



Beetle

User Manual

SW1-V1.0

Disclaimer

Before using this product, please read this user manual and this statement carefully. Once you use this product, it is deemed that you have recognized and accepted all the contents of this statement. You promise to use this product only for legitimate purposes.

This manual is applicable to BEETLE series products, including product models such as SW1 V1.0.

If you engage in any improper behavior that does not follow the instructions in this user manual, forcibly disassemble the product, or the product is damaged/fails to work normally due to reasons other than its own faults, Gauss Robotics will not assume the corresponding after-sales return and exchange obligations. Meanwhile, the resulting maintenance, parts replacement, and transportation costs will be borne by you.

Please use this product strictly in accordance with the instructions in this user manual. Gauss Robotics will not assume relevant responsibilities and costs for any physical injury, illness, or property loss to you or a third party caused by the use of the product in violation of the user manual.

If you install or attach equipment, third-party accessories, structures, or application software that are not sold by Gauss Robotics on this product, resulting in product damage, Gauss Robotics will not be responsible for its after-sales maintenance and repair. At the same time, for product damage or failure caused by the attached components, Gauss Robotics will not assume the after-sales return and exchange obligations, and the resulting maintenance, parts replacement, and transportation costs will be borne by you.

Any disclaimers subsequently declared by Gauss Robotics through other official channels (if any) will also fall outside the scope of Gauss Robotics' responsibilities.

Please be sure to read and accurately understand all the contents of this manual before performing corresponding operations or maintenance on the floor washer.

This manual is only for reference by end users. Shanghai Gauss Automation Technology Development Co., Ltd. reserves the right to modify and interpret this manual.

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Safety instructions

Instructions for Use

Do not operate the machine in the following situations

1. Do not operate the machine if its components are not properly installed or the casing is detached.
2. Do not operate the machine under unsuitable working conditions, such as when it is charging or searching for positioning.
3. Do not install or use unauthorized accessories or consumables from Gauss Robotics, as using other consumables or accessories may cause hazards.

Before starting the machine

1. Check whether the HEPA filter, dustbin, side brush, and roller brush are properly installed.
2. Check if the battery is sufficiently charged.
3. Check if the machine's consumables are in normal working condition.
4. Check if the emergency stop button is functioning properly.
5. Check for any abnormal alarms.
6. Do not place heavy objects on the top of the machine.

When the machine is running

1. Do not press or strike the screen forcefully.
2. Do not pull the robot during operation in non-manual mode.
3. Do not block the top laser radar or surrounding cameras when the machine is powered on or running, as this will cause the machine to malfunction.
4. Do not hit the machine, as it may easily cause equipment damage.
5. When moving the machine manually, ensure the handle is fully opened and locked.
6. Control the machine's movement and other operations strictly in accordance with the user manual.
7. On smooth surfaces, control the machine to move at a slow speed to avoid danger.
8. When controlling the machine to move backward, check the rear condition in real time.
9. If the machine fails, please report the problem for repair in a timely manner.



Warning

In case of an emergency requiring immediate machine shutdown, press the red emergency stop button immediately.



Attention

- Do not pour liquids into the battery connector or short-circuit the positive and negative poles of the connector.
- The machine has some waterproof capabilities, but direct splashing or flushing with water is prohibited. Do not use the machine outdoors in rainy weather.
- When the robot is performing cleaning tasks, operators do not need to stay with or follow the robot at all times. However, designated staff should be prepared to receive any warning information from the robot to address potential issues. Such personnel must receive training from Gausium Robotics or its authorized dealers/service providers to ensure they know how to respond to any possible problems.



Notes

- If there are areas or objects in the machine's working environment that are more than 15mm above the ground, remove them or isolate them with a virtual wall.
- The robot can be used for manual cleaning. In this case, note that the maximum speed at which the robot is pushed must not exceed the maximum speed of automatic operation.

After the machine stops running

1. If the robot is parked for a long time, be sure to power it off completely.
2. Clean and maintain the dustbin, HEPA filter, roller brush, side brush, etc., in accordance with the maintenance manual.
3. Park the machine in the designated location, which must be a flat indoor ground.

Environmental Notes

4. The robot is mainly suitable for flat ground. Use with caution in environments with stairs, excessive slopes, etc.
5. Do not use the robot on extremely wet ground or ground with obvious water accumulation.
6. Debris such as scattered power cords and long garbage on the ground may trip or entangle the robot. Please remove or avoid such areas before use.
7. Soft garbage exceeding 250mm may entangle the side brush and roller brush, affecting the robot's use. Manual handling is required on-site.
8. If there are obvious protrusions (door thresholds, tracks, etc.) in the use environment, ensure the protrusion height is within 15mm.
9. The minimum passage width for the robot must be greater than 850mm.



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10. The maximum designed climbing angle of the robot is 8°.
11. Install fences or other blocking protections at areas with fall risks, such as stair edges and downhill entrances.
12. The machine is only used as a cleaning device. If it is used for purposes beyond the functions described in this manual, Gausium will not assume any liability for damages caused thereby.
13. To maintain the machine's good performance, avoid storing it in an environment above 60°C or below -20°C for more than 24 hours.
14. When using the robot normally, ensure the ambient temperature is no higher than 40°C and no lower than 0°C.
15. When the machine is not in use, clean the dustbin promptly to prevent bacterial growth due to long-term garbage storage. Store the machine in a normal-temperature, dry place.
16. When the machine needs long-term parking, park it on flat ground as much as possible. It is recommended to store it in a dry, ventilated environment away from heat sources and cover it with a protective cover to help slow down the aging of rubber components and paint surfaces.
17. This machine is suitable for commercial use, such as factories and warehouses.
18. The machine should be fixed when unattended to prevent accidental movement.
19. This machine must not be used for the following unintended purposes, and using it for unintended purposes will void the warranty. "Unintended purposes" include but are not limited to use in situations not specified herein, such as outdoors, near escalators, moving walkways, balconies, stairs, swimming pools, or fountains, or any automatic operation or other operations beyond normal customer use.



Notes

Do not use the product on ground unsuitable for SW1, such as soil surfaces, grasslands, artificial turf, or in poor ground conditions (e.g., uneven ground, potholes, branches). In such cases, clean or maintain the ground until it meets the cleaning standards before using SW1 for cleaning.

If the environment is surrounded by glass walls or other highly transparent materials, some sensors of SW1 may not work properly. Therefore, we do not recommend using SW1 in such environments to avoid unnecessary risks.

If the ground in the environment is purely sloped and the slope angle exceeds 8°, do not use the machine on this ground. SW1 only supports automatic operation on flat ground.

In outdoor environments with rain, fog, snow, strong winds, etc., the sensors of SW1 may not work properly. Therefore, we do not recommend using SW1 in the above environments to avoid unnecessary risks.

If there are fall-risk areas in the machine's environment, 务必 (must) take preventive measures in fall-prone areas, such as deploying virtual walls, physical fences, etc., to avoid unnecessary risks.

This product can clean general garbage but is not suitable for cleaning stringy materials, strips, liquids, viscous substances, toxic/hazardous materials, or high-temperature objects.



Power and Electrical Usage Instructions

1. When the robot's remaining battery level is less than 10%, charge it promptly. Long-term operation at low battery levels will shorten the battery life.
2. During normal battery use, perform a full charge and discharge once a month.
3. When storing the battery for a long time (over 1 week), fully charge it and disconnect the main switch; otherwise, the battery may be damaged. Perform a full charge and discharge every 3 months.
4. Disconnect the power supply promptly after charging is complete. Do not charge the machine for an extended period when it is fully charged.
5. Use only the original factory-matched rechargeable battery and charging equipment. Charging the robot with non-original chargers is strictly prohibited.
6. Charge the main unit according to the power voltage specified on the charger nameplate.
7. Ensure the power voltage matches the voltage marked on the charger; otherwise, the charger may be damaged.
8. Protect the power cord carefully, avoiding pulling or twisting.
9. Designate a specific person responsible for charging the machine.
10. Do not charge the machine near flammable or explosive objects.
11. Keep the robot's storage and charging area at normal temperature and dry. Never place the machine or charger in high-temperature areas ($>60^{\circ}\text{C}$). The machine is not waterproof, so keep both the machine and charger away from water.
12. Prevent the charger from colliding with foreign objects to avoid damage.
13. If the charger is damaged or the charging current is abnormal, replace the charger immediately.
14. This product contains non-replaceable batteries.
15. Use only the specified power device to charge the battery.



