



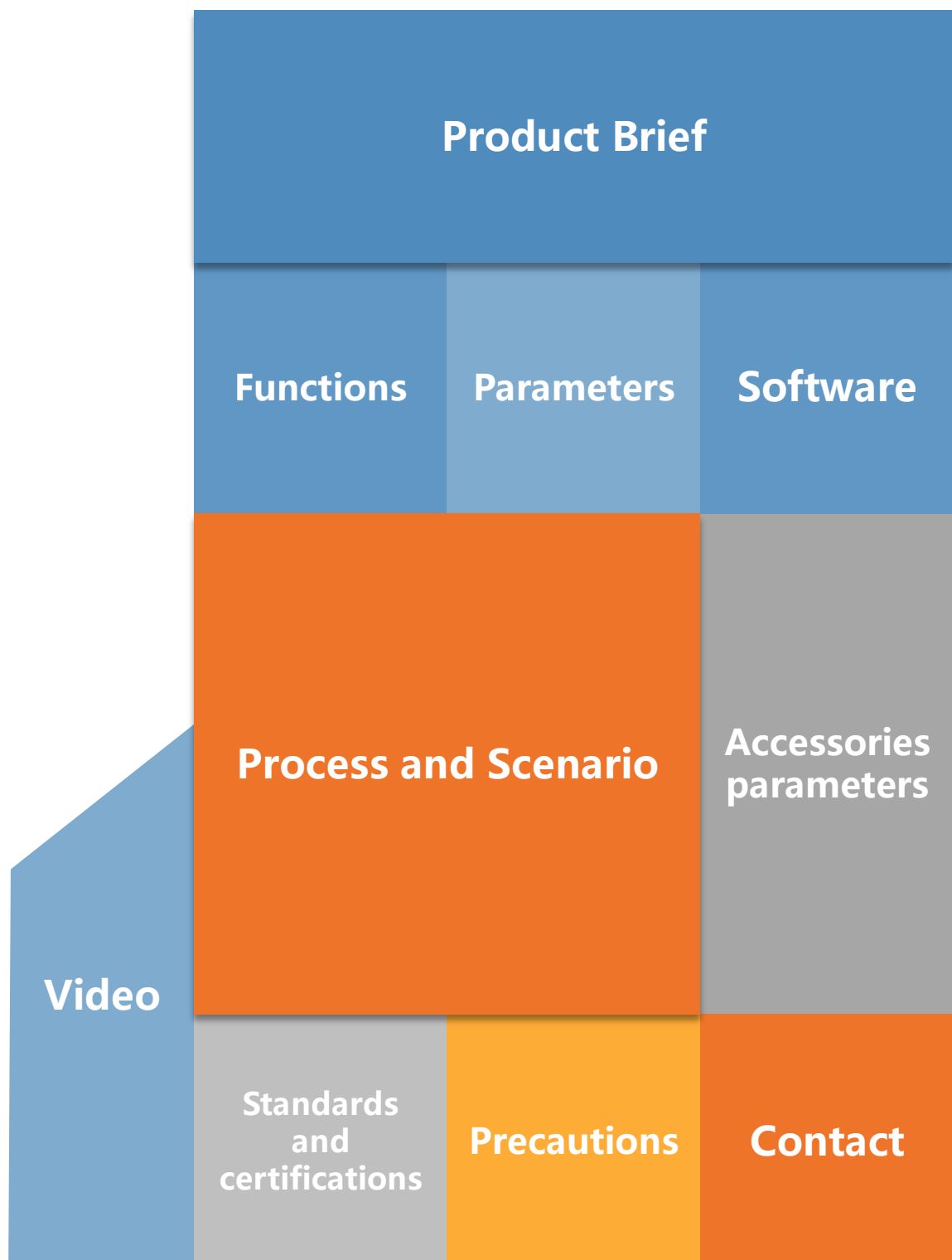
TDS Technology Group

**Anti-Epidemic** Robot

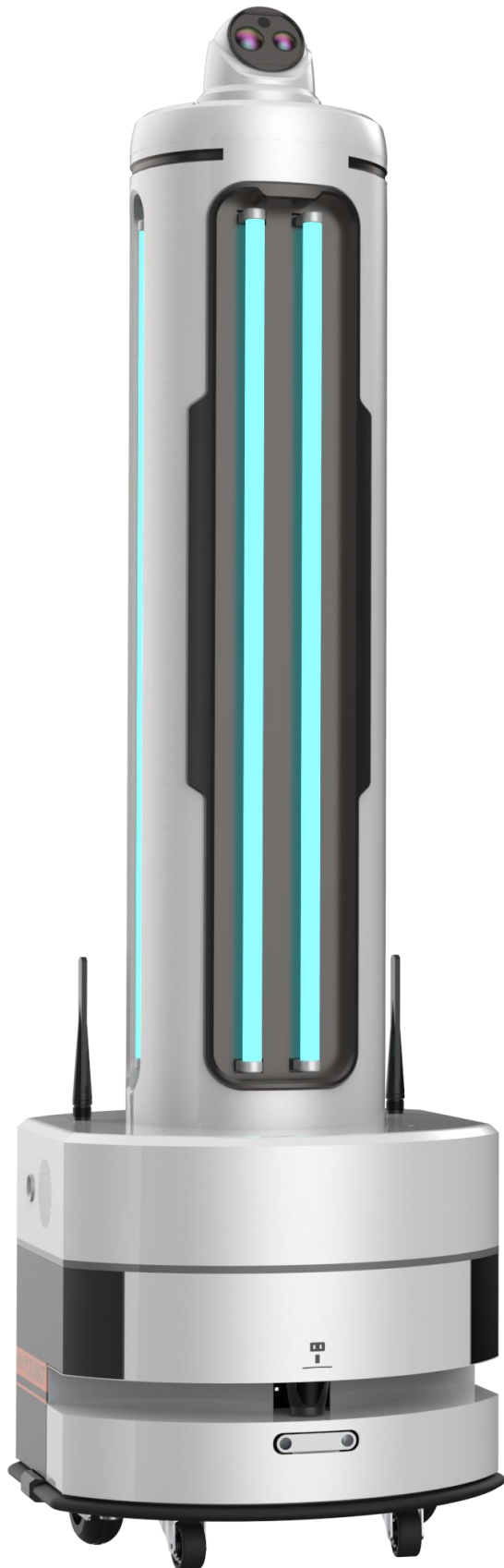
**ARIS-K2**  
**Manuel**



# Catalogue

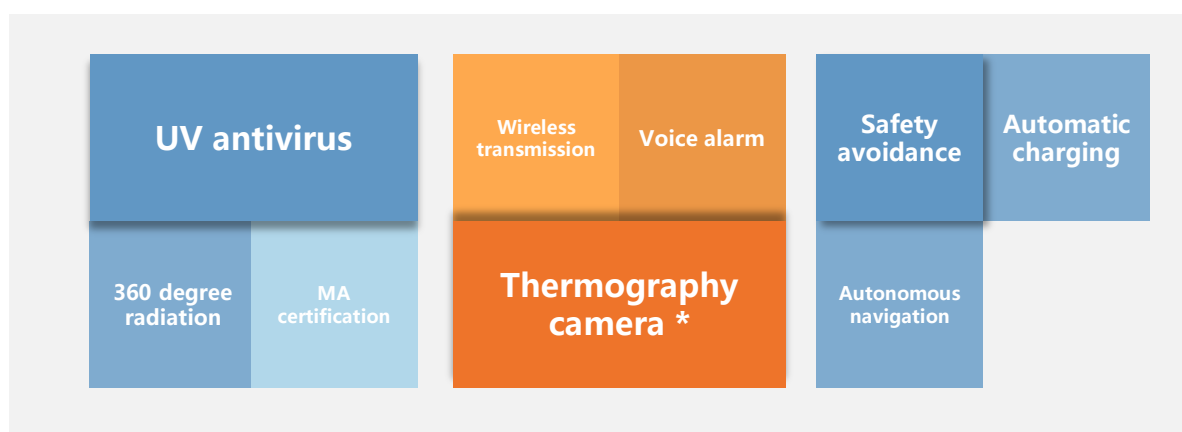
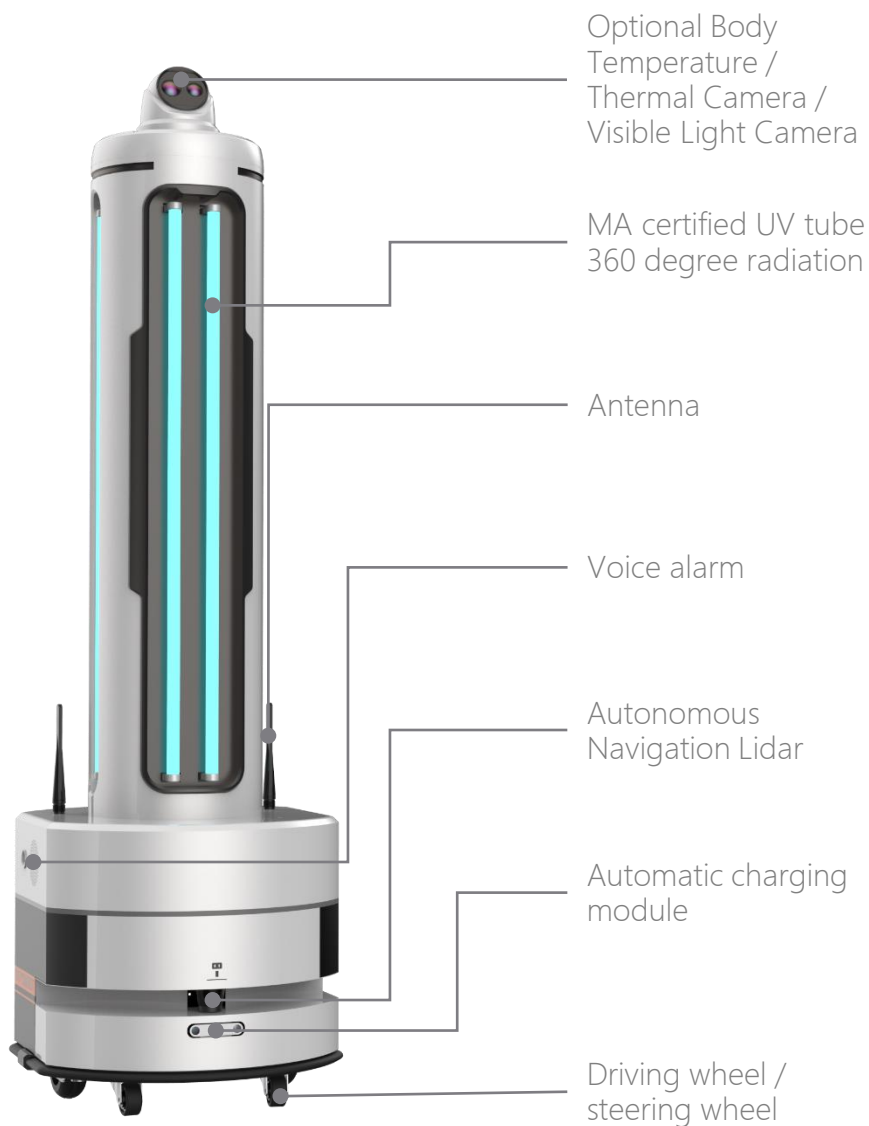


# Product Brief



- Ultraviolet indoor mobile multi-point disinfection
- Configure infrared body temperature monitoring, body temperature detection during the day, and disinfection at night
- Industry's largest power efficiency killing, cumulative UV intensity up to  $270\mu\text{W} / \text{CM}^2$
- Laser SLAM algorithm completes the construction and positioning of the global environment map
- Fully mature cognitive and positioning navigation capabilities
- Ultraviolet killing robot is suitable for shopping malls, stations, offices, production sites, etc.
- Robot conforms to [National Standard] GBT 30030-2013 Automatic Guided Vehicle (AGV)
- UV disinfection conforms to [National Standard] GB 19258-2012 UV germicidal lamp

