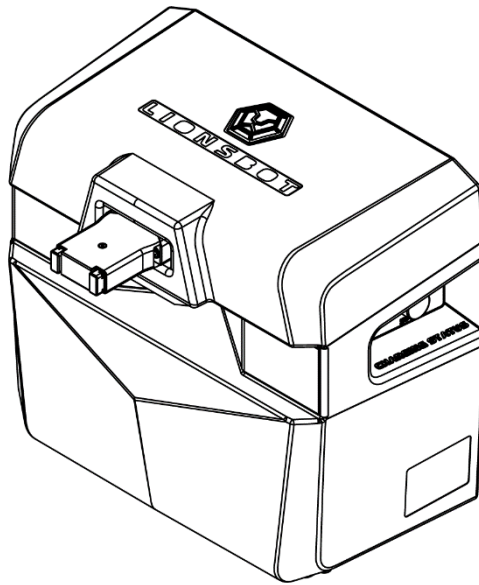


R3VAC-CS: OPERATION MANUAL



AUTONOMOUS CLEANING ROBOT – CHARGING STATION

ENGLISH (EN)

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OPERATION MANUAL

Rev. 0.3 (05-2023)



ORIGINAL INSTRUCTIONS MANUAL



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INTRODUCTION TO THE R3 VAC-CHARGING STATION

The R3 VAC CHARGING STATION is an autonomous charging station developed by LionsBot. The R3 VAC CHARGING STATION is equipped with one charger, battery charge indicator and manual charging cable.

All work with the R3 VAC CHARGING STATION can be carried out through the Robot Touchscreen or LionsClean mobile app.

This document introduces the user to the overall structure and components of the R3 VAC CHARGING STATION, safety precautions related to its use, and the procedures for work preparation, cleaning and maintenance with the R3 VAC CHARGING STATION. Any questions pertaining to this manual or R3 VAC CHARGING STATION operation in general should be directed to the respective distributor or the original manufacturer (see [‘DISTRIBUTOR INFORMATION’](#) or [‘CONTACT INFORMATION’](#) sections).

This machine will provide excellent service. However, the best results will be obtained at minimum costs if:

- The machine is operated with reasonable care.
- The machine is maintained regularly - per the machine maintenance instructions provided.
- The machine is maintained with manufacturer supplied parts.



Read this manual completely and understand the machine before operating or servicing it.

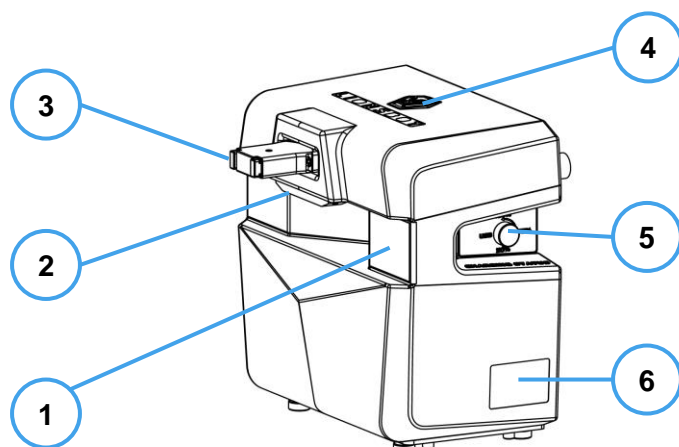


PROTECT THE ENVIRONMENT

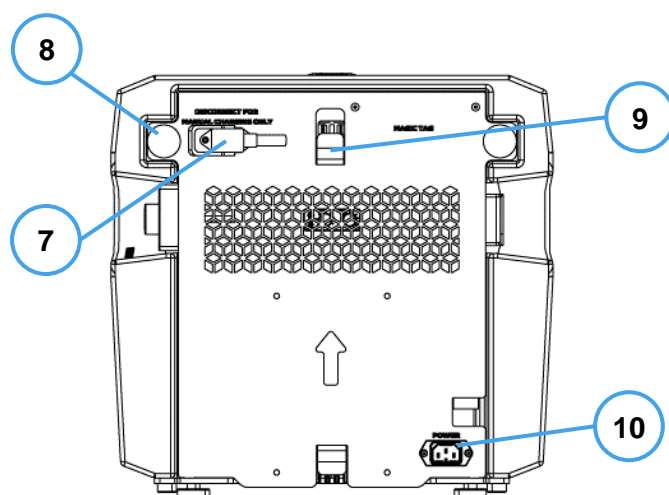
Please dispose of packaging materials, used components such as batteries and fluids in an environmentally safe way according to local waste disposal regulations.

This operator manual contains information to allow for quick start-up of the R3 VAC CHARGING STATION, powered by LionsOS. This document may be periodically revised. The R3 VAC CHARGING STATION, can be used in manual mode or in automatic mode. It is important to follow all provided instructions and warnings. Failure to adhere to instructions could result in damage to the machine and injury. The R3 VAC CHARGING STATION is a battery charging station for the R3 VAC. When in robotic mode, the station must be localized on the R3 VAC. The product may be covered by one or more patents or pending patent applications. Email LionsBot International for details.

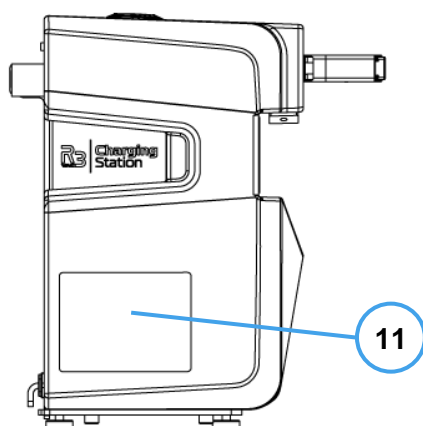
MAIN R3 VAC CHARGING STATION COMPONENTS



1. V-PROFILE
2. Magic Tag
3. CHARGING CONTACTS
4. LIONSBOT LOGO
5. CHARGING INDICATOR
6. NAME PLATE



7. MANUAL CHARGING PORT
8. RUBBER STOPPER
9. CABLE HOOK
10. POWER MAINS
11. WARNING LABEL



INTENDED USAGE ENVIRONMENT

The R3 VAC CHARGING STATION is designed and built for the R3 VAC only, it is to be used in an enclosed environment (ex. offices spaces, corridors, meeting rooms, classrooms, laboratories etc.) with compact flooring and by a qualified operator in proven safety conditions. It is only intended to be used in an enclosed indoor environment. This machine is not intended for use in outdoor environments. Only use this machine as described in operation manual.

