

Disinfection Robot

DX1000

Product Manual



PRODUCT MANUAL



Statement

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The product specifications and information specified herein are for reference only. No prior notice will be given when content is updated. Unless otherwise specified, this manual is only for instructional use only. The statements made hereunder shall not constitute any form of warranty.

Introduction

Dear users,
Thank you for choosing the DX1000 Disinfection Robot. Before using your robot, please read this manual in its entirety.

James Paat
President Inxite360

Introduction to the Product Manual

This manual describes the functional characteristics, methods of installation and use of the DX1000 Disinfection Robot.

This manual includes the following contents:

1. About the Robot: Gives a short description on the basic functional characteristics of the robot and shows the structure of the robot in detail.
2. Operating Steps: Gives a description on how to prepare the robot for usage.
3. Appendix: Describes common errors and detailed technical parameters of the robot, as well as safety precautions.





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DX1000 Disinfection Robot

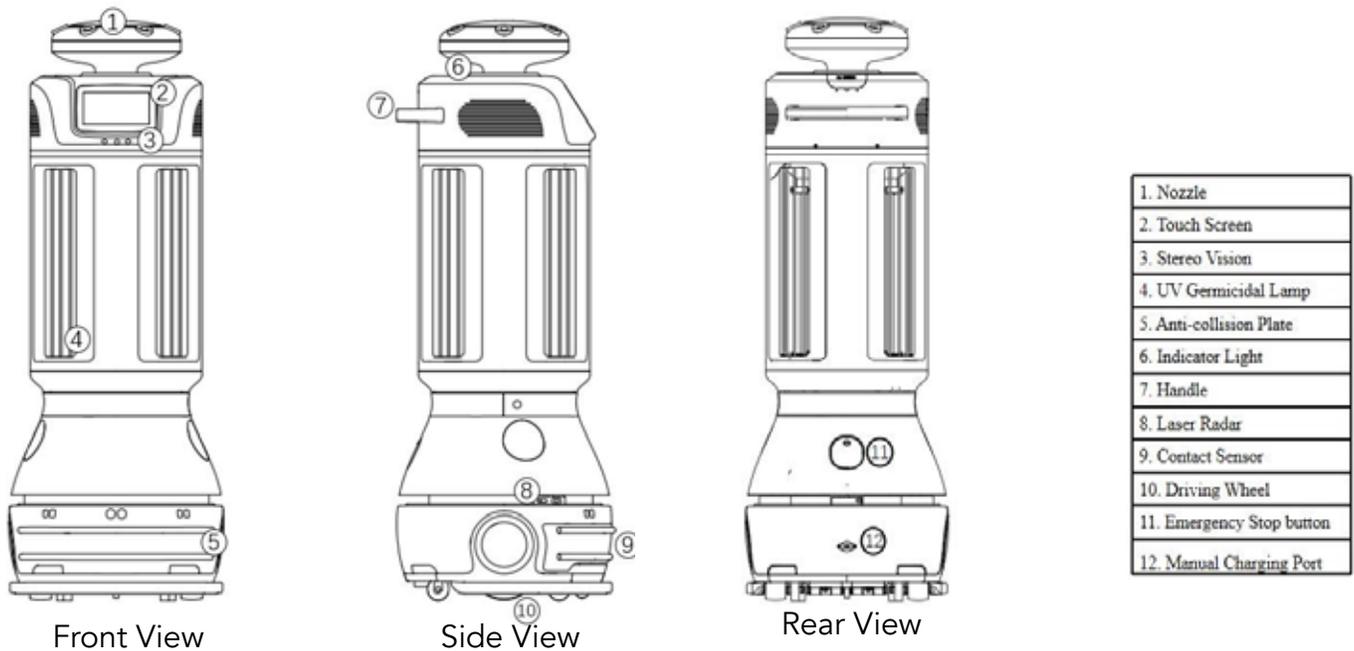


Fig. 1 Structure diagram of the DX1000 Disinfection Robot

Note: The above figure is for reference only. The appearance and color of specific products shall be subject to the actual products.

