iTR

iMop

Commercial Floor Sweeper Product Manual

Please read the manual carefully before using the product, and keep it properly.

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About iMop

Thank you for choosing iTR iMop commercial floor sweeper, and sincerely hope that iMop can bring you and your company a cleaner, smarter and more convenient working environment in the future.

The manual will guide you how to better use our products by providing you all information as comprehensively as possible, which is of great help for you so as to get the optimal product experience.

If there is any questions during daily use, please contact with us as soon as possible and we will serve you wholeheartedly.

Introduction

iMop is iTR series commercial floor sweeper,a fully intelligent unmanned machine specially designed for indoor commercial scenarios and dedicated to floor cleaning and maintenance such as sweeping and dust pushing. iMop specializes in cleaning the floor of large-scale properties such as hospitals, supermarkets, office buildings, shopping malls, Etc. And it can work continuously for several hours without driving. Furthermore, iMop can be equipped with different disinfection modules for environmental disinfection in public places, so that one machine can be integrated with multi-functions.

Adhering to the consistent design concept "User First" of iTR, the whole machine can be performed with daily maintenance easily, and the key vulnerable parts have been realized the convenient replacement as well as carries out the maintenance, no need additional tools, improve the user's work efficiency greatly.

You can conduct real-time management of software operation through APP, and realize one click operation after the first time deployment. You can also release instructions through the whole property management system to complete tasks, which will of great help to reduce staff and increase efficiency, and enter the robot era easily !

Product parameters

Product Model		**iMop**
Weight and volume	Dimension（L×W×H）	0.77X0.62X0.7m
	Net weight	95KG
Movement parameters	Maximum Speed	1m/s
	Maximum working area	20000m^2
	Standard working width	1.5m
	Minimum passing width	1m
	Climbing angle	10°
	Maximum cleaning width	0.93m
	Maximum operating efficiency	3300m^2/h
Obstacle stopping	Frontal	10-100cm
	Side	5-30cm

Create map	Max mapping area	40000m²
	Max mapping number	100pcs
Charging	Manual charging	Standard
	Auto charging	Standard
Network	WiFi	2.4GHz
Screen	Size	8 inches
	Resolution	720P
Battery	Rated voltage	24V
	Capacity	120AH lithium battery
	Charging time	3-4h
	Battery run time	Up to 5-6h
Motor	Rated brush motor power	2x40W
	Rated drive motor power	2x80W

Motor		Rated side brush motor power	2×25W
		Rated dust collecting motor power	240W
Sensor	**Lidar**	Quantity	1
		Angle	180°
	Ultrasonic sensor	Quantity	12
		Maximum detection distance	30cm
	Binocular camera	Quantity	1
		Detection distance	300cm
		Field of view	69°×42°（H×V）
Dustbin		Volume of roller brush dustbin	1.7L
		Volume of Dust collecting dustbin	9.7L
Side brush		Revolving speed	150RPM
		Quantity	4

Roller brush	Revolving speed	220RPM
	Quantity	2
Charging pile	Input	100-240VAC,50-60HZ
	Output	24VDC
Working environment	Working temperature	0˚C - 50˚C
	Working humidity	0% ~ 90% rh
	Highest altitude	3000m
Noise level（iTR Lab Data）		72dB(A)

*Driven by the continuous improvement of products, the product in the manual shall be subject to the actual products. The updating right is reserved by our company.
If there is any questions during daily use, please contact with us as soon as possible and we will serve you wholeheartedly.

Safety specification

iMop commercial floor scrubber is only applicable to indoor environment.Before using the product, please read the manual carefully and comply with the following instructions:

NOTE: Equipment meeting Class A requirements may not offer adequate protection to broadcast services within a residential environment.

The device only uses 2.4G WiFi RF technology.

ⓘ Cautions!

Before using the machine:

1. The operator must read the manual carefully and use the machine according to its instructions.
2. Make sure that the voltage of the power socket is consistent with the input voltage of the charging pile.
3. Before starting the machine, please check whether the emergency stop button is pressed. If pressed, the machine will not be able to perform tasks automatically after startup.
4. Before starting the machine, please check whether all parts of the machine are intact and whether consumables are in normal and available state.
5. Before starting the task of the machine, please make sure it is near the starting point and adjust the front direction of the machine, otherwise the positioning of the machine will be lost directly.
6. Before turning on the machine, please make sure that the lid of the dustbin is closed tightly.
7. If it is used near the suspended environment, including the stairs, please prepare a virtual wall near the stairs and test whether the product can detect the edge of the suspended area without falling. Meanwhile, a protective fence shall be set at the edge of the suspended area to prevent the machine from falling.

When using the machine:

1. Please be careful with your feet when the machine is moving.
2. Please set the necessary signs near a task area when it is working.
3. Do not step on the side brush when it is working.
4. Do not block the ultrasonic sensor, binocular camera and lidar when it is working.
5. Please press the emergency stop button on the machine surface immediately once it encounters an emergency.
6. In case of machine failure, please connect the after-service for maintaining in time.

When charging the machine:

1. You are kindly invited to use the original charger and battery designated by the manufacturer. In case that the battery is damaged, please contact the manufacturer, authorized dealer or relevant after-sales personnel.
2. When charging, please ensure that the charging plug is firmly connected. Poor contact may lead to overheating, which may lead to danger.
3. The charger shall not be covered or close to humid or flammable or explosive environment.
4. Disassemble any sensors without permission is strictly prohibited.

When maintaing the machine:

1. The machine should be stored in a dry and cool place.
2. Please turn off machine's power button before maintaining.
3. Please do not modify the machine or change its original design or configuration without authorization. For maintenance, please contact the professional maintenance personnel designated by the manufacturer.
4. Please use accessories sold or recommended by iTR only.
5. If the machine will be rested for a long time, please clean the dustbin, cut off the power of machine, and ensure that the machine is charged once a quarter to prevent the internal battery from discharging excessively and reducing the battery life.
6. The machine must be powered off before transportation.
7. For power cable damages, please contact the manufacturer, authorized dealers or relevant after-sales personnel for replacement in order to avoid risks.
8. Do not use a damaged power cable or power socket.
9. Do not use the machine when it cannot work normally due to falling, damage, outdoor use or water. To avoid injury, the product shall be repaired by the manufacturer, authorized dealer or relevant after-sales personnel.
10. Before scrapping the product, please contact the manufacturer, authorized dealer or relevant after-sales personnel for disposal at the first time.

⚠ Warning

Untrained personnel are prohibited from using the machine!

Non professionals' disassembly to the machine without permission is strictly prohibited, otherwise the damage caused will be borne by the user.

The machine is strictly prohibited to be used in the following environments:
1. Outdoor.
2. Environment with open fire or fragile products.
3. Extremely hot (above 50 ℃) or extremely cold (below 0 ℃).

During using, maintaining and servicing, the following operations are prohibited:
1. The shell is forbidden to contact with corrosive cleaning liquid.
2. It is prohibited to operate the dustbin during them machine's working to prevent hand pinching.
3. It is prohibited to use the machine when the dustbin is full.
4. It is prohibited to do other operations during cleaning the dustbin.

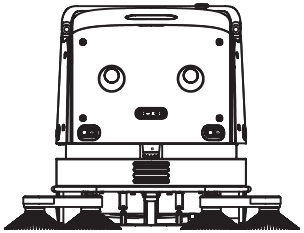
Instructions for discarding batteries:
1. If you want to replace or discard the battery of machine, please contact iTR after-sales service personnel for disposal.
2. The chemicals contained in the built-in battery of machine will pollute the environment. Please be sure to take out the battery inside of machine before disposing.

Caution! **Battery leakage and exudation material will be harmful to people's health!**

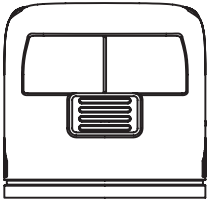
1.If the battery has leakage and exudation, please ensure to prevent from contacting with eyes or skin.
2.In case of accidental contact, please wash your hands and eyes with clean water immediately.If you still feel unwell, please seek medical treatment immediately.

The company will not be liable for any loss and injury caused by improper use.