Use the machine in approved environments in accordance with the LionsBot Software End User License Agreement (EULA). Approved environments shall also be limited to cleaning areas with adequate cellular communication signals permitting cellular data communication with the machine to enable periodic safety-related updates.

The operator is responsible for the use of each R3 VAC CHARGING STATION in all modes of operation. As the machine begins robotic operation, observe charging performance to ensure that all components are functioning properly. Each operator must be mindful to use the machine in accordance with its intended use and precautions at all times.




GENERAL SAFETY

This section consists of safety information which must be read and understood by the user before the first usage of the station. Operator cooperation is paramount for accident prevention; most workplace accidents are caused by a failure to adhere to safety regulations. An attentive and careful user is the most effective guarantee against accidents.

The following symbols are used to indicate any potentially hazardous situations. Please take the necessary precautions to protect people and objects that may be present around the R3 VAC CHARGING STATION.










DESCRIPTION OF SYMBOLS

The following symbols categories explain the level of harm or damage that can occur if warnings are not observed, and the machine or related equipment is used incorrectly. Understand these symbols and their correlating meanings before reading the remainder of this manual.

	<p>DANGER: Indicates an imminent hazardous situation which, if not avoided, could result in serious injury or death.</p>
	<p>WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in injury or major damage to the equipment.</p>
	<p>CAUTION: Indicates a situation which, if not avoided, could result in major damage to the equipment.</p>

PICTORIAL INDICATIONS

The following pictorial indication categories explain information to be observed. Read this guide after thoroughly understanding the information.

	NOTE: Indicates safety information, precautions on dos and don'ts to ensure safe product usage and/or user safety.
	COMPULSORY: Action based on instruction must be performed.
	PROHIBITED: Not allowed action. Do not perform any operation not given in this manual. Use of the machine in a manner inconsistent with this manual may lead to personal injury or significant physical damage or property damage.
	NO WATER EXPOSURE: Do not expose to water or moisture.
	UNPLUG: Unplug from power outlet.
	RECYCLING SYMBOL: Informs the user to carry out the operations in compliance with environmental regulations in force in the place of usage of the appliance
	BIN SYMBOL: To indicate that separate collection for waste electric and electronic equipment (WEEE) is required.
	WEAR GLOVES
	WEAR PROTECTIVE EYEWEAR

CHARGING STATION USE



DANGER



- **Warranty shall be voided if instructions in this manual are not followed.**
- Immediately discontinue use if anything unusual is noticed during use, recharging, or storage such as noise, smoke, odour, etc. Failure to do so may result in fire, injury, electric shock, damage, malfunction, overheating, chemical explosion, or other damage to the machine, battery charger and docking station.
- Report machine damage or faulty operation immediately.
- Use the machine within an ambient temperature range of 2°C to 40°C, humidity of 10% to 80%. Also, store in a dry environment with no dust in an ambient temperature range of 2°C to 40°C. Failure to do so may result in fire, injury, electric shock, damage, malfunction, overheating, chemical explosion, or other damage to the machine, battery charger, battery or docking station.
- If the power cable is damaged or broken, it should be replaced by the manufacturer or authorized service personnel or a qualified person in order to prevent hazards.
- Keep sparks, flames and incandescent materials at a safe distance from the batteries and station.
- Only use station in well-ventilated areas.
- The socket for the station cable must have a prescribed earth connection. Do not modify the polarized plug to fit a non-polarized outlet or extension cord.



- **If wearing an implanted cardiac pacemaker or implanted defibrillator, consult with the manufacturer of such medical device to confirm a safe operational distance from the machine.** Electric signals may affect the operation of the pacemaker or defibrillator.
- Do not disconnect/move the robot when the station is operating. This is necessary to prevent electric arcs forming. To move the robot during charging first abort the process on the touchscreen.
- Do not use extension cords or outlets with inadequate current carrying capacity.
- The station should not share an AC plug point with any other devices. Do not use more than one station per AC plug.
- Do not charge frozen batteries.
- Do not unplug by pulling on the cord. To unplug, grasp the plug and not the cord.
- Do not service the station without contacting authorized distributor center.
- Do not expose the battery charger/ docking station to high temperatures or allow moisture/ humidity of any kind to come in contact with the battery charger/ docking station.
- Do not leave the station to charge unattended/ overnight as a safety precaution for the Lithium-iron phosphate batteries. Move the robot after the charging is complete (a typical full charge cycle takes about 2 hours).
- Do not attempt to open or modify the station.
- Only charge batteries provided by the robot manufacturer.



DANGER



- Do not operate machine in environments requiring fail-safe performance (areas where machine failure could lead to personal injury or property damage).



- Do not block the machine's ventilation vents. Doing so may cause fire, injury, electric shock, damage, malfunction, overheating, leakage, chemical explosion, or other damage to the machine, battery charger.



WARNING



- Operators shall be adequately instructed on the use of these machines.
- This machines is for dry use only.
- The docking station shall be disconnected from its power source during cleaning or maintenance by removing the plug from the socket outlet.
- Install the station in a location that can be easily accessed by the robot. Away from water, on a flat surface.
- Never smoke in the machine's vicinity while the batteries are charging.
- Secure docking station to the wall.
- Ensure there are no obstructions between robot and station during the docking process.
- Use and store only indoors (i.e., in an enclosed and covered environment).