About the DX1000 Robot

The DX1000 Disinfection Robot should only be operated in indoor spaces, such as nursing homes, hospitals, quarantine areas, hotels, business offices, etc.

The DX1000 Disinfection Robot is fully autonomous and navigates via intelligent obstacle avoidance through machine vision and laser radar to provide disinfection and sterilization services.



DX1000 Disinfection Robot

Main Structure of the Robot

Fig. 1 shows the main structure of the DX1000 Disinfection Robot. The robot chassis has two driving wheels and four driven wheels. Autonomous movement is made through machine vision and laser radar. Intelligent obstacle avoidance function is realized through integrated application of different sensors such as contact sensors. Users are able to operate the robot system through the touchscreen.

Fig. 2 shows the structure of the DX1000 charging station. The robot is enabled with intelligent autonomous recharge, allowing the robot to independently find, match and contact the charging port to automatically recharge.

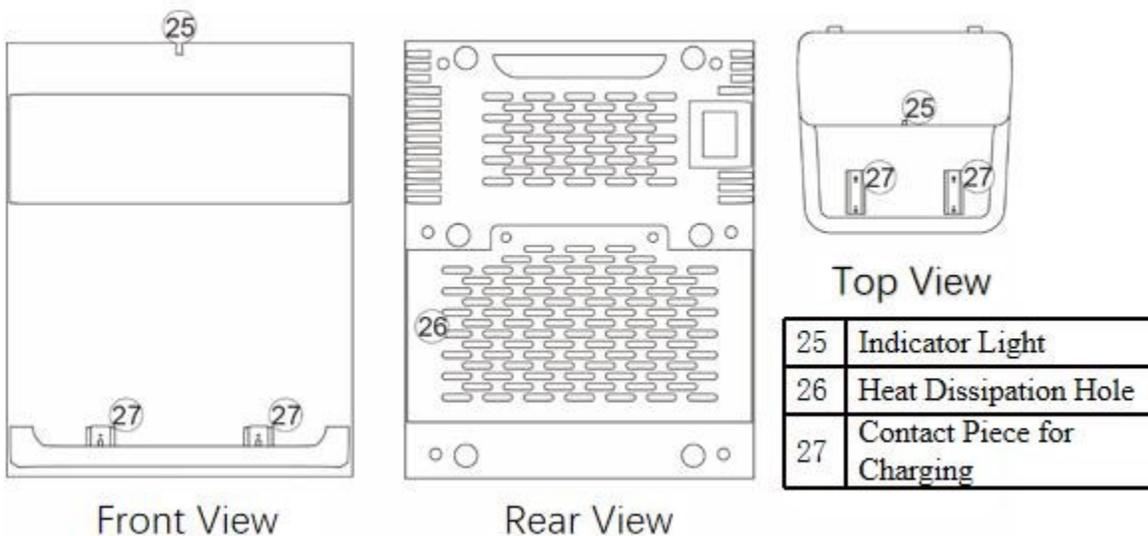


Fig. 2 Structure diagram of charging port

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Operating steps (Use robot)

Please follow the following steps to operate your robot.

Installation

1. Robot mapping

Before moving, the robot needs to check the surrounding environment. It stores and identifies its operating environment in the form of a map. This step is called mapping.

Power on

1. Power on/off

The power switch is located on the lower surface of the gap (near liquid injection port) in the laser layer of the robot. You may find the power switch in the position shown in fig. 3. Start the robot by pressing the power switch upward with your finger. It will take about 40 seconds to start the system before operation.

To turn off the robot, press the power switch downward.

