MOVA LiDAX Ultra 3000 AWD User Manual

The illustrations in this manual are for reference only.
Please refer to the actual product for accuracy.

Original Instructions
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1 Safety Instructions

1.1 General Safety Instructions

- Carefully read and understand the user manual before using the product.
- Only use the equipment recommended by MOVA with the product. Any other usage is incorrect.
- Do not allow children to be in the vicinity or play with the machine when it is operating.
- Do not use the product in areas where people are unaware of its presence.
- When manually operating the product with the MOVAhome app, do not run. Always walk, watch your steps on slopes, and maintain balance at all times.
- Avoid using the product when there are people, especially children or animals, in the work area.
- Avoid using the machine and its peripherals in bad weather conditions, especially when there is a risk of lightning.
- If operating the product in public areas, place warning signs around the work area with the following text: "Warning! Automatic lawn mower! Keep away from the machine! Supervise children!"
- Wear sturdy footwear and long trousers when operating the product.
- To prevent damage to the product and accidents involving vehicles and individuals, do not set work areas or transport paths across public pathways.
- Do not touch moving hazardous parts, such as the blade disc, before it has come to a complete stop.
- Seek medical aid in case of injury or accident.
- Set the product **OFF** before clearing blockages, performing maintenance, or examining the product. If the product vibrates abnormally, inspect it for damage before restarting. Do not use the product if any parts are defective.
- Do not install the main cable in areas where the product will cut. Follow the instructions provided for cable installation.
- Only use the charging station included in the package to charge the product. Incorrect use may result in electric shock, overheating, or corrosive liquid leakage from the battery. In case of electrolyte leakage, flush with water/neutralizing agent and seek medical aid if the corrosive liquid comes into contact with your eyes.
- When connecting the main cable to the power outlet, use a residual-current device (RCD) with a maximum tripping current of 30 mA.
- Only use original batteries recommended by MOVA. The safety of the product cannot be guaranteed with non-original batteries. Do not use non-rechargeable batteries.
- Keep any supply and/or extension cords away from the working area to avoid damage to the cords which can lead to contact with live parts.
- The illustrations used in this document are for reference only. Please refer to the actual products.
- Never allow children, persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge or people unfamiliar with these instructions to use the machine, local regulations may restrict the age of the operator.
- Do not connect or touch a damaged cable until it is disconnected from the power outlet. If the cable becomes damaged during operation, disconnect the plug from the power outlet. A worn or damaged cable increases the risk of electrical shock and should be replaced by service personnel.
- Do not push the product forcefully or quickly, as this may damage the product.
- To maintain compliance with the RF exposure requirement, a separation distance of **35 cm (13.8")** between the device and the human should be maintained.
- WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance.

1.2 Safety Instructions for Installation

- Avoid installing the charging station in areas where people may trip over it.
- Do not install the charging station in areas where there is a risk of standing water.
- Do not install the charging station, including any accessories, within 60 cm (23.6") of any combustible material. Malfunctioning or overheating of the charging station and power supply can pose a fire hazard.

1.3 Safety Instructions for Operation

- Keep your hands and feet away from the rotating blades. Do not place your hands or feet near or below the product when it is turned on.
- Do not lift or move the product when it is turned on.
- Park the robot at the charging station or turn it **OFF** when there are people, especially children or animals, in the work area.
- Ensure that there are no objects such as stones, branches, tools, or toys on the lawn. Otherwise, the blades may be damaged when they come into contact with an object.
- Do not put objects on top of the product or charging station.
- Do not use the product if the **STOP** button is not functioning.
- Avoid collisions between the product and people or animals. If a person or animal comes in the path of the product, stop it immediately.
- Always set the product **OFF** when it is not in operation.
- Do not use the product simultaneously with a pop-up sprinkler. Utilize the Schedule function to ensure that the product and pop-up sprinkler do not operate at the same time.
- Avoid placing a connection channel where pop-up sprinklers are installed.
- Do not operate the product in the presence of standing water in the work area, such as during heavy rain or water pooling.
- Do not place the robot upside down.

1.4 Safety Instructions for Maintenance

- Set the product **OFF** when performing maintenance.
- After washing, ensure that the product is placed on the ground in its normal orientation, not upside down.
- Do not reverse the product to clean the chassis. This precaution is necessary to prevent water from entering the motor and potentially affecting normal operation.
- Disconnect the plug from the charging station or operate the disabling device before cleaning or performing maintenance on the charging station.
- Do not use a high-pressure washer or solvents to clean the product.

1.5 Battery Safety

Lithium-ion batteries can explode or cause a fire if disassembled, short-circuited, exposed to water, fire, or high temperatures. Handle them with care, do not dismantle or open the battery, and avoid any form of electrical/mechanical abuse. Store them away from direct sunlight.

- Only use the battery charger and power supply provided by the Manufacturer. The use of an inappropriate charger and power supply can cause electric shocks and/or overheating.
- DO NOT ATTEMPT TO REPAIR OR MODIFY BATTERIES! Repair attempts may result in severe personal injury, due to explosion or electrical shock. If a leak develops, released electrolytes are corrosive and toxic.
- This appliance contains batteries that can only be replaced by skilled persons.

1.6 Residual Risks

To avoid injuries, wear protective gloves when replacing the blades.

1.7 FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To satisfy FCC / IC RF exposure requirements, a separation distance of 20 cm(7.9") or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operation at closer than this distance is not recommended.

1.8 Symbols and Decals

	WARNING – Read user instructions before operating the machine.
	WARNING – Keep a safe distance from the machine when operating.
	WARNING – Operate the disabling device before working on or lifting the machine.
	WARNING – Do not ride on the machine.
	WARNING – Keep your hands and feet away from this area when the blade disc is in the offset mowing position. Contact with the blades could cause serious injury. WARNING -Keep hands and feet away from the blades

	Class III
	Before charging, read the instructions.
	Direct current
	Class II

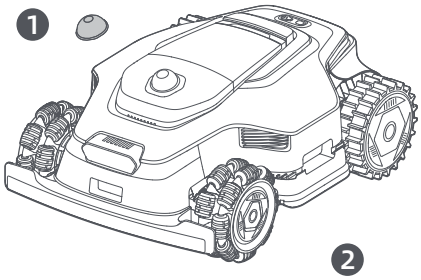
INTENDED USE

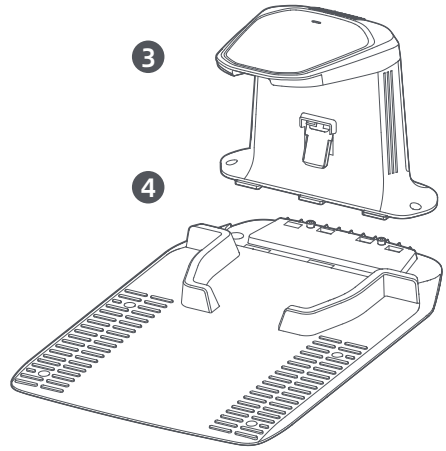
The garden product is intended for domestic lawn mowing. It is designed to mow often, maintaining a healthier and better-looking lawn than ever before. Depending on the size of your lawn, your mower may be programmed to operate at any time or frequency. It is impossible for digging, sweeping, or snow cleaning.

For the detailed e-manual, please go to https://www.mova.tech/pages/user-manuals-and-faqs.

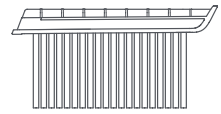
2 Product Introduction

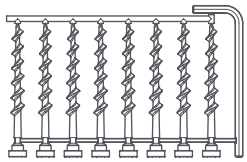
2.1 What's in the Box

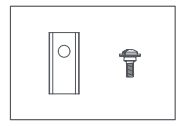








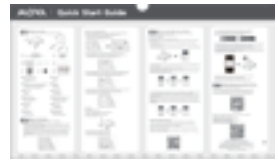












❶ LiDAR protective cover

❷ The robot

❸ Charging tower
(with a 10 m (32.8 ft) extension cable)

❹ Baseplate

❺ Power supply

❻ Cleaning brush

❼ Stakes x 8, Hex key

❽ Spare blades and screws × 36

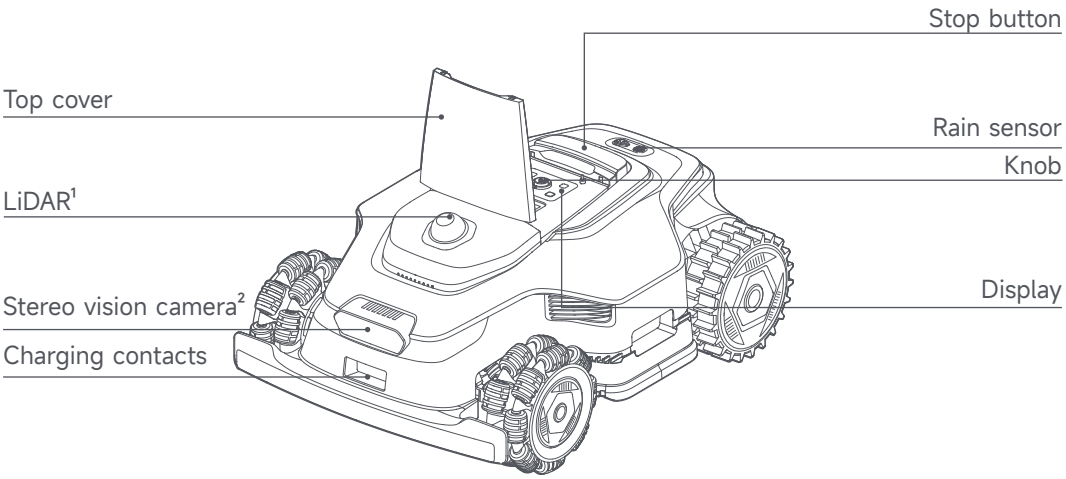
❾ Screwdriver

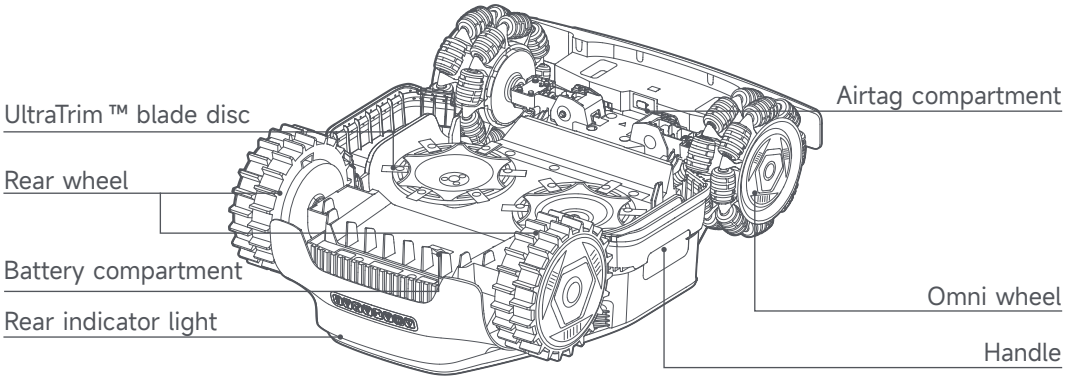
❿ User manual

⓫ Lint-free cloth

⓬ Quick start guide

2.2 Product Overview





1: The LiDAR helps obtain environmental information and facilitates the robot's positioning, obstacle avoidance and sensing of water and dirt. Based on MOVA's lab testing, the detection range (at 100 klx) is 30 m (98.4 ft) at 10% reflectivity and 70 m (229.7 ft) at 80% reflectivity. The field of view is 360° .

