



# **Ultraviolet Water Sterilizer**

## **User Manual**



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Flow Rate (Drinking Water)	Flow Rate (Pure Water)	Dimension of Inlet/Outlet (Inch)	Overall Dimension (mm)	Max Pressure (kg)	Lamp Service Life (hrs)	Warning System
0.243GPM	0.327GPM	1/4"	$\text{Ø}51 \times 200 \pm 2$	5kg	>6000	yes
0.406GPM	0.546GPM		$\text{Ø}51 \times 260 \pm 2$	5kg	>8000	yes
0.7GPM	1GPM		$\text{Ø}51 \times 260 \pm 2$	5kg	>8000	yes
1.5GPM	2GPM		$\text{Ø}64 \times 350 \pm 2$	5kg	>8000	yes
4.8GPM	6GPM	1/2"	$\text{Ø}64 \times 520 \pm 2$	7kg	>8000	yes
6.4GPM	8GPM	1/2"~3/4"	$\text{Ø}64 \times 968 \pm 2$	7kg	>8000	yes
9.6GPM	12GPM	3/4"~1"	$\text{Ø}64 \times 968 \pm 2$	7kg	>8000	yes
19.2GPM	24GPM	1"~1.5"	$\text{Ø}140 \times 968 \pm 2 \times 342 \pm 3$	8kg	>9000	yes
28.8GPM	36GPM		$\text{Ø}140 \times 968 \pm 2 \times 342 \pm 3$	8kg	>9000	yes
38.4GPM	48GPM	2"~2.5"	$\text{Ø}180 \times 968 \pm 2 \times 382 \pm 3$	8kg	>9000	yes
48GPM	60GPM		$\text{Ø}220 \times 968 \pm 2 \times 422 \pm 2$	8kg	>9000	yes
57.6GPM	72GPM	3"~4"	$\text{Ø}220 \times 968 \pm 2 \times 422 \pm 3$	8kg	>9000	yes
76.8GPM	96GPM		$\text{Ø}220 \times 968 \pm 2 \times 422 \pm 3$	8kg	>9000	yes
96GPM	120GPM		$\text{Ø}260 \times 968 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
115GPM	144GPM		$\text{Ø}310 \times 968 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
144GPM	180GPM	4"~6"	$\text{Ø}390 \times 968 \pm 2 \times 720 \pm 3$	8kg	>9000	yes
75GPM	105GPM	3"~4"	$\text{Ø}220 \times 910 \pm 2 \times 422 \pm 3$	8kg	>9000	yes
115GPM	160GPM		$\text{Ø}260 \times 910 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
154GPM	215GPM		$\text{Ø}310 \times 910 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
165GPM	232GPM		$\text{Ø}310 \times 910 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
192GPM	270GPM		$\text{Ø}400 \times 910 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
230GPM	324GPM		$\text{Ø}430 \times 910 \pm 2 \times 540 \pm 3$	8kg	>9000	yes
270GPM	375GPM	4"~8"	$\text{Ø}480 \times 910 \pm 2 \times 720 \pm 3$	8kg	>9000	yes
310GPM	430GPM		$\text{Ø}510 \times 910 \pm 2 \times 720 \pm 3$	8kg	>9000	yes
222GPM	310GPM		$\text{Ø}260 \times 1630 \pm 2 \times 540 \pm 3$	10kg	>9000	yes
295GPM	414GPM	4"~8"	$\text{Ø}310 \times 1630 \pm 2 \times 540 \pm 3$	10kg	>9000	yes
370GPM	518GPM		$\text{Ø}400 \times 1630 \pm 2 \times 540 \pm 3$	10kg	>9000	yes
445GPM	622GPM		$\text{Ø}430 \times 1630 \pm 2 \times 540 \pm 3$	10kg	>9000	yes
520GPM	725GPM		$\text{Ø}480 \times 1630 \pm 2 \times 720 \pm 3$	10kg	>9000	yes
595GPM	829GPM		$\text{Ø}510 \times 1630 \pm 2 \times 720 \pm 3$	10kg	>9000	yes
668GPM	932GPM		$\text{Ø}540 \times 1630 \pm 2 \times 720 \pm 3$	10kg	>9000	yes
744GPM	1035GPM		$\text{Ø}560 \times 1630 \pm 2 \times 720 \pm 3$	10kg	>9000	yes

