

www.ttshop.se

ROBOT MOWER
USER MANUAL

WARNING

Keep this user manual handy, refer to it at any time. This User manual is a permanent part of the robot mower and should remain with the robot mower if resold.

However, to discontinue or change specifications or design at any time without notice and without incurring any obligation whatever, No part of this publication may be reproduced without written permission.



WARNING:

THE ROBOT MOWER IS DANGEROUS
IF INCORRECTLY USED!

CHAPTER ONE SAFETY AND PRECAUTION	01
1.1 Brief Introduction	01
1.2 Safety Marks	01
1.3 Precaution	02
1.4 Package and transportation	02
CHAPTER TWO INFORMATION SUMMARY	03
2.1 Main Parts	03
2.1.1 Machine Body	03
2.1.2 Charging Station	03
2.1.3 Boundary line and Adapter	04
2.1.4 Remote Control	04
2.2 Technical Parameters	05
2.2.1 Machine body technical parameters	05
2.2.2 Power Adaptor technical parameter	05
2.2.3 Charging station technical parameter	05
2.2.4 Remote control technical parameter	05
2.3 Mowing Path	06
2.3.1 Random linear mode	06
2.3.2 Involutes mode	06
2.4 The Mower's Main Function	07
2.4.1 Mowing schedule	07
2.4.2 Automatic charging	07
2.4.3 Automatic shelter rain	07
2.4.4 Remote control	07
2.4.5 Automatic obstacle slow down	07
2.4.6 Slope over 30 degrees alarm	07
2.4.7 Fall alarm	07
2.4.8 Collision detection	07
2.4.9 Mower start alarm	07
2.4.10 Unexpected shut down alarm	07
2.4.11 Password protection	07
CHAPTER THREE OPERATION INTRODUCTION	08
3.1 Check all the parts	08
3.2 lawn clear	08
3.3 Installation of charging station	09
3.3.1 Choose a suitable location	09
3.3.2 Place the changing station	09
3.4 layout the boundary line	10
3.4.1 Layout the boundary line	10
3.4.2 Fix the boundary line	11
3.5 Debugging the charging station	12
3.6 Installation of the fuse	13
3.7 Battery change	13
3.8 Setting	14
3.9 Start the mower	22
3.10 Remote control	23
3.11 Cartion for daily use	24
CHAPTER FOUR MAINTENANCE GUIDE	25
4.1 Replacement of the blade	25
4.2 Replacement of the battery	25
4.3 Clean-up mowing cutter cover	25
4.4 Clean-up the front and rear wheels	25
CHAPTER FIVE TROUBLESHOOTING	26
CHAPTER SIX SERVICE	28

Chapter One Safety and Precaution

1.1 Brief Introduction

Thank you for choosing our high quality product. Before use the robot mower, please read the operating manual to guide your operation of this machine.

1.2 Safety Marks

Please read through all the following marks on the mower.

 <ul style="list-style-type: none"> ■ CE approved 	 <ul style="list-style-type: none"> ■ Keep hands clear of moving parts
 <ul style="list-style-type: none"> ■ Rotating keep hands away 	 <ul style="list-style-type: none"> ■ Keep hands and feet away from the rotating blades.
 <ul style="list-style-type: none"> ■ Please follow all the safety and caution signs in operating manual 	 <ul style="list-style-type: none"> ■ Authorized people only
 <ul style="list-style-type: none"> ■ Don't disassemble 	 <ul style="list-style-type: none"> ■ Never ride on this mower
 <ul style="list-style-type: none"> ■ Please read through this User manual before usage 	 <ul style="list-style-type: none"> ■ Wear protective gloves when repair chassis of mower

Chapter One Safety and Precaution

1.3 Precaution

1. Let children or pets be away from mower when it is working.
2. Clear up all the debris on your lawn before start the mower.
3. Make sure that people who are not familiar with the mower are staying away from this machine while it is working.
4. Never repair or adjust this machine while it is working.
5. Never inspect blades or lift the mower while the machine is working.
6. Never let this mower work on the slope over 30°
7. Never use this machine when any safety part damaged.
8. Wear safety gloves when inspect blades.
9. Wear goggles and gloves when install boundary line and fix bolt.
10. Turn off the machine when charge it from the rear socket.

Note:

Take good care of children, remove the fuse of the machine when there is no adult in the home to avoid error starting, for children's curiosity might resulting accidental injury.

1.4 Package and transportation

1. Use the factory package to protect the machine in transportation.
2. Turn off the machine and remove the fuse in transportation.
3. Turn the machine's power off when it will not use for a long time, and charge the Lithium battery every 2 months(charge the Lead-Acid battery every 2 weeks) to guarantee the performance of the battery.
4. Remove the fuse when it is finished charging to ensure safety.
5. During rain season, it is recommended to place the mower in the place absence of rain, turn the power off and remove the fuse.
6. During snow season, move the machine to the room, turn off the power, and suggested to remove the fuse.

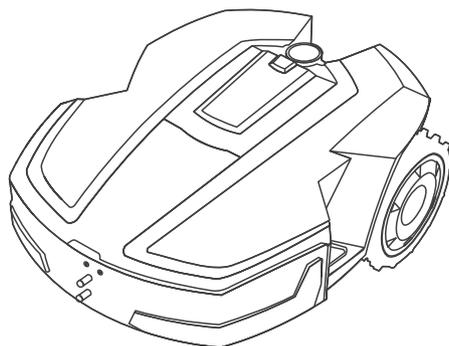
Chapter Two Information Summary

2.1 Main Parts

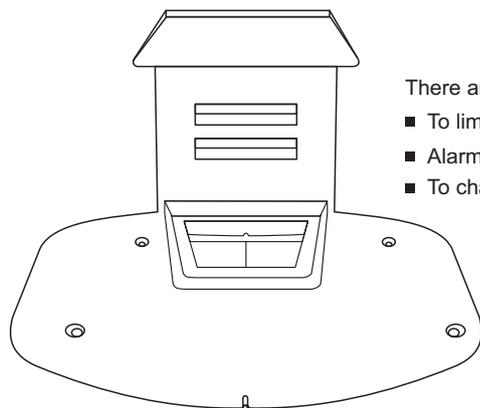
There are 4 main parts in this robot mower: 1. Machine body, 2. Charging station, 3. Boundary line and Power adaptor, 4. Remote control.

2.1.1 Machine Body

This robot mower is powered by battery.



