Disinfection robots

Thermal fog robot S8.2-TF

- **Mobile thermal fog generator**
- **Up to 4 hours' time of autonomous sterilizing**
- **Up to 10 miles distance rout of sterilizing**
- **Day/night autonomous operation**
- **Autonomous guidance system**
- **Obstacle avoidance and route scheduling**
- **Recall from route in case of emergency using tele-operation remote control mode**
- **Return for recharging when batteries are depleted**
- **Route monitoring with tele-operation mode via 4G**
- **Visual monitoring with two (2) HD cameras**

Thermal Fog Disinfection Robot S8.2-TF-W

The disinfection spraying robots are developed to sterilize areas, equipment, and vehicles located in the open space areas. Disinfection is carried out by spraying hot fog during the automatic movement of robot along a preprogrammed route.

Robots are perfectly suited for regular sterilization procedures in wide-open areas of industrial and transportation companies.

Carrying out these works by robots is especially relevant in the context of the coronavirus pandemic.

S8.2-TF series robots are equipped with a thermal fog generator. The water vapor generated by the thermal generator distributes the disinfectant solution as a hot aerosol. When it comes into contact with any surface having a temperature below its own temperature, the sanitizing compound precipitates. The sanitizing solution allows to effectively decontaminate surfaces of any complex shapes without leaving areas untreated.

The robot uses visual and satellite navigation that is why the best precision to follow its route is achieved while using both sources. Sufficient illumination is necessary for the visual navigation system to work at its full capacity. In case if there is insufficient illumination, movement routes out on the open sky should be used, in order to ensure stable perception of the GPS system.

During the autonomous sterilizing process, the disinfection robot is able to avoid obstacles and redirect itself back to the designated route. When robot significantly deviate from preset route - for example, during a long detour around an obstacle - robot is equipped with an emergency shutdown system that is triggered when the robot dispatches itself from the route by more than 10 feet or 3 meters.

For such situations, to take robot back to its route, there is a manual remote-control mode.

The robot comes with an auto charging dock station that provides timely recharge for the batteries. The charging station and the robots are designed to ensure autonomous operation without any human interaction.

Regula disinfection of large areas, factories with an autonomous robot

S8.2 Disinfection Spraying Robot is fully autonomous; it performs sanitizing in automatic mode while monitoring the level of the sprayed solution, coverage area, and battery charge. Right after the disinfecting chemical solution is distributed, the robot immediately returns to the charging station where the refill solution is added. At the same time, the batteries are charged to their full capacity.

This method of application allows a single operator to service several robots simultaneously and to disinfect large areas efficiently. Most importantly, the technical staff does not expose itself to prolonged exposure of highly concentrated chemicals while working in an entirely safe and risk-free environment.

Two robot models S8.2-TF and S8.2-TF-W are available for order. Their difference is that **S8.2-TF-W** is equipped with a direction and wind speed sensor since the coverage area of the disinfection zone depends on the direction and strength of the wind.

The special sensor installed on the robot automatically calculates the sterilization surface area. It accumulates and processes incoming data of the sprayed solution taking into consideration the wind speed and its direction. A specially developed smartphone application is used to display the decontaminated area on the map for easy monitoring and control.

S8.2-TF is a more affordable model. It is not equipped with a wind sensor and does not support software for estimating of the treated area. The operator can visually monitor the operation of the robot through two high-resolution cameras directed both forward and backward.