## K、 Technical Specifications of Ultraviolet Sterilizer :

Product Model	Watts	Input Voltage V	Input Frequency Hz	Input Current A	Chamber Material	Dosage uW/cm <sup>2</sup>
KC-UV4W	4W×1	220~240	50/60	0.02A	304#	>30000
KC-UV6W	6W×1	220~240	50/60	0.03A	304#	>30000
KC-UV11W	11W×1	220~240	50/60	0.05A	304#	>30000
KC-UV16W	16W×1	220~240	50/60	0.07A	304#	>30000
KC-UV25W	25W×1	220~240	50/60	0.11A	304#	>30000
KC-UV30W	30W×1	220~240	50/60	0.14A	304#	>30000
KC-UV55W	55W×1	220~240	50/60	0.25A	304#	>30000
KC-UV110W	55W×2	220~240	50/60	0.5A	304#	>30000
KC-UV165W	55W×3	220~240	50/60	0.75A	304#	>30000
KC-UV220W	55W×4	220~240	50/60	1A	304#	>30000
KC-UV275W	55W×5	220~240	50/60	1.25A	304#	>30000
KC-UV330W	55W×6	220~240	50/60	1.5A	304#	>30000
KC-UV440W	55W×8	220~240	50/60	2A	304#	>30000
KC-UV550W	55W×10	220~240	50/60	2.5A	304#	>30000
KC-UV660W	55W×12	220~240	50/60	3A	304#	>30000
KC-UV825W	55W×15	220~240	50/60	3.75A	304#	>30000
KC-UV450W	75W×6	220~240	50/60	2A	304#	>30000
KC-UV675W	75W×9	220~240	50/60	3A	304#	>30000
KC-UV900W	75W×12	220~240	50/60	4A	304#	>30000
KC-UV975W	75W×13	220~240	50/60	4.3A	304#	>30000
KC-UV1125W	75W×15	220~240	50/60	5A	304#	>30000
KC-UV1350W	75W×18	220~240	50/60	6A	304#	>30000
KC-UV1575W	75W×21	220~240	50/60	7A	304#	>30000
KC-UV1800W	75W×24	220~240	50/60	8A	304#	>30000
KC-UV1305W	145W×9	220~240	50/60	5.8A	304#	>30000
KC-UV1740W	145W×12	220~240	50/60	7.7A	304#	>30000
KC-UV2175W	145W×15	220~240	50/60	9.6A	304#	>30000
KC-UV2610W	145W×18	220~240	50/60	11.5A	304#	>30000
KC-UV3045W	145W×21	220~240	50/60	13.5A	304#	>30000
KC-UV3480W	145W×24	220~240	50/60	15.4A	304#	>30000
KC-UV3915W	145W×27	220~240	50/60	17.4A	304#	>30000
KC-UV4350W	145W×30	220~240	50/60	19.3A	304#	>30000

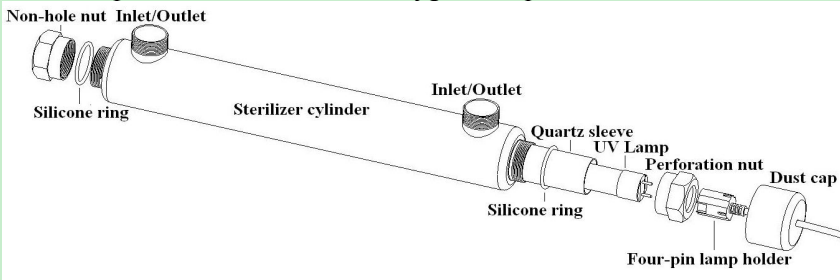
## A、 Overview of Ultraviolet Water Sterilizer:

The ultraviolet ray is a kind of invisible light wave to the naked eye. It exists on the outside of the purple ray on the spectra. So it is called ultraviolet ray. The ultraviolet ray is subdivided for wave band A (UVA), wave band B (UVB), wave band C (UVC). The wave length of UVC is between 100nm to 280nm. And the most effective germicidal wave band is 253.7nm.