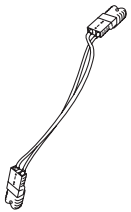
Packing list



Host*1

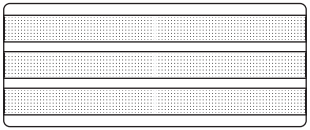


Charging pile
(Power cord included*1) *1



Adaptor cable*1

Acceptance report*1



Mop*1

Packing list*1

Product manual*1

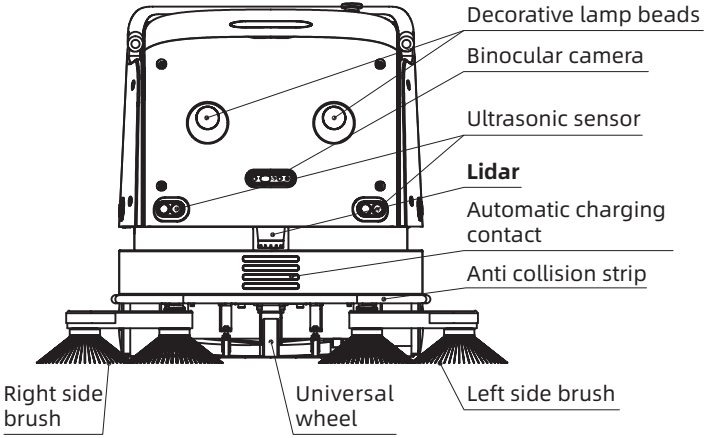
Inspection report*1

*The product in the manual shall be subject to the actual products. Driven by the continuous improvement of products, our company reserves the updating right.

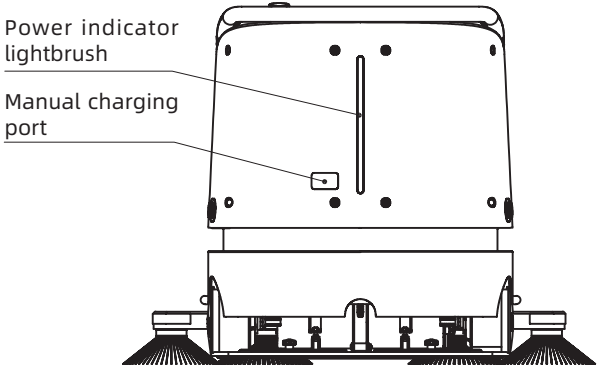
Hardware introduction

Host

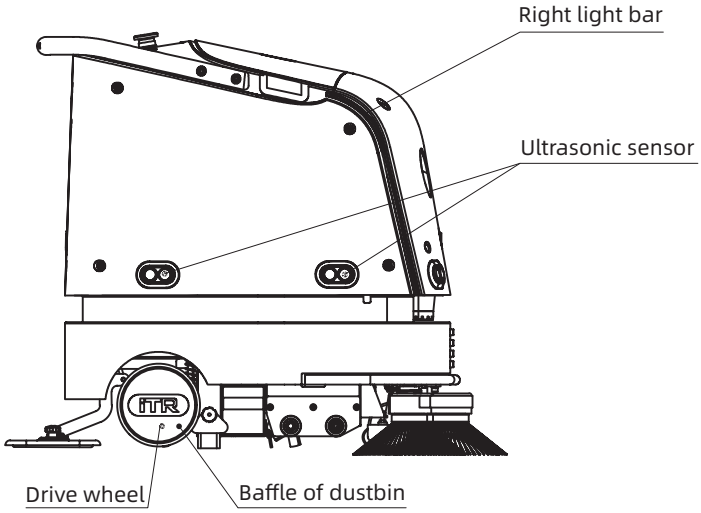
Front of host



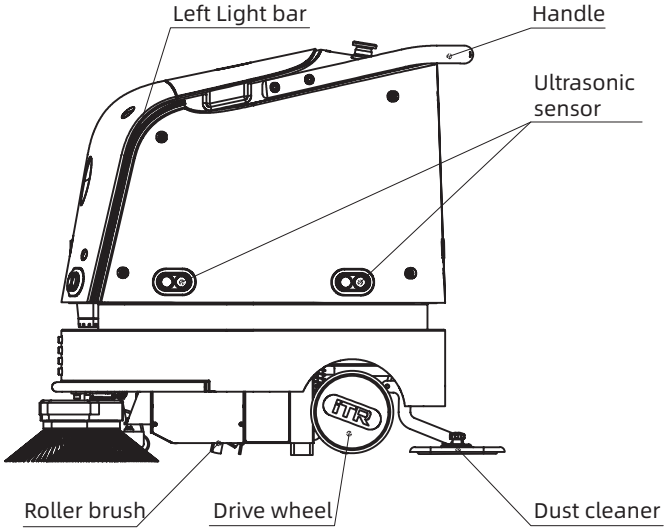
Back of host



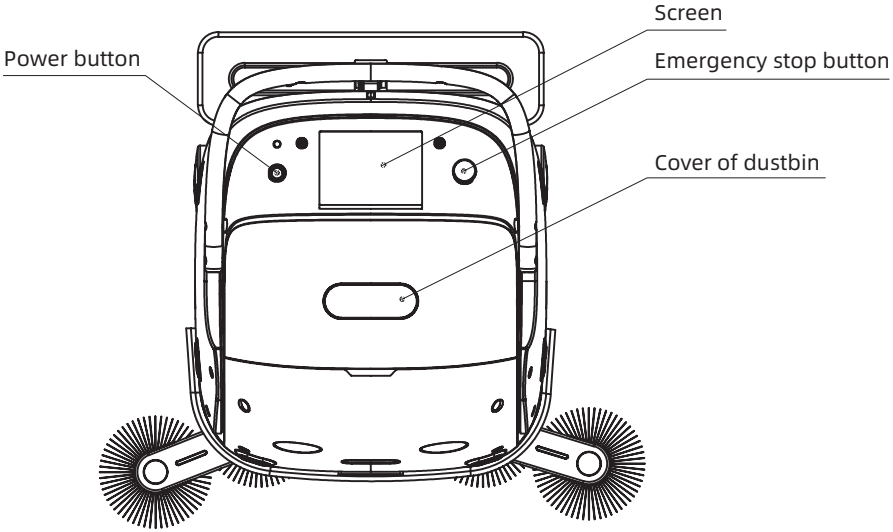
Right of host



Left of host

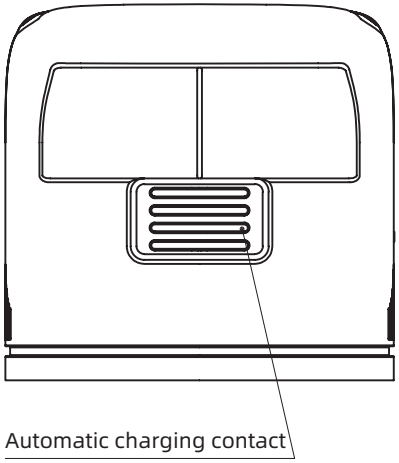


Top of host

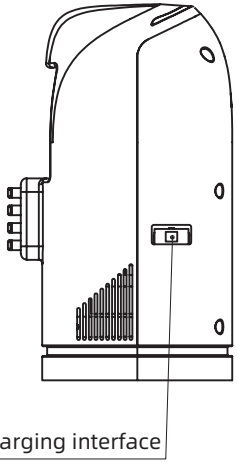

Screen
Power button
Emergency stop button
Cover of dustbin

Charging pile

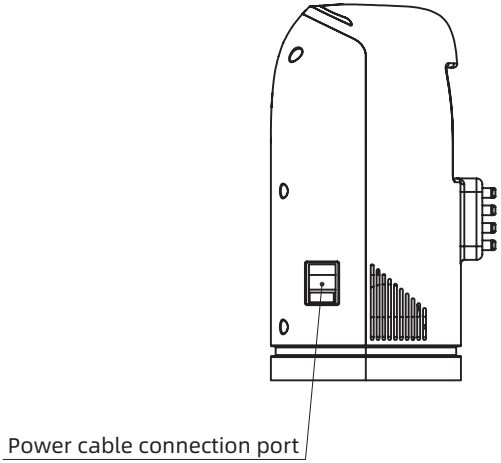
Front of charging pile



Right of charging pile



Left of charging pile



Machine deployment

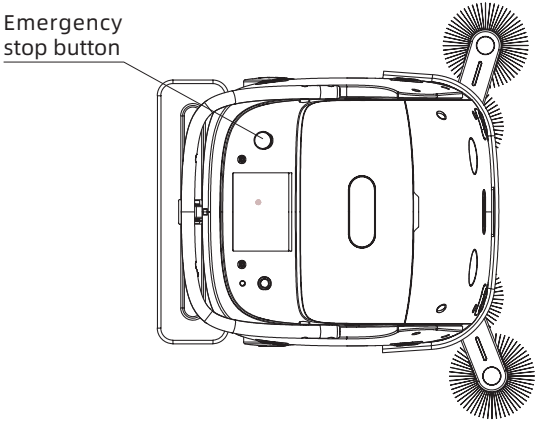
Cautions

iMop Commercial Floor Sweeper has features of high automation, intelligence and strong power. Each SWEEPER is equipped with multiple safety protection mechanisms to provide maximum safety protection for nearby personnel.

