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Autonomous Driving Sweeper S120

User Manual

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Safety Instruction

Operating Prerequisites

1. If you have not received formal training.
2. If you have not carefully read and fully understood the instruction manual.
3. If you are intoxicated or under the influence of drugs and are not in a sound state.
4. If the Sweeper S120 is under unsuitable operating conditions, such as while charging...
5. Installing unauthorized Jtibat accessories or consumables may be dangerous.
6. If the Sweeper S120 is in an unsuitable operating environment, such as when the ground material and condition are unsuitable, or when there is a risk of falling objects from above, etc.



Do not use Sweeper S120 if any of the above conditions apply

Before turning on the sweeper

1. Check if the battery is sufficiently charged.
2. Check if the Sweeper S120 is intact.
3. Check if the Sweeper S120 consumables are in normal working order.
4. Check if the emergency stop button is working properly.
5. Check for any abnormal alarms.

When using the Sweeper S120

1. Strictly follow the user manual to control the sweeper's movement and other operations.
2. In case of emergency, immediately press the red emergency stop button.
3. Maximum slope: 12 degrees.
4. On slippery surfaces, move the sweeper slowly to avoid wheel slippage.
5. When reversing the sweeper, check the rear view in real time.
6. Report any malfunctions to the sweeper immediately.

After completing the cleaning task

1. Please turn off the Sweeper, except when charging.
2. Please empty the trash bin, clean the filter, and replace the filter if necessary.
3. Please park the Sweeper in the designated location; the parking area must be a flat surface.

Abnormal working scenarios

1. To maximize the effectiveness and efficiency of the sweeper, please do not use it on unsuitable surfaces such as soil, grass, artificial turf, or wooden floors. Also, do not use the product on surfaces with poor conditions, such as uneven surfaces, potholes, large pieces of debris (greater than 200*50*50mm), or long, narrow objects (pipes, wires, ribbons, flammable materials, or sticky substances). In such cases, please clean or maintain the surface until it meets cleaning standards before using the sweeper to begin cleaning.
2. If the surrounding environment consists of glass walls or other highly transparent materials, some sensors of the Sweeper S120 may not function properly. Therefore, we do not recommend using it in such environments to avoid unnecessary danger. If you need to use it, please contact us for technical guidance.
3. If the Sweeper S120 is located on a purely sloping surface with a maximum climbing angle greater than 12 degrees, please do not use it on that surface. Sweeper operation is not recommended in light rain or snow.

If you are not sure whether the sweeper is suitable for your use case, please contact Jtibat after-sales service for more information.

Sweeper Storage

1. After each use of the Sweeper S120, please empty the trash bin promptly and store the Sweeper in a dry, well-ventilated place where the temperature and humidity meet the Sweeper's storage standards. Do not store it in damp, poorly ventilated areas, as this may affect its lifespan.
2. If the Sweeper is not used for an extended period, in addition to meeting the above requirements, please charge the battery to 40%-60% (approximately 3.2V/cell) before storing it. It is strictly forbidden to store it for an extended period when it is fully charged or discharged.

Notes

1. The Autonomous Driving Sweeper S120 is an automated intelligent cleaning robot. Please keep it away from the area before it starts operating automatically to avoid potential hazards.
2. Do not manually push the Sweeper S120.
3. The maximum slope is 12°.
4. Before charging, please turn off the charger power first.
5. Be careful as the wheels rotate at high speed to avoid injuring your feet or running over other objects.
6. When the Sweeper S120 is working, the roller brush will be in direct contact with the ground, generating downward pressure. Do not place foreign objects under the roller brush.
7. Regular maintenance is required. Check the voltage every 3-6 months. If the battery level drops significantly, recharge it to 40%-60% to prevent over-discharge.
8. Before use, check the appearance and voltage. After long-term storage, it is recommended to perform a complete charge-discharge cycle before first use.

Product Overview

Product Introduction

The Sweeper S120 is a comprehensive intelligent cleaning robot that meets a variety of user needs. It is suitable for large, flat outdoor areas such as commercial areas, industrial parks, municipal squares, parks, campuses, and scenic spots, and can clean up various types of household waste such as dust, gravel, pebbles, paper scraps, leaves, and plastic bottles.

Product list

Model	Item	Specification	Quantity	Note
Autonomous Driving Sweeper S120	Sweeper	Sweeper S120	1	
	Charger	Input AC220V Output DC48V 30A	1	
	Remote control	T85	1	Standard configuration
	Remote control battery charger	TYPEC charging cable	1	Standard configuration
	Power bank	DC24V, 2A	1	For unlocking the shaft.
	Charger adapter cable	DC48V charging gun	1	
	Trash can	120L	1	
	Charging station	AC220V 30A 1800W DC58.4V	1	Optional

Core Functions

- **Leading autonomous system navigation, mapping and localization, and perception prediction technologies**

1. Centimeter-level positioning and local millimeter-level positioning without GNSS.
2. High-precision mapping at the million-square-meter level.

- **Multi-sensor information fusion technology**

1. Multi-sensor hardware synchronization delay ≤ 5 ms.
2. 0.05° high-precision steering and 360° obstacle avoidance capability over 100 meters.
3. Globally optimized multi-sensor fusion technology.

- **Adaptive decision-making and multi-machine scheduling optimization techniques**

1. Adaptable to large-scale, all-weather dynamic environments spanning day and night.
2. Cloud management, mobile monitoring, and remote dispatch functions.
3. Autonomous cleaning platform system deeply integrates algorithms and hardware systems.

- **Multiple security technologies**

1. Close-range ring-shaped ultrasonic anti-collision protection.
2. Multiple LiDARs, 360° blind-spot-free collision protection.
3. Collision-sensing emergency stop, hardware and software emergency stop, operation control, network control.