- The docking contacts surface becomes hot while charging.
- This machine may be equipped with technology that automatically communicates over the cellular network. If this machine will be operated where cell phone use is restricted because of concerns related to equipment interference, please contact a LionsBot representative for information on how to disable the cellular communication functionality.



- Do not allow the supply cord to come into contact with the rotating brushes.
- Do not pull or carry by the cord, use the cord as a handle, close the door on the cord, or pull the cord around sharp edges or corners. Keep the cord away from heated surfaces.
- Do not touch the docking station contacts when robot is docked and after docking.
- Do not allow children to play with the station unattended.
- Do not allow unauthorized persons near the machine.
- Do not allow machine to be used as a toy or any other function other than its intended purpose in this manual.



- Do not expose station to water. Station is not IP rated.
- Do not handle the station with wet hands.
- In the event of a fire, use a fire blanket, powder or carbon dioxide extinguisher. Do not use water.



CAUTION



- Read the instructions before using the machine.
- This machine is for indoor use only.



- Do not use any acidic, strong solvents, chlorine based and flammable chemicals.
- Do not put any weight on the station.
- Do not stand or sit on the station.
- Do not use the station to dispose of anything that is burning, such as cigarettes or matches.



- Check the white reflector is free from dirt.
- Keep clear of station when robot is docking.
- Operator cooperation is paramount for accident prevention; most workplace accidents are caused by a failure to adhere to safety regulations. An attentive and careful user is the most effective guarantee against accidents.

DEACTIVATION AND STORAGE



WARNING



- Store the station in a dry, sheltered place.
- Turn the power switch off.



- Do not store the station near combustible materials.

CLEANING AND MAINTENANCE



WARNING



- Do not spray water directly at the station to clean it.



- Do not use chemicals such as benzene, thinner, acetone or alcohol to clean the station.
- Do not attempt to modify, disassemble or repair the station. Repairs should only be carried out by a qualified service personnel.



- Install station on a level surface. Turn off station and remove the supply mains before cleaning.
- Wear personal protective equipment as needed and where recommended in this manual.

TRANSPORT



CAUTION The R3 VAC CHARGING STATION can only be lifted on the sides. Take appropriate measures to ensure safety when lifting station.

1. To lift station place hands on the cavity (Fig. 1 – 1) located on the side of the station.

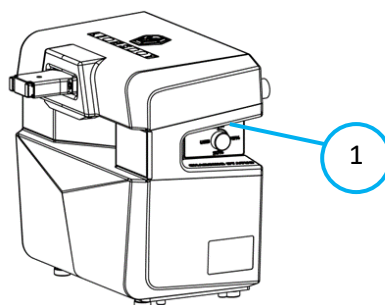


Fig. 1

- Transporting in a truck:
 - Wipe down station, bubble wrap docking station contacts.
 - Use ramp, truck or trailer that will support the weight of the machine and operator.
 - Load the station onto vehicle with both hands.
 - Use tie-down straps to secure machine.



WARNING: The user is at risk of tipping over the station and subject to crush hazards when loading/ unloading the station. The operator and spotter are responsible for identifying and mitigating loading/ unloading hazards and taking safety precautions.

DISPOSAL

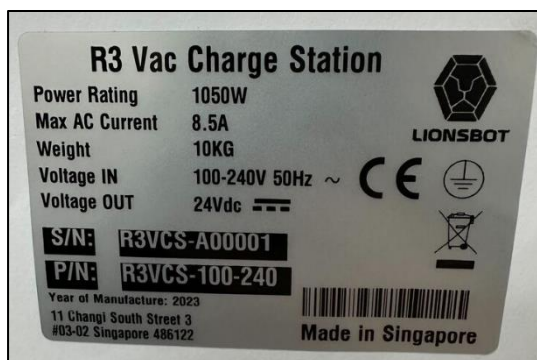


NOTE: Due to the presence of toxic or harmful materials inside the R3 VAC CHARGING STATION (e.g., charger, electronics etc.), the station should not be left unattended at the end of its working life. See section on '**DISPOSAL**' for instructions on scrapping.



NAME PLATE

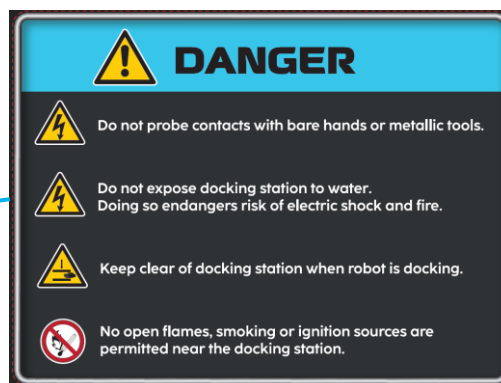
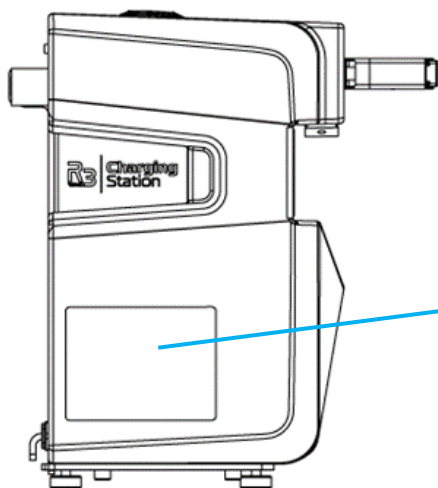
The serial number sticker is located on the station back bottom left side. Please provide this serial number along with any request for assistance/ servicing or spare parts purchase.



