LUBA Robotic Lawn Mower

AWD5000&3000

— User Manual V1.2 —

EN

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Thank you for choosing MAMMOTION as your garden care lawnmower. This Quick Start Guide will help you learn and operate MAMMOTION LUBA.

1. Safety and Regulations

Operating MAMMOTION LUBA requests training and practice. Please read through this document before operating it in your garden.

Do NOT charge the LUBA with third-party charger.

Do NOT flip over the mower when it's running.

Do NOT put your feet / hands under the mower when it's running.

Do NOT push/pull the mower when it's running.

Do NOT disassemble any parts when it's powered.

Do NOT use hands to touch or replace the running blades.

Do NOT use hands to touch the charging ports.

Do NOT run mower through flooded areas on lawn.

Do NOT run mower on ground or lawn with stones or stick like debris.

Please clear the lawn of any debris, toys and animal litter before operation on lawn.

Keep the charging port clear, clean, and dry.

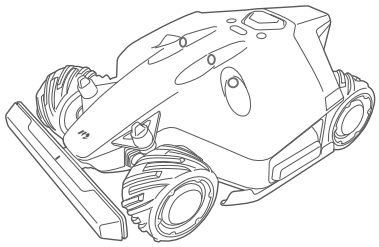
2.Introduction

EN

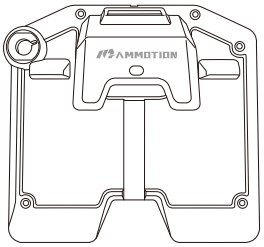
2.1 About MAMMOTION LUBA

MAMMOTION LUBA is a 4-wheels-differential (4WD) robotic lawn mower. The 4WD enables LUBA to break the limits of mowing jobs.
LUBA Series robot lawnmowers feature RTK GNSS navigation and virtual-mapping systems. These allow users to customize their mowing tasks with different mowing areas and schedules on Mammotion APP. They provide a picture-perfect lawn maintenance solution with a real hands-free experience.

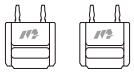
2.2 What in the box is as below:



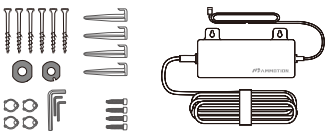
LUBA



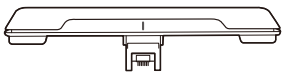
Charging Station



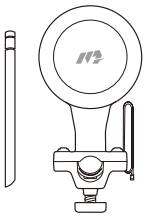
Key



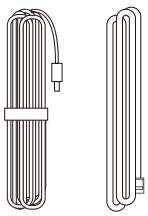
Accessory Kit A:
Charging station power supply
Screws



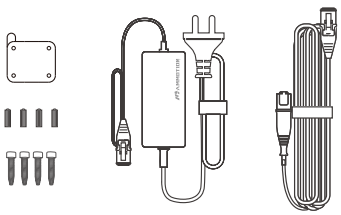
Bumper



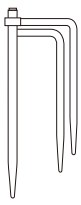
RTK Reference Station



Accessory Kit B:
Charging station extension cable（10m）
RTK reference station connect cable（1.8m）

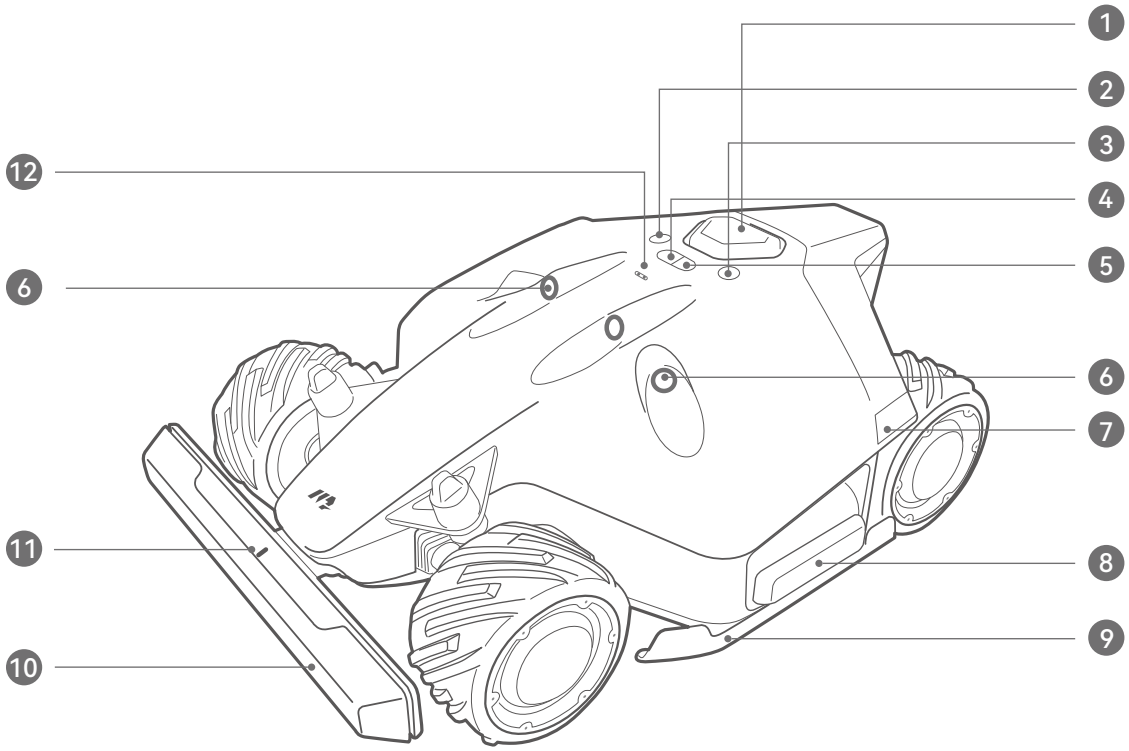


RTK Wall Mount Kit:
RTK reference station power supply
RTK reference station extension cable（10m）

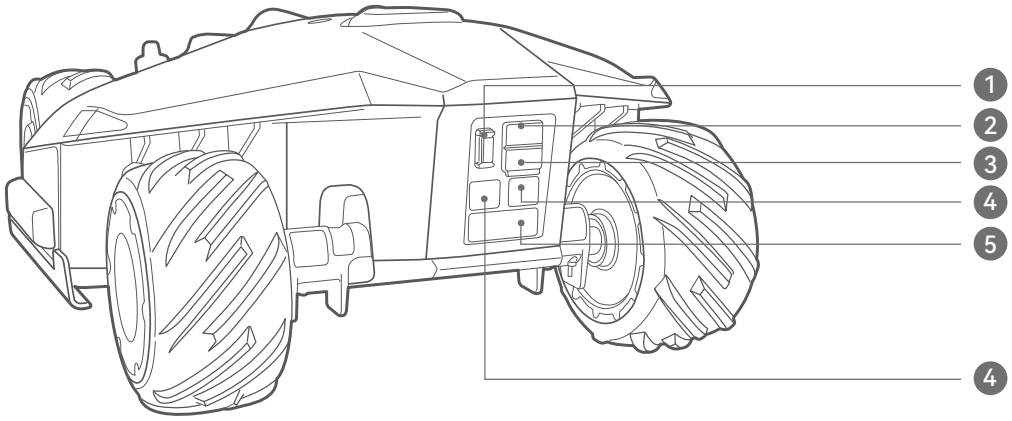


Trident Ground Stake

2.3 LUBA Robotic Mower

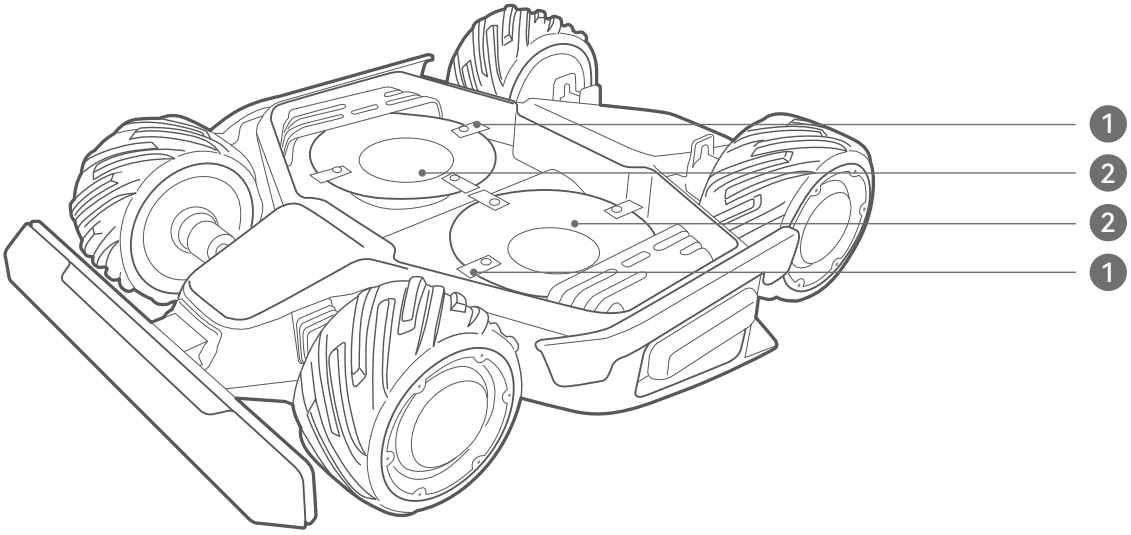


1. E-stop
2. Start button
3. Power button
4. Auto-return button
5. Cutting button
6. Ultrasonic sensor
7. Left light
8. Side collision sensor
9. Protecting bracket
10. Front bumper
11. Connecting indicator
12. Rain sensor



1. Secure key
2. SIM port（Reserved*1）
3. USB port
4. Charging port
5. Infrared sensor

Note: The reserved port might not function in some previous version mowers.



1 Cutting blade*8 2 Blade disk*2

Function Buttons

Long press (5s) ⏻	Power on/off LUBA
Press STOP	Stop and lock LUBA
First press ⛵ then press START	Unlock LUBA and continue work
First press ⌂ then press START	Unlock LUBA and return to charging station

LUBA lighting logic

Status	LED side light	LED indicator on the front bumper
LUBA sleeping or "Pause" on App clicked	Off	Green on
Working (manual control and automatic working)	From local time 8:00-18:00 green on from local time 18:00-8 00 off user can manully switch it off	Green on
Upgrading	Red breath	Green on
LUBA with issue/defect (contains hard ware/software issue)	Very fast red flash	Green on
Upgrading failed	Very fast red flash	Green on
STOP button triggered/get stuck /extrication failed/lift sensor triggered /slope out of threshold	Red flash(once per second)	Green on
Undirected/Position status not OK	Red flash(once per second)	Green on

Note: If in the returning home process, then STOP is pressed and LUBA locked, please first press then press START to continue returning process.

·USB port is reserved for issue shooting and debugging.

2.4 Charging Station

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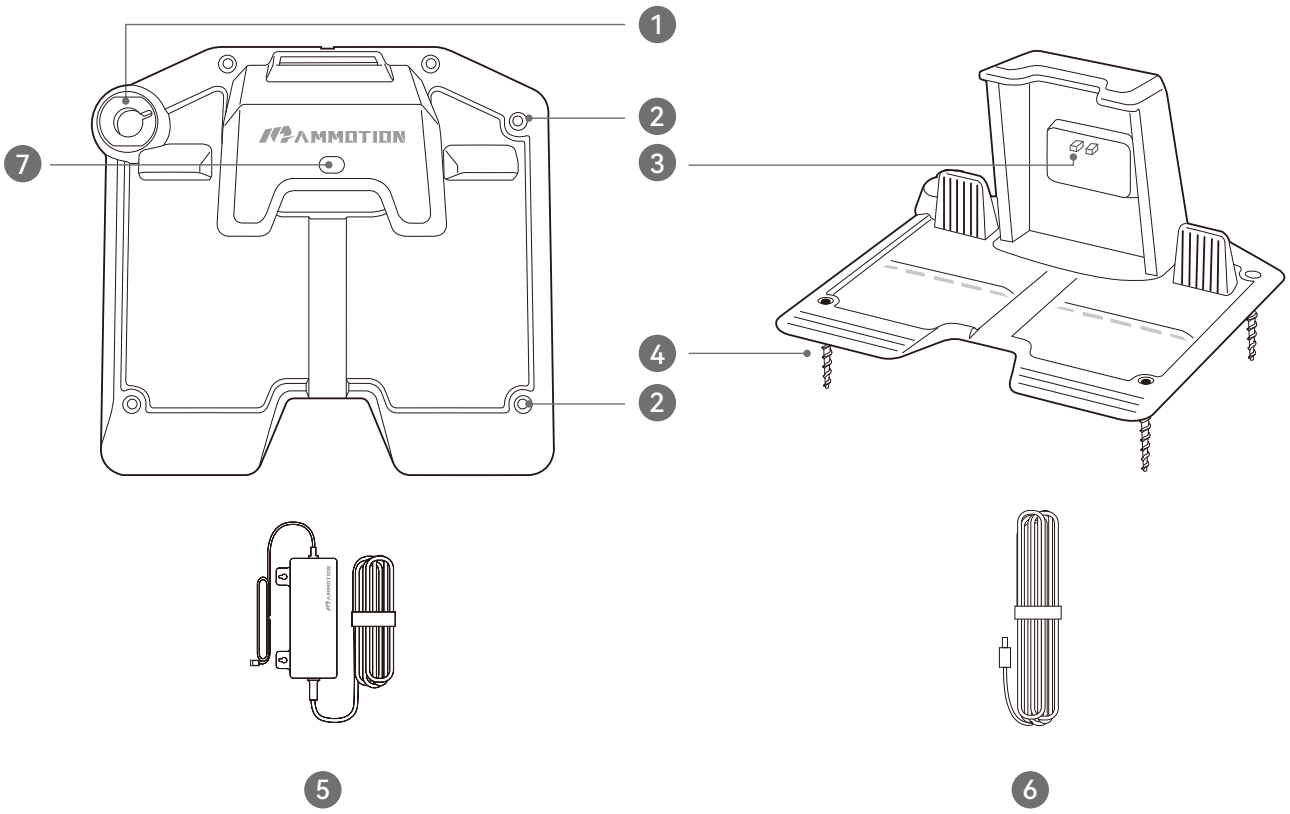
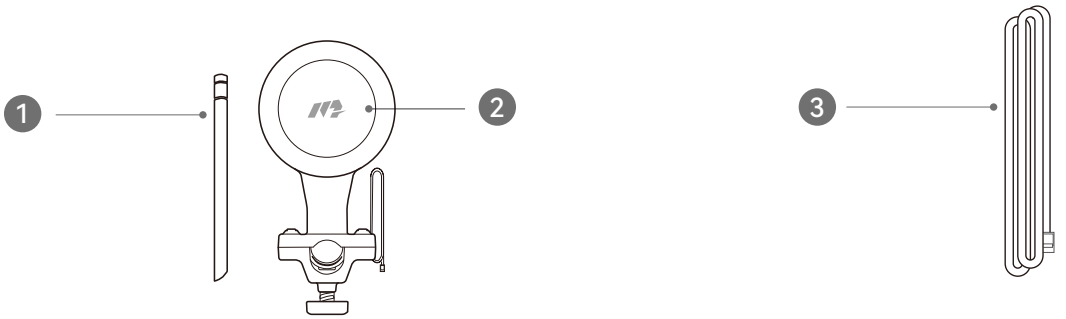


1. Mounting hole for RTK reference staion pole
2. Mounting hole*5
3. Charging pin on charging station
4. Screw*5
5. Charging station power supply
6. Charging station extension cable（10m）
7. LED light of charging station

Charging Station lighting logic

Status	LED on charging station	Light on adapter
Charging	Flashing green	On
Not charging,power on	Constant green	On
Charging station defect	Constant red	On
Not connect to power	Off	On
Adapter defect	Off	On

2.5 RTK Reference Station



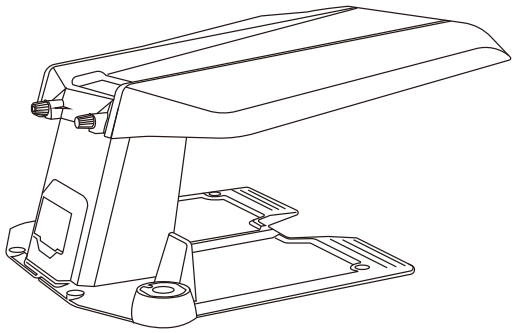
1. Radio Antenna
2. RTK Reference Station
3. RTK reference station and charging station connect cable（1.8m）

RTK Reference Station lighting logic

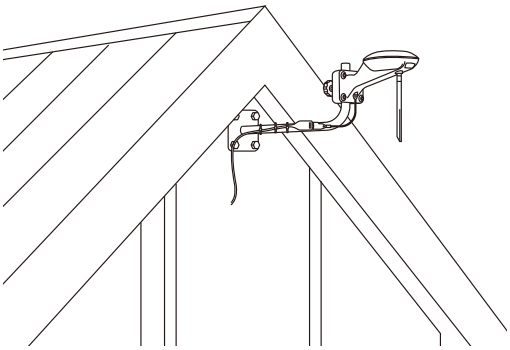
Status	LED on RTK reference station
Reference station initializing (searching satellites)	green flash
Work properly	from local time 8:00-18:00 green constant on from local time 18:00-8:00 off
Reference station defect & no satellite signal for long time	constant red on
Reference station upgrading	blue flash

2.6 Other accessories:

LUBA garage:



LUBA RTK reference station L-shaped mounting rod wall installation kit:

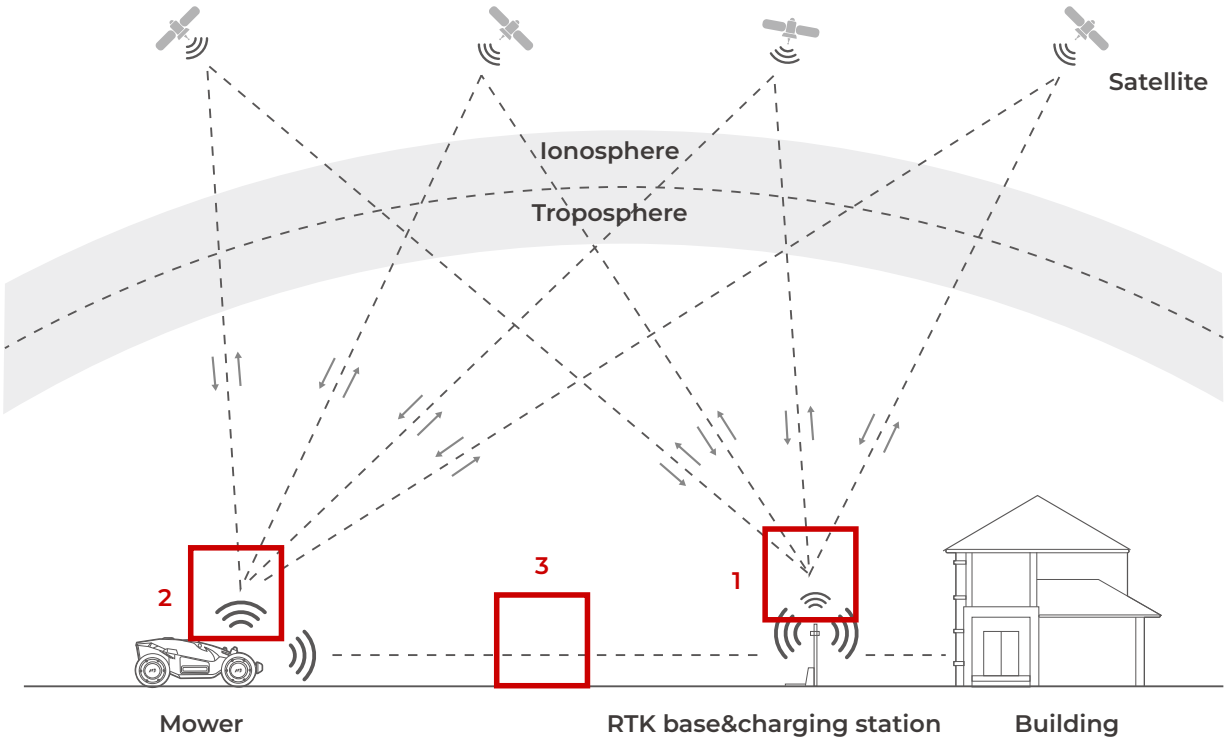


You can purchase these accessories on the official website.

2.7 How LUBA's positioning and dynamic system works:

LUBA use RTK and Multi-Sensor Integrated Navigation System to navigate. RTK is a satellite navigation system that significantly improves device positioning to accuracy less than 5cm. With access to all 4 global navigation systems (GPS, GLONASS, BEIDOU and Galileo) and additional sensors, LUBA's strong satellite signal provides nearly 100x greater accuracy compared to traditional GPS systems. The advanced RTK system enables precise positioning for LUBA within 5cm of accuracy, without the need to install cumbersome boundary / perimeter wires.

About RTK:



The RTK system of LUBA uses full frequencies multiple satellite-based system, such as GPS, BEIDOU, GLONASS, Galileo, which improves the positioning accuracy to approximately 5 cm. However, the accuracy crucially relies on the GNSS signal, there are 3 things that can determine the performance of the LUBA's positioning:

1.The RTK Reference Station must receive enough satellite signal from the satellites on the sky，which means enough satellite signals received as observation for the RTK reference station. As "1" shown in the image.

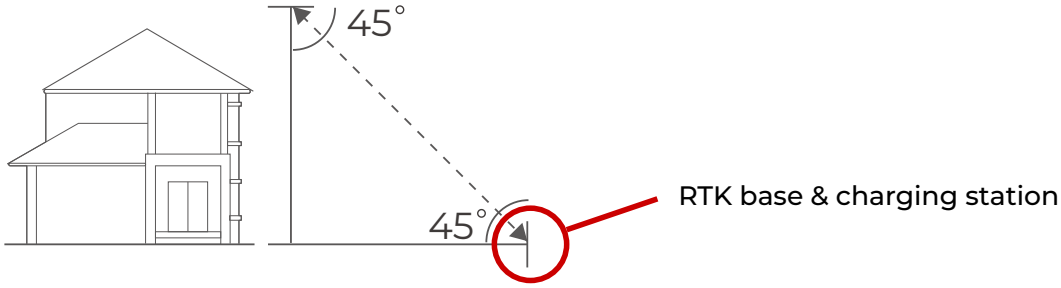
2.LUBA must receive enough satellite signal from the satellites on the sky，which also means enough satellite signals received as observation for LUBA itself.as "2" shown in the image. As "2" shown in the image.

3.The data can be transmitted from RTK Reference Station to the LUBA. As "3" shown in the image. This does not mean there should always be a sight in view from each point of your lawn to the RTK reference station. Our radio transmission ability allows the data transmit also works if the transmission path is not fully obstructed.

In general, there are 3 factors that can weaken the performance of LUBA positioning system:

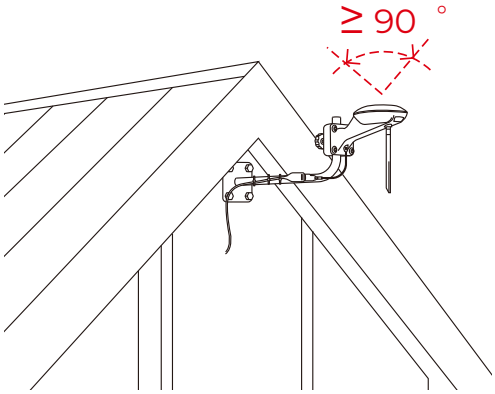
Factor 1: Satellite signal from RTK Reference station Blocking:

If there is anything on or surrounding the antenna of RTK reference station, charging station and/or the mower, the signal will be weakened or blocked.
Solution:
1.The distance between RTK Reference Station to the walls, roof or trees should be ideally distanced by 45 Deg from RTK Base to the height of walls, roof or trees as shown below.



Height of the building or obstacle	Distance between the RTK base and the building or obstacle
1m	>1m
2m	>2m
3m	>3m
4m	>4m

2.Set RTK Reference station on the wall or roof with open sky area. As shown below.



Factor 2: Satellite signal from LUBA Blocking

If LUBA itself is badly sheltered, the positioning system will also be weakened.