Application scenarios

The Autonomous Driving Sweeper S120 is mainly used for hard, flat surfaces such as granite, asphalt, cement, epoxy flooring, plastic running tracks, regular brick and stone surfaces, small pebbles, small square brick surfaces, and small cobblestone surfaces.

Typical application scenarios:

- Parks & Scenic Spots
- Residential area & Communities
- Shopping malls & Hotels
- Hospitals & Campuses
- Large enclosed outdoor areas such as parking lots

Sweeper S120 Specification

Parameter type	Item	Specification
Structural parameters	Length	1630mm
	Width	1200mm
	Height	1220mm
	Weight	358KG
	Trash can capacity	130L
Electrical parameters	Battery	Lithium iron phosphate batteries
	Battery life	6H
	Maximum power	2000W
	Rated voltage	48V
	Rated drive motor power	800W
	Rated brush motor power	2×90W
Cleaning parameters	Cleaning width	1400mm
	Cleaning efficiency	5000m ² /h
	Security system	LiDAR, vision system, ultrasonic sensor
	Speed	0-8km/h
	Types of garbage to be cleaned	Dry waste: fallen leaves, paper scraps, mineral water bottles, plastic bags, cigarette butts and boxes, napkins, etc. Wet wipes: fruit peels, fruit scraps, etc.

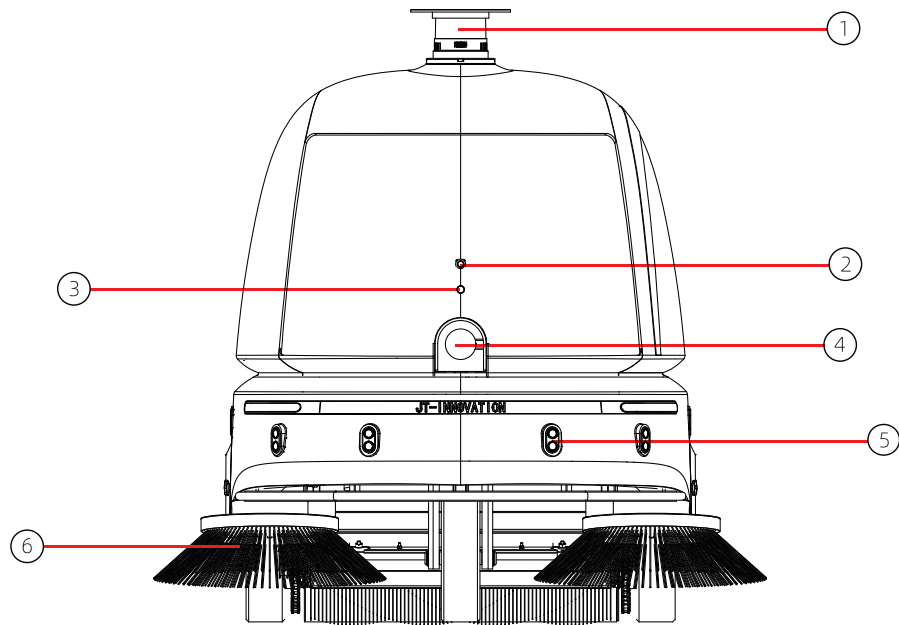
Parameter type	Item	Specification
Other parameters	Operating temperature	-20°C ~ +50°C
	Operating noise	55~70dB(a)
	Slope	12°
	Water tank	85L

Operating Instructions

This manual is primarily intended for personnel directly operating or managing the Sweeper S120. Operators need to understand basic operations such as controlling the sweeper's movement, executing cleaning tasks, and charging. Sweeper S120 managers, in addition to the above information, also need to understand advanced operations such as mapping, creating cleaning paths and cleaning tasks, viewing task reports, and checking the sweeper's status. These operations will be described in detail below.

Sweeper S120 Appearance Introduction

The main external components and interfaces of the Sweeper include: top multi-line lidar, front lidar, ultrasonic sensor, emergency stop button, indicator lights, etc. The location and quantity of each component are shown in the figure below:



1. Top LiDAR

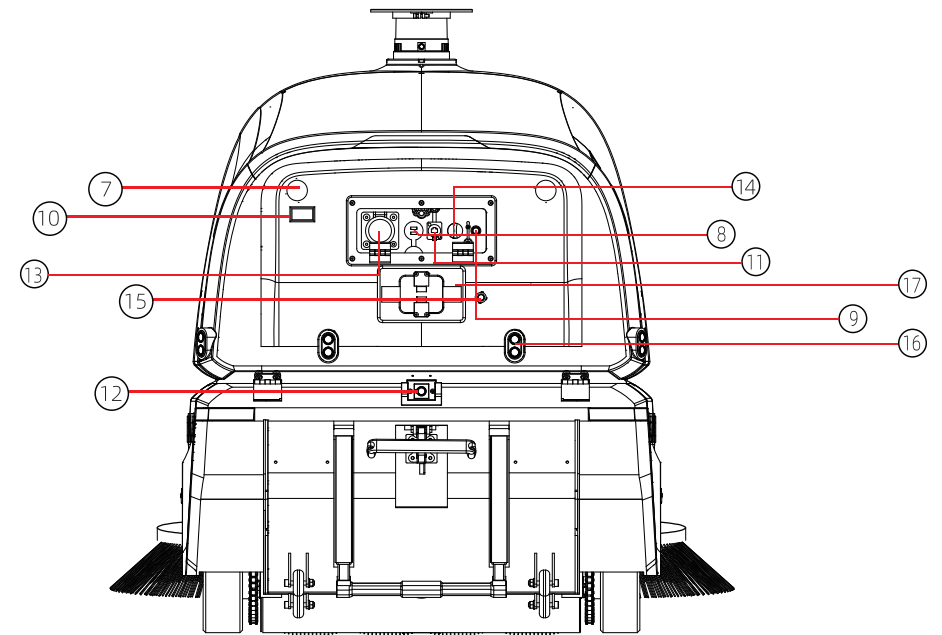
2. Fisheye camera

3. Monocular camera

4. Front LiDAR

5. Ultrasonic sensor

6. Side brush



7. Emergency stop button

8. USB

9. Unlocking shaft interface

10. Battery display

11. LAN interface

12. LAN interface

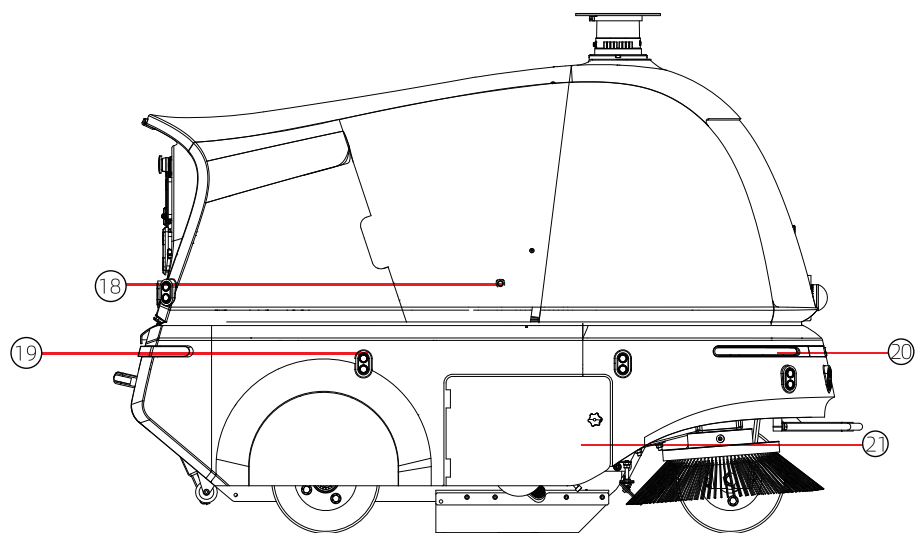
13. Manual charging port

14. Power switch

15. Fisheye camera

16. Ultrasonic sensor

17. Automatic charging port

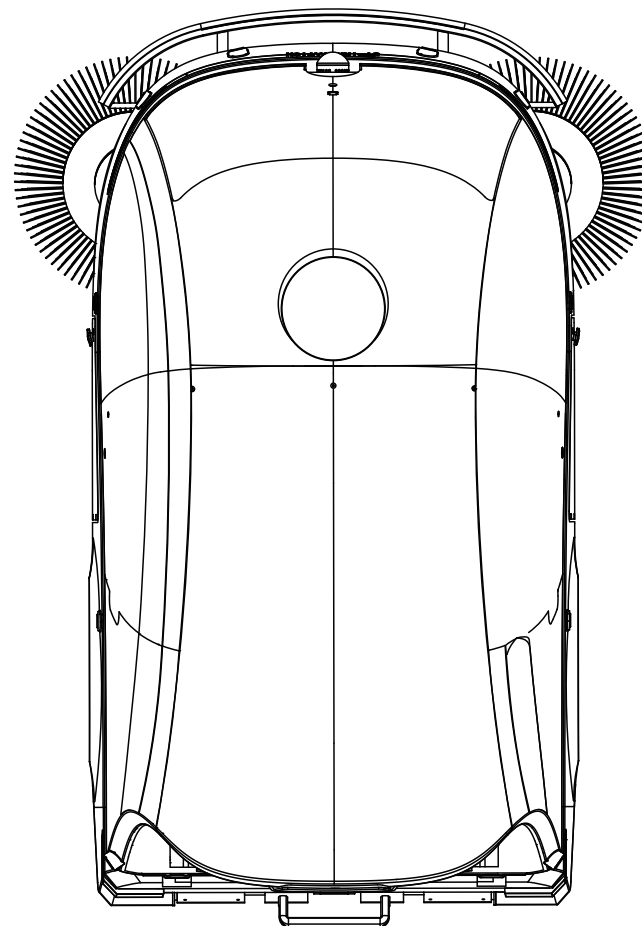


18. Fisheye camera

19. Ultrasonic sensor

20. turn signals

21. Maintenance hatch



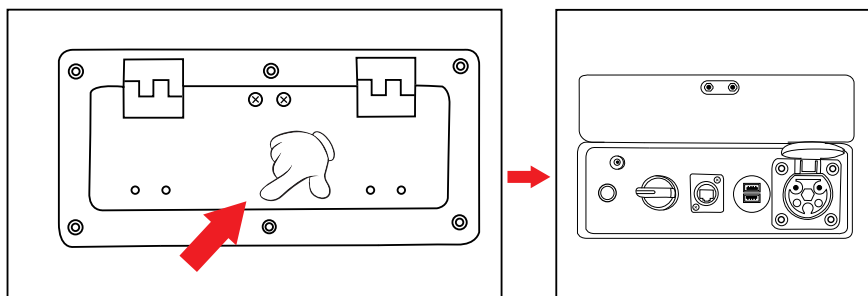
Emergency stop button

In case of emergency or malfunction, the emergency stop button can be pressed, and the sweeper will immediately stop moving forward. The button is located at the rear of the sweeper. During this time, the sweeper cannot be manually pushed or any other operation can be performed. To resume operation, simply rotate the emergency stop button clockwise until it pops back up.

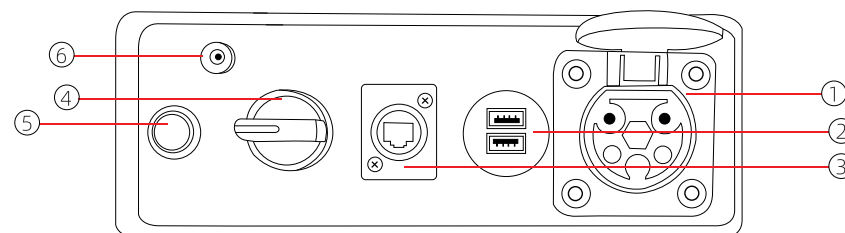
Note: The remote control cannot unlock after the emergency stop switch is pressed. The remote control can only unlock after the emergency stop switch is released.