The Serial Number is formatted as follows:

1. First two alphabets (R3). Denote family
2. Next three alphabets (VCS) are VAC Charge Station
3. Next seven digits (A00001) encode factory location and sequential number of the product

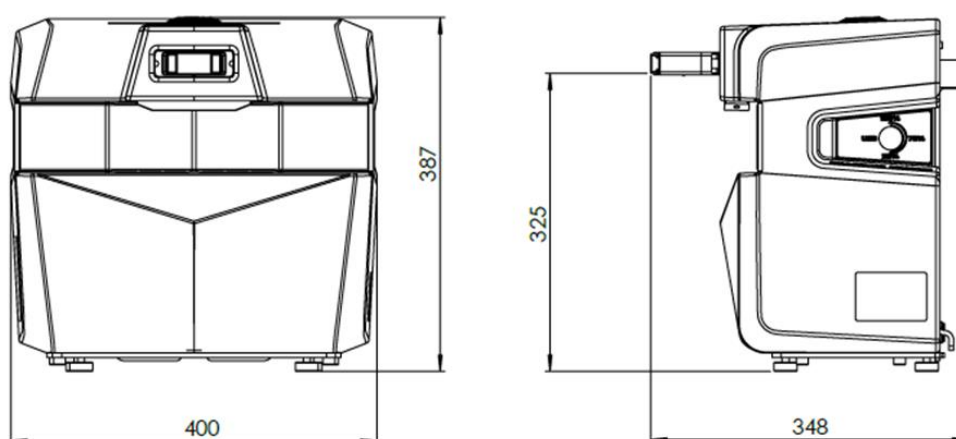
SYMBOLS ON THE CHARGING STATION



TECHNICAL DATA

Technical Data	SI [KMS]	Value
Electrical Characteristics		
Rated Power	W	1050
Voltage In	V _{ac}	240
Voltage Out	V _{dc}	24
Power Cable Standard	-	UK IEC 60320 C13
Cable Length	m	3
Max Charging Current	A	8.5
Mechanical Characteristics		
Enclosure Material	-	HDPE
Station Weight	kg	10
Station Dimensions (Length – Width - Height)	mm	387(H) x 400(L) x 348(W)
Maximum Ambient Temperature for machine operation	°C	40
Minimum Temperature for using the Vacuum Motor	°C	2
IP Rating	-	IPX0
Maximum Altitude	m	<2000
Storage Temperature	°C	-20 to 45
Storage Humidity	%RH	20 to 93
Installation Height ¹	mm	325

1: Height from floor to bottom side



EARTH LEAKAGE CIRCUIT BREAKER

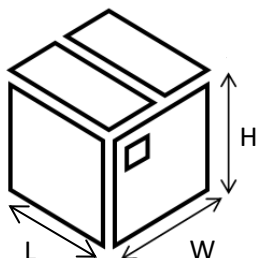
In the event of a fault in the socket outlet, the building Earth Leakage Circuit Breaker (ELCB) will trip to protect the user from electrical shock and prevent damage to the station. Users can also choose to install their own ELCB plug if the building ELCB is faulty or as an extra protective measure (Fig. 3).



Fig. 3

RECEIVING AND SETUP OF CHARGING STATION

The machine's overall packaged weight is 12.5 kg.



L	469 mm
W	419 mm
H	448 mm

It is recommended to keep the packaging components for future transportation needs.

UNPACKING THE CHARGING STATION

1. Open the crate and take off any protective packaging material around the machine.
2. Verify the package contents against the following packing list:

ITEM	QTY
R3 VAC Charging Station	1
Power Cable (UK/EU/US/AU)	1

SETTING UP THE CHARGING STATION

Follow the following checklist when selecting a place to set up the station:

- ✓ Level floor
- ✓ Available power outlet

Place the station at the identified location and adjust all four adjustable feet (Fig. 1) if necessary to level the station (clockwise = up, anti-clockwise = down).



WARNING: The station charging contacts must be aligned with the robot charging contacts. Manually push the robot to dock and adjust the adjustable foot until the charging contacts are aligned (Fig. 2 & 3).