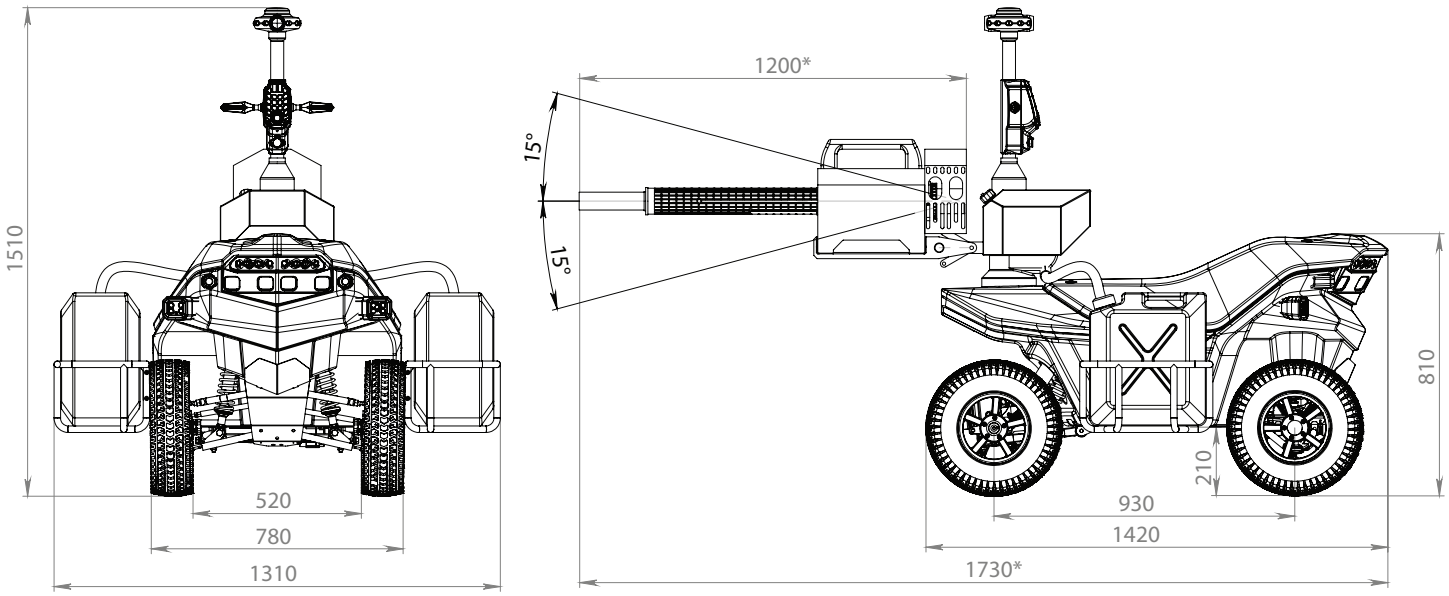
Disinfection spraying robots are monitored using 4G wireless technology. To control the movement, software installed on the dispatcher's PC is used. The robot is refilled with a disinfectant solution manually during charging. Refueling of the robot is carried out after charging in a specially equipped place.

Disinfection robots

Thermal fog robot S8.2-TF

Technical specifications of the disinfection thermal spraying robot

Label	S8.2-TF
Method of disinfection	thermal fog
Solution tank capacity	40 l
Fuel tank capacity	10 l
Performance combustion chamber	18.3 KW / 24.8 HP
Fuel consumption in approx.	3 l/h
Average flow rate	20 l/h (oil-based)
Max. flow rate	30 l/h (oil-based)
Flow rate with water in	10 l/h
Spouting particle size	0 - 30 µm
Efficient horizontal reach in using water and carrier	30 m
Efficient horizontal reach in using water	10 m
Average disinfection path	10 km 6.5 miles
Average disinfection time	3.5 hours
Estimated operating time	6 hours
Charging time	4 hours
Cruising range, up to	18 km 11 miles
Speed while traveling autonomously, up to	4 km/h 2.5 mph
Accuracy of check-point drive-through circle radius	0.7 m 2.3’
Width of movement route path, min	1.1 m 3.6’
Turning radius, min	7 m 23’
Minimum illumination for visual navigation	6 lux
Wireless communication	4G
Charger	48V DC 600W
Battery	Lead-Acid battery 2 x 12.6V 60A/h
Weight (with batteries, empty tank)	112 kg 247 lb
Operating temperature range	+5°C … +55°C 41°F … 131°F
Dimension	1730x1310x1510