Sweeper Interface

The sweeper's interface is located inside the control box at the rear. To open the control box, as shown in the picture below, simply press the cover lightly to open it:



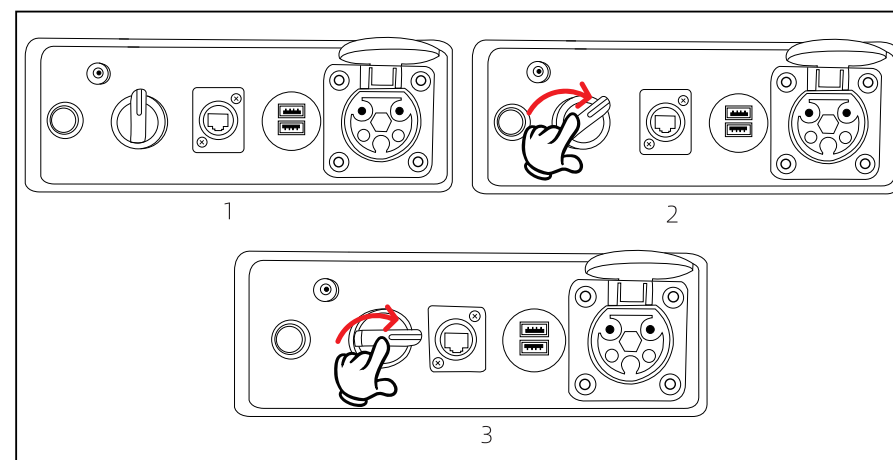
Control box internal interface



1. 48V charging port
2. USB
3. LAN interface
4. Power switch
5. IPC/VCU switch
6. Unlocking shaft interface

Power switch (for powering on the sweeper)

The power knob switch has two positions: the first position is for manual mode, and the second position is for both manual and automatic modes.

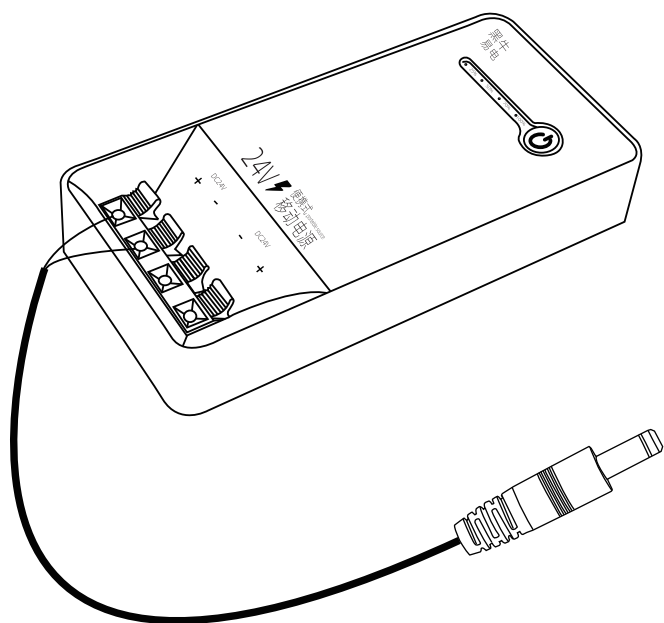


1. Power off
2. Manual mode
3. Automatic mode

Unlocking shaft interface

If the Sweeper is unable to move due to lack of power or battery failure, use the unscrew to dock with the location (keeping the connection) and push the Sweeper to a safe area.

Note: If you need to unlock the shaft, please contact the relevant operators immediately. Unauthorized personnel or those who have not received training are prohibited from operating the sweeper!



Other interfaces

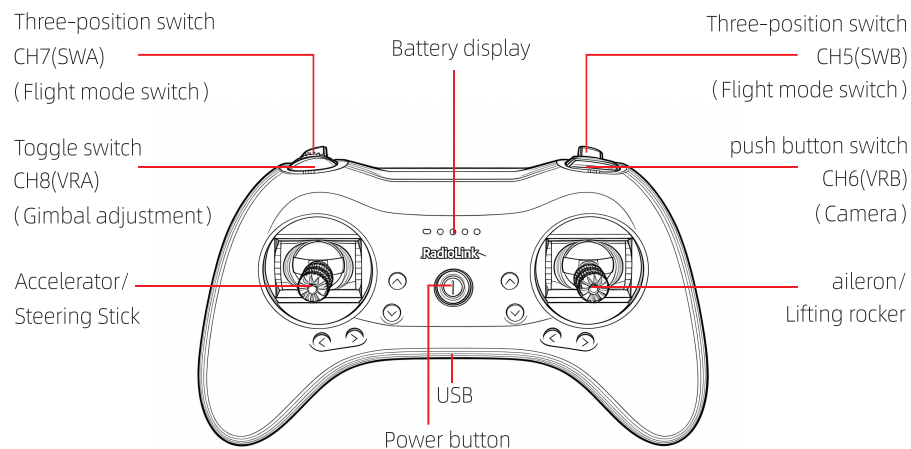
Aviation plug socket: When manually charging, the charger's aviation plug is connected to this socket.

Communication port: Generally used by maintenance personnel for debugging.

Remote control

Remote control appearance

Note: The remote control is already paired with the Sweeper S180 at the factory. Please do not adjust or move it arbitrarily.



