Sveaverken SCP300 RoboPusher Nimbo Compact Visual-Navigated Feed Pusher User Manual

Contents

Sveaverken SCP300 RoboPusher Nimbo Compact Visual-Navigated Feed Pusher

Product Information

Model	9WZ-1.05A (SCP300)
Application	Automatic feed pushing for modern farms
Standard Compliance	Applied Standard Q/440300 SVEA 002-2022

Product Usage Instructions

Electrical Safety

- Only authorized electrical engineers are allowed to install the power supply for the charging pile.
- Ensure that the grounding of the electrical system and all parts of the charging pile meet the local rules and regulations.
- Ensure that the charging pile is not exposed to rain.
- If any electrical wires, switches, or components are damaged, replace them immediately.
- Turn off the power button before maintaining the robot. Refer to Item 3 in the top figure in Section 6.2 for the location of the power button.
- Do not short-circuit or strike the lithium battery, or remove it without authorization.
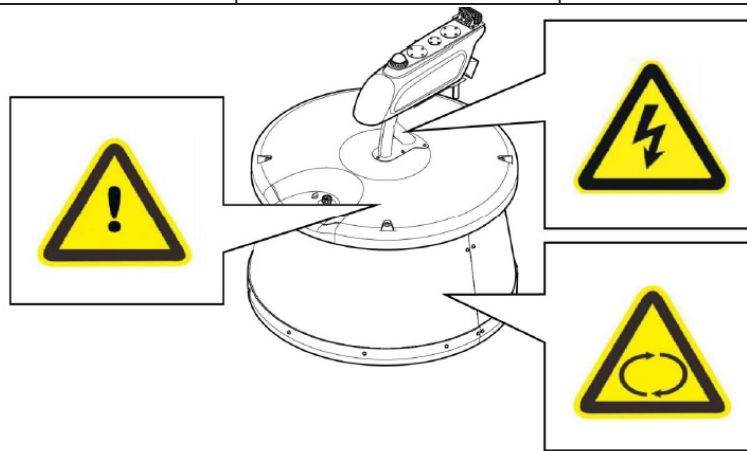- Unplug the power supply before working on the charging pile.

Operation Safety

- Read and understand this manual and all the safety signs before powering on the robot for operations, maintenance, or adjustments.
- Only trained people are allowed to operate the robot.
- Operate the robot in places without moving vehicles and herds.
- Unauthorized people are not allowed to enter the traveling area or the working area of the robot. If unauthorized people are found in such areas, stop the robot.
- When you remotely control the robot with your smartphone or tablet, ensure that there are no obstacles or safety hazards on its path.
- Ensure that the robot is in your sight when you operate it manually.
- Keep hands, feet, hair, and clothing away from moving parts.
- All operators should review safety instructions regularly.

Maintenance Safety

- Read and understand this manual and all the safety signs before powering on the robot for operations, maintenance, or adjustments.
- Only trained people are allowed to maintain the robot.
- Keep tools and metal parts away from the battery.
- Do not spray water on the robot. Use a wet brush to clean the robot.
- Ensure that all parts are installed in place after maintenance.
- Do not alter the robot in any way.
- Only use approved spare parts, and ensure that they are installed by authorized technicians.

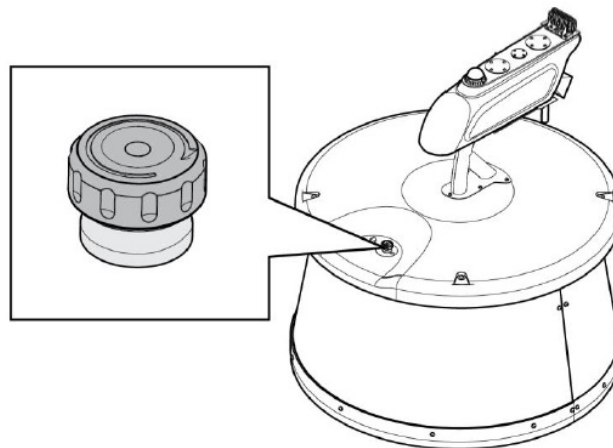| Warning: Electric shock hazard.	Warning: No heavy load.	Warning: Entanglement hazard.
⚡	❗	↻

Warnings

- Electric shock hazard.
- No heavy load.
- Warning: Entanglement hazard.
- Position of safety signs

Emergency stop button
The emergency stop button is located on the top of the robot. Press down the button to stop the robot immediately. Pull it up to reset it.

Charging system controlled by software
The robot software controls the charging system and keeps the robot connected to the charging pile before it moves. The software ensures that the battery is fully charged until the next operation and also prevents battery overcharging.

Specifications

Diameter		1080 mm
Height		1120 mm use 665mm transport
Weight		410 kg
Travel speed		18 m/min
Max. operating time without feed pushing		10 h
Max. permissible slope		6°

Operating temperature		-20°C to 50°C
Tire number		3
Drive wheel number and size		2; φ250mm×80 mm
Wheel motor	Number	2
	Power	400 W
Battery	Type	Lithium battery
	Rated voltage	48 V
	Capacity	40 Ah
Charger	Input voltage	220 V/110 V
	Input frequency	45 Hz–65 Hz
	Output voltage	48 V
	Output current	10 A
Camera	FOV	Horizontal: 87.51°; vertical: 47.58°
	Sensor	2 megapixels; 1/2.8; 1080p@30fps

Note The actual battery configuration may vary according to the requirements of local laws. Contact the technical personnel of Sveaverken for detailed specifications.

Robot Information

No.	Item	Design Value
1	Model	9WZ-1.05A (SCP300) RoboPusher Nimbo
2	Feed pushing method	By rotating the drum
3	Dimensions	Φ1080×1120 mm
4	Navigation method	Visual navigation and magnetic nail navigation
5	Charging method	Automatic charging
6	Total motor power	0.8 kW
7	Battery capacity	40 Ah
8	Battery voltage	48 V

Assembly
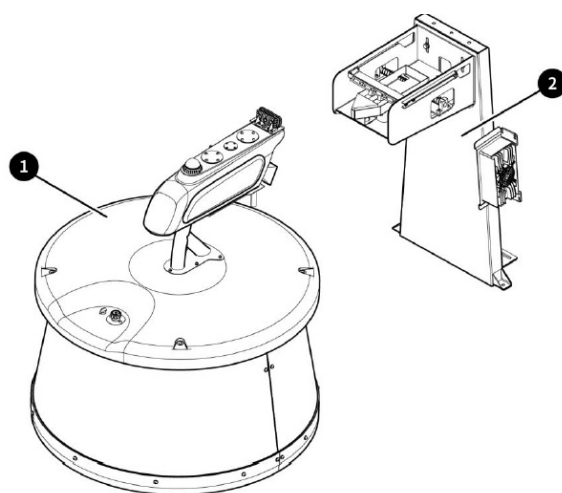
1. Feed-pushing robot	2. Charging pile