Notes

Battery Dormancy and Activation : When the battery is stored for 7 days without current output, it will automatically enter dormancy mode. To activate the battery for use, follow these steps: Connect the red output plug of the charger to the machine, and plug the input plug into a 110V/220V power source. Once the charger outputs voltage and the battery detects the input voltage, the activation is successful.

Safety Instructions

1. Always place the machine in standby mode or turn off the power when performing cleaning and maintenance work.
2. Do not play or frolic in front of the robot to avoid unnecessary injuries.
3. In case the robot moves erratically, the screen operation fails, or other emergency situations occur, press the pause switch immediately.

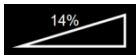


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4. This product is a wheeled robot limited to indoor use on flat surfaces (smooth and level ground, slope less than 8°, protrusions no higher than 15mm). Do not use it outdoors (e.g., open plazas, balconies), on rough terrain (e.g., stairs), or similar environments.
5. Do not use the robot in environments where the temperature exceeds 40°C or is below 0°C, or where the ground has any liquid or viscous substances.
6. Before use, coil up all wires on the ground to prevent dragging during operation. Remove sharp objects (e.g., renovation debris, glass, nails) from the ground to avoid damaging the machine's chassis.
7. When pushing or moving the robot during its operation, first tap the screen to pause it or switch to manual mode.
8. Do not spill any liquid into the interior of the product.
9. Do not place any non-transportable objects (including children and pets) on the robot while it is stationary or in operation.
10. Children are prohibited from using this machine.
11. Do not allow children to perform cleaning or maintenance without supervision.
12. Although the robot has an automatic obstacle avoidance function, never suddenly block the robot while it is moving at high speed, as this may cause a safety accident.
13. This machine is not suitable for persons with reduced physical, sensory, or mental capabilities, or those lacking experience and knowledge (including children).
14. This product can only be used by authorized and specially trained personnel. All maintenance, inspection, and repair work must be performed by qualified staff.
15. Do not use the robot in unsuitable environments, on inappropriate ground materials, in areas with fall risks or high-altitude falling object risks. For any questions, contact Gausium after-sales service.
16. Operators should receive thorough guidance on using these machines.
17. Cut off the product's power when cleaning, repairing, replacing components, or converting the machine for other functions.
18. Do not perform cleaning on surfaces with slopes exceeding the marked limit on the machine.

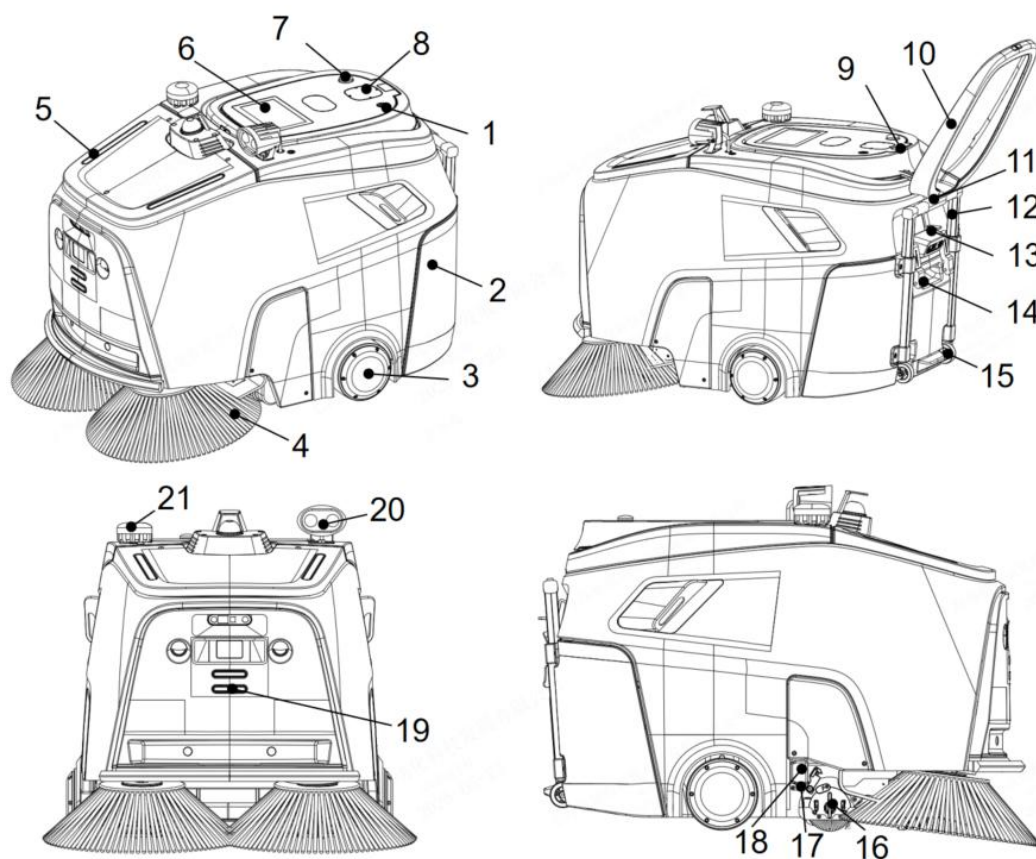
Safety Signs

The following table lists the product usage instructions and safety signs. Please refer to and comply with these safety requirements to avoid hazards. Any company or individual who fails to operate the robot in accordance with these safety warnings shall independently assume the losses and risks caused thereby.

Symbol	Description	Description
	Maximum operating slope is less than 8° (14%).	Comply with regulatory requirements.

Product Composition

Introduction to Appearance Components



Serial Number	Name	Remarks
1	Power Button	Standard Configuration
2	Dustbin	Standard Configuration
3	Drive Wheel	Standard Configuration
4	Side Brush Assembly	Standard Configuration
5	Light Strip	Standard Configuration
6	Interactive Screen	Standard Configuration

Serial Number	Name	Remarks
12	Telescopic Handle of Dustbin	Standard Configuration
13	HEPA Manual Dust Shaking Device	Standard Configuration
14	Dustbin Fixing Buckle	Standard Configuration
15	Dustbin Auxiliary Wheel	Standard Configuration
16	Roller Brush Assembly	Standard Configuration
17	Main Power Switch	Standard Configuration