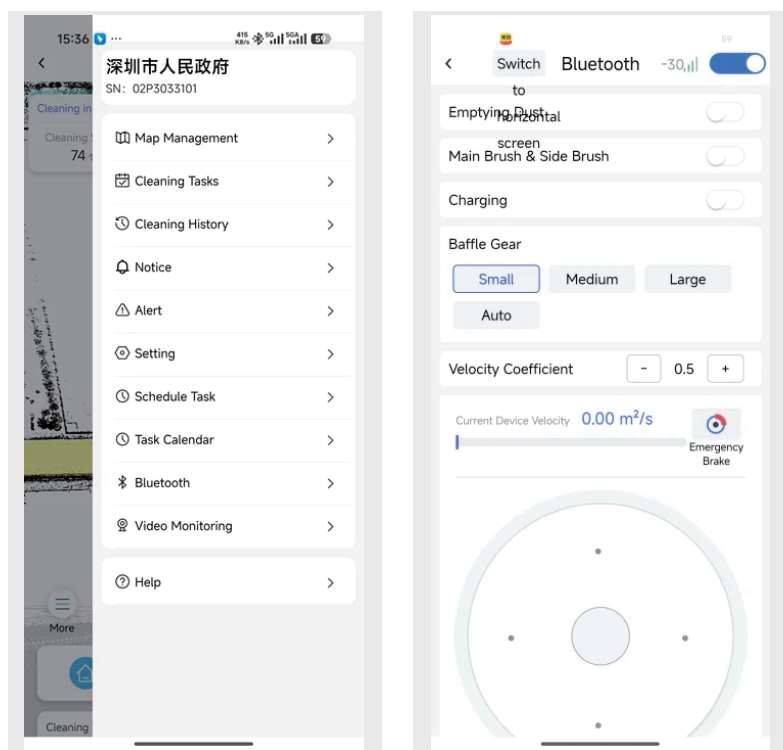
Remote control operation instructions

Switch	Function
Accelerator	Movement
Steering Stick	/
Lifting rocker	/
Aileron	Steering
SwA	One-click cleaning
SwB	Automatic mode switching
VrA	/
VrB	Movement

Controlling sweeper via APP

In the CoolClean APP, click the Bluetooth remote control button. After connecting the Sweeper, click the remote control switch to operate it. The following is the interface operation logic:

1. Below are the forward, backward, left, and right control knobs. Press and hold the middle knob to control forward, backward, left, and right movements.
2. Speed control: The speed is controlled based on the distance of the central knob from the center.
3. Speed display: The blue speed indicator at the top shows the current speed.
4. The upper section controls the mode, dust vibration, and switches for the side brush and main brush, as well as the opening/closing size of the front baffle.
5. The brake button is displayed above the steering knob. Pressing the brake button will stop the Sweeper immediately.



Charging

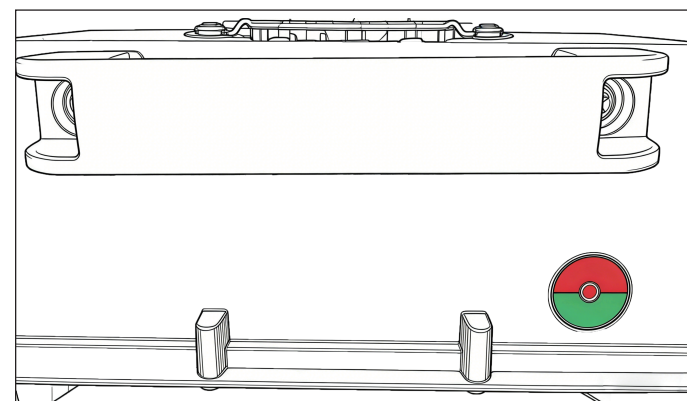
Charger

"Power Indicator ON": The power indicator light is on (green), indicating that the charger has input voltage.

"Fault Indicator FAULT": The fault indicator light is on (red), indicating a charger or battery malfunction.

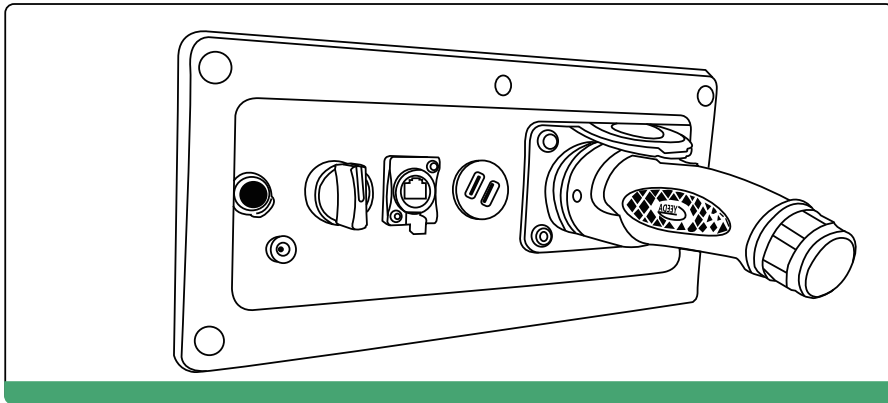
"Charging Indicator CHARGING": The charging indicator light is flashing (yellow), indicating that the battery is being charged.

"Full Charge Indicator FULL": The full charge indicator light is on (green), indicating that the battery is fully charged.