2: The stereo vision camera detects obstacles, lawn boundaries, and human presence. The angle of view is 120° (horizontal), 75° (vertical), 120° (diagonal). The resolution is 2 MP.

Rear Indicator Light

Color	Meaning
Solid red	The robot works normally or is on standby.
Breathing red	The robot is charging in the charging station.
Flowing red	The robot is in offset-mowing mode with its blade disc shifted sideways for cleaner edge cutting.
High-frequency blinking red	An error has occurred.

2.3 Introduction to Link Service

The Link Service provides 4G cellular connectivity and GPS functionality.

- The 4G network connectivity allows you to remotely monitor your robot's status and initiate mowing tasks without a Wi-Fi connection.
- The built-in GPS allows you to track the robot's real-time location in Google Maps via the app and receive notifications if it moves outside the designated map area.

Activate the Link Service

The Link Service activates automatically when you power on your robot. You'll see the illuminated on both the robot's display and in the app, confirming successful activation. To check the Link Service status and expiration date, go to **Device Page** > ⋮ > **Connections** > **Link Service**.

Link Service is offered free of charge for a period specified in the ***Specifications*** section, starting from the time of activation. To extend the service upon expiration, please contact the MOVA after-sales service team.

Note:

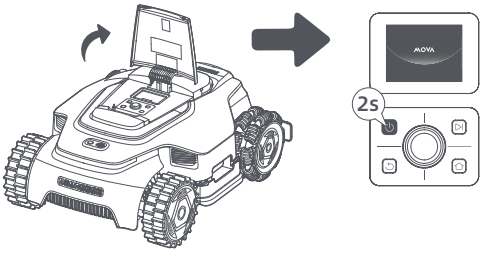
- The Link Service will be locked if the Link Service is not renewed within three months after expiration. To reactivate the service, please contact the MOVA after-sales service team. Reactivation may incur fees.
- The Link Service is designed exclusively to be used with MOVA lawnmowers. Any abnormal status detected in the Link Service may result in the suspension of your service. If this occurs, please contact the MOVA after-sales service team to help you restore the service.

2.4 Introduction to Airtag Compartment

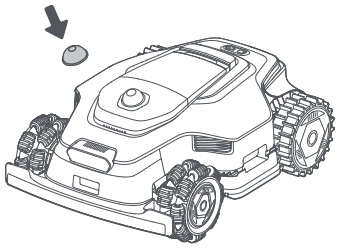
The airtag compartment supports Airtag or other tracking devices that help you locate and track your robot.

Note: AirTag is not included. Please prepare your own.
To install or remove AirTags:

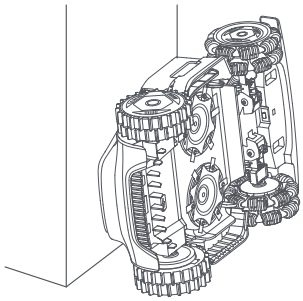
❶ Turn off the robot.



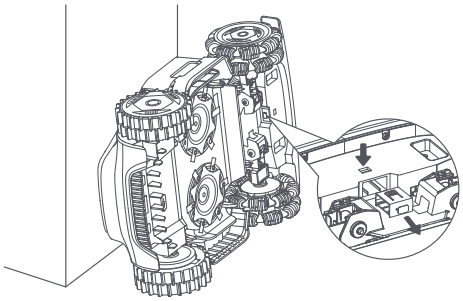
❷ Cover the LiDAR with its protective cover.



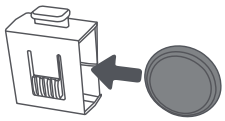
❸ Place the robot on its side and lean it securely against a wall. Ensure that the display, camera, and LiDAR are not pressed against any surface.



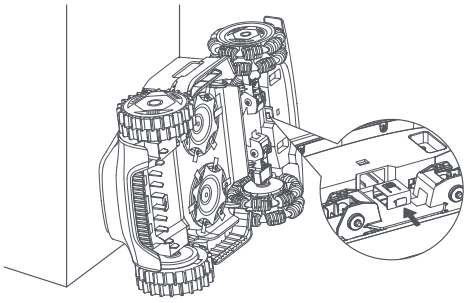
❹ Press the buckle to remove the AirTag holder.



❺ Insert the AirTag into the holder or take the AirTag out of the holder.



❻ Reinstall the holder.



3 Installation

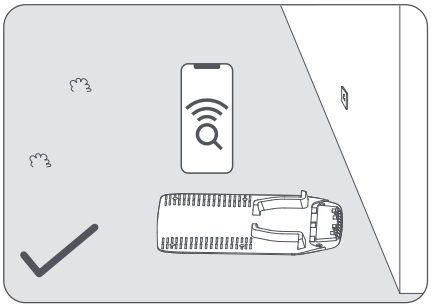
3.1 Select a Suitable Location

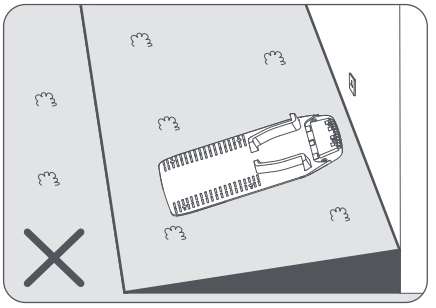
Place the charging station on a level surface near the edge of the lawn and close to a power outlet. Ensure the location meets the following requirements:

- The area has a strong Wi-Fi signal.

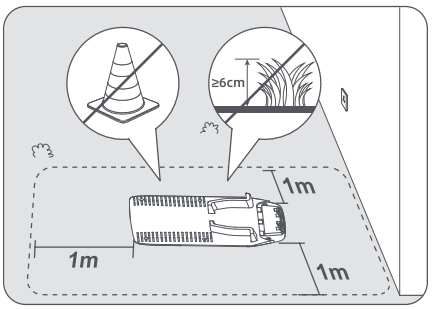
Note: Use your mobile device to help check the Wi-Fi signal strength of the location. A strong Wi-Fi signal ensures a stable connection between the robot and the app.

- The ground is soft enough to allow stake installation.
- The ground is on level terrain. A slope may cause the robot to roll backward and lose contact.



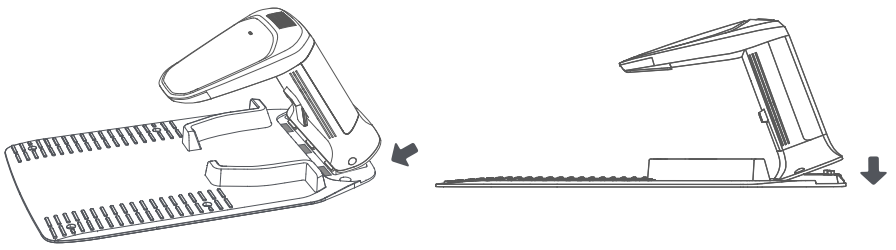


- Keep at least **1 m (39.4")** of free space with no obstacles to the left, right and in front of the charging station.
- The grass around the location is shorter than **6 cm (2.4")**.
- If the grass is taller, please mow it with a push mower first. Tall grass may make it difficult for the robot to return to the charging station.

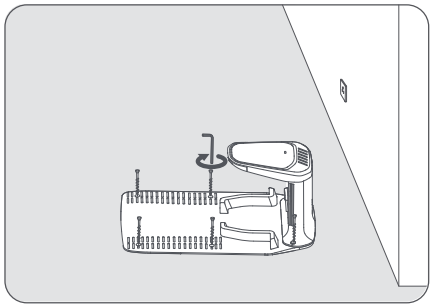


3.2 Install the Charging Station

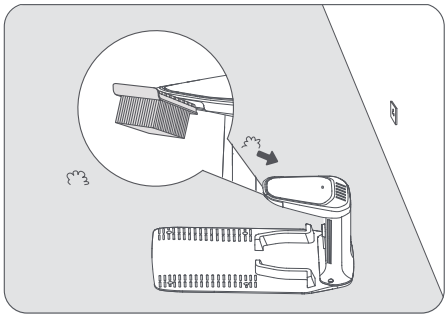
❶ Insert the charging tower into the baseplate until you hear a click.



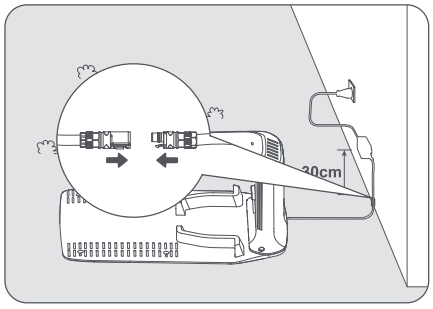
❷ Secure the baseplate to the ground with the supplied stakes and hex key.



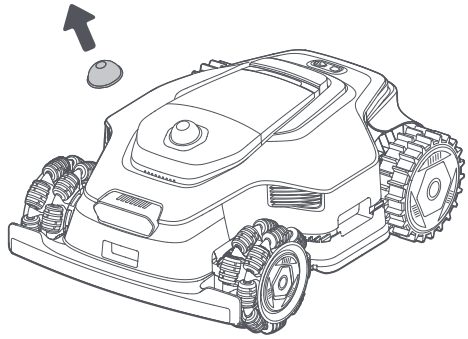
❸ Insert the cleaning brush into the charging tower by aligning the tab with the slot.



❹ Connect the power supply to the extension cable and then connect to a power outlet.
Please keep the power supply at least **30 cm (11.8")** above the ground.
Note: The LED indicator on the charging station will be **constant blue** when there is power.



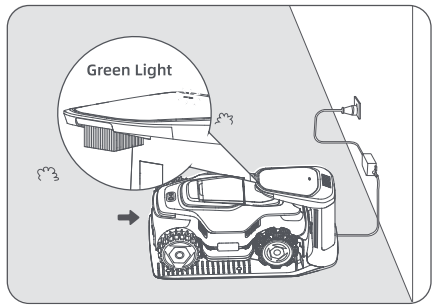
❺ Remove the LiDAR protective cover.



❻ Put the robot in the charging station to charge. Make sure the charging contacts on the robot and the charging station are connected correctly.