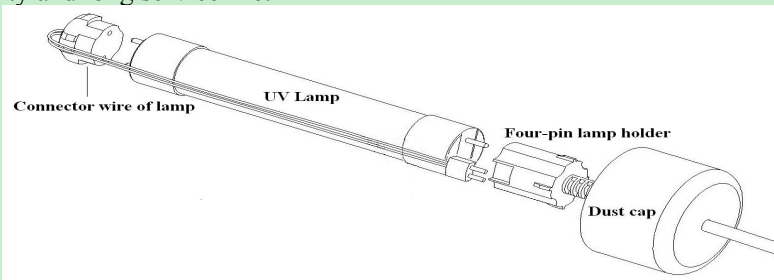
1. Principles: Put the water in the exposure of UVC spectrum at the wave peak of 254nm for some time. The nucleic acid, desoxyribonucleic acid (DNA) and ribonucleic acid (RNA) of microorganisms will absorb UV rays and be damaged by the rays. So the water is sterilized. UV rays have a certain effect on protein and other life forms too.
2. Sterilization range: UV water sterilizer can effectively kill the algae, fungi, bacteria, rickettsia and virus to purify the water.
3. Merits of the sterilizer: UV sterilizer uses a completely physical way to sterilize water. It is easy to use, broad spectrum, efficient, no second pollution, no corrosion, no pollution, no residue and convenient for maintenance.
4. Application range: UV water sterilizer can be mounted as a preposed or rear sterilization equipment with domestic or industry water purification equipment. It can be applied to various kinds of water sterilization.

## B、 Structure Diagram of Ultraviolet Water Sterilizer :

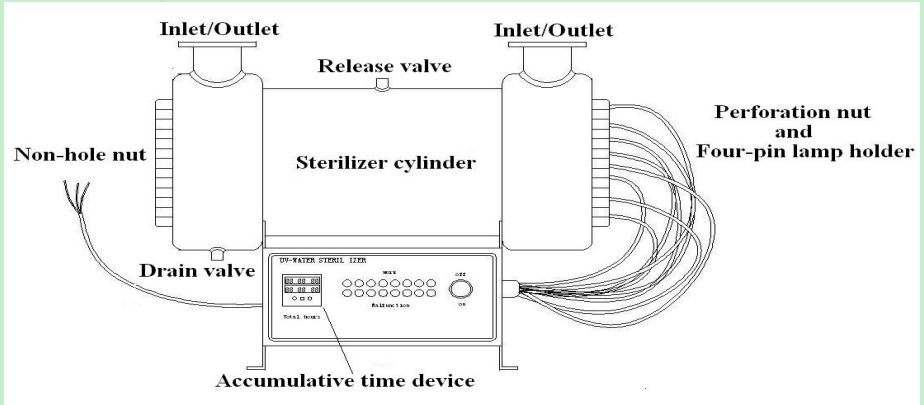
1. Structure diagram of economical UV-C water sterilizer: Every model of the sterilizer cylinder adopts 304 or 316 stainless steel which is non-toxic, no-rust, no metal ion pollution and meets food hygiene requirements.



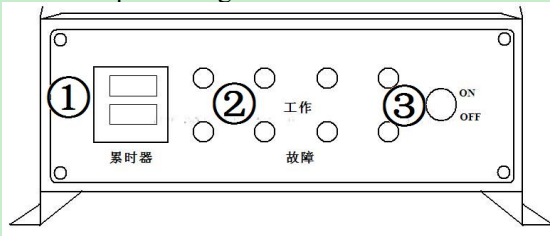
2. UV lamp wiring diagram: adopt European Philips UV lamp which is of high quality and long service life.