2.1.2 Charging Station



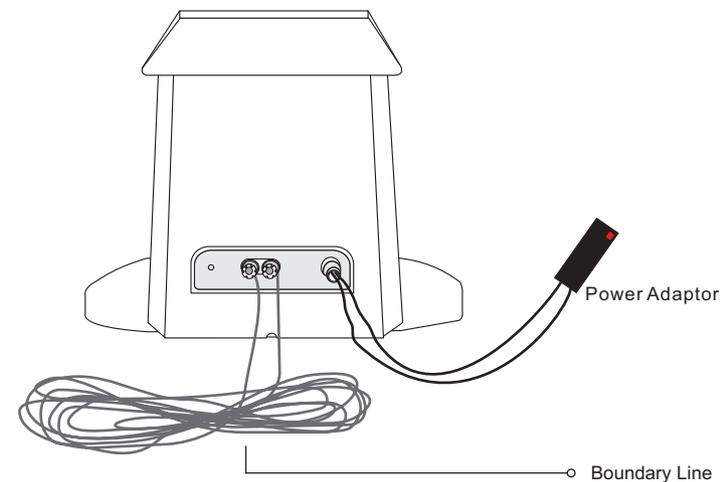
There are 3 functions:

- To limit working area of mower by boundary line
- Alarm and instructions
- To charge the battery of mower

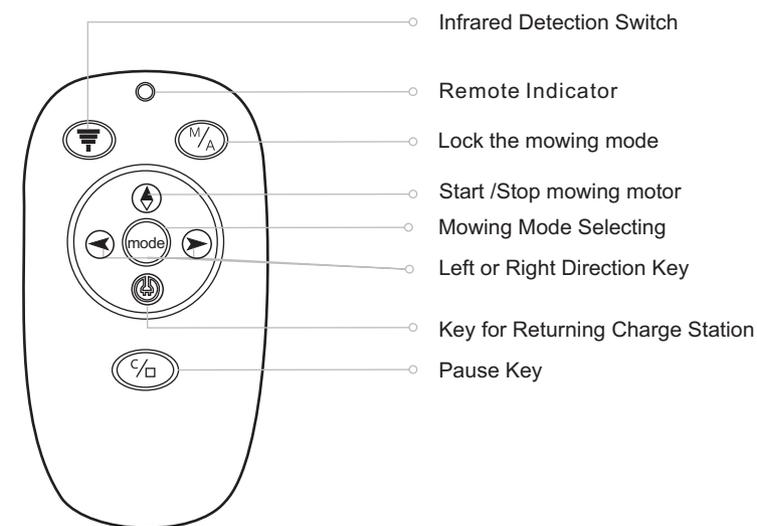
Chapter Two Information Summary

2.1.3 Boundary line and Power adaptor

Boundary line is layout along the boundary of lawn and other obstacles.



2.1.4 Remote Control



Chapter Two Information Summary

2.2 Technical Parameters

	L600	L600s	L600-Plus	C600	
Machine body Technical Parameters 2.2.1	Daily Mowing Area	≤700m ²	≤400m ²	≤1000m ²	≤500m ²
	Cover Area	≤2500m ²	≤2500m ²	≤2500m ²	≤2500m ²
	Lawn remain height	3cm~6cm	3cm~6cm	3cm~6cm	3cm~6cm
	Mowing width	24cm	24cm	24cm	24cm
	Climbing inclination	≤30°±10°	≤30°±10°	≤30°±10°	≤30°±10°
	Charging time	5-6 hours	2-3 hours	9-10 hours	8-9 hours
	Average working time	3-4 hours	1.5-2 hours	6-7 hours	2-3 hours
	Battery	Lithium, 24V,8Ah	Lithium, 24V,4Ah	Lithium, 24V,16Ah	Lead-acid, 24V,7Ah
	Mowing Motor Rotate Speed	3200 rpm	3200 rpm	3200 rpm	3200 rpm
	Mowing Motor Power	60W	60W	60W	60W
Max speed	1.2 km/h	1.2 km/h	1.2 km/h	1.2 km/h	
Adaptor technology Parameter 2.2.2	Input Voltage	AC 100V-240V 50/60Hz	AC 100V-240V 50/60Hz	AC 100V-240V 50/60Hz	AC 100V-240V 50/60Hz
	Input Current	1.8A	1.8A	1.8A	1.5A
	Output Voltage	DC 29.4V	DC 29.4V	DC 29.4V	DC 29.6V
Charging station 2.2.3	Output Current	2A	2A	2A	1.5A
	Input Voltage	DC 29.4V	DC 29.4V	DC 29.4V	DC 29.6V
Remote Control 2.2.4	Output Voltage	DC 29.4V	DC 29.4V	DC 29.4V	DC 29.6V
	Power voltage	12V	12V	12V	12V
	Effective range for remote control	<15m	<15m	<15m	<15m

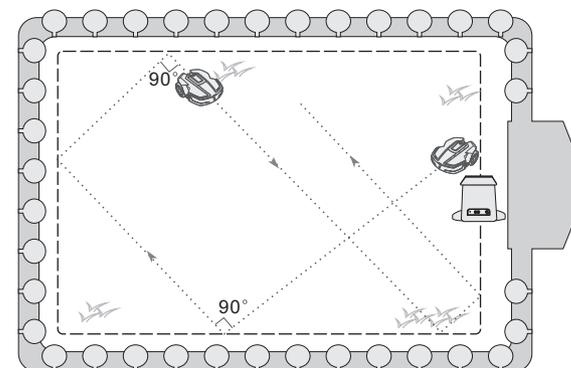
Chapter Two Information Summary

2.3 Mowing Path

2.3.1 Random linear mode

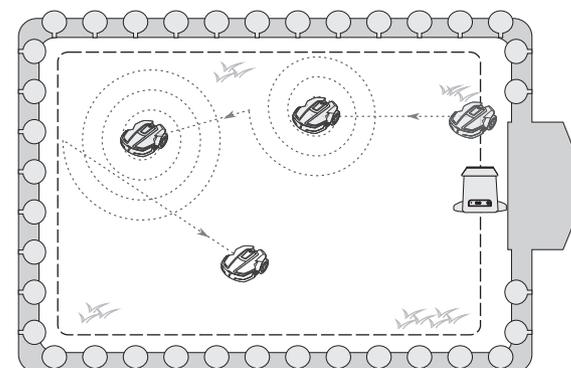
In the random linear mode, when the mower detects the boundary line, it will turn 90-degree to another direction, then it walks a straight line, continue mowing until the next encounter the boundary line, and automatically turns 90-degrees, then mow along a straight line, followed by repeated, so that the machine will not walk in the same straight line to avoid duplication path as far as possible, so it will achieve maximum mowing efficiency.