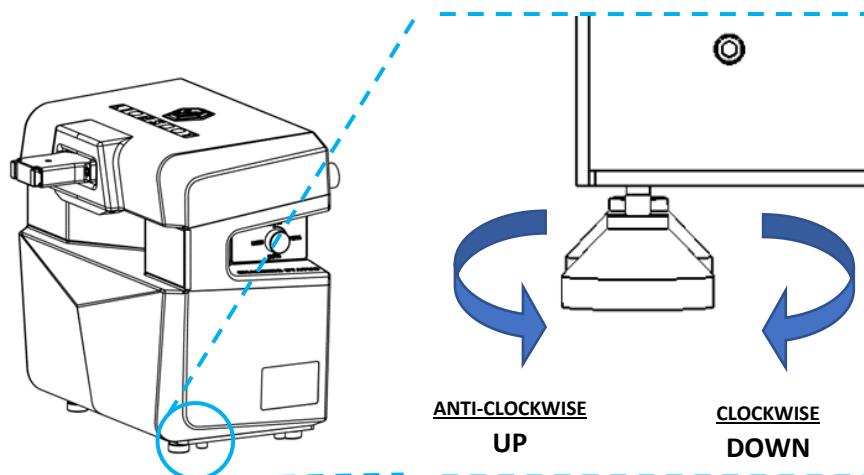


Fig. 1

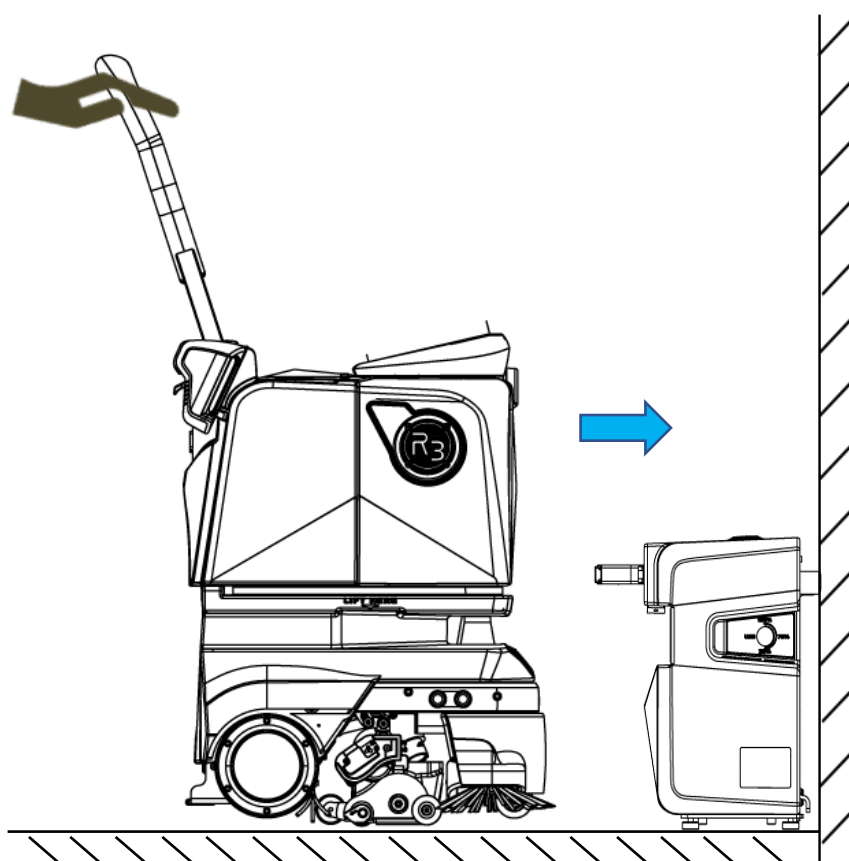


Fig. 2

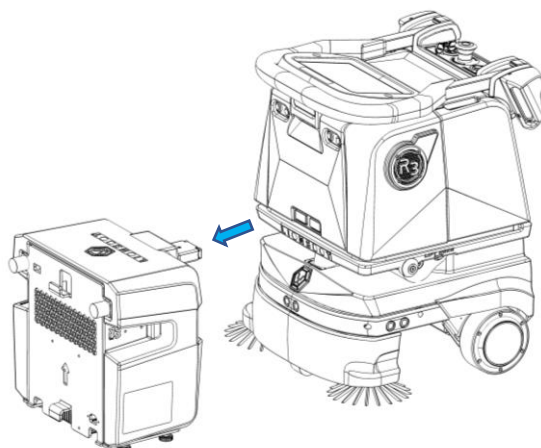


Fig. 3



WARNING: Keep an area of 1 m² free of obstructions around the station.

POWERING ON/OFF THE CHARGING STATION

1. Connect the power cable to the station power port (Fig. 1).

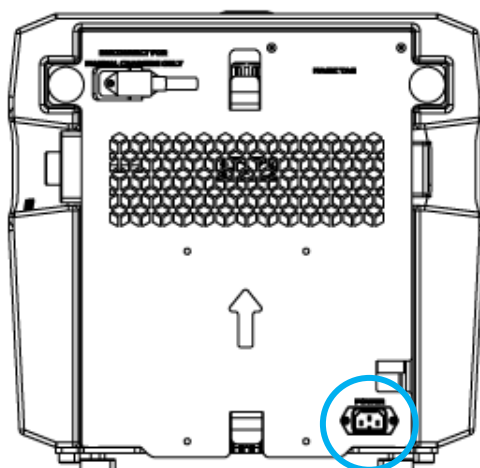


Fig. 1

2. Plug the cable into the wall socket.
3. To power on/off: Flip the switch.



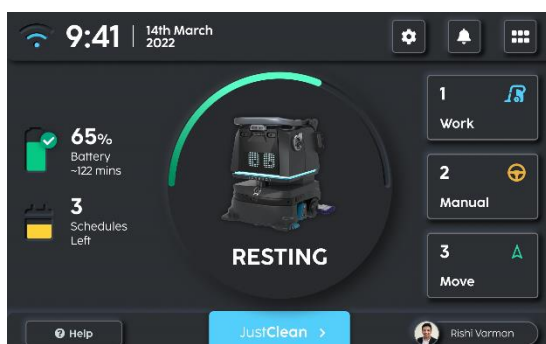
Fig. 2

CHARGING STATION TOUCHSCREEN SETUP

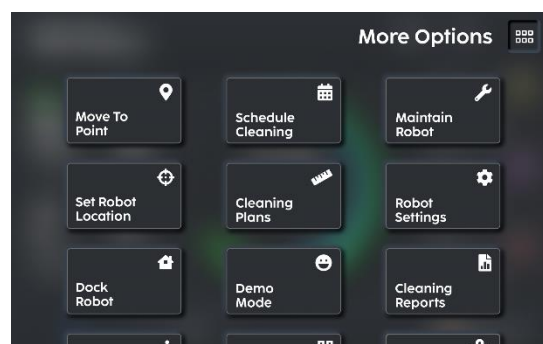
The following section describes the setup procedure for the station using the LCD screen on the R3 VAC. The LCD screen uses the LionsClean app.

The LionsClean app is used to communicate to and work with the station. Each R3 VAC user is assigned a unique user id and password for use with the app. Only account administrators and technicians can setup the station. All users can operate the station.

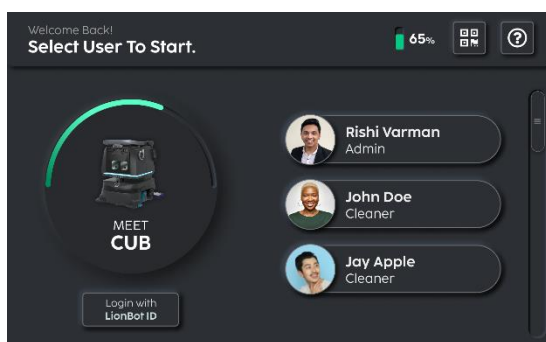
Before station setup up ensure the R3 VAC has the correct map loaded and is localized.



