This manual is applicable to the construction and installation personnel, commissioning personnel, maintenance personnel and users of the ZDSC-Y-550 air purifier. Before you operate the product, please read this manual to understand the performance and features of the product. Please strictly follow the instructions to fully utilize the product performance to avoid damage caused by improper operation.
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1. Applicable personnel

This manual is applicable to the construction and installation personnel, commissioning personnel, maintenance personnel and users of the ZDSC-Y-550 air purifier.

Please read this manual in detail and operate the device in strict accordance with the instructions.

2. Product Introduction

The ZDSC-Y-550 air purifier can be used to kill bacteria and viruses in the air and cut off the passage of bacteria and viruses through the air. The equipment is in harmony with personnel and crops, and the ambient air is kept at a safe level. High-intensity ultraviolet light can also trigger the activity of photocatalyst while sterilizing, killing bacteria, viruses, spores and other harmful organisms as they pass through the air cavity. The safe design ensures zero leakage of UV light, and the photocatalyst is non-toxic and lossless. Purify the air without affecting the growth of the crop, and does not affect the work of personnel. ZDSC-Y-550 can be widely used in air disinfection in various environments and places, such as seedling cultivation, tissue culture production, plant factories, greenhouses, life science laboratories, kindergartens, Internet cafes, cinemas and offices.

3. Features

**Triple purification:** ZDSC-Y-550 firstly uses ZSP's self-developed low-resistance, high-throughput, large-capacity dust and high-efficiency filtration special filter to remove fly ash and dust from the air. It is sterilized by high-intensity ultraviolet radiation in the machine, and ultraviolet light activates the photocatalyst nano-Ti02 material. Through the above three purifications, harmful organic substances such as formaldehyde, methylamine, benzene, xylene and TVOC, odor, bacteria and viruses are decomposed into harmless CO2 and H2O to achieve the purpose of purifying the air;

**Non-toxic and harmless:** ZDSC-Y-550 air purifier can realize the dynamic
disinfection of air in a human environment, while ensuring that the radiation does not leak and does not generate harmful gases, so that the human-machine coexistence does not affect the work;

**Easy to use:** ZDSC-Y-550 air purifier is designed for adjustable air outlet, which can change the direction of air flow as needed without changing the machine placement status;

**Excellent quality:** ZDSC-Y-550 air purifier adopts high quality consumables, patented super large filter, long maintenance period; UV lamp life is up to 8000 hours; nano photocatalyst has no loss;

**Simple operation:** ZDSC-Y-550 air purifier adopts intelligent three-speed control, digital core board, simple operation and reliable operation.

### 4. Applicable fields

ZDSC-Y-550 air purifier can be widely used in air disinfection in various environments and places, such as seedling cultivation, tissue culture production, plant factories, greenhouses, life science laboratories, kindergartens, Internet cafes, cinemas and offices. And other places.

### 5. Structure and working mechanism

#### 5.1. Electrical part

The electrical part of the ZDSC-Y-550 air purifier consists of an intelligent control board, a relay board and a human-machine interface. The boards are connected by an internal bus.

#### 5.2. Structure section

The structure of the ZDSC-Y-550 air purifier consists of a filter (located at the front of the fan), a working air duct, the super-strong UV lamp, a photocatalyst network and a centrifugal fan.
5.3. Working mechanism

The fan sucks the non-clean air in the environment into the inside of the machine, filters the fly ash and dust in the air through the filter screen, Super UV and TiO₂ Photocatalyst kill or decompose bacteria and viruses in the flowing air in the air duct, and output clean air to achieve the purpose of air purification and sterilization.

6. Principle of air purification

Medium: UV, TiO₂ nanophotocatalyst, air filter.

Principle:

Ultraviolet light: Ultraviolet rays cause microbial death by radiation damage to bacterial pathogens such as bacterial propagules, spores, mycobacteria, viruses, fungi, rickettsia and mycoplasma, and the function of destroying nucleic acids, thereby achieving the purpose of disinfection;

TiO₂ nanophotocatalyst: Under ultraviolet irradiation, TiO₂ can damage cell wall, cell membrane and coenzyme A, degrade endotoxin, and decompose protein and lipid.