3. Structure diagram of horizontal UV-C water sterilizer:

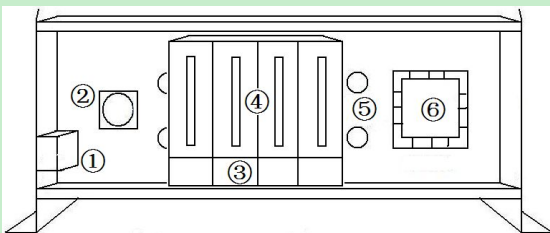


4. Front panel diagram of horizontal sterilizer



- ① :Timer or UV radiation intensity monitor
- ② :Green working light, Red warning light, Indicator lights listed from right to left as 1,2,3 、 、
- ③ :Power switch

5. Diagram of the back of control box



- ① :Wiring box
- ② :Power switch
- ③ :Ballast base
- ④ :Ballast
- ⑤ :Red/green indicator lights
- ⑥ :Timer or UV radiation intensity monitor

The ballasts from left to right are backup ballast, first one, second one, third one、 、 、 The order of indicator lights is the opposite.

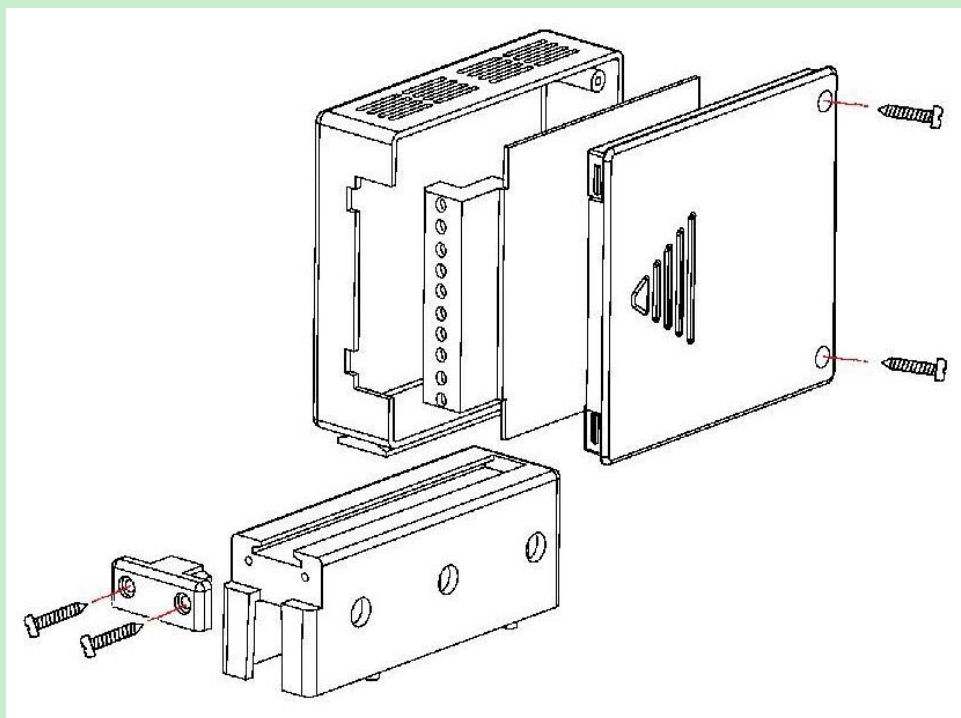
**C、 Mounting steps and matters need attention**

1. Before mounting please refer to the “**Structure diagram of ultraviolet water sterilizer**” to learn about sterilizer components. Mounting the sterilizer according to the “mounting steps and matters need attention” in user manual.
2. If you choose vertical mounting, make sure that water flow in at a lower level and out at a higher level to lower down the flow speed to increase radiation.
3. If water current exceeds rated flow please fix current-limiting or pressure-limiting device.
4. If water pressure is over 3kg, please fix a check valve in the inlet/outlet in order to protect the quartz sleeve.
5. If the normally closed solenoid valve is needed, please fix it in the inlet.

## J、 Disassembly Diagram of Ballast XH-3 and XH-6:

If ballast fails please disassemble the circuit board according to the below diagram or directly change the ballast. Please turn off the power before disassembly. Disassembly steps: disassemble the front wiring row, use a turn screw to remove two retaining screws of the fixed slider. Then take out the fixed slider and pull out the ballast conforming to its own direction. Finally install the new ballast according to the disassembly steps.

PS: The first ballast in the UV sterilizer control box is the backup ballast. It can be used immediately in case the other ballasts fail. Just take down the failed ballast from the wiring row and plug the backup one.