Usually, the mowing capacity is 130 square meters per hour.



2.3.2 Involutes mode

The mower works with a position as a starting point to begin walking 0.3m radius arc, the arc radius gradually become larger, to achieve the involutes pattern mowing. This mode is suitable for mowing a small area under manual remote control.



Chapter Two Information Summary

2.4 The mower's Main function

2.4.1 Scheduled mowing

The mowing schedule can be set 24 hours a day and 7 days a week. (be noticed: the scheduled starting time must be earlier than stopping time). The machine will automatically go out to mow at starting time, and automatically stop mowing, and then return to the charging station at the stopping time.

2.4.2 Automatic charging

The mower will turn off the mowing motor and go back to the charging station to re-charge when the battery is flat during mowing.

2.4.3 Automatic shelter rain

The machine has a built-in rain sensor, when it detects the rain within several seconds, the machine will automatically stop mowing and return to charging station, it will not go out to work until the next appointment or manual operation.

2.4.4 Remote control

A remote control is provided to allow users to switch the machine mowing mode(Auto/Manual) and control the direction of the machine to make it easier to use.

2.4.5 Automatic obstacle slow down

The machine has a built-in infrared detection system, it will automatically slow down the walking speed when it detects obstacles in front of it, to protect the machine from violent collision.

2.4.6 Slope over 30 degree alarm

When the machine body's tilt is greater than 30 degrees, the machine will turn off the mowing motor in 2 seconds, and starts an alarm; the display will show "ERROR 5".

2.4.7 Fall alarm

The machine will shut down and alarm and the display will show "ERROR 4" when both front wheels fall into a hole or gap at the same time lasts longer than 2 seconds to remind users.

2.4.8 Collision detection

There are collision sensor in the front of the machine, it will change the walk direction when it detects obstacles (such as trees, fences, etc.) to avoid the machine from violent collision.

2.4.9 Mower start alarm

The machine will give 3 short beeps to alarm people nearby before the motor starts mowing.

2.4.10 Unexpected alarm

The machine will automatically stop and show "ERROR 7", when it fails to detect the boundary line signal at going alone the boundary line or charging in the charging station , It can protect the mower to avoid going out of the lawn and broken.

2.4.11 Password protection

The robot has a password protect function. If a password is set and activated, the robot will not work until input the right password. (This function is deactivated by default).

Chapter Three Operation Introduce

This chapter introduces how to install this mower. Please install as followings.

3.1 Check all the parts

NO.	Item	Quantity	Remarks
1	Fuse	5pcs	F20A/250V 30 x 5 mm
2	Extra mowing blade	4set	16 pcs
3	User Manual	1pcs	
4	Remote control battery	1pcs	23A 12V
5	Remote control	1pcs	
6	Boundary line plug	1pair	Black and Red
7	Plastic nail for charging station	4pcs	
8	Plastic nails for boundary line	1bag	Standard 50 pcs
9	Boundary line	1pcs	Standard 100m
10	Power Adaptor with cable	1pcs	
11	Charging station	1pcs	
12	Mower	1pcs	

3.2 lawn clear

When the weeds of your lawn are too high(more than 15 cm high) or too thick, use the traditional mower to mow the lawn and clear up the lawn to ensure there are no hard foreign matters such as stones, dry pruning on the lawn, stone will damage the blade.

We advice you installing strong fence around the Trees, shrubs, etc, so mower will not hit them.

Note:

Before using the mower for the first time, it is necessary to clean up the lawn, and mow with traditional lawn mower.

This is very important, if not follow the above instruction, the mower parts may be damaged.

Chapter Three Operation Introduce

3.3 Install charging station

3.3.1 Choose a suitable location:

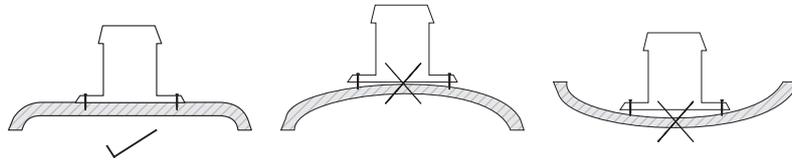


Figure 3.3-1

Note:

- 1) The place must be firm and flat. It should not be placed in the low-lying position on the lawn. The low-lying position may be flooded and damage the charging station or machine.
- 2) No obstacles in front of the charging station.
- 3) No magnetic interference. It should not be placed near the magnetic field source because the robot mower may be interfered and can't work properly.

3.3.2 Place the charging station:

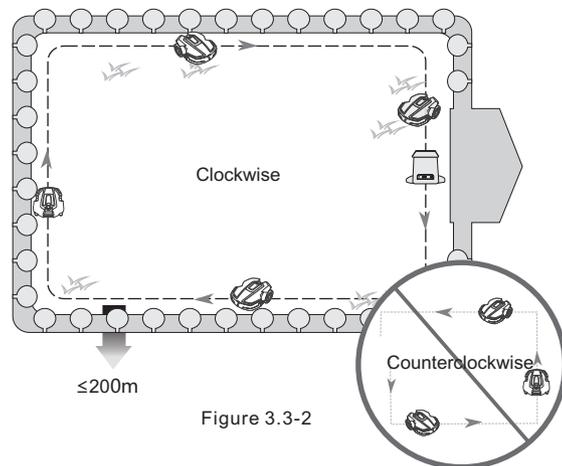


Figure 3.3-2

Note:

The interface surface (with 2 copper bar) of charging station should be placed towards to the counterclockwise (see figure 3.3-2), because the mower will go along the line by clockwise direction, otherwise, the mower will not charge properly.

Chapter Three Operation Introduce

3.3.3 Fix the charging station

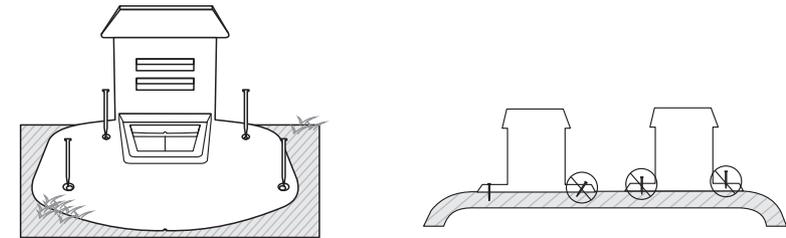


Figure 3.3-3

Note:

- 1) The front boundary line should put through the bottom of charging station.
- 2) Please put the four plastic nail fix into the charging station and the nail should put vertically and firmly.