Note:

- The indicator light will **breathe in green** when the robot is charging successfully in the charging station.
- If you're looking to add a garage for extra protection, please use the matching MOVA Garage available at local stores or online. Using a non-MOVA garage may cause issues during recharging.



LED Indicator on the Charging Station

LED Indicator Light Colour	Meaning
Blinking/solid red	1. There is an issue with the charging station (such as a problem with the charging current or voltage).
	2. The robot docks in the charging station but the charging is abnormal (for example charging contacts have a short circuit).
Solid blue	The charging station has power. The robot is not in the charging station.
Breathing green	The robot is charging in the charging station.
Solid green	The robot docks at the charging station and is either: 1. Fully charged, or 2. Not charging because the current time is outside the designated charging period.

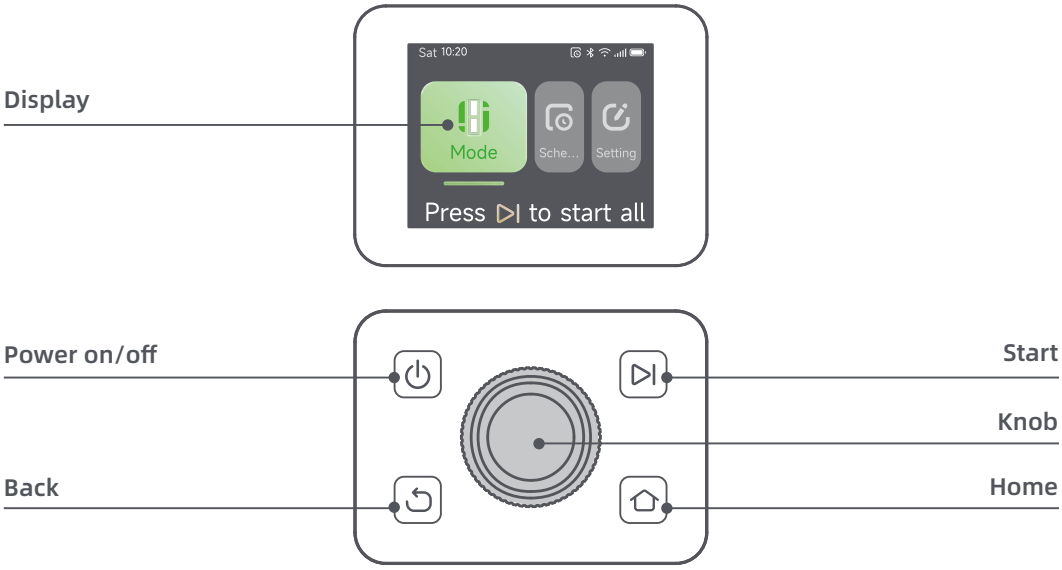
4 Preparation for First Use

4.1 Get Familiar with the Control Panel

The control panel inside the top cover offers the following features.

- **Modes:** Switch between All-area mowing and edge mowing.
- **Schedule:** View and turn on/off the "**Spr/Sum Schedule" and "Aut/Win Schedule**".
- **Settings:** Access the mowing configurations such as mowing efficiency, mowing height, obstacle avoidance height, and rain/frost protection. Also, you can manage the robot configurations, including PIN code, volume, language, etc.

Note: The features might be updated depending on the software version.



Display

Icon	Status
	Battery level (Shows the current battery level.)
	Charging (The robot successfully docks in the charging station.)
	Bluetooth (The robot is connected to the app via Bluetooth.)
	Wi-Fi (The robot is connected to the app via a Wi-Fi network.)
	Link service (Link service is activated.)
	Schedule (A task is scheduled for today and has not started yet.)

Buttons

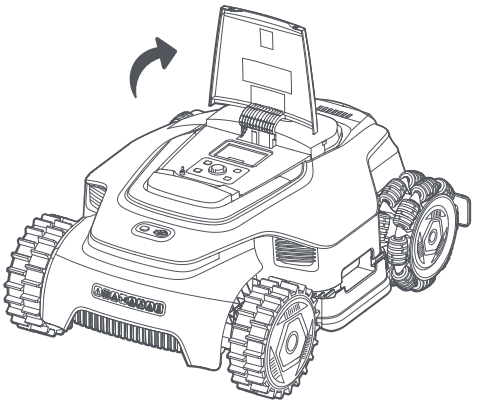
Button	Function
Power ⏻	Press and hold ⏻ for 2 seconds to turn the robot on.
	To turn off the robot, ensure it is outside the charging station. Press ⏻ and hold for 2 seconds, then enter the PIN code to confirm.
Start ⏯	To start all-area mowing or resume paused tasks, press the ⏯ button, and close the robot's top cover to confirm.
Home ⌂	To send the robot back to the charging station to charge, press the ⌂ button, and close the robot's top cover to confirm.
Back ↩	To navigate up one level in the menu, press the ↩ button.
Knob	To confirm the selection in the menus, press the knob.
	To enable Bluetooth pairing mode, press and hold the knob for 3 seconds.
	To navigate through the menu, turn the knob clockwise/anticlockwise.
Start + Back	To factory reset the robot, press and hold the ⏯ button and the ↩ button together for 3 seconds.
Home + Back	Press and hold the ⌂ button and ↩ button together for 3 seconds to enter the **About** page in Settings. The About page will disappear within 5 seconds.
Stop	Press the **Stop** button to stop the robot. PIN code must be entered on the control panel to resume the operation.

4.2 Initial Settings

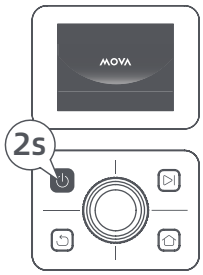
Complete the basic settings before the robot is ready to start working.

4.2.1 Set Language & PIN Code

❶ Open the robot's top cover.

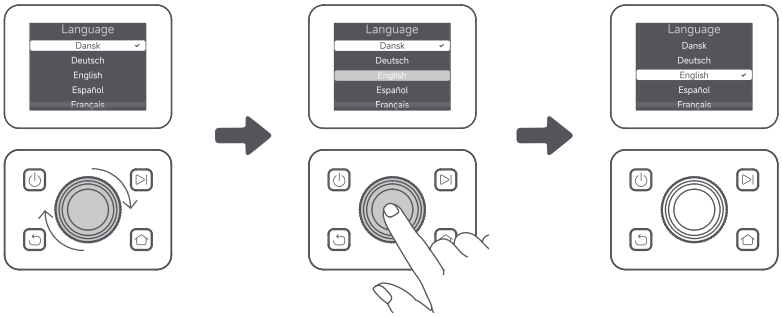


❷ Press and hold the ⏻ button on the control panel for 2 seconds to turn on the robot.
Note: The robot will automatically turn on when it docks in the charging station.



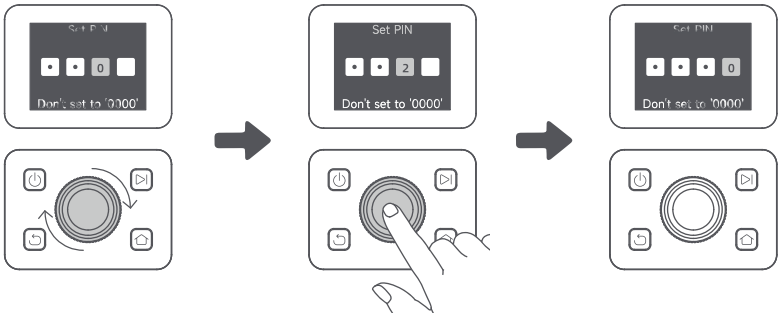
❸ Select the Language You Prefer

Turn the knob clockwise to go down and anticlockwise to go up to select your language. Press the knob to confirm.



❹ Set PIN code

a. Turn the knob to select a number from 0 to 9.
   Turn clockwise to increase the number and anticlockwise to decrease it.
b. Press the knob to confirm and set the next digit.
c. (Optional) To modify the previous digit, turn the knob anticlockwise until the number becomes 0 and keep turning it one time more.
Important: Please do not set the PIN code to "0000".



d. Enter the PIN code again to complete setting the PIN code.
Note: Once your PIN code is set, you can update it at any time by navigating to **Settings > Change PIN Code** in the app or selecting **Settings > Change PIN** on the display.

4.2.2 Connect the Robot to the Internet

Before network setup:

- Make sure the robot and your mobile device are on the same Wi-Fi network.
- Make sure that your mobile device is within **10 m (32.8 ft)** of the robot.
- Enable Bluetooth function on your mobile device.

❶ Scan the QR code to download the MOVAhome app on your mobile device.
You can also download MOVAhome app from App Store or Google Play.

OR

Download on the App Store

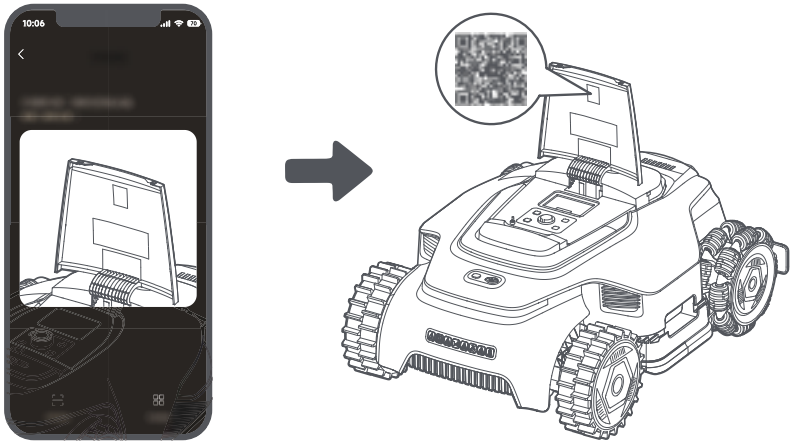
Get it on Google Play

MOVAhome

❷ Open the MOVAhome app, create an account, and log in.

❸ Connect via one of the following methods:

- Scan the QR Code: Go to **Device** and tap **Scan to connect.** Scan the QR code located inside the robot's top cover to connect.



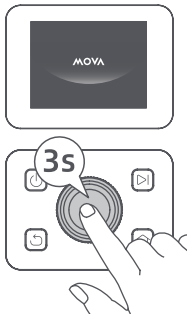
- Add Manually: Go to **Device** and tap **Add**. Then select your robot model to connect.
- Automatic discovery: The robot will search for nearby devices. Tap your robot from the list of discovered devices to connect.

❹ Follow the in-app instructions to complete the Wi-Fi network connection.

Important:

- Please use a single-band network of 2.4 GHz frequency.
- Make sure your Wi-Fi network doesn't have a firewall and isn't encrypted. Otherwise, the network setup may fail.

❺ Press and hold the knob on the control panel for 3 seconds. The robot will enter Bluetooth pairing mode.



❻ Follow the in-app instructions to complete the pairing.
Note: The Link Service allows remote control without Wi-Fi, but a Wi-Fi connection is recommended for best performance.