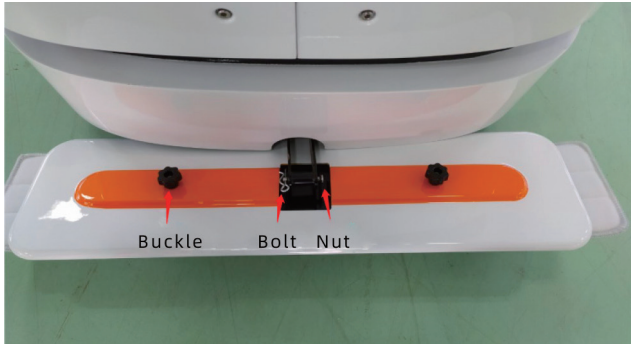
In order to ensure the safety of equipment operators and others, all operators must pass the professional training of our company or the designated agent before working.

Preparations

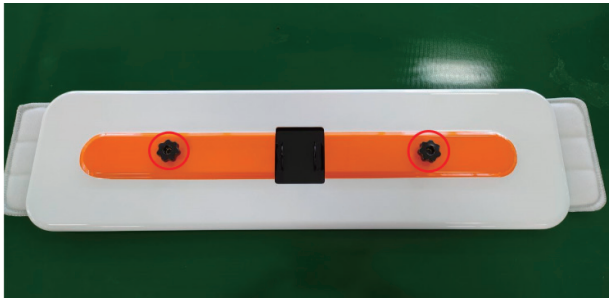
1. Please ensure that the emergency stop button is unplugged;



2. Please pull out the buckle and bolt in turn and remove the dust cleaner;



3 Please screw out the nut on both sides of the mop;



4 Please put the bracket on the mop horizontally, and then press down with force to make sticking with the mop;

5 Please place the plate on the bracket (threaded rod on the bracket shall pass through the two holes on plate), and then fasten the nuts with threaded rod;

6 Please fix the dust cleaner with the rear side component of machine by the bolt. Afterwards, please insert the buckle into the hole at one end of the pin, representing that the installation is completed.

Charging

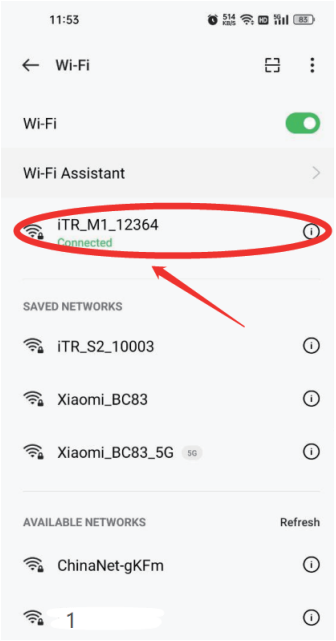
Before the delivery, the machine has around 70% power, which does not need to be charged temporarily. If charging, please refer to “Manual charging” on page 46.

Power on

Powering on with key

The user can use the power button with lock to power on the machine. The specific operation is to insert the key and rotate it clockwise. When the power button is on, representing that the powering on is successful.

Connect network



(Picture is for reference only)

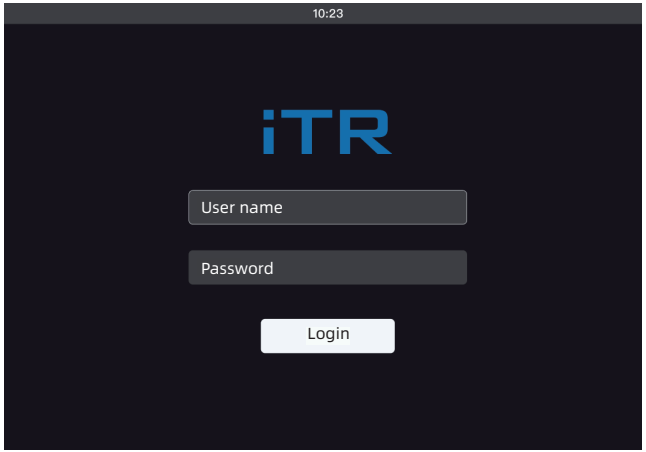
1. Before creating the map, please connect your mobile phone to the WiFi of machine;

2. Please search the WiFi in name【iTR-M1-*****】After clicking the WiFi, there will be a dialogue window to remind you entering password. Please enter the last five figures of WiFi【iTR-M1-*****】twice, afterwards, you will enter successfully.

   Example:
   If the WiFi name is【iTR-M1-12345】, the password is 1234512345.
   If the WiFi name is【iTR-M2-10000】, the password is 1000010000.

Login account

Please enter user name and password in HD interface and click “Login”.



Administrator	User name:	
	Password:	
Operator 1	User name:	
	Password:	
Operator 2	User name:	
	Password:	
Operator 3	User name:	
	Password:	
Operator 4	User name:	
	Password:	
Operator 5	User name:	
	Password:	

Note:
Each company is set with 1 administrator account and 5 operators accounts by default, operator account and administrator account of the same company can be logged in to machine operation software. You can contact iTR to increase the account number of administrator and operator. User names and passwords of administrator account and operator accounts shall be remembered clearly. To facilitate management, it’s suggested to record user names and contact information in the form.

To better summarize the use of scrubber by operators in different shifts, the operator shall log off. Afterwards, operator of next shift can relogin.

Map creation

Preparation

1. Please download the [iTR Center] APP on your mobile phone (currently only available at the Android platform) to create a map, and you can scan the QR code below to download;

2. After successful scanning, please enter the password [123456]. Then, download the software;

3. After powering on, log in to machine's APP and connect the mobile phone to machine's network. For the connection method, please refer to [Connect Network] on page 21.

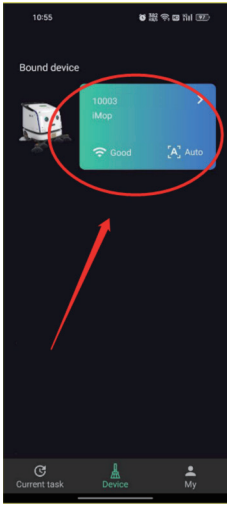
Note:
1. "iTR Center" will be updated irregularly. In case of failed QR code above, please contact iTR after-sales engineer.
2. For the download method of map drawing software, please contact ITR after-sales engineer.
3. Currently, "iTR Center" is only avalible for Android system.

Log in to APP on mobile

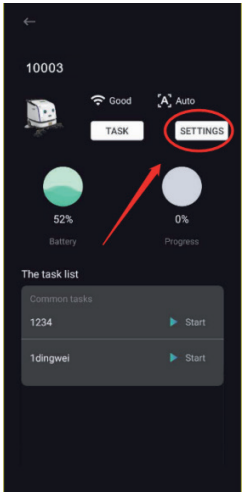
Open the APP "iTR Centerl" and log in to the account.
Note: If there is no account, please contact iTR after-sales engineer.

Map creation

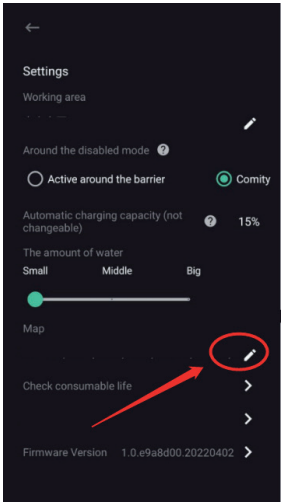
1. You can find the right machine in main interface and click to enter;



2. Enter [Equipment Details Page] (Figure) of machine and click [SETTINGS] - [Map];

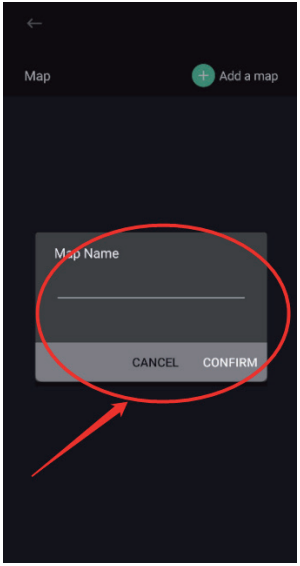


3. Click the [Map] button;



Note:
If the status panel on left side of machine is gray, please check the following situations
1. The equipment is not powered on;
2. The equipment is not connected to special network;
3. The mobile phone has no network or signal of mobile phone is poor.

4 Click [Add a Map】, then enter the name of map and click [CONFIRM] to start map creation;



Note:
The name of map can only be composed by English letters, numbers and some special characters.

5 Then, enter into machine's map creation interface,

Pulling the left green speed point can control the speed of machine, Starting from left to right of green speed point represent the sequential increase of speed;

The right steering wheel controls the travel of machine. After finishing the map creating, please click the button "Save" to complete the map creation.

Note:
1. Please pull up the red emergency stop button on the left side of machine when creating map. Otherwise, the mobile phone will cannot control the forward and backward actions of machine;
2. The recommended speed shall not exceed 0.3m/s during map creation;
3. Do not back up when machine is mapping.