3.4 Install the boundary line

3.4.1 Layout the boundary line:

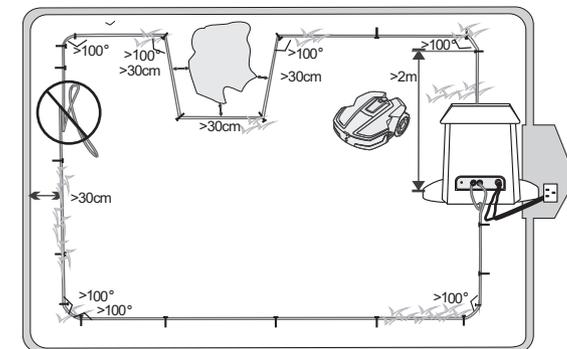


Figure 3.4-1

Note:

- 1) The space between the boundary line and the edge must be more than 30cm;
- 2) One end of the boundary line should be put through the middle of the charging station's base, there must be minimum 2 meters distance in the front of the charging station to ensure the mower can returns to the charging station;
- 3) If there is an obstacle on the edge of the lawn, the boundary line should be layout to bypass it, and the space between the boundary line and obstacle should be more than 30cm.

Chapter Three Operation Introduce

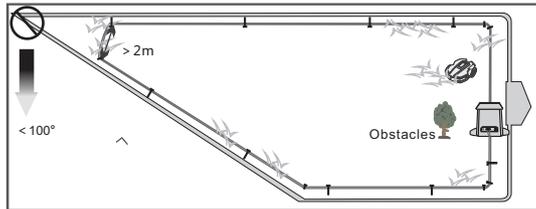


Figure 3.4-2

Note:

Each angle of the boundary line layout on the corner of lawn should be more than 100 degrees (recommended 135 degrees), if the angle is less than 100-degree, it might cause malfunction. Refer to the Figure3.4-3.

If the lawn have two zones like the Figure3.4-3. The width of the passageway between ZONE1 and ZONE2 must be greater than 1.5m.

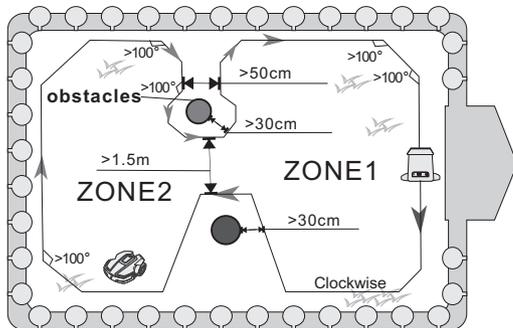


Figure 3.4-3

Note:

- 1) When there has a pool or other obstacle in the middle of the lawn, the boundary line should be laid at least 30cm from the obstacle.
- 2) The space between two boundary lines must be more than 50cm.

3.4.2 Fix the boundary line

Note:

- 1) The boundary line should be fixed by a plastic nail every 2-3 meters according the lawn's actual situation.
- 2) Layout the boundary line to the root of grass as close as possible to avoid the robot to cut it off and cause problem.
- 3) The boundary line(default 0.75 m²) is suggested to be less than 200 meters. And if upgraded to 1.0 m² diameter, keep it less than 300 meters.

Chapter Three Operation Introduce

3.5 Debugging the charging station

1. Connect the boundary line to the plug, then plug into the charging station.

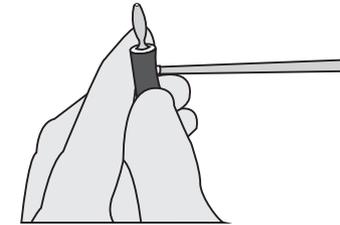


Figure 3.5-1

2. Note: first, plug the adaptor to the charging station, second, plug the power cable to the main power .Don't reverse the step.

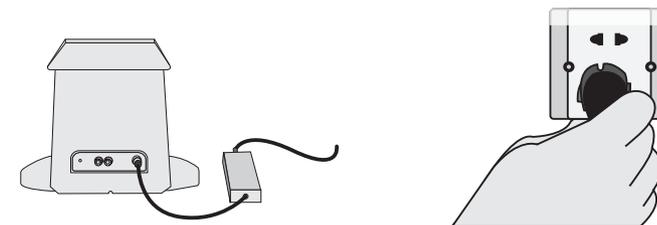


Figure 3.5-2

3. Check the charging station's indicator's status.

The right side indicator is green, it means the charging station is ready. Then plug out one boundary line, the left side indicator turns yellow, and flashes, and beeps, then plug in the boundary line again, the flash and beep stops. The debugging is finished.

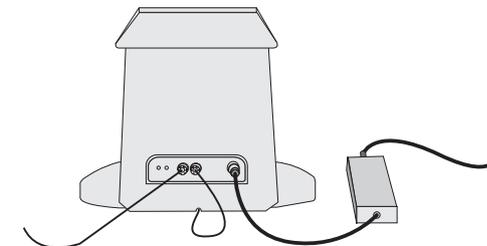


Figure 3.5-3

Chapter Three Operation Introduce

- Let the mower's charging copper head connect to the copper bar of the charging station, the indicator (in the left of the charging station) is red, and all above means the charging station is ok.

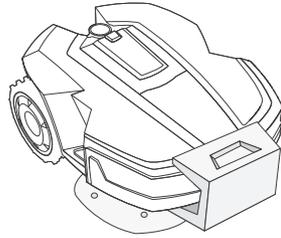


Figure 3.5-4

3.6 Installation of the fuse

loosen the fuse tube cover, insert the fuse first, before start the robot.