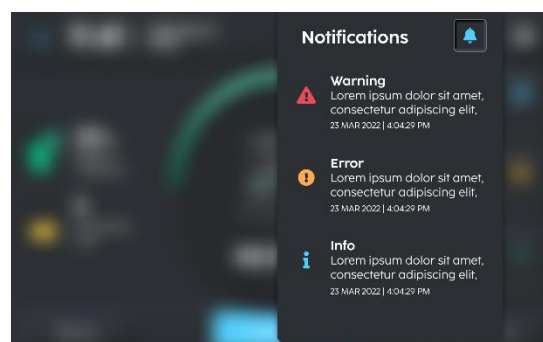
Home page



Home Menu



User Profile



Inbox

INITIAL SETUP

The following section describes the station setup procedure by using the LCD screen on the R3 VAC.



NOTE: Before setup, ensure the R3 VAC is setup. If not done, setup the R3 VAC first.

1. Turn on the R3 VAC and login to an administrative or technician account (Fig 1).
2. Turn on the station by flipping the wall socket switch on. (Fig 2).
3. Select the robot map (Fig 3).
4. Select the 'edit' map (Fig 4).

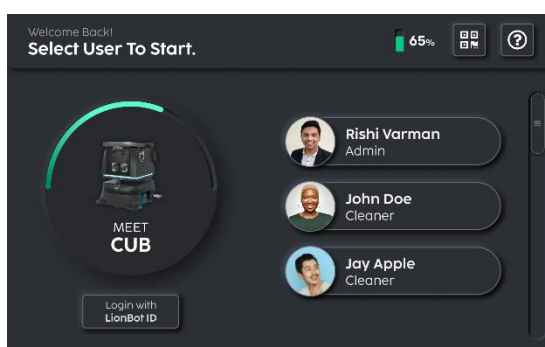


Fig 1



Fig 2

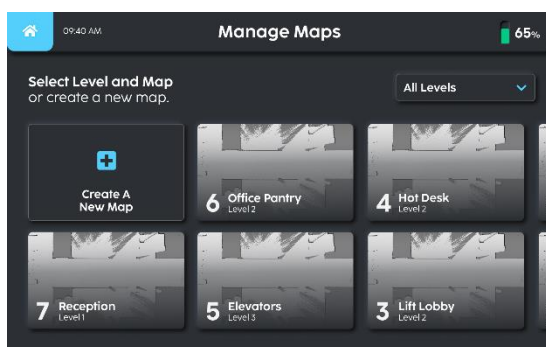
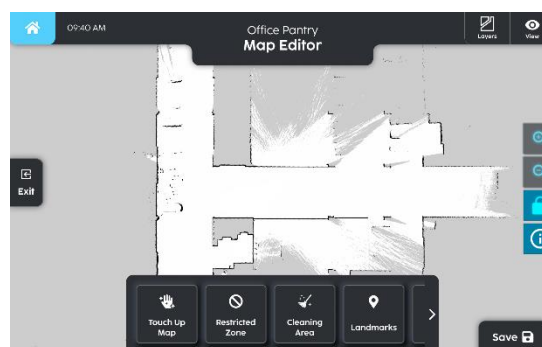


Fig 3



.....Fig 4

5. Select the 'Landmark' icon on the edit map page (Fig 5).

6. Select the 'Dock Point' icon shown (Fig 6).

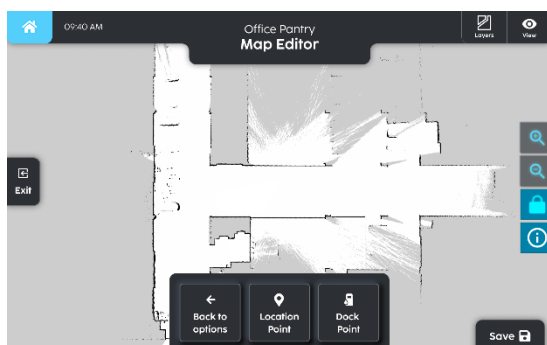


Fig 5



Fig 6

7. On the map tap the place where the docking station is positioned (Fig 7).
8. Orient the position of the station by tapping the arrows shown in Fig 7.



NOTE: Install station on a flat surface.

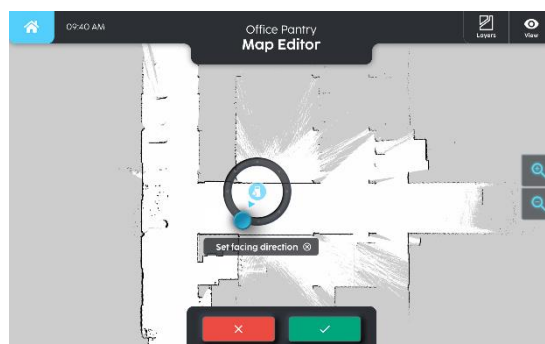


Fig 7

INITIAL REGISTRATION



NOTE: If the station is registered go to “[ADD REGISTERED DOCKING STATION TO R3 VAC](#)”.



NOTE: There is no pairing button on the R3 VAC Charging Station. Move robot close to station to register station.

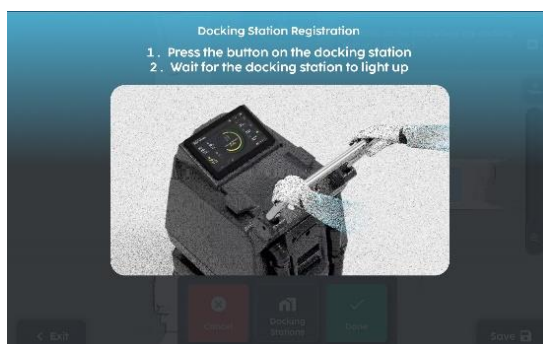


Fig 8

9. If the station is not found (Fig 9), bring the robot closer to the station. Then select 'Try Again'.
10. If problem persists contact Lionsbot for assistance.
11. If docking station has been registered, select cancel and go to the 'POST REGISTRATION' section (Fig 10).

