FagronLab™ RVC1

Laboratory Robot Vacuum Cleaner

User Manual

FagronLab™

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1. Introduction

Thank you for purchasing the FagronLab™ Laboratory UV Vacuum Cleaner RVC1. This robot vacuum cleaner is specially designed for laboratories of compounding pharmacies and it is a very useful assisting device on everyday cleaning activities according to the cleaning standard operational procedures of the facility. Its UV sterilisation function, mopping feature and cleaning pattern can guarantee a sustainable and repeatable cleaning process. This device cannot be used for home cleaning but can be used for health facilities' spaces. You must carefully read and understand the contents of this manual prior to operating this device. After reading this manual, please put it in an appropriate position for easy access.

2. Service

In case of any problem, you can always contact the Service Department for technical support AFTER FIRST consulting the troubleshooting pages of this manual. Please provide the customer care representative with the following information:

- Description of problem.
- Methods and procedures adopted to resolve the problems.
- Your contact information.

3. Warranty

This device is under warranty and free from defects in materials and workmanship, under normal use and service, for a period of 12 months from the date of invoice (excluding consumable accessories such as UV lamp, fuse, filters, brushes, mopping cloths and breakable parts). The warranty is extended only to the original purchaser. Warranty is not valid on device which has been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation. If the warranty has been expired, Fagron would still responsible for repair with relative charges.

For claims under the warranty please contact your local supplier.

4. Safety instructions

Before using this product, please read the safety instructions and follow all those regular safety precautions.

- Only authorized technicians can disassemble the product. Users are not allowed to disassemble or repair the product.
- Only use the original battery and power adapter of the product for charging. Using an unmatched adapter may cause electric shock, fire or product damage.
- Do not touch the power cord, plug or adapter with wet hands.
- Do not use this product in wet or moist environment (any environment with liquid), e.g. bathroom or laundry.
- Do not have any kind of wrapping material or part of user's body wound in the drive wheels.
- Before use, clean floor environment (remove all fragile objects and cords, clothing, paper, loose cables, as well as make sure to lift drapes off the floor to avoid any possible accidents. In case a loose cable is tangled with the product, the cable might move around with the product as it works and topple down equipment or cabinet and might cause hurt or property damage.).
- Make sure this product is not close to cigarette ends, lighters, matches or any flammables.
- Never use the product to clean combustible or highly volatile liquids, such as gasoline.
- Only use the product indoors; do not use it outdoors.
- If the product needs cleaning, clean it after it is fully charged.
- Do not over-bend or press the flexible cord with heavy or sharp objects.
- Do not sit on top of this product or attach an abject on the top of it. Beware of children or pets while the product is in operation in case it is used in public health spaces.
- Do not place this product where it is easy to drop off (workbenches).
- Turn off the power switch during product transportation or when you don't need to use this product for a long time.
- Before charging, check whether the adapter and outlet are properly connected.
- To avoid tripping, inform all the people in the facility when this product is working.
- When dust bin is full, empty it before use.
- Use this product in temperature from 0°C to 40°C.
- Do not use this product in high-temperature environment or under baking sunlight for a long time.
- The battery must be removed from the product before it is disposed of.

Warning:

- This is a professional device and should not be used by children. For persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, proper supervision or instruction should be given concerning use of the appliance in a safe way to help them understand the hazards involved. Children should not play with the appliance. Cleaning and user maintenance should not be made by children.

5. Product features

Powerful suction

Suction power of this product is strong enough to ensure that even tiny dust on the floor will be cleaned thoroughly!

Intelligent suction adjustment

This product is able to automatically adjust its suction power when different floor environments are detected. Not only does it make cleaning more efficient, but it also helps to save more power (up to 30%).

User friendly design

Operation is greatly simplified, touch the "CLEAN" button, you could start the robot!

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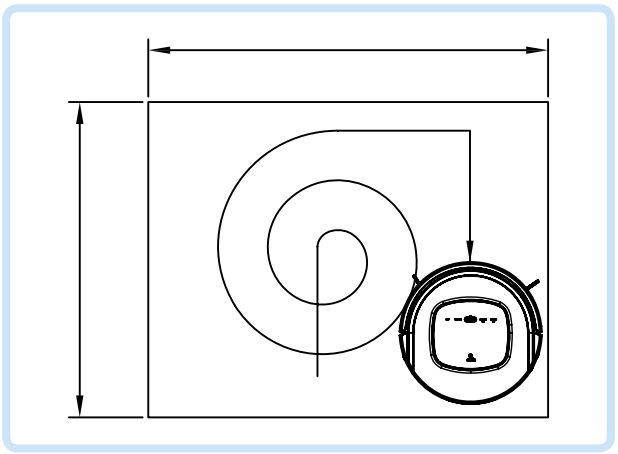
Washable dust bin

Wash dust bin and filters with water.
Wash dust bin after every empty.

