



KLEENBOT C55
User Manual of Keenon Intelligent Cleaning Robot

Statement

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The product specifications and information mentioned in this manual are for reference only. If the content is updated, no further notice will be given. Unless otherwise specified, this manual is only used as a guide for use. Any statement on the properties and performance of the product, as well as the application and use of the product, does not constitute any form of guarantee or warranty binding on Keenon Intelligent.

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Introduction

Kleenbot c55 is a professional intelligent cleaning robot for medium and large scenes provided by KEENON Intelligent. It has functions such as sweeping, sweeping and Scrubbing, sweeping and dust pushing, and water suction. It is mainly used in indoor commercial scenes such as medium and large supermarkets, shopping malls, transportation hubs, subway stations, factories, and underground garages. It has the characteristics of wide scene adaptability, high degree of intelligence, dry and wet separation, long water and electricity endurance, and high cleaning efficiency, which can fully solve customer pain points and meet customer needs.

Safety Instructions

2.1 About Safety Instructions

Before using this machine, please follow the instruction manual of this machine and do not perform any operation beyond the scope of the instruction manual.

This manual provides safety precautions and correct handling steps for using the robot, charger, charging pile, and workstation. The precautions given in this manual do not cover all possible situations. In any case (such as when the machine cannot operate normally or the machine overturns), the personal safety of the operator, pedestrians, and surrounding personnel is the first priority. Please always pay attention to the precautions for installing and using the robot, and keep this manual in a place where you can check it at any time.

2.2 Symbols

The following symbol categories explain the degree of injury or damage caused by failure to comply with warnings or improper use of machines and related equipment. Please thoroughly understand the following before reading this manual.



Danger

Warning of prohibited operations, otherwise it will cause blindness, injury, burns (high temperature, low temperature), electric shock, fractures, poisoning, etc., with lasting sequelae and requiring hospitalization or long-term hospitalization.



Warning

Caution instructions, if not followed, it will cause injury, burns, electric shock, etc., but no hospitalization or long-term hospitalization is required.



Precautions, if not followed, it will involve damage to homes and property as well as livestock and pets.

2.3 Safety Instructions



Danger

 **Danger:** Operators should be fully instructed before using the machine.

 **Do not look directly at the light source for more than 100s.**

 **Warning:** This machine is only suitable for indoor use.

 **Warning:** This machine is only stored indoors.

■ Regardless of whether the charger or charging station is connected, do not step on the power cord or apply excessive force to it to prevent damage to the charging device or electric shock.

■ Only original chargers and charging stations specially provided by the manufacturer are applicable. Do not attempt to disassemble or modify the robot battery to avoid battery explosion or leakage of internal liquid in the battery. Please call the after-sales service for battery repair.

■ This product is equipped with a laser radar for positioning and navigation. Do not look directly at the laser with your eyes.

■ Do not operate the robot to charge with wet hands.

■ It is forbidden to use the product in extremely hot (above 40 °C) or extremely cold (below 0 °C) environments.

■ The chemicals contained in the built-in battery of this machine will pollute the environment. Before disposing of the robot, please be sure to remove the battery from the body in advance. The battery should be handed over to a professional battery recycling point for centralized disposal.

■ If there is leakage from the battery, make sure to avoid contact with the eyes or skin. If accidentally contacted, wash your hands and rinse your eyes with clean water immediately. If you still feel uncomfortable, please seek medical attention immediately.

■ Do not use metal or other conductors to short-circuit the two contacts of the charging station.



Warning

■ When using the robot, do not insert your fingers or other objects into the conveyor belt or other rotating parts of the robot to avoid damage.

■ When the robot is working normally, please do not try to open the robot's shell to avoid electric shock or other safety risks.