1. Feed pushing robot

2. Charging pile

Nameplate

Model	Applied Standard
9WZ-1.05A (SCP300)	Q/440300 SVEA 002-2022

Feed Pushing Robot
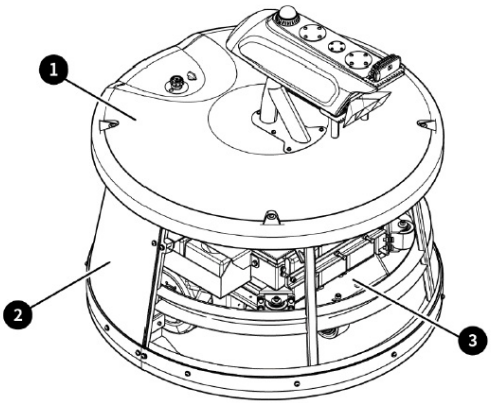
1. Top	2. Drum	3. Frame
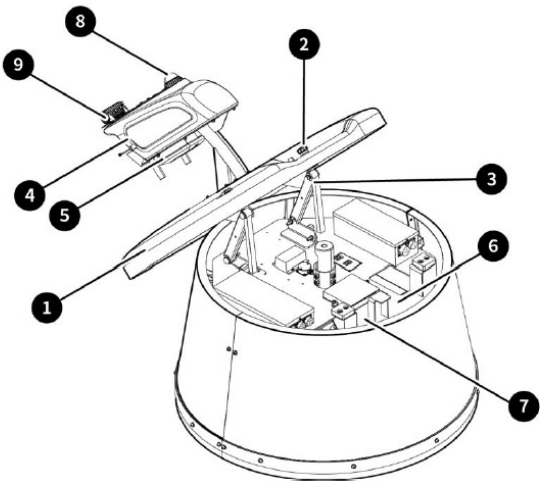
1. Top cover	2. Emergency stop button	3. Top cover opening mechanism
4. Vision box	5.Charging port	6. Nameplate
7. SN	8. Status indicator(Yellow, flashing)	9. Photosensitive sensor
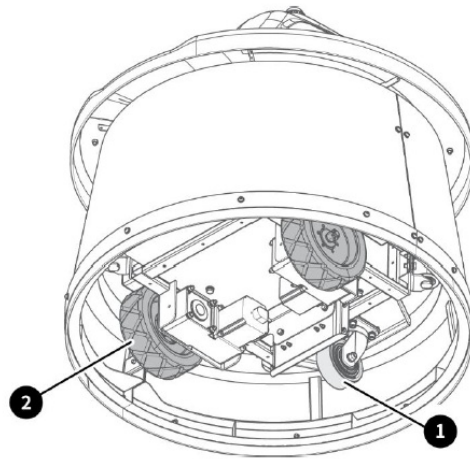
1. Front wheel (universal wheel)	2. Rear wheel (drive wheel)

Inner electrical parts
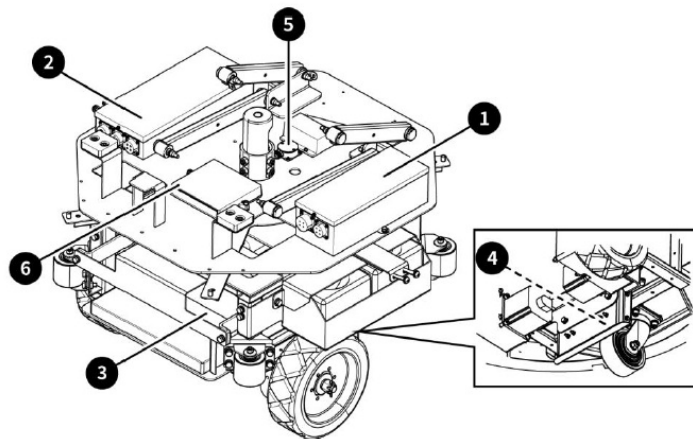
1	Distribution box	2	Wheel motor driver
3	Battery	4	Magnetic nail sensor
5	Gyroscope	6	Vehicle control box

Charging Pile
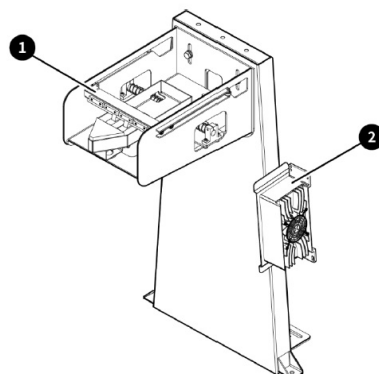
1. Side charging mechanism	2. Charger

Software Operation
Connecting to Robot
It supports major browsers such as Google Chrome, Microsoft Edge, and Firefox and is compatible with both personal computers and mobile phones.

Direct connection

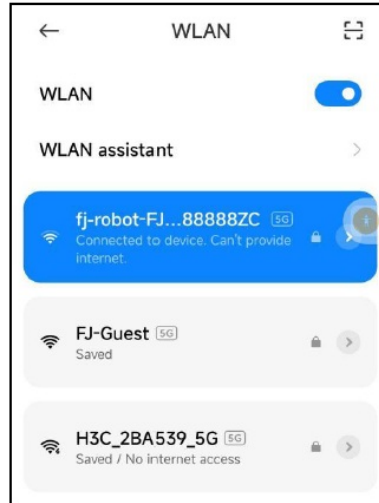- Connect your computer or phone to the network in the format of fj-robot-SN, and the password is 123456789.

- Open a browser and enter 10.33.68.254 in the address bar to access the login screen.
- When logging in on the phone, enable Auto-rotate in the shortcut switch panel and hold the phone horizontally.
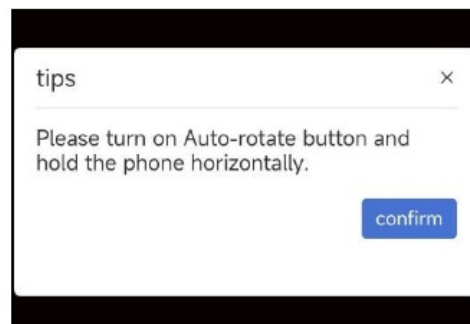
Indirect connection

- Indirect connection means connecting the robot to the router and then controlling the robot on the Website.
- Connect the robot to the router via a Wi-Fi connection, such as Wi-Fi_1 in Configuration > Internet.
- Log in to the backend page of the router and find the robot IP address in the format of F dynamics-SN.
- Open a browser and enter the address in the address bar to access the login screen. The recommended browser is Google Chrome.