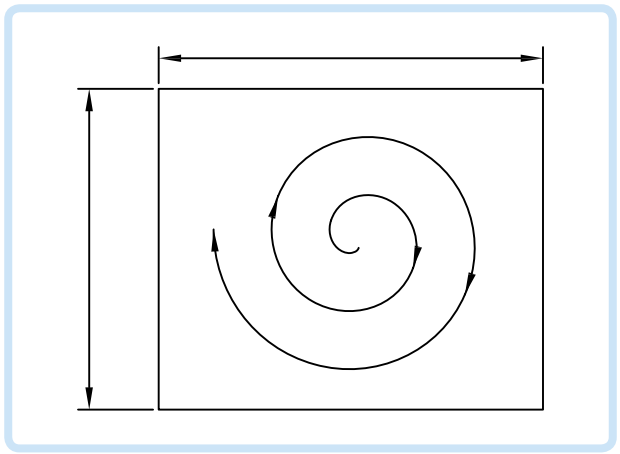
Various cleaning modes

Four cleaning modes are provided to meet your needs.



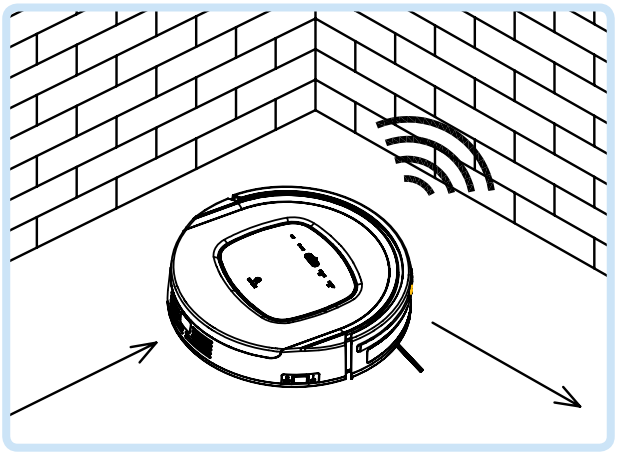
1 Auto cleaning mode

The robot will clean a room automatically and adjust its cleaning according to situation.



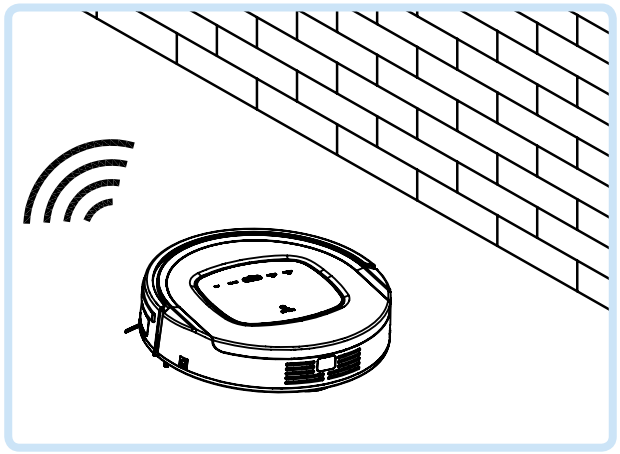
2 Spot cleaning mode

The robot will clean intensively in a spiral way when it detects a very dirty area.



3 Edge cleaning mode

In this mode the robot will clean along the wall or obstacles.



4 Scheduling mode

After scheduled, the robot will leave charging station and start working at scheduled time.

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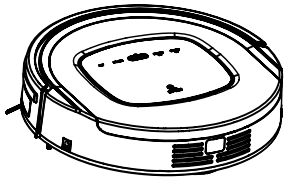
6. Product components

Main body and accessories

1



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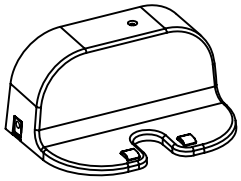

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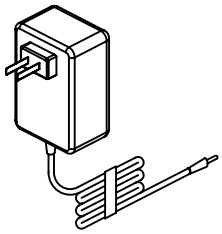

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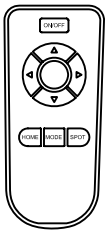

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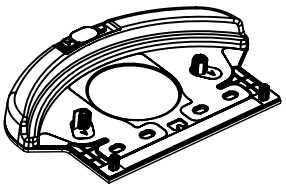

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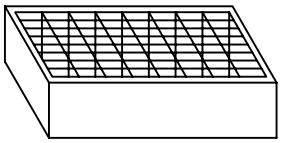

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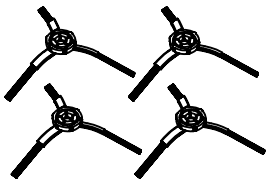

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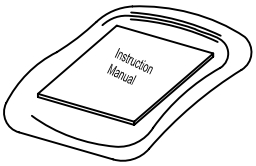

No	Description	Quantity
1	Main Body	1
2	Charging Station	1
3	Adapter	1
4	Remote Control (battery not included)	1
5	Water Tank 1 pc and Mopping clothes 2 pcs	3
6	HEPA Filter	1
7	Cleaning Brush	1
8	Side Brushes *2 and Spare Brushes *2	4
9	User Manual	1