Solution:

1.We do not recommend you drive LUBA to a “U”-shape or “L -shape corner with high walls, under large trees, under large eaves, which will strongly weaken the satellite signal from sky. Please try to exclude these areas that are not in the task area, or in a no-go area.

2.If these corners or high walls exist in your lawn, then please keep at least 15cm away from obstructive areas.

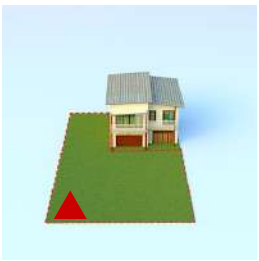
Factor 3: Transmission path obstruction

If the transmission path from RTK Reference Station and LUBA is fully obstructed by large metal wall or concrete wall. LUBA will not get the data from RTK Reference station and will not get the required 15cm level accuracy.

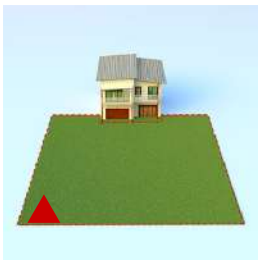
Solution:
1.The communication transmission power will get weakened by long distance. Please make sure that the distance between boundary of the map and the reference station is less than 80m.

2.Make sure that at the initialization stage the LUBA is at charging station you set, the positioning status is fine (will be auto checked when initializing)

3.If your lawn is with “O”-shape, “U” shape or with separate lawns, we recommend you set the RTK reference station in a higher place, like on the roof. If your lawn is with “L”-shape, you can set the reference station on the roof or on a point as shown below.



L-shape



On one side

U-shape

O-shape

Multiple lawns

If your Lawn is with “O”-shape, “U” shape, or with separate lawns, we recommend you set RTK reference station on the wall or roof with our wall installation kit.

Does this mean that there are too many limits for LUBA to use? No. Please refer to our user manual and online videos demonstrations on how to set up the reference station and task area correctly.
We have many scenarios on our website, where you can see some examples of the correct setting scenarios and this will then tell you if your lawn is suitable for LUBA to work or not.

In the Mammotion App and LUBA system, the system will automatically check the positioning quality, check if the initialization and task setting is OK or not. If not, then the App will show you how to modify the setting to ensure the LUBA works correctly.

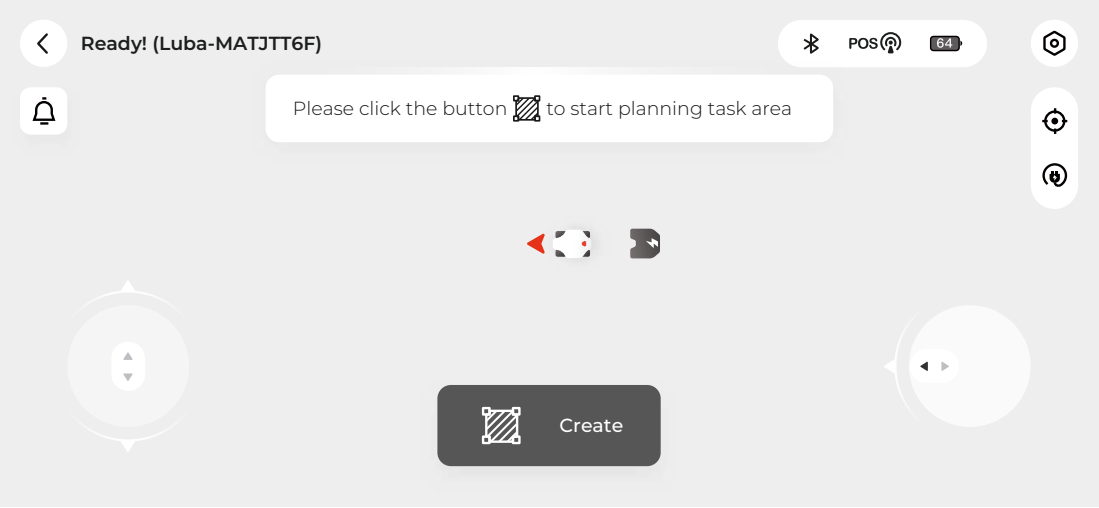
About Multi-Sensor Integrated Navigation System:

The Multi-Sensor Integrated Navigation System is mainly to enhance the reliability and robustness LUBA's positioning status. This system contains IMU, odometer and other sensors. Even in the partly sheltered area, thanks to the strong positioning algorithm, LUBA can work correctly.

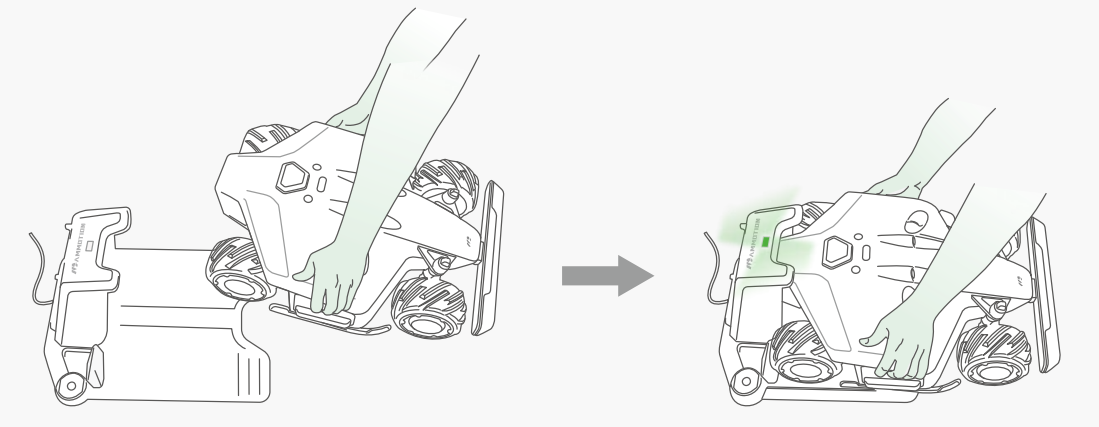
About Auto-Recharging :

The auto recharging system of LUBA contains 2 parts, one is integrated navigation system, another is the infrared sensor.
In the initialization, the position of charging station is set in the local navigation system. As shown below, LUBA is on the charging station, and the positioning of charging station is located on the map, the area with blue lines is defined as "recharging area", which means LUBA can do auto-recharging only by infrared sensor in this area, no integrated navigation system will be used.

If LUBA is outside this area, then the LUBA needs to:
1. Go back from current place to "recharging area" by the predefined map (task area and connection path) and integrated navigation system.
2. Return back to charging station which is followed by the infrared sensor.



3. There are 3 methods to set up LUBA on the charging station to recharge:
Manually move LUBA to the charging station and make sure the bottom of LUBA attaches to the charging station, charging port on LUBA properly as shown below:



1) Place the LUBA about 1.5m-2m in front of the charging station and the bottom of LUBA aligned to the charging station.

2) Press power button of LUBA to power LUBA on. Pressing then press START to let LUBA back to charging station. You can also charge the LUBA indoors, you do not have to have satellite signal, but the LUBA will not operate indoors.

3) If the task area is already set, as shown below, and the task area is connected to charging station by the connection path or the "recharging area" just next to the task area. If LUBA if in the task area or on the connection path.

4) You can call back LUBA by pressing then press START or on App, LUBA will find its way back to the charging area and will realign to charging station and will recharge automatically.

5) If LUBA is not in the task area or on the connection path, the customer need to first drive LUBA into task area or on connection path.
Then press then press START or on the App. Or you can manually drive LUBA to the "recharging area" (about 1.5-2m front the charging station), and then press then press START

If recharging process, LUBA if blocked or "STOP" is triggered, then you need to press then press START
Do not press

About Perception:
The perception system of LUBA contains 2 parts: 4 ultrasonic sensors and front bumper.

Perception logic / Bypass strategy:
All the perception logic is for the obstacles which are not defined as "No-go zone". If the area of obstacle is predefined as a no-go zone, then cutting route will not contain this area then this will be more friendly for operation.

Ultrasonic Sensor Off Mode: If the Ultrasonic sensor is in the off mode, when front bumper works and bumper is triggered the LUBA will go backwards for about 10cm and will then turn to bypass the obstacle. As shown below.
This mode should be only used in areas where the grass is nearly all high higher than 15cm, which can lead to nearly constant disturb to ultrasonic sensors.

Level 1: when ultrasonic sensors detect something, LUBA will slow down to about 0.05m/s and continue moving forwards and cutting. Once the front bumper is triggered, LUBA will go backwards for about 10cm, then turn and bypass the obstacle. As shown below.
The ultrasonic sensors are used to minimize the impact strength of LUBA. And the reaction of front bumper will make sure if the "obstacle" really exists. If the "obstacle" is just a single high grass, the front bumper is not triggered, and the LUBA will continue to work.
This mode is quite useful for grass cutting, when you have high grass, and the area has a rough terrain.

Level 2: when ultrasonic sensors detect something, LUBA will go backwards for about 10cm, then turn and bypass the obstacle. As shown below.
The advantage of this mode is that LUBA does not touch the obstacle, it will turn around once something is detected. The disadvantage is that even very small and single grass higher than 7cm has the change to be detected and recognized as "obstacle" and that small part will not be cut because LUBA will bypass.
This mode is quite useful for flat lawns for grass height lower than 7cm.

Status	Ultrasonic sensors	Front bumper	Area of application
Off	Off	Once triggered, LUBA will go backwards,thenturn and bypass the obstacle	Should be only used in areas where the grass is nearly all high higher than 15cm which can lead to nearly constant disturb to ultrasonic sensors
Level 1	Slow down LUBA	The same as level 0	Useful for lawn, which is partly with high grass and the grass is not thats mooth
Level 2	Once detect something,LUBA will go backwards, then turn and bypass the obstacle	The same as level 0	Useful for flat lawn with grass mainly lower than 7cm

3.LUBA quick start Installation

Note:

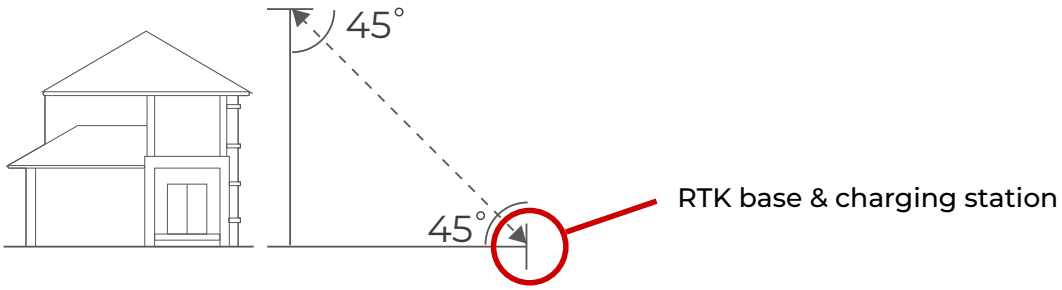
1.Read and understand the safety chapter before you install the product.
2.Use original spare parts and installation material.

General preparations

1.Water filled holes in the lawn can cause damage to the product.
2.Give an overview of your house, your lawn and include all obstacles. This makes it easier to examine where to put the charging station, the reference station, and setup the virtual boundaries.
3.Decide where to install the charging station, the RTK reference station, the point of interest, the transport paths and the virtual boundaries for the work areas and no-go zones.
4.Fill in large holes on the lawn.

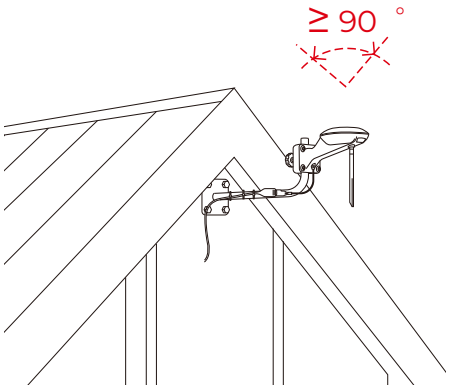
3.1 Find a Good Spot to install RTK Reference Station

As shown in chapter 2.2 “About RTK”, the RTK Reference Station should be set in a place:
1.The distance between RTK Reference Station to the walls, roof or trees should be ideally distanced by 45 Deg from RTK Base to the height of walls, roof or trees as shown below;



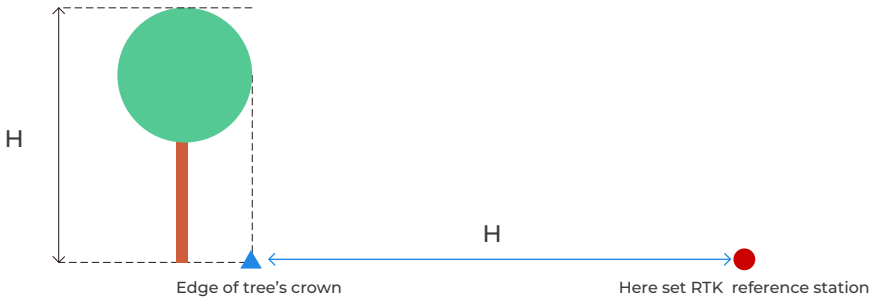
Height of the building or obstacle	Distance between the RTK base and the building or obstacle
1m	>1m
2m	>2m
3m	>3m
4m	>4m

Or install RTK Reference station on the wall or roof with open sky area. As shown below.

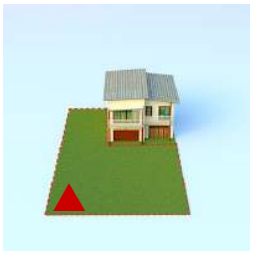


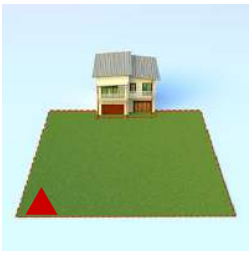
2. At least 5m away from large glass wall or large metal objects such as wall made of iron sheet.
3. The RTK Reference station should be set straight as shown below:

4. If there are tall trees with large foliage coverage then install RTK reference station on the lawn as shown below. The distance between the reference station should be at least the same distance away from height of the tree to the edge of the foliage area.



5. If your lawn is with “O”-shape, “U” shape, or with separate lawns, we recommend that you set the RTK reference station in a higher place, i.e.. on the roof. If your lawn is with “L”-shape, you can set the reference station on the roof or on the point as shown below.


L-shape


On one side


U-shape

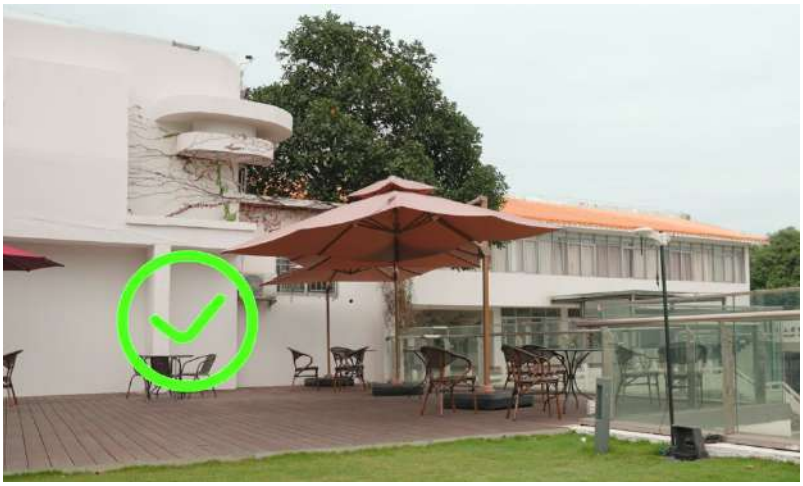

O-shape


Multiple lawns

If your Lawn is with “O”-shape, “U” shape, or with separate lawns, we recommend you set RTK reference station on the wall or roof with our wall installation kit.

Correct RTK reference station settings:

1.Open sky area on the lawn (at least 3m from the wall).



2.Set on the roof or wall with open sky area (typically for lawn with “O”-shape, “U” shape, or with separate lawns).
3.Away from metal walls and glass walls.

Wrong RTK reference station settings:

1.Under the roof & trees.

2.To close to wall.
3.At “L” shaped corner.

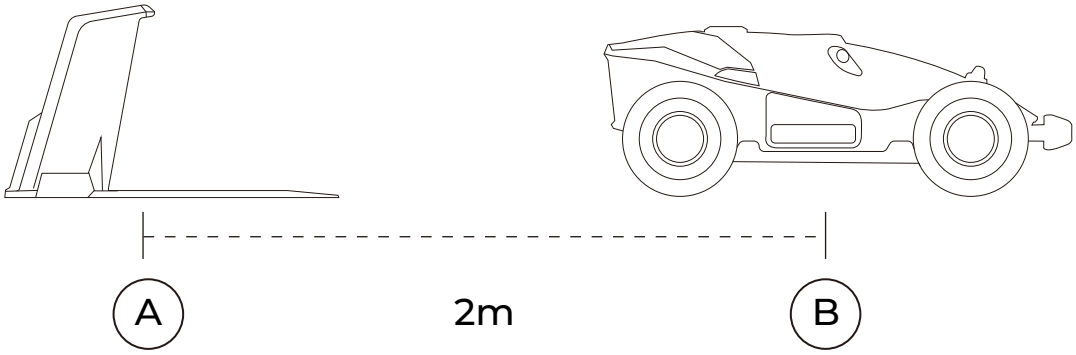
4.In the middle of several obstacles like 2 walls, a wall, and a tree etc.).

5.Keep separate from the lawn.
6.Too far away (more than 80m) from edge of lawn.

3.2 Find a Good Place to set Charging Station

As shown in chapter 2.2 “About Auto-Recharging”, the charging station should be set to a place where:

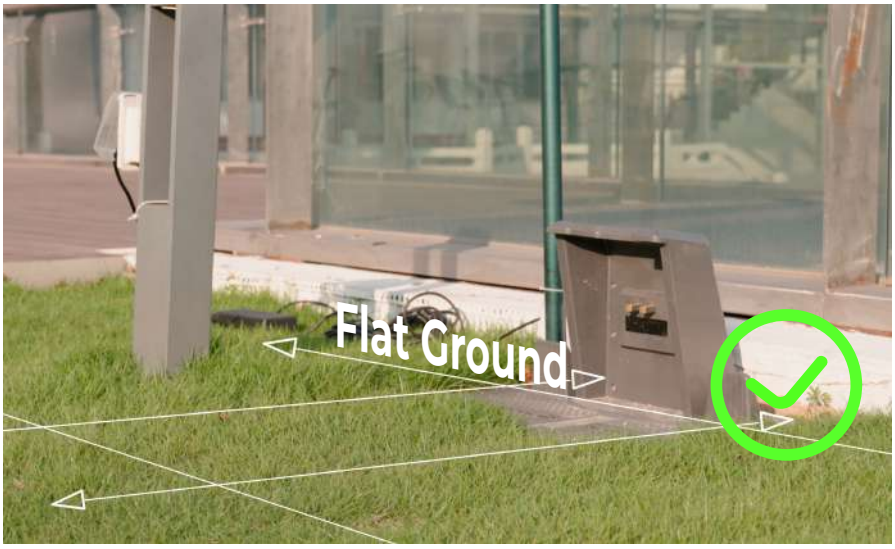
1. Put the charging station (A) where the docking point (B) has open-sky view. This means that 90°of the sky in all directions must be clear. The charging station docking point (B) is 2m. in front of the charging station.



2.No obstacle and other things between A and B.
3.When set to the ground, the charging plate must not be positioned on uneven ground or if grass is taller than 5cm below the charging plate. The charging station area and the “recharging area” should be on flat ground. When LUBA is set on the charging station, the charging plate should be flat.

Correct charging station settings:

The place to set charging station should be flat and solid ground, also the “recharging area” (about 2m front charging station) should be on flat and solid ground, where the grass is short.



Wrong charging station settings:

1.Do not set up charging station on a slope.

2.Any uneven surface which causes the charging station not to be flat on ground, then remove heavy debris underneath charging station.

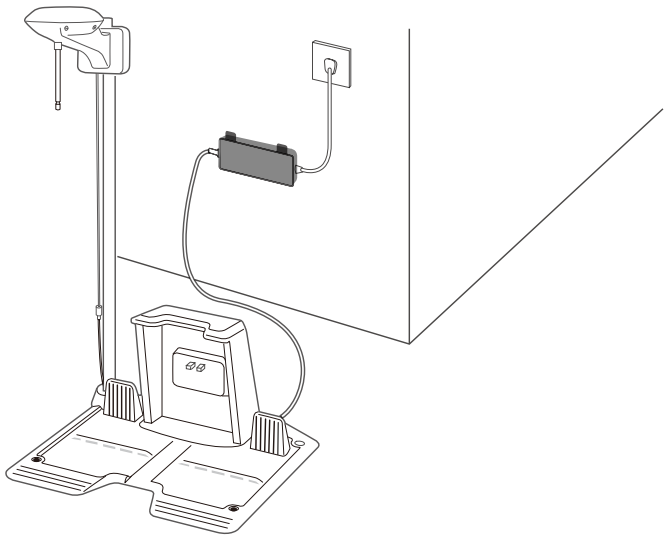
3.3 The RTK base is installed on the charging station

If the reference station is set on charging station, then this should be set as follows:

Correct settings:
1. Open sky area.

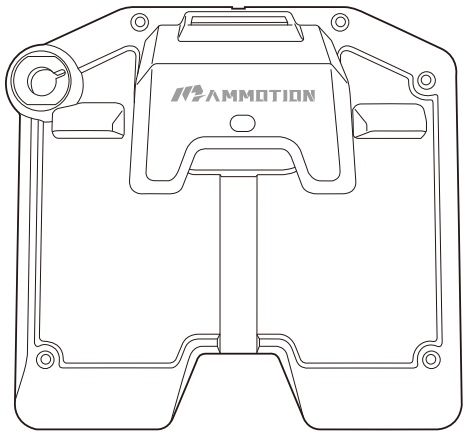
2. One side beside the wall and only one direction is within wall, other directions must be totally free.

Overview of the installation when it's completed:

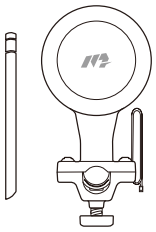


EN

Installation Kit:

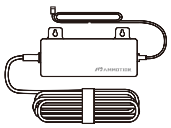


Charging Station



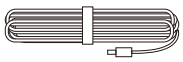
RTK Reference Station

Installation Kits



Power Supply

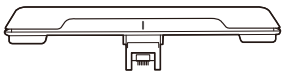
Accessory Kit A



Charging station extension cable（10m）

RTK reference station connect cable（1.8m）

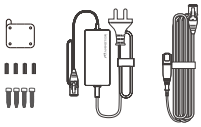
Accessory Kit B



Bumper

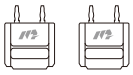
Trident Ground Stake

Accessory Kit C

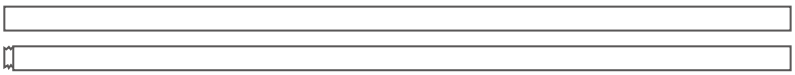


RTK reference station power supply
RTK reference station extension cable（10m）

RTK Wall Mount Accessory Kit:



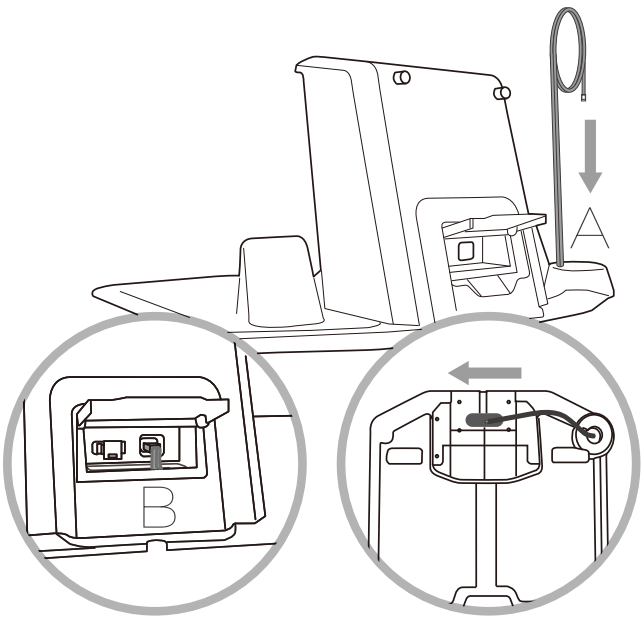
Key



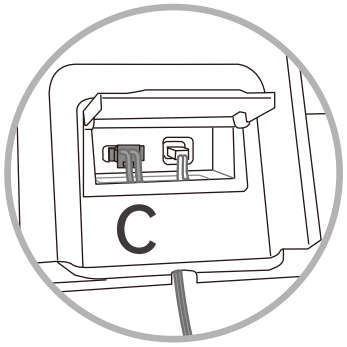
Mounting pole

Installation Process:

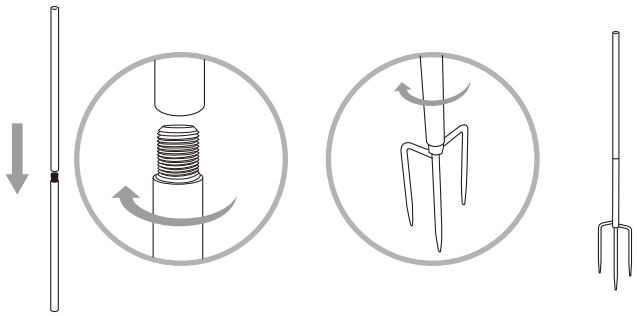
1. Put the RTK reference station connect cable (1.8m) from point A to point B and install the line connector at the interface B behind the charging station.