4.2.3 Other Settings

Unbind the Robot

The robot is automatically bound to the MOVAhome account once pairing is successful. Each device can only be bound to one account. It cannot be bound to another account at the same time.
To pair the robot with a new account, you need to unbind it first. To unbind it:
1. Open the MOVAhome app. Go to **Device**.
2. Locate your robot's name. If you have multiple robots bound to your MOVAhome account, swipe left or right to access the page of the robot you want to edit.
3. Tap the robot's name in the upper left corner.
4. Select **Delete**.

Note: Once a robot is removed from the MOVAhome account, all user data acquired from the robot will be erased from the server.

Share Your Robot

1. Tap the robot's name in the upper left corner.
2. Select **Device Sharing**.

Log Out of and Delete Your Account

1. Go to **Me > Settings > General > Account.**
2. Select **Log Out** or **Delete Account.**

Reset Your Robot

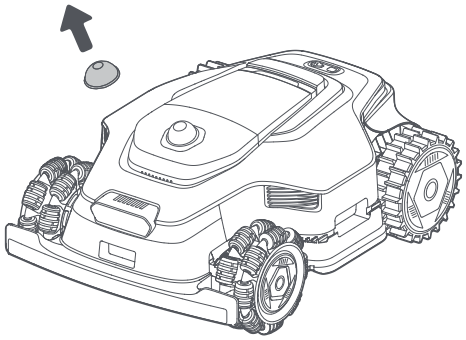
Once you reset the robot to factory settings, all data on the robot will be erased. You can reset your robot via either of the following ways:

- Press and hold **Start** and **Back** buttons together simultaneously for 3 seconds on the control panel.
- Go to **Settings** and select **Reset the Robot** via the display.

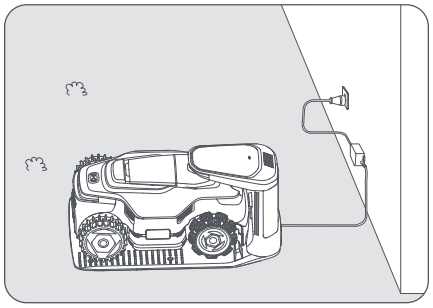
5 Map Your Garden

Important: Before mapping, please check the following:

- The battery level of the robot is more than 50%.
- The protective cover of the LiDAR is removed.



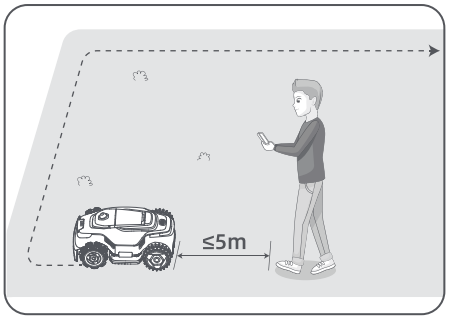
- The top cover is closed.
- The robot correctly docks in the charging station.



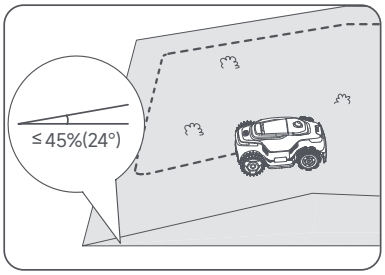
5.1 Create the Virtual Boundary

Before starting the mapping process, please keep the following in mind:

- Walk within **5 m (16.4 ft)** behind the robot during the mapping process.

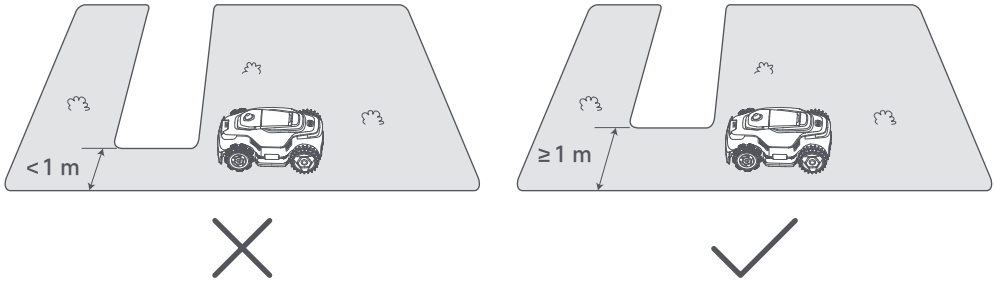


- The robot can navigate slopes with an incline up to **80% (38.7°)**. However, for better mowing results, it is recommended to keep the slopes of work areas below **45% (24°)**.

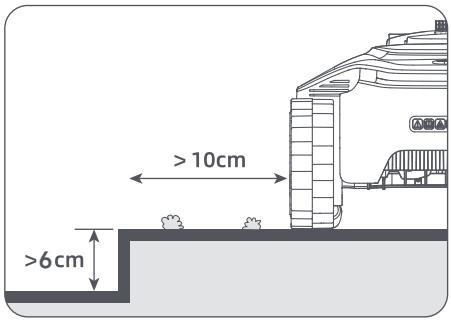


Note: If the boundary is set on slopes steeper than **45% (24°)**, the robot may slightly slide beyond the boundary.

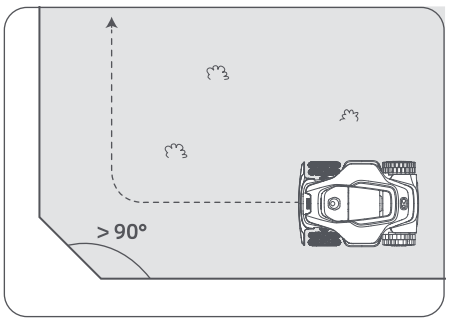
- For areas narrower than **1 m (39.4")**, please set them as paths to allow the robot to pass through. For details, see ***Set Path***.



- If your lawn is more than **6 cm (2.4")** higher than the adjacent ground, keep the robot at least **10 cm (3.9")** away from the edge. If your lawn is level with the adjacent ground, the robot can cross the perimeter for optimal mowing results along the edges.

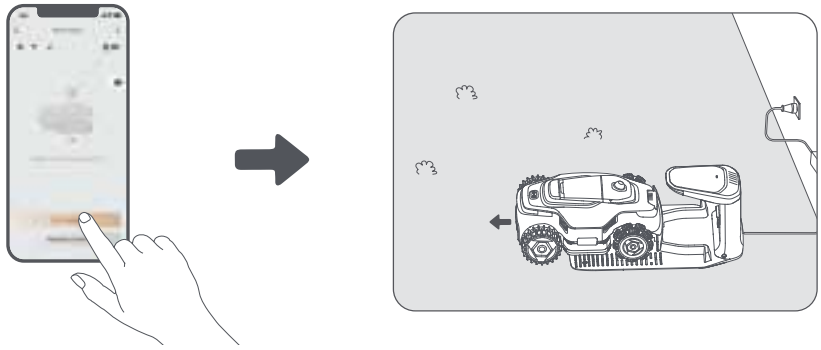


- Make sure the turning angles are greater than **90°** . Angles smaller than 90° can make it difficult for the robot to achieve a clean cut.



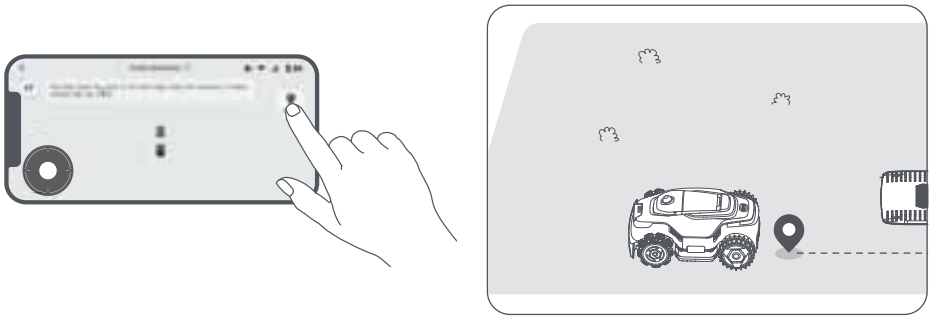
Start Mapping:

1. Tap **Start Mapping** via the app, and the robot will check its status and calibrate.



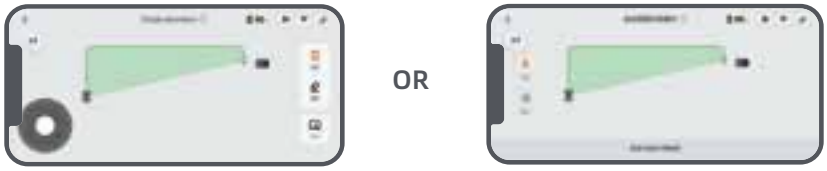
Caution: It will automatically leave the charging station to do the calibration. Please be careful.

2. Guide the robot remotely to the edge of your lawn and tap **Set Starting Point** to establish the starting point for the boundary.



3. Map out the work area. The following two methods are supported.

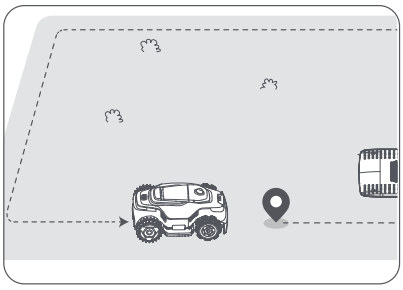
- Remotely control the robot to move along the perimeter of your lawn to map out the work area.
- Enable the Auto Boundary Detection mode to map out the work area. Powered by an advanced AI algorithm, the robot can identify boundaries without the need for manual guidance.



Important:

- The **Auto Boundary Detection** mode requires clear lawn boundaries and should be used in daylight to ensure proper visibility. Avoid using this feature in poor light or rainy conditions.
- We recommend following the robot when you use the Auto Boundary Detection Mode. If the robot fails to accurately detect the boundaries, you can exit Auto Boundary Detection mode and switch to remote control at any time.
- Make sure the robot's front camera is clean and unobstructed.

4. When the robot returns to within **1 m (39.4")** of the starting point, you can tap **Close Boundary** to complete the boundary setting.



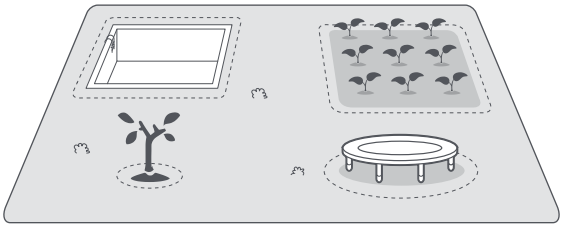


5. (Optional) Edit the map.

Alternatively, you can go to **Device Page** >  > **Edit** to adjust the map after the mapping is finished.