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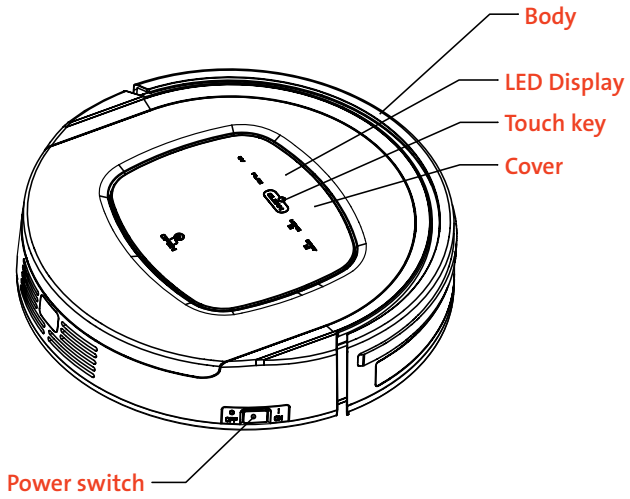
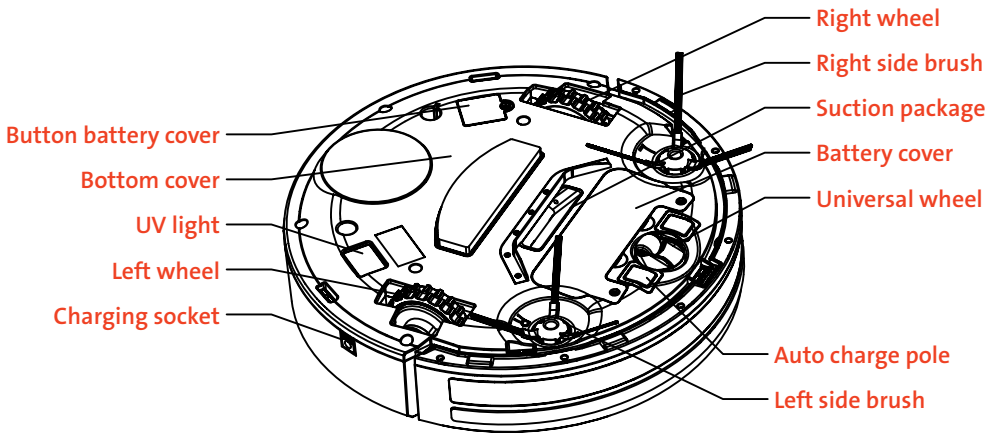
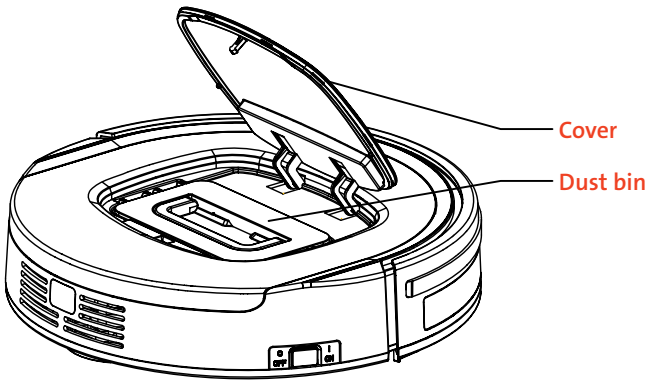
Main body diagram







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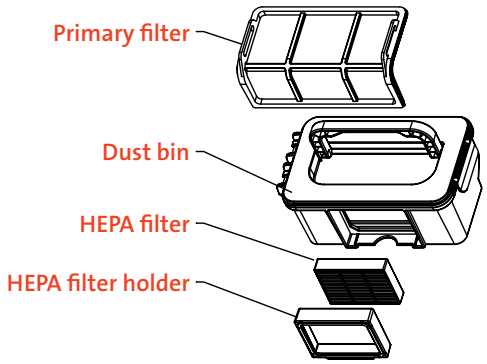
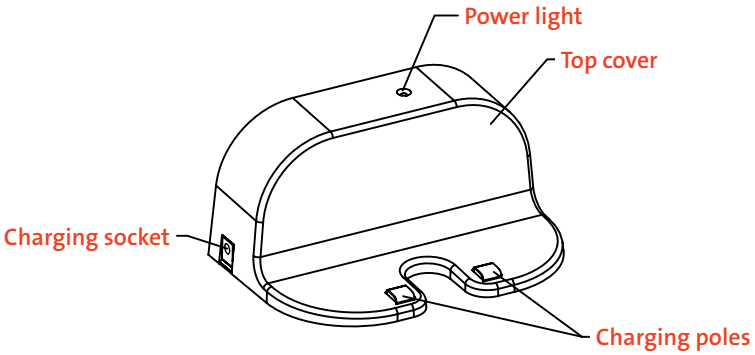
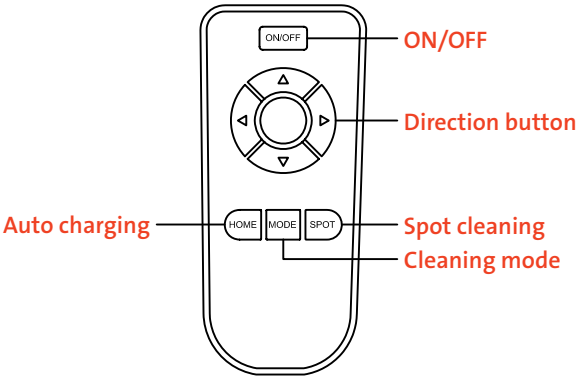
Dust bin



Charging station



Remote control



Note:

- Install two AAA type batteries into the remote before use.
- Remove the batteries if the remote will be left unused for a long period.
- If you use the remote near charging home base, the robot may not recognize command and may not work.