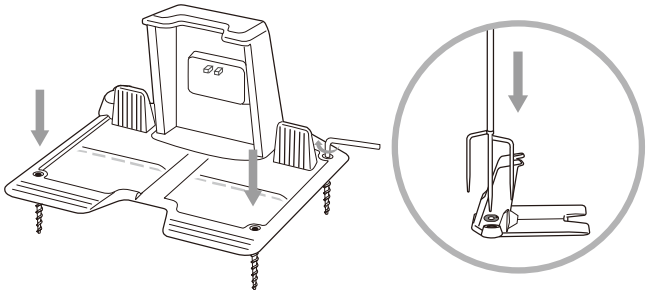
2.Screw the Charging station extension cable（10m） into the interface C of the charging station.



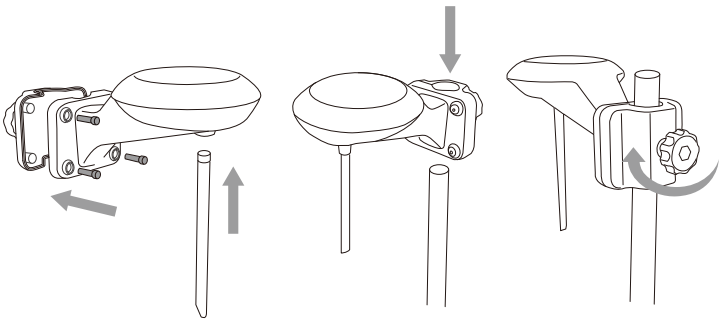
3.As shown in the figure, twist two metal rods into one metal poles, then twist trident ground stake with the metal pole.



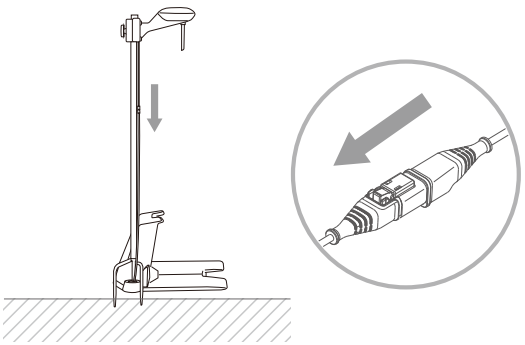
4.Fix the charging station on a flat solid ground with fixing screws. Insert and fix the trident ground stake as shown in the figure and keep the metal pole upright.



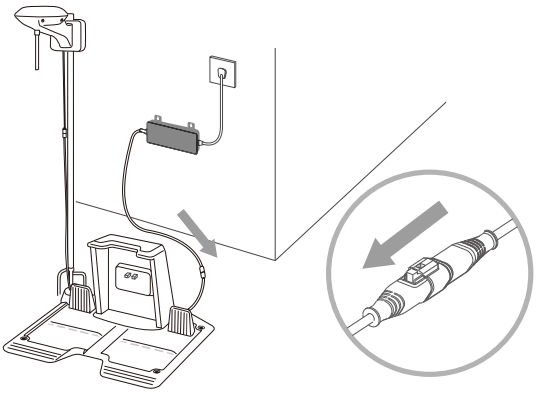
5.Install the RTK antenna with four screws on the metal pole. The height of RTK antenna can be adjusted as shown in the figure.



6.Connect RTK reference station connect cable (1.8m) with RTK antenna reference station cable.



7.Connect the Charging station extension cable（10m） with power plug,and connect the power plug to the electrical outlet.



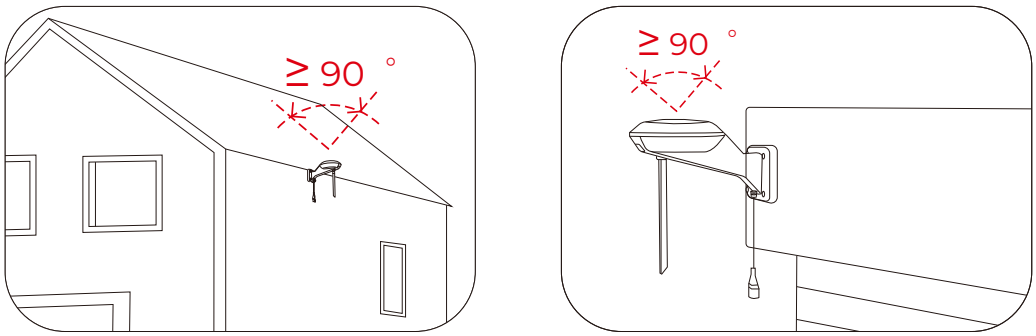
8.Check if the LED on the charging station is green. If it turns green, then right. If it turns red, please pull out the power plug and re-do the charge.

9.Check the LED on the RTK Reference Station . It should be flashing green, please wait until the LED on the RTK antenna is constant green (will take several minutes).

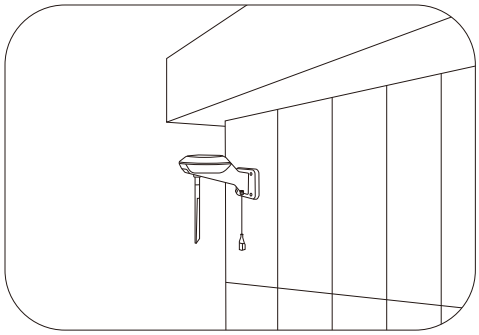
3.4 LUBA RTK reference station wall installation instruction

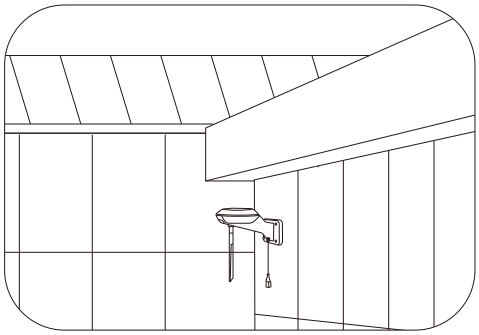
Installing the RTK Reference Station at a high place can make LUBA get better signal. You can install the RTK Reference Station in a high place of the house according to the following installation.

Correct settings:

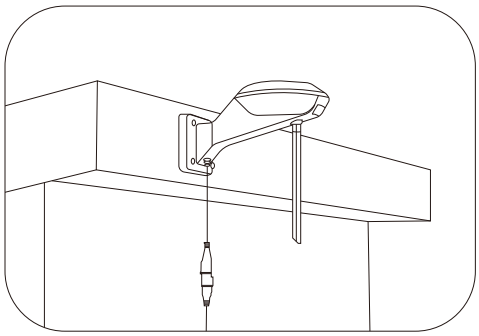


Wrong settings:

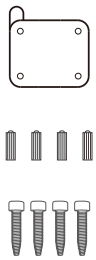




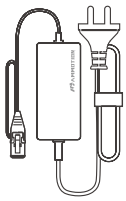
Overview of the installation when it’s completed.



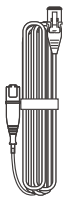
RTK Wall Mount Kit:



RTK Wall Mount Accessory



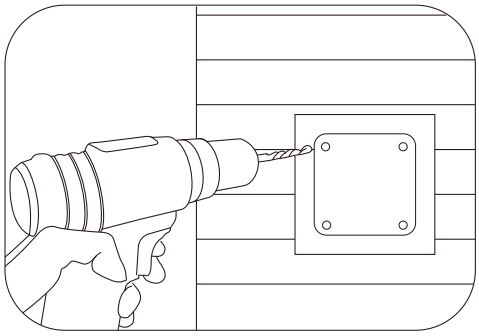
RTK reference station power supply



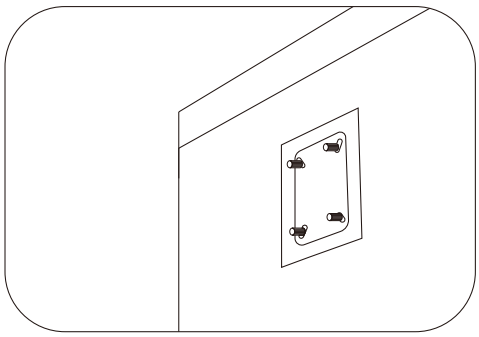
RTK reference station extension cable（10m）

Installation Process:

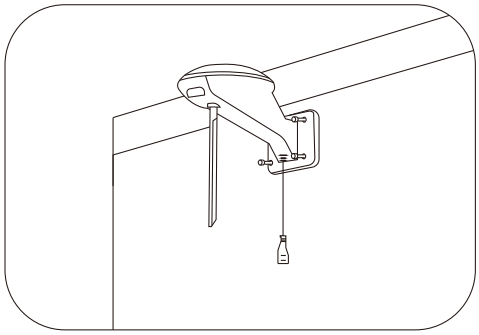
1. Choose a suitable installation area at a high place of your house.
2. Stick the sticker on the wall indicating the position of the drilling holes and drill the holes（8mm） at the appropriate position.



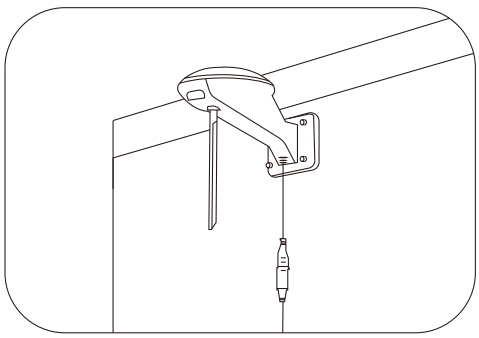
3.Install the expansion screws in the drilled holes.

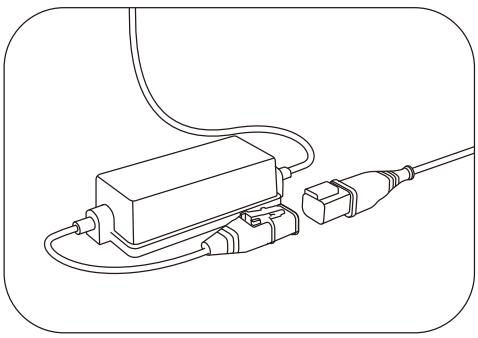


4.Fix the RTK Reference Station on the sticker and tighten the screws.

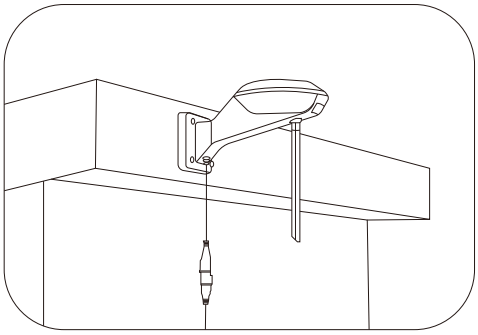


5.Connect the end of the RTK Reference Station extension cable (10m) to the RTK reference station and connect the other end of the RTK Reference Station extension cable (10m) to the RTK power supply and turn on the power.



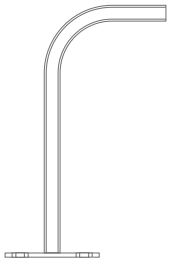


6.The installation is complete.

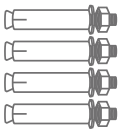


3.5 LUBA RTK reference station L-shaped mounting rod wall installation instruction

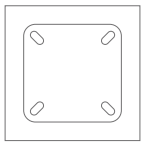
Products include:



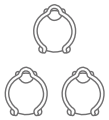
1 L-shaped mounting rod



2 Expansion screw*4



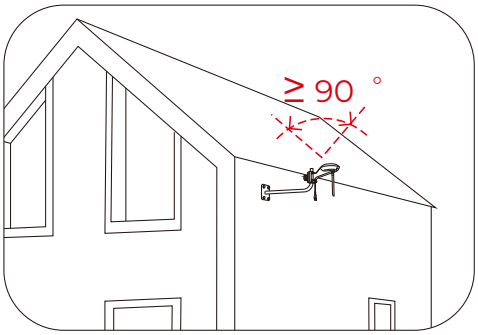
3 Drilling position in dication sticker



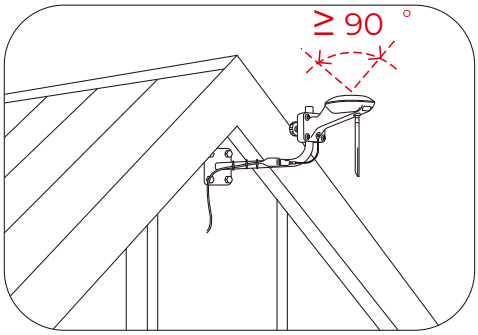
4 Cable buckle*3

Installation Notes:

Correct settings:

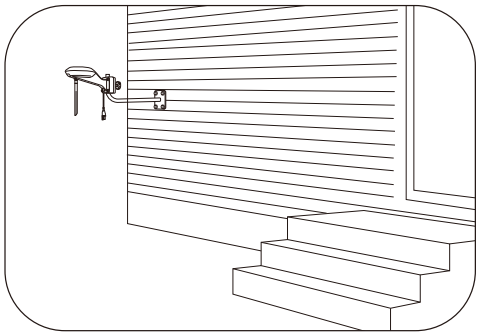


1 Install on wall,in open area.

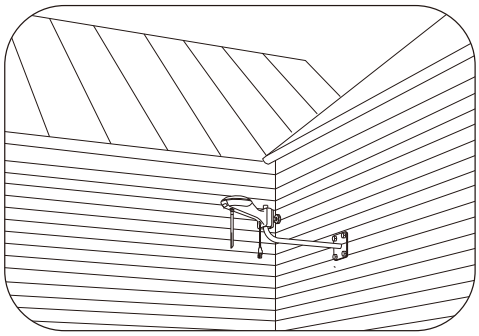


2 Install on roof far from any obstruction that may affect signal.

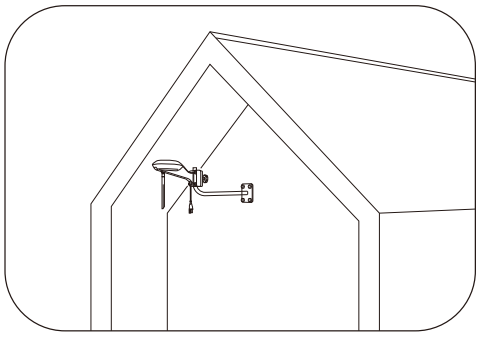
Wrong settings:



1 Do NOT install on high wall.

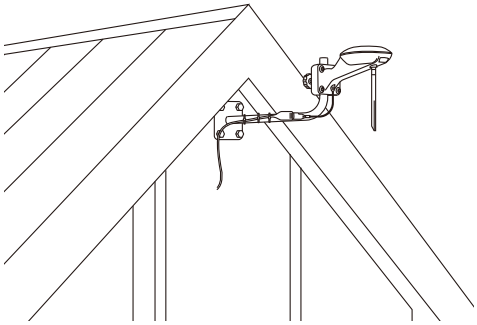


2 Do NOT install antenna surrounded by walls or in covered areas.



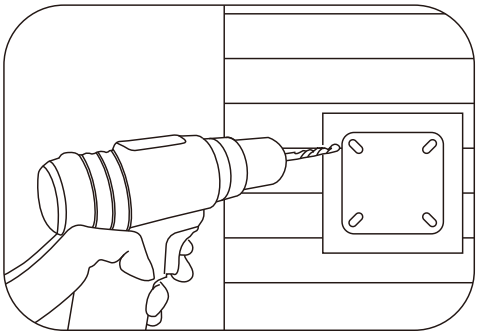
3 Do NOT install under eaves or gutters.

Overview of the installation when it's completed.

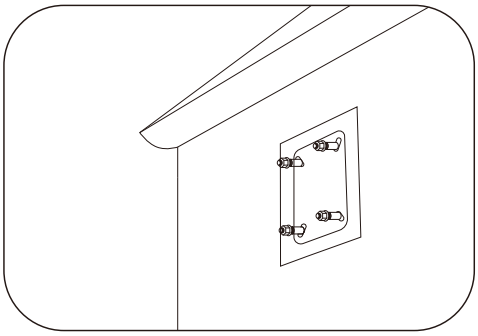


Installation Process:

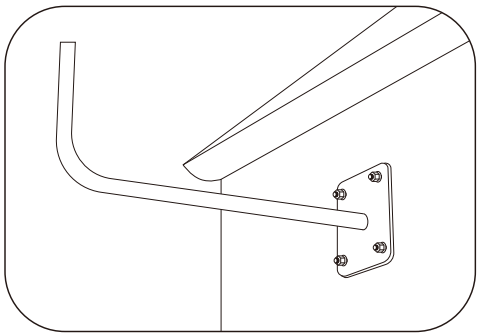
1. Choose a suitable installation area on the outer wall of your house.
2. Stick the sticker on the wall indicating the position of the drilling hole and drill the hole at the appropriate position.



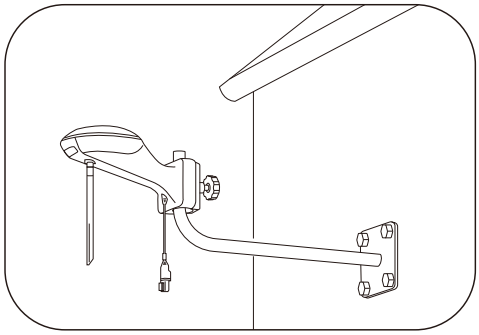
3.Install the expansion screw in the drilled hole.



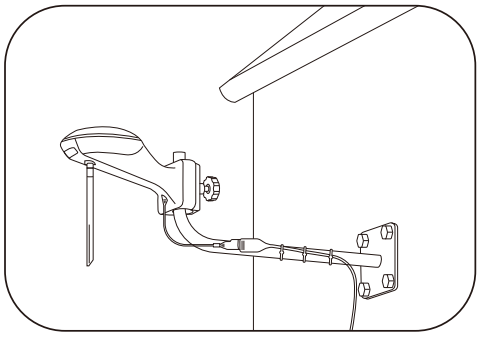
4. Fix the installation rod on the wall with expansion screw and tighten the nuts of the expansion screws with a wrench.



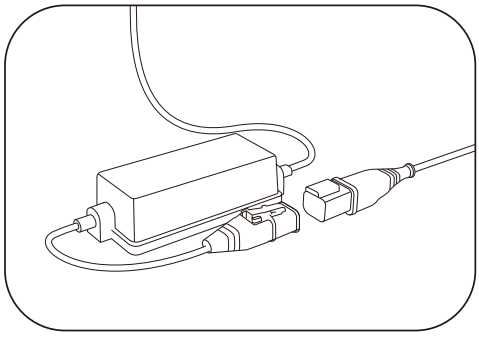
5. Install the RTK reference station on the front end of the L-shaped installation pole (note that the antenna must be installed on the RTK reference station first).



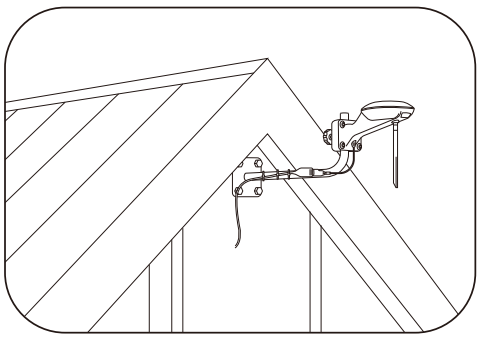
6. Connect the end of the RTK Reference Station extension cable (10m) to the RTK reference station and fix the cable harness along the L-shaped installation rod with a cable tie.



7. Connect the other end of the RTK Reference Station extension cable (10m) to the RTK Reference Station-power supply and turn on the power.



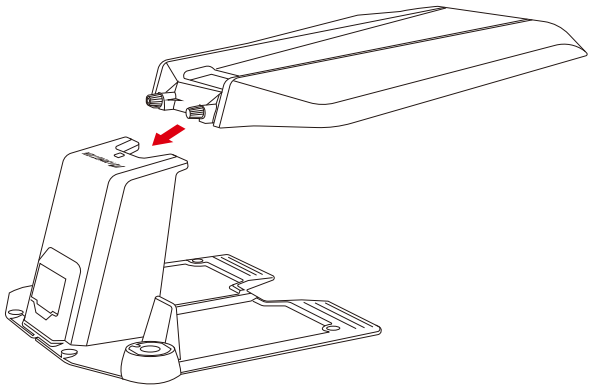
8.The installation is complete.

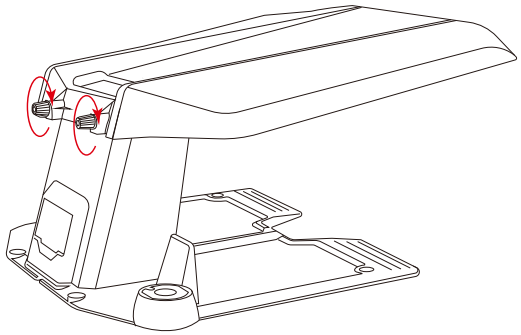


3.6 LUBA garage installation

Installation Notes:

Fasten the garage cover on the top of the charging station from front to back and
tighten the two screws on the back of the garage cover to complete the installation of the garage.



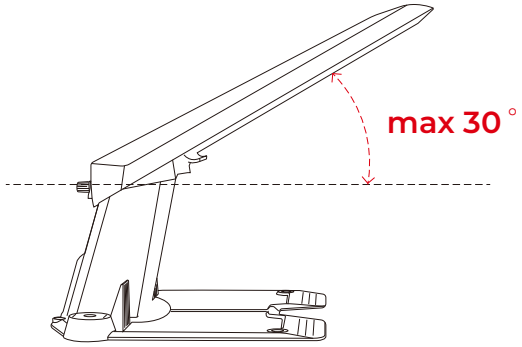


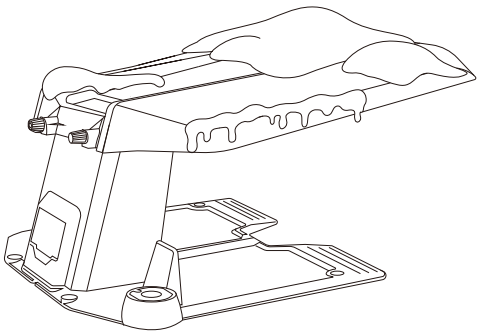
Precautions:

1.Do not place items on the top of the garage to avoid damage to the garage and affect the vehicle signal.

2.The garage cover can be lifted at an angle of 30°, and it can't be opened into a vertical state. Do not forcefully lift it upwards.

3. If there is heavy snow in winter, it is recommended to store the mower indoors in winter. If you need to use it, please clear the snow on the top of the garage before starting the mowing task. Also clean the ice before opening the garage cover if there is ice on the shaft.





4. Preparation & Activation

EN

4.1 MAMMOTION APP download & Installations

MAMMOTION LUBA is a 4-wheels-differential (4WD) robotic lawn mower. The 4WDenables LUBA to break the limits of mowing jobs.
LUBA Series robot lawnmowers feature RTK GNSS navigation and virtual-mapping systems. These allow users to customize their mowing tasks with different mowing areas and schedules on Mammotion APP. They provide a picture-perfect lawn maintenance solution with a real hands-free experience.