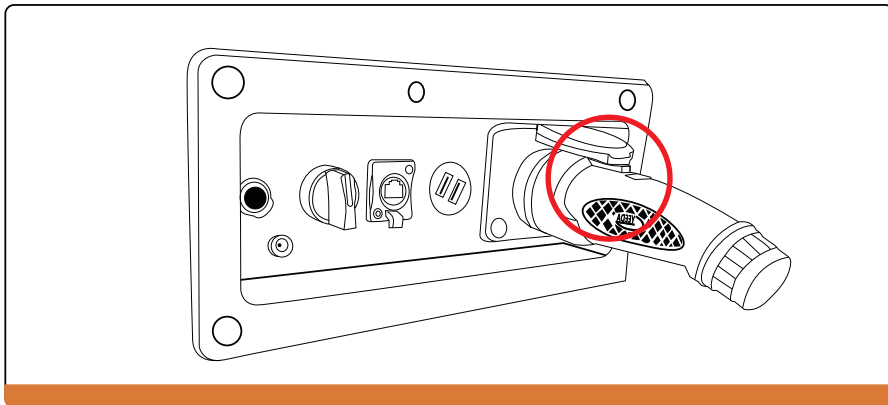


Charging Precautions

1. Before charging, please ensure that the power supply line can provide at least 2000W of power to the sweeper battery.
2. Before starting charging, always turn off the charger before connecting it to the sweeper battery.
3. After charging is complete, always turn off the charger before unplugging the power cord.
4. Fully charge the battery every two weeks until overvoltage protection is activated; at this point, the charger will automatically stop operating.
5. When charging, the charging cap must be locked in place with the charging gun.



✓ When charging is in the correct state, the charging cover and charging gun should be fully locked together.



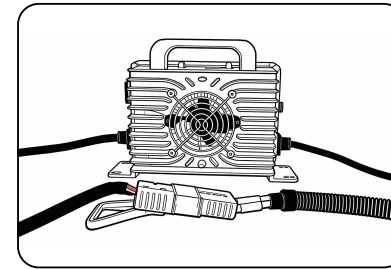
✗ Incorrect charging status; the charging cover and charging gun failed to fully lock.

Charger charging process

To manually charge the sweeper, connect the charger's aviation plug to the aviation plug socket on the control box at the rear of the sweeper and then power on the charger. After approximately 5-10 seconds, the charger's DC indicator light will flash green, and the top cooling fan will start running (and display the voltage; if it is 0 or not displayed, there is an abnormality), indicating normal charging. After charging is complete, disconnect the charger from the power supply before unplugging the aviation plug.

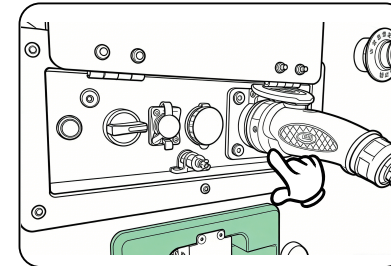
Connection diagram is as follows:

Manual charging process



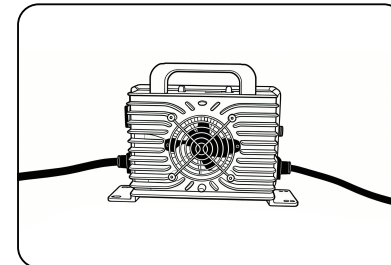
01

Before manually charging, please connect the manual charging head to the charger.



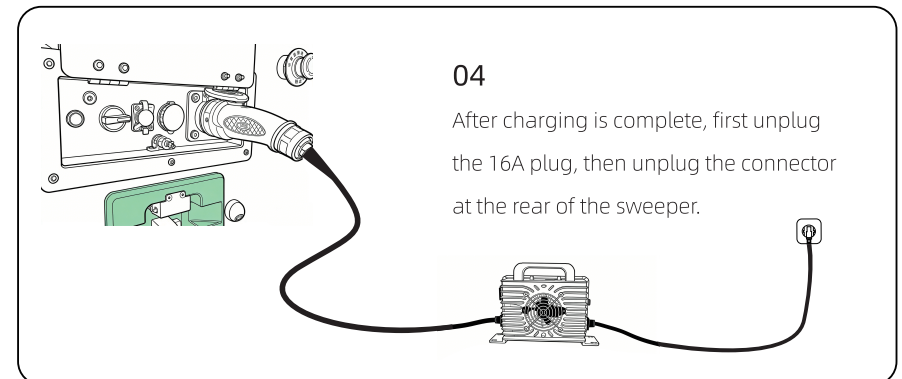
02

Connect the charger's aviation plug to the aviation socket on the control box at the rear of the sweeper.



03

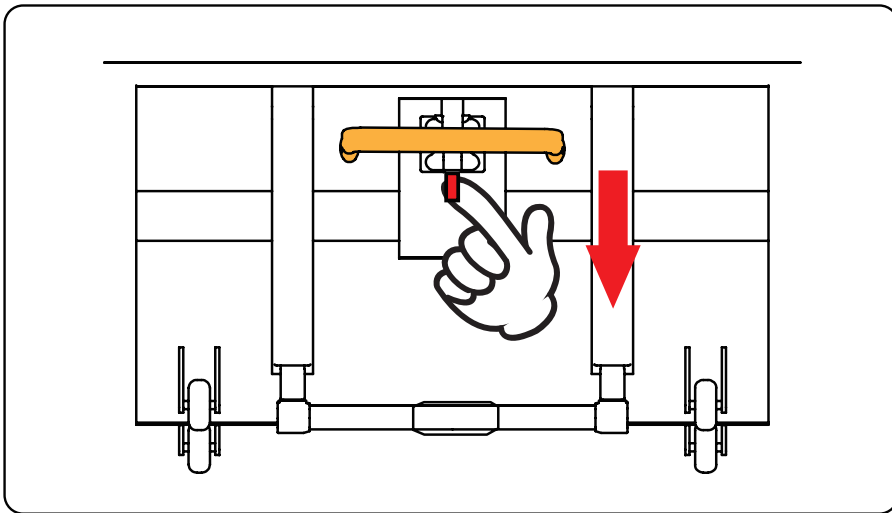
Power on the charger. After plugging in the 16A plug for about 5 to 10 seconds, the charger's "charging light" will flash red, and the cooling fan will start running, indicating normal charging.