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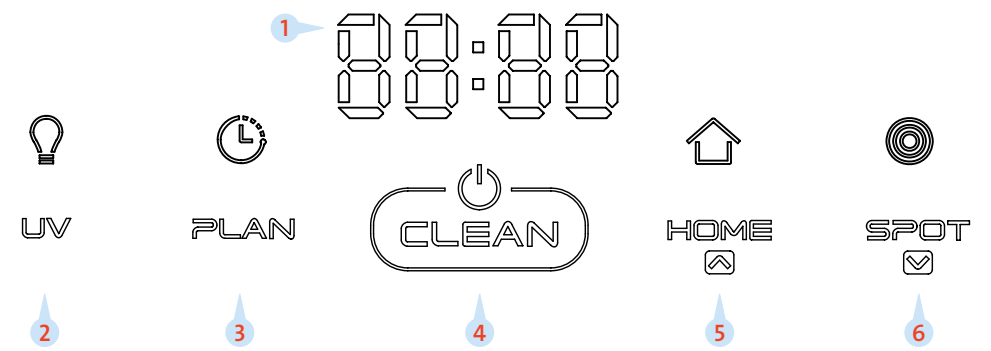
Display panel



No	Description	Action
1	LED Panel	• LED panel shows the time setting, charging status, and error codes by using numbers, letters or graph
2	UV light button	• In standby mode, press this button to preset the UV light status (on/off) • When robot starts cleaning, the UV light will turn on/off as preset
3	Schedule button	• In standby mode, press this button to enter/quit scheduling mode
4	Clean button	• Press this button to change from sleeping mode to standby mode • In standby mode, keep pressing this button for more than 3 seconds to go into sleep mode • Confirm scheduling setting in scheduling mode • Start cleaning in standby mode
5	Auto homing/Number increment button	• Press this button to increase number in scheduling mode • In other mode, press this button to start auto-homing and charging mode
6	Spot cleaning/Number decrement button	• Press this button to decrease number in scheduling mode • In other mode, press this button to start spot cleaning

7. Product operation

Battery charging

- Positioning the charging station: Place the charging station against the wall and remove obstacles 1 meter on either side and about 2 meters front of the charging station, as shown in the image.
- To charge, make sure the “ON/OFF” switch on the side of the robot is switched to “ON”.
- Charge the robot in one of the two ways as shown below:
  1. Plug the adapter into the robot and the other end to the power socket as shown in Figure 1.
  2. Press ”HOME” on robot or “HOME” on remote control to operate the robot to go charging station for recharging as shown in Figure 2.

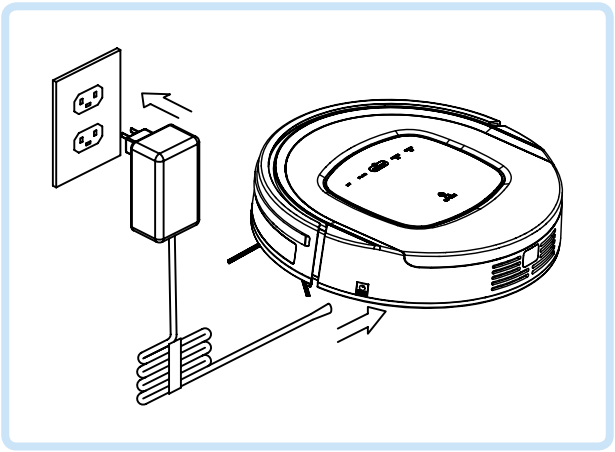


Figure 1

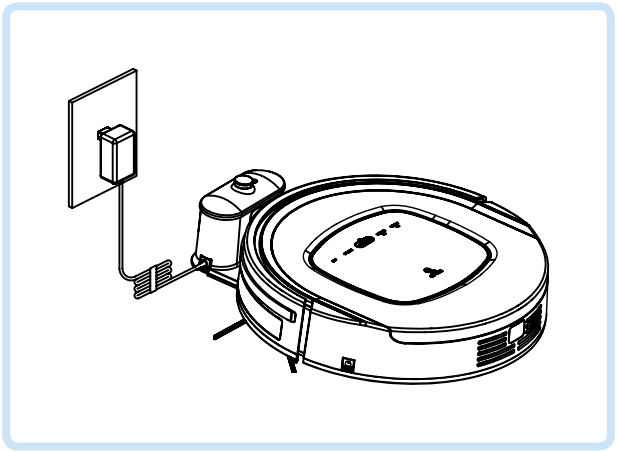


Figure 2

Note:
- When robot is charging, LED panel will gradually show “11:11”, from left to right.
- Once charging is completed, LED panel will show “11:11”.
- In the standby status, the robot will broadcast voice “please charge” when battery power is low.
- In the working status, the robot will return to charging station automatically when battery power is low.

To ensure optimum battery performance:
- Before first use, charge the robot for 12 hours.
- Charge the robot as soon as battery power is low.
- The robot will return to charging station automatically when it has finished cleaning or if battery power is low.
- If the robot is not to be used for a long time, fully charge the battery, turn the power switch off, remove and store it in a cool, dry place.
- If the robot is not to be used for more than 3 months, charge the robot for 12 hours, turn the power switch off, remove and store it in a cool, dry place.