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Disinfection robots

Sprayer robot S8.2 G

- **High-pressure electric pump**
- **Up to 4 hours, time of autonomous spraying**
- **Up to 500 liters spraying of sterilizing solution one battery charge**
- **Day/night autonomous operation**
- **Automatic refueling of tanks solution**
- **Autonomous guidance system**
- **Obstacle avoidance and route scheduling**
- **Return for recharging when batteries are depleted**
- **Route monitoring with tele-operation mode via 4G**

Highly effective spraying

The S8.2G robot is designed for regular (daily, routine) spraying of horizontal surfaces of walkways, open areas, sidewalks, lawns by water solution. Spraying is carried out with a solution from two tanks installed on the robot. The solution is sprayed behind the movement line of the robot, it is supplied under pressure to the atomizer nozzles. The robot automatically moves along the programmed route.

On the route, the operator programs the surfaces requiring spraying; upon reaching them, the robot turns on the sprayer pump. At the end of the solution in the tanks, the robot automatically returns to refuel to the automatic charging/refueling station.

It automatically, without human intervention, and provides not only pouring the solution but also charging the batteries. An automatic charging/refueling station can serve several robots.

Automation of the robot provides reliable processing of the entire surface that should be protected. Thanks to high-precision positioning and uniform movement, use of the robot allow to:

•Strictly supervise set consumption rate of solution

•Avoid double processing and do not leave unprocessed areas

•Observe the same spray density in the strip of the work surface.

•Be confident in the proper execution of work

With fully charged batteries, the robot is able to spray up to 0.5 tons of the solution, having made 8-9 refueling cycles within 5-6 hours. After that, the robot will need a full charge of the batteries within 4 hours.

S8.2G is highly maneuverable; this allows the robot to process areas of complex shape with an optimal flow rate. The relatively lightweight of the robot in combination with soft rubber tires provide minimal impact on the surface in case of movement on the lawn.

Eco friendly round-the-clock solution

The use of the S8.2G robot relieves personnel from the harmful effects of chemical solutions on the body. That is why, in most cases, manual spraying requires the use of personal protective equipment for the person during the conducting of these works. The robot relieves a person from the risk of harm to health.

The robot is able to automatically switch the strip width of the processed surface. This mode not only saves a solution but also saves the natural flora of unprocessed areas of the surface by means of decrease excessive environmental exposure to chemical solutions

By using only the electric motors the robot does not make harmful emissions, its operation is not accompanied by noise. This allows you to use it around the clock. In some cases, overnight operation of robots is more effective due to the lack of wind, and people interfere with the movement of robots, also eliminates the negative impact of chemical ingredients of the solution on random people or pets.

Operation monitoring of the robot is carried out through 4G cellular communication and a remote PC. The operator located at the PC is able to control the operation of several robots. The software displays the status of the robots, their location and shows the video from high-resolution cameras installed on the robot. Sensitivity and dynamic range of the cameras provides high-quality surveillance at a sunny day and at night.