# Functions



# Parameters

Category	Item	Parameter
Material of body Size Weight	Material of body	Cold rolled steel + plastic
	Size	580x500x1200mm
	Weight (including battery)	50KG
Environmental conditions	Ambient temperature	5 to 40 degrees
	Ambient humidity	Relative humidity 5 to 95% (no condensation)
	Running environment	Indoor use only, no excessive dust, no corrosive gas
	Protection level	IP20
	Cleanliness grade	Class100
	Antiskid coefficient of ground	≥0.5
	Ground requirement	Horizontal ground for concrete pouring (without water, oil or dust)
Ground conditions	Minimum flatness of ground	Ff25 (* ACI 117 standard)
	Vertical obstacle surmounting ability	10mm
	Ability to cross gullies	±20mm
	Climbing ability	5°
	Path selection	Secure scanning lidar based on environment mapping independent path selection
Navigation	Navigation system	Provide large-scale lidar mapping, lidar positioning, lidar path planning, lidar navigation functions, including obstacle avoidance and recovery control.
	Rendering of environmental map	Scanning with Slam (positioning and mapping at the same time)
	Navigation mode	Laser landmark navigation
Running speed	Maximum speed	1 m / S (theoretical maximum speed)
	Maximum rotational speed	180°/s
Mobility performance	Stopping precision	Position accuracy: ± 1 cm, angle accuracy: ± 2 °
	Texture of material	Polyurethane
Driving wheel	Size	Diameter 150 * 35mm
	Battery	Industrial grade lithium iron phosphate battery, high stability, metal shell safety protection, earthquake resistance, accidental strong impact damage, no open fire
Battery	Capacity	0.75kwh
	Running time	6H
	Charging time	≤2.5H
	Battery life	Cycle life ≤ 1500 times, keep 80% capacity after 1500 times
	Charging mode	Auto / manual
	Power output	12V 5A / 24V 5A
	protection system	Power protection, temperature protection

Next

# Parameters

Category	Item	Parameter
Equipment	Wireless signal receiver	Secure encryption, low delay, high bandwidth for image transmission
	IPC	Industrial control computing system
	Guided gyroscope	Auxiliary inertial navigation system for Complex Pavement
	Camera	Optional / thermograph or visible camera
Sterilization efficiency	Ultraviolet sterilization efficiency and distance	1. Quantity of glass tube ultraviolet lamp: 6; 2. Ultraviolet radiation direction: 360 ° omnidirectional; 3. Accumulated light intensity: 270uv / cm <sup>2</sup> ; 4. UV power: 180W; 5. Single point disinfection time: 10 minutes; 6. Coverage of moving path: radius 6-10m.
	Safety lidar	Fuselage front Detection distance: 30m Detection angle: 270 °
Security function	Emergency stop button	2 buttons on the left and right sides of the housing
	Collision bars	Surround robot 360 degrees
	Status indicator lamp	three colors of status indicators, which located in the robot shell.
Operation panel and interface	Start button	1 at the rear of the robot shell
	Wireless network	IEEE 802.11 A/C
	Control mode	Unattended operation
	Disinfection and sterilization	UV sterilization
System	Remote interaction	Voice intercom, remote control
	Intelligent system	Single machine scheduling system
	Robot scheduling management system, remote assistant patrol intelligent system	Robot system scheduling, remote control, patrol plan, data query
Accessories (optional)	Remote control computer	Lenovo or DELL brand desktop computers
	Switch	Huawei or the same quality brand
	On site wireless base station AP	Including a set of high-power host, antenna, lightning arrester and power divider to meet the requirements of robot operation in 100m × 100m open area