Mammotion App Android Version:
Android App Download link :

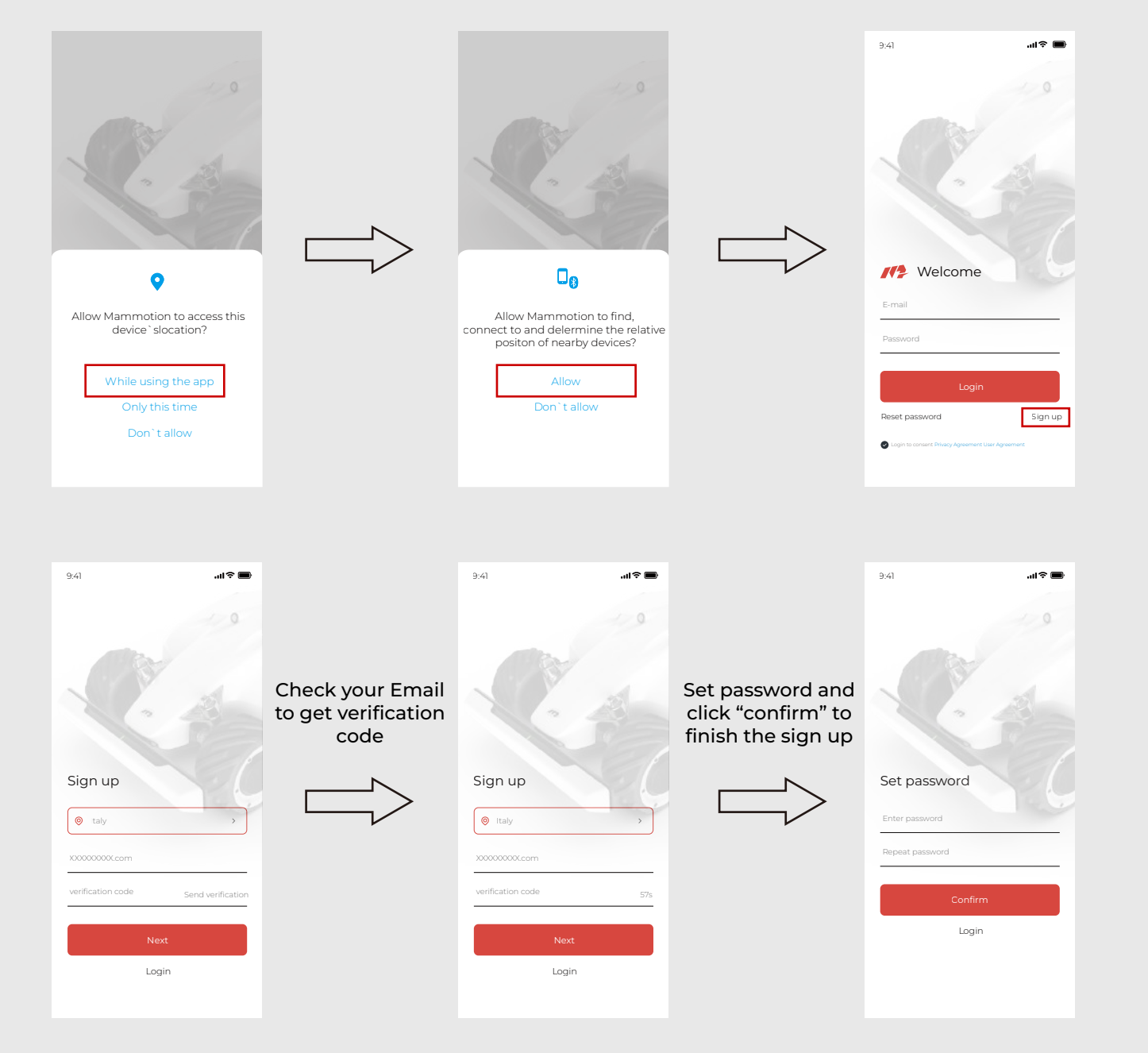
Android App Download

Mammotion App IOS Version:
IOS App Download link:

IOS App Download

4.2 MAMMOTION account sign up and login

How to sign up:



1.Switch on the Position and Bluetooth on your phone. Click Sign up and select the country and input your email address.

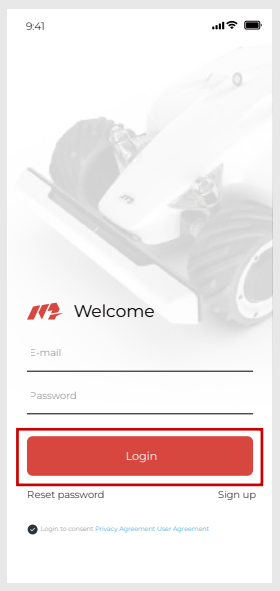
2.Then click “Send verification” .A verification code will be sent to your email (if you don’t receive the verify code, please check your spam folder or check the blacklist of your Email and wait several minutes and retry to click the Code).

3.Input the verifying code (the verify Code is valid for 10min, when exceed, please re-click the “Send verification” button and get the new Code) to the App and click Next to set the password.

4.Click “confirm” to finish the sign up

How to login:

1.Input your account and password to login.

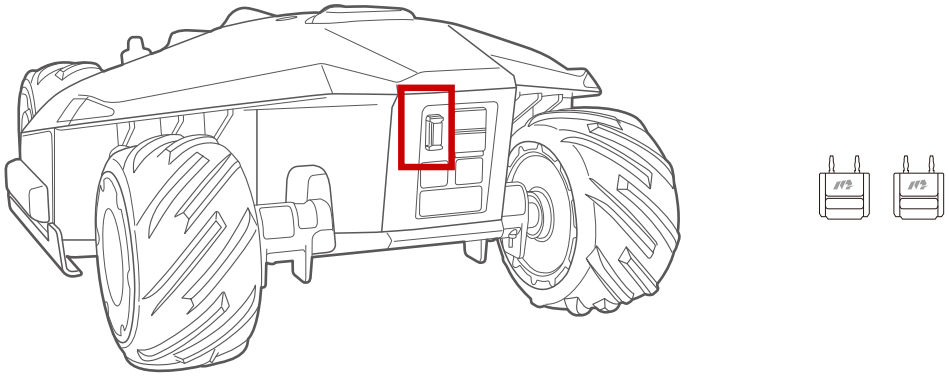


4.3 Add your LUBA to Mammotion App, setup and self-checking:

After users login the App for the first time, it needs to Add device to it.

Note:

1. Please read the guide on Mammotion App carefully;
2. Please make sure the secure key in on LUBA.



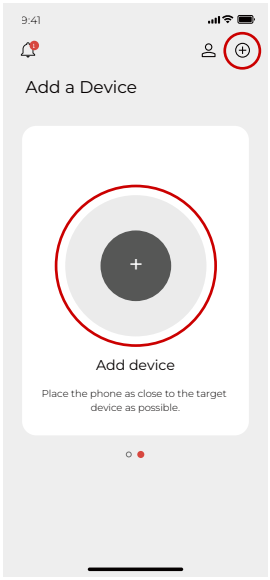
3. Please make sure that your LUBA is powered on (with the LED indicator on the front bumper constant green)
Make sure the distance between your phone and LUBA is less than 3m;
4. Make sure that there is good WIFI or hot spot signal;

If it shows “ 

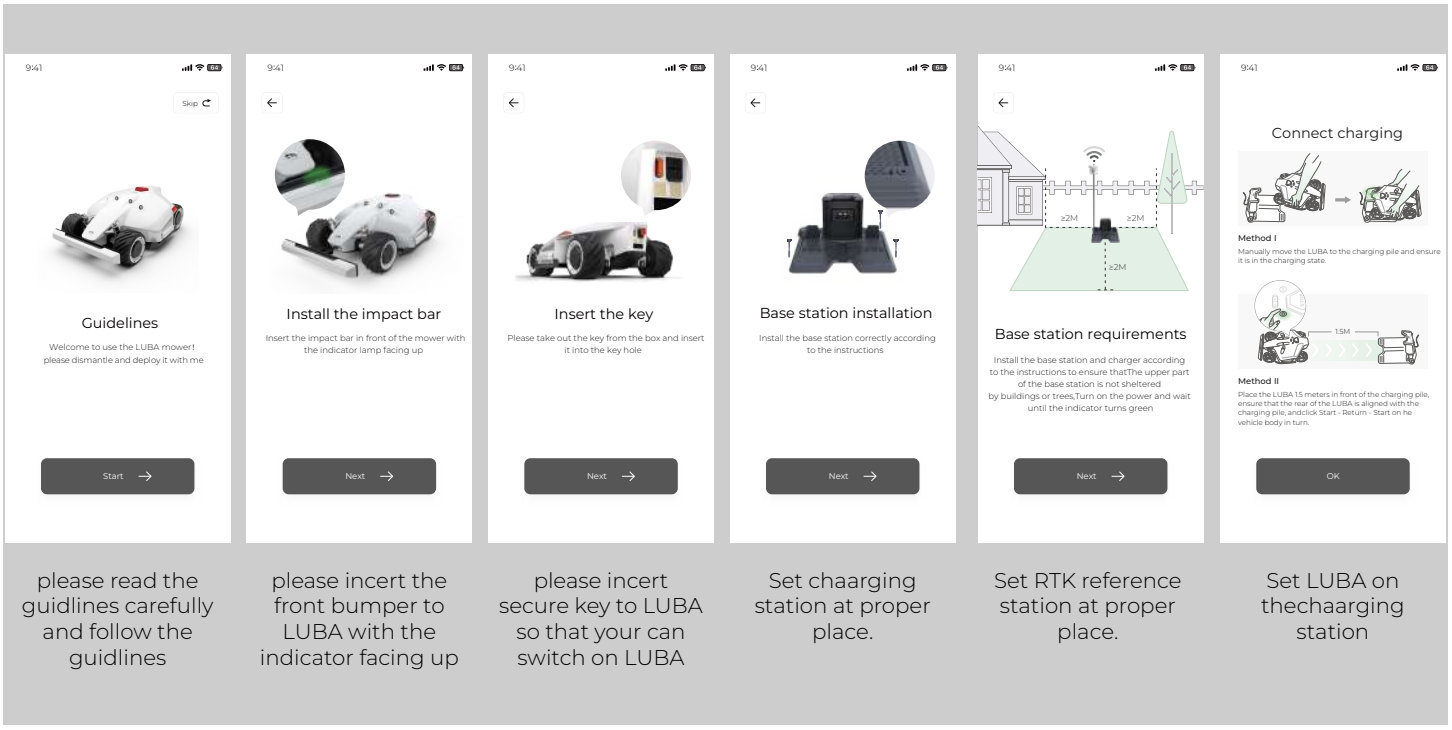
”, please wait a moment.
One LUBA can be connected to ONLY ONE Mammotion account. One Mammotion account can add multiple LUBAs. Different phones can use the same Mammotion account. Only one phone can control one LUBA at the same time.
The task data and map data are stored in LUBA itself, so when you use different phones with the same LUBA, the map and task data will be synchronized.

Process:

1. Click “+” to start initialization of LUBA



2. Read the guidelines of initialization carefully and make sure the guidelines are followed.



please read the guidlines carefully and follow the guidlines

please incert the front bumper to LUBA with the indicator facing up

please incert secure key to LUBA so that your can switch on LUBA

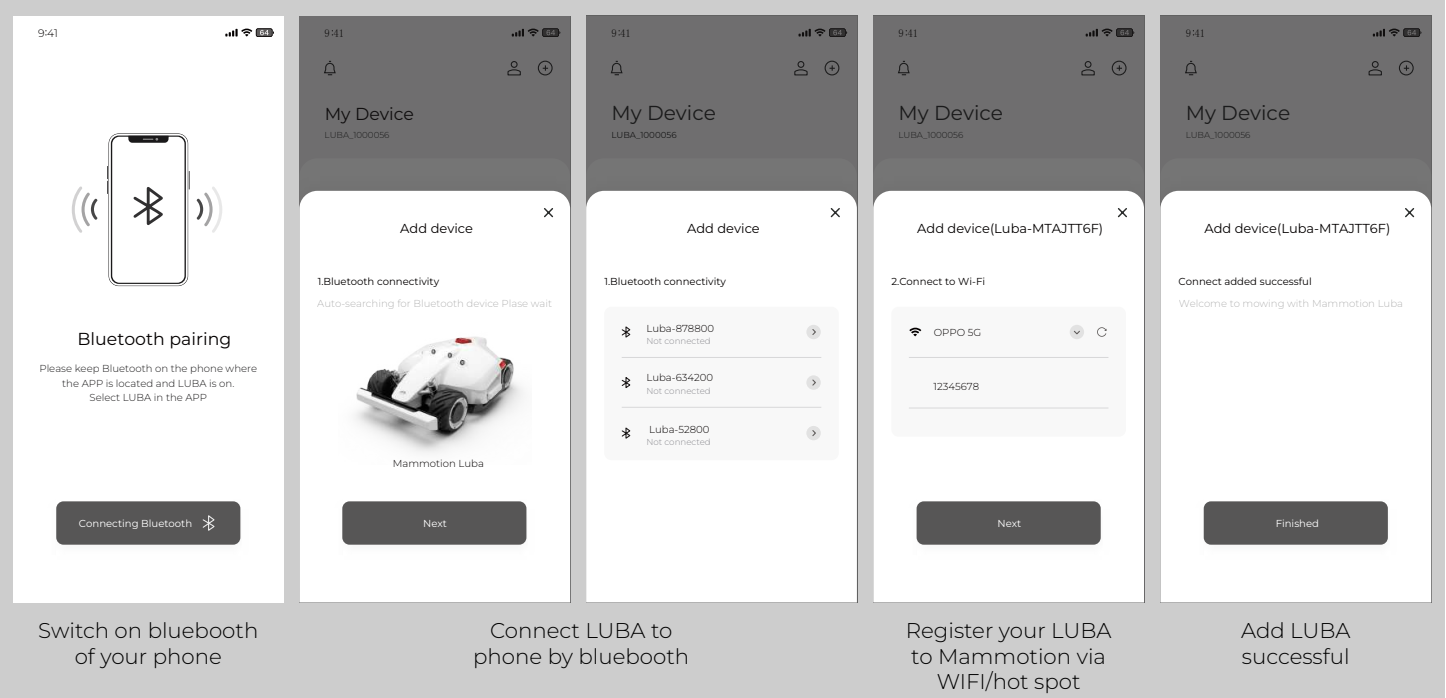
Set chaarging station at proper place.

Set RTK reference station at proper place.

Set LUBA on thechaarging station

3. Long press(5s) the power button of LUBA and power on LUBA.

4.Add LUBA to Mammotion account.



Switch on bluebooth of your phone

Connect LUBA to phone by bluebooth

Register your LUBA to Mammotion via WIFI/hot spot

Add LUBA successful

Activate LUBA: After the Bluetooth connection, it needs to connect LUBA to Wi-Fi & Hot spot for activation.

Note:

The connection is between LUBA and MAMMOTION Cloud, it has nothing to do with how your phone connect to the Internet, which means you do not have to connect your phone to the same WIFI & hot spot. You can also set your phone as hot spot if your phone has good signal.

The App will search the available Wi-Fi signal nearby. Please notice that we highly recommend your to select the WIFI & Hot spot with best signal quality. Otherwise, the activation can fail sometimes.

Select WiFi & hot spot, enter password and then click Next. Wait until the App shows Device is successfully added. Then click Finished.

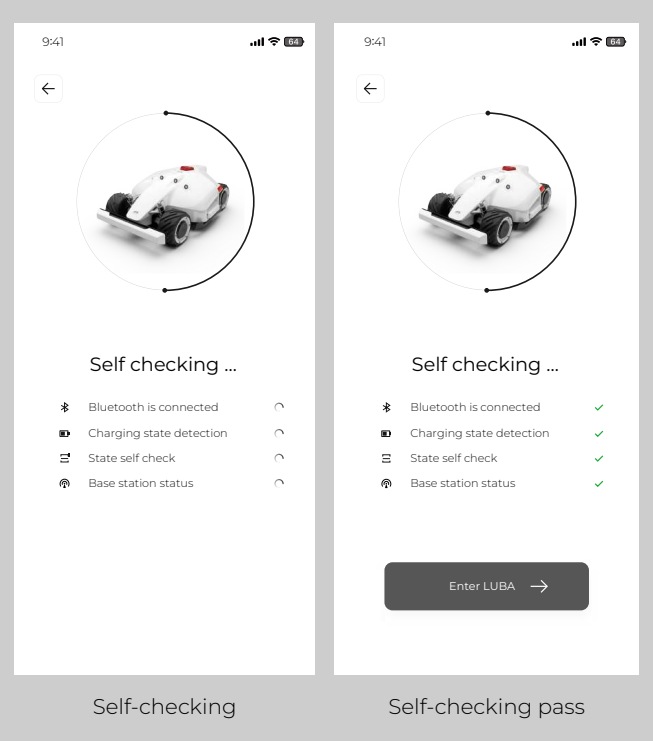
Once you add LUBA to your account, it will not unbind automatically. Next time you switch on LUBA use the same account, LUBA will still be there. And once LUBA is added, Internet(WIFI & hot spot) is not necessary for map planning, mission setting and working.

However, if you'd like to remotely receive information and check the status of LUBA, we recommend you to cover your whole lawn with WIFI or use 4G version(come later);

5. Self-checking:

After the initialization for the 1st time you use LUBA, the whole system should be:
RTK reference station at proper place.
Charging station at proper place.
LUBA is on the charging station and the charging process should be OK and stable.
LUBA should be switched on.
The positioning status should be fine.

Self-checking should be as below.



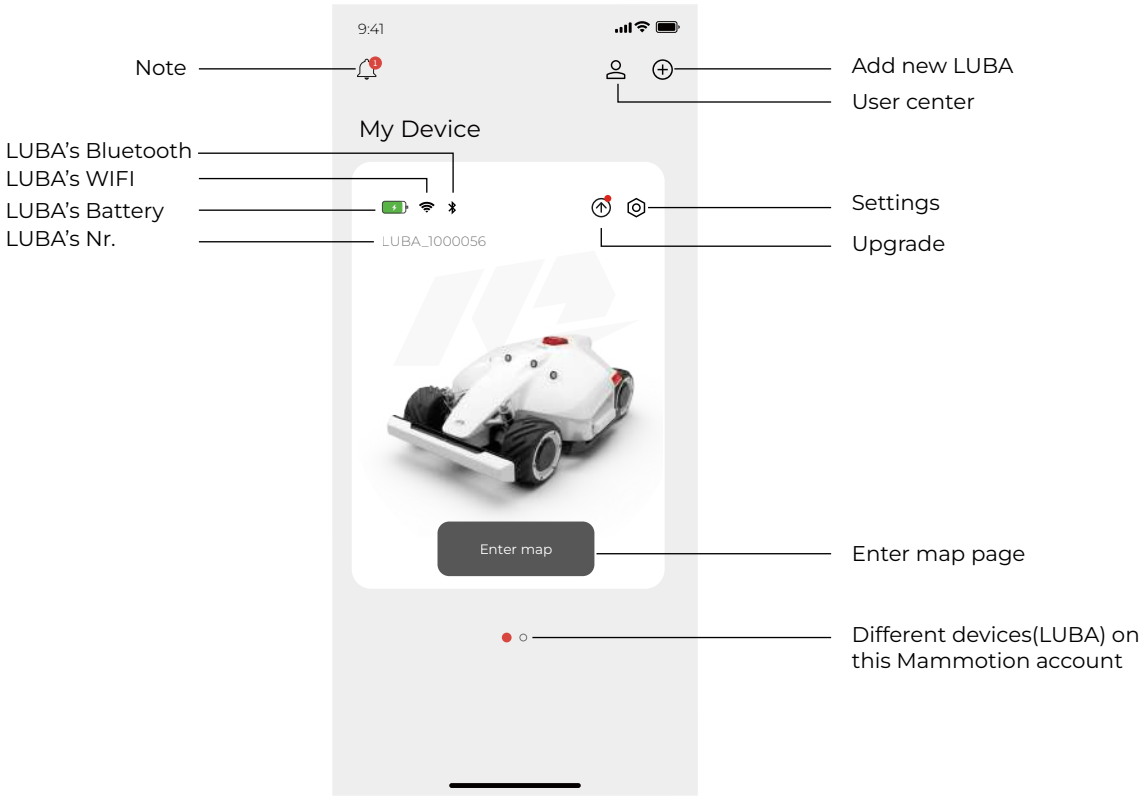
Self-checking | Self-checking pass

Note:

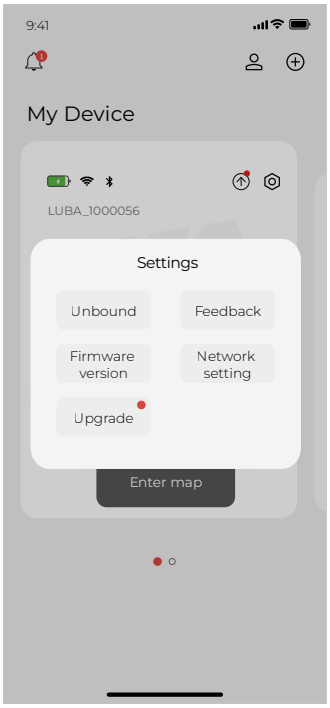
1.If “Bluetooth connection” failed, please check if Bluetooth of your phone is on and the distance between your phone and LUBA (should be within 5m).
2.If LUBA is on charging station but not charging (charging failed), please check if the charging station if set on a proper place, and if the charging port at bottom of LUBA aim at charging port at the pile;
3.If positioning status is bad (“RTK Reference station” failed). Please check if RTK reference station is on the proper place and switched on and works well (constant green light at daytime)

4.4 Basic operation & App interface introduction on main page

The main page is as shown below:



Settings:



Unbound: Unbound the added LUBA.

Firmware version: Check the version of the Firmware of different parts on LUBA.

Upgrade: Upgrade the Firmware, if there is a red dot, means you have new firmware and can do the upgrade.

Feedback: When you meet issues when you use LUBA, you can here to submit the feedback through our logs on the App.

Network setting: can choose to connect WIFI & Hotspot or disconnect.

Note:

The WI-FI & Hotspot connection of LUBA does not affect the normal task and working of LUBA once LUBA is registered and initialized for the first time.

5.Basic operation & App interface introduction on main page

EN

5.1 Firmware upgrading:

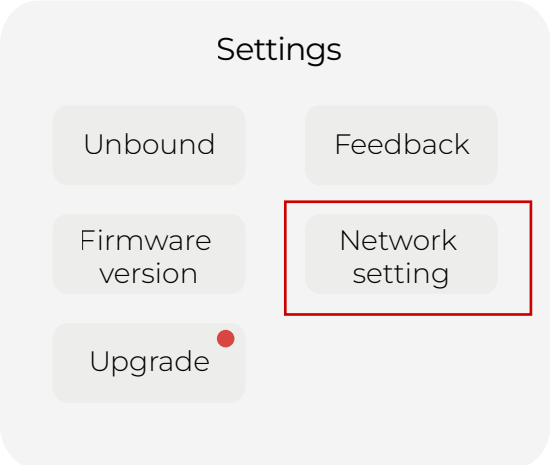
Preparation:

1.Please make sure that your LUBA is powered on (with the LED on the front bumper green;).
2.Make sure the distance between your phone and LUBA is less than 3m.
3.Make sure that there is good stable WI-FI or GPS signal.

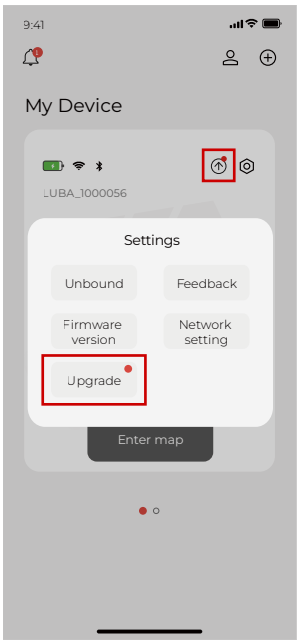
4.DO NOT switch off LUBA or disconnect the WIFI & Hotspot connection when upgrading, otherwise the upgrading may fail.