❶ Set No-Go Zone

Though the robot can automatically avoid obstacles, it is still necessary to set areas with a risk of falling, such as swimming pools and sandpits, as no-go zones. For objects you want to protect (such as a flowerbed, a trampoline, a vegetable patch or an exposed tree root), please set them as no-go zones.

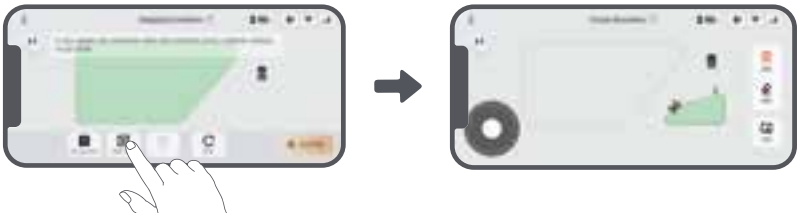


❷ Add or Expand Zones

- **To Create More Zones**

If your lawn is separated by roads or you have several isolated lawns, you can continue creating work areas.

Note: If your garden has stone paths, designate them as separate zones. Then draw linking paths so the robot can navigate between zones.



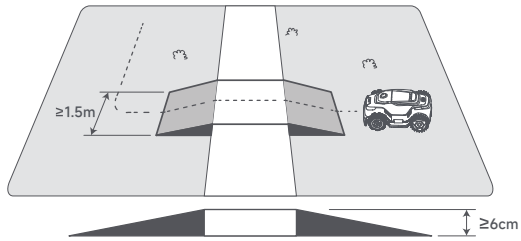
- **To Expand Existing Zones**

You can expand an existing zone by creating the area you want to include. If the two areas overlap, they will be automatically merged.



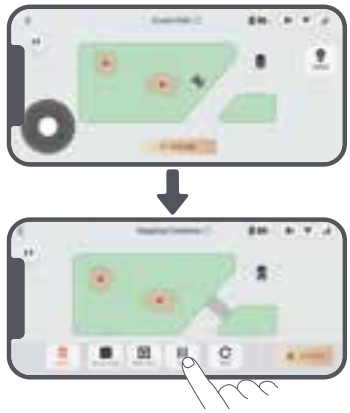
❸ Set Path

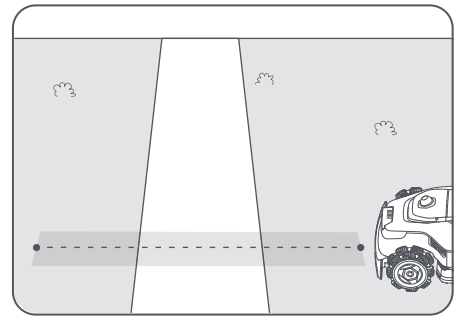
For isolated zones, please create a path to connect them. Isolated zones without a path will be inaccessible to the robot.
Note: By default, the robot only moves along the path without mowing the grass.
Important: If your lawn is divided by passages higher than **6 cm (2.4")**, place an object with a slope equal in height to the passage (such as a ramp).



- **To Connect Two Isolated Work Zones**

For isolated areas, please create paths to connect them. Otherwise, they will be inaccessible to the robot.
Important: Make sure the beginning and end of the path are in the work area.

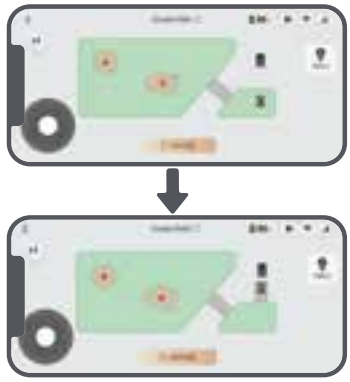


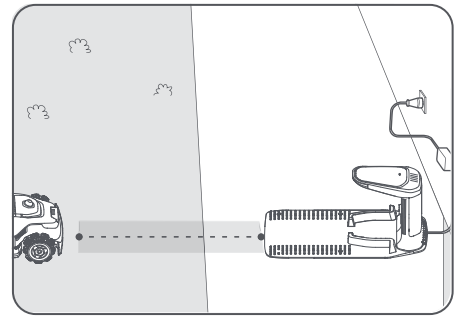


- **To Connect the Work Area and the Charging Station**

If your charging station is not in the work area, a path should be created to connect it to the work area.
Important:

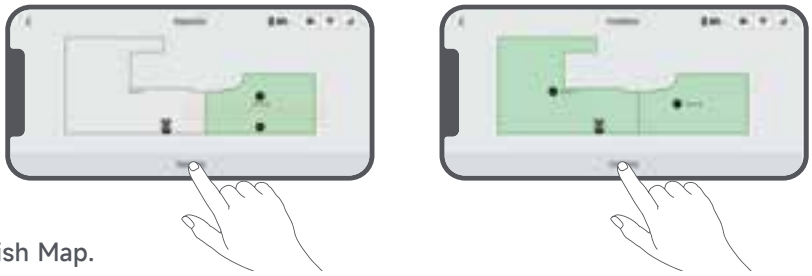
- Ensure that one end is inside the work area, and the other end is right in front of the charging station. It's advisable to align the path with the charging station.
- When creating paths to connect the work area and the charging station, do not remotely dock the robot in the charging station. Otherwise, the LiDAR may be blocked, which can cause the mapping to fail.





❹ Separate and Combine Zones

Divide a zone into smaller ones or merge zones that were divided into a larger one.



6. Tap **Finish Map.**

Important:

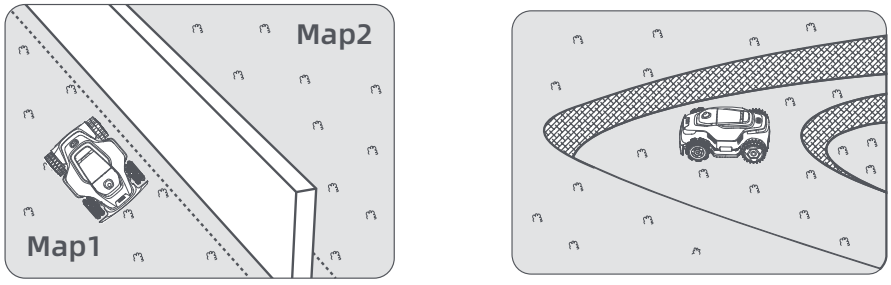
- Do not manually move the robot when creating the boundary, as this may cause the mapping to fail.
- When the mapping begins, do not remotely dock the robot in the charging station until the mapping process is complete. Otherwise, the LiDAR may be blocked, which can cause the mapping to fail.

5.2 Add a Second Map

The Dual Map feature is designed for situations where the robot cannot autonomously travel between separate lawns or when multiple maps are necessary.

You may need to create a second map if:

- Your front and back lawns can't be connected.
- There's a significant elevation difference between lawn areas.
- You have multiple properties but only one robot.
- Your lawn area is too large for a single map.



Note: If your lawns are connected and within the robot's capacity, use a Multi-Zone setup instead.

To map the second lawn:



To map the second lawn:

1. Prepare the charging station.
   - If you have purchased a second charging station, install it on the second lawn.
   - If not, move the robot and its charging station manually to start mapping the second lawn.
2. Navigate to **Device Page >** and tap **Add Map** in the MOVAhome to create the second map.
3. Once you have finished the second map, you can switch between maps through > Use.



Note:

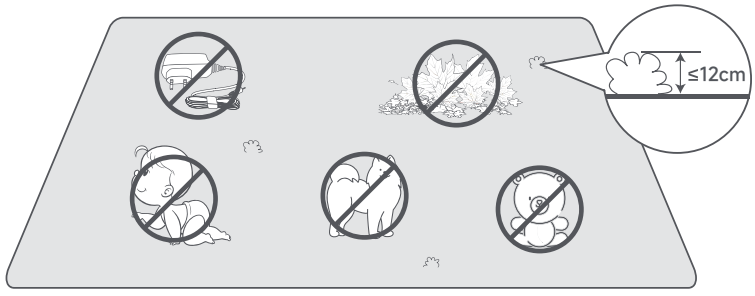
- After switching the map, the schedules and mowing settings of the current map will be applied.
- You can purchase an additional charging station to install in the second map for greater convenience. With a separate charging station installed in the second map, you only need to move the robot manually between two maps.

6 Operation

6.1 Start Mowing for the First Time

Tips before mowing:

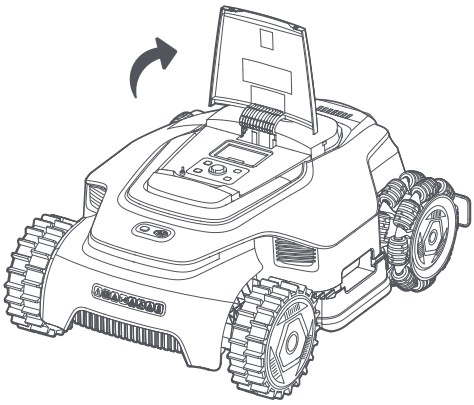
- Use a push mower to mow the grass to a height of no more than **12 cm (4.7")**.
- Clear the obstacles including debris, leaf piles, toys, wires and stones from the lawn. Make sure no children or pets are on the lawn when the robot is mowing.
- Fill in the holes in the lawn.
- Set your mowing preferences in the app in advance (such as mowing efficiency, mowing height and mowing direction).



You can select one of the following two methods to start mowing.

a) Start via the control panel

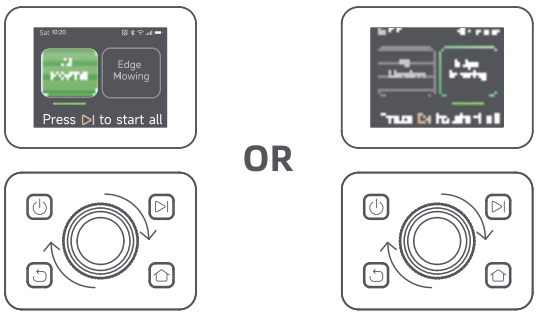
1. Open the robot's top cover.



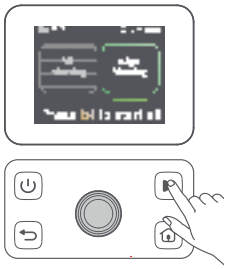
2. Select **Modes** on the display and press the knob.



3. Turn the knob to select the mowing mode.



4. Press the ▷| button, and close the robot's top cover to confirm. The robot will leave the charging station and start all-area mowing.



b) Start via the app

1. Open the app.
2. Select a mowing mode and tap **Start mowing** to start mowing.



6.2 Mow the Lawn with Dual Maps

1. Manually move the robot to the map you want to mow.
2. Select the correct map in the app before beginning mowing tasks.

Note: After switching the map, the schedules and mowing settings of the current map will be applied.

How to Handle Low Battery or Charging Issues?