# Software

User  
interaction

System  
integration

Facility  
integration

Environment  
al awareness

Business system

**YOUI** Fleet

**YOUI** Pilot

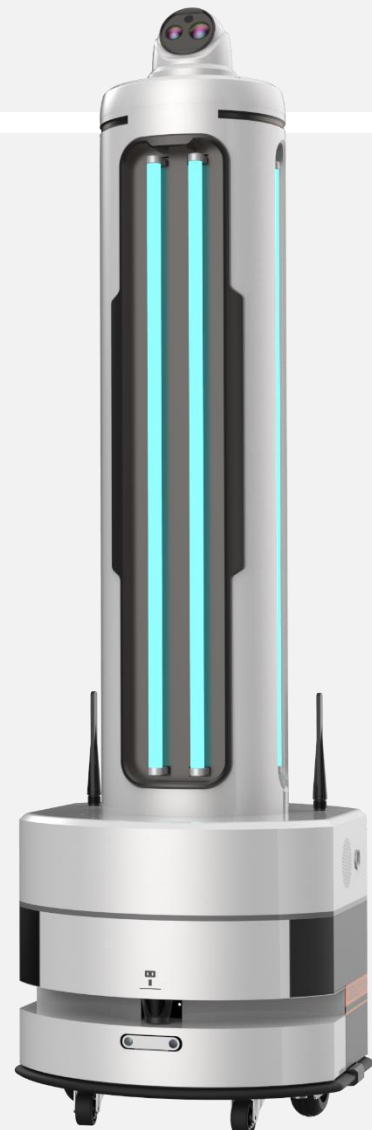
autonomous  
mobility

Ability to  
perform  
operations

SLAM

Visual  
perception

Control  
Technology



Know More

Catalogue

# Process and Scenario

Set kill time and kill area in advance,  
Set disinfection time

Reach the set time and  
start killing

Automatically navigate to kill zone  
Start killing at the set time

Kill completed  
Navigate to the  
next area

Waiting for the  
next kill time to  
arrive

Return to the charging point for  
automatic charging \ standby

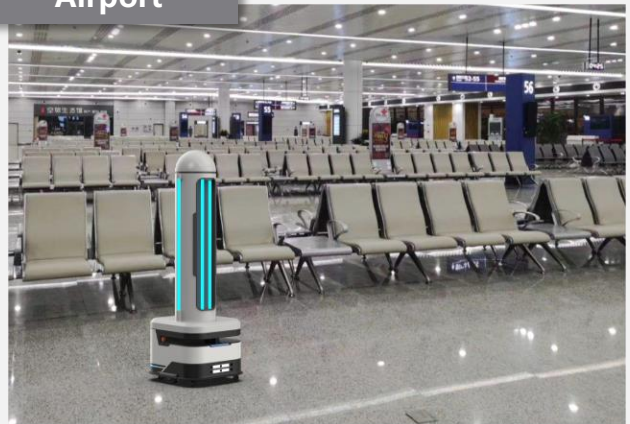
Circular kill  
Until all areas are killed



Office  
Mall



Hospital  
Airport





# Accessories parameters

Automatic charging station	
Current range	5-30A
Voltage range	15-60V
Contact point	2
Battery	180VAC-260VAC/45Hz-65Hz
Rated output power	1800W
Working temperature	-15°C-+50°C
Working humidity	10%-90%RH
Size	500*500*380mm
Weight	15kg
Installation mode	Back against the wall or directly on the floor using a wall bracket


Handheld charging head		Remote control	
Model	NE02	Model	F710
Maximum charging voltage	58.8V	Weight	200g
Maximum charging current	8A	Protection level	IP20
Input	AC185V-AC265V;47Hz-63Hz	Battery type	The 5 <sup>th</sup> battery

Wireless AP remote view (optional)	
Modal	AWK-1131A
Size	58*115*70mm
Installation mode	Rail installation or wall mounting
Power supply	12-48VDC (6.72W)
Protection level	IP30

Double light thermal imager for human body temperature measurement*	
Abnormal temperature function	Full screen temperature measurement, expert mode: 10 points, 10 frames, 1 line, 21 temperature measurement rules in total
Body temperature measurement	Support AI face detection, multi-target temperature detection at the same time
Measuring range	30-45°C
Temperature alarm	The built-in horn triggers the alarm "body temperature is abnormal, please check the body temperature", and the linkage white light flashes
Temperature measurement accuracy	±0.5°C
Dual optical fusion	Support the fusion of visible light image information in the thermal imaging channel to improve the image details of the thermal imaging channel
Picture in picture	Support superimposed heating imaging information in visible light channel image (only support temperature measurement rules, temperature measurement values)
Visible light main stream	60Hz: 30fps (Output: 1920 × 1080),
Thermal imaging main stream	25fps: (Output: 320 × 240)

