properly.
Emergency stop switch	Powered on	One month	Check that the emergency stop button is working properly.
Brake switch	Powered on	Six months	Put the brake switch to the "OFF" position and gently push the robot forward to check that the brake switch is working properly. Note: Turn the brake to the "ON" again after checking.
Safety stickers and nameplates	Powered off	Six months	Check that the safety stickers, labels and nameplates on the robot are intact and clearly visible.

For detailed instructions on using the robot, please refer to the PUDU T300 Operation Guide.

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 T300 User Guide for detailed after-sales service policies.

Pudu Technology after-sales service hotline: +86 755-86952935, after-sales service email: techservice@pudutech.com.

6. Compliance information



6.1 Disposal and recycling information

The Waste Electrical and Electronic Equipment (WEEE) Directive aims to minimize the impact of electrical and electronic goods on the environment, by increasing re-use and recycling and by reducing the amount of WEEE going to landfill. The symbol on this product or its packaging signifies that this product must be disposed separately from ordinary household wastes at its end of life. Be aware that this is your responsibility to dispose of electronic equipment at recycling centers in order to conserve natural resources. Each country should have its collection centers for electrical and electronic equipment recycling. For information about your recycling drop off area, please contact your related electrical and electronic equipment waste management authority, your local city office, or your household waste disposal service.



Before placing electrical and electronic equipment (EEE) in the waste collection stream or in waste collection facilities, the end user of equipment containing batteries and/or accumulators must remove those batteries and accumulators for separate collection.

6.2 Federal Communications Commission compliance statement

The following information applies to Pudu robotic.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

6.3 Federal Communications Commission compliance statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause interference.
 - This device must accept any interference, including interference that may cause undesired operation of the device.
- L' émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d' Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L' exploitation est autorisée aux deux conditions suivantes :
- L' appareil ne doit pas produire de brouillage;
 - L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.