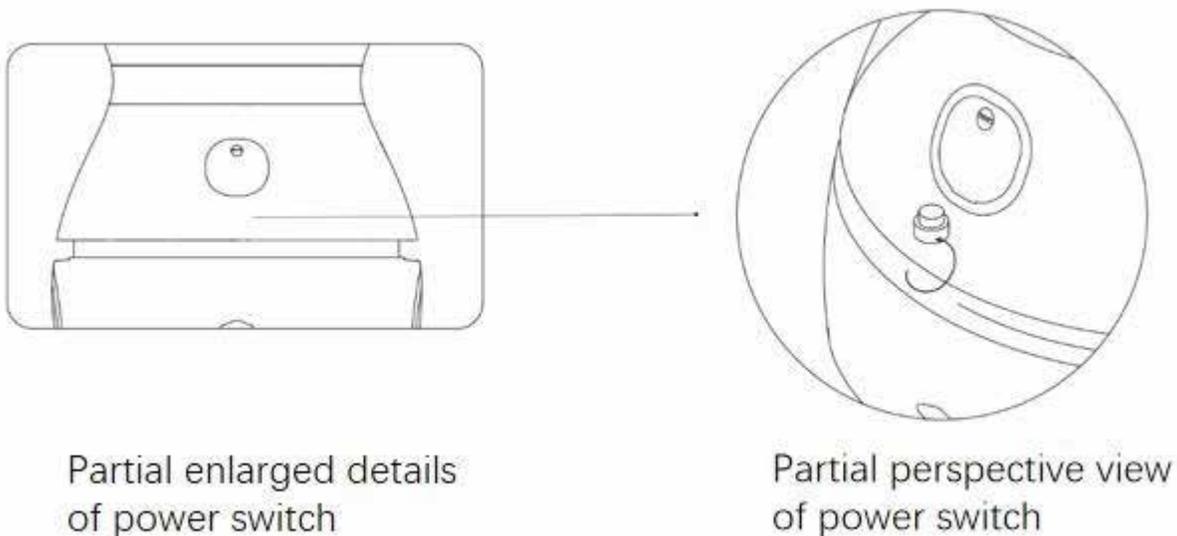


Fig. 3 Schematic diagram of power switch position

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2. Mobile app instructions

2.1 Introduction of functions

To disinfect, follow these steps:

1. Select “disinfection” mode.
2. Select the route to the desired destination or moving point. The robot will then travel to each destination after departure.
3. Upon arrival at destination (or route area), the robot will send a voice prompt, turn on its disinfection equipment, and conduct continuous disinfection task for a given period of time.
4. After completion of disinfection, the robot will automatically return to its original location.

2.2 Disinfection mode

The robot has three modes of disinfection:

1. On-the-way mode: open the nozzle for spraying disinfection along the route.
2. Fixed-point mode: operate ultraviolet disinfection for one single room.
3. Dual mode: UV and spraying sanitization functions are activated at the same time for disinfection of a single room.

Under the “on-the-way” mode, the user may select up to four routes. Press on the power switch to start the robot. When the robot arrives at the starting point of the first route, it will begin spraying disinfection and continue this operation along the way back and forth. Meanwhile, the robot will send a voice prompt every two minutes until the disinfection process for a preset number of cycles is completed. After that, the robot continues to spray on the next route or returns to the original point. Manual operation is required for this mode.

Under the fixed-point mode, the user may select up to four routes. Press the power switch to start the robot. When it reaches the destination room, the robot will send a voice prompt. Then, it will operate ultraviolet disinfection while sending a voice prompt every two minutes until the preset disinfection time is over. After that, the robot continues disinfection operation on the next point or returns to the original point.

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Under the dual mode, the user may select up to four routes. Press the power switch to start the robot. When it reaches the destination room, the robot will send a voice prompt. Then, it operates both ultraviolet and spraying disinfection while sending a voice prompt every two minutes until the preset disinfection time is over. After that, the robot continues disinfection operation on the next point or returns to the original point. Please keep away from the robot under the fixed-point mode and dual mode to prevent damage caused by ultraviolet radiation.

In the disinfection process, each mode supports the functions of suspending disinfection and ending tasks, and the interface of the robot displays the remaining disinfection time or spraying disinfection mileage.

Upon completion of each disinfection task, the main interface will update to display the analytics of the day, such as accumulative total disinfection duration, accumulative total disinfection mileage and task load.