# Standards and certifications

## MA Certificate

 中国预防医学科学院消毒检测中心


(98)威认(国)字(S1795)号 检测报告

国家技术监督局 样品受理编号 20170101 第1页共6页

样品名称: 飞利浦紫外线杀菌灯管TUV 样品数量: 20支  
送检单位: 飞利浦电子贸易服务上海有限公司 样品规格: TUV 30W  
生产单位: 飞利浦照明电子(荷兰) 收样日期: 2017年1月7日  
生产日期或批号: 2016.11 检验完成日期: 2017年2月13日

检测结论:

1. 经检测, 飞利浦牌紫外线杀菌灯管紫外线辐射强度平均值在  $90.1 \mu\text{W}/\text{cm}^2$  至  $95.3 \mu\text{W}/\text{cm}^2$  之间, 均大于  $90 \mu\text{W}/\text{cm}^2$ , 符合《消毒技术规范》第三版第一分册和(YY/T 0160-94)的要求。
2. 飞利浦牌紫外线杀菌灯辐照距离为 1m, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$  时, 作用 5min、10min 和 20min, 对金黄色葡萄球菌的平均杀灭率分别为 99.96%、99.99%、和 99.99%。
3. 飞利浦牌紫外线杀菌灯辐照距离为 1m, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$  时, 作用 3min、5min、10 和 20min, 对大肠杆菌的平均杀灭率分别为 99.96%、99.99%、99.99%、和 100%。
4. 飞利浦牌紫外线杀菌灯辐照距离为 1m, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$  时, 作用 5min、10min 和 20min, 对白色念珠菌的平均杀灭率分别为 99.94%、99.98%、和 99.99%。
5. 飞利浦牌紫外线杀菌灯辐照距离为 1m, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$  时, 作用 15min、30min、45min 和 60min, 对枯草杆菌黑色变种芽胞的平均杀灭率分别为 99.18%、99.88%、99.92%、和 99.97%。

 中国预防医学科学院消毒检测中心

(98)威认(国)字(S1795)号 检测报告

国家技术监督局 样品受理编号 20170101 第4页共6页

样品名称: 飞利浦紫外线杀菌灯管 接样日期: 2017年1月7日  
检测项目: 定量杀灭大肠杆菌 完成日期: 2017年2月10日

一、器材

1. 菌株: 大肠杆菌 8099 (5-6代)
2. 飞利浦牌紫外线杀菌灯测试强度为  $90.55 \mu\text{W}/\text{cm}^2$  (批号 2016.1.25)
3. 稀释液: 1% 蛋白胨的 0.03mol/L PBS (pH 7.2);  
0.1%吐温80的 0.03mol/L PBS (pH 7.2);
4. 普通营养琼脂培养基 (卫生部生物制品检定所)
5. 载体: 玻片  $1\text{cm} \times 1\text{cm}$

二、方法

1. 环境条件: 温度为  $20-22^\circ\text{C}$ 、相对湿度为 40-44%、开启紫外线杀菌灯 10min 后测试。
2. 按《消毒技术规范》(第三版) 第一分册 8.4.4 项进行试验。
3. 作用时间为 3min、5min、10min 和 20min, 染菌玻片距灯管正中垂直距离 1m 的中心处照射, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$ , 试验重复三次。

三、结果


经三次重复试验结果表明, 飞利浦牌紫外线杀菌灯辐照距离为 1m, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$  作用 3min、5min、10min 和 20min, 对大肠杆菌的平均杀灭率分别为 99.96%、99.99%、99.99%、和 100% (表)。


作用不同时间 (min) 的平均杀灭率及范围 (%)	平均对照菌数及范围 $\times 10^4$ (cfu/片)
$90.55$	1.35
99.96 (99.94-99.97) 99.99 (99.98-99.99) (99.99-100) (100-100)	(1.23-1.54)

注: 阴性对照组无菌生长

四、结论

飞利浦牌紫外线杀菌灯辐照距离为 1m, 辐射强度为  $90.55 \mu\text{W}/\text{cm}^2$  时, 作用 3min、5min、10 和 20min, 对大肠杆菌的平均杀灭率分别为 99.96%、99.99%、99.99%、和 100%。