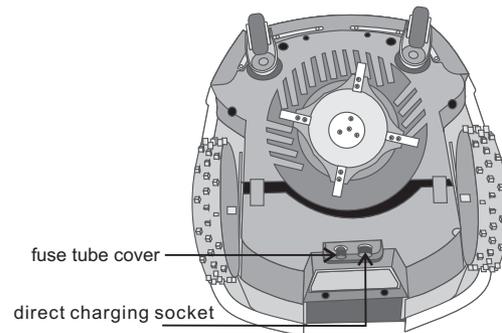


Figure 3.6-1

3.7 Battery charge

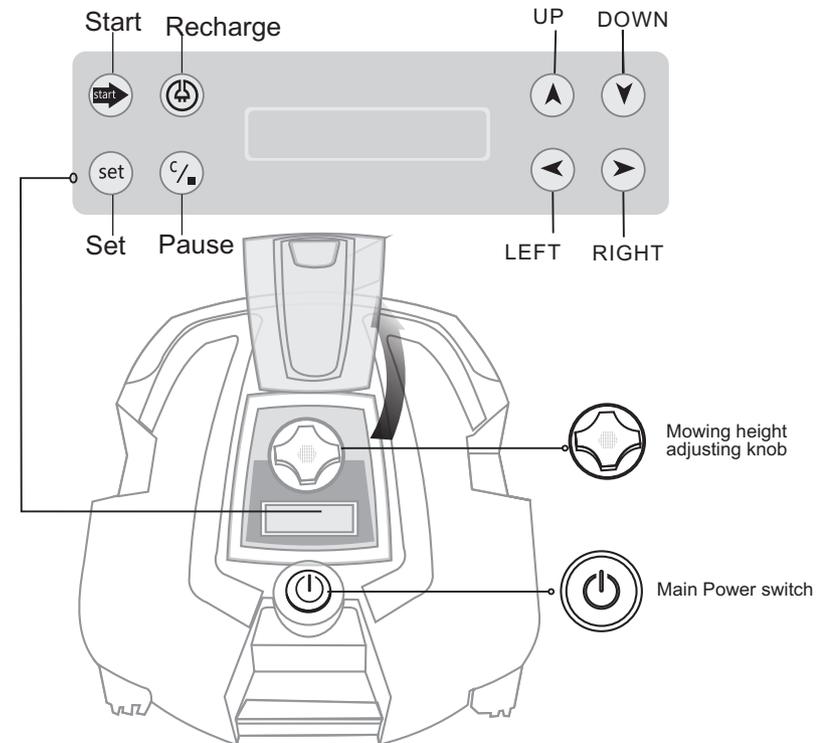
If the machine is stored for a long time (more than one month), the battery needs recharge. Plug the adapter's connector to the robot's direct charging socket.

Under automatic mode, the robot will return to the charging station for recharge automatically.

Chapter Three Operation Introduce

3.8 Setting

Use "Mowing height adjusting knob" to adjust the height of the grass, the adjustable range is 3cm-6cm



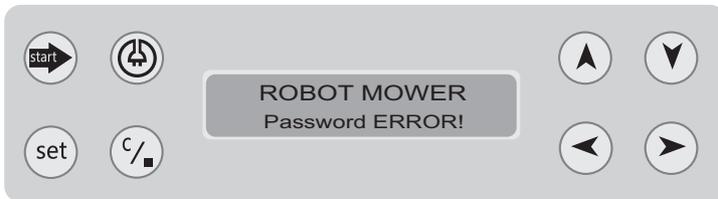
• Set the parameters through the setting panel.

Press "set" to enter operation interface

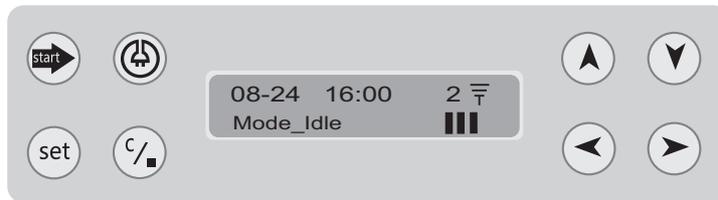


Chapter Three Operation Introduce

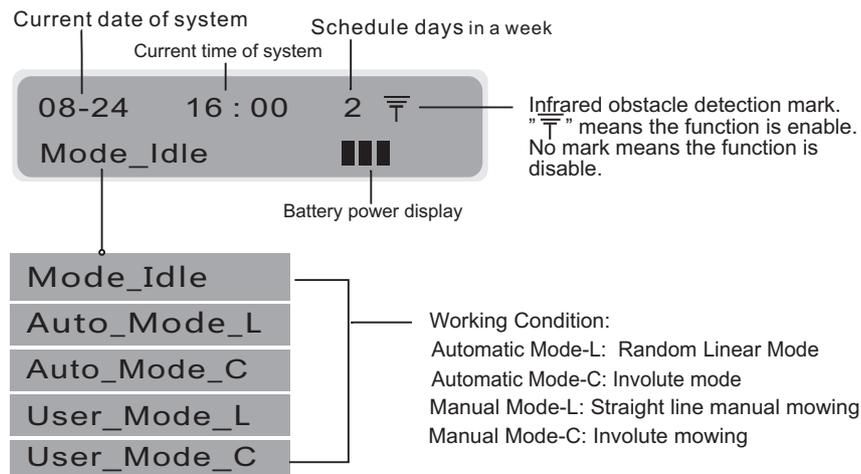
Then need to input the password (the function is deactivated by default, press “set” to pass it), if the password is wrong, it shows “ERROR” prompt, and return back to password input interface.