For the tasks with only one charging station, if you don't manually relocate the charging station along with the robot to the second map, the robot might deplete its battery and prompt a charging failure since it can't locate the charging station. To resolve this issue, please follow these steps:

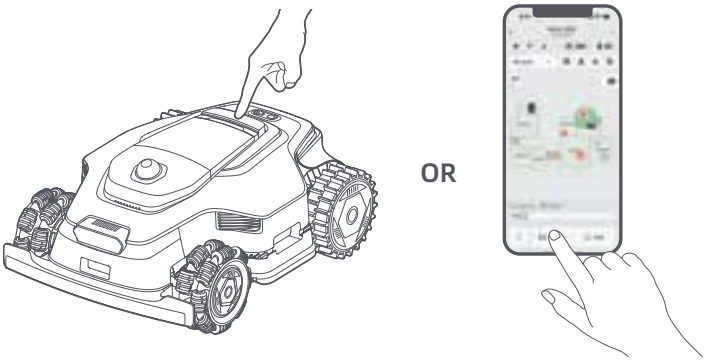
a. Manually move the robot to the map with the charging station for recharging.
b. After charging, return the robot to the original map. It will resume mowing automatically.

Important: Do not change the map in the app during this process. This ensures the robot remembers its last position and can continue where it left off.

C. Repeat these steps as needed until the entire lawn is mowed.

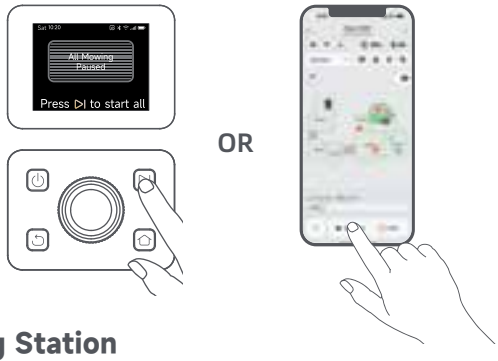
6.3 Pause

To pause the current mowing task, you can press the **Stop** button on the robot or tap **Pause** in the app.
Note: The robot cannot be started directly through the app after the **Stop** button is pressed. To resume operation, enter your PIN code on the control panel.



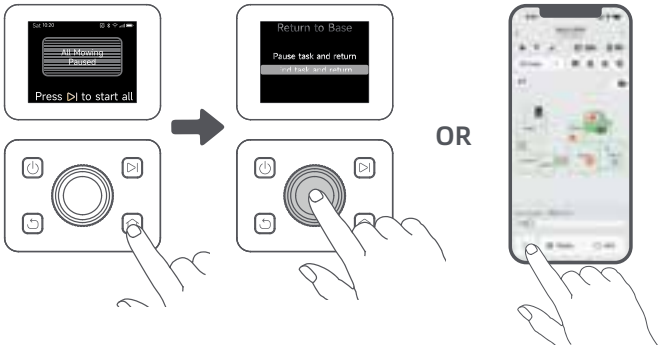
6.4 Resume

To resume the task when the robot is paused, press the ▷| button, then close the robot's top cover to confirm. The robot will resume the previous mowing task. Alternatively, you can tap **Continue** in the app to resume the mowing task.



6.5 Return to the Charging Station

To send the robot back to its charging station:
1. Press the ⌂ on the control panel.
2. Confirm to pause or cancel the current task.
3. Close the robot's top cover to confirm. The robot will automatically return to the charging station to recharge.
Alternatively, you can send the robot back in the app.



7 MOVAhome App

Where You Can Explore More

MOVAhome app is more than a remote control. There are many things you can do through the app: complete various settings remotely, experience different mowing modes, and adjust mowing schedules.

7.1 Mowing Settings

Feature	Location in APP	Description
Mowing Modes	**Device Page > Mode selection box** in the upper left corner	The robot offers various mowing modes. You can switch between modes through the app, including All-Area Mowing, Zone Mowing, Edge Mowing, Spot Mowing and Manual Mode.
Schedule	**Device Page >** 	After the first map is completed, the robot automatically creates two weekly mowing schedules according to the lawn size, which are **"Spr/Sum Schedule"** and **"Aut/Win Schedule"**. With the schedule function, you can completely leave the daily mowing work to the robot. You only need to maintain the robot regularly. **Note:** If you worry that the robot may disturb you or your neighbours when it works autonomously during certain hours, you can go to **Settings > Do Not Disturb** and set **Do Not Disturb** time in the app.
Mowing Shapes	**Device Page >**  **> Edit > Shapes**	Customise your lawn by adding shapes. Defined shapes will be excluded from mowing in all mowing modes. You can modify their position, size, or remove them in **Shapes**.
UltraTrim ™ Blade Disc	**Device Page >**  **> UltraTrim ™**	The UltraTrim ™ blade disc is designed to move to the side when it reaches the lawn edges, ensuring a cleaner cut. Refer to the MOVAhome app for specific operating instructions.

7.2 Weather Protection Features

If you worry that adverse weather conditions may affect the mowing work, you can enable the following weather protection features in **Device Page >** ⋮ in the APP.

Feature	Description
Rain Protection	When this function is enabled, the robot automatically pauses mowing and returns to the charging station when it rains. You can set the rain protection time in the app. **Note:** Mowing wet grass can damage your lawn. It is advisable to extend the protection duration to allow the grass to get dry before mowing again.
Frost Protection	Mowing in temperatures below **0° C (32° F)** may cause permanent lawn damage. For safety, the battery will not charge as a safety measure. To protect your lawn and robot, you can enable the Frost Protection feature. When enabled, the robot automatically pauses mowing and returns to the charging station when the temperature falls below **0° C (32° F)**, and resumes mowing once the temperature rises above **0° C (32° F)** and the robot is able to charge normally.

7.3 Anti-theft & Safety Features

This section covers the robot's anti-theft and safety features, including alarms for lifting or moving off-map, real-time location tracking, human presence alerts, and a child lock to prevent unintended operation.
To enable the anti-theft & safety features, go to **Device Page >** ⋮ in the APP.

Feature	Description
Lift Alarm	With this function enabled, an alarm will go off immediately when the robot is lifted, and the robot will be locked. To resume operation, enter the PIN code on the robot first.
Off-Map Alarm	With this function enabled, the robot will be locked and the alarm will go off immediately if it is away from the map.
Real-Time Location	With this function enabled, you can view the current location of the robot in Google Maps.
Human Presence Detection Alert	When enabled, the robot will notify you upon detecting human presence.
Child Lock	When enabled, the robot will be locked. Enable this feature when you worry that children may operate the robot.

Note: The off-map alarm and real-time location features are only available when the Link Service is activated.

7.4 TrueGuard Features

This robot allows you to keep an eye on your garden with real-time video and patrols for specific spots via the app.

Feature	Description
Real-time Video	Tap to view a live video feed from the robot's front camera, allowing you to monitor your garden anytime, anywhere.
Patrol	While the robot is on standby, you can send it to patrol specific boundaries or spots in your garden via the app. To access this feature, go to **> Patrol**.

7.5 Charging

You can adjust the charging settings through **Device Page >** ⋮ **> Charging** in the app.

7.5.1 Custom Charging Period

The **Custom Charging Period** feature allows you to customise the robot's charging period to specific hours. When enabled, the robot charges itself to a safe battery level when the battery level is low when there are no mowing tasks, and completes a full charge only during the designated charging period.

7.5.2 Battery Level Control

- **Battery Level for Auto-Recharge:** Set the battery levels at which the robot automatically returns to the charging station.
- **Battery Level for Resuming Tasks:** Set the battery levels at which the robot automatically resumes unfinished mowing tasks.

Note: MOVA development team will continuously conduct **OTA (Over-the-Air)** updates and maintenance on the firmware and app. Please check for update notifications or enable the **Auto-update** function to keep the firmware and app up-to-date and enjoy more features.

8 Maintenance

For better performance and lifespan of the robot, please clean it regularly and replace worn parts according to the frequency below:

Part	Replacement Frequency
Blades	Every 6–8 weeks or sooner
Cleaning brush	Every 12 months or sooner

Note:

- You can check the remaining time for blades and the cleaning brush by navigating to **Device Page > ⋮ > Consumables & Maintenance** in the app. After replacing any consumables as prompted, go to the details page for the consumable and tap **I've Replaced It** to reset the timer.
- If you have designated areas in your garden for routine robot cleaning and servicing, you can set Maintenance Points on the map by navigating to **Device Page > ⋮ > Head to Maintenance Point > Edit Point**. Once the maintenance points are set, you can simply tap **Go** and direct the robot to the designated locations for easy servicing.

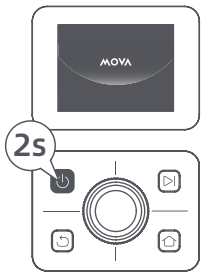
8.1 Cleaning

Regularly clean your robot to prevent grass clippings and dirt from accumulating and clogging the blade disc and drive wheels, which can affect its mowing, docking, and movement performance. We recommend using a cleaning kit, available at local stores or online.

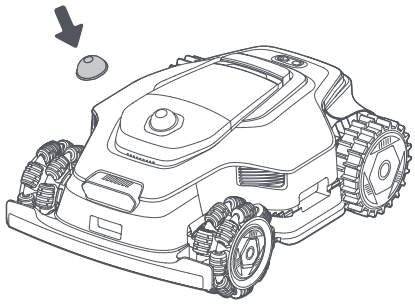
⚠ **Warning:** Before cleaning, please turn off the robot and unplug the charging station.

- **The Housing, Chassis and Blade Disc:**

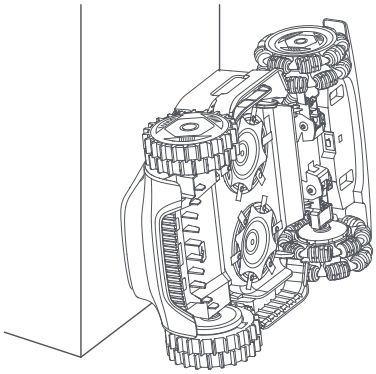
1. Turn the robot off.



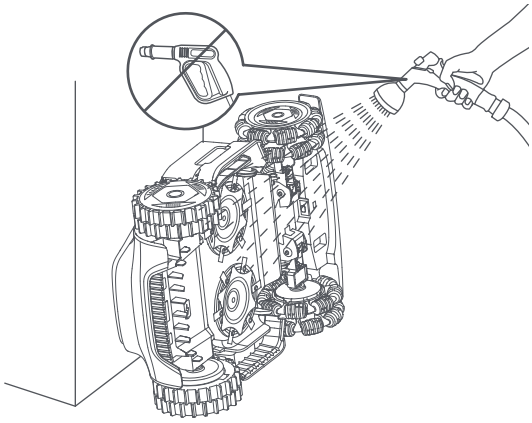
2. Cover the LiDAR with its protective cover.



3. Place the robot on its side and lean it securely against a wall. Ensure that the display, camera, and LiDAR are not pressed against any surface.