Logging In
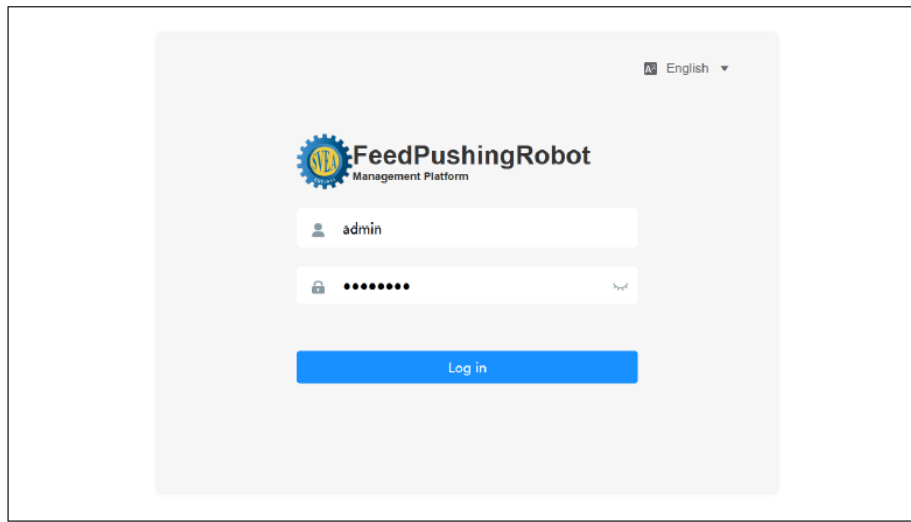
- Enter the username as admin and the password as svea1911.

- Click " Log In ".

- Click the language switch button to switch languages.

Modules
Four modules are available: Homepage —— Robot status interface, Work —— Work management interface, Configuration —— Configuration management interface, System —— System setting interface.

Homepage
The status bar at the top shows the network status, running module status, smart module status, and battery level in real time.
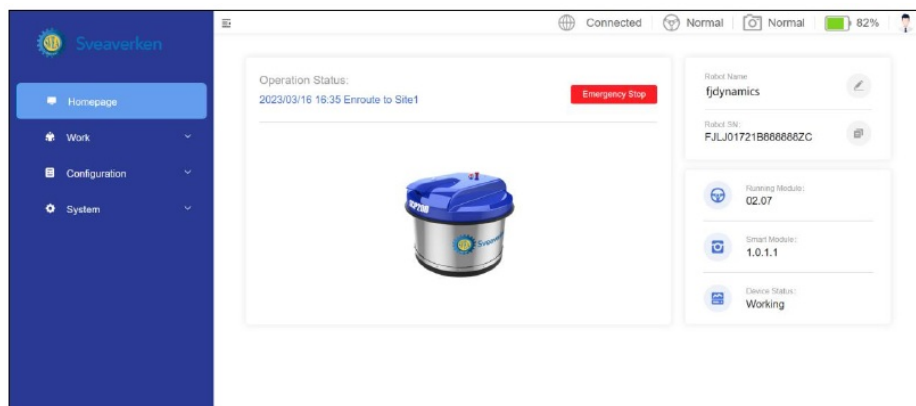
Operation Status	Shows the operation details of the robot in real time.
Emergency Stop	Click Emergency Stop and then click Confirm in the pop-up window to apply an emergency stop.
Robot Name	Click to modify the robot name.
Robot SN	Click the copy icon to copy the robot SN.
Running Module	Shows the version No. of the running module.
Smart Module	Shows the version No. of the smart module.

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Work

The module contains three parts: Task, Remote Controller, and Camera.

Task

Click Task to add and manage tasks.
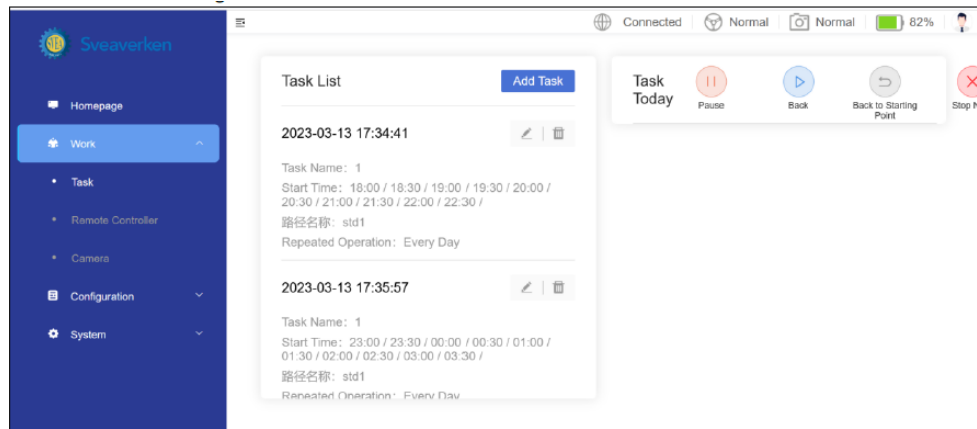
Managing Task:

- Click to access the edit screen.
- Modify parameters.
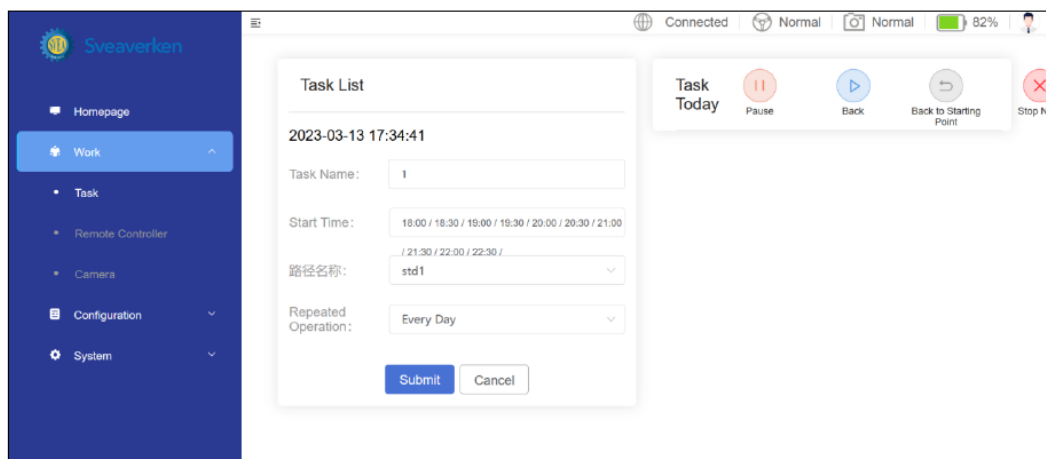
- Click "Submit".
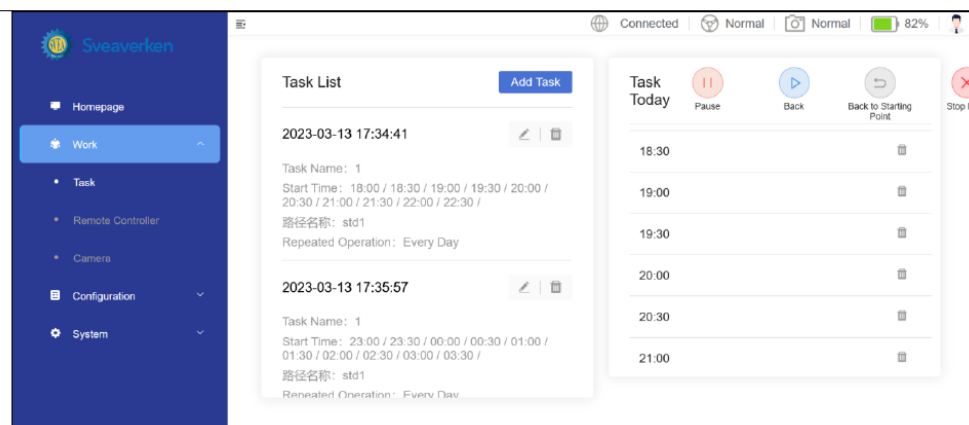
Pause	Click , and the robot will stop in the current status.
Back	Click , and the robot will resume operation.
Back to Starting Point	Click , and the robot will cancel the current task and return for charging.
Stop Now	Click , and the robot will stop and cancel the current task, then you can control the robot in **Work** > **Remote Controller** or with an updated remote controller.
Task Today	Click of an **Operating** task to view the operation screen in real time (see the "Camera" section). Click to delete a **Done** or **Not Start** task.

- Click and then click "Confirm" to delete a task.
- Other Features

Remote controller
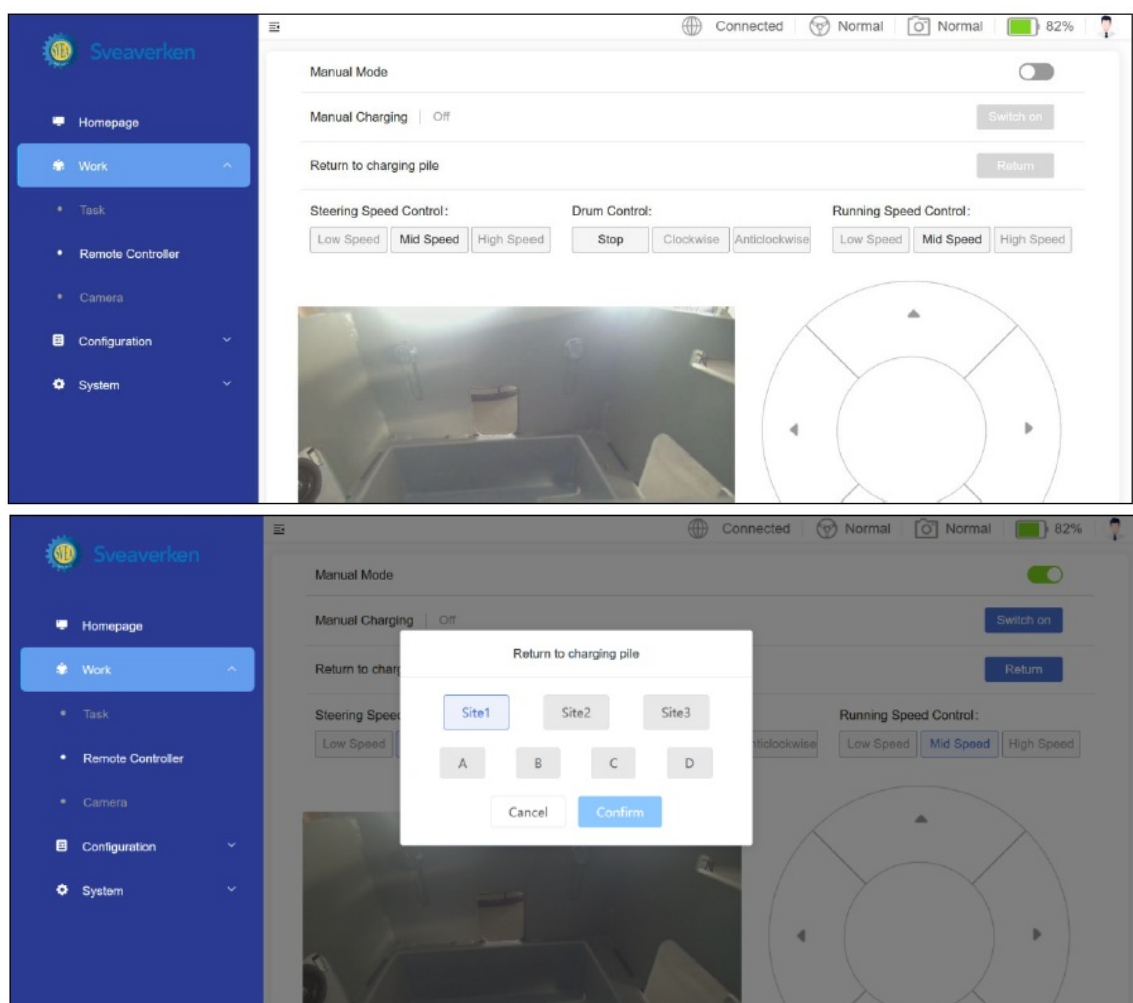
Manual Mode	Turn on the toggle on the right of **Manual Mode** to remotely control the robot. Turn off the toggle to enter the auto mode.
Direction Control	Click the forward or backward button, and the robot will move forward or backward at the set speed. Click the left or right button, and the robot will turn at the set speed.
Running Speed Control	Click **Low Speed**, **Mid Speed**, or **High Speed** to set the running speed.
Drum Control	Click **Stop**, **Clockwise**, or **Anticlockwise**, and the drum will rotate in the corresponding direction.
Battery level icon	In red when the battery level is ≥ 80%, in blue when 80% > battery level ≥ 35%, in orange when 35% > battery level ≥ 15%, and in red when the battery level is < 15%.
Manual Charging	Click **Switch On** on the right of **Manual Charging** to extend the electrodes, and the icon turns green. Click **Switch On** again to retract the electrodes, and the icon turns gray.
Return to Charging Pile	Click **Return** and then click **A**, **B**, **C**, or **D**, and the robot will return to the charging pile.
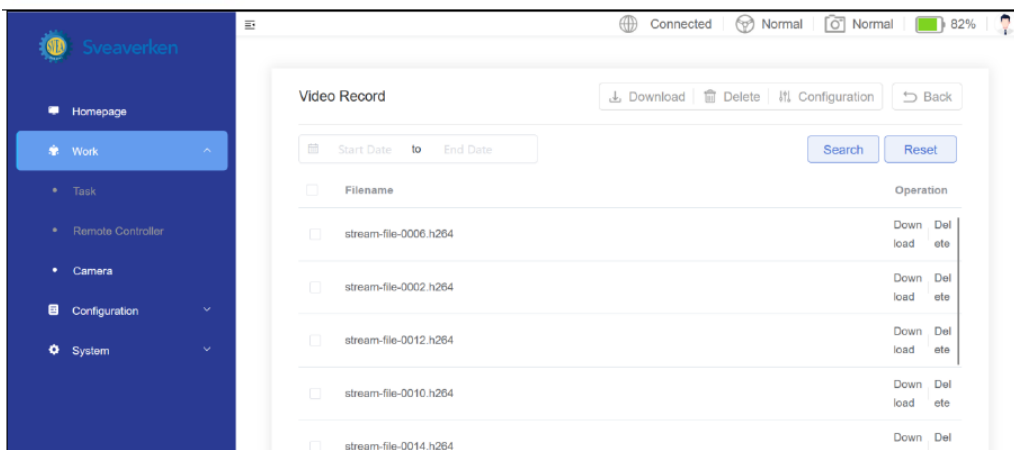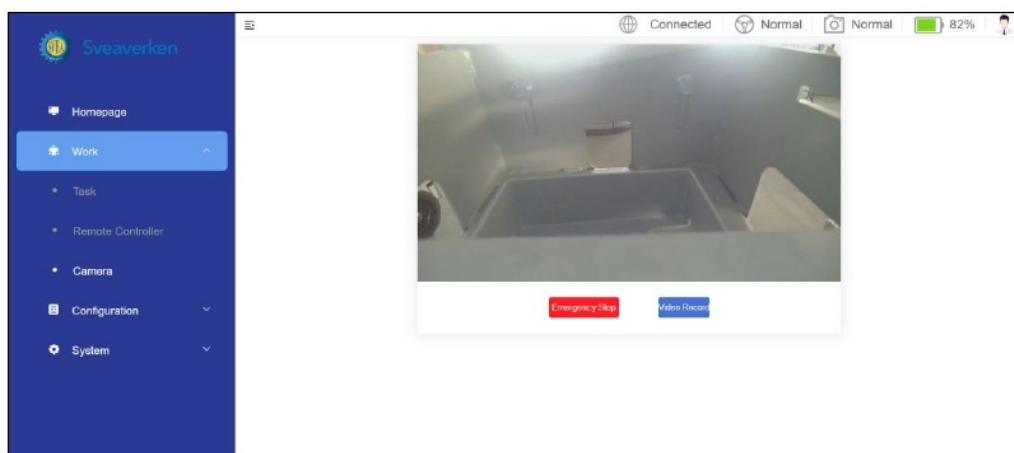
Camera