Input the right password,you will see following interface



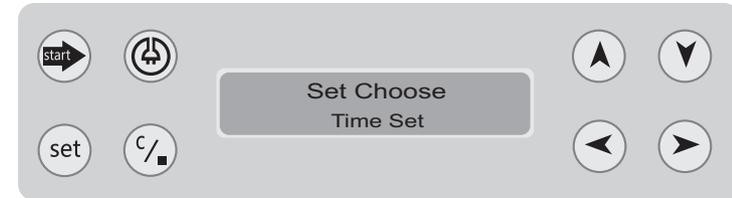
• Operation Interface Description



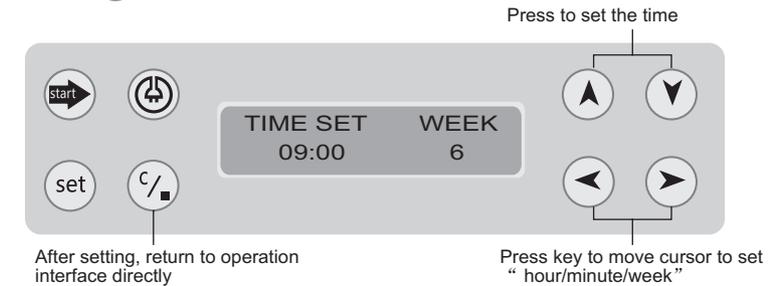
Chapter Three Operation Introduce

• Time setting

1. Press “set” to enter setting interface,then the screen will display “Time Set” as the following picture.



2. Press “set” again to enter time setting.

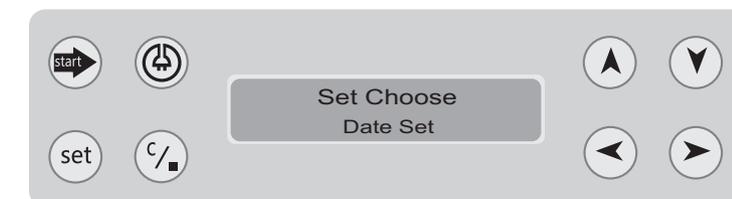


3. Press “←→” to move cursor to set the hour, time and week. Then press “↑↓” to select the specific number.

4. After setting, press “set” to finish.

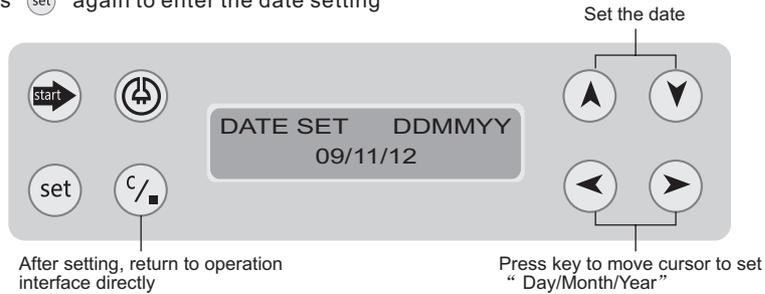
• Date setting

1. Press “set” to enter date setting up interface. Press “←→” or “↑↓” to select “DATE set”.



Chapter Three Operation Introduce

2. Press “set” again to enter the date setting



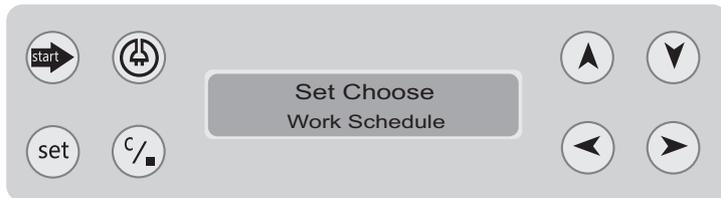
3. Press “← →” to move cursor to set the Day/Month/Year.

Then press “↑ ↓” to select the specific number.

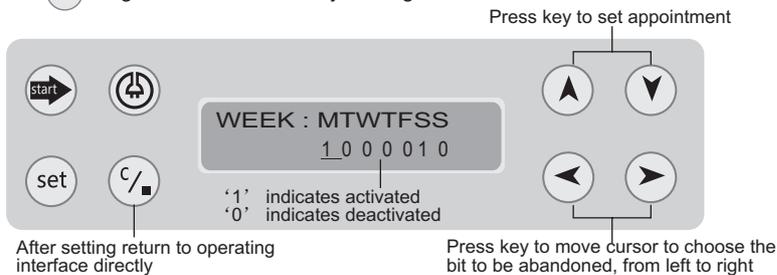
4. After setting, press “set” to finish.

● Work Schedule setting

1. Press “set” to enter setting interface, press “↑ ↓” or “← →” select “work schedule”.



2. Press “set” again to enter work day setting interface

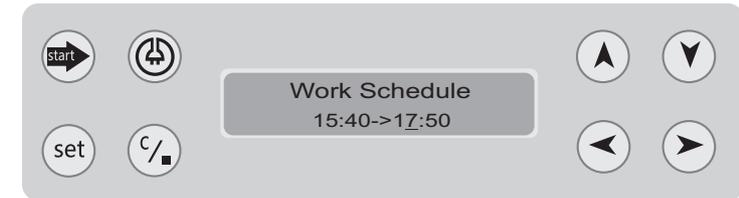


Chapter Three Operation Introduce

3. Press “← →” to move cursor to choose from Monday to Sunday.

4. Press “↑ ↓” to set “1” or “0”. “1” indicates activated, “0” indicate deactivated. Set the work day of the week.

5. After work day setting, press “set” to enter work time setting interface.

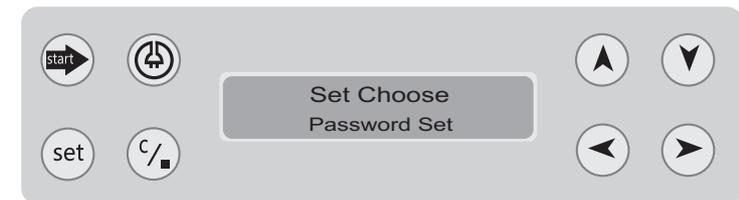


6. Press “← →” to move cursor to set work hour and minute, then press “↑ ↓” to select the specific number. The front time in screen is start time, the other is end time.

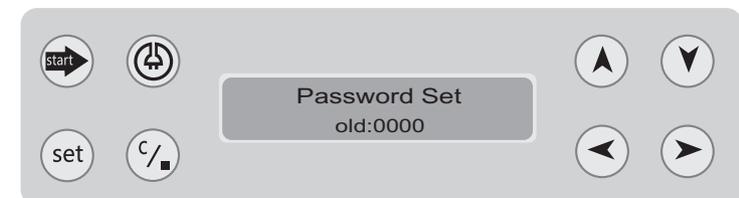
7. After work time setting, press “set” to finish.

● Password setting

1. Press “set” to enter setting interface, press “← →” or “↑ ↓” select “password set”.

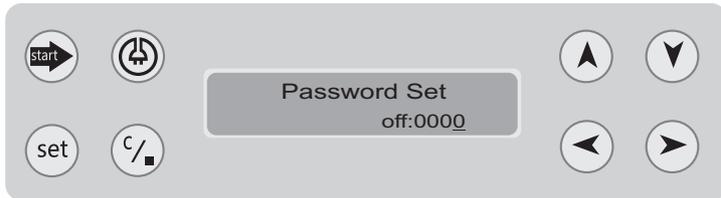


2. Press “set” again to enter password setting interface.

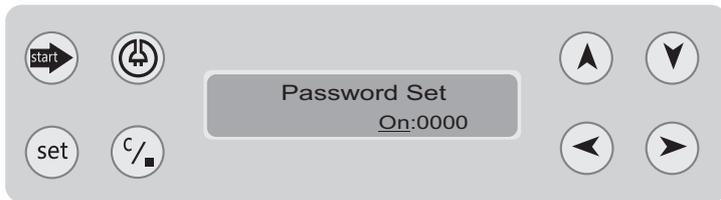


Chapter Three Operation Introduce

3. The old password "0000" should input first, then press "set" to enter new password interface.



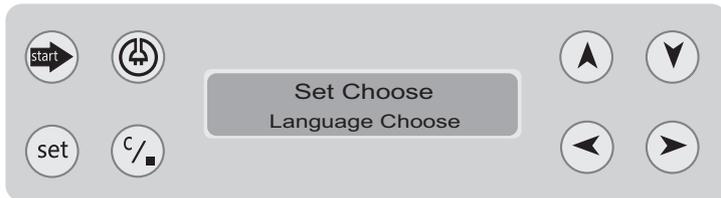
4. Press "← →" to select cursor. Press "↑ ↓" to activate password protection and set new password.