Upgrading Process:

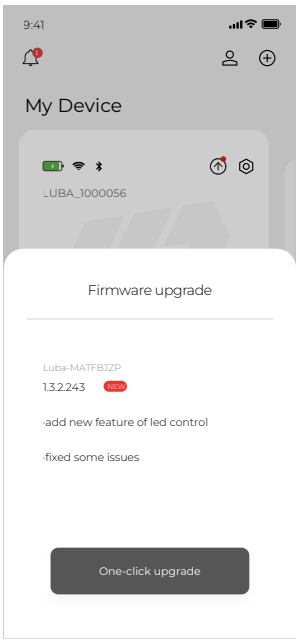
1. Connect LUBA to the W-IFI or Personal Hotspot by clicking “Network settings”, Connect via WI-FI or Personal Hotspot connection is done (with turns to);



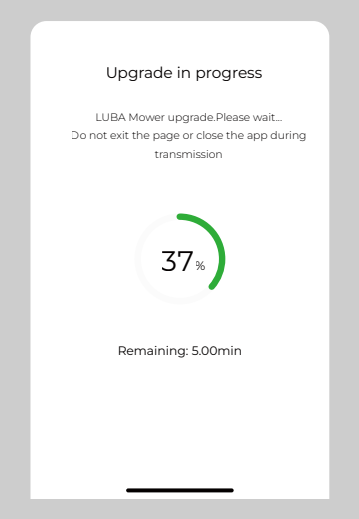
2. To start upgrading: click “Upgrade” button in the settings or the symbol to start upgrading.

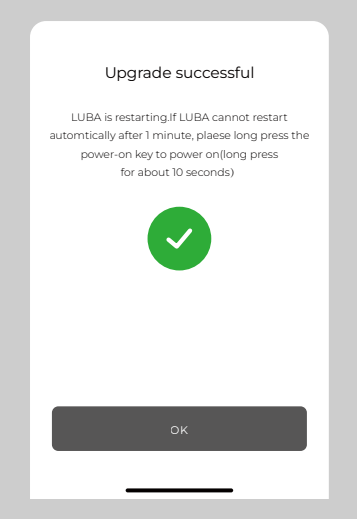


3.The message box will show you what is new in the firmware. Click “One click upgrade”



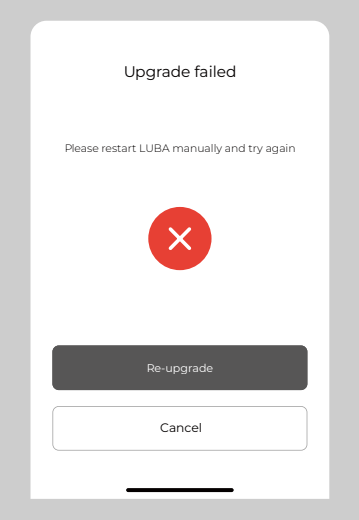
4.Wait until the upgrading is done (make sure the WIFI & Hotspot is available during the upgrade).



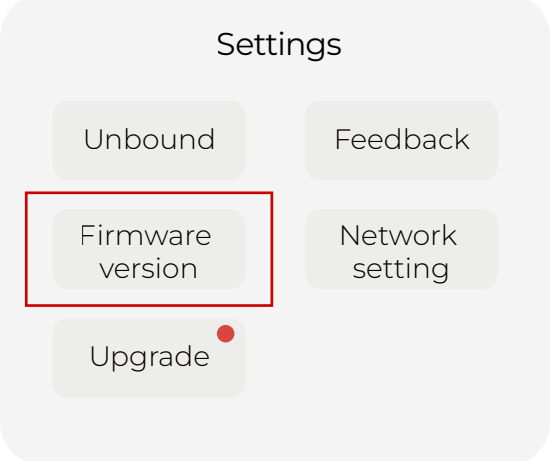


5.When the APP shows that LUBA is successfully upgraded, the LUBA will automatically switch off, please LONG Press for about 10s until the LED side lights is on.

6.If the upgrade failed, please check the WIFI & Hotspot connection and try again.

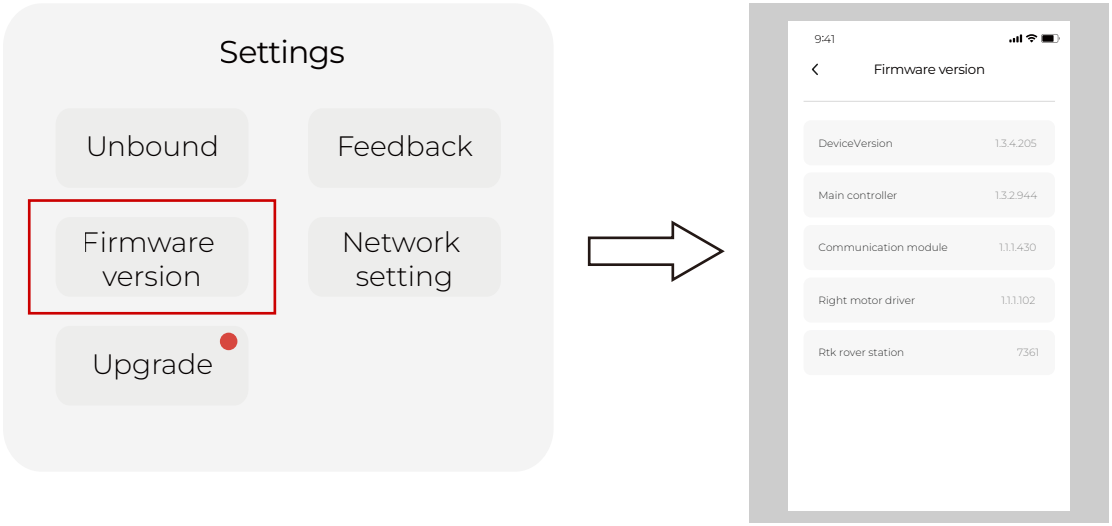


7.Check if the firmware of LUBA and APP have already reached the newest firmware by clicking “setting version”. If yes, then you can start LUBA with the newest firmware now. If no, please contact us to solve the issue.

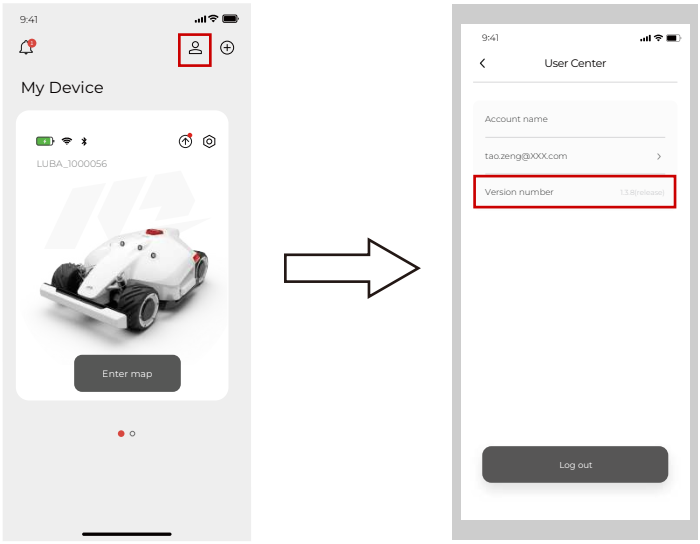


5.2 How to check firmware version and App version:

Check firmware version:



Check App version:

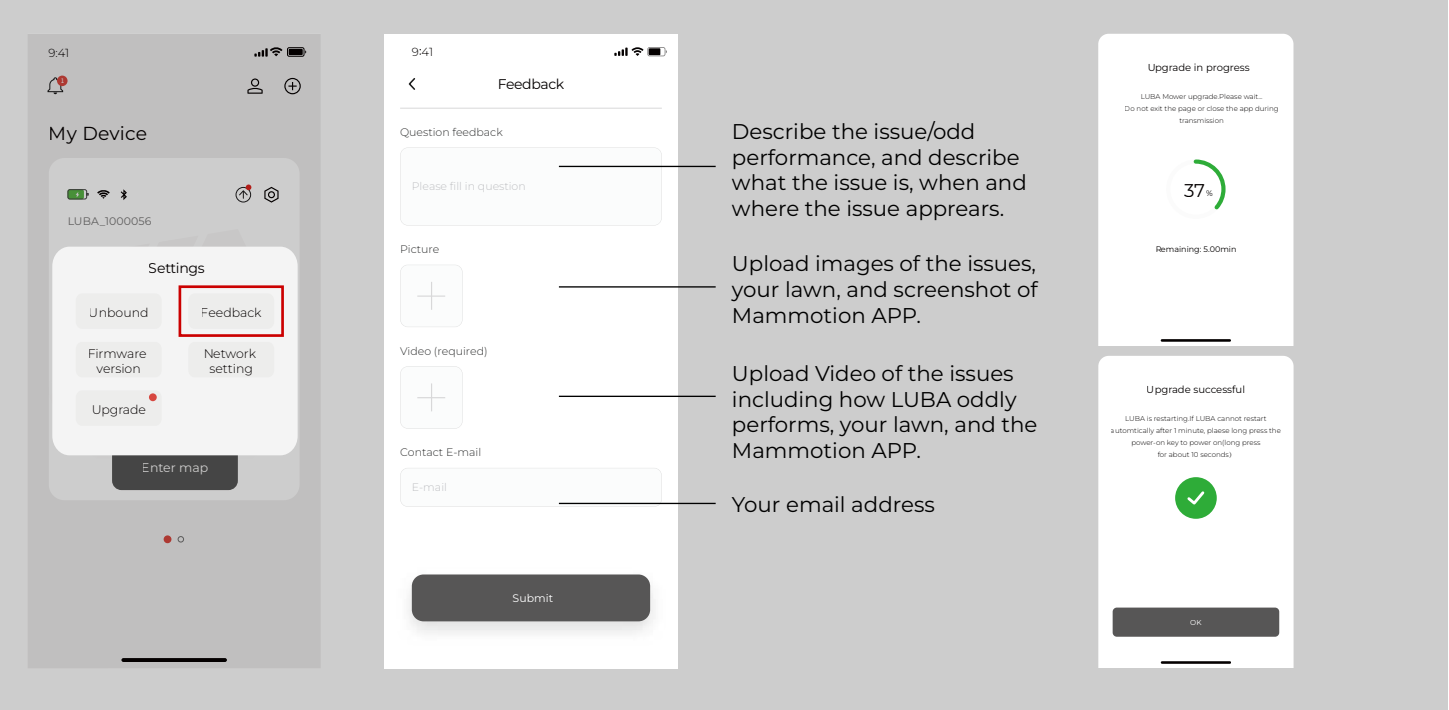


5.3 Issue & Log feedback

Important information about how to provide feedback:

1.Please describe HOW the issue is, WHEN and WHERE the issue appears.It will help us a lot to fix the issue.
2.Please take image or video if possible and also upload the images and videos to us.

Feedback process:

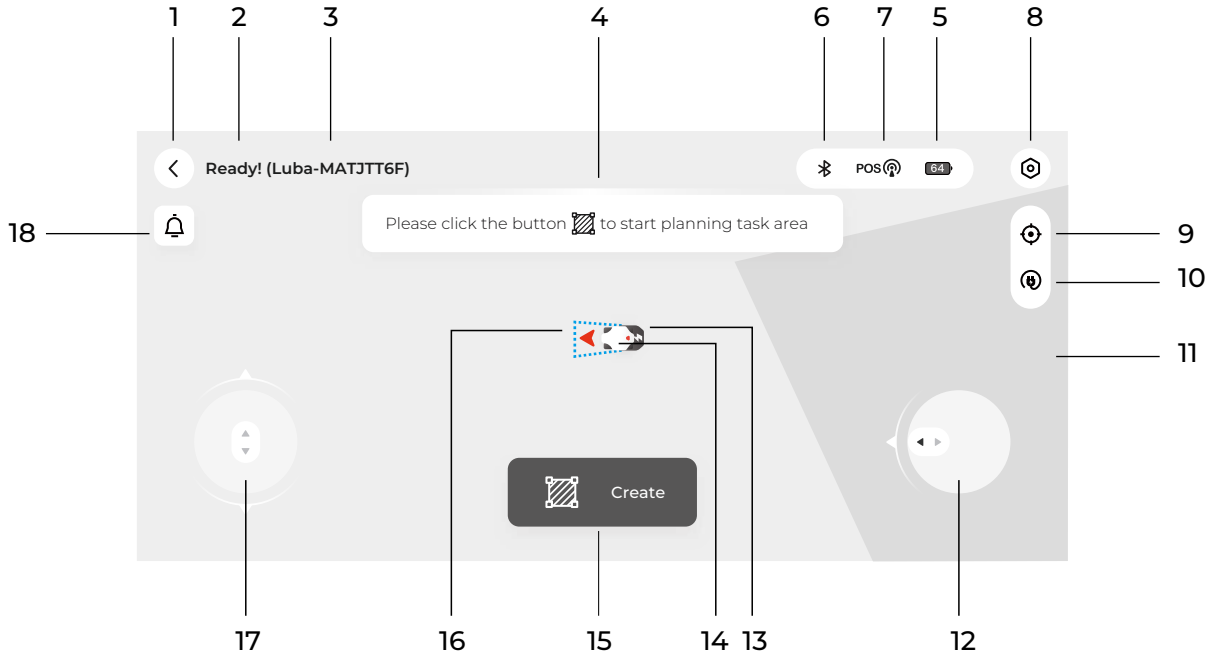


Note:

1.During the feedback process, please make sure that both the Bluetooth and WIFI & Hotspot connection is good. And the distance between your phone and LUBA is less than 3m.

6.Basic operation & App interface introduction on Map page

Below is the interface of map&control page:



1. Back to previous page: to main page
2. LUBA status. The status are as follows:

STATUS		
charging	connection path planning	paused
returning	initializing	obstacle planning
working	ready	lock
task planning	offline	

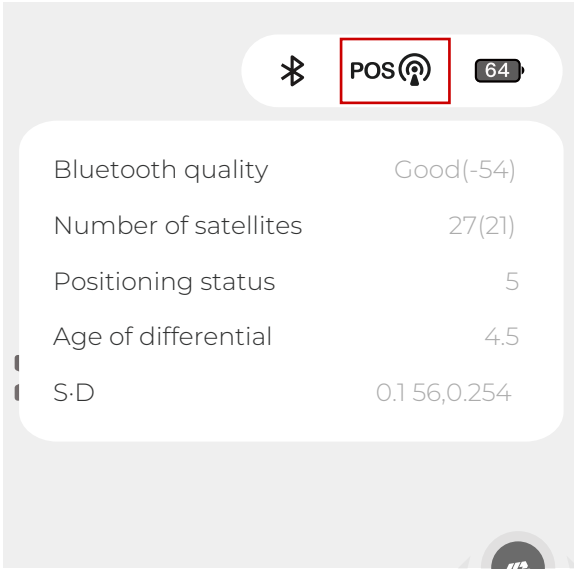
3. Device number
4. Guide message box
5. Mower battery power
6. Bluetooth connecting status. If the Bluetooth is connected successfully, it will light up to be black. If not, then gray
7. Positioning status: The position status could be “Fine” or “Unavailable”. If “fine” LUBA can work normally, if “unavailable” LUBA could not do the automatic navigation and work.

If your LUBA stop working at somewhere, please first check the positioning status.

Positioning unavailable

Positioning fine

Click the “POS” symbol will show more detailed information about positioning status. As shown below:



Bluetooth quality: show the strength of Bluetooth connection.

Number of satellites: The Number of satellites observed by LUBA. If either of the 2 numbers is under 20, there will be risk that the positioning status may be “unavailable”. when you meet this issue, please drive / set LUBA and the task area to a more open sky area to let LUBA receive more satellites from sky.

Positioning status: 4 if RTK fine, others are not fine. As described in the sheet below:

Age of differential：Time delay of RTK reference station data

S.D: Standard deviation of positioning

	meaning	reference value	reason of out of reference value
Bluetooth quality	The quality o bluetooth connection	Good	Phone too far from LUBA
Number of satellites	the Number of satellites observed by LUBA	>20	LUBA can not gel enough satellite data(please check number of satellites).
Positioning status	Positioning status	4	see the sheet below
Age of differential	Time delay of RTK reference station data	0<Age of differential<20s	1.RTK reference sation is constant Defect(0) 2.The distance from reference station and LUBA is too far.3.there is high concrete wall/ large metal/ very dense tree wall between reference station and LUBA
S.D.	standard deviation of positioning	0<S.D.<0.1	positioning unavailable

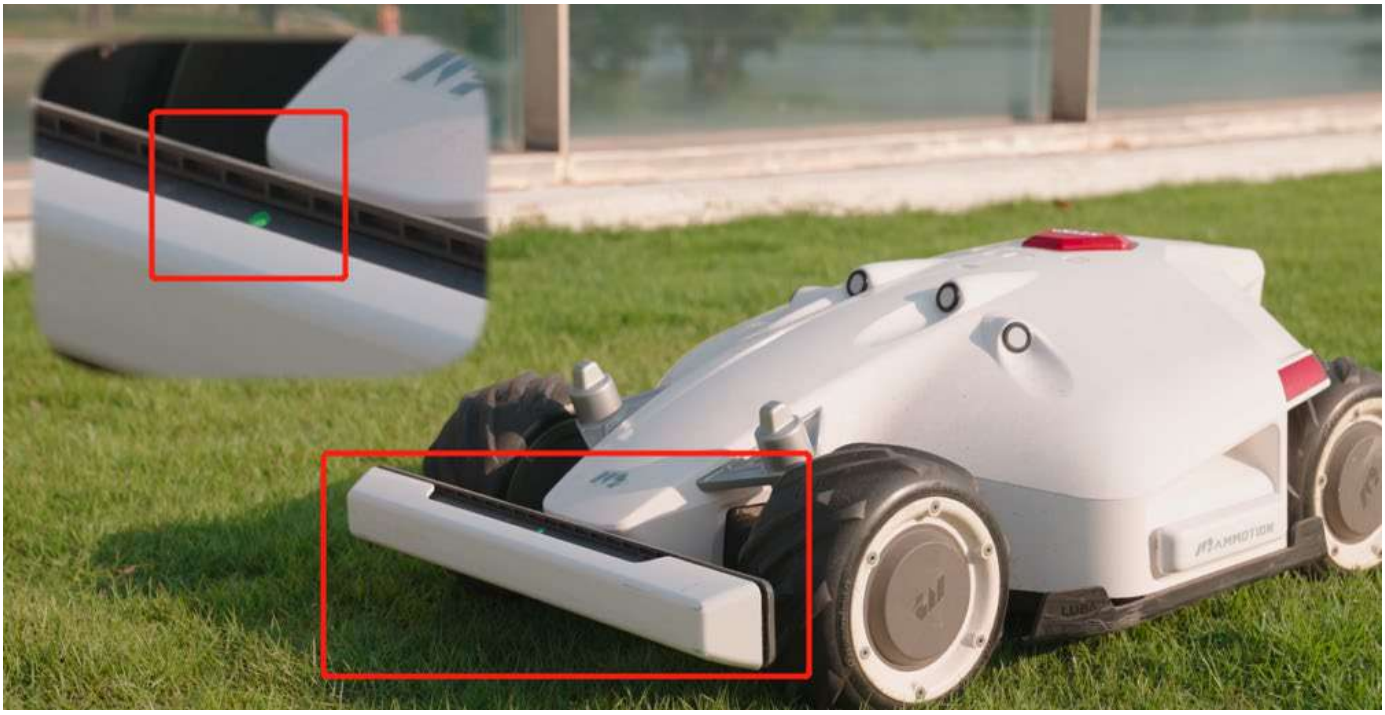
Positioning status	meaning	accuracy	reason	to do
0	no positioning		no satellite signal received at all (in the room/ LUBA covered/ defect)	Drive LUBA/set task area to a more open sky area.
1	single point positioning	Several meters	LUBA does not received RTK reference station at all,(please check "age of differential) : 1) RTK reference station defect. 2) LUBA too far from reference station 3) the signal transmit path from reference station and LUBA is nearly fully obstructed/covered	1. check if the LED on RTK reference station is constant green. 2 check the distance from reference station and LUBA 3. check if there if high concrete wall/large/metal/very dense tree wall between reference station and LUBA 4.move reference station to a more opensky area
2&4	float positioning	20cm-1m	1.LUBA can not get enough satellite data (please check “number of satellites”) 2. RTK reference station does not get enough satellite data(check the LED on reference station)	1 Set RTK reference station to a open area. 2 Drive LUBA/set task area to a more opensky area.
5	FIX positioning	less than 5cm	Fine positioning status	Good, can use LUBA NOW!

8.Setting:
① The LUBA’s speed can only be set when in manual control
②If rain sensor on or off.
③ obstacle avoidance logic.
9. View return to the center of the map.
10. Call back and recharge.
11. Background map.
12. Manually drive steering clockwise / anti-clockwise button.
13. Charging station
14. LUBA red symbol arrow point to direction
15.Create task. Click here to create a new map with mowing task.
16.Recharging area
17.Manually drive forward/backward button

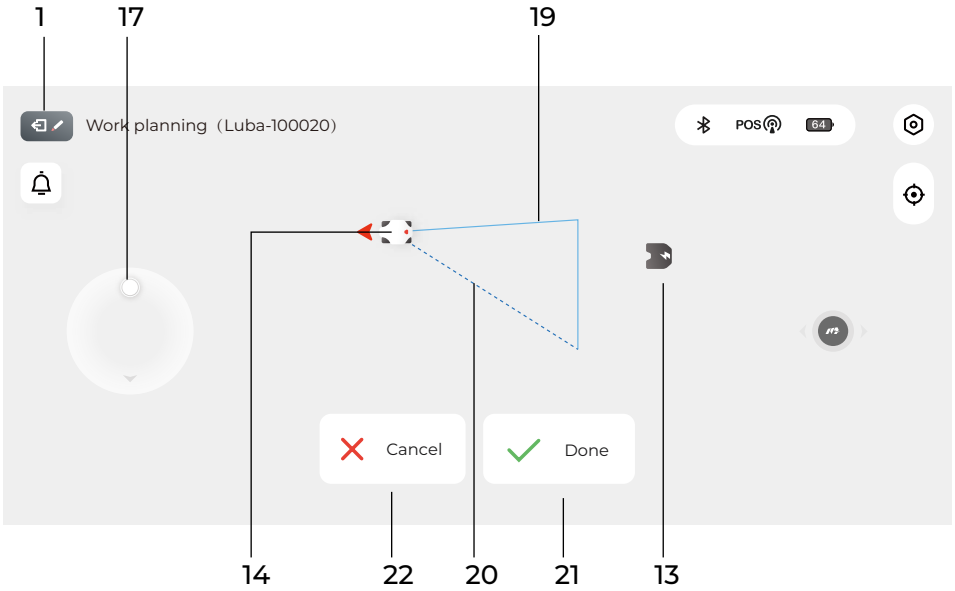
Preparation:

1.When already completed the MAMMOTION account sign up, then add LUBA to your account.
2.Make sure that both LUBA firmware and App has the newest version.
3.When you have installed the charging station and RTK reference station in its proper place.
4.Check your lawn, make sure that there is no flooded areas in the lawn which can cause damage to the LUBA.
5.Give an overview of your house, your lawn and include all obstacles, then decide where to set the virtual boundaries of task area and no-go zone areas.

6.Fill any large holes in your lawn.
7.When LUBA is working, make sure that there is no person, children, pets or other moving things in your lawn.
8.We highly recommend you set the area with no obvious holes, gullies, roots of the trees or other obstacles in the no-go zone.
9.LUBA can only be used when the front bumper is on and the LED indicator on the front bumper is on.