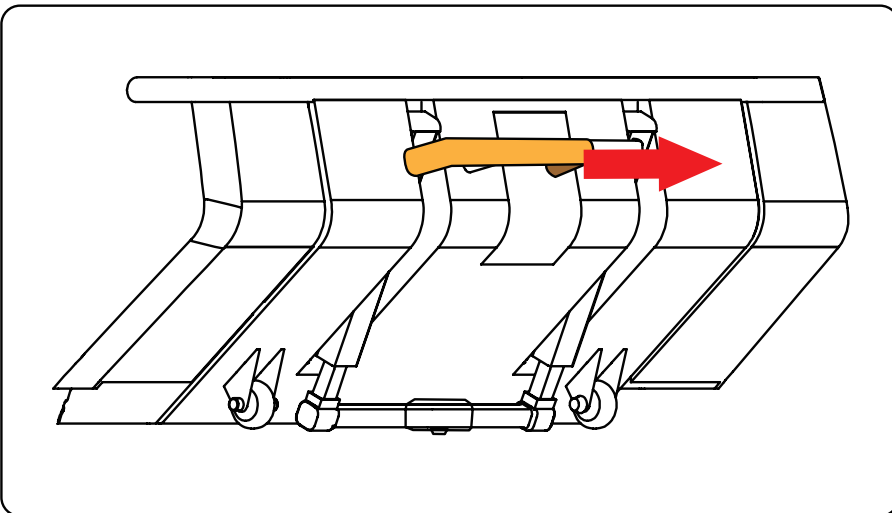
04

After charging is complete, first unplug the 16A plug, then unplug the connector at the rear of the sweeper.

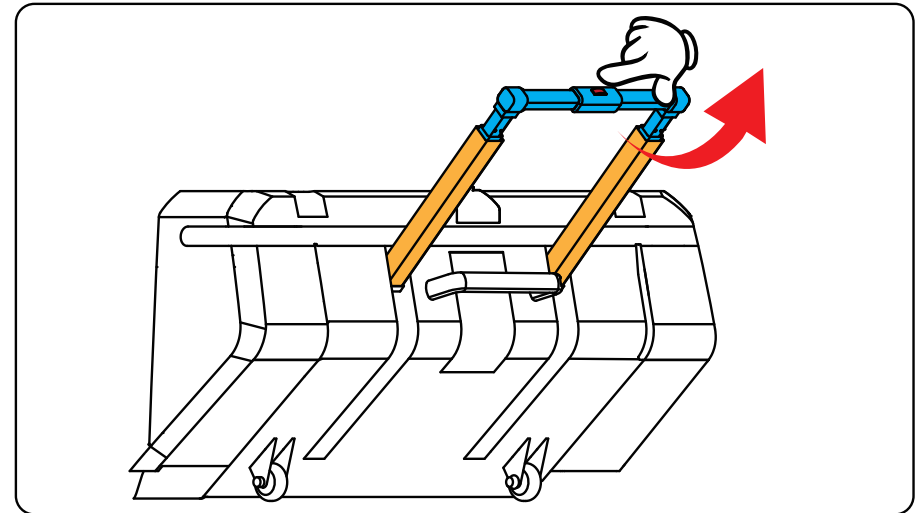
Dumping garbage



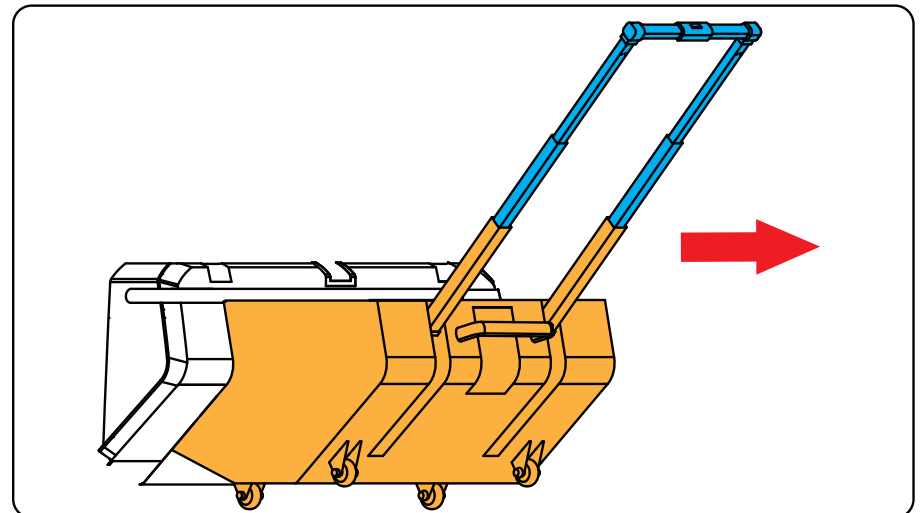
1. Lift the latch while simultaneously pushing the handle downwards to unlock the trash can.



2. Pull the handle outwards and drag the trash can out.



3. Pull out the lever (press the button to pull it up again)





4. Use the lever to move the trash can.



Reinstallation: Once the trash can is in place, lift the handle upwards to lock it automatically.

Maintenance suggestion

Operators need to perform simple maintenance on the sweeper before and after each use, periodically conduct necessary inspections and maintenance on the equipment, and regularly replace consumables to ensure that the sweeper performs at its best and extends its service life to the maximum extent.





-  Before maintenance, the power must be turned off and the power plug disconnected to prevent accidental electric shock or damage to parts.
-  The Sweeper S120 should be stored in a dry, well-ventilated place to avoid moisture affecting electronic components and shortening their lifespan. If the storage environment is extremely cold, ensure there is no water accumulation.

Repair matters






-  Unauthorized disassembly of the Sweeper, such as the panel or internal control box, is strictly prohibited. If discovered, the user will not be able to enjoy the warranty.
-  If your Sweeper malfunctions and cannot be resolved through standard troubleshooting methods, please contact your local distributor or Jtibat for warranty information.