Starting up

- Press the “ON/OFF” switch on the side of the robot to “ON”.
- Press "CLEAN" on main body or ON/OFF on remote control to start cleaning.

Note:
- If robot is in sleeping mode, press "CLEAN" on main body or ON/OFF on remote control to wake up the robot from sleeping mode, then press "CLEAN" again, the robot will start cleaning automatically.

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Standby

- Standby means the robot's main power is "ON", and the robot is ready to use. It can be changed to standby mode by below methods:
  1. During robot cleaning, press "CLEAN" on main body to enter standby mode.
  2. During robot cleaning, press ON/OFF button on remote control to power off the robot.

Sleeping

- In sleeping mode, the robot can only be waken up from "CLEAN" button on main body or ON/OFF on remote control in order to save power. To turn robot into sleeping mode from standby mode:
  1. Keep pressing "CLEAN" on main body for 3 seconds.
  2. Robot will automatically enter sleeping mode if there is no command received for more than 60 seconds.

Scheduling

You can schedule the robot to make it start cleaning automatically at a certain time every day.

Scheduling by keys on the main body

Note:

- The robot can only be set when it's in Standby or Charging mode. If the robot is in sleep mode, press "CLEAN" on main body or ON/OFF button on remote control to wake up the robot. If the robot is in Cleaning mode, stop it before scheduling.

Schedule by the LED panel on robot

Setting Robot Clock

- In standby or charging status, press "PLAN" to start the clock-setting. The LED panel will show the current system time.
- Press "CLEAN" to enter the hour-setting mode, the left two numbers on LED panel will flash. Press "HOME" to increase hour or "SPOT" to decrease it.
- Press "CLEAN" again to enter the minute-setting mode, the right two numbers on LED panel will flash. Press "HOME" to increase it or "SPOT" to decrease it.
- Press "CLEAN" again to confirm the setting.

Setting the scheduling time

- In standby or charging status, press "PLAN" for two times to start scheduling, LED panel will show previous scheduled time or "00:00" if there is no schedule settled before.
- Press "CLEAN" to enter hour-setting mode, the left two numbers on LED panel will flash. Press "HOME" to increase hour or "SPOT" to decrease it.
- Press "CLEAN" again to enter the minute-setting mode and the right two numbers on LED panel will flash. Press "HOME" to increase minute or "SPOT" to decrease it.
- Press "CLEAN" again to confirm the scheduling.

Cancel the scheduling

- Set the scheduling interval to 00:00.

Note:

- Before scheduling, please set the robot time to be the same with real time.
- The robot will start cleaning at the schedule time of Robot Clock every day.

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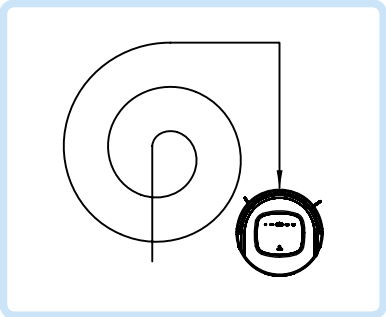
Cleaning modes

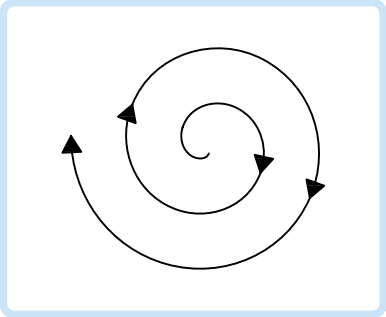
Please touch the "CLEAN" button to start cleaning. You can only select the cleaning mode when the robot is cleaning, press the MODE button on remote control to select the cleaning mode, the mode type will appear on the robot's 4 Digits LED Display as follow:

- **1111:** Spot Cleaning Mode
- **2222:** Auto Cleaning Mode
- **3333:** Edge Cleaning Mode
- **4444:** Zig-Zag Cleaning Mode



Spot cleaning mode

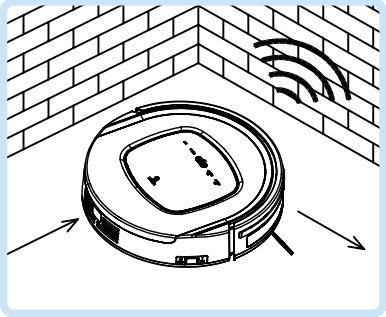
- The robot will activate spot cleaning mode under the following condition:
  1. When it detects a dirty area in the lab.
  2. Press SPOT on remote control or "SPOT" on robot.



Auto cleaning mode

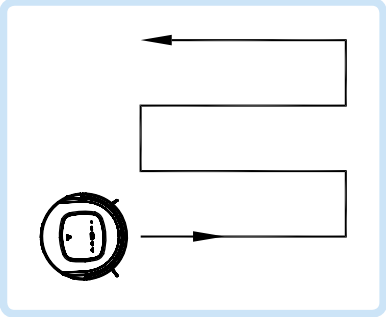
- In this mode, the robot will clean the area automatically and adjust its cleaning mode according to the environment.

Note: Press ON/OFF on remote control or "CLEAN" on robot.



Edge cleaning mode

- In cleaning mode, press MODE button to select edge cleaning. The robot will clean along the walls and obstacles.