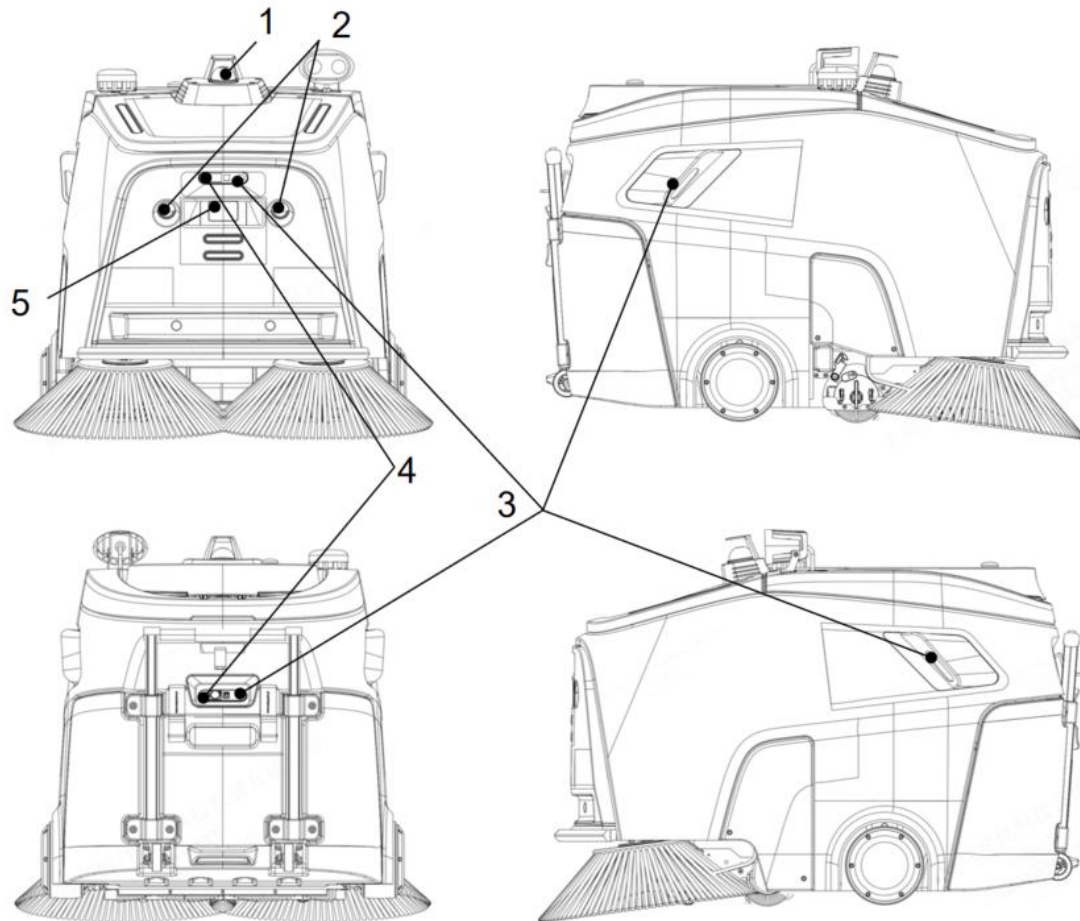


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7	Emergency Stop Button	Standard Configuration
8	SIM Card Cover	Standard Configuration
9	Push Handle Button	Standard Configuration
10	Push Handle	Standard Configuration
11	Dustbin Handle Lift Button	Standard Configuration

18	Charging Port	Standard Configuration
19	Charging Electrode Plate	Standard Configuration
20	Warning Light	Standard Configuration
21	Strobe Light	Standard Configuration

Introduction to Safety Components



Serial Number	Sensor Type	Quantity	Description	Remarks
1	3D LiDAR	1	Mapping, positioning, and obstacle avoidance	Standard Configuration



2	Front Fill Light	2	Providing light source for front RGB camera	Standard Configuration
3	RGBD Camera	4	Inspection cleaning, obstacle avoidance, and real-time color image acquisition	Standard Configuration
4	RGB Camera	2	Inspection cleaning, obstacle avoidance, and real-time color image acquisition	Standard Configuration
5	Infrared Receiver	1	Charging alignment	Standard Configuration

Product Parameters

Main Parameters of the Whole Machine

Product Model	SW1 V1.0 (PRO/Standard)
Net Weight (kg)	112/92
Dustbin Capacity (L)	45
Cleaning Width (mm)	750
Maximum Travel Speed (m/s)	1.2
Maximum Vertical Obstacle Height (mm)	15
Maximum Trench Obstacle Distance (mm)	25
Maximum Climbing Slope (°)	8
Minimum Passable Width (mm)	850
Minimum Turning Channel Width (mm)	1350
Minimum Edge Distance (mm)	0
Rated Input Voltage	24V
Maximum Output Power (W)	400
Rated Drive Motor Power (W)	2*220
Battery Type	Lithium Iron Phosphate



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Battery Cycle Life (to 80% Capacity)	2000 times
Capacity (Ah)	60/40 (According to Actual Configuration)
Charging Time (h)	2.5

Whole Machine Cleaning/Efficiency Parameters

Maximum Cleaning Efficiency (m ² /h)	1200
Average Battery Life (h)	4 (60Ah) 、 2.75 (40Ah)
Maximum Processable Garbage Size (mm)	250 (Length) × 250 (Width) × 80 (Height)
Maximum Processable Garbage Weight (g)	1200
Dustbin Capacity (L)	45
Operating Noise (dB(A))	≤75
Charging Pile Installation Dimensions (cm)	190 (Length) × 160 (Width) × 90 (Height)
Maximum Processable Garbage Size (mm)	250*250*80

Other Parameters

Working Temperature	0°C ~ 40°C
Working Humidity	10% ~ 85% RH
Storage Temperature	-20°C ~ 60°C
Storage Humidity	20% ~ 93% RH
Service Altitude	≤2000M
Protection Class	IP53

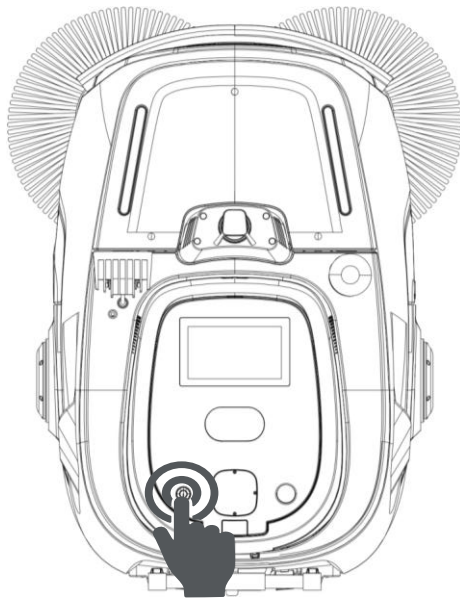


Product Use

Power On, Power Off, Pause, Start, End

Power On

Short-press the power button to turn on the entire machine. The screen will enter the working mode, indicating a successful startup. By default, the robot activates in automatic mode, during which manual movement is disabled. Do not forcefully push the robot to avoid damaging the motor.

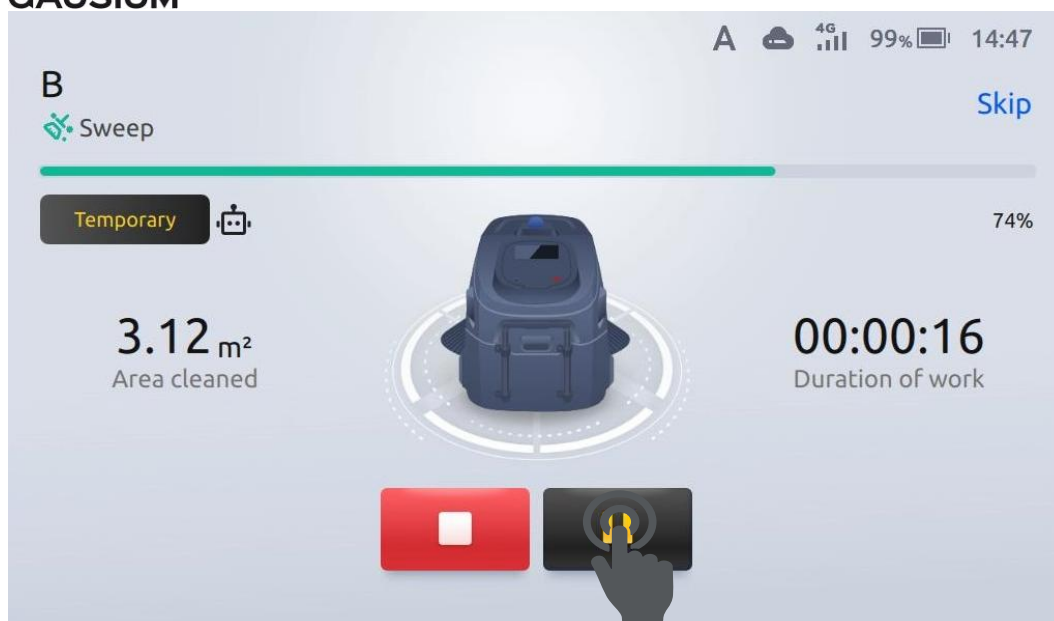


Power Off

Long-press the power button for 3 seconds after startup to shut down the machine, which will enter low-power mode.