Map page when creating Task:



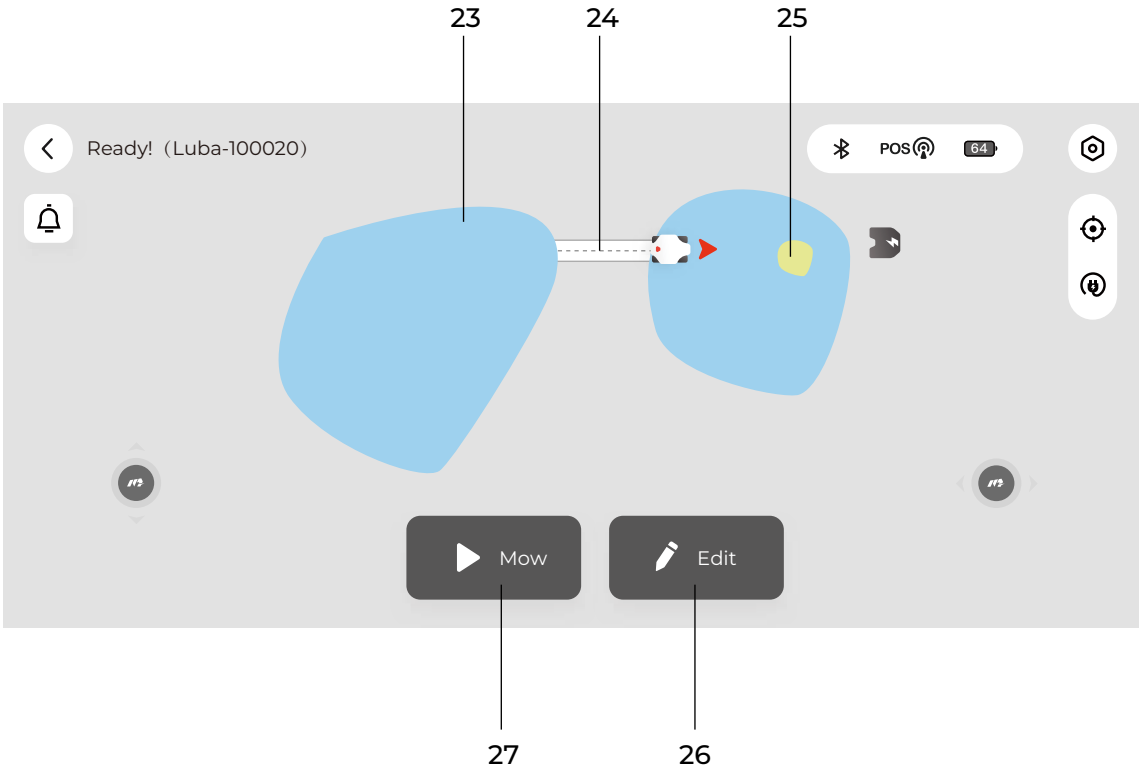
1. Back to previous page: to map and control page
13. Charging station
14. LUBA red symbol arrow point to direction
17. Manually drive forward/backward button
19. Boundary of task area (still drawing)
20. Direction line from LUBA current place and start point.
21. “Done” button, press this button to finish the work planning and close your working area

Note: if “Done” clicked, means that a task area will be created immediately, one boundary will be from the start point to LUBA’s current location. If in the image, the “Done” is clicked, a triangle task area will be created.
Another way to finish task creating is that manually drive LUBA back to the task area start point. Once LUBA reach the start point or other point on the already existed boundary.
We recommend you use the second way to finish the area creating or at least click the “done” button when you are near the start point.
22.“Cancel” button, press to cancel task planning.

Note:

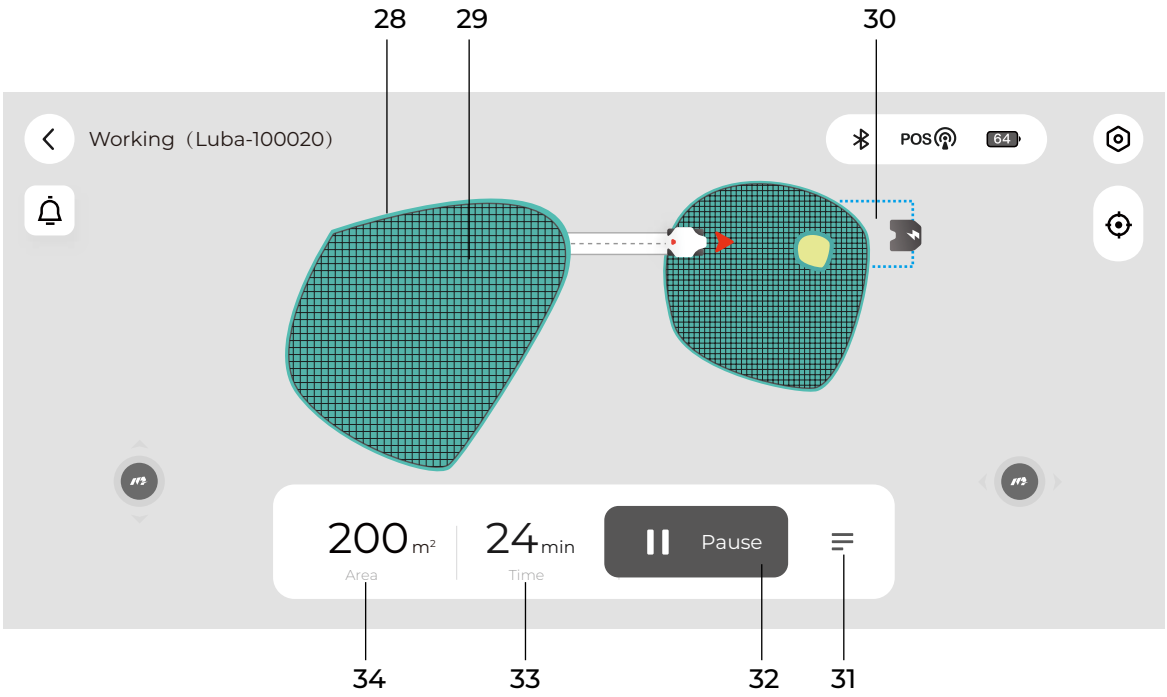
When creating task, you can’t find the “call back and auto recharge” button. You need to cancel or finish creating task first.

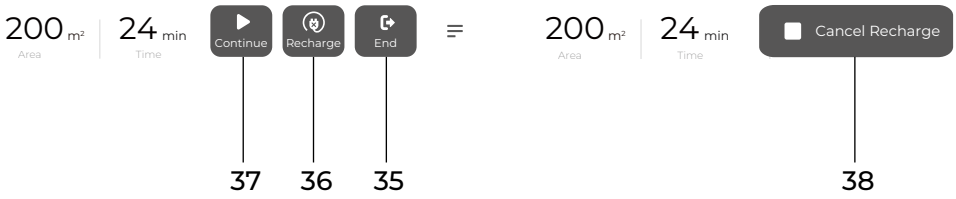
Task area selected(can start mission or continue edit the task area)



23. Task area (selected).
24. Connection path.
25. No-go zone.
26. Edit the task area (add / delete / change task area /path / no-go zone).
27. Start the task.

During the task:





28. Working route (at boundary)
29. Working route
30. Recharging area
31. More
32. Pause (when LUBA is working automatically)
33. Estimated task time (charging time not included)
34. Task area
35. End task (go back to charging station, the task will not continue, when LUBA is 95% charged)
36. Set break point to go back to charging station and charge. (The task will not continue at break point, when LUBA is 95% charged)
37. Continue working (this “Continue” button only works when the “Pause” on App is clicked. If the STOP button on LUBA is pressed, must use button on LUBA to unlock and continue.
38. Cancel the recharging progress

7.Create a task

EN

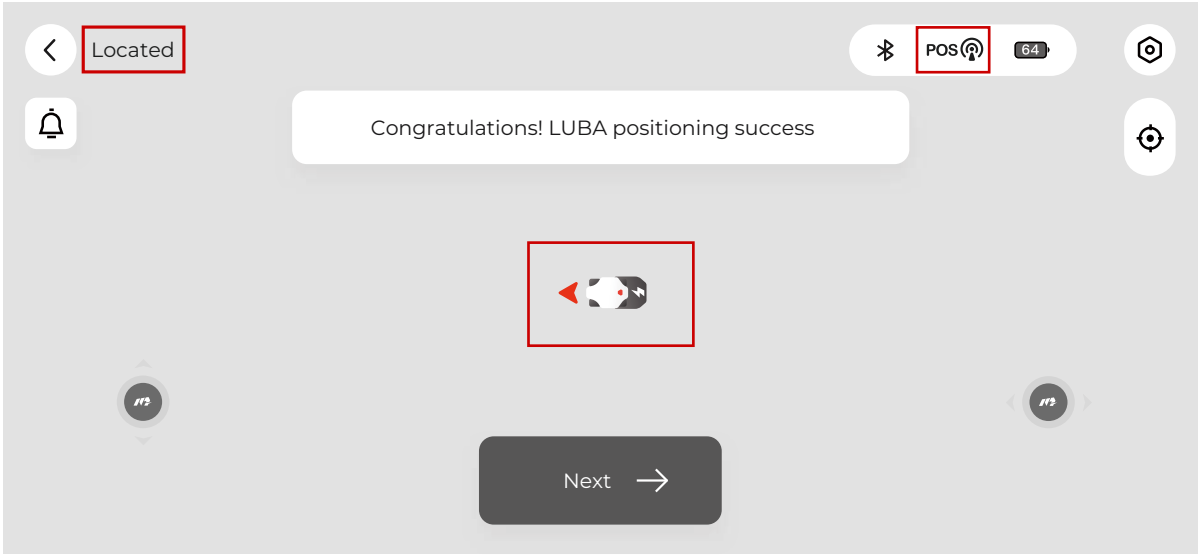
Note:

1.Remove debris, piles of leaves, toys, wires, stones, and other obstacles. Make sure children and pets are on the lawn.
2.We highly recommend you leave 10-15cm distance if you drive LUBA along the edge of a wall / fence / obstacles / hedges.

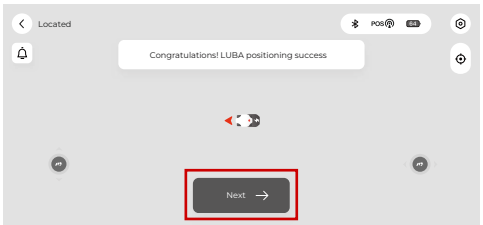
7.1 Initialization before create a task:

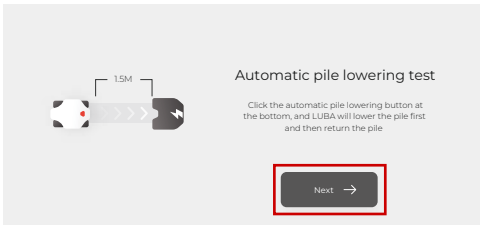
1.After the “LUBA quick start installation” in Chapter 3 both RTK reference station and charging station should be properly installed. (If NOT, please back to Chapter 2 and 3 and finish the installation)

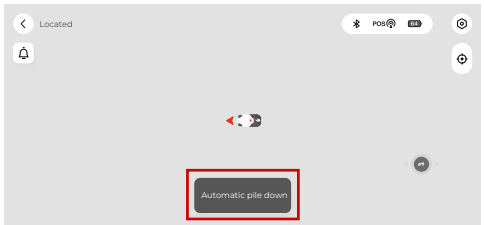
2.After the “LUBA first setup and self-checking” in Chapter 4.3, LUBA should be powered on, upgrade to the latest version and ON THE Charging station with fine positioning status. (If NOT, please go back to Chapter 2,3 to finish the proper installation of charging station and RTK reference station, and Chapter 4 for the first setup and checking. If just LUBA not on the charging station, please drive LUBA to 2m front charging station, bottom to charging pile and call back LUBA):
3.The location of charging station and LUBA should be shown on the map, as shown below, the positioning status should be fine, LUBA’s status should be “Located.”



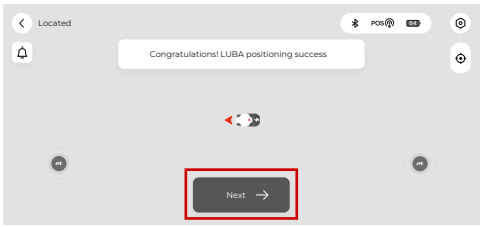
4.Click “Next” to start initialization.

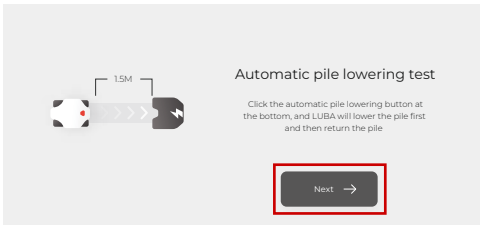


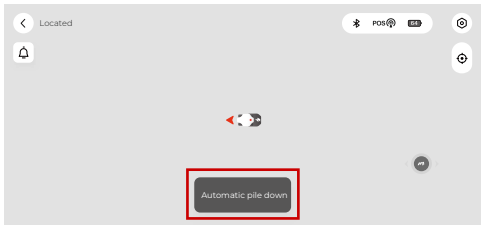




5.After the initialization, LUBA's status turn to "Ready" now you can start creating a task! As shown below.







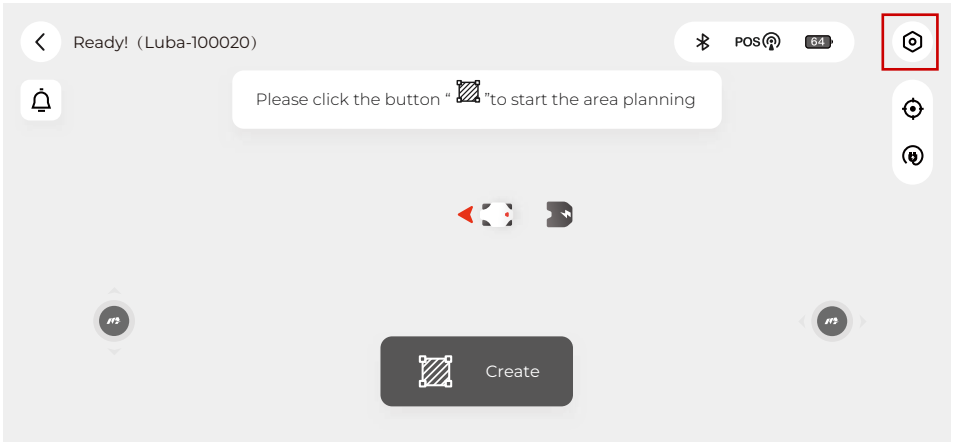
Note:

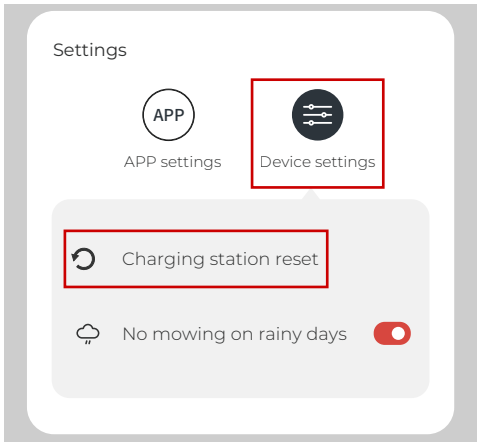
1. If both the charging station & RTK reference station are not moved, next time you restart LUBA (like over a winter) or add / change / delete the task area, you do not need to re-do the initialization. As long as LUBA's status is "Ready", it can continue working.

2. When you move the charging station & RTK reference station, you should re-do the initialization because the coordinate system of LUBA and task area should be changed.

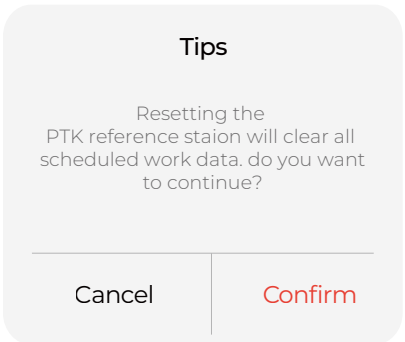
How to redo the initialization:

1.Set the RTK reference station / charging station on the proper place.
2.Put LUBA on the charging station and the positioning status is "Fine."
3. Setting->" Charging station reset"





4.The already existed task area and schedule will be deleted because the whole system is changed.



5.As Chapter 6.1, do the initialization, until LUBA's status turn to "Ready".

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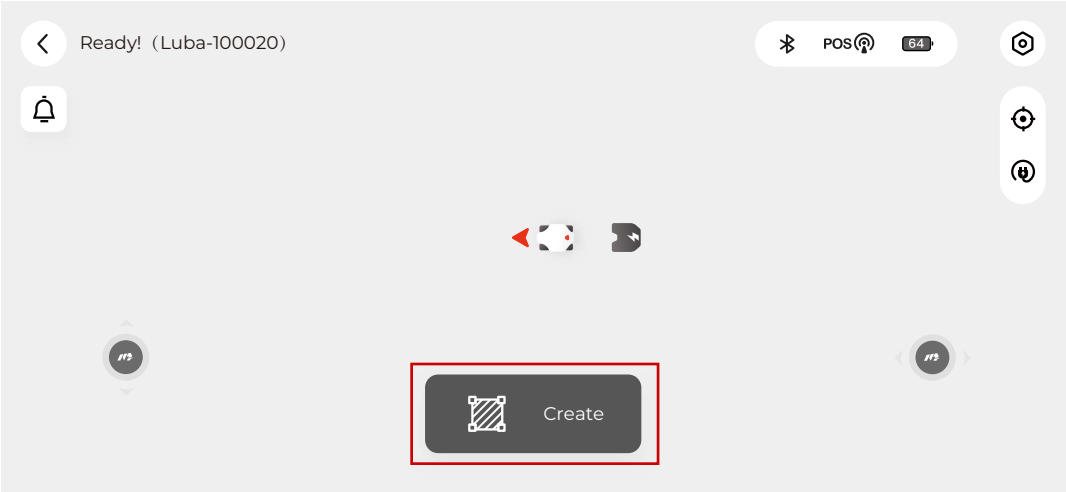
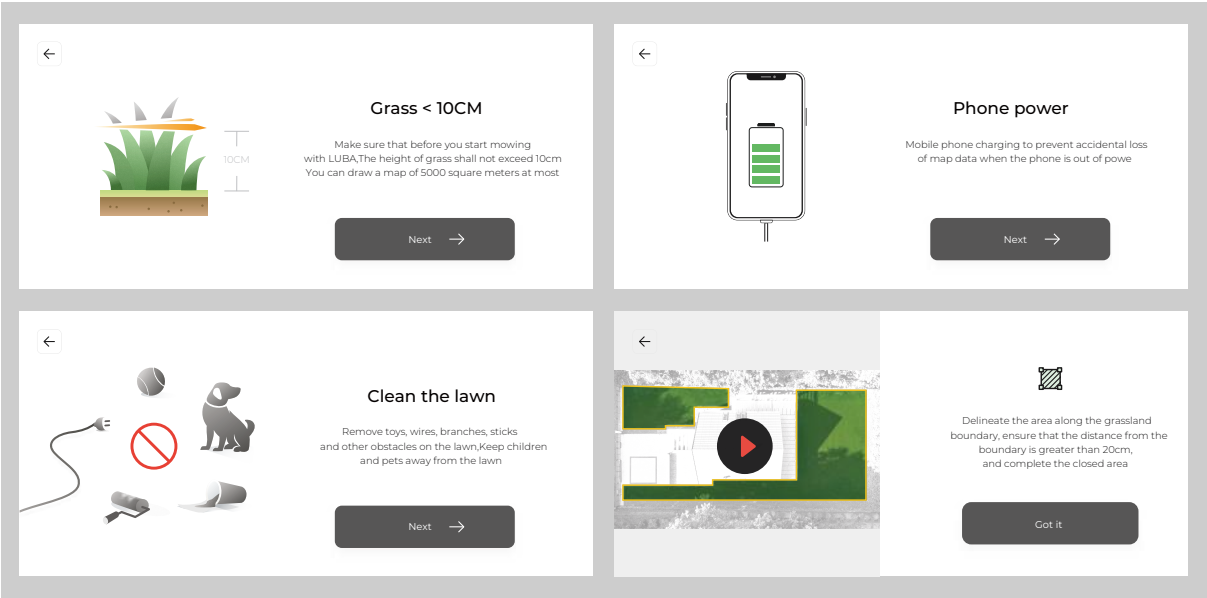
7.2 Create a task map：

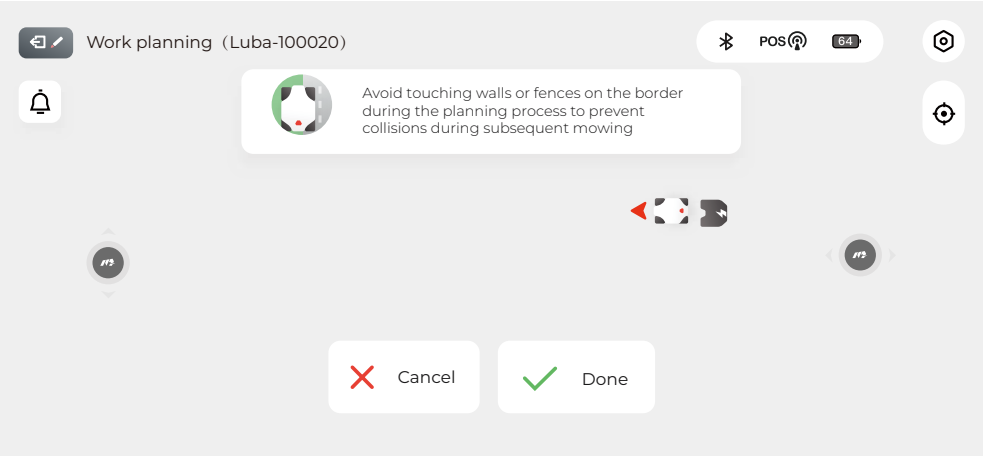
1. click “Create” to start creating task map.



2. Read the guidelines of creating task & working with LUBA



3.Start drawing the task area boundary.



Note:

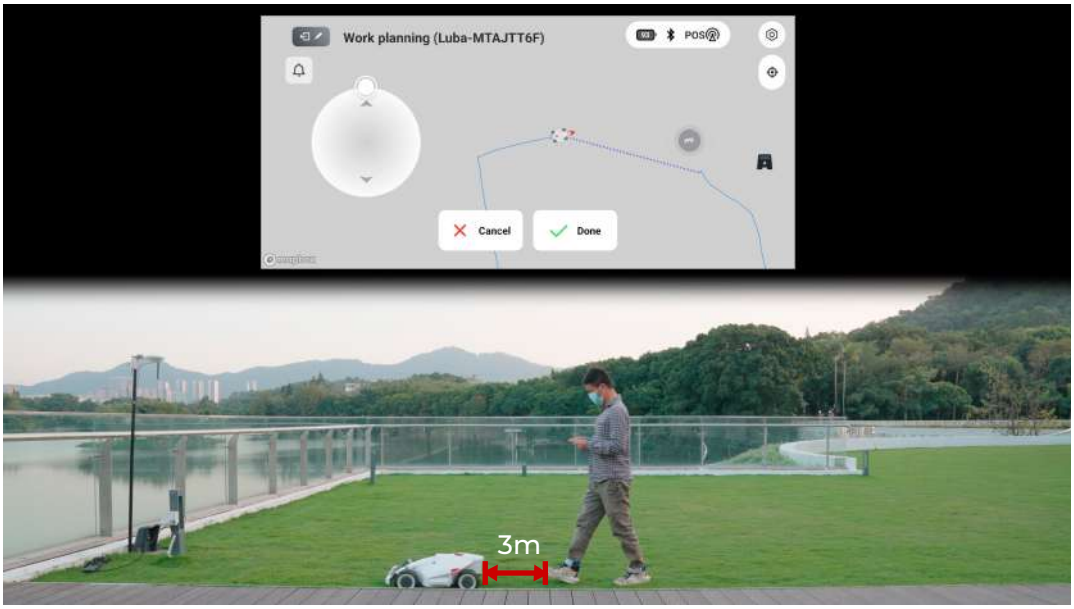
1) if “Done” clicked, means that a task area will be created immediately, one boundary will be from the start point to LUBA’s current location. if in the image, the “Done” is clicked, a triangle task area will be created.

Another way to finish task creating is that manually drive LUBA back to the task area start point. Once LUBA reach the start point or other point on the already existed boundary.

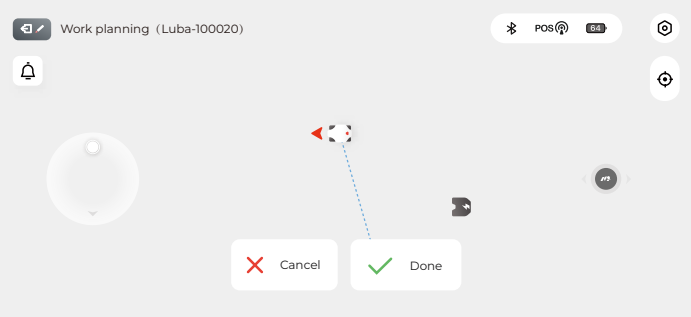
We recommend to use the second way to finish the area creating or at least click the “done” button when you are near the start point.