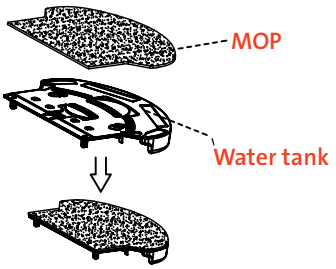


Zig-Zag cleaning mode

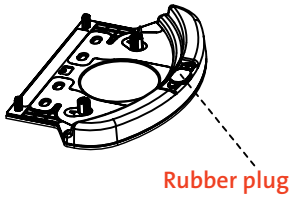
- Robot will goes into Zig-Zag cleaning mode when it detected an open area or environment with less obstacles. This is the recommended cleaning mode for laboratories and when you want to apply the UV or mopping function.

Water tank and mop

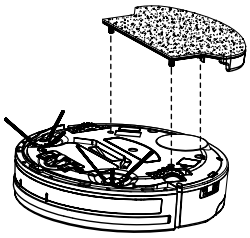
Usage of water tank and the fiber mopping cloth:



- Attach the fiber mopping cloth to the bottom of water tank.



- Fill up the water tank with water. Open the rubber plug, fill it with water, and your cleaning agent. Close the rubber plug tightly to avoid leakage.



- Attach the water tank to the robot. Turnover the robot, attach the water tank to the robot, the bolts must enters tightly into the slots available underneath the robot. Please note that the UV function can not be used simultaneously with mopping accessory.

8. Product maintenance

Cleaning side brushes

Clean the side brush when it gets dirty and replace it if it's damaged. Max life span for side brush is 12 months.

Note:

- Before replacing side brushes, check and make sure the 'L'/'R' mark on side brush match with the 'L'/'R' mark on the bottom base of the robot.

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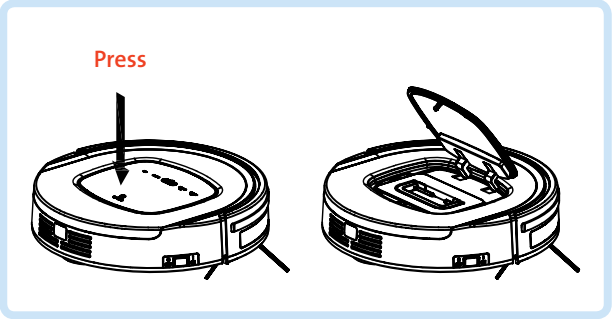
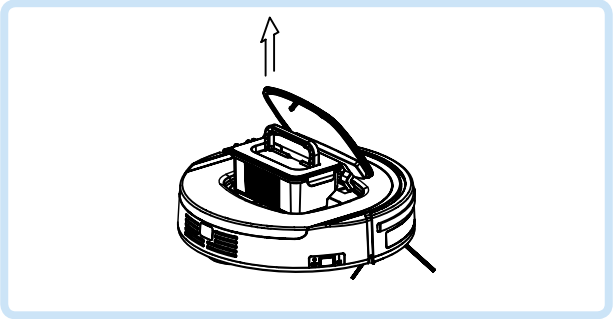
Cleaning dust bin and filters

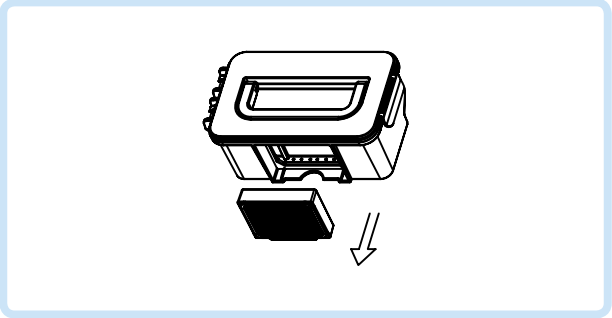
Empty and clean dust bin after each use following the steps as shown in the figures below:



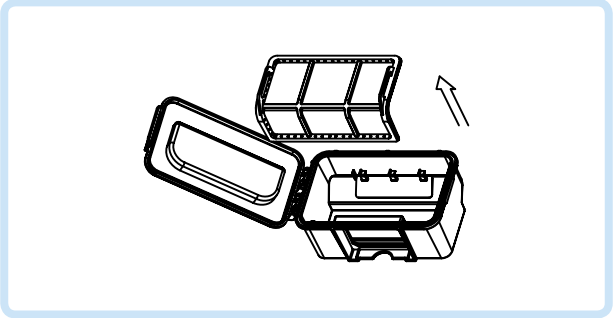
1 Press "PUSH" to open the cover.



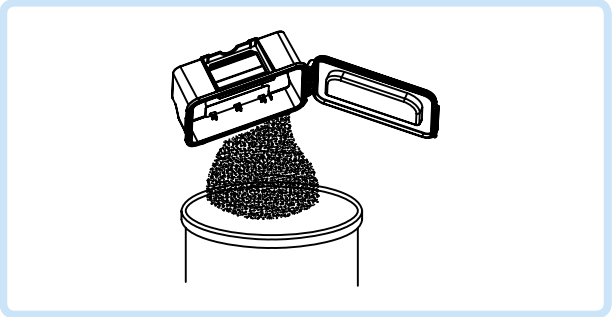
2 Take out the dust bin.



