Fujian Juan Kuang Yaming Electric Ltd.

Equipping and safeguarding communities with UVC disinfection equipment

Hand-held Far UVC Wand 20W

Series: Portable

User's Manual

1. General description

JKUVC

With JKUVC's Far UV Collection, you can sanitize using 222nm Far UV-C even in occupied indoor spaces, providing an unprecedented level of confidence to the people that matter most.

Far UVC not penetrate the active layer of human skin and is absorbed by the top layer of dead skin cells. The eye' tear layer works to block Far UV, protecting them. This means that Far JKUVC disinfect air and surface even while people are present.

JKUVC's Far UV products use the wavelength at 222nm, an ultraviolet wavelength that kills germs while being safe for skin and eyes.

2. Portable UV sanitizer description

* Portable UV Sanitizer uses Far-UVC light at 222nm to provide a solution that is safe, effective and that can be used in occupied space according to instructions;
* 222nm light has been proven effective at destroying pathogens like viruses, bacteria, mold and spores;
* Perfect for offices, meeting rooms and all indoor spaces;
* This UV fixture can be used in conjunction with the existing lighting to provide continuous air and surface treatment in occupied spaces;
* This portable UV sanitizer is perfect for offices, hospitals, trains, airplanes, hotels and all indoor spaces with high or low ceilings;
* This portable UV sanitizer mounts to the ceiling or wall to safely reduce germs in the area throughout the day.

3. Specifications of portable

Battery operation Model	
Model	JK FUVC222/WB-YD-20W
Dimensions	368*96*72.9mm
Input Voltage	12 VDC
Input Power	21W
Peak wavelength	222nm (with filter)
Battery charging time	3 hours
Battery operating time	Approx. 75 min
Lamp type	KrCl far UVC excimer lamp
UV Lifespan	Up to 5000 hours
Installation	Handheld /Ceiling wall Tripod mounted
Irradiance at 1cm	1631 uW/cm2
Irradiance at 0.1m	239 uW/cm2
Storage temperature	-20 - 50°C
Charger Input voltage	110-240VAC (50/60HZ) (UL certified)
charger output voltage	12VDC

Charge output current	1A or 2A
Accessories included	Adaptor, adjustable bracket, 4 screws
Warranty	2 years
Materials	Aluminum casing, powder coated bracket, crystal quartz glass bandpass filter
Adaptor operation Model	
Dimensions	368*96*72.9mm
Adaptor Input Voltage	110-240 VAC (50/60HZ)
Adaptor Input Power	21W
Adaptor output Voltage	12VDC (2A max)
Wavelength	222nm (with filter)
Lamp type	KrCl excimer lamp
UV Lifespan	Up to 5000 hours
Installation	Handheld /Ceiling wall Tripod mounted
Irradiance at 1cm	1631 uW/cm2
Irradiance at 0.1m	239 uW/cm2
Storage temperature	0-50°C
Accessories included	110-240VAC (50/60HZ) - 12VDC(UL certified) charger power cord, handle bracket, wall mount kit, ...
Warranty	2 years
Materials	Aluminum casing, powder coated bracket, crystal quartz glass bandpass filter

3.1 Lamp

Peak wavelength: 222nm

Irradiation at 0.1 m: 239 uw/cm2

Ozone: This product complies with the maximum allowable concentration of ozone of 0.050 parts per million by volume (ppvm) in a 24-h period

The suitable ambient temperature is -10 to 40 degree C.

3.2 Electrical

Input: 12 VDC （Battery / Adaptor)

Input power: 21 W

On/off switch

Note: Battery is built-in and included as standard shipment. The 12VDC adaptor is not included.