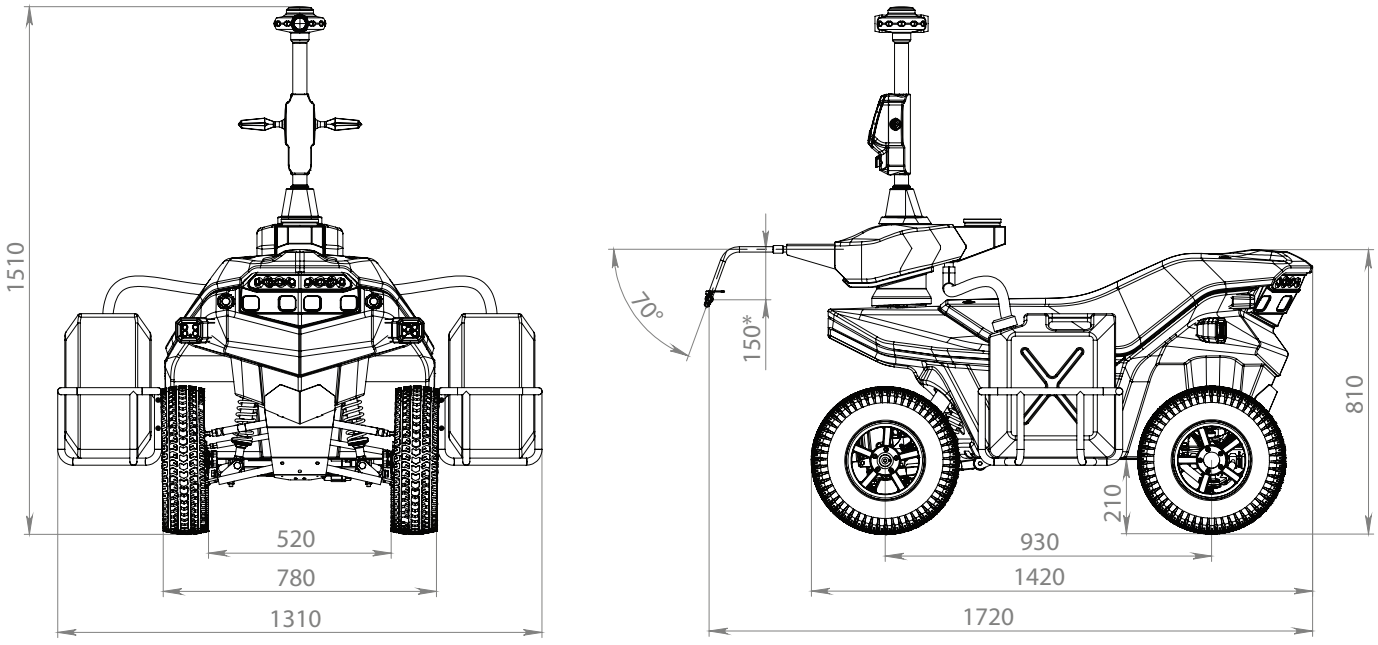
The use of spraying robots is extremely effective in conjunction with security robots manufactured by SMP Robotics. This solution allows the use of common infrastructure elements that ensure the autonomous operation of robots and the technical staff serving them. Using S8.2G and other models of robots allows you to create a communal infrastructure for people to live with a minimum of staff. Reduce the amount of low-skilled workers present in the served area.

Disinfection robots

Disinfection sprayer robot S8.2 G

Sprayer robot S8.2 G technical specifications

Label	S8.2 G	
Method of disinfection	spraying	
Solution tank capacity	60 l	
Average flow rate	2 l/m	
Max. flow rate	4 l/m	
Efficient horizontal reach	1.6 / 2.8 / 2 x 2.7 m	
Spouting particle size	50 - 300 µm	
Average disinfection path, one tank of solution	1 km	0.62 miles
Average disinfection time, one tank of solution	0.5 hours	
Average disinfection path on, one charge battery	4 km	2.48 miles
Average amount of solution used, one charge battery	500 l	
Average disinfection time on, one charge battery	4 hours	
Estimated operating time	6 hours	
Charging time	4 hours	
Cruising range, up to	16 km	9.94 miles
Speed while traveling autonomously, up to	4 km/h	2.5 mph
Accuracy of check-point drive-through circle radius	0.7 m	2.3’
Width of movement route path, min	1.1 m	3.6’
Turning radius, min	7 m	23’
Minimum illumination for visual navigation	6 lux	
Wireless communication	4G	
Charger	48V DC 600W	
Battery	Lead-Acid battery 2 x 12.6V 60A/	
Weight (with batteries, empty tank)	112 kg	247 lb
Operating temperature range	+5°C … +55°C	41°F … 131°F
Dimension	1720x1310x1510	



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