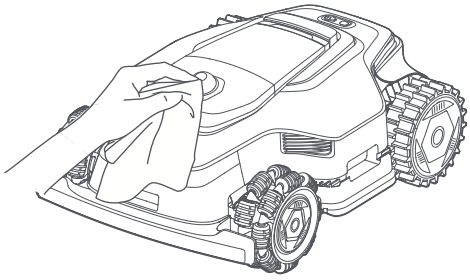


4. Clean the housing, blade disc and chassis with a hose.



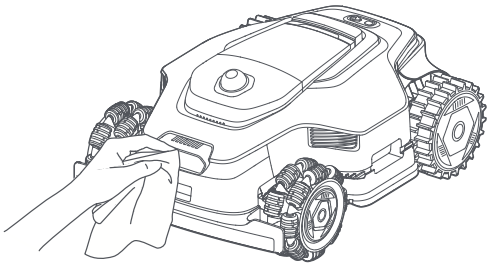
⚠ **Warning:** Do not touch the blades when cleaning the chassis. Please wear gloves when cleaning.
Caution: Please do not use a high-pressure washer for cleaning. Do not use detergents for cleaning.

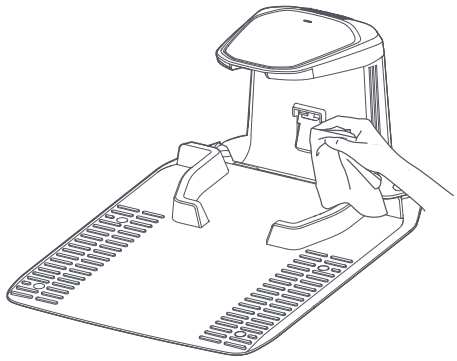
5. Use a lint-free cloth to carefully clean the LiDAR sensor.



• Charging Contacts and Front Camera:

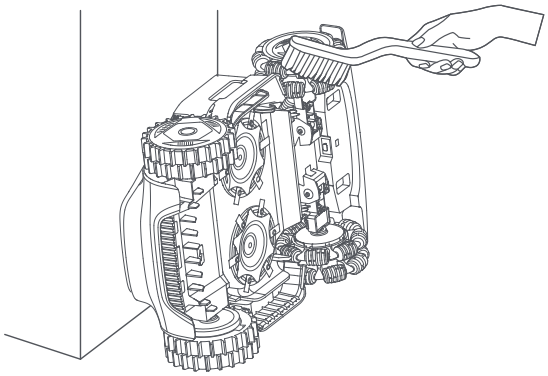
Use a clean cloth to wipe the charging contacts on the robot and the charging station, and also clean the front camera. Keep the charging contacts and the front camera dry after cleaning.





• Drive Wheels:

Use a brush to remove mud from the wheels to ensure good grip.



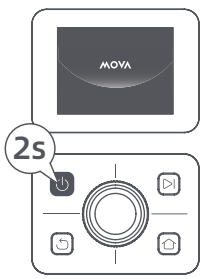
8.2 Component Replacing

• Replace the Blades

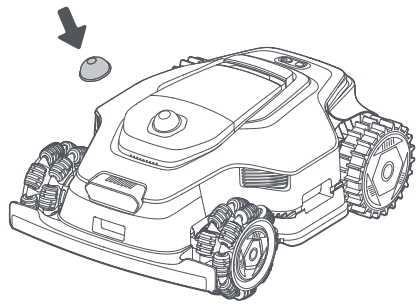
To keep the blades sharp, please replace the blades regularly. It is recommended to replace the blades every **6–8 weeks** or sooner. Please only use the MOVA genuine blades.

Note: Please replace all twelve blades at the same time to ensure a balanced cutting system.

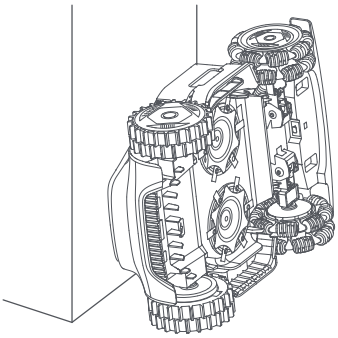
1. Turn off the robot.



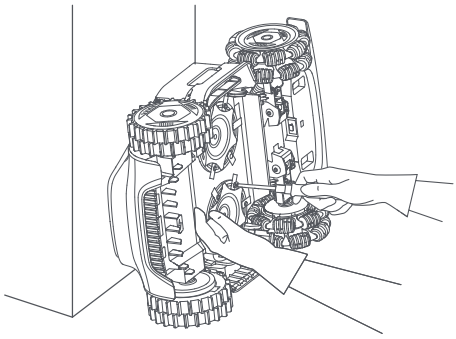
2. Cover the LiDAR with its protective cover.



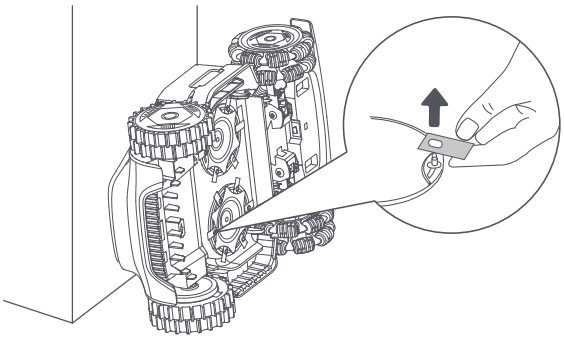
3. Place the robot on its side and lean it securely against a wall. Ensure that the display, camera, and LiDAR are not pressed against any surface.



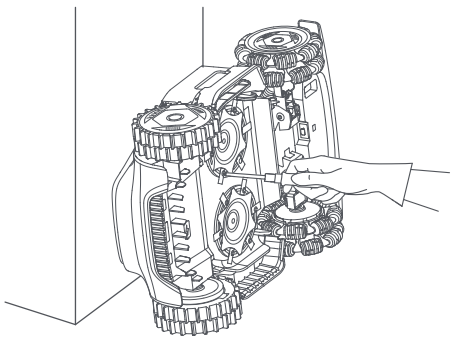
4. Loosen the screws using a Phillips screwdriver.



5. Remove the twelve blades and screws.

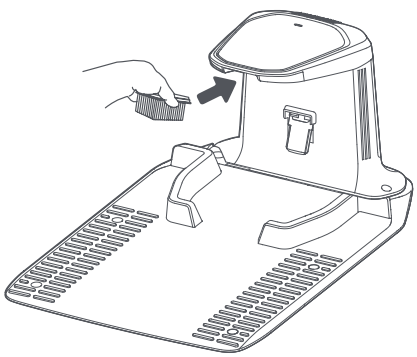


6. Align the new blades with the holes on the blade disc, then secure them with the screws.



- **Replace the Cleaning Brush**

When the cleaning brush for the LiDAR sensor wears out, its bristles may fray or deteriorate, affecting its cleaning performance. Please replace the cleaning brush regularly to keep a good cleaning result. It is recommended to replace the cleaning brush every **12 months** or sooner.



9 Battery

9.1 Operating and Charging Temperature

The robot supports normal operation when the battery temperature is between **-6° C (21° F)** and **57° C (135° F)**.

Do not charge the battery below **6° C (43° F)** or above **57° C (135° F)**, as charging will be blocked by the battery protection system. Charging resumes once the battery temperature rises above **6° C (43° F)** or drops below **57° C (135° F)** and the battery is capable of accepting charge.

Note: All temperature values allow a **3° C (37° F)** deviation.

For best performance, it is recommended to operate the lawnmower in an ambient temperature range of **10° C (50° F) to 30° C (86° F)**.

Low-Power Charging Mode:

When the low-power charging mode is activated, functions unrelated to charging will be disabled (the network will be turned off).

To enable low-power charging mode, press and hold the ⏭ button and the ⌂ button simultaneously, and press the ↩ button 5 times quickly at the same time. You will hear a voice prompt: Low-power charging mode is on.

To disable low-power charging mode, restart the robot.

9.2 Storage Requirements

For long-term storage, charge the robot every 6 months to protect the battery. Battery damage caused by over-discharge is not covered by the limited warranty. The long-term storage temperature for the battery should be between **-10° C (14° F)** and **35° C (95° F).** To minimize the damage, the recommended storage temperature for the battery is between **0°C (32° F) and 25° C (77° F)**.

Note: The lifespan of the robot's battery depends on frequency of usage and hours of operation. If the battery is damaged or cannot be charged, do not dispose of the obsolete or faulty battery arbitrarily. Please obey local recycling regulations.

10 Winter Storage

• The Robot

1. Charge the battery fully before turning the robot off.
2. Clean the robot thoroughly before putting it into storage in winter.
3. Put on the LiDAR protective cover.
4. Store the robot inside in a dry place, at a temperature **above 0° C (32° F)**.

• Charging Station

Unplug the charging station and store it in a dry and cool place, away from direct sunlight.

Note: After winter storage, please reinstall the charging station and place the robot in it to charge. If you reinstall the charging station in a different location, the robot will automatically update the station's location as soon as it charges and leaves the station. If you encounter positioning errors because of major changes in your garden, it's recommended to remap the area.

11 Transport

For long distance transport, ensure that the robot is turned off. It is recommended to use the original packaging. Please put on the LiDAR protective cover.

⚠ Warning:

- Please turn the robot off before transporting it.
- Lift the robot by the side handle, keeping the blade disc away from your body.

12 Troubleshooting

Issue	Cause	Solution
The robot is not connected to the app.	1. The robot is not within Wi-Fi signal coverage or Bluetooth range. 2. The robot is turned off or is restarting.	1. Check if the robot has completed the process of turning on. 2. Check if the router is working properly. 3. Move closer to the robot to establish a Bluetooth connection.
Failed to connect to Wi-Fi.	The robot only supports 2.4 GHz networks.	Ensure that you use a single-band network of 2.4 GHz frequency.
Robot lifted.	The wheel is not on the ground.	1. Put the robot back on flat ground. 2. Enter the PIN code on the robot and confirm. 3. The robot can't cross objects higher than 6 cm (2.4"). Please keep the ground even where it is working.
Robot tilted.	The robot tilts more than 80% (38.7°).	1. Put the robot back on flat ground. 2. Enter the PIN code on the robot and confirm. 3. The robot cannot climb slopes greater than 80% (38.7°).
Robot trapped.	The robot is trapped and fails to get out.	1. Remove the surrounding obstacles and then retry. 2. Manually move the robot to a flat and open place inside the map and try starting the task again. If you continue to encounter this problem, please retry after the robot is in the charging station. 3. Check if there are holes in the ground. Fill in the holes before mowing to prevent the robot from being trapped. 4. Check if the surrounding grass is taller than 12 cm (4.7"). You can adjust the obstacle avoidance height or use a push mower to mow the lawn in advance to prevent the robot from being trapped. 5. If the robot is often trapped in this location, you can set it as a no-go zone.
Drive wheels error.	The wheel cannot rotate or the wheel motor has a problem.	1. Clean the drive wheels and then retry. 2. If you continue to encounter this error, try restarting the robot. 3. If the problem persists, please contact the after-sales service.
Blade disc can't rotate.	The blade disc cannot rotate normally or the cutting motor has a problem.	1. Clean the blade disc and then retry. 2. Check if the surrounding grass is taller than 12 cm (4.7"). You can use a push mower to mow the lawn in advance to prevent the blade disc from being blocked by tall grass. 3. Check if there is water under the blade disc. If there is any, move the robot to a dry place and then retry. 4. If you continue to encounter this error, try restarting the robot. 5. If the problem persists, please contact the after-sales service.