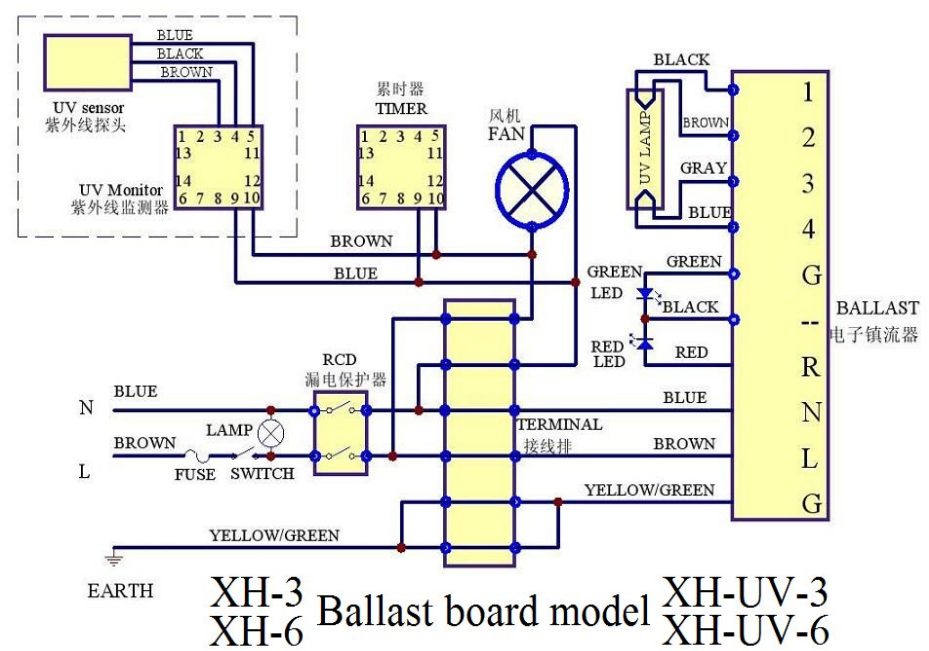
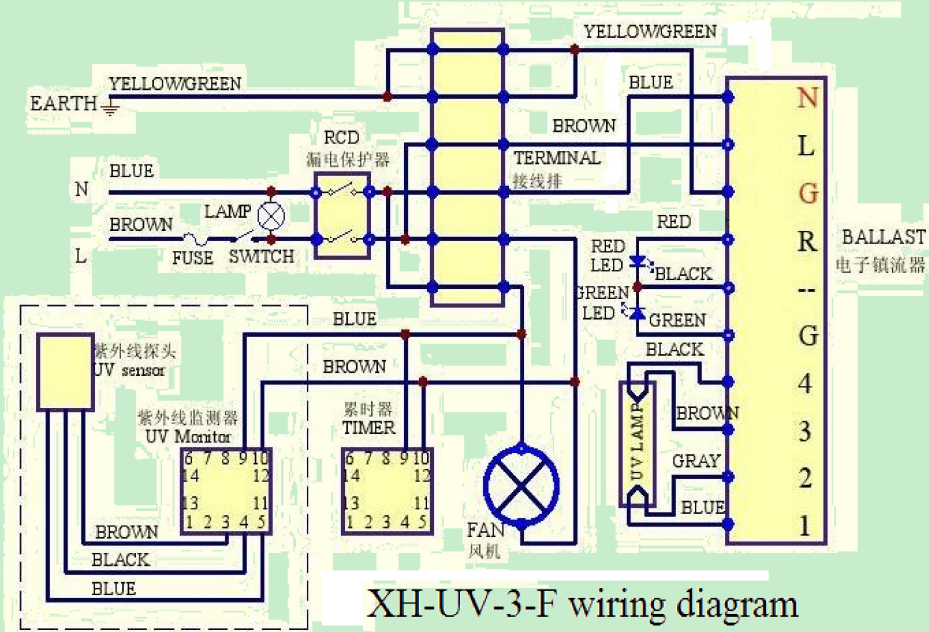