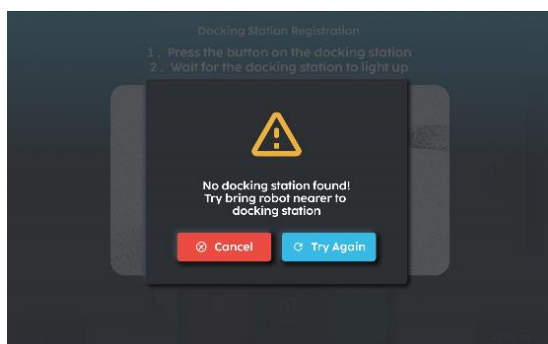


Fig 9

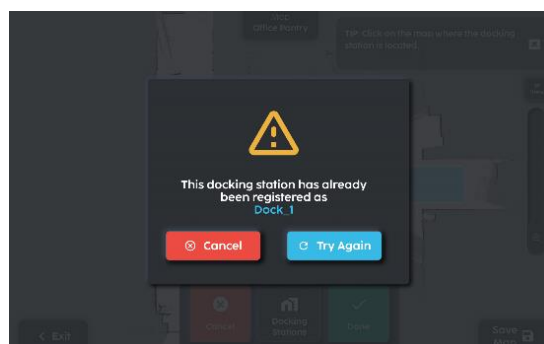


Fig 10

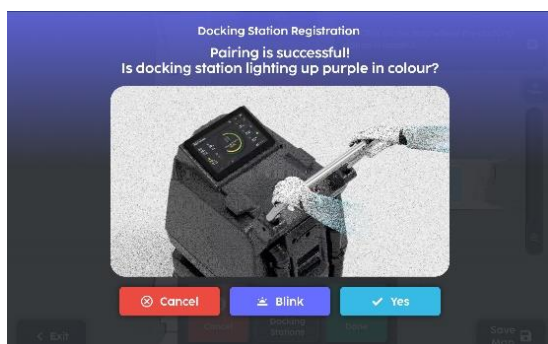


Fig 11

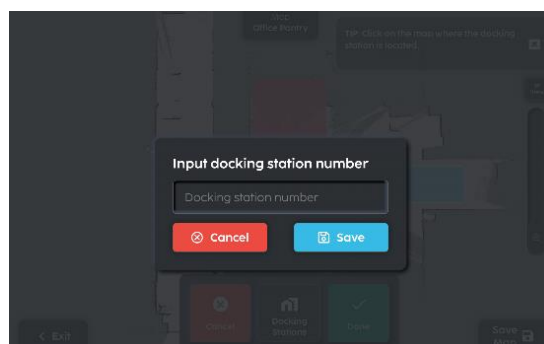


Fig 12

12. When station is registered (Fig 12) select 'yes'.

13. Input the docking station number (Fig 13).
14. Save the map (Fig 14).

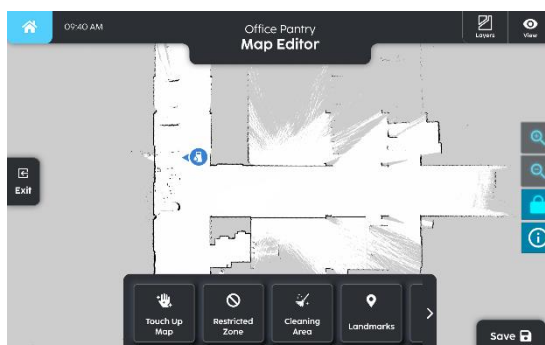


Fig 13

ADD REGISTERED DOCKING STATION TO R3 VAC

The following section describes the setup process for a registered docking station.



NOTE: Before setup, ensure the R3 VAC is setup. If not done, setup the R3 VAC first.

1. Turn on the R3 VAC and login to an administrative or technician account (Fig 1).
2. Turn on the Charging Station by flipping the wall switch on.
3. Select the robot map (Fig 2).
4. Select the 'edit' map (Fig 3).



Fig 1

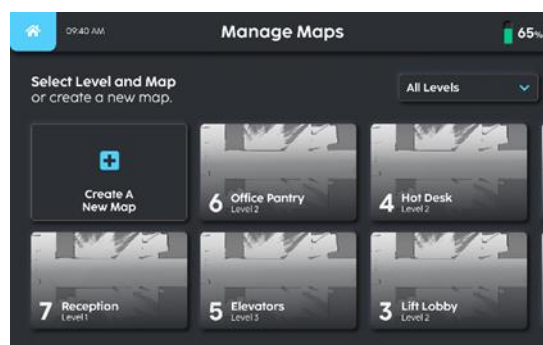


Fig 2

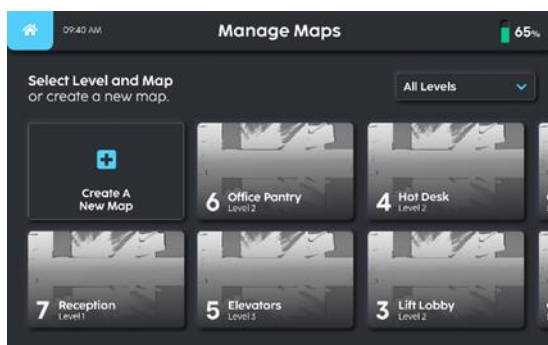


Fig 3



Fig 4

5. Select the 'Docking Stations' icon on the edit map page (Fig 4).
6. Select the 'Dockpoint' icon shown (Fig 6).



Fig 5



Fig 6

7. On the map tap the place where the docking station is positioned (Fig 7).
8. Orient the position of the station by tapping the arrows shown in Fig 7.