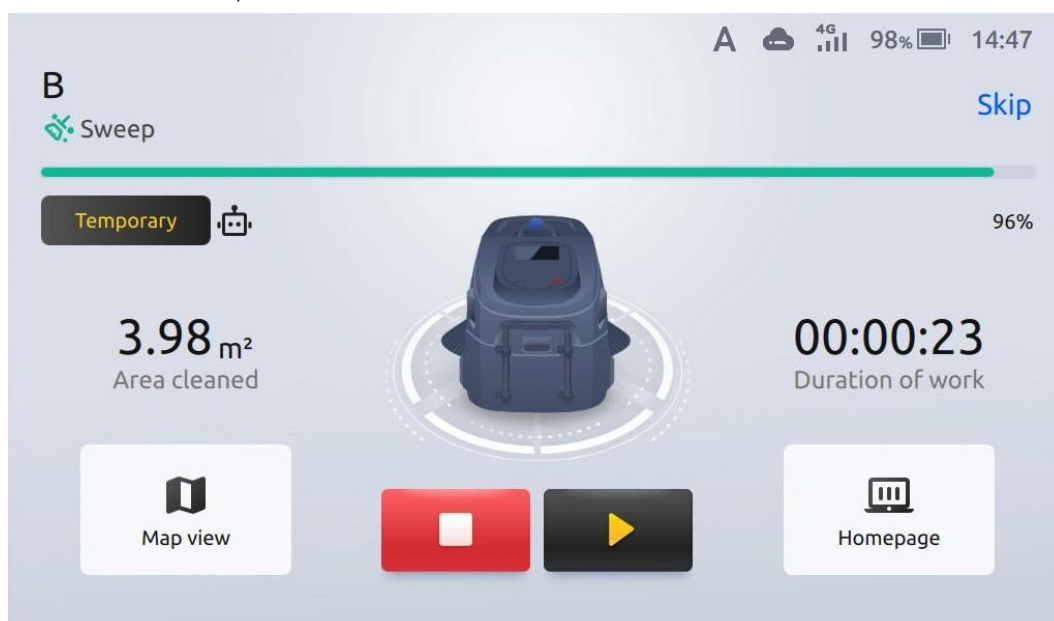
Pause

During operation, touch the screen to pause the robot. The screen will display the pause interface.



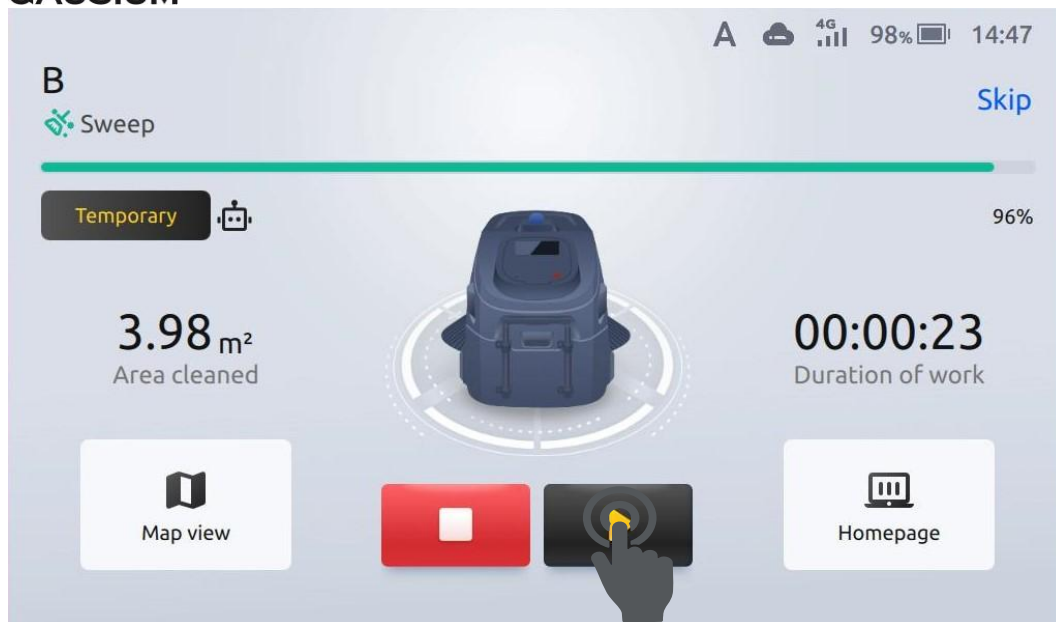
On Pause

The screen enters the pause interface.



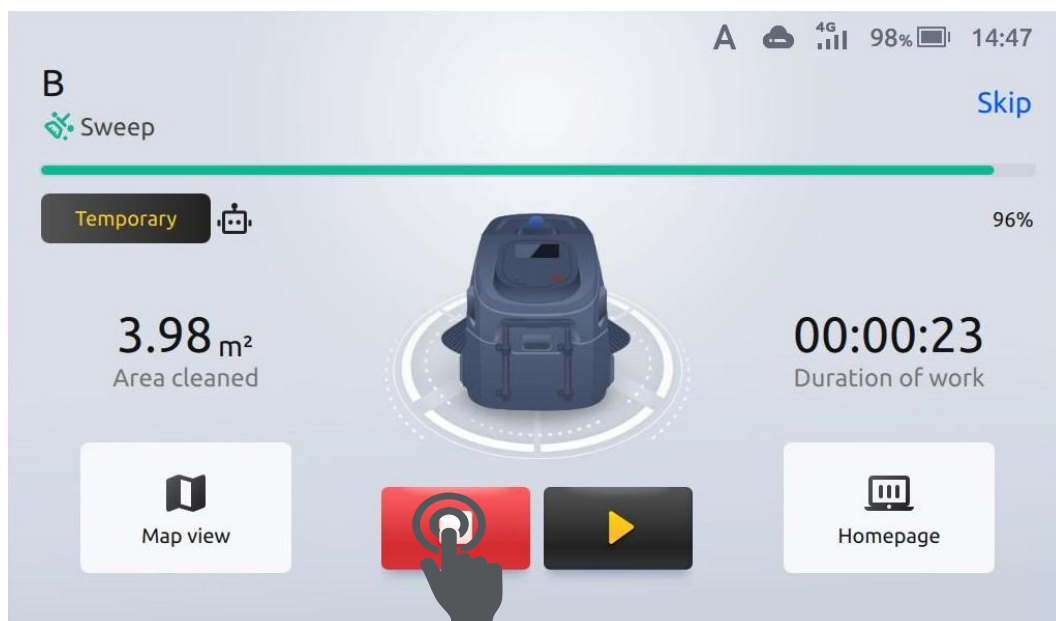
Start

To continue, tap the "Start" button, and the robot will resume its task.



End

To stop operation, tap the "End" button, and the robot will terminate the current task immediately.



Attention

Emergency Stop

In case of an emergency requiring immediate machine shutdown, press the red emergency stop button on the control panel directly. This will halt the machine's movement promptly. The machine will not lose power