Route creation

Preparation

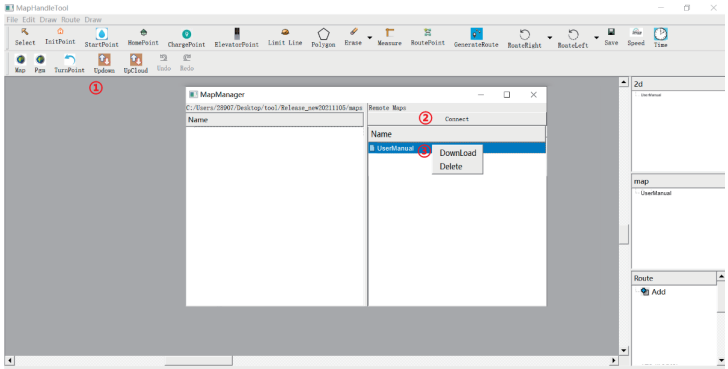
Before creating the route, please ensure that: 1. The computer has been downloaded the route creation software; 2. The computer has been connected to machine's network.

Route file creation

1. Enter the map drawing software (software name is "MapHandleTool.exe") and click "Updown";

2. Click "Connect" to connect;

3. Select the corresponding map name (namely, the map name created on mobile phone. Here, the map is uniformly named "UserManual" for convenience of understanding). Rightly click and select "DownLoad" to download the map. Afterwards, map file will be successfully downloaded to route creation software.



Draw route

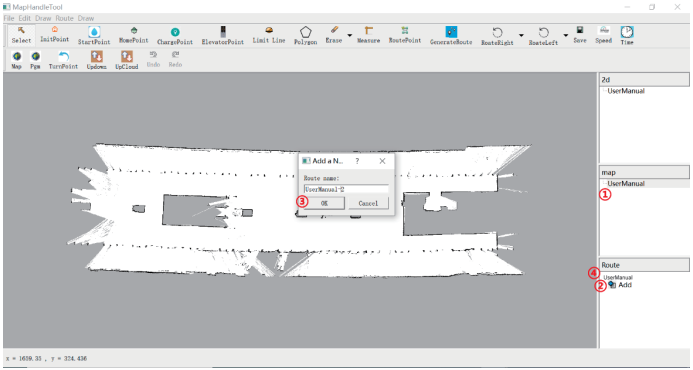
1. Click the right map file in the map column on the right. (Take "UserManual" as an example);

2. Click "Add" in the button "Route" below to show the dialogue box "Add a Name";

3. Enter the route name (the route in figure is temporarily named "UserManual-2" for convenience of understanding), and click "OK" to save the route name;

4. Click the route file with end name of ".router" in "Route" (the route file in figure is "UserManual. Router");

5. Slide the mouse wheel up to adjust the map to the appropriate size;

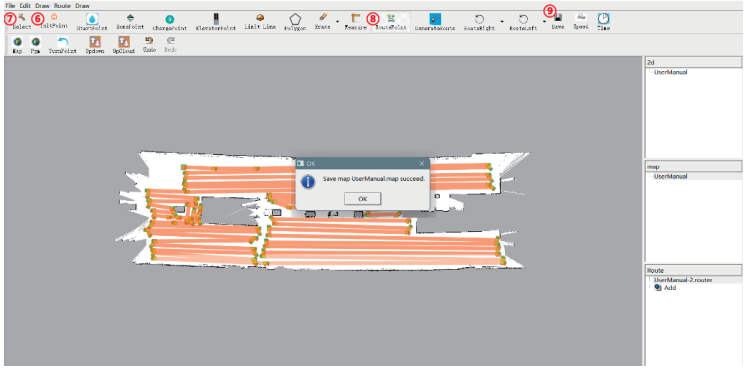


6. Select the button "InitPoint" and click the map. The map will generate a point, which is the starting point;

7. Select the button "InitPoint" and click the map. The map will generate a point, which is the starting point;

8. Select "RoutePoint" (Note: the first "Routepoint" created shall be coincided with "Initpoint"), click the map by the actual situation of the site, and create the route (Note: the ratio of the distance on the map to actual distance is about 1:1, and the error is about 5cm, so that the point can be placed according to this distance);

9. After creating the route, click the button "Save" to save it. If appearing the diagolue box "Save map UserManual.map", it means that the save is successful,and click "OK" to end the operation.

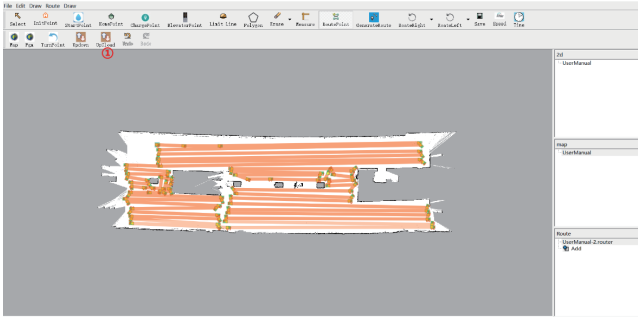


Add deceleration point

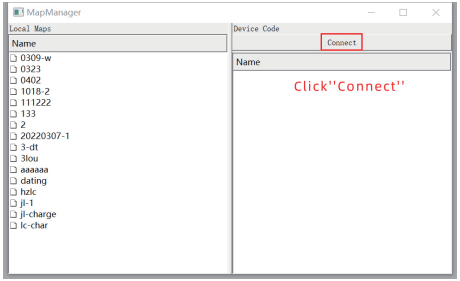
Click the right route name under the created map, then, click "Turnpoint", and wait for 5 seconds, and finally click "Save". The deceleration point will be completed.

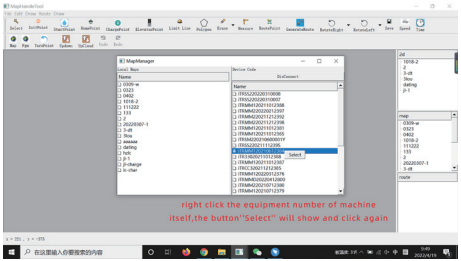
Upload route

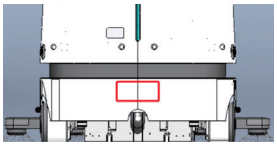
1. Click the button “UpCloud” and show “Map Manager” dialogue window;



2. In the equipment number on the right, click “Connect”, rightly click the equipment number of machine itself, the button “Select” will show and click again;



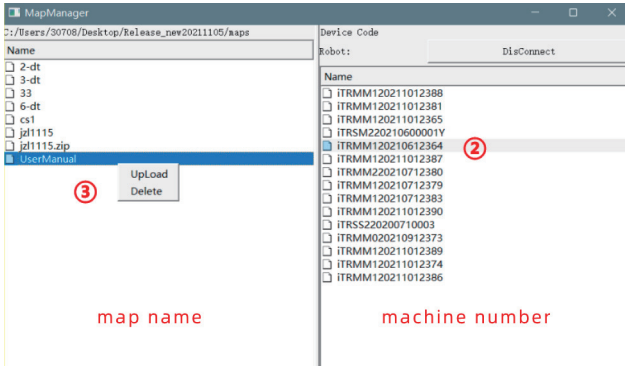




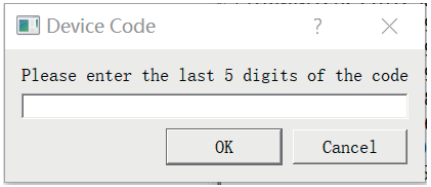
Note: What’s the equipment number?The suggestions are as follows?

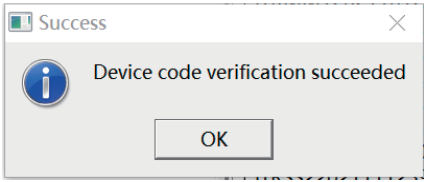
1. Please check the number behind the “Delivery number” at the cover of sewage tank of machine;
2. iTR cloud platform - equipment management - equipment list;
3. Contact iTR after-sales personnel.

3 Select the newly created map in the map list on the left, (taking "UserManual" as an example), rightly click, then, shows button "Upload", and click button "Upload", wait for the dialogue box of "Upload Succeeded", and finally click the route, which represents successful upload.



4 shows dialog【Device code】, input correct machine number, then click【OK】, wait for a while, shows dialog【success】, click【OK】, map upload success.





Note:

1. The view angle of laser lidar is 180℃ .The scanning range is the horizontal plane of laser lidar's height, and scanning distance is 25m;
2. It is recommended that people stand behind of machine and handle the direction key of mobile APP to control the map creation. People are prohibited to stand on the left and right sides of scrubber;
3. It is suggested that the machine shall not scan the map too fast, and 0.3m/s is the best option;
4. It is forbidden to move back when the machine scans the map, otherwise, it will affect the map creation effect.