NOTE: Station must be on a flat surface and height is adjusted for charging contact.



Fig 7

9. From a list select the docking station to use (Fig 9).
10. Selecting the 'gear' icon will open the docking setting page. The page allows you to delete, rename and view the MAC address of the station (Fig 10-13).
11. The station setup is complete.

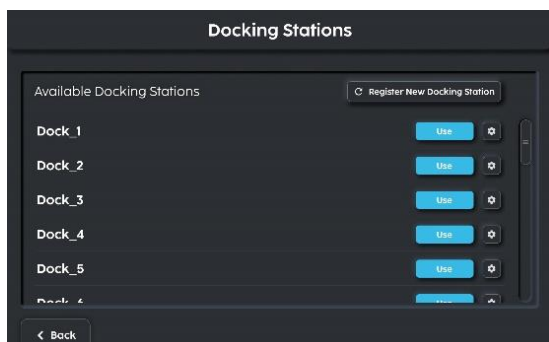


Fig 9

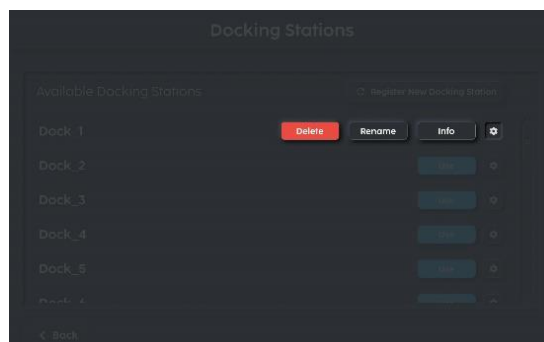


Fig 10

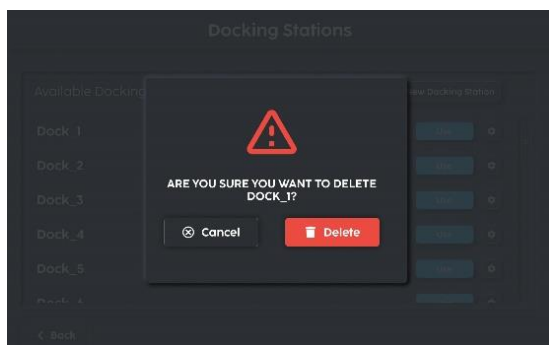


Fig 11

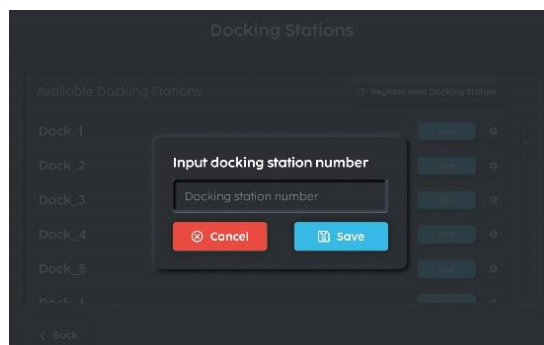


Fig 12



Fig 13

RECOMMENDED MAINTENANCE



CAUTION: Switch off the station before performing any form of periodic maintenance. .

RECOMMENDED MAINTENANCE SCHEDULE

OPERATION	AFTER EACH USE	DAILY	WEEKLY	MONTHLY	ANNUALLY
Wipe down the station					
Vacuum internal housing					
Inspect charging contacts for wear					

WIPING DOWN THE CHARGING STATION

1. Ensure that the station is powered off.
2. Wipe down the outer skin and charging contacts of the station using dry cloth.
3. Do not hose down the station.



DANGER: Do not wipe the charging contacts with a wet cloth.

DISPOSAL

Contact an authorized distributor for the proper disposal of the R3 VAC charging station. Before scrapping the station, it is necessary to separate out different categories of materials for proper collection and disposal in compliance with local environmental regulations. Take particular care in handling the charger and electronic parts.

TROUBLESHOOTING

The table below lists some useful troubleshooting tips for simple issues that may arise with the station. If preliminary troubleshooting is unsuccessful, please contact an authorized distributor for assistance.

PROBLEM	POSSIBLE CAUSE	SOLUTION
THE CHARGING STATION DOES NOT START	The power cable is not connected properly.	Re-insert the power cable.
ROBOT IS NOT DOCKING	Robot is in manual mode	Bring down handle bar.
THE ROBOT DOES NOT CHARGE	The charging contacts are misaligned.	Re-adjust station height. Manual-dock the robot. Contact authorized local distributor if problem persist.
	The charger inside the station is faulty.	Contact authorized local distributor immediately.
ROBOT IS NOT DOCKING STRAIGHT	V-profile reflector is loose or dirty	Clean the reflector. If the reflector is loose, contact your local distributor.

BATTERY CHARGER TROUBLESHOOTING

To access the charger, contact your local distributor.

BLINKING FREQUENCY	FAULT CAUSE	SOLUTION
E01 bAt	The battery is not connected or the battery voltage is too low.	1) Check battery connection is correct. 2) Check charger connection is correct. 3) Check each battery is good.
E02 AC	Abnormal AC Power Input (Voltage)	1) Check AC input cord is connected between charger and AC outlet. 2) Make sure AC plug is tightly inserted into AC outlet.
E03 Hot	Charger High Temperature Protection	1) Charger shuts down and enters protection mode due to charger/environmental temperature is too high. Please place the charger in a well-ventilated environment. 2) Disconnect the charger and wait for 15-20mins before reconnecting for charging.
E04 bAt	Battery High Temperature Protection	1) Charger will reduce current even stop charging to prevent the battery from overheating when battery temperature exceeds the preset value. 2) When the battery temperature drops, the charger will restart automatically.
E05 Err	Output Current is too large	Return to the factory for repair.
E06 bAt	Battery Voltage is too high	Check and assure that the correct output battery voltage is connected.

CONTACT INFORMATION

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