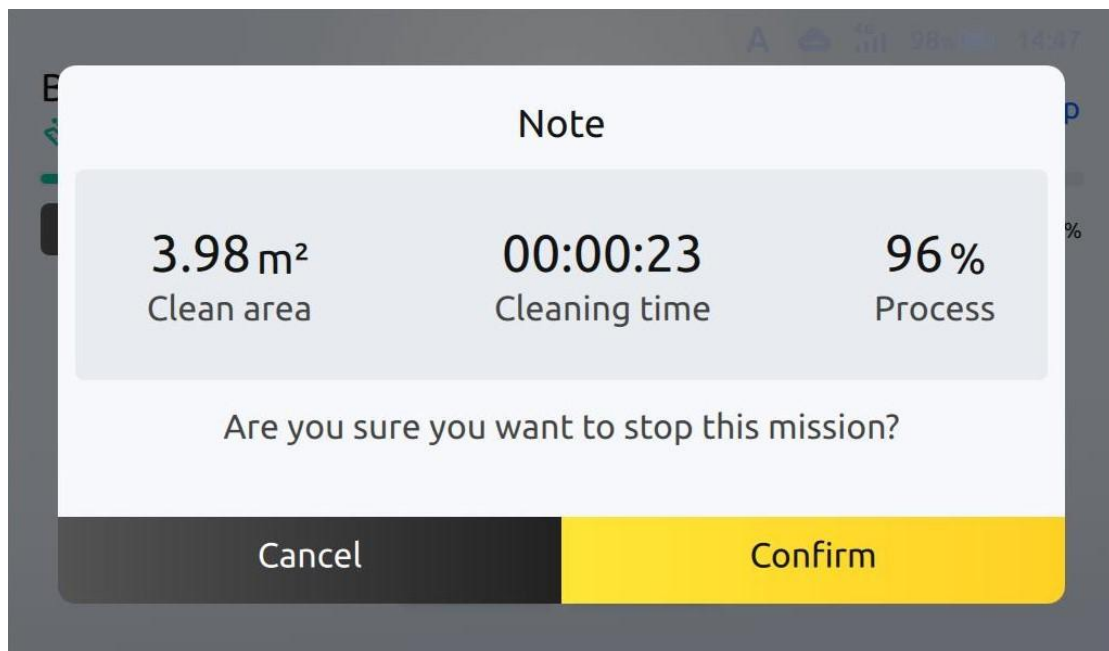
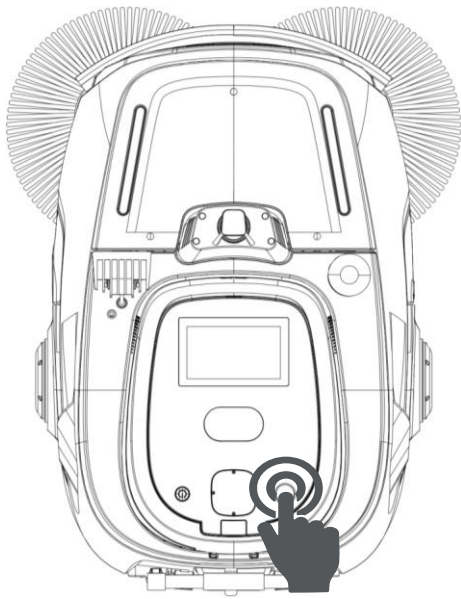


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but will cease operation. As shown in the pop-up window below, the text reads: "The emergency stop button has been pressed. Press the emergency stop button again to release the emergency stop state."

After releasing the emergency stop button, the machine will revert to the state it was in before the emergency stop was activated. For example:

1. If the emergency stop is pressed while the task is paused, pressing the emergency stop button again will restore the task to the paused state.
2. If the emergency stop is pressed during task operation, rotating the emergency stop button will resume the task.





Task Creation, Manual Operation

Task Creation

After clicking "Login", you will enter the robot's main interface. On this interface, you can select the corresponding map and area, set an appropriate cleaning mode and the number of cycles, and start executing the task. After completing the settings, the robot will independently complete the task according to the selected task and the set number of cycles.

On the task creation interface, select the corresponding map and area. You can modify the cleaning mode of the task, set the number of cycles, and view task details.

Area tasks Confirm

1 Select zone <> 2 Work sequence

Area Path All ☐

B ✓ area1 ☐

Area tasks Completed

1 Select zone <> 2 Work sequence

Intelligent Planning Manual sorting

B 1/3 area1

Manual Operation



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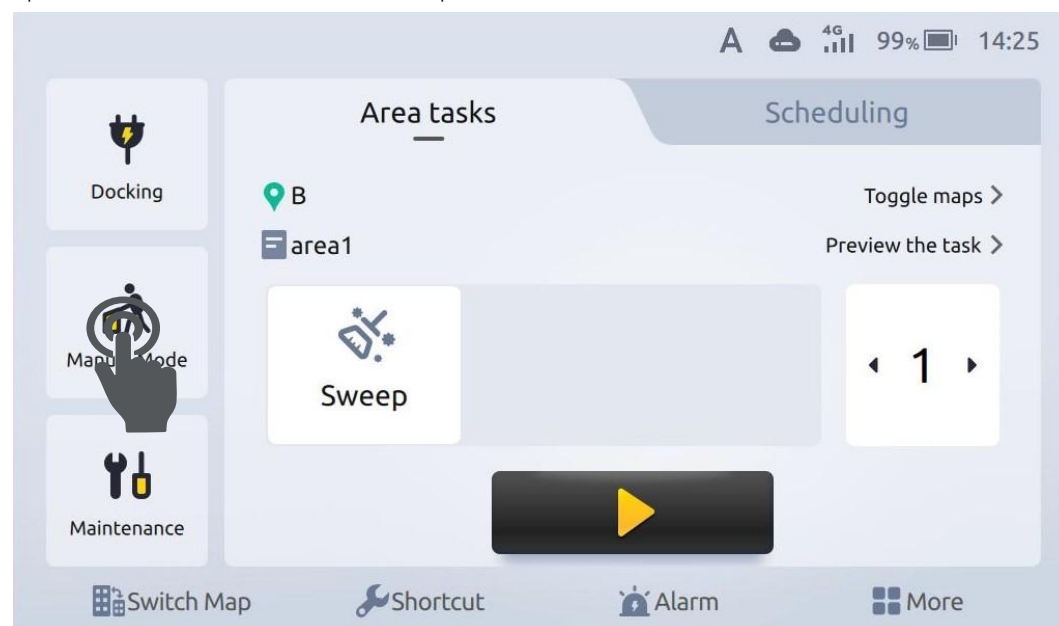
The intelligent machine fully retains the manual operation functions of traditional machines, supporting the execution of cleaning tasks through manual operations. Cleaning personnel can control the movement and steering of the intelligent robot via the handle to manually perform cleaning tasks.

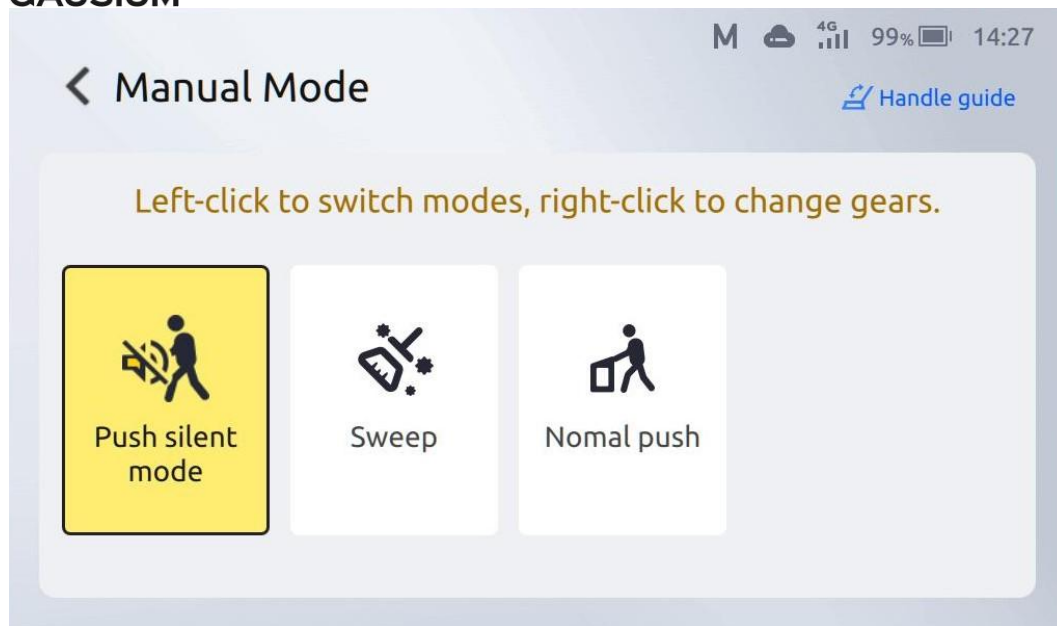
- Press the manual mode button on the top of the machine body to eject the handle, switch the machine to manual mode, and display "Rotation" on the screen simultaneously.
- Pick up the handle and fix it within the limit position to push and use the robot.

During manual use, there are three modes:

- Mute Pushing: The robot can be pushed without activating the cleaning function, enabling convenient movement.
- Sweeping: The robot will start the floor-sweeping mode, and pushing the robot will clean the ground.
- Normal Pushing: The robot will activate the cleaning function, combining the pushing speed with cleaning needs.