- Do not deploy the robot near stairs, escalators or other areas where there may be a risk of falling. If deployment is required, please add protective measures such as fences.
- Do not use the robot on steps, uneven ground (height difference exceeds 1cm, tilt angle 2° or above), or on carpets.
- Do not place any decorations on the robot, which may block the sensor and affect the operation of the machine.
- Do not allow liquids to enter the robot's battery compartment, circuit board and other electronic device areas, and do not allow foreign objects to enter the machine.
- The machine is waterproof to a certain extent, but it is forbidden to splash water directly on the machine or rinse the machine. Do not use the machine outdoors on rainy days.
- When moving or transporting the robot, please ensure that the robot's sewage tank and clean water tank are empty; clean the sewage tank to prevent the sewage from fermenting and stinking; do not let the robot tip over or fall.
- This machine is not suitable for people with reduced physical, sensory or mental abilities, or lack of experience and knowledge (including children).
- When the machine needs to flip the water tank for maintenance, it is necessary to drain the clean water and sewage, then unscrew the fixing bolts of the two front water tanks and the chassis, and then press the handle to flip the water tank backwards
- If the ground of the environment is surrounded by glass walls or other highly transparent materials, some sensors will not work properly. Therefore, we do not recommend that you use the machine in the above environment to avoid unnecessary dangers. If you need to use it, you need to modify the site (such as stickers, physical fences).
- Do not place heavy objects on top of the robot to avoid damage to the equipment.

2.4 Instructions for Use



Note

- When adding water, please be careful not to exceed the max scale indicator of the clean water tank to prevent the robot from getting water and causing malfunctions.
- Do not expose the machine to a lot of dust, sand, snow, ice, water, humidity, salt water environment or salt spray, which may cause the robot to malfunction.
- Do not use the robot in an area smaller than the robot's operable width (the robot's minimum passage width, the minimum turning width).
- Power cords and other debris scattered on the ground may trip or entangle the robot. Be sure to remove them before use.
- This product can clean general garbage, but it is not suitable for cleaning ropes, strips, toxic and harmful substances, and high-temperature objects.

■ When performing maintenance on charging equipment (chargers, charging piles, workstations) or not charging for a long time, be sure to unplug the power cords at both ends of the charging equipment and put them away.

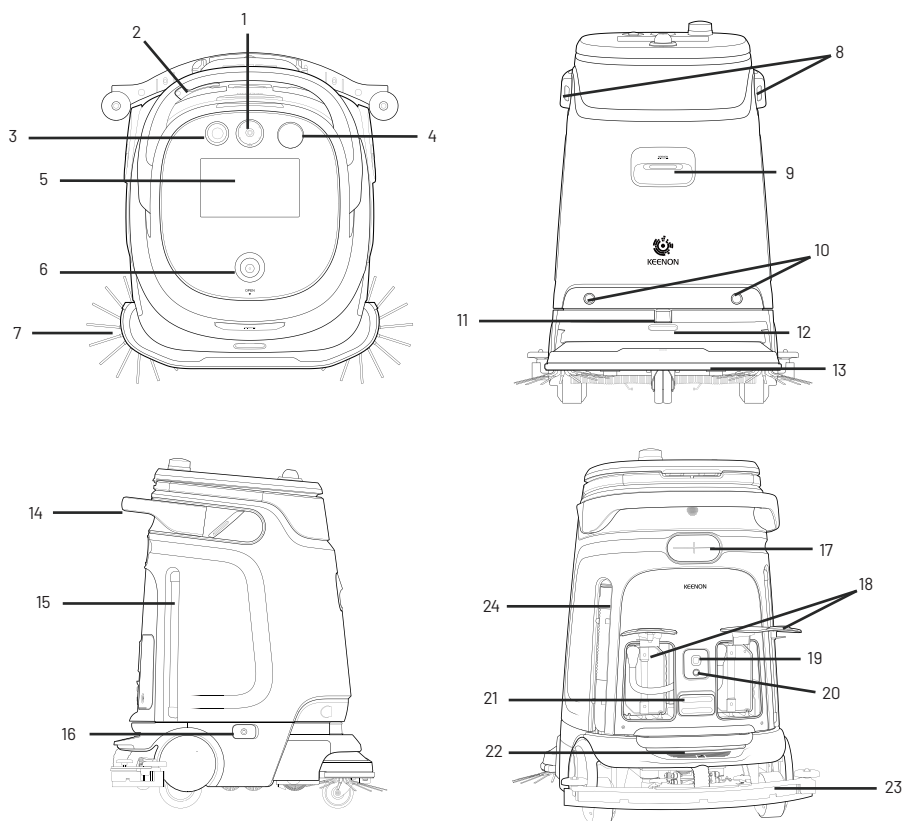
■ If the indoor environment where the machine is running has changed significantly (redcoration, use of the machine in a new location, rearrangement of indoor items such as chairs, tables, etc.), it is necessary to re-build the map.