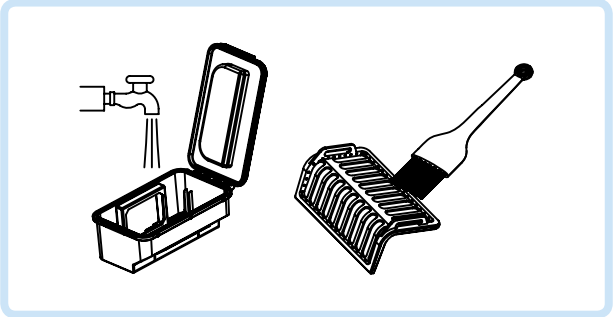
3 Take out the HEPA.



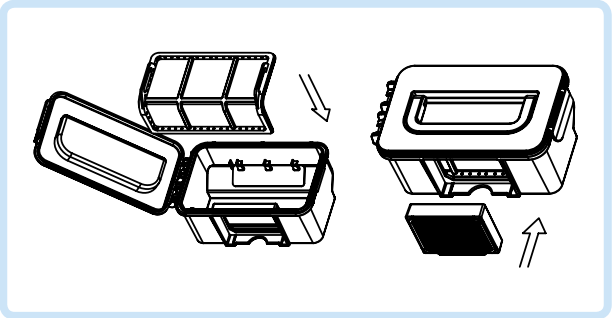
4 Open dust bin cover, take out primary filter.



5 Empty the dust bin.



6 Open the dust bin and filter, clean the HEPA with brush.
Do not wet HEPA filters every time you clean the dust bin.



7 Install the primary filter and HEPA back into the dust bin.

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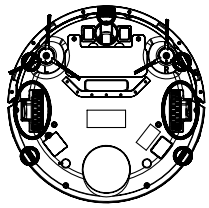
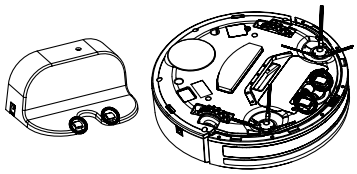
Note:
- Wash HEPA filter after 15~30 days of use. Max life span for HEPA and filter is 24 months.
- Reinstall the HEPA and primary filter after they are fully dry.
- HEPA and primary filter could be replaced if needed.
- Do not dry the filters under baking sunshine.



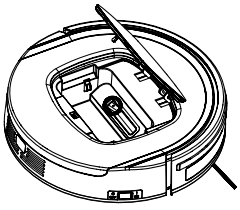
Cleaning sensors and wheels

- Slightly wipe all the sensors and wheels, as marked in figure below, with soft cleaning cloth or tool.



Cleaning charging poles

- Clean the charging poles, as marked in figure below, with soft cleaning cloth or tool.



Cleaning suction passage and dust sensor

- Take out the suction kit from robot, and then clean the suction passage and dust sensor, as marked in figure below, with soft cleaning cloth or tool.

Note:
- Please don't let the sensors get wet by water, thinner e.t.c.

9. Troubleshooting

Error code for sensors

Error code	Cause	Solution
AUBF	Suction passage blocked	Clean suction passage
AUBN	Dust bin not placed in position or robot without dust bin	Put back dust bin and place it in position
E1XX	Left collision switch fault	Check sensitivity of the front bumper
E2XX	Right collision switch fault	
E3XX	Left and right collision switches fault	
E4XX	Left wheel off the ground	Put robot on solid ground
E5XX	Left wheel off the ground, left collision switch fault	Put robot on solid ground and check sensitivity of the front bumper
E6XX	Left wheel off the ground, right collision switch fault	
E7XX	Left wheel off the ground, left and right collision switches fault	
E8XX	Right wheel off the ground	Put robot on solid ground
E9XX	Right wheel off the ground, left collision switch fault	Put robot on solid ground and check sensitivity of the front bumper
EAXX	Right wheel off the ground, right collision switch fault	
EBXX	Right wheel off the ground, left and right collision switches fault	
ECXX	Left and right wheel off the ground	Put robot on solid ground
EDXX	Left and right wheel off the ground, left collision switch fault	Put robot on solid ground and check sensitivity of the front bumper
EEXX	Left and right wheel off the ground, right collision switch fault	
EFXX	Left and right wheel off the ground, left and right collision switch fault	
EXX1	Left anti-drop sensor detects cliff	Clean bottom anti-drop sensor
EXX2	Front anti-drop sensor detects cliff	
EXX3	Left and front anti-drop sensors detect cliff	Clean front sensor lens and bottom anti-drop sensor lens
EXX4	Right anti-drop sensor detects cliff	Clean bottom anti-drop sensor
EXX5	Left and right anti-drop sensors detect cliff	
E XX6	Front and right anti-drop sensors detect cliff	Clean front sensor lens and bottom anti-drop sensor lens
EXX7	Front, left and right anti-drop sensors detect cliff	
EXX8	Front bumper right infrared sensors detect obstacle	Clean front bumper sensor lens
EXX9	Left anti-drop sensor detects cliff, front bumper right infrared sensor detects obstacle	Clean front sensor lens and bottom anti-drop sensor lens