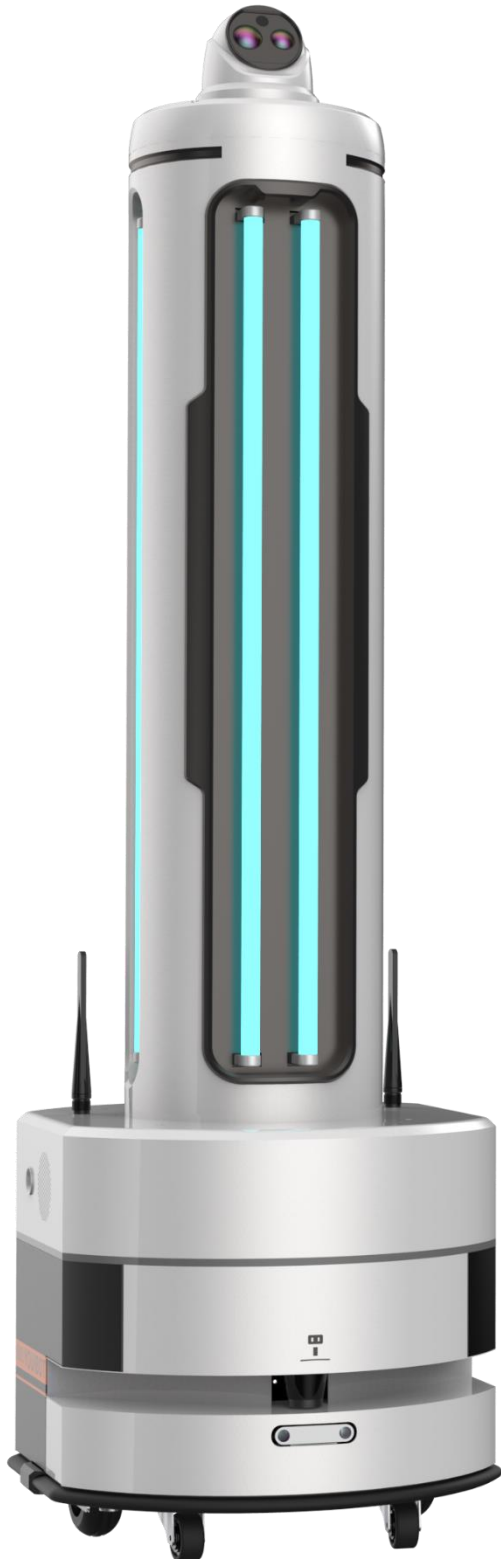
法定代表人 (或授权的技术负责人)   
最终审核日期 2017 年 2 月 19 日



## Effect

- Ultraviolet disinfection robots use short-wave UVC ultraviolet rays for disinfection and sterilization, which can destroy the DNA and RNA of germs and cause them to die within a few minutes, which can effectively kill the bacteria. After testing, in the high-level disinfection mode, the spores and various multi-drug resistant bacteria on the surface of the environment (smooth surface, rough porous surface) and various multi-drug resistant bacteria can completely achieve the high-level disinfection requirement of 99.9999%.
- Using a mobile robot as a carrier, an autonomous mobile multi-point disinfection of the surface of the environment and air can complete a complete disinfection of a thousand square meters in about 150 minutes, which is ten times more efficient and effective than conventional manual and fixed disinfection. the above.

# Precautions



- When using an ultraviolet lamp to sterilize, keep the environment closed
- It is forbidden to be present during the anti-virus to avoid injuries caused by direct UV rays on the eyes and skin
- If you need to work under ultraviolet rays, you should strengthen personal protection and wear protective glasses
- During use, the surface of the UV lamp should be kept clean (can be wiped with alcohol gauze before turning on)
- The irradiation surface should be directly exposed to ultraviolet rays, and the exposure time of each area should be greater than 10 minutes
- Ventilation is required after killing
- Ultraviolet rays can kill a variety of microorganisms, including bacterial propagules, spores, mycobacteria, viruses, fungi, rickettsia and mycoplasma, etc.
- Water and air can be disinfected with UV



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# Anti-Epidemic Robot

**ARIS-K2**  
**Thanks**