2.3 Settings

Press the "Settings" button at the top left of the main page and enter the 4-digit password to enter the Settings page.

Users can set the number of cycles for spraying disinfection, duration of stay, intensity of spraying, sound volume, new password, motor unlock switch during pause, working time, instant charging, and so on.

Among these settings, the number of cycles for spraying disinfection is only available for "on-the-way" mode. It refers to the number of cycles for spraying disinfection by the robot on the given route. Users can set 1-5 times, or unlimited times for the number of cycles.

Intensity level of spraying: refers to the speed in which the robot sprays when under the "on-the-way" mode and "dual" mode. The speed of spraying is divided into 5 levels. Level 1 is the slowest while Level 5 is the fastest. With the speed increase, the amount of spraying increases and the disinfection efficiency will be higher.

Duration of stay: refers to the irradiation time (15-90 minutes) under the fixed-point mode and dual mode with the ultraviolet equipment turned on. The longer the irradiation time, the better the disinfection effect will be achieved.

Motor unlock switch during pause: if this function is turned off, the user clicks on the screen, and the motor will not unlock when the robot pauses, then the user cannot push the robot to move.

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Charging

1. Robot Autonomous Intelligent Recharge

The robot has the function of intelligent autonomous recharge. The robot will return to the charging port to recharge if both two conditions below are met. Please ensure that the charging port is secured in position and energized.

The electric quantity of the robot is lower than the recharge value set by the user. The robot is idle and its electric quantity does not reach 100%.

2. Adapter charging (robot operation is prohibited during adapter charging) The robot can be charged through the adapter as follows:

Power off the machine.

Open the silicone sleeve outside the [Charging port] on the back of the robot and connect the robot with the charging plug of the adapter.

After successful connection, the adapter indicator will turn red (if the indicator light is yellow, press the indicator light, then the light it will turn red).

The charging is complete when the adapter indicator light turns yellow. Then, disconnect the adapter and plug the silicone sleeve outside the charging socket of the robot.

Filling Disinfectant

The user should fill the robot with disinfectant if the robot indicates that the liquid level is too low. The filling port is located at the rear side of the machine body. Lift the silicone cover, press the blue knob, and then rotate counterclockwise to open the cover, as shown in fig. 4.

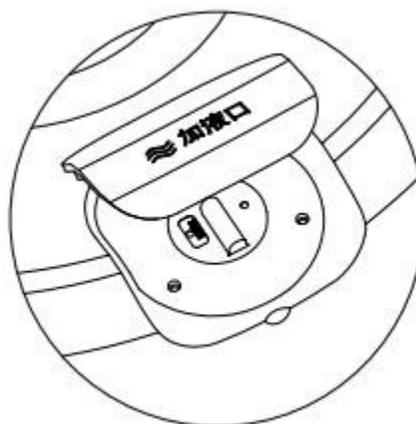


Fig. 4 Partial enlarged detail upon opening the outer silica gel cover of the liquid filling port

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Description on state of indicator light

Indicator light state	Meaning
Blue breathing light (slow blinking)	The robot is in standby mode. The spraying device and the ultraviolet lamp are not on.
Blue operation lamp (rotating)	The robot is in operation, with spraying device or ultraviolet lamp on.
Blue Warning Light (fast blinking)	Warning - ultraviolet lamp will be turned on soon.
Orange breathing light (slow blinking)	The robot is low on disinfectant.