After selecting the corresponding mode based on manual movement requirements, push the robot to start operation. Return the handle to the fixed position to exit manual mode.



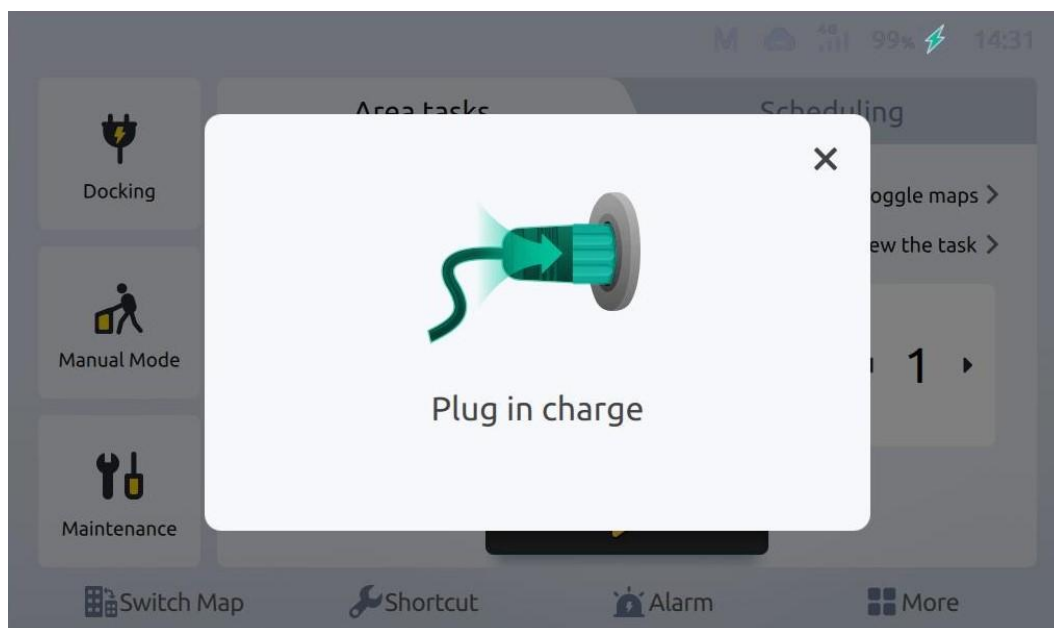


Charging Instructions

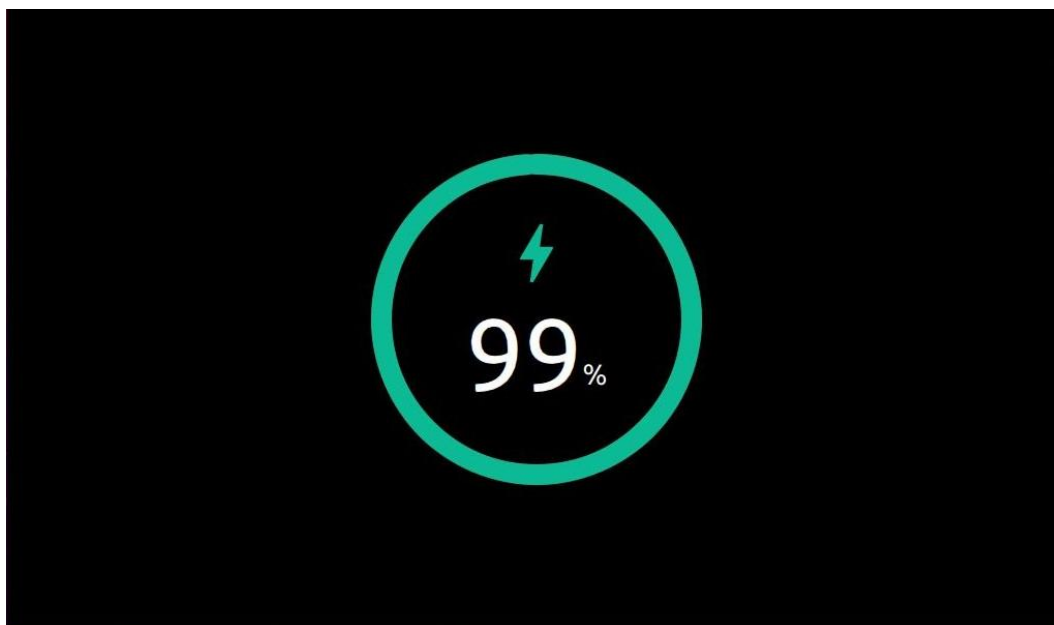
Charging Method (Manual Charging): Connect the robot's charging interface to the charging cable, ensuring a secure connection between the body's charging port and the cable. If the connection is successful, the robot's screen will display a charging animation, the power adapter indicator light will turn on, and "Notes: Charging" will be shown.

Electrical Usage Notes

1. To ensure the robot's operational efficiency and battery life, always maintain the battery level above 10%.
2. When the battery level is below 10%, the robot is in a low-power state and needs to be charged as soon as possible.
3. When the battery level is below 1%, the battery protection mode is activated. The robot will be unable to perform tasks and must be charged before use.



The screen shows a charging indicator, indicating that the machine has started charging.



After charging is complete, the screen will display "Charging 100".

Warning

- The machine must be charged with the charger of the specified model by Gausium. It is strictly prohibited to connect any third-party charger to the machine, otherwise, it may cause personal injury and property damage.



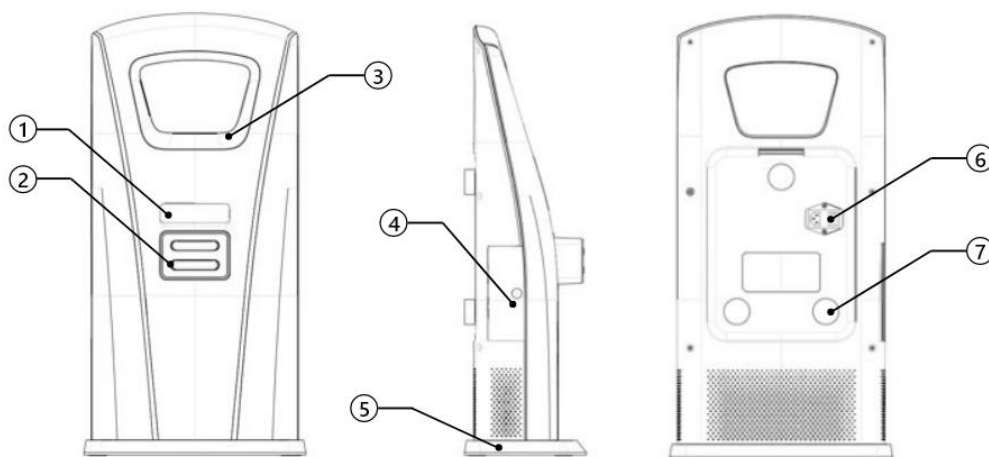
- During the charging process of the machine, please pay attention to water proofing to avoid safety accidents caused thereby.

Notes

- The charging time may be prolonged due to factors such as ambient temperature and battery life.
- When the charging indicator shows abnormal charging, try repeating the charging steps. If charging still fails, please contact Gausium Service Center for maintenance.
- In automatic operation mode, if the machine triggers low battery during a task, it will automatically go to the charging pile for replenishment. After replenishment is completed, it can automatically resume the task from the previous pause point.
- The charging point is recommended to be selected in a flat and dry place, avoiding humidity and vibration. The area must be protected to prevent children from touching it and causing dangerous accidents.
- Do not charge in direct sunlight in summer.

Charging Pile Charging (Automatic Charging):

Composition of Charging Pile



1	Infrared pile positioning
2	Charging electrodes
3	Charging indicator light strip
4	Storage space for manual charging cables and cleaning tools, press to open the small door here

5	Support base
6	Power cord interface and switch
7	Three foot pads for wall support



Charging Pile Installation Requirements

Reserved installation dimensions (including charging pile, complete machine, and reserved space): 190cm (Length) × 160cm (Width) × 90cm (Height).