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Error code	Cause	Solution
EXXA	Front anti-drop sensor detects cliff, front bumper right infrared sensor detects obstacle	Clean front sensor lens and bottom anti-drop sensor lens
EXXB	Left and front anti-drop sensors detect cliff, front bumper right infrared sensor detects obstacle	
EXXC	Right anti-drop sensor detects cliff, front bumper right infrared sensor detects obstacle	
EXXD	Left and right anti-drop sensors detect cliff, front bumper right infrared sensor detects obstacle	
EXXE	Right and front anti-drop sensors detect cliff, front bumper right infrared sensors detect obstacle	
EXXF	Front, left and right anti-drop sensors detect cliff, front bumper right infrared sensors detects obstacle	
EX1X	Front bumper left infrared sensor detects obstacle	Clean front bumper sensor lens
EX2X	Front bumper middle infrared sensor detects obstacle	
EX3X	Front bumper left and middle infrared sensors detect obstacle	
EX4X	Front bumper right infrared sensor detects obstacle	
EX5X	Front bumper left and right infrared sensors detect obstacle	
EX6X	Front bumper middle and right infrared sensors detect obstacle	
EX7X	Front bumper left, middle and right infrared sensors detect obstacle	
EX8X	Front bumper wall detection infrared sensor detects obstacle	
EX9X	Front bumper wall detection sensor and left infrared sensor detect obstacle	
EXAX	Front bumper wall detection sensor and middle infrared sensor detect obstacle	
EXBX	Front bumper wall detection sensor, left and middle infrared sensor detect obstacle	
EXCX	Front bumper wall detection sensors, right infrared sensor detect obstacle	
EXDX	Front bumper wall detection sensors, left and right infrared sensor detect obstacle	
EXEX	Front bumper wall detection sensors, right and middle infrared sensors detect obstacle	
EXFX	Front bumper wall detection sensors, left, right and middle infrared sensors detect obstacle	

Troubleshooting for motors

Error code	Cause	Solution
L01X	Fan overloaded	Check if fan is pressed, and clean dust bin
L0X1	Left wheel overloaded	Check if it's stuck or wired by obstacles
L0X2	Right wheel overloaded	
L0X3	Left and right wheels overloaded	
L0X4	Left side brush overloaded	
L0X5	Left wheel and left side brush overloaded	
L0X6	Right wheel and left side brush overloaded	
L0X7	Left and right wheels, left side brush overloaded	
L0X8	Right side brush overloaded	
L0X9	Left wheel and right side brush overloaded	
L0XA	Right wheel and right side brush overloaded	
L0XB	Left and right wheels, right side brush overloaded	
L0XC	Left and right side brushes overloaded	
L0XD	Left wheel, left and right side brushes overloaded	
L0XE	Right wheel, left and right side brushes overloaded	
L0XF	Left and right wheels, left and right side brushes overloaded	
L02X	Roller brush overloaded	

Note:

- There is no problem for the robot when it displays L000.
- "X" is the number or letter might appear on display for different fault.
- If robot displays E001 or E004, please directly find the relative solution referred in troubleshooting.
- If robot displays EC07, please find ECXX and EXXX for relative solution referred in troubleshooting.
- Like wise, if robot displays EE91, please find EXX1, EEXX and EX9X for relative solution referred in troubleshooting.
- If above solution does not work, please try below:
  1. Reset the robot by switching off the unit and then turn it on, and check again.
  2. If it still does not work after reset, contact the after sales.
- UV light might hurt your eyes, so please do not stare directly at the light when turned on.

10. Battery removal

- Remove the screws on battery cover with a screw driver.
- Remove the battery cover.
- Grasp the insulating tape at two sides of the battery and lift the battery.
- Unplug the wire connector that links the battery and robot.

Note:
- Only use the original battery of the product, otherwise it may cause product damage.

Warning:
- You must remove (or attempt to remove) the battery incorporated in this product on your own. To replace the battery, you must contact your service provider or an independent qualified professional. These instructions have been prepared for the exclusive use of your service provider or independent qualified professional.

  FOR YOUR OWN SAFETY, DO NOT ATTEMP TO REMOVE THE BATTERY ON YOUR OWN OR DISPOSE OF IT IN FIRE. DO NOT DISASSEMBLE, CRUSH OR PUNCTURE THE BATTERY.

Applicable in countries with battery return systems

The marking on the battery, manual or packaging indicates that the battery in this product should not be disposed of with other household waste. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66.

The battery incorporated in this product is not user replaceable. For information on its replacement, please contact your service provider. Do not attempt to remove the battery or dispose it in a fire. Do not disassemble, crush, or puncture the battery. If you intend to discard the product, the waste collection site will take the appropriate measures for the recycling and treatment of the product, including the battery.

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11. Product specifications

Classification	Item	Detail
Mechanical Specifications	Diameter	340mm
	Height	85mm
	Weight	3.4Kg
Electrical Specifications	Power Rating	14.4V
	Battery Specifications	Ni-MH 2000mAH
Cleaning Specifications	Dust Bin Capacity	0.5L
	Charging Type	Auto Charging/ Manual Charging
	Cleaning Mode	One key to clean &remote control selection
	Charging Time	About 200~300 mins
	Cleaning Time	90 minutes at maximum
Main Body Button Type	Touch (LED display)	

Note:

- Particular specifications are subjected to change without prior notice.

Notes

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