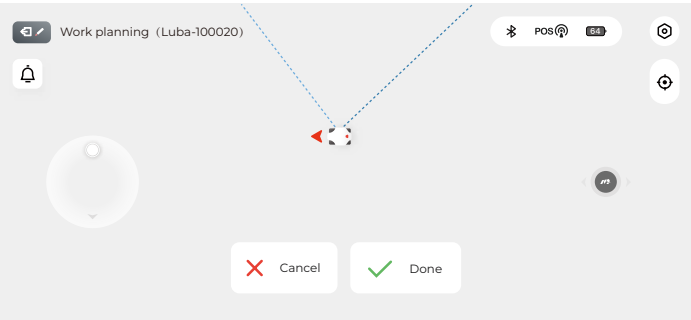
2) “Cancel” button, press to cancel task planning.
3) When creating task, you can’t find the “call back and auto recharge” button. You need to cancel or finish creating task first.
4) We highly recommend you to keep min. 10cm from wall/fences and other obstacles (like trees) when planning for the safety reason.

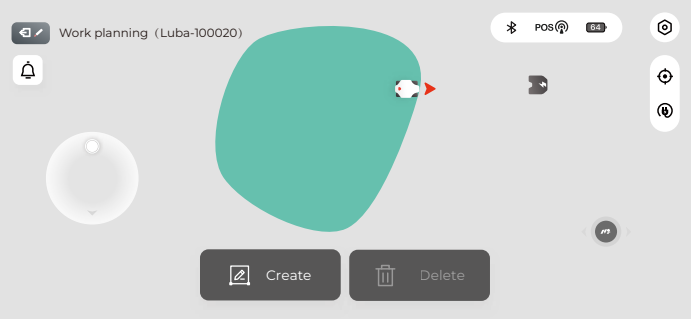
5) the user should follow LUBA within 3m to keep the Bluetooth connection in good situation and for safety reason.

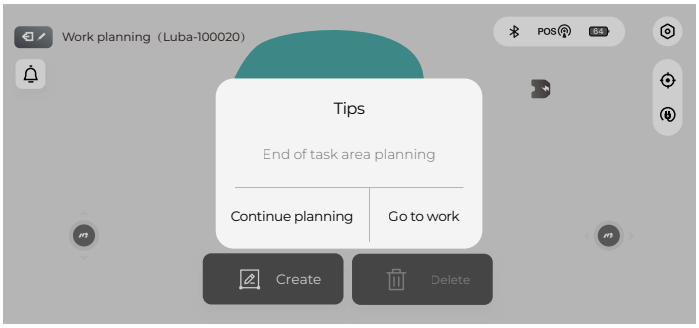


4.Finish the boundary drawing of 1 task area.

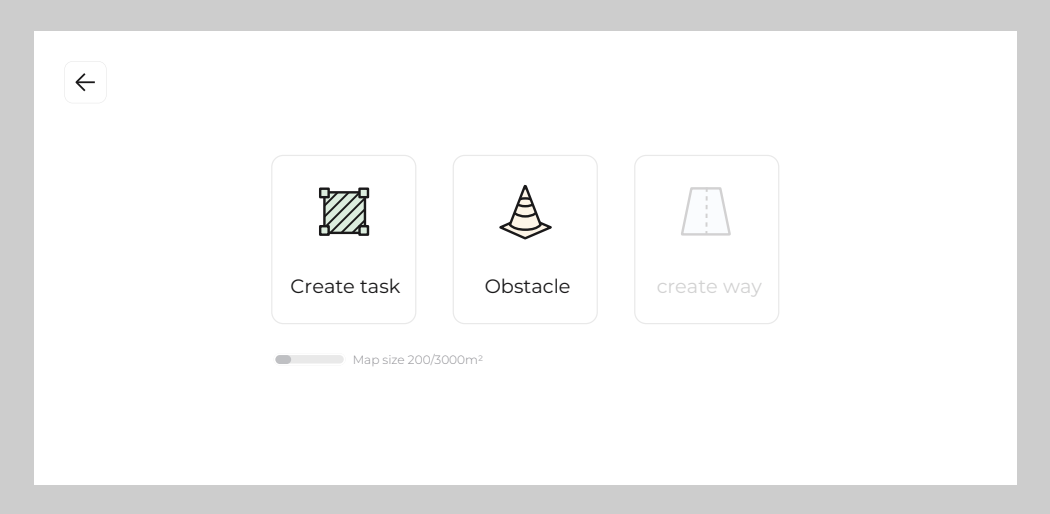


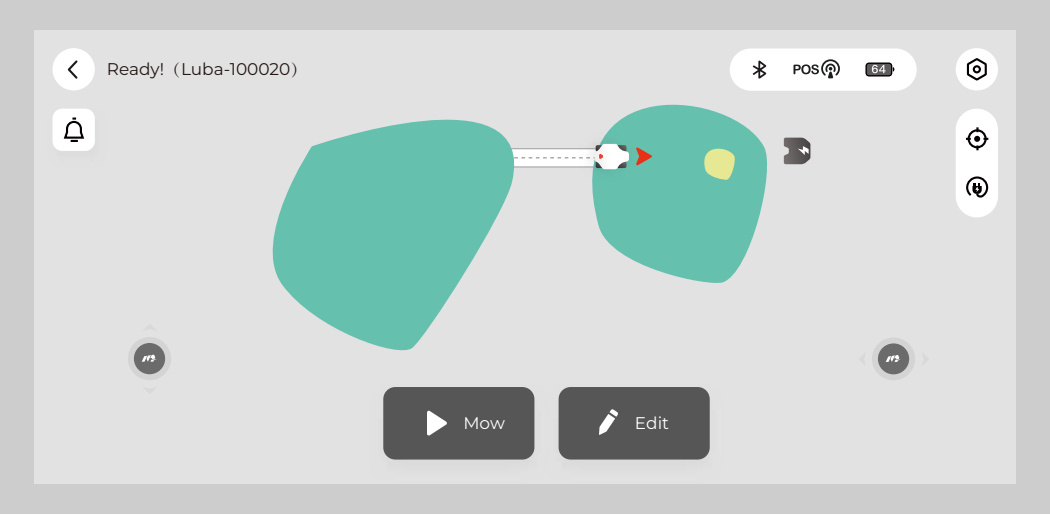






5.You can continue planning (add another task area in the same task, add no-go zone, add connection path)

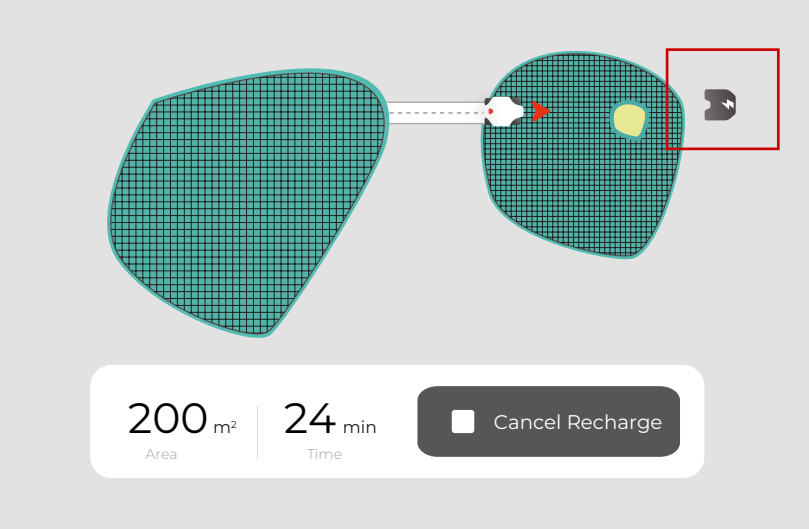




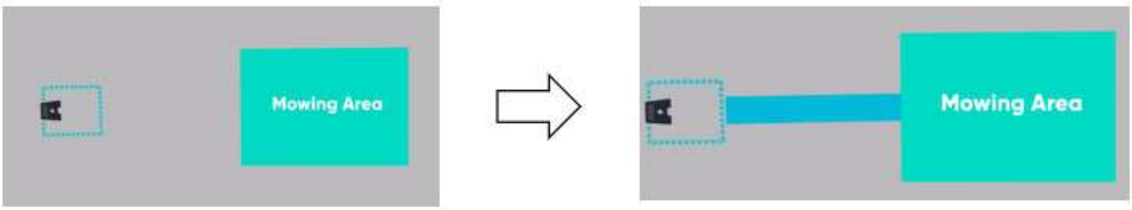
Note:

You need to first drive LUBA into a already existed task area to create a connection path and no go zone, because they(or part of them) should be in the task area.
You need to first drive LUBA out of the already existed task area to create a new task area.
If task 2 area overlapped. After creating, the overlap part will be just belonged to the 1st area.
For one task, there should be at least 1 connection path between different areas.
We highly recommend that you to set pools, flowerbeds, trees and roots, hedges and other potential obstacles or other items on lawn as no-go zone.

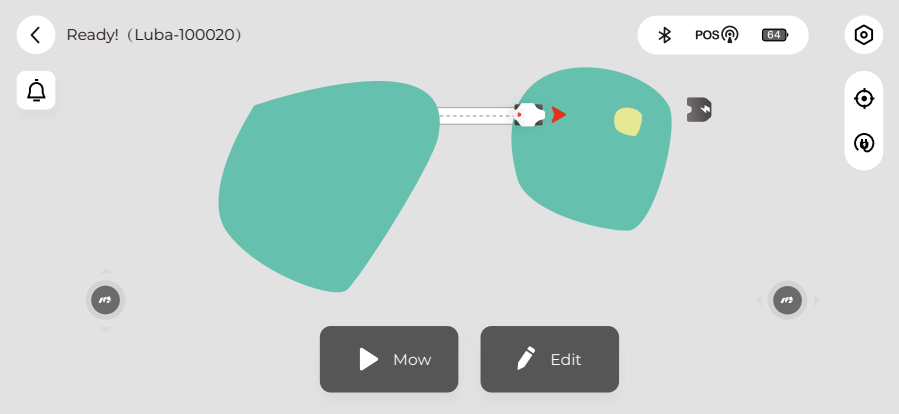
6.If the charging station is very closely to one of the task areas and the “recharging area” is connected to this task area (as shown below), there could be no connection path between the task area and charging station.



If the dotted “recharging area” is not connected to any of the task area, then connection path between them is needed.

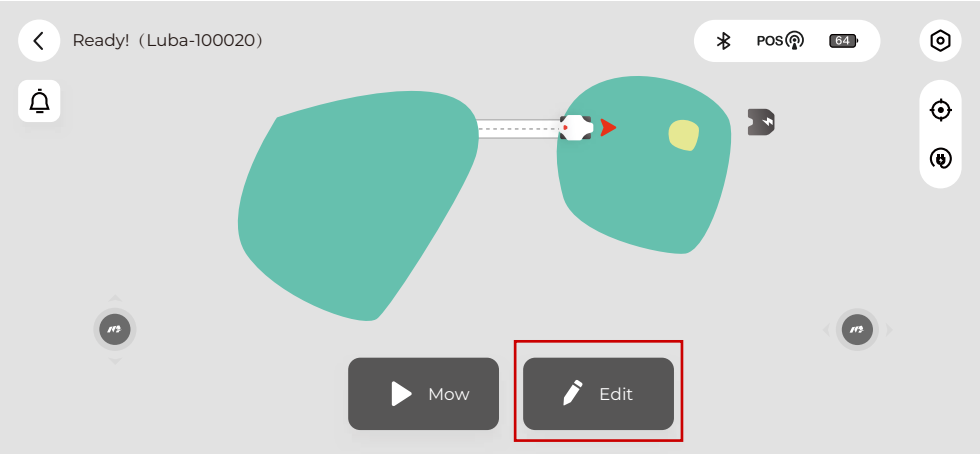


7.Once all task areas, no-go zones, connection path are created, the task map is successfully created. When nothing is selected, the task map is green, as shown below:



7.3 Edit the task map

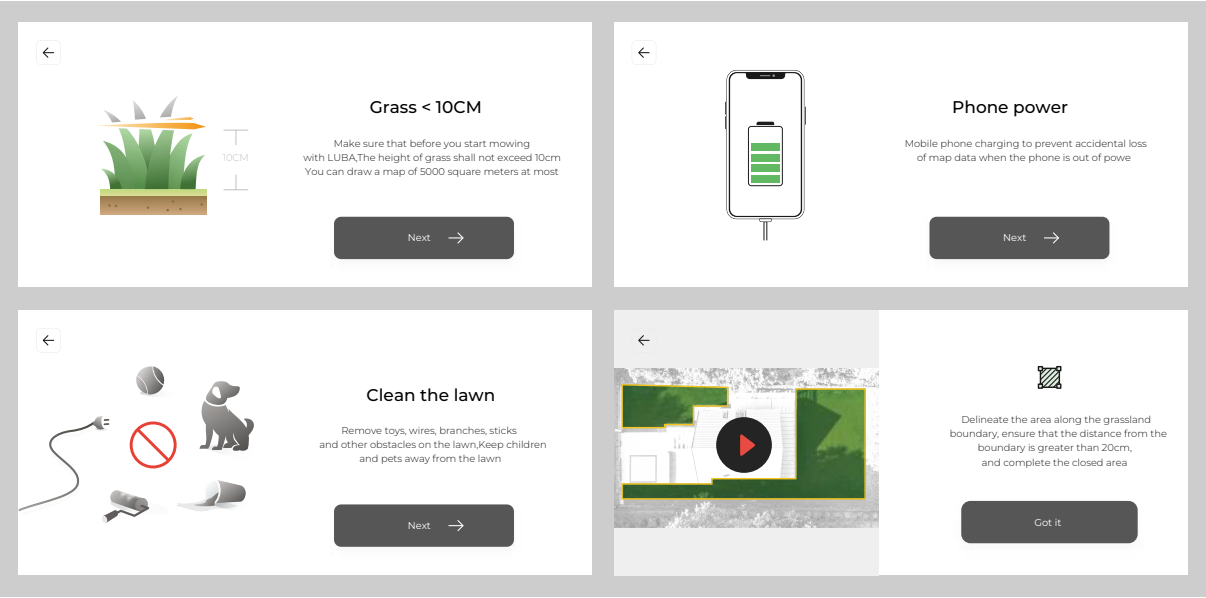
1.Click “Edit” to edit the task map, currently, you can only add areas, no-go zones, connection path in the already existed task map, you cannot delete and change the boundary or path, but we are working on that function.



2.However, you can delete the whole task map for now.

Note:

1.Make sure the height of grass in your lawn is Max.10cm. If the grass height in your lawn is higher than 10cm, please cut the grass to less than 10cm first. As the guide shows.
2.Also remember to clear items on the lawn and keep your pets and children away from LUBA when LUBA is working.



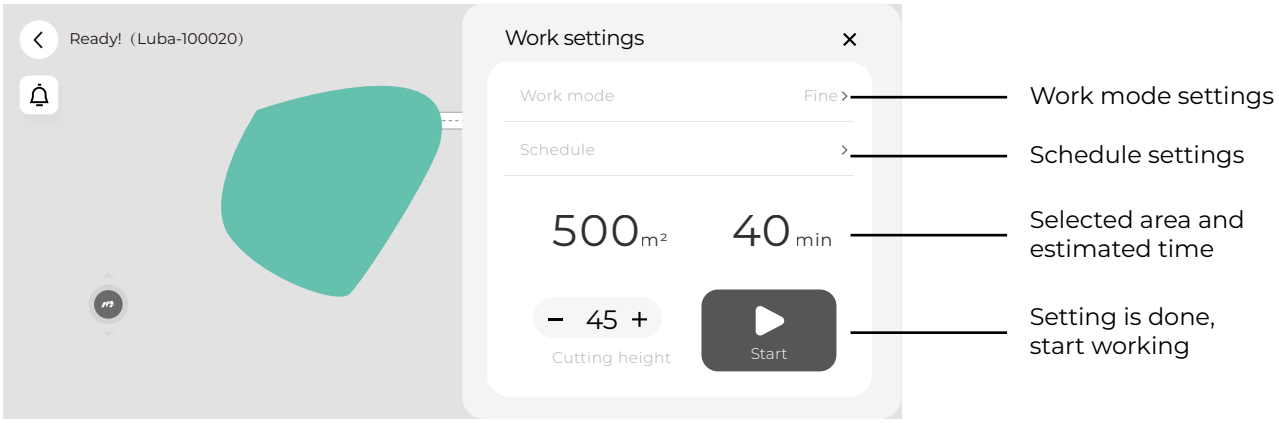
3.If the grass height is higher than 60mm, we recommend you to set the cutting height higher than 40cm, please make sure that each time, only about 1/3 height of the grass is cut(e.g. if your original grass height is 60mm,set the cutting height of LUBA 40 or 45mm; if your original grass height is 9-10mm,set the cutting height of LUBA 60mm;)

4.If any unexpected issue occurs, press the STOP button and lock LUBA. The STOP button has the highest priority.

5. If the lift sensor is triggered, LUBA will stop, please press grass cutting button and then start button to unlock LUBA.
6. Please mow your task area no more frequent than once a day. Too frequent mowing may do harm to your lawn.

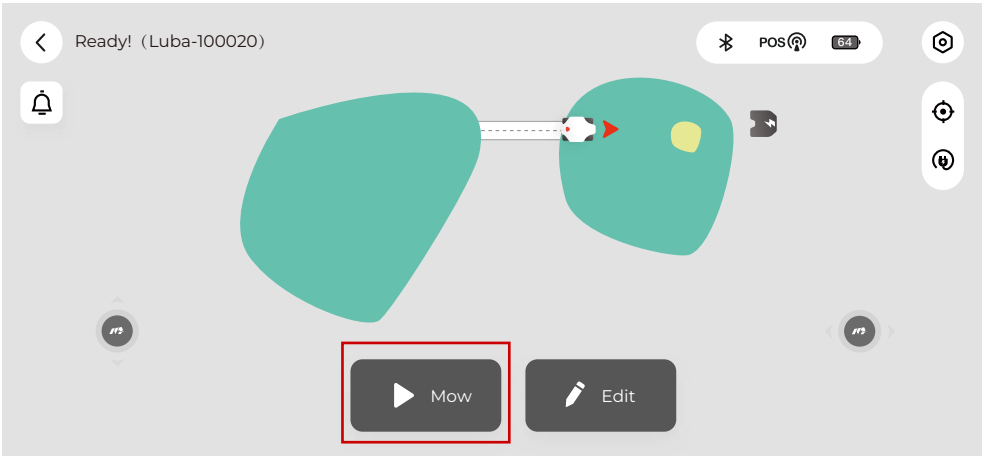
8.Parameter & Schedule setting and Start Task

8.1 Work Setting interface.

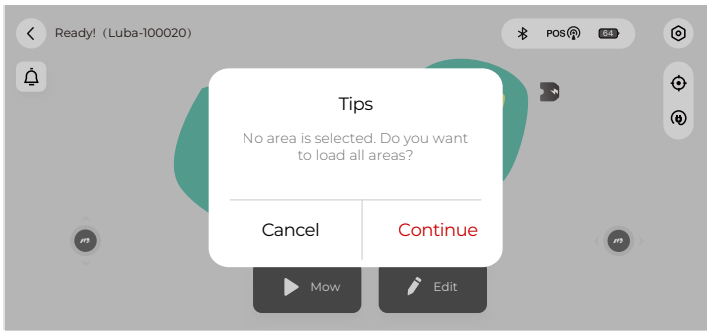


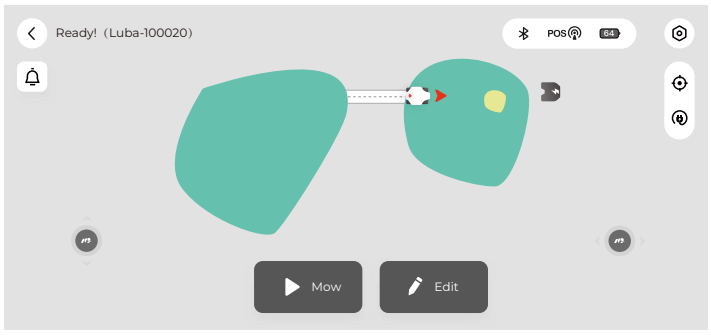
8.2 Work mode settings

1.Once task area is set, you can clicl “MOW” to set the working parameters and then start scheduling or mowing.

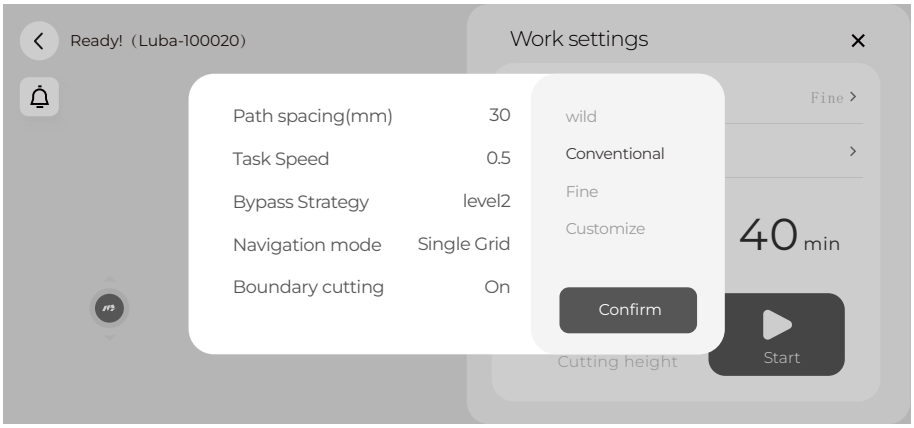


2.When set the task parameter, you need to select the area from green to blue at least the 1st task area on map, or you can select all the areas first time.





3.The parameter setting of the task is as below. There are 3 pre-defined task mode and also the customized mode which let customers to define each task parameter.



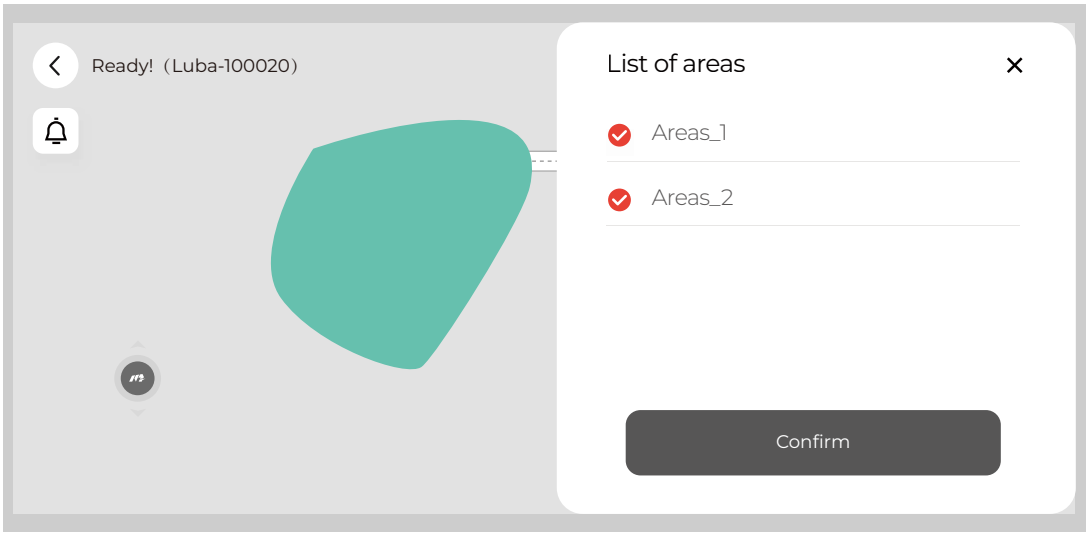
MODE	Description	User case
Wild mode	Only use bumper to detect the obstacle,because too much high grass can disturb the detection of ultrasonic sensor.Single grid mowing path	For lawns not cut for long the height of the grass is normally higher than 12cm;The goal of cutting is just to cut grass down.
Conventional mode	Cut with higher speed than fine mode, and wider path spacing and single grid mowing path(which means more easy to left some grass uncut especially for thick and dense grass).	For normal home lawns,the cutting result is not that fine for lawns with strong and dense grass but with higher effciency than Fine mode
Fine mode	Cut with low speed(0.3m/s) and more narrow path spacing with double grid mowing path.	For normal home lawns. Cut the grass fine but with lower effciency.
Customizes mode	Customer can define every task parameter	For more customized use

Options	Description	recommend value
Path spacing(cm) (the unit on App is wrong)	The distance between 2 adjacent mowing path. Considering our cutting width is 40cm, if we set this to 30cm, the overlap part between2 adjacent mowing path would be 10cm,if no positioning error(which is not possible)	20-30
Task speed	The speed of LUBA when mowing,lower speed gives better result for dense and thick grass, but with lower efficiency.	0.3-0.5
Bypass strategy (the explaination on APP is wrong, is fixing now)	Off: bypasses the obstrucle(not set as nogo zone) once the front bumper is triggered(do not use ultrasonic sensor),Level 1:slow down when ultrasonic sensor detected some-thing.bypasses the obstrucle(not set as nogo zone) once the front bumper is triggered Level 2:bypasses the obstrucle(not set as nogo zone) once detected by ultrasonic sensors.	OFF" is normally in wild mode.Level 1" is normally used when there is some high grass need to be cut in the lawn, or when the lawn is not that flat Level 2" is normally used for flat and well cut lawn.
Navigation mode	Mowing path mode: double grid or single grid	single grid for more efficient cutting.double grid for more detailed cutting
Boundary cutting	Cut 2 or 3 mowing path along the boundary if it is "On”	for more open sky area at boundary, were commend On", but if the lawn is mostly with high walls/ buildings at the boundary, better "off
Path angle	you can change the cutting path in different directions.	