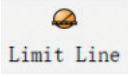
Attachment: Button functions of map creation software

Select

Function:
Adjust point position.

Usage method:
① Click "to select" and drag to adjust;
② Drag the box to adjust the whole.

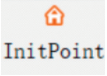
Limit Line



Function:
Specify that the machine is prohibited from driving is used to draw the area that is prohibited from driving, such as the glass wall. If the line is creaed, the machine cannot enter the corresponding area.

Usage method:
Select "limit line", use the left mouse button to pull out a line in the corresponding area on the map, and draw the line position after releasing it.

InitPoint



Function:
The point where the machine task starts.

Usage method:
① Select "Initpoint" and click the driveable route on the map to set the starting point;
② Then, select the button "Select", click "Initpoint" in the map to move the position of "Initpoint", or drag the arrow above initpoint to adjust the direction.

Polygon

Function:
Specify the area where the machine can travel, and the polygon represents the area allowed to drive in. After drawing the polygon points, the machine can only travel in the corresponding area.

Usage method:
Select "polygon". In the corresponding area of the map, click it

successively with the left mouse button to drive into the area. After creating, click the right mouse button to automatically connect the starting point and the end point to form a closed polygon box.

Start Point

Function:
Start point of automatic route.

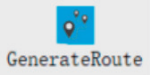
Usage method:
Cooperate with polygon,
① Click anywhere in the polygon (the point setting cannot be too close to the border);
② Select "Startpoint" and click on the map's driveable route to set the startpoint;
③ Then, select the button "Select" and click "Startpoint" in the map to move the position of "Startpoint" or drag the arrow above "Startpoint" to adjust the direction.

Eraser

Function:
Erase.

Usage method:
After selection, press the left button mouse on the temporary obstacle to erase. (for example, a person who walks around during the scanning process).

Generate Route



Function:
Generate route points.

Usage method:
Cooperate with polygons and automatic route starting points,
① Create "Polygon" and "Initpoint" in the map;
② Click this automatic route generation point to automatically generate a route according to the starting point of the automatic route as the starting position.

Measure

Function:
Measure the length of the route.

Usage method:
After selection, click the left mouse button to pull, release the left

mouse button to stop, and then the route length can be measured.

Route Point

Function:
Manually plan route locations.

Usage method:
After establishing the startpoint on the map, select "RoutePoint" and click successively on the map to create the right route.

Caution:
The first route point shall cover the startpoint, otherwise, the machine cannot execute the route normally.

Rotate Right

Function:
Rotate map in right direction.

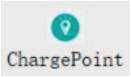
Usage method:
Click "RoateRight" to rotate the map in right direction by a certain angle.

Rotate Left

Function:
Rotate map in left direction.

Usage method:
Click "RoateLeft" to rotate the map in left direction by a certain angle.

Charge Point



Function:
Automatic charging point of machine.

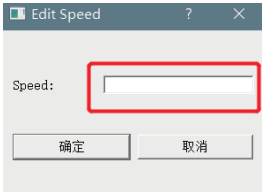
Usage method:
① Select the icon of "ChargePoint" and click the left button of mouse to create a charge route in the area where "ChargePoint" needs to be created;
② Click the right button of mouse to end the creating of charge route (the position where the right button of mouse ends is not counted);
③ After clicking "Save", ChargePoint will be saved to the route file.

Note:
1. The automatic charging point of machine shall be equipped with Water supply and drainage station.
2. Under the same route, there can only be one avaliable between "ElevatorPoint" and "ChargePoint".

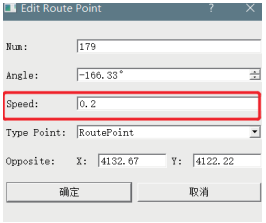
Speed

Function:
Adjust speed.

Usage method:
① Click "Select" to select the point to be adjusted, click the button "Speed" to fill in the data (the maximum speed is 0.6), click "OK" and "Save", and the route point speed will be changed;



② Double click the "Route Point" to show the details information of point, and the route point dialogue box will be showed. You can modify the speed directly on route point;



③ After selecting multiple route points by "Select" box, click "Speed" to modify the speed .

Turn Point

Function:
Deceleration.

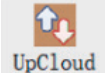
Usage method:
After creating the route, click "TurnPoint" to generate the route based on the current route_ Turn route file, including deceleration point.

Updown

Function:
Map download.

Usage method:
After connecting with machine's network, click the "connect", right part in dialogue box, and then select the right map, afterwards click the right button to download. Finally, you can download the required map to the engineering software.

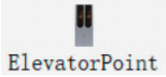
UpCloud route



Function:
UpCloud route.

Usage method:
① Click "connect" on the right to display the machines bound on the cloud platform. Select the required machine, rightly click and click "Select" to select the machine;
② Find the right map on the left, rightly click upCloud, and the success dialogue box will show, which indicates that the UpCloud is successful.

Elevator Point



Function:
Control the machine's up and down on elevator.

Usage method:
① Select the icon of "ElevatorPoint";
② In the area where the "ElevatorPoint" needs to be created, click the left button of mouse to create an elevator control route;
③ Double click the drawn elevator line to show the diagolue box for filling in the floor. The top is the starting floor (namely the current floor) and the bottom is the ending floor (namely the floor number selected after the machine enters the elevator);
④ After clicking "Save", "ElevatorPoint" will be saved to the map file.

Note:
1. Under two points and one line and the same route, there is only one is avaliable between "ElevatorPoint" and "ChargePoint".
2. The data format of "ElevatorPoint" is [x, y, angle, floor number, ElevatorPoint].

Time

Function:
The temporary stopping point of machine, which supports setting the machine to stay at a specific point for a period of time and make operations.
Usage method:
Click "Select", select the point you want to stay, click "Time", enter the stay time at designated area and click "Save" to save the point.

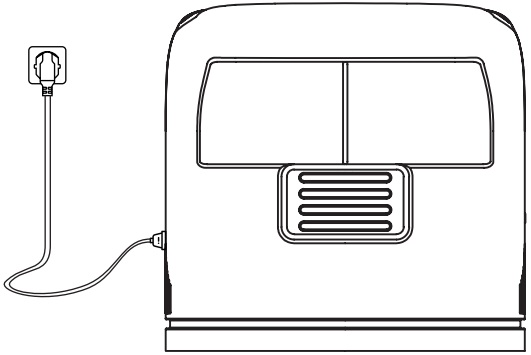
Button "Save"

Function:
Save current route.

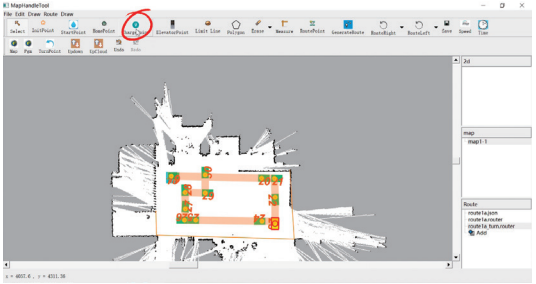
Usage method:
After creating the route, click "Save" to save the current route.

Deploy charging pile

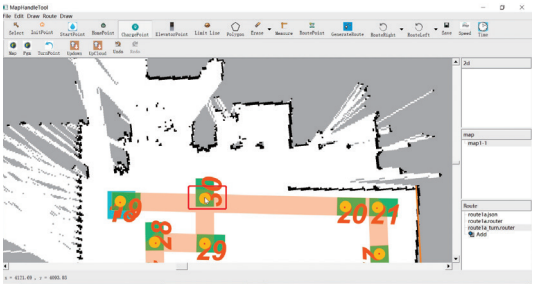
1. Please connect the charging pile to power supply.



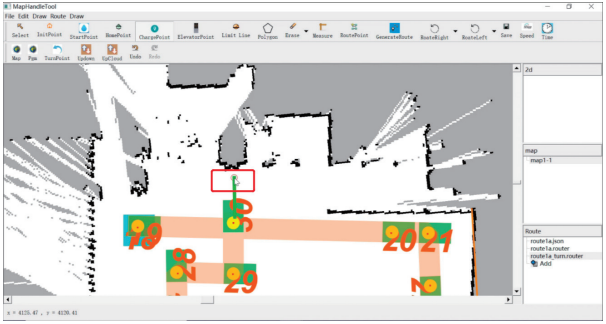
2. Then, please open the map drawing software, select the route under the corresponding map, and click ChargePoint.