Issue	Cause	Solution
The blade disc fails to move up or down.	The blade disc fails to move up or down.	1. Clean the blade disc and then retry. 2. If you continue to encounter this error, try restarting the robot. 3. If the problem persists, please contact the after-sales service.
The blade disc cannot move to the side.	The blade disc cannot move to the side.	1. Clean the cutting system and remove any debris or foreign objects. 2. If you continue to encounter this error, you can disable the UltraTrim ™ function first. 3. If the problem persists, please contact the after-sales service. 4. Periodically apply lubricant to the blade disc's offset pivot linkage.
Bumper error.	The front bumper sensor is constantly triggered.	1. Check if the robot is trapped somewhere. 2. Gently tap the bumper and make sure it bounces back. 3. If you continue to encounter this error, try restarting the robot. 4. If the problem persists, please contact the after-sales service.
Charging error.	The robot docks in the charging station, but the charging current or voltage has a problem.	1. Check if the charging station is correctly connected to power. 2. Check if the charging contacts on the robot and the charging station are clean. 3. After checking is finished, try docking the robot in the charging station again. 4. If the problem persists, please contact the after-sales service.
Robot shuts down on the spot.	Battery temperature is ≥ 65°C (149° F).	1. Use the robot when the battery temperature drops below 57°C (135 °F). 2. If the problem persists, please contact after-sales service.
	Battery temperature is < -15°C (5° F).	1. Use the robot where the battery temperature is above -9°C (16° F). 2.If the problem persists, please contact the after-sales service.
The robot pauses tasks and auto-returns to the station.	Battery temperature is ≥ 62°C (144° F).	1. Turn off the robot and wait for the battery temperature to drop below 57° C (135° F). The temperature will decrease automatically after some time. 2. If the problem persists, please contact after-sales service.
	Battery temperature is < -6°C (21° F).	1. Use the robot where the battery temperature is above -6°C (21° F). 2. If the problem persists, please contact the after-sales service.

Issue	Cause	Solution
Robot is in the station but does not charge.	Battery temperature is > 57°C (135° F).	1. Turn off the robot and wait for the battery temperature to drop below 57° C (135° F). The temperature will decrease automatically after some time. 2. If the problem persists, please contact after-sales service.
	Battery temperature is < 6°C (43° F).	1. Use the robot where the battery temperature is above 6°C (43° F). 2. If the problem persists, please contact the after-sales service.
LiDAR is blocked.	LiDAR is blocked (for example the LiDAR protective cover is not removed).	1. Remove the lidar protective cover and then retry. 2. If lidar on the top of the robot is very dirty, clean it with a lint-free cloth and then retry.
LiDAR malfunction.	LiDAR is very dirty or there is a sensor error.	1. Check if the lidar is dirty. Clean it if necessary and then try again. 2. If you continue to encounter this error, try restarting the robot. 3. If the problem persists, please contact the after-sales service.
LiDAR is dirty.	LiDAR is dirty.	Wipe the LiDAR sensor on top of the robot with a clean cloth. Keep the LiDAR dry after cleaning.
LiDAR temperature is high.	The LiDAR temperature is high. LiDAR will stop soon.	1. The robot will automatically try to return to the charging station to cool down. 2. Ensure the robot operates at an ambient temperature below 40 °C (104° F). 3. Place the robot in a shaded, cool, and well-ventilated area. The alarm will stop when the temperature drops to a normal range. 4. The robot will automatically resume operation once the alarm stops. 5. If the problem persists, please contact after-sales service.
LiDAR temperature is too high.	The LiDAR temperature is too high. LiDAR has stopped.	1. The LiDAR is turned off due to high temperatures. 2. Ensure the robot operates at an ambient temperature below 40 °C (104° F). 3. Place the robot in a shaded, cool, and well-ventilated area. The alarm will stop when the temperature drops to a normal range. 4. If the problem persists, please contact after-sales service.
Robot is lost.	Positioning is lost.	1. Check if the LiDAR on the top of the robot is dirty. Dirt will affect the positioning. 2. Manually move the robot to an open place inside the map and try starting the task again. 3. If the positioning is not recovered, remote control the robot back to the charging station via the app, and then start the mowing task.

Issue	Cause	Solution
Sensor error.	Sensor error.	1. Restart the robot and retry. 2. If the problem persists, please contact the after-sales service.
The robot is in the no-go zone.	The robot is in the no-go zone.	1. Manually move the robot out of the no-go zone and then retry. 2. Remotely control the robot through the app to move it out of the no-go zone, and then retry.
The robot is outside the map.	The robot is outside the map.	1. Manually move the robot inside the map, and then retry. 2. Remote control the robot back inside the map via the app, and then retry.
Emergency stop is activated.	The Stop button on the robot is pressed.	Enter the PIN code on the robot and confirm.
Low battery. The robot will shut down soon.	Battery level is ⩽ 10%.	Dock the robot in the charging station to charge.
The robot is away from the map. Risk of being stolen.	The robot is away from the map.	1. Enter the PIN code on the robot and confirm. 2. You can disable the Off-Map Alarm in Settings in the app.
Failed to return to the charging station.	The robot cannot find the charging station when returning to the charging station.	1. Check if there are obstacles blocking the robot. Remove the obstacles and retry. 2. Remote control the robot back to the charging station via the app.
Failed to dock in the charging station.	The robot finds the charging station but fails to dock.	1. Check if the reflective films on the station are dirty or blocked. 2. Check if there are obstacles in front of the station. 3. Check if the station is moved. 4. Check if the baseplate is covered with thick mud. 5. Check if the station is on a slope. 6. Check if the station has power. 7. Help the robot dock in the charging station by using the remote control or manually.
Positioning failed.	Positioning fails when the robot tries to start a mowing task.	1. The lidar may be obstructed. Manually move the robot to a flat and open place inside the map and try starting the task again. 2. If you continue to encounter this error, please retry after the robot is docked in the charging station.
Insufficient space for turning in front of the station.	Insufficient space for turning in front of the station.	1. If the station is placed at the edge of the map or within it, ensure there is at least 1 m (39.4") of free space between the front area of the station's baseplate and the boundary of the map; otherwise, the robot may not be able to make turns. 2. Relocate the station, or change the map in Map Editing.

Issue	Cause	Solution
Path obstructed.	Path obstructed.	1. Check if a no-go zone is set in the path. 2. Check if there are obstacles blocking the robot. 3. If the robot still cannot pass, delete the path in Map Editing and set a new one.
The front camera is dirty.	The front camera is dirty.	Wipe the front camera with a clean cloth.
There is an issue with the front camera.	There is an issue with the front camera.	1. Wipe the front camera with a clean cloth. 2. Try restarting the robot. 3. If the problem persists, please contact the after-sales service.
Front camera blocked.	Front camera blocked.	Wipe the front camera with a clean cloth.
Boundary detection error occurs during Auto-Mapping.	Boundary detection error occurs during Auto-Mapping.	1. Ensure that the lighting conditions are suitable, neither too bright nor too dim. 2. Confirm that the weather is clear, avoiding fog or rain. 3. Ensure that the front camera is clean and unobstructed. 4. Ensure that the ground surface is even, as bumps may affect detection. 5. If boundary detection continues to fail, switch to remote control mode for mapping.
The robot vibrates abnormally while mowing.	Damaged or missing blade(s) on the blade disc.	Immediately shut down the robot and inspect the blade disc for missing, damaged, or loose blade(s).

13 Specifications

Basic information	Product name	Robotic Lawn Mower
		LiDAX Ultra 3000 AWD
	Brand	MOVA
	Model	MXXM7140
	Dimensions	740 mm × 532 mm × 321 mm (29.1" × 20.9" × 12.6")
	Weight (battery included)	23.6 kg (52.0 lbs.)
Mowing	Maximum mapping area	3,000 m² (0.75 acre)
	Mowing height	3~10 cm (1.2~3.9")
	Mowing width	40 cm (15.7")
	Charging time [1]	65 min
Noise emissions	Sound power level LWA	66 dB(A)
	Sound power uncertainties KWA	3 dB(A)
	Sound pressure level LpA	58 dB(A)
	Sound pressure uncertainties KpA	3 dB(A)
Working condition	Operating temperature	0~50° C (32~122° F) Recommended: 10~35° C (50~95° F)
	Long-term storage temperature	-10~35° C (14~95° F) Recommended: 0~25° C (32~77° F)
	IP-classification	Robot: IPX6 Charging station: IPX4 Power supply: IP67
	Maximum slope for mowing area	80 % (38.7°)
Connectivity	Bluetooth frequency range	2400.0–2483.5 MHz
	Max. RF Power	802.11b:16±2dBm(@11Mbps) 802.11g:14±2dBm(@54Mbps) 802.11n:13±2dBm(@HT20,HT40) Bluetooth: 7.49dBm
	Wi-Fi	Wi-Fi 2.4 GHz (2400–2483.5M)
	Link service [2]	LTE-FDD: B2/4/5/12/13/14/66/71 WCDMA: B2/4/5 (Free for 3 years from activation)

Connectivity	Link service coverage	The United States and Canada
	GNSS [3]	GPS/ GLONASS/BDS/Galileo
Driving motor	Motor type	Wheel Hub Motor
Cutting motor	Speed	2500 /min
Battery (robot)	Battery model	MBPM50
	Battery type	Lithium-ion battery
	Typical capacity	7.5 Ah / 243 Wh
	Rated voltage	32.4 V DC
	Full charge voltage	37.8 V DC
Power supply	Charger model	MPAM30
	Input voltage	100~240 V AC
	Output voltage	42 V DC
	Output current	5 A
Charging station	Charging station model	MCM30
	Input voltage	42 V DC
	Output voltage	42 V DC
	Input current	5 A
	Output current	5 A
Accessories	Spare blades and holders	36
	Blade model	MBKM10

[1] Charging time refers to the time needed to reach 85% capacity for resuming cutting when the robot automatically returns to the charging station due to low battery.
[2] Requires the activation of the Link service.
[3] Requires the activation of the Link service.
Note: The specifications are subject to change as we continually improve our product. For the latest information, please visit our website at https://www.mova.tech.