Emergency treatment

When the robot is moving, if the user needs to push and move the robot by hand, or the robot is in abnormal operation that may cause damage to the surrounding environment, or some other emergency event occurs, the user can stop the robot by pressing the red emergency stop button on the top of the robot. The position of the emergency stop button and how to operate the button are shown in fig. 5

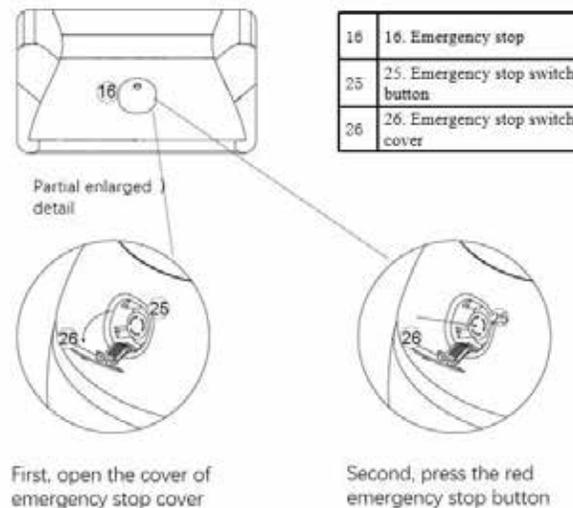


Fig. 5 Partial enlarged detail after opening the emergency stop button cover

The emergency stop button is located at the back of the robot, i.e. the position indicated by reference No. 11 in the figure. For emergency stop, you should first open its cover outwards. Then, break the acrylic protection plate in the middle layer. Lastly, press the red emergency stop button.

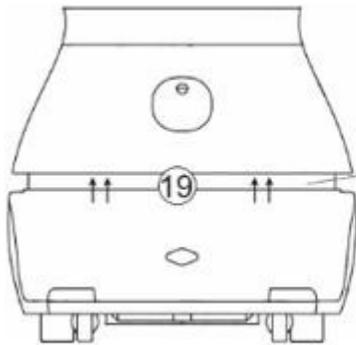
* Note:

The user is required to break the acrylic protection plate before pressing the emergency stop button. Therefore, please don't use this button unless an emergency event occurs.

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Handling the robot

Robots are expensive, so please follow the instructions below when moving the robot manually. As shown in fig. 6, the upper part of the robot laser layer gap (the surface indicated by the arrow) is the force-bearing part, through which you can lift the robot. Please hold the upper part of the laser layer with your hands when handling. Please keep the robot upright at all times when handling.



Note: When handling the robot, please hold the gap of the laser layer between the body and chassis of the robot.

Fig. 6 Schematic diagram for handling the robot

* Note:

The laser layer gap is the only force-bearing part of the robot to be handled. When moving robots, you should strictly follow the instructions. Do not pull and lift the bottom of the robot, turn over the robot, or directly lift the robot's face and head. The damage to the robot caused by improper operation during handling shall be borne by the user.

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Appendix

List of Exception and Troubleshooting

Failure Problem	Possible Causes and Solutions
The user cannot turn on the robot	<ol style="list-style-type: none">1. There is an electricity shortage – charge the robot via the adapter.2. For other causes, please contact customer service.
Failure to charge normally	<ol style="list-style-type: none">1. Press the yellow indicator light of the adapter; the indicator will turn red.2. For other causes, please contact customer service.
Robot cannot move or navigate	<ol style="list-style-type: none">1. The robot is in the blind area of the map. Turn off the robot and push it to the vicinity of the starting point to start navigation again.2. The top camera, stereo vision or laser layer gap is covered. Ensure that the above modules are not covered.3. Robot radar failure. Check the rotation of the laser radar.4. Robot collision switch failure. Check whether the collision switch is squeezed.5. For other causes, please contact customer service.
Abnormal robot movement	Turn off the power supply of the machine immediately and contact customer service for disposal.
Robot falls	Turn off the power supply of the machine immediately and contact customer service for disposal.