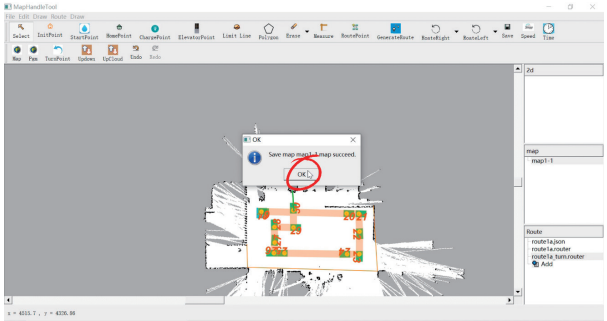
3. Click the center of final point of corresponding route of map with the left mouse button, and then drag the mouse, a green line will appear.



4. Click the left button of mouse to set the corresponding charging point in nearby (the point shall be consistent with the actual posistion of chargig pile), and click the right button of mouse to complete the setting;



5. Please click the Save button in upper right corner, and click OK after a dialogue window appears, representing that the save is successful.



Add tasks

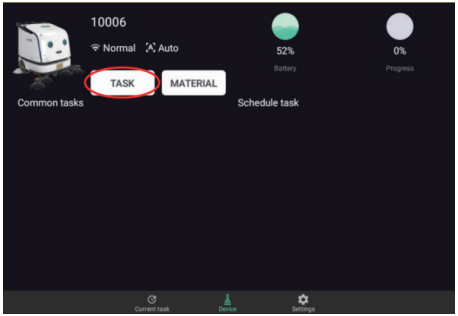
Add common tasks

Q:What is a common task?

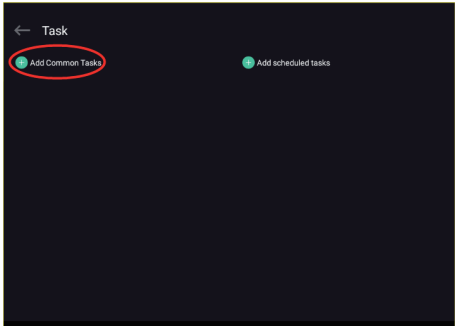
A: Common tasks represents the tasks that need to be manually opened by user.

How to add a common task?

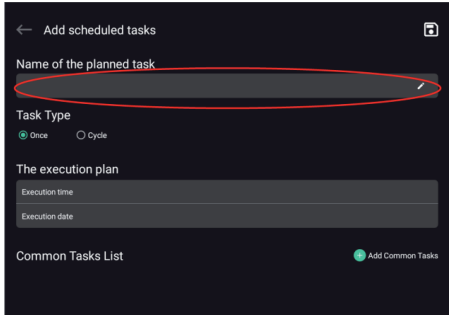
1. In the main interface of machine, click the button [TASK];



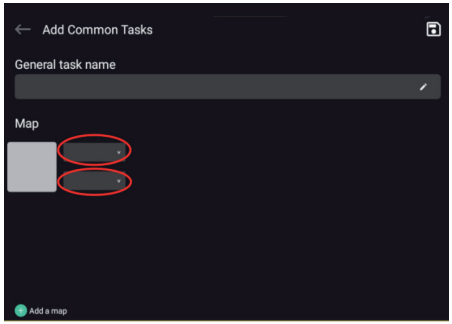
2. Then click the button [Add Common Tasks];



3. Enter the name for a common task;

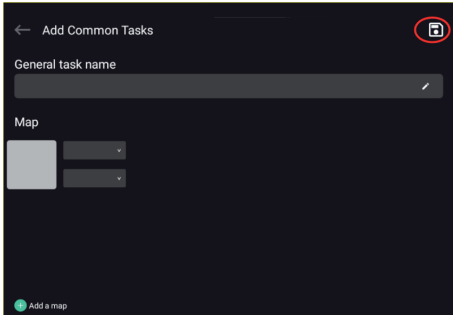


4. Select the right map and route;



Note: Adding a map can only avaliable in cross map scenarios. In the cross map scenario, the end point of route of the previous map must coincide with the start point of route of the next map, otherwise the machine cannot carry out cross map operation.

5 Click the icon [Save] in the upper right corner to successfully add a common task.



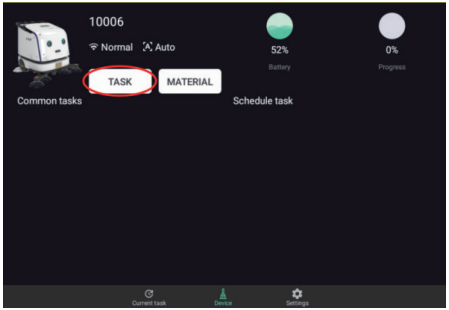
Add schedule task

Q:What is a schedule task?

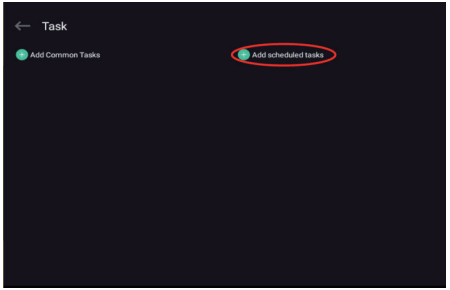
A: In the power on status, the user does not need to manually click the button [Start], and the machine can automatically clean the schedule task at fixed time and point.

How to add a schedule task?

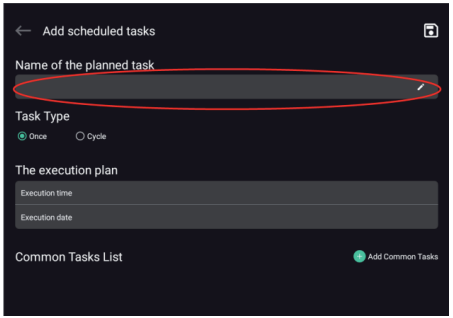
1 In main interface of machine, click the button [TASK];



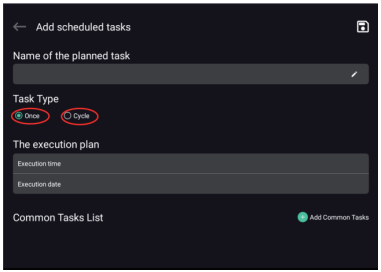
2 Then click [Add scheduled tasks];



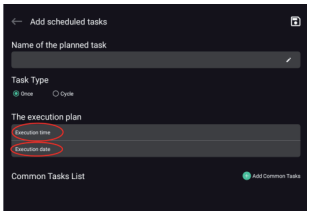
3 Enter the name for scheduled task;



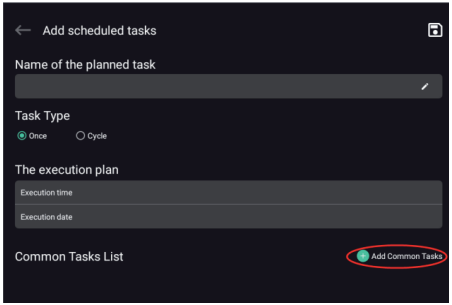
4 Select the type of task.
Once means the schedule task will be started only once;
Cycle means the schedule task will be started in [Execution Time] in each [Execution date];



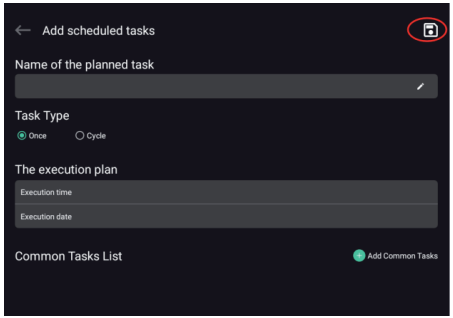
5 Select the execution plan.
Execution time means the specific time node, like 13:00, which is a single choice;
Execution date means refers to the specific date of the week, like each Monday and each Wednesday, multiple choices;



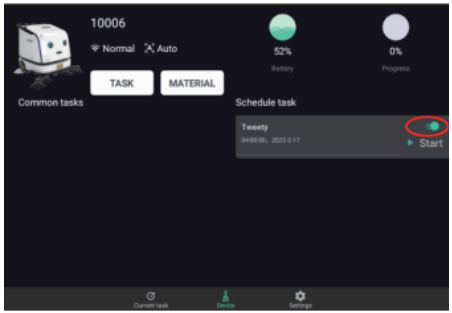
6 Then add corresponding common tasks;



7 Click the icon [Save] in the upper right corner to successfully add the planned task.



Note: after adding the planned task, click button [Start] on machine's interface to start it.



Start task

To start automatic cleaning, please refer to page 43 to start Automatic cleaning.

Power off

Please power off the machine in time after completing the task.
Key power on button shall be turned counterclockwise until the power key is off.

Operations of machine

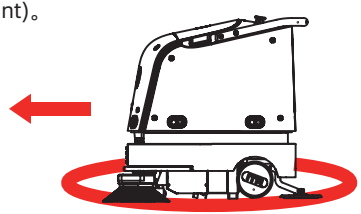
Start automatic cleaning

Machine can be operated independently according to the planned route in the automatic mode.