The screen displays real-time images. When there is no signal, it is a black screen and displays "No signal".

Configuration

The module contains four parts: Internet, Local Network, Specs on Site, and Charge Configuration.
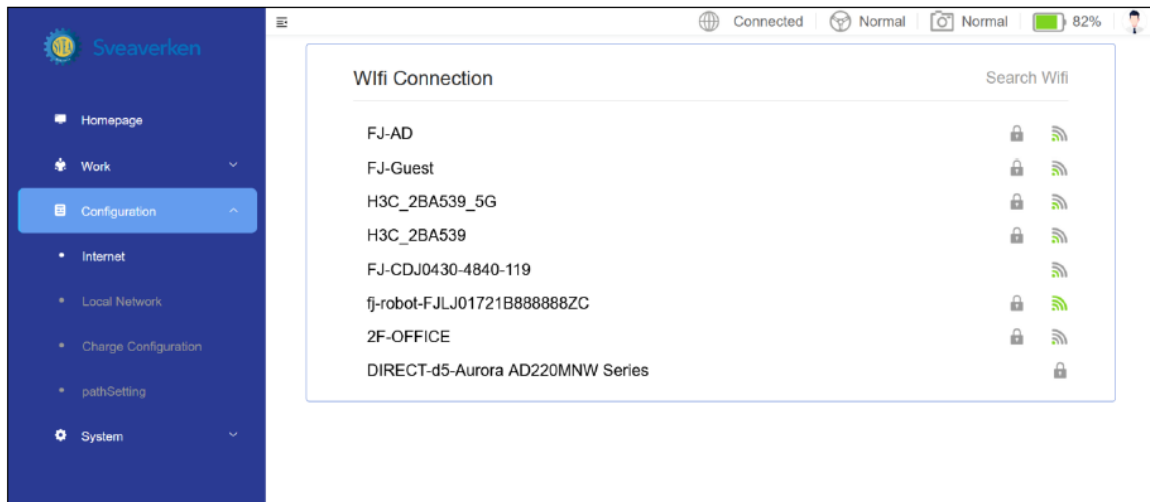
Internet

Access the Internet via Wi-Fi.

Enter the correct password to connect to the network. The connected Wi-Fi account and password will be recorded for future use.
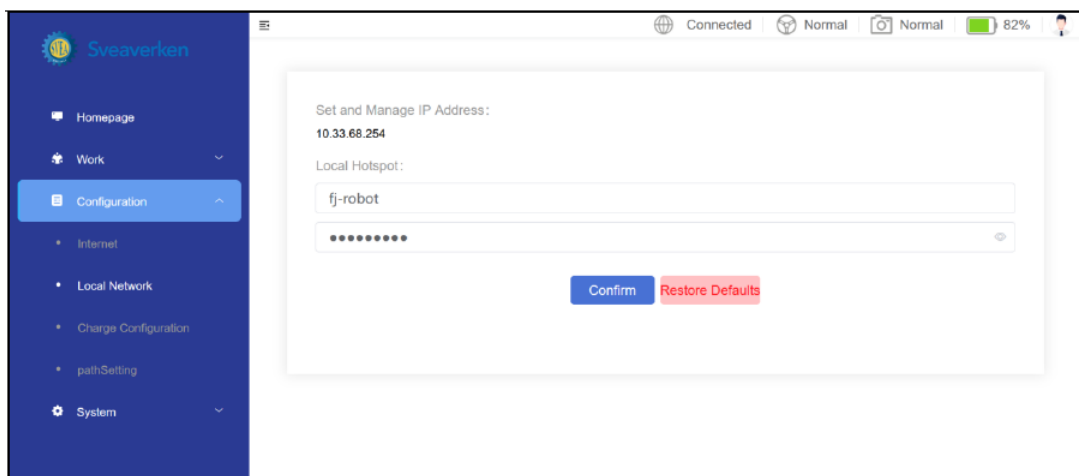
Local network

Modify the local hotspot name and password in Local Network

Click Confirm to apply the modification, otherwise, it will not be saved.