How to Add a Charging Pile

When a new map creation command is issued, if the robot detects that it is on the charging pile (with charging electrodes in contact and successful infrared pair tube signal detection), it will take the charging pile as the map creation starting point and mark the charging pile at the origin of the map.

When a new map creation command is issued, if the robot does not detect that it is on the charging pile (with charging electrodes not in contact and unsuccessful infrared pair tube signal detection), the operation interface will note: "Please ensure the charging pile is powered on, face the robot towards the charging pile, and click Confirm." Selecting [No Charging Pile] will make the guidance disappear, and the robot will continue active exploration for map creation until returning to the task starting point after completing map creation. After clicking [Confirm], the robot will complete the automatic pile-seeking logic at the current position until the charging pile is added. The charging pile position will be automatically added to the map, and then the robot will automatically continue automatic exploration for map creation and execute the task.

Machine Charging Status

When the remaining battery level of the machine is less than 10%, the machine will note "low battery". At this time, the machine cannot perform normal cleaning operations and will automatically return to the charging pile to fully charge before proceeding with the next work.

In standby mode, the indicator light is constantly blue. During charging, the indicator light flashes green rhythmically. When fully charged, the indicator light is constantly green. In case of a fault, the indicator light flashes yellow.



Attention

- It is forbidden to manually operate and drive the machine for pile alignment or pile withdrawal, as there is a risk of misoperation.

SIM Card Replacement Method

1. Open the SIM card cover to see the SIM card slot, and remove the slot directly by hand or with a SIM eject pin.
2. Insert the MICRO SIM card into the SIM card slot.
3. Insert the SIM card and slot together, ensuring they are fully inserted. Close the dust cover and lock the fixing screw.



Attention

- Please make sure to turn off the robot's power before removing or installing the SIM card.

Product Maintenance

During the operation of the SW1 machine, operators need to perform simple maintenance on the machine before and after each use, conduct necessary inspections and maintenance on the machine periodically, and replace consumables regularly to ensure the machine can exert optimal performance and maximize its service life.

Maintenance Frequency

To keep the main machine in peak performance, it is recommended to refer to the maintenance frequency of components in the table below:

Grade	Component	Cleaning Maintenance Frequency	Replacement Frequency (Any Condition)
Body Cleaning	Dustbin	As needed	-
	Body Dust	1 time/day	-
Class A Consumables	Side Brush	1 time/day	1080h/6 months
	Roller Brush	1 time/day	1080h/6 months
	HEPA Filter	1 time/day	1080h/6 months



Daily Maintenance

During daily use, it is necessary to carry out necessary maintenance on intelligent machines to increase their service life, maintain cleaning effects, keep the equipment in good condition for a long time, and create more application value for customers.



Notes

- Before maintenance, the power switch must be turned off and the power plug disconnected to prevent accidental electric shock or damage to components.
- The machine should be placed in a dry and ventilated place to avoid a humid environment affecting electronic components and shortening their service life.
- When manually cleaning the HEPA filter, please note the dust diffusion.
- After cleaning, it is recommended to let the machine stand for a period of time to allow the dust in the dustbin to settle before dumping the garbage.

Daily Maintenance and Care

1. HEPA dust vibration cleaning: After vibration, it is recommended to let it stand for a period before opening the dustbin (to allow dust in the dustbin to settle).
2. Open the dustbin bayonet, remove the dustbin, and dump the internal garbage (if the environment has a lot of garbage, clean it regularly as needed).
3. Bottom roller brush inspection: Check the winding condition of the roller brush by removing the dustbin. If there is winding, remove the roller brush in time to clean the winding objects.
4. Side brush inspection on both sides: Daily inspect the two side brushes at the front of the robot for any winding objects, and clean them in time if necessary.
5. Check the dust coverage on the body, and clean the body dust as needed (when there is much dust and it is easy to fall off).
6. Check the dust coverage on the laser sensor and its surroundings, and gently wipe it with a soft cloth or paper as needed. Avoid directly wiping with hands to prevent scratches or other damage.
7. After the machine finishes operation, please check the battery level and charge it in time if necessary.

Weekly Maintenance and Care

1. Check if there is dirt on the sensor, and gently wipe it with a soft cloth or paper. Avoid directly wiping with hands to prevent scratches or other damage.
2. Remove the roller brush/side brush weekly to clean them, as various strip-shaped garbage or other dirt may be wrapped around.
3. Inspect the driving wheels, check for any winding or other pollutants, and clean them.



4. If the dustbin has an odor or sticky garbage, use tools to clean the dustbin thoroughly.

Maintenance and Care

1. Check whether the dustbin buckle is fastened and sealed tightly to avoid dust emission.
2. Check if there is any abnormal noise in the overall structure, which may affect normal use.
3. Pay attention to replacing consumables such as roller brushes, side brushes, and HEPA filters according to the service life of consumables and the actual cleaning ability observed during maintenance.

Battery Maintenance and Care

1. Keep the battery away from heat sources, high-pressure areas, and avoid prolonged exposure to sunlight.
2. Do not immerse the battery in water or throw it into fire.
3. Do not reverse the positive and negative poles of the battery.
4. Do not short-circuit the positive and negative poles of the battery with metal.
5. Avoid excessive physical vibration and impact on the battery; do not hit, drop, or step on the battery.
6. Without the manufacturer's permission and guidance, do not disassemble or assemble the battery privately.
7. Do not mix batteries from different manufacturers, types, or models.
8. Charge the battery immediately (within 2 hours) after it is discharged.
9. Use the supporting or specified lithium battery charger.
10. When loading and unloading the battery during transportation, take care to prevent dropping. Do not stack more than 3 layers, place it upside down, and ensure it is facing upward.



Warning

- Stop using the battery immediately if any abnormal conditions occur, such as unusual odor, color change, noise, leakage, or severe deformation.
- In case of electrolyte leakage splashing onto the skin or into the eyes, rinse with clean water immediately and seek medical attention.
- Do not use the battery in high-temperature environments ($>40^{\circ}\text{C}$), as it may cause overheating, fire, or reduced service life.
- Improper disassembly, dismantling, or storage of the battery may cause personal injury and environmental pollution.
- Do not operate the battery without wearing protective equipment to avoid potential hazards.
- Keep the battery out of reach of pets and children, and strictly prohibit kids from accessing it.



Notice

- During normal use of the battery, it is necessary to fully charge and discharge it once a month. When the battery is stored for a long time (more than 1 week), it must be fully charged and then the circuit breaker should be disconnected; otherwise, the battery may be damaged. Additionally, a full charge and discharge should be carried out once every 3 months.



Environmental Protection

- Batteries contain toxic and corrosive substances. If power batteries are arbitrarily scrapped or discarded, they will pollute the environment, and the machine owner will bear corresponding legal responsibilities.

Troubleshooting

The following is a simple troubleshooting guide for use. If the problem cannot be solved, please contact the manufacturer in a timely manner. For obvious damage and parts replacement, please contact the manufacturer promptly.

Fault Phenomena	Possible Fault Causes	Solutions
Unclear mapping or ghosting	The machine runs at a fast speed, resulting in low mapping quality.	Control the machine to run for mapping at a slower speed.
	The sensor is contaminated with dust or blocked by obstacles.	Clean the outer side of the laser sensor with a dust-free cloth, check if there are foreign objects blocking the sensor, and remove them immediately if any.
	The environment is complex, with high-transparency materials such as glass walls.	When mapping, if high-transparency materials are found in the surrounding environment, draw a virtual wall in time to control the map boundary.
The machine does not move	The machine is out of power, cannot be turned on, and cannot move.	Connect the charger to the machine's charging port for charging, and control the machine to move after the battery is fully charged.
	The machine is not turned on, so it cannot move.	Check whether the rocker switch is in the power-on state.
	When using manually, if the machine mode is automatic mode.	Manually switch to manual mode.