Ballast Model	Ballast Circuit Board Model	Ballast Power	Overall Dimension(cm)
XH-3	XH-UV-3	55W 、 75W	10×3. 23×9. 12
XH-6	XH-UV-6	75W 、 145W	13.7×4. 43×9. 12



# I、Wiring Comparison Chart of Two Versions Ballasts:

Circuit Board of No-Shell Ballast XH-UV-3-F



6. Please add a no fuse breaker when mounting a big horizontal type.
7. Please fix the sterilizer at a certain position by retaining clip, retaining nuts or other fixing device in order to prevent it from dropping because of the shake caused by water and damaging the internal fragile parts.
8. Connect lamp according to “UV lamp wiring diagram”. Four-core lamp holder and lamp connector wires are butted according to number and connected with both ends of lamp then get through perforation nut and covered with dust cap.
9. Connect up the inlet/outlet to related water pipes and fill water to test leakage. Use visual inspection to check every connector whether there is a leak. If there is no leakage please insert the plug and turn on the power.
10. Ballast can automatically inspect whether the UV lamp is well-connected. If there is damage or the four-core lamp holder or connector wires are not well-connected, ballast will give out “BB” sound. Red light will turn on.
11. When the power of horizontal UV-C sterilizer is on, UV radiation intensity monitor (optional) or timer starts to monitor the radiation intensity or timing too.

#### **D、Notices for Maintenance**

1. For safety, please put on goggles and power off before replacing the UV lamp or cleaning the quartz sleeve! Do not replace it with naked eyes or power on! It will damage the ballast too.
2. When replacing UV lamps please don't pull the lamp connector wires forcibly. Please press the big terminal of wires and slowly pull out the lamp. Do not pull out the big terminal of wires or wiring port of four-core lamp holder forcibly.
3. UVC has a strong ability of sterilization. Please do not directly look at the UV lamp with naked eyes. The radiation will cause you conjunctivitis.
4. Ultraviolet water sterilizer ≠ water filter. It is unable to eliminate the bad taste, bad smell, biological materials, kinds of chemicals, silt, heavy metal and other kinds of impurities or lower the water turbidity which will decrease sterilizer germicidal ability. So it is necessary to install a preposed filter to ensure the sterilizer achieve the best disinfection effect.
5. Take the quartz sleeve out every 3-6 months to check whether there is scaling on surface. This is helpful to predicate when to clean the sleeve surface again.

#### **E、Cleaning and Assembling Steps**

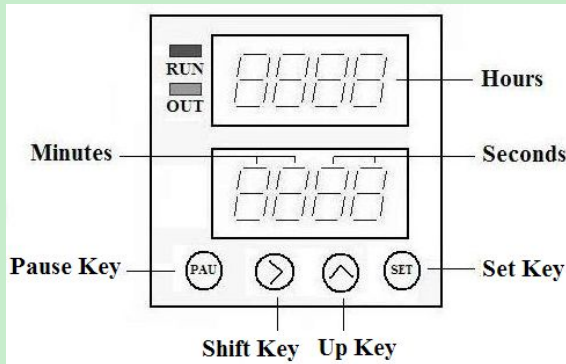
1. Use the neutral soap or citric acid to clean the scaling on the sleeve surface. After cleaning please wipe the sleeve by alcohol and then fix it inside the pipe.
2. Cleaning steps: ➔turn off the power➔take out the lamp➔loose the nuts of both ends➔take out the quartz sleeve (keep silicone rings) ➔clean the sleeve
3. Assemble steps: ➔fix the silicone ring on the no-hole terminal of quartz sleeve and put the sleeve straight in steel pipe ➔tighten the no-hole nut ➔fix the silicone ring on the open terminal of quartz sleeve ➔tighten the perforation nut to make sure the nuts on the two terminals are tight enough with no leakage ➔fill water to test leakage ➔connect the two ends of the lamp with four-core lamp holder and lamp connector wires then put them into the sleeve ➔turn on the power, the green working light turns on.