Daily maintenance

Daily maintenance

-  Dumping garbage.
-  Clean the filter element.
-  Check if there are water droplets on the sensor. Gently absorb them with a paper towel or soft cloth. Do not wipe directly with your hands, as this may scratch the sensor.
-  After completing the cleaning task, please check the battery level and recharge it.

Weekly maintenance

-  Inspect the main brush and side brushes weekly, and replace them if necessary.
-  Check the filter and replace it if necessary.
-  Check all springs, screws, and sheet metal components for looseness, deformation, or rust.
-  Check the sensor for scratches.
-  Check if the center height of the main brush is within a reasonable range.

Consumables

The main consumables for the Sweeper S120 include filters, roller main brushes, side brushes, belts, and rubbers. The replacement cycle varies depending on the floor material and the usage scenario. Users can shorten or extend the replacement cycle of consumables as needed, and adjust accordingly based on the observed cleaning results.

Battery maintenance

Note: The battery must not be disassembled or replaced without authorization.

1. Keep the battery away from heat sources, high voltage areas, and avoid prolonged exposure to direct sunlight.
2. Do not immerse the battery in water or fire.
3. Do not short-circuit the positive and negative terminals of the battery with metal.
4. Avoid excessive physical vibration and impact to the battery; do not bump, drop, or step on the battery.
5. Without the manufacturer's permission and guidance, it is strictly forbidden to disassemble or assemble the battery.
6. Batteries from other manufacturers, types, and models must not be mixed and used.
7. Please do not use or store the battery in high-temperature environments (>45°C), otherwise it may cause the battery to overheat.
8. It may cause a fire or reduce its service life.
9. Charge the battery immediately after it is completely depleted. For long-term storage, fully charge it once a month and check the voltage every 3-6 months. If the charge level drops significantly, recharge it to 40%-60% to prevent over-discharge.
10. Please use the matching or recommended professional lithium battery charger.
11. If the battery exhibits any abnormalities such as unusual odor, discoloration, noise, leakage, or severe deformation, please stop using it.

Troubleshooting

1. The map of the sweeper is unclear.

Possible reasons •

- The sweeper's high speed resulted in poor mapping quality.
- The LIDAR is dusty or obstructed by obstacles.
- The environment contains highly transparent materials such as glass walls.

Solutions •

- Please control the sweeper to move at a slow speed to build map.
- Clean the exterior of the LIDAR using a lint-free cloth and remove any obstructions.
- When building the map, if highly transparent materials are found in the surrounding environment, draw virtual walls to control the map boundaries.

2. The main brush/side brushes not rotating in automatic mode.

Possible reasons •

- The fuse blew.
- The main brush is entangled by a linear object.

Solutions •

- Replace the fuse.
- Remove the main brush/side brush, clean out any linear object, and then reinstall it.

3. The cleaning effect not good.

Possible reasons •

- The suction button on the control panel is off, so it cannot vacuum.
- The suction hose is blocked due to poor connection or the intake of unknown objects

Solution •

- Check the roller brush for blockages; if so, remove them promptly.

4. CoolClean APP displays fault status.

Possible reasons •

- Position lost.
- Planning task failed.
- Others.

Solutions •

- Confirm whether Sweeper is at a charging point or position point. If so, relocate or manually locate. Wait for successful positioning before issuing the task.
- Confirm whether the sweeper is outside or on the boundary. Move it into the cleaning area before issuing the task.
- Contact with Jtibat.

5. The sweeper cannot be moved in manual mode.

Possible reasons •

- The sweeper is power off.
- The emergency stop button was pressed.
- The remote control is in automatic mode.

Solutions •

- Power on the sweeper again.
- Release the red emergency stop switch at the rear.
- Switch the remote control to manual mode.

6. The sweeper cannot be charged.

Possible reasons •

- The power outlet is disconnected.
- The charger is damaged and cannot charge.
- The battery is damaged and cannot be charged normally.

Solutions •

- Please ensure that the power outlet has power.
- Please check if the charger indicator light is constantly red. A constantly red light indicates normal charging. If it is off or flashing, it indicates that the charger is malfunctioning. Please contact Jtibat .
- If the charger is working properly, but the battery percentage does not increase with the charging time, it indicates that the battery is damaged or abnormal. Please contact Jtibat.

7. The side brush deformation.

Possible reasons •

- Compression causes deformation.

Solutions •

- If the side brush is already installed on the sweeper, you can simply turn on the side brush and rotate it at high speed for about half an hour to restore its function.
- Pour boiling water onto the deformed bristles, and they will be restored after cooling.
- The deformed brush can be restored by exposing it to high temperature for about half a day.

Emergency plan

- 7*24h Real-time system alerts .
- We provide rapid response after-sales service within 24 hours.
- We guarantee that the product will be restored to normal working condition within 48 hours.

CoolClean APP download

Android



Search CoolClean on Google Play and download it.

IOS



Search for CoolClean Plus in App Store and download it

After-sales policy



Service hours: Monday to Sunday, 9:00 AM – 6:00 PM(UTC+8)

Service coverage

- The product comes with a one-year warranty, starting from the date of acceptance.
- Free online technical support and consultation services are provided during the warranty period.
- We provide free installation and debugging programs, as well as software upgrades of the same generation.
- If the parts are available after the repair is reported, the sweeper will be restored to normal operation within 48 hours.

Warranty Coverage

- The warranty covers product quality issues that occur under normal use.
- The requested repair time must be within the stipulated warranty period.
- Damage to the sweeper caused by failure to follow the instructions in the user manual is not covered under warranty.
- Faults or damages caused by installation, repair, alteration, or disassembly by personnel not authorized by Jtibot will not be repaired.
- If the materials have reached the end of their lifespan and the cleaning is incomplete due to failure to replace them with the prescribed standard materials, the warranty will not be valid..