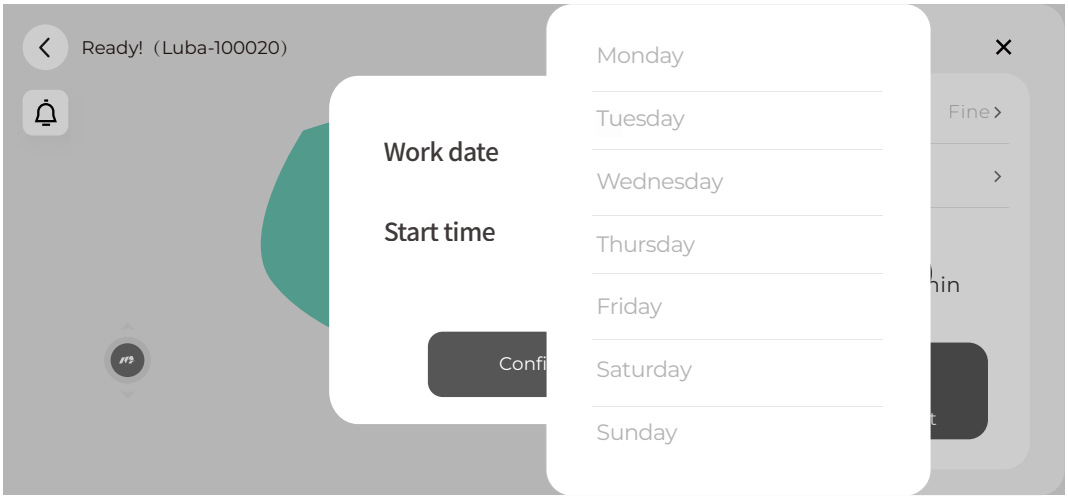
4.After click “ confirm”, the task parameter is set.

8.3 Schedule settings

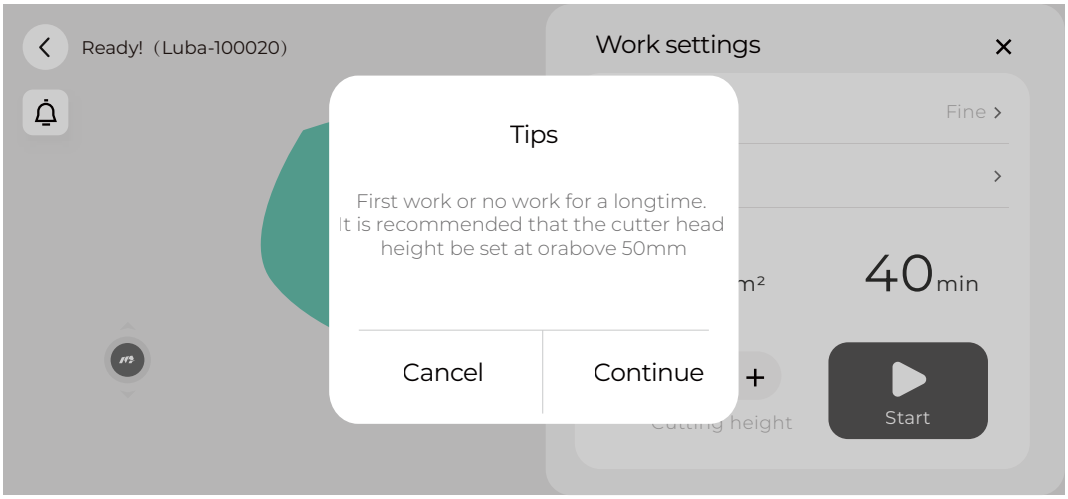
1. Select the area you want to set the schedule



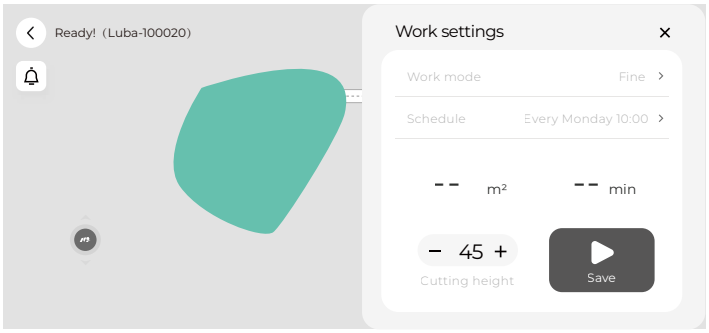
2.Set the date in each week and the start time of the selected date you want LUBA to work.

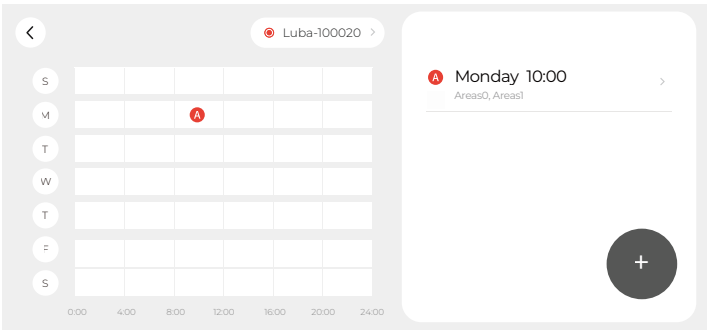


3.For the first time you use LUBA, we highly recommend you set the cutting height higher than 50mm.



4.The schedule of each task will be shown in the schedule sheet.



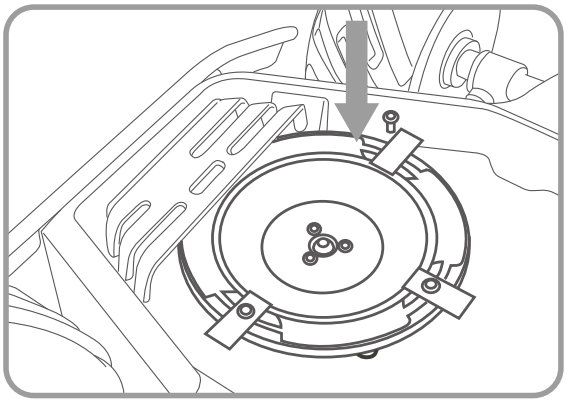


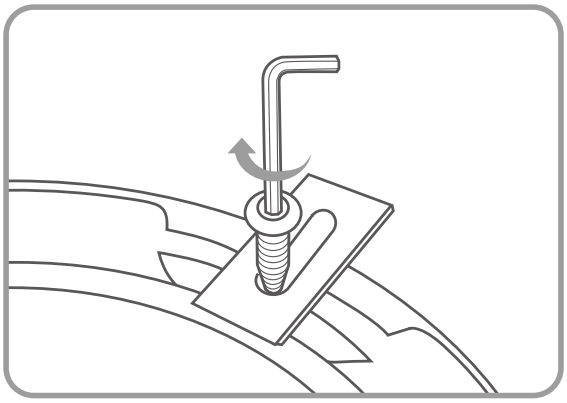
9.Cutting blades replacement

The cutting blades can be replaced when they are damaged or worn out. We recommend you change the blades every 6 month.

Tools needed： M2.5 Allen Key.

The LUBA MUST BE TURNED OFF when replacing, inspecting or cleaning the cutting blades.
Make sure the blades are fixed securely and flexibly.





Note:

1.All the cutting blades are recommended to be replaced at the same time when the mowing result looks not as well as the previous performance.
2.The blades are recommended to be replaced every three months or 150hours of mowing. For some thick grass, the cutting blade may need to be replaced more frequently.

10. Specifications:

EN

specification	LUBA AWD 5000	LUBA AWD 3000	LUBA AIR 1000
Lawn Size	Up to 5000m²	Up to 3000m²	Up to 1000m²
Engine	All-Wheel Drive (AWD)	All-Wheel Drive (AWD)	Rear-Wheel Drive (RWD)
Max Climbing Ability	75% slope	65% slope	45% slope
Vertical Obstacle Passing Ability	50 mm	50 mm	30 mm
Cutting Height	30-70 mm	30-70 mm	30-70 mm
Cutting Width	400mm	400mm	400mm
Area Capacity Per Hour, Max	500 m²	350 m²	150 m²
Battery Capacity	10Ah	10Ah	4.5Ah
Typical Charging Time	150 mins	150 mins	150 mins
Mowing Time on One Charge	3h	3h	2h
Charging System	Automatic	Automatic	Automatic
Battery Type	Lithium-ion	Lithium-ion	Lithium-ion
Virtual Boundary	Yes	Yes	Yes
Auto-navigation	Yes	Yes	Yes
Planned Cutting Route	3 modes	3 modes	3 modes
Max Zone Management	10	6	3
Obstacle Detection and Avoidance	Yes	Yes	Yes
No-go Zone	Yes	Yes	Yes
Rain Sensor	Yes	Yes	Yes
Connectivity	Bluetooth, Wi-Fi	Bluetooth, Wi-Fi	Bluetooth, Wi-Fi
User Interface	Mammotion App	Mammotion App	Mammotion App
Mowing Schedule	Yes	Yes	Yes
Firmware Update	FOTA	FOTA	FOTA
Anti-theft	Yes	Yes	Yes

11. After-sales Policy:

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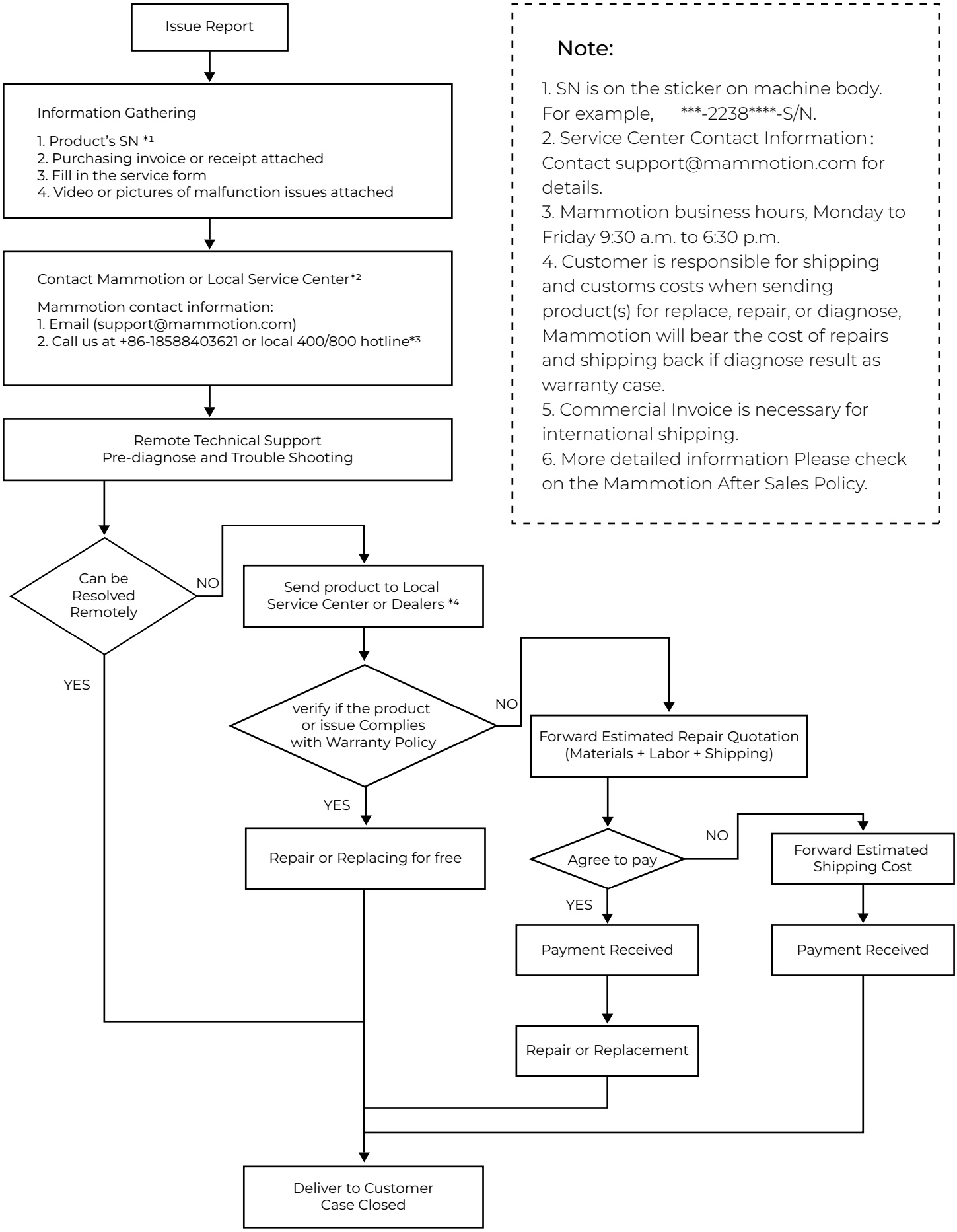
11.1 Cuetomer services flow



Note:

1. SN is on the sticker on machine body. For example, ***-2238****-S/N.
2. Service Center Contact Information: Contact support@mammotion.com for details.
3. Mammotion business hours, Monday to Friday 9:30 a.m. to 6:30 p.m.
4. Customer is responsible for shipping and customs costs when sending product(s) for replace, repair, or diagnose, Mammotion will bear the cost of repairs and shipping back if diagnose result as warranty case.
5. Commercial Invoice is necessary for international shipping.
6. More detailed information Please check on the Mammotion After Sales Policy.

11.2 Part I - limted Warranty

These MAMMOTION After-Sales Policies (these “Policies”) only apply to MAMMOTION products you purchased from MAMMOTION authorized retailers or MAMMOTION directly for your own use and not for resale.
By using your MAMMOTION product, you agree to be bound by these Policies. If you are not eligible or do not agree to any of the Terms, do not use your MAMMOTION product.
When receiving service, MAMMOTION is responsible for loss or damage to your product only while it is in MAMMOTION's possession or in transit, if MAMMOTION is responsible for transportation.
MAMMOTION is not responsible for loss or disclosure of any data, including confidential information, proprietary information, or personal information, contained in a product.

What Will MAMMOTION Do

MAMMOTION will attempt to diagnose and resolve your problem by telephone, e-mail, or online chat. MAMMOTION may direct you to download or install software updates. If your problem cannot be resolved over the telephone or through the application of software updates, you may be required to deliver the product to MAMMOTION for further examination or local MAMMOTION’s appointed service centers.

What This Limited Warranty Does NOT Cover

All the damages caused by misuse or not following the user manual and below：
1. Third party claims against you for damages.
2. Loss, damage or disclosure of your data.
3. Special, incidental, punitive, indirect, or consequential damages, including but not limited to lost profits, business revenue, goodwill or anticipated savings. In no case shall the total liability of MAMMOTION, its affiliates, suppliers, resellers, or service providers for damages from any cause exceed the amount of actual direct damages, not to exceed the amount paid for the product.

Product and Part Replacement

When after-sales service involves the replacement of a product or part, the replaced product or part becomes MAMMOTION’s property, and the replacement product or part becomes your property. Only unaltered MAMMOTION products and parts are eligible for replacement.
Replacement products or parts provided by MAMMOTION may not be new, but it will be in good working order and at least functionally equivalent to the original product or part’s warranty.
A replacement product or part shall be covered for the time remaining in the original product’s warranty.

11.3 Part II – Warranty

Under this Limited Warranty, MAMMOTION warrants that each MAMMOTION product that you purchase will be free from material and workmanship defects under normal use in accableance with MAMMOTION’s published product materials during the warranty period. MAMMOTION’s published product materials include, but not limited to user manuals, quick start guide, maintenance, specifications, disclaim, and in-app notifications. The warranty period varies for different products and parts. Please check in below table to verify the duration of the warranty for your product or parts

1.The warranty period for a product starts on the day such products are delivered.
2.If you cannot provide invoice or other valid proof of purchase, then the warranty period will start from 90 days after the production date that shows on the product, unless otherwise agreed upon between you and MAMMOTION.
3.MAMMOTION will need users to arrange the shipment by themselves if users would like to send the products to local service center or MAMMOTION factory for further diagnosis. MAMMOTION will repair or replace and send back to users at no cost if the problem falls under this Limited Warranty. If not, MAMMOTION or designated service center may charge a fee accableingly.
4.MAMMOTION guarantees that, subject to the following conditions Warranty Repair Service can be requested. Please contact MAMMOTION or your authorized MAMMOTION dealer for more details. You will be required to fill out a repair form or RMA (Return Material Approval), which should be sent to us along with the to-be-repaired unit.
5.DOA (dead-on-arrival, defective-on-arrival, and/or damaged-on-arrival), refers to goods that are defective on arrival. After receiving goods from MAMMOTION, or the authorized dealer, and find the product appear to be damaged or have performance(s) failure. In such condition, please contact MAMMOTION or your authorized MAMMOTION dealer to identify and confirm for replacement.
6.Replacement applies to DOA cases. It shall be requested within 7 calendar days of receiving the goods. The replacement will be completed with 30 calendar days upon receipt of the completed goods, including all original accessories, attachments and packaging.
RMA (Return Material Approval), please fill out the form provided by MAMMOTION, Scan and Email to support@mammotion.com.

What to do Before Obtaining After-sales Service

Before obtaining after-sales service, the following steps must be taken:
1.Follow the procedures specified by MAMMOTION as shown in the “MAMMOTION General Customer Services Flow” part. Backup all data contained on your product by yourself.
2.Except for drive logs, remove all data, including confidential information, proprietary information, and personal information, from the product. Or, if you are unable to remove any such information, modify the information to prevent its access by other party or so that it is not personal data under applicable law. MAMMOTION shall not be responsible for the loss or disclosure of any data, including confidential information, proprietary information, or personal information, on a product returned or accessed for warranty service.
3.Provide MAMMOTION with all system passwords, if necessary. Provide MAMMOTION with sufficient and safe access to your product, so MAMMOTION can provide service as needed.
4.Remove all additional parts, alterations, and attachments not covered under warranty.
5.Ensure that the product or part is free of any legal restrictions that prevent its replacement.
If you are not the owner of a product or part, obtain authorization from the owner for MAMMOTION to provide warranty service.

How to Obtain Warranty Service

If a product does not function as warranted during the warranty period, you may obtain after-sales service by contacting MAMMOTION’s local dealer or through support@mammotion.com. You will need to provide a valid proof of purchase, receipt or order number (for MAMMOTION Direct Sales) along with the serial number of your products for the warranty service. Charges may apply for services not covered by this Limited Warranty. Please contact MAMMOTION for information specific to your location.
Please note that the warranty service is only available in the respective MAMMOTION service regions where you purchased your MAMMOTION product.

Table for parts warranty:

Model	LUBA	
Component		Limited warranty period
Main body		2 years
Battery		2 years
Accessories	Charging station &RTK antenna	1 years
Wearing parts	Type	No warranty
	Decoration/Appearance parts	No warranty
	Cutting blade	No warranty

*MAMMOTION reserves the rights of interpretation for this Limited Warranty and may not be able to notify each user when updates happen. Refer to the official website for any details and updates.

Your Other Rights
This Limited Warranty provides you with extra and specific legal rights. You may have other rights acca-bleing to the applicable laws of your state or jurisdiction. You may also have other rights under a written agreement with MAMMOTION. Nothing in this Limited Warranty affects your statutory rights, including rights of consumers under laws or regulations governing the sale of consumer products that cannot be waived or limited by agreement.

12.Maintenance Guide

In order to have your LUBA in a good condition at all times, please clean your LUBA each time after mowing. The cleaning process in MAMMOTION user manual instructs you to get rid of the clippings, twigs, leaves or dust and keep the mower in good condition.

1.Motors and cutting blades maintenance (After Every Mowing task)

1.1 Turn off the mower and flip it over on a relatively soft surface ground. Then find a tool to clean the clippings, twigs or leaves from the bottom of mower. Make sure the cutting blade disks are clean and will not get stuck.
1.2 If the mower would be stored for a long time, it will be better to add anti-rust oil on the cutting blades after do some cleanings.
1.3 Keep the hub motors shaft dry and clean for long-term storage.
1.4 The cutting blades are recommended to be replaced every 3 months or 150hours mowing.

2.Battery Maintenance

2.1 Keep 50% to 60% battery level before long term storage.
2.2 Charge to full once every 90 days.
2.3 Clean and make sure the charging ports on the mower are dry and clean after very mowing task.

3.Appearance maintenance (After Every Mowing task)

1.1 Clean the cover and the wheels with fresh water and make sure there are no clippings or dust covering on it.
1.2 When there is damage on it, please replace the broken parts as possible.

13.Disclaimer

We provide customers with after-sale services, excluding the following circumstances:
1.Crashes damage caused by non-manufacturing factors, including but not limited to, user errors.
2.Damage caused by unauthorized modification, disassembly, or shell opening not in accableance with official instructions or manuals.
3.Damage caused by improper installation, incorrect use, or operation not in accableance with official instructions or manuals.
4.Damage caused by a non-authorized service provider.
5.Damage caused by unauthorized modification of circuits and mismatch or misuse of the battery and charger.
6.Damage caused by users which do not follow instruction and manual recommendations.
7.Damage caused by operation in bad lawn conditions (i.e., large areas of floods without setting no-go zones, a lot of stones covering on it, etc.)

8.Damage caused by operating the product in an environment with electromagnetic interference (i.e., in mining areas or close to radio transmission towers, high-voltage wires, substations, etc.).
9.Damage caused by operating the product in an environment suffering from interference from other wireless devices (i.e., transmitter, video-downlink, Wi-Fi signals, etc.).
10.Damage caused by reliability or compatibility issues when using unauthorized third-party parts.
11.Damage caused by operating the unit with a low-charged or defective battery.
12.Loss of, or damage to, your data by a product.
13.Any software program, whether provided with the product or installed subsequently.
14.Failure of, or damage caused by, any third-party products, including those that MAMMOTION may provide or integrate into the MAMMOTION product at your request.
15.Damage resulting from any non-MAMMOTION technical or other support, such as assistance with “how-to” questions or inaccurate product set-up, installation, and firmware upgrade.
16.Damage caused by operating the MOWER in the sensitive zone (military, natural resource protection zoning, etc.)
17.Damage caused by unpredictable factors (cars, wild animals attack, flood, etc.)
18.Products or parts with an altered identification label or from which the identification label has been removed.

For more information, please check our website for tuition videos, or read FAQ in MAMMOTION APP/Help/FAQ.

https://MAMMOTION.com/

This content is subject to change without prior notice.