5. After setting over, press "set" to finish.

• Language setting

1. Press "set" to enter the setting interface, Press "↑ ↓" or "← →" to select "language choose".



2. Press "set" again to enter language select interface.

English, German, Italian and French are available for selection by "← →" and "↑ ↓", then press "set" to finish.

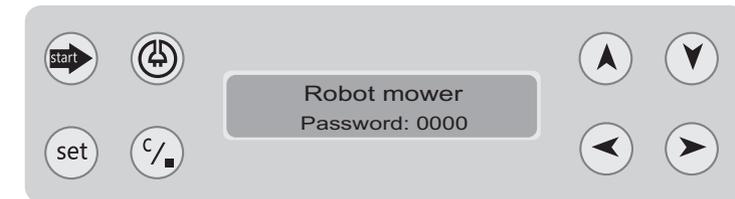


Chapter Three Operation Introduce

3. Press "C/." to return default interface directly.



4. if the password function is ON, input the right password, press "set" to enter the default interface.

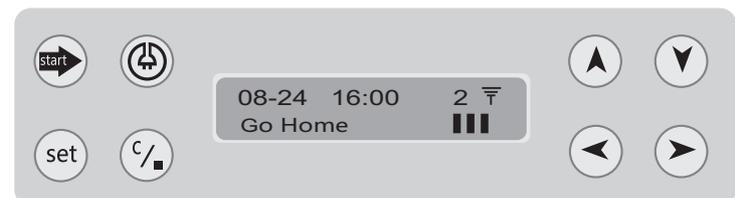


5. Press "start", the mower gives 3 beeps and begins to work.



6. Press "set" or "C/." to stop the mower.

Press "power", the mowing motor stops and go back to the charging station.

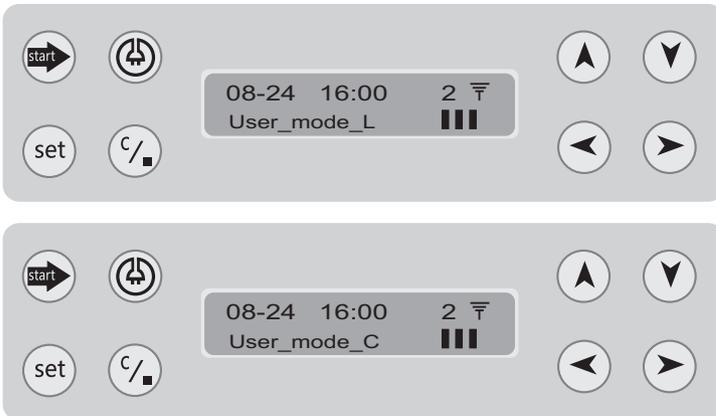


Chapter Three Operation Introduce

7. Under automatic mode, the mower will switch from “Auto_mode_L” to “Auto_mode_C” automatically. Press “mode” on remote control can also switch the mode.



8. Press “M/A” on remote control to change “Auto mode” to “User mode”.



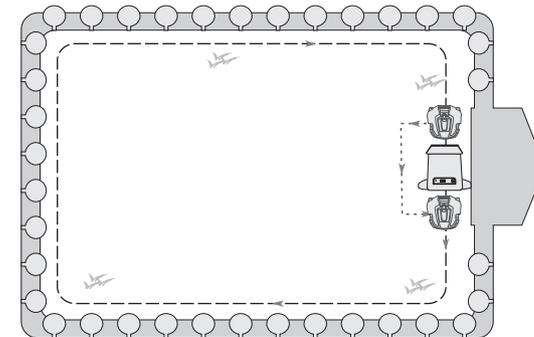
Chapter Three Operation Introduce

3.9 Start the mower

Set the work schedule first.

In automatic mode, the mower will automatically go out to work and go back to charging station as following pre-set schedule.

1. When charging, “mode” button is invalid.
When the appointment time arrived, the machine beeps twice and go backwards to exit from the charging station, then turned into the lawn, and then gives 3 short beeps before mowing, and then go to the back side of charging station and ride on the boundary line, mowing along on the boundary line, when it completes the circle and contacts the charging station's copper bar again, it will move backwards and go into the lawn and mow by a random straight line "AUTO L" mode.
2. Under automatic mode, the robot will turn off the mowing motor and find the boundary line, then go back along the boundary line to the charging station because of flat battery, the working time's up or rain.
3. After fully charged, the robot will move backwards 2-3cm from the charging station's copper bar. (This can reduces the battery recharged cycle, lengthen the battery's life.)



Chapter Three Operation Introduce

For manual operation, refer to the following instructions:

1、 Manual operation: put the machine in the lawn, press “

2、 When the robot works in the lawn , it can be controlled its mowing direction and the mowing mode by the remote control according to the actual situation to achieve the desired effect .

3.10 Remote control

You can control the machine to start/pause, turn left/right, switch mowing modes, infrared switch on/off, and start/stop mowing motor by the remote control.

“

“

“

“

“

“

“

The diagram shows a remote control with the following labeled buttons from top to bottom:

- Infrared Detection Switch (small circle at the top)
- Remote indicator (small circle below the infrared switch)
- Lock the mowing mode (circle with 'M/A')
- Start /Stop mowing motor (circle with a power symbol)
- Mowing Mode Selecting (circle with 'mode')
- Left or Right Direction Key (circle with left and right arrows)
- Key for Returning to be Charged (circle with a house icon)
- Pause Key (circle with a square and a vertical line)

Chapter Three Operation Introduce

3. 11 Caution for daily use

1. Before the first time using the mower, the lawn should be cleaned up and mow the lawn with the traditional lawn mower.
2. Do not layout the boundary line parallel with the power line of the lawn landscape lamp, it should be as far away as possible. These equipment supply lines may influence the boundary line of the signal.
3. The best way to layout boundary line is “layout the line to the root of grass as close as possible” according to our own test practice.
4. Turn off the power when carrying the robot.
5. Don't let the robot front hit the ground, because it is easy to cause the robot front-end collision detection sensor damage when you raise the robot though the end handle.
6. Regular cleaning and maintenance can reduce the probability of malfunction, and improve the machine's work efficiency.
7. Clean the cutter cover regularly. Wet lawn will stick the grass stain in the cutter cover and reduce the mowing efficiency.
8. Don't recommend to mow on very wet lawn in order to protect the lawn and the machine.
9. In the rainy or snowy season, turn off the machine, remove the fuse, and place it in room.
10. When the robot works, it may affect the hearing aid device.
11. Some wireless remote control (such as car keys remote control) may affect the Robot's work, cause malfunction.