Air filter: The fly ash and dust in the air are the attachment medium of bacteria and viruses. The air filter can remove the fly ash and dust in the air to a great extent.

7. Equipment parameters

<table>
<thead>
<tr>
<th>Project</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum air volume (m³/h)</td>
<td>550</td>
</tr>
<tr>
<td>Dimensions (mm³)</td>
<td>450×450×850 (Without the roller)</td>
</tr>
<tr>
<td>Disinfection chamber volume (m³)</td>
<td>0.05</td>
</tr>
<tr>
<td>Maximum power (W)</td>
<td>≤400</td>
</tr>
<tr>
<td>UV disinfection power (W)</td>
<td>360</td>
</tr>
<tr>
<td>Purification efficiency (%)</td>
<td>≥98</td>
</tr>
<tr>
<td>Sterilization rate (%)</td>
<td>≥95</td>
</tr>
<tr>
<td>Ozone concentration mg/m³</td>
<td>≤0.02</td>
</tr>
<tr>
<td>Formaldehyde, benzene, ammonia, TVOC removal rate (%)</td>
<td>≥90</td>
</tr>
<tr>
<td>Maximum noise (dB)</td>
<td>≤62</td>
</tr>
</tbody>
</table>
8. **Operating environment**

- Temperature: 5 °C ~ 65 °C;
- Relative humidity: 20% to 80%;
- Atmospheric pressure: 860 hpa ~ 1060 hpa;
- Power supply: 220 V, 50 Hz.

9. **Wiring instructions and precautions**

There are two external wirings of this equipment: one is 220V/50Hz AC power line, and the other is RS485 serial control line;

The 220V/50Hz AC power cable adopts a three-core cable. The red is the fire wire, the blue wire is the zero wire, and the flower wire is the ground wire. The AC power cord is connected to the mains, so be sure to ground the cable.

10. **Instructions**

10.1. **UV lamp**

The ZDSC-Y-550 air purifier has six high-intensity ultraviolet tubes that are evenly distributed inside the shading chamber and six tubes work simultaneously.

10.2. **Working gear position**

The ZDSC-Y-550 air purifier has three working intensities, the difference being that the working and intermittent time intervals are different, and the time is in hours. The working/intermittent time of the three working positions of I, II and III are 1 hour/1 hour, 2 hours/1 hour and 3 hours/1 hour, respectively. Different working intensities are selected by rotating the switch to a different gear position. After the selected work intensity, the machine will work according to the preset working parameters. When the switch rotates outside the above three gear positions, the machine is in the off state.
11. **Maintenance**

The air filter should be inspected regularly and cleaned according to the actual use. In an air environment filled with fly ash and dust, the filter will be quickly blocked by flying scum and dust. Excessive dust accumulation in the air filter will result in reduced equipment operation efficiency, and timely cleaning will help the equipment to work well.

You can rinse the removed air filter with clean water, and then dry it before installing and using it.

11.1. **Disassembly**

Please disassemble the filter in the following order:

1. disconnect the power supply;

2. Remove the fastening screws on the front panel;

3. open the front panel;

4. The filter is installed on the front panel. After the front panel is opened, the filter is turned out along with the front panel.

5. Pull the filter out of the guide rail upwards.

11.2. **Installation**

Please install the filter in the following order:
1. Open the front panel;

2. Insert the filter screen into the front panel by the guide rail, please make sure to insert it into the bottom (Note: the filter screen is rectangular design, regardless of up and down and front and back);

3. Close the front panel and install and tighten the fastening screws.

12. **Precautions**

12.1. This machine is designed for rain protection, but do not spill water on the machine for a long time or in large quantities;

12.2. This machine should not be soaked in water and other solutions;

12.3. This machine uses 220V mains, and it must be ensured that the ground wire in the power cord used is well grounded;

12.4. This unit has high voltage and running parts. Do not open the case while the machine is live or working.
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