Click Restore Defaults and then click Confirm to restore to factory settings.
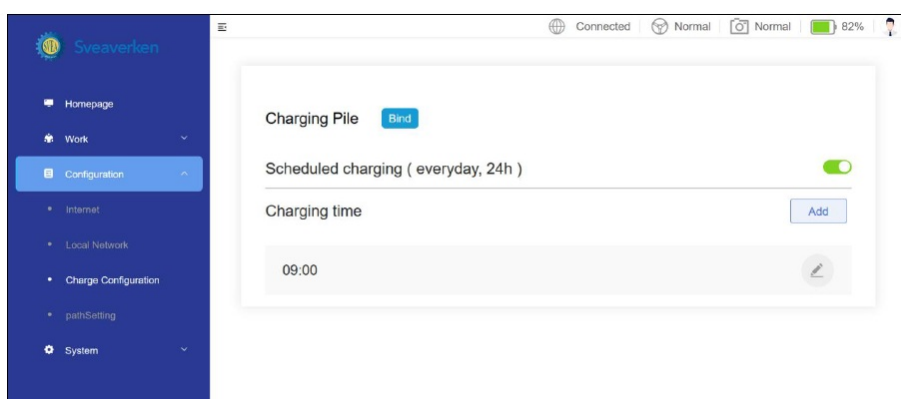
Charge Configuration
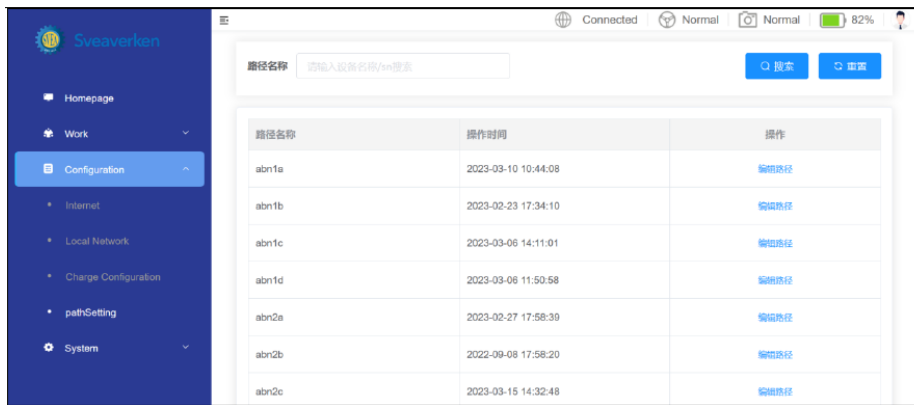
Set the charging time (24-hour system) of the robot on this page. The robot will end the task and return to the charging pile to charge for 2 h at the set time. The feature is disabled during robot initialization.
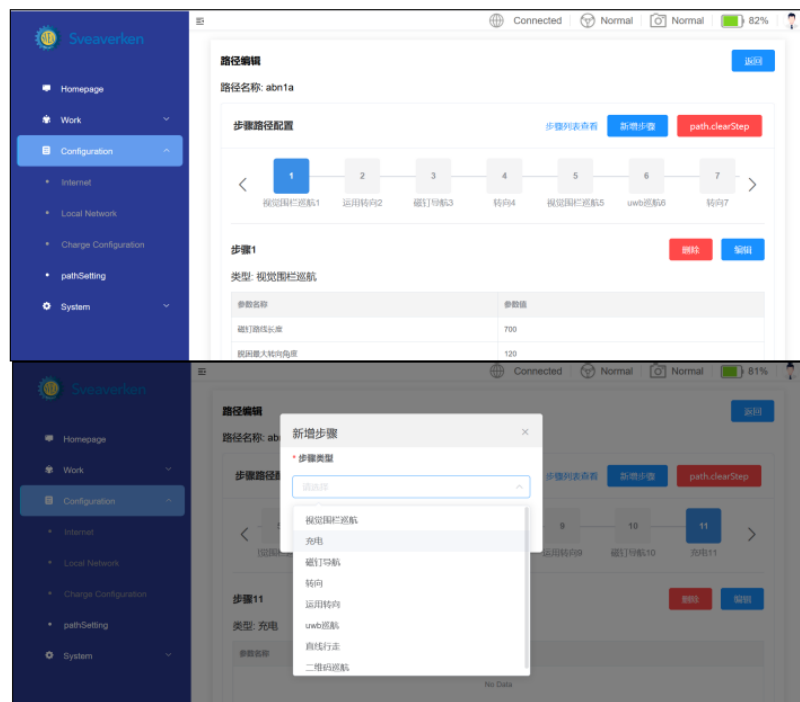
Enable or disable the feature with the toggle.

Click Add to add the charging time.
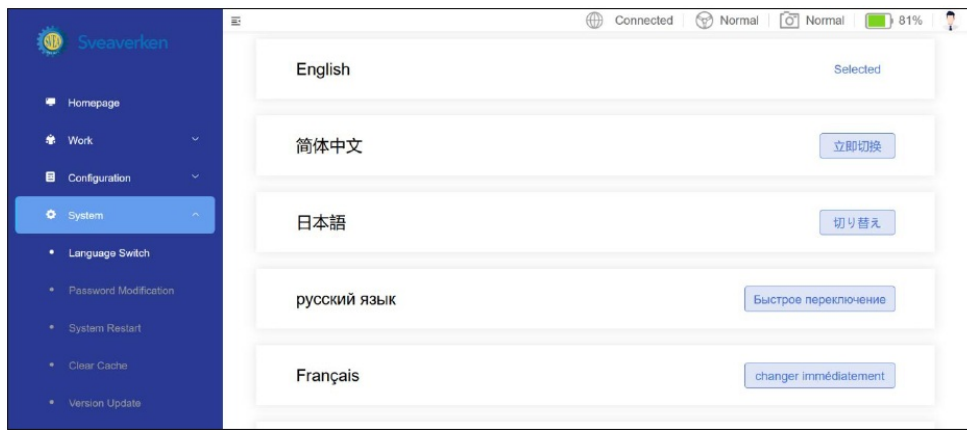
Path configuration