3.3 Mechanical

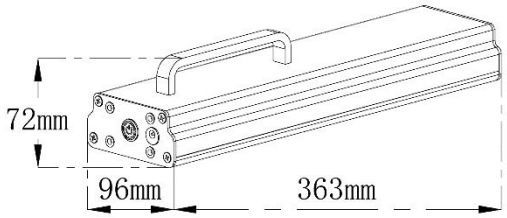
Dimensions: 14.49*3.78*2.87 inches

Weight: 1.5 Kgs

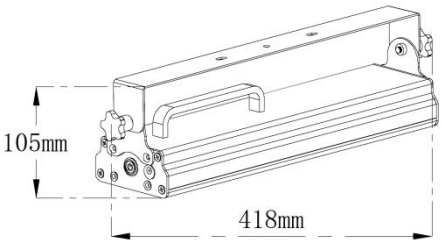
Extruded aluminum housing

Strong and durable powder coated bracket included

Hand-held portable

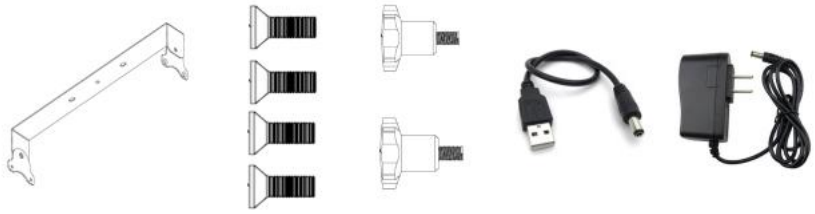


Tripod/Ceiling/wall mounting



3.4 Accessories

adjustable bracket (1), M4 screws (4), M6 thumb screws (2), adaptor (1)



3.4 Options:

Filter glass lens or quartz glass lens

3.5 Dosage and duration with filter glass

Distance between lamp and object (cm)	Radiation intensity (uW/cm2)	Output after bandpass filter glass (uW/cm2)	* SARS-CoV-2 99% disinfection in air		** SARS-CoV-2 99% disinfection on surfaces		Radiation safety duration (8 hours per day) (Follow ACGIH TLV 2022 Narrow band)	
			Duration (seconds)	Dosage (mJ/cm2)	Duration (seconds)	Dosage (mJ/cm2)	Allowable UV dosage less than 170.2 mJ/cm2 (on eyes) Allowable safety duration of more than 8 hours refers to the specific duration allowable.	Allowable UV dosage less than 451.24 mJ/cm2 (on skin) Allowable safety duration of more than 8 hours refers to the specific duration allowable.
1	2330	1631	0.8	1.30	1.9	3.1	1 minute 44 seconds	4 minutes 36 seconds
10	341.1	238.77	5.5	1.31	12.6	3.01	11 minutes 52 seconds	31 miutes 29 seconds
20	143.2	100.24	13.0	1.30	30	3.01	28 minutes 17 seconds	1 hour 15 minutes 1 second
50	36.7	25.69	51.0	1.31	117	3.01	1 hour 50 minutes 25 seconds	4 hours 52 minutes 44 seconds
100	9.6	6.72	200.0	1.34	450	3.02	10 hours 22 minutes 7 seconds	18 hours 39 minutes 8 seconds

Note: According to studies, a dosage of *1.3mJ/cm2 is sufficient to kill 99% of SARS-CoV-2 and other viruses in aerosol form, while **3mJ/cm2 is required for viruses on surfaces. Based on these assumptions, to achieve this dosage, the device takes 0.8 seconds at 1cm for air treatment, or 1.9 seconds at 1cm for surface treatment to eliminate most known viruses.

4. Installation and operation instruction

4.1 This device is a plug-and-play Far UV wand which does not require any site assembly. An adjustable bracket and four screws are included for wall/ceiling/tripod application.

4.2 The device has two working modes available:

4.2.1 Battery operation mode

To charge the battery, use the adaptor (included in the accessories) with the mains. The LED indicator shows red during battery charging and will change to green once the battery is fully charged. It takes 3 to 4 hours to fully charge the battery with the adaptor.

Handheld operation: Once charged, disconnect the adaptor from the device and hold the handle of the device by hand with the face down. Press the on/off switch until it turns green to start operating the device. Note: For surface treatment with the adaptor disconnected, the device will operate for around 75 minutes when the battery is fully charged.

Hold the handle of the device by hand with the face down and keep it one centimeter away from the object to be targeted. Switch on the power and move it at 1 cm per second along the object. It achieves more than 3mJ/cm2 dosage. Keep moving back and forth along the same surface for a higher dosage.