Usage method

Common tasks

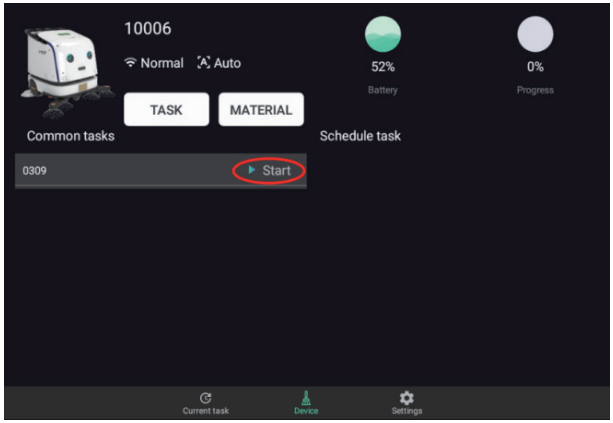
1. Move the machine to the startpoint of relevant common tasks, and adjust the direction of machine's front same with the startpoint of map route. (please refer to [Route Creation] on page 27 for relevant contents of route startpoint)。



initial point

map route

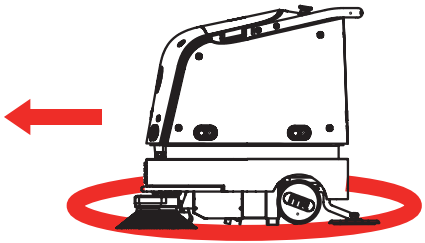
2. Select the right task on machine screen, and then click the button [Start] indicated by the arrow.



3 The machine starts the task automatically.

Schedule tasks

1 Move the machine to the startpoint of relevant schedule tasks, and adjust the direction of machine's front same with the startpoint of map route.

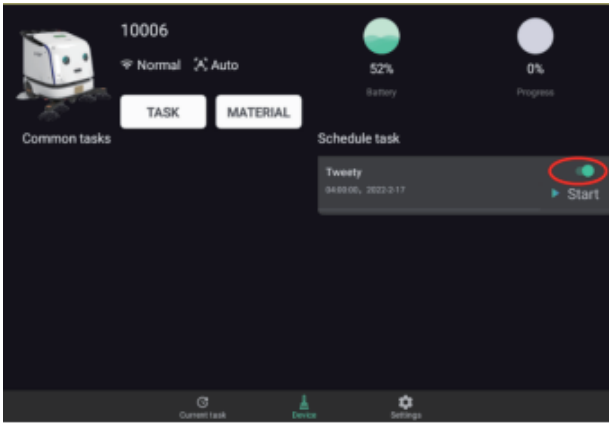


initial point

map route

2 Turn on the task switch.

Note: Please ensure that the schedule task switch is powered on when executing the schedule task.



3 The machine can automatically clean the schedule task at fixed time.

Note: In case of creating a task, please contact iTR after-sales engineer.

Traveling states

The following travel states are included in machine running condition.

Normal driving

Under the normal driving state, the machine runs at the speed of 0.1m/s—1m/s.

Comity mode

When people or other obstacles suddenly appear in front of the machine while driving, the machine will stop moving, trigger the comity mode, and the side brushes from working. When the person or obstacle leaves, it continues to work.

Active obstacle avoidance

When the machine is moving, people or other obstacles suddenly appear in front. At this time, the machine will stop moving forward and trigger the comity mode to stop the operation of the side brush. If the obstacle always exists, the machine starts to bypass the obstacle actively. When the machine bypasses the obstacle, the side brushes still do not work until it finishes the bypass after two short pauses.

Loss of positioning

When the mode of bypassing obstacles is triggered, the machine may lose its positioning. Specifically, it does not follow a scheduled route, and starts to spin in place or run erratically.

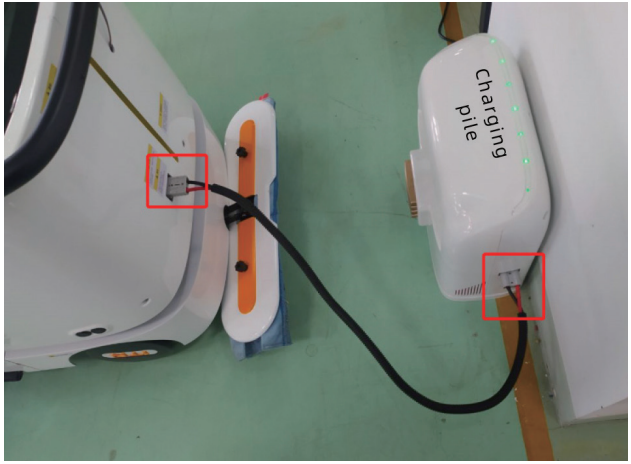
Emergency stop mode

The emergency stop mode needs to be triggered by the user. Press the emergency stop button and the machine will stop walking, the side brushes and rolling brushes stop working. At the same time, the dust pusher rises up and the light bar changes from shining to flashing.

Manual charging

1. Move the machine to the charging pile;

2. Connect the charging pile to the fuselage with a power cable for manual charging.

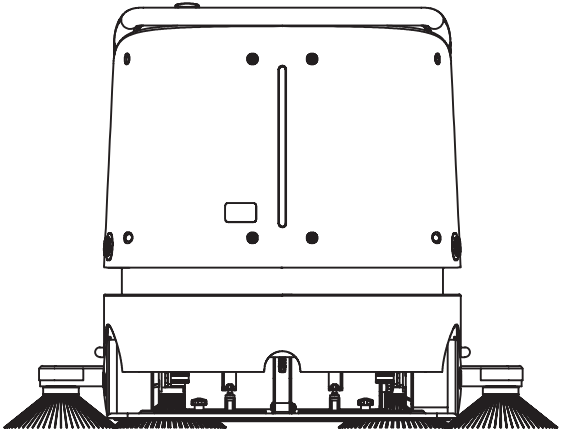


3. The charging pile will appear green when the machine is charging and red when the machine is fully charged. At this point, the plug should be unplugged in time, so as not to power the charger for a long time, causing security risks.

Light bar status

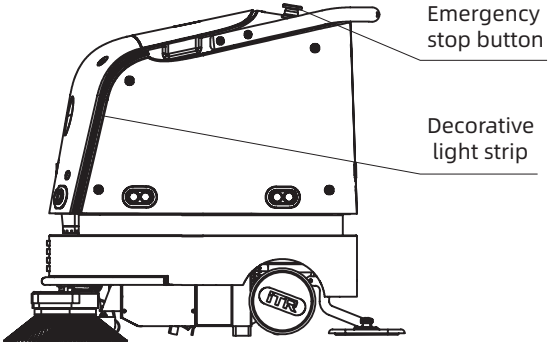
Battery indicator

The color of the battery indicator light represents power consumption.
Green: power > 80%
Orange: 30% < power < 80%
Red: power <30%
Length of the shining part of the battery indicator will gradually decrease with the power consumption.



Decorative light strip

The left and right sides of the machine are equipped with decorative light strips, whose states represent the current working state.
Shining:
① the machine is working;
② the machine is on but not working.
Flashing: emergency stop button was pressed.



Troubleshooting

Power on

Trouble Content	Possible Causes	Solutions
Unable to power on.	Insufficient power.	Move the machine close the charging port and charge.

Map creation

Trouble Content	Possible Causes	Solutions
The drive wheel cannot be locked.	Pressed emergency stop button.	Pull up the emergency stop button.
When creating map for machine through the mobile APP, the travel of machine was failed to be controlled.	The mobile APP failed to connect with machine's WiFi.	Connect the phone with machine's WiFi.
When creating map for machine through the mobile APP, the machine will stop.	Poor signal in the area.	Wait for machine's signal turn to good, and then let machine travel.
After creating the map, there is only [.2D] file in map file of machine.	The new map has not been created.	Wait for 5 to 10 minutes, after creating the map of machine, and then enter the engineering software for next operation.

Trouble Content	Possible Causes	Solutions
After creating the map, there is only [.2D] file in map file of machine.	Program error.	Waiting 5 to 10 minutes, powered off and repower on.

Route planning

Trouble Content	Possible Causes	Solutions
After planning the route, the map uploading was failed.	The engineering software is placed in the Chinese directory.	Move the engineering software to English directory.
	The computer failed the proper connection to the wireless network of machine.	Connect the computer to the wireless network of machine.
	Packet loss occurs during map uploading.	Upload the map again.
Click [Save] after modifying the route, and the modified content failed been saved.	The route name to be modified failed to be selected.	Select the route name to be modified, then re-modify it and save it.

Modifying route

Trouble Content	Possible Causes	Solutions
The route is inconsistent with actual route.	Error in scanning.	Rescanning.
	Failed to upload map when uploading.	Reloading.
The machine collides with objects.	The object is moved by the customer on site, resulting the terrain is inconsistent with the map created at beginning.	Recreating the map.
	Location loss.	Repowering on.