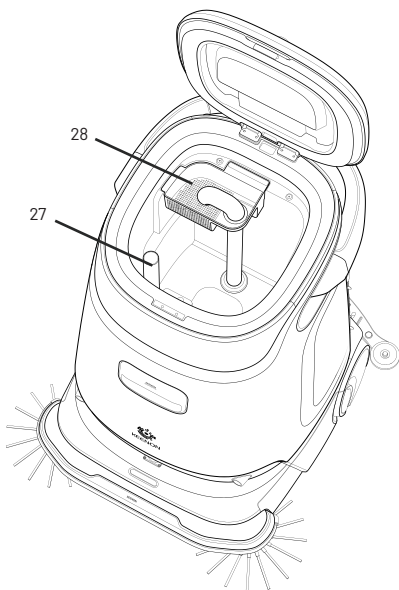
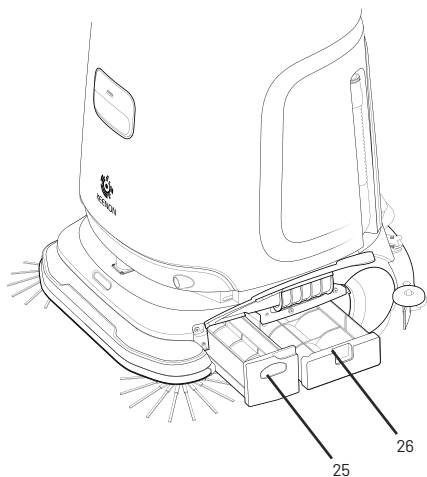
■ If you feel any danger, press the emergency stop button.

■ When the machine is not working, please drain the water in the clean water tank and sewage tank of the machine in time to avoid freezing and causing blockage or cracking of the water pipes, or causing bacterial growth. Note that the machine should be stored in a waterless, -20°C to 55°C temperature range and 10%RH to 93%RH humidity range.

Product Composition

3.1 Appearance and Components





No. Appearance and components			
01	Top vision Vslam sensor	15	Clean water level display
02	Hand push power button	16	Manual charging port
03	Emergency stop button	17	Manual automatic water filling port
04	Flashing light (optional)	18	Battery (battery cover open)
05	Interactive screen	19	Linear laser radar
06	3D LASER RADAR (OPTIONAL)	20	Rearview camera
07	Side brush	21	Charging pole
08	Side stereo vision sensor	22	Foot pedal
09	Anti-fall stereo vision sensor	23	Squeegee assembly
10	Laser light	24	Manual drain pipe
11	Laser radar sensor	25	Pre-sweep roller brush assembly
12	Stereo vision sensor	26	Scrubbing roller brush assembly
13	Anti-collision strip	27	Suction pipe
14	Push handle	28	Sewage filter assembly

3.2 Performance Parameters

Model	C55
Cleaning component type	Disc brush/roller brush
Cleaning mode	Sweep and scrub,sweep and dust push, water suction
Machine dimensions (length × width × height)	Without squeegee: 860×680×1082mm With squeegee: 860×850×1082mm
Product weight (net weight)	150Kg
Cleaning width	Disc brush 500mm/roller brush 550mm
Water tank capacity	60L
Sewage tank capacity	47L
Trash box capacity	Front dust box: 2l Rear dust box: 0.7l (roller brush version)
Maximum cleaning speed	1.2m/s *
Minimum passing width	950mm *
Minimum U-turn width	1250mm
Maximum vertical height for obstacle crossing	10mm
Garage speed bump passability (fully loaded, non-clean)	5cm
Maximum ditch crossing width	35mm
Maximum climbing slope (fully loaded, non-clean)	6°
Battery life	5h
Charging time	4h
Noise level	70dB