Note:

Stop the mower immediately once the charging station's power fails.

Chapter four Maintenance guide

Check and clean the lawn mower regularly, replace the old parts to ensure reliability and longer use life if necessary.

Note:

Be sure to wear gloves when you do any maintenance to the mower, be careful of the blade. Be sure to turn off the machine at first, remove the fuse second if necessary.

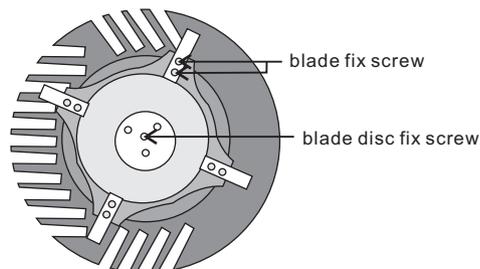
4.1 Replace the blade

Note:

Turn off the power, remove the fuse.

- Step 1. remove the "blade disc fix screw";
 Step2. remove the 8 screws (2 for each) fixed blades ;
 Step 3. replace the new blades, and fix the blade.

Be sure to fix the screws firmly.



4.2 Replace the battery

Step 1 , Open the semi-transparent cover ,find 4 screws ,release them with a cross screwdriver, then turn over the machine, you will find 2 screws in the deep hole in the front of the base, and release them to open the upper cover.

Step 2 , Remove the screw on the battery hold-down clamp, and replace the battery.

Step 3 , The replacement is completed, and then test machine if it is working properly.

Step 4 , Cover the upper cover, and tighten the 6 screws (2 screws in the bottom, 4 screws in the upper cover).

Note :

Authorized battery only :

The replacement of battery is suggested to be done by the vendor or authorized person.

4.3 Clean-up mowing cutter cover

Turn off the mower's power, remove the fuse, clean the cutter cover by brush with gloves.

4.4 Clean-up the front and rear wheels

Clean out the mud and grass cutted on the front and rear wheels regularly (recommended clean-up once a month).

Lubricating the metal axis (it is for the front wheel's up and down movement) every month.

Note:

Be sure to wear gloves when you do any maintenance to the mower, be careful of the blades.

Chapter Five Troubleshooting

Problem	Cause	Solution
Mower doesn't work	1, check the fuse is installed or not for the new machine ;	Insert the fuse
	2, the long-term use of the machine, check the fuse is broken for used machine ;	Change the fuse
	3,the battery is over life;	Replace the battery
	4,the grass is too thick	Restart mower in other position
Mower goes out of the boundary line	1, the power of charging station is failure;	Check the power and debug the charging station
	2, caused by unforeseen circumstances;	Ask help from vendors if necessary
	3,the boundary line is layouted unreasonably	Improve line to meet the requirements
The mower goes backward always and can't go forward	1. the protective rubber in the front is offset and push the collision sensor	Try to flap the rubber to reset the collision sensor
	2. the collision sensor in the front of mower is failed ;	Ask help from vendors if necessary
Mower can't go back to the charging station	1. the boundary line has no signal ;	Debug the charging station
	2. the charging station works anomaly ;	Debug the charging station
	3. layout the boundary line unreasonably or install the charging station unreasonably .	Layout the boundary line and install the charging station according the introduce above
	4. the mower is broken	Ask help from vendors if necessary
the mower does not charge in the charging station	1,the charging station is installed incorrectly	Reinstall the charging station
	2. the charging copper head is covered by foreign matter.	Remove/Clean the foreign matter
the cutter cover is broken	The lawn is not clean-up	Clean up the lawn and ask help from vendors
the machine walks slowly	1,the infrared detect system is failed	ask help from vendors
	2,battery flat;	recharge
	3,go back to the charging station on the boundary line	It is normal
The mower can't detect the rain	the back-end rain detection sensor is blocked by foreign matter adhesion	Clean up the sensor
the mower hit the charging station	Solution: We advice the customer use an obstacle in the lawn side of the charging station, so the mower detect the obstacle, it will change its direction.	
The working time is too short	1, the grass is too thick and high on the lawn	Mow the lawn with traditional lawn mower
	2, the battery is not fully charged;	recharge
	3, the battery is used for a long time, its performance degradation.	Change the battery

Chapter Five Troubleshooting

Mower can not detect the fall protection	1, front wheel axis stuck;	Clean the axis
	2, fall detection sensor is failed ;	Ask help from vendors
Suddenly stop working when mowing	1, no power ;	Recharge manual
	2, unforeseen circumstances, please operate according to this manual if the display show an error.	Ask help from vendors
Mower can not walk on a smooth surface	Solution: The mower's wheels are designed for lawn ,the wheel structure is not suitable for walking on slippery ground, not recommended for use in a smooth surface;	
The display can't show anything	1,the display board's connection wire is loose ; 2,the customer's wrong operation (such as open the semi-transparent black cover when the machine is running in the sun); 3,the circuit in the machine is failed	Ask help from vendors
Climbing weak	The max slope degree is less than 30 degrees	
The charging station beeps and don't stop	The boundary line is disconnected or the connection is bad	Debug the charging station, ask help from vendors if necessary
the charging station's power indicator does not light	1, the power wire connection is bad;	Reconnect the power wire
	2, power adapter is failed;	Replace the adaptor
	3, the charging station is failed;	Ask help from the vendors
the remote control distance is short	The battery of the remote control is flat	Replace the battery
Remote indicator does not light	1, the battery is no power, need to be changed;	Replace the battery
	2, the remote control is accidentally damaged (such as falling into the water, etc.), need to be replaced.	Ask help from the vendors
Mowing noise is louder	The blade disc may be loose for long time rotating, or the blades are broken	Check the blade, and fix the blade disc screws with screwdriver.
Display error description		
ERROR1	Battery voltage is too low.	Charge the battery.
ERROR2	Mowing motor over-current.	Adjust the blade height, and then restart the machine.
ERROR3	Walking motor over-current.	Remove and restart.
ERROR4	Uplift risk, safety alarm.	Automatically restore in 5s, need to restart the machine if the last time is more than 5s.
ERROR5	Slope angle is more than 30 degree; there are safety risks, safety alarm.	Automatically restore in 5s, need to restart the machine if the last time is more than 5s.
ERROR6	The time that the machine is not sensitive of the boundary line signal is more than 4 minutes.	Restart
ERROR7	The robot doesn't detect the signal for wrong layout boundary line, no charging station power, unknown interference.	Restart

Chapter Six Service

The mower's service has been delegated to the local dealer, please contact to the local dealer.