Note: More distance needs more duration to achieve the appropriate dosage to disinfect viruses and bacteria. Check the following table for details.
It is recommended to swipe several times back and forth along the surface as close as possible to the surface for complete coverage.

4.2.2 Adaptor operation

To mount your Far UV device for surface and air treatment, follow these steps:

1. Assemble the adjustable bracket with the 4 screws (included in the package) onto the device.
2. Install the device firmly onto a tripod, wall, or ceiling. Please note that stud screws or wrap wires are not included.
3. Plug the adaptor into the mains and the device.
4. Turn on the switch of the mains and press the on/off switch until it turns green, indicating that the device is operating.

It is highly recommended that the device be mounted at least 8 feet above the floor or 1.5 feet above the occupant.

5. Maintenance and storage

While there are no serviceable parts inside the lamp, it's essential to perform routine cleaning and checkups to ensure optimal functionality. Make sure to clean the lens periodically to maintain photometric performance. Use a damp, non-abrasive, lint-free cloth for cleaning and if necessary, a mild soap or liquid cleaner. Never operate a lamp with a cracked or damaged lens.

Do not attempt to open the device without the manufacturer's authorization. Ensure that the lamp is disconnected from the power source and has cooled down before performing any maintenance or service.
When the lamp is not in use, it should be stored in a dry, secure location out of children's reach.

6. Safety precaution

a. Do not use the device in the following areas:
   Close proximity to a heat source or in direct sunlight;
   Areas with significant power supply fluctuations;
   Locations with explosive or combustible materials nearby;
   Outdoors or in wet, highly humid, or potentially corrosive environments;
   Vibrating or uneven surfaces;
   Places with potential dirt or oil accumulation, or areas with steam and moisture
b. Always follow ACGIH TLV for human exposure to UV light.
c. Do not look at operating lamp directly.
d. Always follow the user’s manual at all times during installation, operation, maintenance and disconnect the power before servicing.
e. Always follow international and local electric code for installation.
f. The device shall be grounded to avoid electricity leakage.

g. Do not try to service the fixture without permission from the manufacturer.

h. Never use the device for general lighting purposes.

i. Make sure that the air is clean and dry in the room for air treatment and the surface is clean with no dirt, texture, shadow, or obstacles for surface treatment.

j. The effectiveness varies upon the factors of intensity, dosage, distance, duration, area, surroundings, media, dirt and penetration, etc.

k. Never place regular glass in front of the lamp as it impairs the UV beam

l. The device shall not be a substitute other necessary cleaning and infection control measures.

m. For optimal results, circulate air during the air treatment process.

n. For devices with regular quartz lens, do not use it for occupied spaces. One must use multiple safety systems such as PIR, microwave detector, timer and delay timer to prevent accidental UVC exposure.

o. Limit access to areas where UV sources are used. Post warning signs at the entrance to labs, halls or other work areas using UV sources. Wear protective eyewear and gloves. Cover arms and neck and to limit exposure time. Never look directly at the beam. Exposure to UV radiation, even for short periods of time, can be hazardous to skin and eyes. Never place glass in front of UVC light source as it impairs the UV penetration. One must consult with UVC expert or manufacturer. It is recommended to be with possible face-up, contained light, or beam shutter or enclosed beam paths. Wear PPE (personal protective equipment) when access to UV light is unavoidable.

p. Never operate a lamp with a cracked or damaged lens.

q. In case of breakage, use cloth to collect the broken lamp or lens and dispose of it in accordance with local regulations.

r. Each device's beam only faces one direction, so multiple and evenly spread out UVC devices are recommended for complete coverage. If multiple devices are used, it could generate a certain amount of ozone. Keep the room or enclosure well ventilated. In instances where ventilation is not sufficient, it is strongly recommended that respiratory masks be worn when entering concentrated rooms during and after UVC disinfection.

Fujian Juan Kuang Yaming Electric Ltd
Address: 65-9, Xixi Road, Yanping, Fujian, 353001, China
Email: fjjkym@fjjk.com
Phone: +86 13960635211
Website: www.fjjk.com