- On this screen, you can edit the path configuration. Each path name matches a different material track.
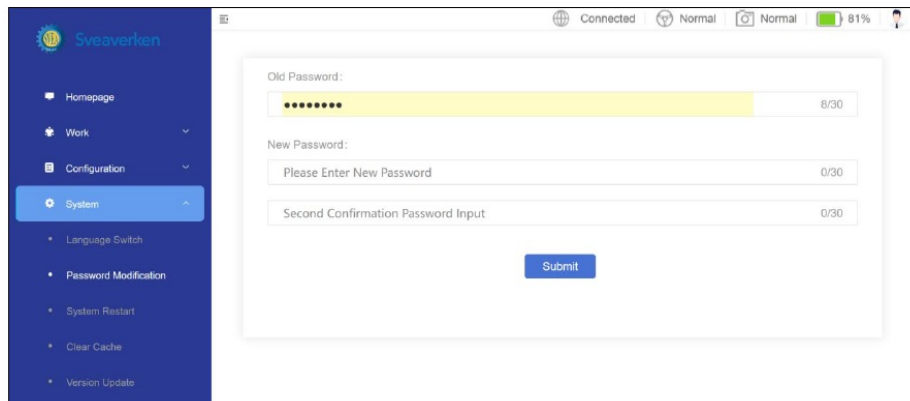
- Enter a path name and click Search to find the path that matches the path name.
- Click "Reset" to display all path names.
- Operation Time Indicates the time when the path was recently edited.

Path Editing
Click "Edit Path" to edit all steps under the path.

Step Path Configuration displays all steps in the path.

- Click "Add step" to add new steps, which are visual fence cruise, charging, magnetic nail navigation, steering, no-stop steering, uwb cruise, straight line walking, QR code cruise, walk along the wall cruise.
- Set the selected parameters and click "Save". This step will be saved to the path (Optional parameters can be added based on site requirements).
- Click "Clear Steps" to clear all steps.
- Selection step
- Displays configuration information and management.
- Click "Delete" to delete the step.
- Click "Edit" to edit the step. After editing the step, click "Save" to take effect.

System
Modules
The six modules are Language Switch, Password Modification, System Restart, Clear Cache, Version Update, and System Information.

Language switch

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System
Modules
The six modules are Language Switch, Password Modification, System Restart, Clear Cache, Version Update, and System Information.

Password modification
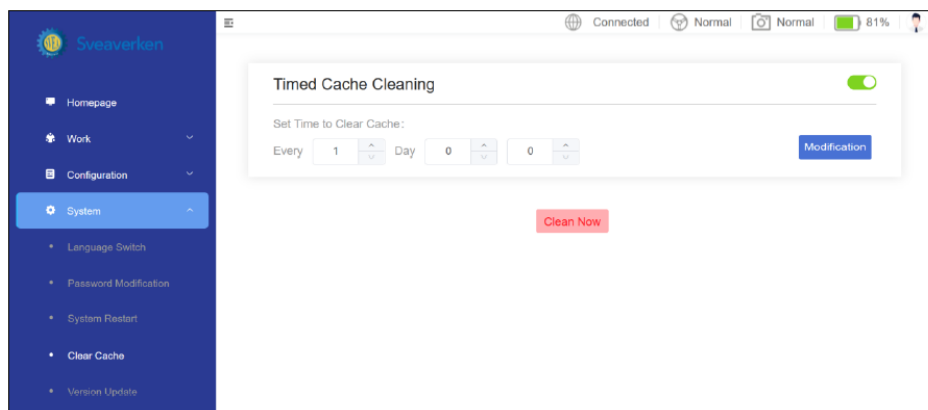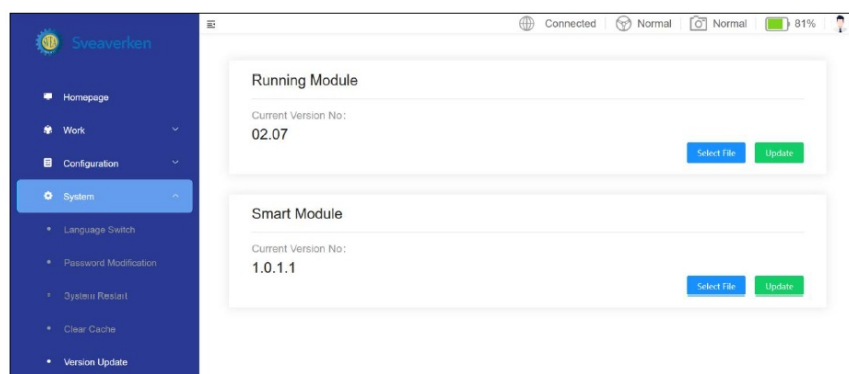The password can be modified on this screen.

- Enter the current password.
- enter the new password twice.
- Click Submit.

Note
The new password must have 6 to 30 letters or numbers.

System restart
The System Timed Restart is disabled by default. The time setting zone appears when the feature is enabled; otherwise, it is hidden. To restart the system at a certain time, you need to:
Set the restart time.

Note Click Modification. The change takes effect immediately. If you forget to click Modification and leave the page, the system restores the former setting.

The Timed Cache Cleaning is disabled by default. The time setting zone appears when the feature is enabled; otherwise, it is hidden. To clear the cache at a certain time, you need to:
Set the cache clearing time.

Note
The default cache clearing time is 2 am every day and can be modified. The Day field supports the maximum value of 3. Click Modification. The change takes effect immediately. If you forget to click Modification and leave the page, the system restores the former setting. To clear the cache immediately, click Clear Now and Confirm. A prompt message appears after successful clearing.

Version update (no user action required)
An update package is required for version updates. Click Select File and select the update package to be uploaded.

Note
The package size cannot exceed 10 M. To execute the update, click Update. A prompt message appears after a successful update

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The basic information, operating status, local network, and external network of the device are displayed on this screen.

Installation and Commissioning

Deployment of Travel Routes
Setup of travel routes may be performed by engineers of your local dealer. After design drawings of your farm feeding alley are provided, engineers will deploy the travel routes, including visual navigation routes and magnetic nail navigation routes. You may do this on your own in accordance with instructions and tutorials.