Wireless configuration	WIFI: 2412MHz-2472MHz, ≤20dBm WCDMA: B1/B8 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/ B13/B18/ B19/B20/ B26/B28 LTE-TDD: B38/B39/B40 max 33dBm Lora:863-870MHz, max0.98dBm
Battery capacity	29.2V 50Ah*2
Protection system	Laser radar + vslam + stereo vision + line laser + anti-collision sensor + rgb camera
Machine operating temperature /humidity range	Temperature: 0℃-45℃; Humidity: 25%-85%RH
Working environment	Indoor environment, hard and flat ground
Storage environment	Temperature: -20℃-55℃; Humidity: 10%-93%RH

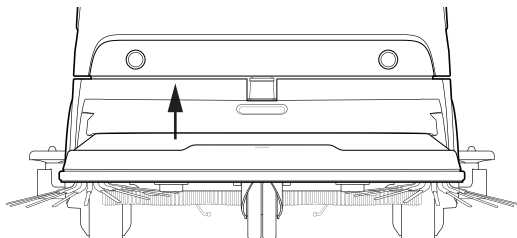
* This capability will be achieved in subsequent technical upgrades.

Operation

4.1 Power On/Off

■ Power on

After finding the power switch position of C55, press the power switch with your finger to start the robot. When you see the screen light up, it means the boot is complete. It takes about 40s to wait for the software to load.



■ Power off

Press the power switch again, the screen goes out, and the shutdown is complete.

4.2 Charging

■ Charge the robot (manual charging): Connect the robot charging port to the charging cable. If the connection is successful, the robot screen will display charging, and the power adapter indicator light will light up, indicating that it is charging.

Note:

* The machine needs to be charged with a designated model charger. It is strictly forbidden to connect any third-party charger to the machine, otherwise it may cause personal and property dangers.

* Please pay attention to waterproofing during the charging process of the machine to avoid safety accidents caused by it.

■ Workstation Charging (Automatic Charging):

1.Installation dimensions need to be reserved for the workstation. (including charging station, C40 unit, and reserved space): 200cm x 180cm x 120cm. Please place the workstation on a flat surface and do not move it after installation.

2.The robot has the function of intelligent autonomous recharge. The robot can independently find, match and contact the workstation to realize automatic recharge.

4.3 Battery Replacement

1. Before replacing the battery for the robot, you must turn it off first;
2. Open the double battery cover at the rear of the machine, unplug the battery power plug, remove the battery and replace it with a fully charged battery, then plug in the power plug and cover the battery cover;
3. Turn on the machine

Maintenance

5.1 Cleaning

In the process of daily use, we need to perform necessary maintenance on the intelligent robot to increase the life of the machine and maintain the cleaning effect, so that the robot is in good condition for a long time and create more application value for customers.



Attention!

When cleaning this device, be sure to turn off the power of the device and unplug the power cord from the power socket. Do not use alcohol, benzene or any other flammable cleaning agent, otherwise, it may cause fire or electric shock. Do not spray liquid directly on the machine to avoid damage.

- **Sensor:** Check if there is dirt on the sensor. Please wipe it gently with a softer cloth or paper. Avoid wiping it directly with your hands to cause scratches and other damage.
- **External surface and dust box:** Soak a piece of cloth in water and wring it out, wipe the external surface of the machine, and then use a dry cloth to fully dry the surface.
- **Wheel assembly:** Place the robot upside down on a flat ground covered with a soft protective mat, remove the hair and dirt on the wheels, and wipe them with a damp cloth.
- **Battery:** When the robot is not used for a long time, it is necessary to charge the robot once every three months to avoid battery damage.
- **Filter assembly:** Open the machine head cover, take out the filter assembly from the sewage tank, and clean it.
- **Sweeping brush assembly:** Clean the garbage in the dust box, wipe it dry with a clean cloth after washing and cleaning, and use a cleaning tool to clean the hair and dirt wrapped around the roller brush.

■ **Scrubbing brush assembly:** Use a cleaning tool to clean the hair and dirt wrapped around the roller brush, and use a clean cloth to clean the dirt inside the scrubbing brush cavity to prevent the accumulated dirt from blocking the water spray pipe.

■ **Cleaning of Squeegee:** Use a wet towel to clean the inside of the squeegee to prevent the accumulation of hair and other dirt that will affect the wiping effect. And keep the surface clean, which can reduce loss and extend its service life.