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Performance parameters of the Machine

Model	DX1000 Disinfection Robot
Dimension	500*500*1350 mm
Disinfectant volume	15L
Spraying Parameter	Spraying output: 2-4L/h; Spray particle size 10 μ m.
Number of ultrasonic atomization sets	6 sets of ultra-dry atomizing nozzles
Applicable disinfectant	Hydrogen peroxide, hypochlorous acid, and peroxyacetic acid
Ultraviolet radiation intensity	Each group: $\geq 90\mu$ W/cm ²
Number of ultraviolet lamps	Four sets of UVC ultraviolet germicidal lamps, with 360 ° coverage for irradiation
Disinfection method (three methods for choice)	Ultrasonic dry spray disinfection Ultraviolet irradiation disinfection Ultrasonic dry spray disinfection + Ultraviolet irradiation disinfection
N.W.	70Kg
Moving speed	0-0.8m/s
Maximum climbing angle	Slope $\leq 3^\circ$
Network interface	WIFI/4G/ Bluetooth
Battery capacity	DC 48V 15Ah
Rated power	90W
Standby current	Standby current is less than 0.5A
Endurance time	Work continuously for more than 8 hours
Standby time	Standby time is greater than 48 hours
Life span	20,000 h
Temperature and humidity operation	0-45, RH: 5%-85%, no dust
Operation environment	Indoor environment, flat and smooth ground
Charging mode	Automatic/manual charging
Input voltage	input rated voltage for charging port and adapter: 220V/50Hz
Storage temperature	0-60 degeed C.

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Safety instructions

Use restrictions:

As a wheeled robot, the product shall only operate indoors on a flat surface (smooth ground; slope: 5°; protrusion height: ≤ 1cm). Do not operate the robot outdoors (such as an open balcony) or rugged ground (such as stairs).

Do not operate the robot in a suspended environment (e.g. duplex floor, open balcony, top of house, stairs) or environment without a protective fence.

Do not operate the robot in an environment where the temperature is higher than 50°C or lower than 0°C or there is liquid or viscous substance on the ground.

Before using the robot, please remove all kinds of wires on the ground in the operating environment to avoid dragging when the robot is in operation.

Before use the robot, please remove sharp objects on the ground (such as decoration waste, glass, nails, etc.) to avoid damage to the chassis of the machine.

Do not place any non-transportable objects (including children and pets) on stationary or running robot.

Do not push or handle the robot while the machine is moving.

Do not arbitrarily move the robot.

Do not clean and maintain the main machine and charging port unless the robot is shut down or powered off.

Do not use allow hard or sharp objects to collide with the robot.

Do not spill any liquid into this product.

Do not push down the robot or place it upside down.

The robot is an electronic product. Please keep it away from fire.

Before handling the product, please ensure that the main machine is powered off. It is recommended to use the original packaging box for packaging.

Please use this product according to the instructions in the user manual or the introduction guide. Any loss or injury caused by improper use shall be borne by the user.

Battery and charging:

Do not use any battery or power adapter from a third party.

Do not disassemble, repair or refit batteries or charging ports without permission. Do not place the charging port near a heat source (such as radiator, etc.).

Do not wipe or clean the charging port contact piece with a wet cloth or wet hands.

Please recycle old batteries.

If the robot is idle for a long time, please power off the machine upon full charge and put it in a cool and dry place. Charge it at least once a month to avoid battery damage.

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Warranty period:

1. Clients can request for return, replace or repair of the products with performance failure due to the reason other than the operation of the users within 7 days from the date of purchase.
2. Clients can request for replace or repair of the products with performance failure due to the reason other than the operation of the users within 15 days from the date of purchase.
3. We promise to provide free warranty service for our products with performance failure due to the reason other than the operation of the users within the warranty period from the date of purchase.

Warranty coverage:	
Name	Warranty period
Robot	1 year

Non-warranty terms:

The warranty service is only applicable to the products under normal use. Products damaged by users and the following clauses are not covered by our warranty.

1. Product damage caused by negligence, fault and misuse of users, or disaster (e.g. food liquid stains, water seepage, external force cracking, scratches and damage of peripheral components, etc.).
2. Users dismantle the machine by themselves, and repair and refit it without authorization and approval of the manufacturer.
3. Improper connection of accessories; product damage caused by transportation and other accidents.
4. Damage caused by force movement.

Product information	Product model:	SN code:
User information	Name: Tel.:	Date of purchase: Email:
	Address:	Purchase address:
Sales unit information	Distributor:	
		Stamp of distributor

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