Start task

Trouble Content	Possible Causes	Solutions
The machine cannot travel.	Emergency stop button was pressed.	Pull up the emergency stop button.
	Failed map up loading.	Re-upload map.
	The machine is not within the range of the startpoint.	Move the machine to starting point of route (effective range is within 1m).

Trouble Content	Possible Causes	Solutions
The machine automatically stops and ends the task when executing a task.	The power of machine is less than 10%.	Power off and charge.
The machine's action track is abnormal or turns when executing a task.	There is dust or sewage on the lidar surface.	Wipe the lidar with a cleaning cloth to keep the surface free from foreign objects.
	Error task selection.	Reselect the task in the current area for working.
	Failed positioning.	End the task and repower on the machine.
	Great changes to scene.	Redeploy machine maps,routes, tasks.
The function of ultrasonic failed.	The function of ultrasonic is not turned on.	Contact the after sales staff and power it on remotely.
When turning back or turning around, the front of machine triggers obstacle avoidance.	When planning the route, it is too close to obstacle (≤ 65cm) from the front of machine.	Modify machine route.
The cleaning distance of side edge of machine is not enough.	When planning the route, the side of the machine is too far from the wall (≥ 10cm).	Modify machine route.

Charging

Trouble Content	Possible Causes	Solutions
The indicator light is not on when the charger is plugged into the power supply.	The charger is not plugged in tightly.	Ensure that the connection between the charger and the machine and the power supply is in a tight state.

Daily maintenance

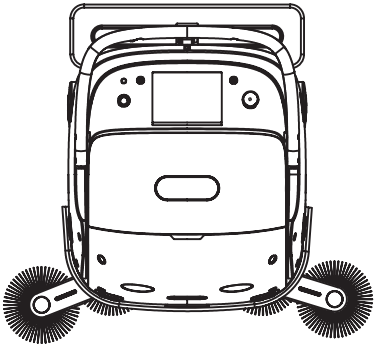
Caution

Before maintaining the product, please observe the following:

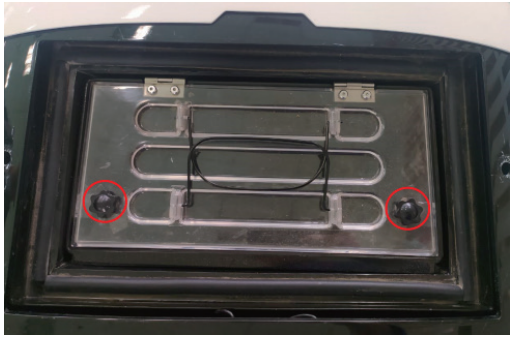
1. Please turn off machine's power button before maintaining.
2. Please do not modify the machine or change its original design or configuration without authorization. For maintenance, please contact the professional maintenance personnel designated by the manufacturer.
3. Please use accessories sold or recommended by iTR only.
4. If the machine will be rested for a long time, please clean the dustbin, cut off the power of machine, and ensure that the machine is charged once a quarter to prevent the internal battery from discharging excessively and reducing the battery life.

Clean the dustbin

1. Open the dustbin cover on the top of the machine;



2. Rotate the plum nut on both sides, lift the handle up, remove the dustbin, you can clean the dustbin;

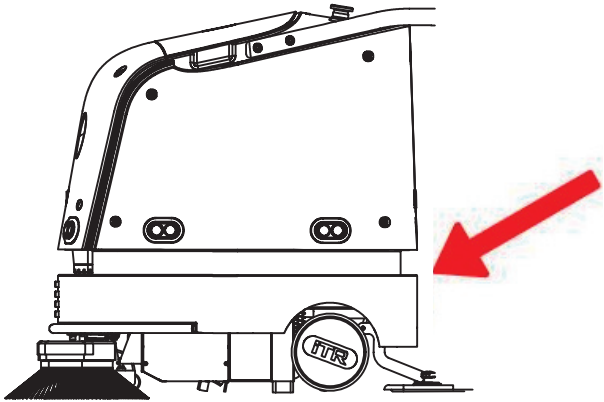


3 After cleaning, put the dustbin back, tighten the nut, and close the dustbin cover.

Note:
Inside the machine are two nuts, both above the dustbin.
Stand in the machine side, open the dustbin cover, left turn nut to remove.

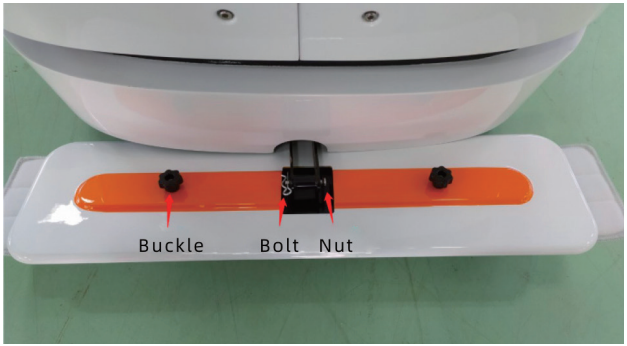
Replace the dust cleaner

The dust cleaner is under the back of machine. When cleaning the dust cleaner,

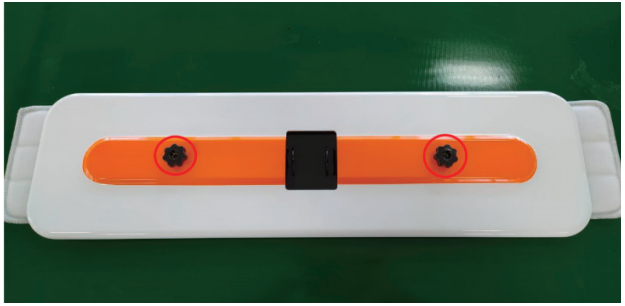


Disassembly

1 Please pull out the buckle and bolt in turn and remove the dust cleaner;



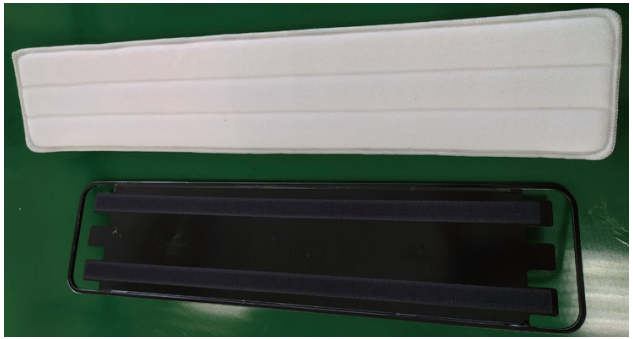
2 Please screw out the nut on both sides of the mop;



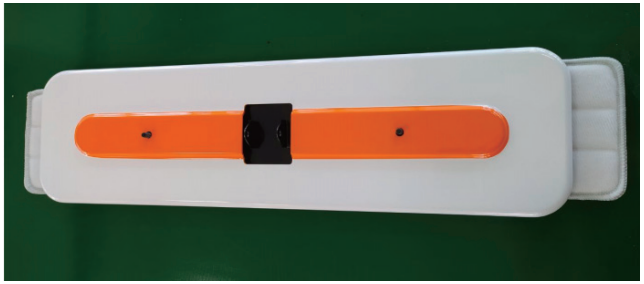
Installation

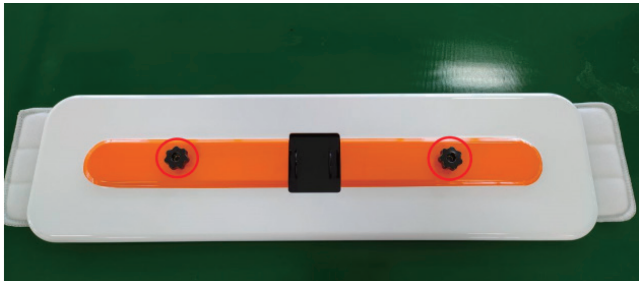
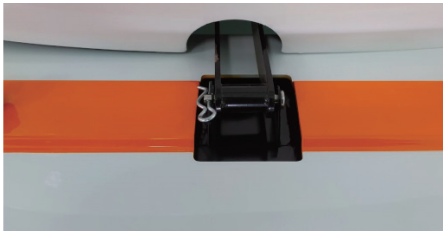
1 Please put the bracket on the mop horizontally, and then press down with force to make sticking with the mop;

3 Separate the bracket and the mop and then to replace the mop.



2 Please place the plate on the bracket (threaded rod on the bracket shall pass through the two holes on plate), and then fasten the nuts with threaded rod;





3 Please fix the dust cleaner with the rear side component of machine by the bolt. Afterwards, please insert the buckle into the hole at one end of the pin, representing that the installation is completed.