■ **Sewage tank:** Check whether there is sludge/debris in the sewage tank. If there is, please remove it immediately and rinse it with water regularly

■ **Side brush**

(1) Remove the left and right side brushes by hand and remove the hair and dirt on the side brushes.

(2) Reinstall the left and right side brushes. When you hear a "click", it means that the installation is complete.

5.2 Transportation



Attention!

This product is an electronic product. Pay attention to transportation safety during transportation

If you need to move the robot manually, please strictly follow the instructions below to avoid damage to the machine.

■ **Lift**

Two people stand on both sides of the machine, from the gap in the laser layer, keep it upright and lift the machine at the same time.

* Do not lift other areas, otherwise the robot may be damaged.

■ **Pushing**

Switch the machine to manual pushing mode, and gently hold the handles on both sides to move the robot.

* Do not pull other areas violently, otherwise the robot may be damaged.

■ **Transport**

Please ensure the integrity of the packaging box when transporting the product to ensure that the product will not be damaged due to transportation.

Do not stack during transportation, and do not stack other items on the outer packaging.

During transportation, please keep the direction of the arrow on the box, and do not tip, sideways or invert it.

5.3 Maintenance and Service Cycle

In order to keep the host at its peak performance, it is recommended to refer to the frequency in the table below to maintain the component maintenance of the robot. The frequency of cleaning, maintenance and replacement can be adjusted appropriately according to the machine's use environment, frequency, intensity and temperature.

Serial number	Parts	Cleaning and maintenance frequency	Replacement frequency (any condition)
1	Laser radar	1time/week	/
2	Stereo vision	1time/week	/
3	Line laser	1time/week	/
4	Ultrasonic	1time/week	/
5	Universal wheel	1time/month	/
6	Driving wheel	2 times/year	/
7	Charging pile/workstation	1time/month	/
8	Filter	1time/day	/
9	Sewage tank	1time/day	/
10	Dust box	1time/day	/
11	Suction pipe	1time/3 days	/
12	Side brush	1time/day	2 MONTHS/200H
13	Sweeping brush	1time/day	3 MONTHS/300H
14	Sweeping fiber brush	1time/day	3 MONTHS/300H
15	Dust-push brush	1time/day	3 MONTHS/300H
16	Scrubbing brush	1time/day	3 MONTHS/300H
17	Squeegee rubber	1time/day	Front rubber: 3 months/300h Rear rubber: 2 months/200h

Troubleshooting and Repair

Fault phenomenon	Possible causes and solutions
The robot cannot be turned on normally	1. Insufficient power, please connect the robot to the charging station to charge
The robot cannot be charged normally	1. The charging station has been moved, please place the charging station at the initial setting position 2. The charging station is not connected to the power supply, please connect the charging station to the power supply 3. The charging station is blocked. Please ensure that there is no obstruction within 0.5m in front and on both sides of the charging station.
The robot cannot move	1. The robot positioning is lost, please push the robot to the charging station to charge, the robot will automatically restore the positioning 2. The visual camera is faulty, please make sure that the visual camera is not covered or damaged 3. The laser radar is faulty, please check whether the laser radar is damaged
The robot cannot play voice	1. The robot voice is turned off or the volume is too low, please reset the voice or volume
The robot cannot take the elevator	1. The elevator is faulty, please check whether the elevator itself is faulty or abnormal 2. Network abnormality, please check whether the robot network and elevator box network are online 3. The power supply of the elevator box is disconnected. Please connect the power cord of the e-box to the power supply.
Roller brush entangled	1. The roller brush is entangled with hair. Remove the roller brush and use a cleaning tool to clean the entanglement.
The cleaning effect of the machine is not good	1. The suction pipe is blocked, please adjust or clear it in time. 2. The squeegee is dirty or damaged, please clean the squeegee, adjust the structure shape or replace a new squeegee. 3. The side brush/roller brush is dirty or severely worn, please replace the new side brush/roller brush of the same specification. 4. The cleaning floor is dirty or there is solid garbage, and the machine cannot clean it all at once. You can do pre-cleaning work, pick up the fixed garbage, and then start cleaning work. You can repeat the cleaning once to ensure the final cleaning effect.

*If the above operations cannot solve the problem, please contact customer service for help



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