## F、 Trouble Shooting;

Sympton	Solution
Leakage on the UV sterilizer steel pipe nuts	replace the sleeve silicone ring
Water flow out from the quartz sleeve	Replace the quartz sleeve
Leakage on the inlet/outlet	Wind water stop on the connector ,then fix back to the inlet
Ballast sends alarm, green light is off, lamp doesn't turn on	Lamp reaches its service life, replace it
Lamp still doesn't turn on after replacing	Check the lamp connector wires
Green light is off without alarm and lamp doesn't turn on	Ballast is broken, replace it
Lamp turns on, indicator lights and alarm are abnormal	Indicator lights are broken, replace them
Timer failure	Do some adjustments according to the user manual or replace it
UV radiation intensity monitor failure	Do some adjustments according to the user manual or replace it
Leakage on UV radiation detection head	Replace silicone ring of detection head

## G、 User Manual of Timer:

### 1. Diagram of panel:

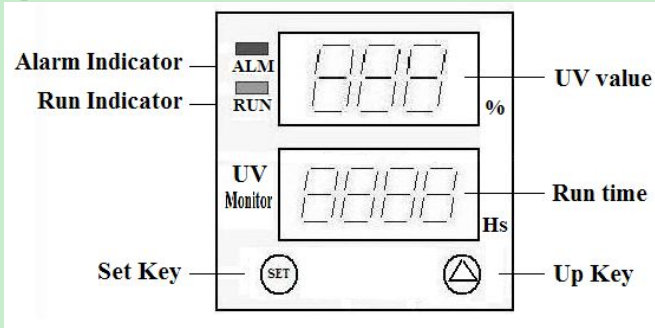


- The instrument has been set an initial status before leaving factory. Don't set it by your own if not necessary. Once power is on it will start to work.
- UV lamp manufacturer suggests lamp should be replaced after being used for about 8000 hours to ensure its designed germicidal effect.
- Once a UV lamp is replaced, the timer needs to be retiming. Press "SET" key for 5-10 seconds. Timer will come to zero automatically and start timing again.
- If you need to reset the timer. First press the shift key for about 5-10 seconds. The panel will show "29-1". Then press the up key to set the number to "22-1". About 10 seconds later the automatic reset is done. Both of the lines will show "0000". Now press the shift key until the above line shows "9999" and below

shows “5959”. Finally use the shift key and up key to set the above line to “8000” and the below line to “0000”. Then release both of the keys, 10 seconds later the timer starts to work again automatically.

## H、 User Manual of UV Radiation Intensity Monitor:

### 1. Diagram of panel:



2. The instrument has been set an initial status before leaving factory. Don't set it by your own if not necessary. Once power is on it will start to work like diagram1.
3. At the beginning of working UV intensity is low. It is a normal phenomenon if monitor gives out alarm. A few minutes later it will resume normal operation.
4. Fault mode:

- a. When the UV intensity is lower than 80% of the initial value, the alarm indicator turns on and the panel shows fault mode E-01 like diagram 2, the UV lamp needs to be replaced or the quartz sleeve needs to be cleaned.
- b. When a UV lamp has been used for over 8000 hours, the alarm light turns on and the panel shows fault mode E-02 like diagram3. Replace the UV lamp.

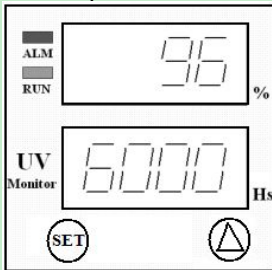


Diagram1 normal operating status

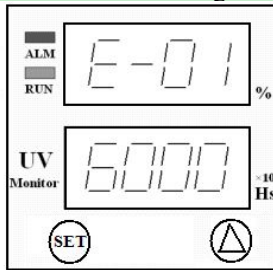


Diagram2 low UV valued status

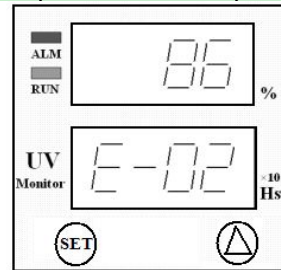


Diagram3 lamp overused status

### 5. Monitor reset

After the lamp is replaced, reset the monitor. (no need to reset after clean the sleeve)  
The specific way is as below:

First keep lamp working for over 1 hour. Press the “SET” key for over 5 seconds. The UV intensity will be back to 100% and time back to “0000”. Reset is finished. Monitor enters into normal operating status.