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	The red emergency stop button on the control panel is pressed, causing the machine to brake urgently and unable to move.	Release the red emergency stop button to restore the machine's movement function.
The side brush/roller brush does not rotate	The side brush/roller brush is entangled with linear garbage, stuck and unable to rotate.	Remove the side brush/roller brush for cleaning, and reinstall it after cleaning.
The machine's cleaning effect is poor	The side brush/roller brush has not been cleaned for a long time, and a lot of garbage is entangled, affecting the cleaning effect.	Remove the side brush/roller brush for cleaning, and reinstall it after cleaning.
	The side brush/roller brush is severely worn, and the cleaning performance is poor.	Replace the side brush/roller brush with a new one of the same specification.
	The ground to be cleaned is dirty or there is too much garbage exceeding the cleaning volume, and the machine cannot clean it at one time.	Pre-clean the ground to be cleaned, clean up the fixed garbage, and then start the cleaning work. It can be cleaned repeatedly to ensure the final cleaning effect.
Unable to charge	The power supply socket is powered off and no power is provided.	Ensure that the power supply socket is energized, and the charging pile can be connected to other sockets for verification.
	The charging pile or the charging docking electrode is damaged, and charging cannot be performed.	Check the alarm information and contact the manufacturer for maintenance.
	The battery is damaged and cannot be charged normally.	If the charging pile works normally, but the battery percentage does not increase with the extension of charging time, it indicates that the battery is damaged or abnormal. Please contact Gauss Technology Support to apply for battery replacement.
Unable to start up	The rocker switch is in the off state.	Turn on the power switch.
	The battery is out of power.	Charge the battery according to the battery usage specifications.
	The power button is not pressed.	Long press the power button for 3 seconds to turn on/off.



After-sales service

Warranty

Shanghai Gaussian Automation Technology Development Co., Ltd. provides free services within the warranty period (1 year) from the date of receipt of the product, provided that the conditions for warranty are met. When the warranty period expires or the conditions for warranty are not met, fees will be charged according to the product price. Please call the after-sales service for product repair.

Conditions for warranty

1. The product has been properly used since its purchase within the warranty period, but a non-man-made quality problem occurs.
2. There is no unauthorized parts disassembly, modification or addition not included in the official manual. The fault is not caused by human factors.
3. There is no sign of tearing or altering found in the product serial number, factory labels, or other markings.
4. Valid proof of purchase, document, and bill number shall be provided.
5. The damaged parts replaced during the warranty period belong to Gausium and should be sent back as requested by Gausium. Otherwise Gausium has the right to cancel the warranty service.

Cases not covered by warranty

1. There are collisions and burns that are not caused by the quality of the product, or quality problems caused by man-made factors such as unauthorized modification of parts and ingress of foreign objects (water, oil, sand, etc.).
2. The product is damaged due to unauthorized modification and disassembly of parts, opening of the shell, or other operations.
3. The product is damaged due to incorrect installation, use or operation.
4. The product is damaged due to unauthorized repair of parts.
5. The product is damaged due to unauthorized circuit modification, or improper use of the battery and charger.
6. The product is damaged due to an excessive load.
7. The product is damaged caused by insufficient discharge when the power is low, or a battery with quality problems is used.
8. on-site service such as deployment, installation, or commissioning of the product is required due to the customer's reasons.
9. The product is damaged or fails due to force majeure factors (such as earthquake and fire).
10. Other circumstances that do not meet the conditions for warranty.



Warranty period

The date of receipt of the product recorded in Gausium's after-sales service system shall be the starting date of the warranty.

Product return is allowed in either of the following cases

Within 7 days since the receipt of the product, the customer finds an obvious defect before the product is put into use. The freight for product return will be borne by Gausium.

Product return is not allowed by Gausium in either of the following cases

1. The product damage is found at the time of receipt, but the customer did not require the delivery person to return it directly.
2. The request for product return is made after the return period (7 days from the date of receipt).
3. The product to be returned is incomplete, the outer packaging, accessory, give-away, or manual is incomplete, or the appearance is damaged due to human factors.
4. The customer fails to provide a valid proof of purchase or document for product return, or the document is counterfeit or has been altered.
5. There are collisions and burns that are not caused by the quality of the product, or quality problems caused by man-made factors such as unauthorized modification of parts, ingress of foreign objects (water, oil, sand, etc.), incorrect installation, improper use or operation.
6. The label, product serial number, IP rating label, or anti-counterfeit label has been torn or altered.
7. The product is damaged by force majeure, such as fire, flood, lightning, or traffic accidents.
8. The product has not been sent within 7 days from the date of contacting Gausium for product return.

Product exchange is allowed in either of the following cases

1. Within 15 days since the receipt of the product, the customer finds an obvious defect before the product is put into use. The freight for product exchange will be borne by Gausium.
2. Within 15 days since the receipt of the product, the product cannot be started under the guidance of the manual or technical personnel after being unpacked, or the customer finds a non-man-made quality defect. The freight for product exchange will be borne by Gausium.



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3. The customer unpacks and inspects the product in the presence of the delivery person upon receipt and finds that the product is damaged during transportation. The freight for product exchange will be borne by Gausium.
4. The product received is significantly different from the description of the product. The freight for product exchange will be borne by Gausium.

Product exchange is not allowed by Gausium in either of the following cases

1. The customer fails to provide valid proof of purchase or document for product exchange, or the document is counterfeit or has been altered.
2. The product damage is found at the time of receipt, but the customer did not require the delivery person to return or exchange it directly.
3. The request for product exchange is made after the return period (15 days from the date of receipt).
4. The product to be exchanged is incomplete, the outer packaging, accessory, give-away, or manual is incomplete, or the appearance is damaged due to human factors.
5. No quality problem has been found after the product is tested by the technical support department of Gausium.
6. There are collisions and burns that are not caused by the quality of the product, or quality problems caused by man-made factors such as unauthorized modification of parts, ingress of foreign objects (water, oil, sand, etc.), incorrect installation, improper use or operation.
7. The label, product serial number, IP rating label, or anti-counterfeit label has been torn or altered.
8. The product is damaged by force majeure, such as fire, flood, lightning, or traffic accidents.
9. The product has not been sent within 7 days from the date of contacting Gausium for product exchange.

After-sales service process

1. Please contact Gausium technical support at 400 888 3065.
2. The technical support personnel will fill in the forms based on your product status.
3. The technical support personnel will make a review within 7 working days and follow up as soon as possible.

Instructions for return/exchange and free maintenance

1. Remote technical support
2. Gausium provides online and remote technical support, which requires the customer to assist the technical engineers in problem diagnosis and troubleshooting.
3. On-site service



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4. Provided that on-site service is required according to a diagnosis of Gausium technical engineers, Gausium will provide free on-site service.
5. Processing time for product return
6. After your application for product return is approved, the product return will be completed within 7 days from the date of receiving the defective product.
7. Processing time for product exchange
8. After your application for product exchange is approved, the product exchange will be completed within 15 days from the date of receiving the defective product by Gausium.
9. Processing time for factory repair
10. After your application for product repair is approved, the product repair will be completed within 30 days from the date of receiving the defective product by Gausium. In case of national holidays, or the service is delayed by the after-sales service center of certain manufacturers, the repair time will be extended accordingly.
11. Refund time
12. After approval by Gausium, the refund will be transferred to the customer's bank account within 10 working days after the receipt of the returned product.

After-sales service not covered by warranty

For after-sales services not covered by warranty (beyond the warranty period or failing to meet the conditions for warranty), the corresponding fees shall be paid to Gausium.

Remote technical support

Gausium provides online and remote technical support, which requires the customer to assist the technical engineers in problem diagnosis and troubleshooting.

On-site service

Provided that on-site service is required according to a diagnosis of Gausium technical engineers, Gausium will provide on-site service.

Cost standard for after-sales services

For after-sales services not covered by warranty, the "Gausium After-sales Service Sheet" shall be filled out. Gausium service fees include the after-sales maintenance fees and spare parts costs.

In a scenario where Gausium provides remote technical support and the customer assists in troubleshooting, Gausium only charges for spare parts.

For on-site service provided by Gausium, the service fees include the spare parts costs and after-sales maintenance fees.



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After-sales service hotline

If you have any questions, please contact Gausium customer service at our hotline 400-888-3065.

Gausium provides 7/24 after-sales services for you.



Manufacturer: Shanghai Gaussian Automation Technology Development Co., Ltd.

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China (Shanghai) Pilot Free Trade Zone, Shanghai City, China



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