- The charging pile is usually installed near the entrance of a barn to avoid interfering with other work done in the barn.
- The travel routes start with the charging pile. Keep clean every travel route, especially left and right quarter turns and into sections. Ensure that magnetic nails are intact and embedded in the ground.
- Prevent damage to or loss of magnetic nails.
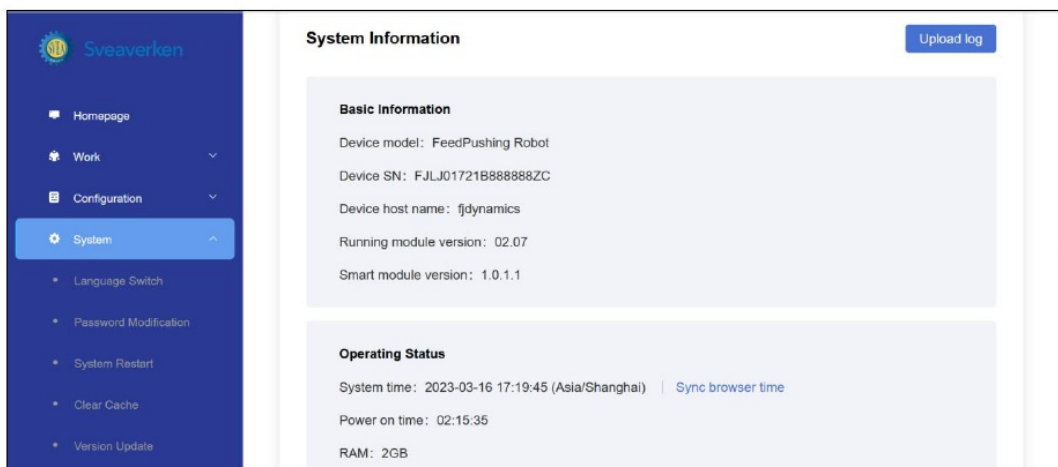
Installation of Charging Pile

- Install the charger and the telescopic electrode mechanism in a dry and ventilated place, sheltered from rain.
- Connect the charger to the telescopic electrode mechanism via circular connectors and Anderson connectors.
- Use expansion bolts to fix the charging pile bracket on the ground.
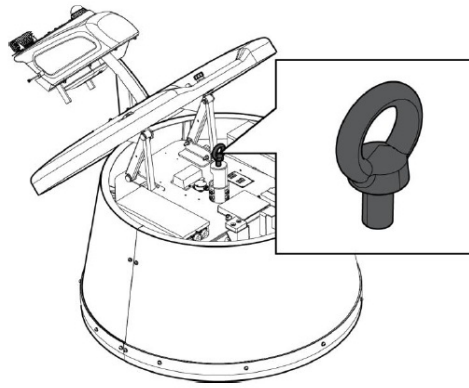
Commissioning
Plan the travel routes of the robot on the Website. When the charging threshold is reached, the robot will return to the charging pile for charging.

Note
The installation and commissioning must be performed by authorized technicians.

Loading and Unloading
Use the hoisting eye to hoist the robot during loading and uploading.

Maintenance

Preventive maintenance schedule: If maintenance cannot be performed on your own, contact your local dealer.

Maintenance task	Frequency	
	Every 3 months	Every 6 months
Check the charger	▲	
Check the telescopic electrode mechanism	▲	
Clean the electrodes of the robot and the telescopic electrode mechanism	▲	
Clean the camera		▲
Clean the drum		▲
Check the drive wheels		▲
Test the emergency stop button	▲	
Clean the travel routes	▲	
Check the universal wheel		▲
Check the magnetic nails for signs of damage	▲	

Transportation and Storage

- disconnect the robot from the power supply before transportation or storage.
- Handle the robot with care during transportation to prevent damage.

Avoid collision and squeezing during transportation

- Store the robot in a dry and ventilated environment at a temperature of 25 3 and a humidity of 65 20%20%. Avoid direct
- Keep the robot away from flammables, explosives, and metal objects.
- Use the hoisting eye to hoist the robot during loading and unloading.
- If the robot will not be used for a long time, ensure that its battery level is around 50% before storage and charge it every two months to avoid failure caused by over-discharge.

Troubleshooting

If the above solutions do not work, or you have other problems than those mentioned, contact your local dealer.

Fault	Cause	Solution

The Website is not connected to or disconnected from the robot.	The vision box is not connected to the specified Wi-Fi network.	l Enable Wi-Fi on the vision box. l Check the Wi-Fi settings of the vision box.
	The vision box is not connected to the robot.	l Connect the vision box to the robot.
	The robot is powered off.	l Power on the robot.
The robot does not move.	The robot is powered off.	l Power on the robot. l Make the robot start work.
	An obstacle stands on the feeding alley.	l Remove the obstacle.
	Magnetic nails lose magnetism or are damaged.	l Check and replace magnetic nails.
	The battery is low.	l Manually operate the robot to the charging pile. l Manually start the charging.
	The emergency stop button is pressed.	l Power off the robot. l Reset the emergency stop button. l Power on the robot.
The robot swings or makes improper turns.	The gyroscope is drifting.	l Replace the gyroscope.
	The camera malfunctions.	l Clean the camera. l Test the robot.
The robot does not work.	The emergency stop button is pressed.	l Power off the robot. l Reset the emergency stop button. l Power on the robot.
	No task is assigned.	l Assign a task on the Website.
Charging failure	The charger is not connected to the power supply.	l Connect the charger to the power supply.
	The electrodes of the telescopic electrode mechanism and the robot do not contact.	l Clean the electrodes of the telescopic electrode mechanism. l Clean the robot electrodes.

Waste Disposal

This product contains metals and electronic components. Any waste (including packaging materials, metal parts, and electronic components) shall be transported to recycling centers or proper places for destruction. The disposal of waste shall comply with local laws and regulations for the purpose of environmental protection.

After-sales Service

- We will assume no responsibility for any consequences resulting from your failure to follow safety instructions.
- We will assume no responsibility for any consequences resulting from your failure to meet operation requirements.
- We will assume no responsibility for any consequences resulting from any artificial damage to the device.

Manufacturer

Manufacturer: Sveaverken Svea Agri AB
Address: Högmossevägen 11, 641 39 Katrineholm, Sweden
Telephone: +46 (0)150-48 77 00

Documents / Resources

	Sveaverken SCP300 RoboPusher Nimbo Compact Visual-Navigated Feed Pusher [pdf] User Manual SCP300, 2A3NS-SCP300, 2A3NSSCP300, SCP300, RoboPusher Nimbo, Compact Visual-Navigated Feed Pusher, RoboPusher Nimbo Compact Visual-Navigated Feed Pusher, SCP300 RoboPusher Nimbo Compact Visual-Navigated Feed Pusher