



# FirstResponder®

## Handheld UV-C Sterilizer

Catalog #	Description/Content	Quantity
E500UVCH	FirstResponder® Handheld UV-C-C Sterilizer, 110V	1 Unit
E520UVCH	FirstResponder® Handheld UV-C-C Sterilizer, 220V	1 Unit

Related Products	Catalog #
FirstResponder® Sterilizer, 110V	E4110FRS
FirstResponder® Gear Sterilizer	E600PCM
SteriZAP® UV-C Room Sterilizer, 110V	E500UVCT

### INTRODUCTION

UV-C light is electromagnetic radiation with wavelengths shorter than visible light. UV-C can be separated into various wavelength ranges, with the short-wavelength UV-C considered to be germicidal. Furthermore, and at the specific wavelength range of 260 to 270 nm, UV-C is found to be mutagenic to bacteria, viruses and other microorganisms. Germicidal UV-C kills or inactivates microorganisms by destroying their nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions.

The FirstResponder® Handheld UV-C Sterilizer harnesses the germicidal power of UV-C light, UV-C lamps that emit ultraviolet light with the major peak output (~90%) band at 253.7 nm. The doped fused quartz glass tubes of the FirstResponder lamps pass the 254 nm radiation (which produces very low ozone levels) but blocks the 185 nm wavelength (which produce higher ozone levels). The FirstResponder® Handheld UV-C Sterilizer is intended for use in disinfection of surfaces in laboratories, hospital rooms, food-processing areas, or any other places where disinfecting and sterilizing are desired.



Specifications	
Electrical	120 volts AC (E500UVCH): 60 Hz / 35 Watts / 0.32 Amps 220 volts AC (E520UVCH): 50 Hz / 35 Watts / 0.16 Amps
Unit Dimensions (W x D x H)	Including handle: 18 x 5.5 x 6.5 inches (45.7 x 14 x 16.5 cm)
UV-C Output / Dosage	369 $\mu\text{W}/\text{cm}^2$ @ 12 inches; 735 $\mu\text{W}/\text{cm}^2$ @ 6 inches
Weight	5 lbs (2.27 kg)
Warranty	1 year

### PRECAUTIONS AND WARNINGS

- (a) Read all instructions before using the devices. Use of these devices is only for intended purposes as described in this manual.
- (B) DO NOT ATTEMPT TO OPERATE THE FIRSTRESPONDER® UV-C STERILIZER WHEN AND WHERE PEOPLE AND ANIMALS ARE PRESENT AND DIRECTLY EXPOSED TO THE UV-C LIGHT.
- (C) FOR SAFE AND PROPER OPERATIONS, DO NOT TAMPER WITH THE UNIT IN ANY WAY.
- (d) It is normal for the FirstResponder® UV-C Sterilizer to emit a small amount of ozone gas when operating; briefly aerate the area afterward if needed.
- (e) Do not operate the unit if the cord or plug are damaged, if it is not working properly, or if the unit has been damaged or dropped.
- (f) Do not store the unit outdoors, or use it near open water— for example near filled sinks or water baths.
- (g) Do not attempt to repair or open the unit unless you are a qualified repair technician.
- (h) To avoid injury, handle broken lamps carefully by using protective hand, face, and eye gear. Dispose of broken glass in sharps containers and obey all applicable laws.

### DOSAGE RECOMMENDATIONS

Different germs and contaminants are susceptible to UV-C radiation at different rates. To determine the amount of time needed for sterilization, consult Table 1 on Page 3.



#### SAFETY NOTIFICATION:

UV-C radiation can damage the superficial tissues of the eye, and care must be taken to avoid excessive exposures to eyes. Glass or plexiglass eyewear or face mask can provide protection in case the motion sensor safety shut off malfunctions. Also, extended exposure of exposed skin to UV-C make cause damage to cellular or tissue DNA and should be avoided by wearing protective clothing while near operating UV-C lamps.

#### Note and Disclaimer

\*The FirstResponder® Handheld UV-C Sterilizer is not a replacement or substitute for good cleaning practices. Areas to be sterilized must be free of excess contaminants, especially any visible liquids or solids (for example bodily fluids, debris or dirt). The FirstResponder Handheld UV-C Sterilizer can eliminate or reduce residual surface contaminants, especially bacterial and fungal, but only if the UV-C light is able to directly impact the contaminated surfaces. **Any surfaces or items that are covered or are behind curtains, glass panels or plastic sheeting will not be sterilized by the FirstResponder Handheld UV-C Sterilizer.** Genlantis makes no claims and offers no guarantees of any kind that the FirstResponder® UV-C Sterilizer will eliminate or reduce all contaminants and under all possible circumstances. For best results, users should closely follow the recommended instructions below.

## OPERATION

1. First Make sure area is pre-cleaned to remove excess contamination if present.
2. Point the lamp towards the area to sterilize and place at about 6 inches of distance; turn the power switch on.
3. Expose the area to UV-C from 2 seconds to 3 minutes depending on contaminant and Table 1 recommendations on Page 3 of this manual.

## MAINTENANCE

The FirstResponder® Handheld UV-C Sterilizer is a very low maintenance unit and does not require any scheduled or regular cleaning.

- (a) Keep unit clean by wiping exterior surfaces with a water dampened towel. To avoid damage, do not use any detergents or solvents.
- (b) Do not touch UV-C lamps with bare hands, they will heat up during operation and cause oil or dirt from fingers to leave burn marks and may cause unpleasant smells. Handle UV-C lamps with gloved hands only.
- (c) For optimal performance, keep lamps clean by wiping them occasionally with a dry soft or microfiber cloth.
- (d) Unplug the unit from the power outlet when the unit are in storage or not in use.

The purchase price paid for the FirstResponder® UV-C Sterilizer grants end users a non-transferable, non-exclusive license to use the unit in the appropriate recommended setting **and for sterilizing purposes only** and as described in this manual. This use license excludes and without limitation, resale, repackaging, or modification of the unit in any way and without prior notification of and approval by Genlantis.

Under no circumstances shall the FirstResponder® UV-C Sterilizer be used in the presence of humans or animals, or to sterilize food or drink products intended for **human or animal consumption**. Care and attention should be exercised at all times in handling and using the FirstResponder unit by following the instructions in the manual, using common sense practices, and wearing protective clothing and eyewear as needed.

Purchasers may refuse this license by returning the purchased FirstResponder® UV-C Sterilizer unused in its original packaging. By keeping or using the unit, users agree to be bound by the terms of this license. The laws of the State of California shall govern the interpretation and enforcement of the terms of this license.

## FirstResponder® Handheld UV-C Sterilizer Manual

**Table 1: UV-C dosage and FirstResponder Handheld UV-C Sterilizer Kill Times**

Organism	Ultraviolet radiation (dose) in $\mu\text{Ws}/\text{cm}^2$ needed for kill factor:		FirstResponder Handheld UV-C 99% Kill Times (in seconds) @ 6 inches
	90% (1 log reduction)	99% (2 log reduction)	
<b>Bacteria</b>			
Bacillus anthracis - Anthrax	4,520	8,700	6
Bacillus anthracis spores - Anthrax spores	24,320	46,200	33
Bacillus magaterium sp. (spores)	2,730	5,200	4
Bacillus magaterium sp. (veg.)	1,300	2,500	2
Bacillus paratyphus	3,200	6,100	4
Bacillus subtilis spores	11,600	22,000	16
Bacillus subtilis	5,800	11,000	8
Clostridium tetani	13,000	22,000	18
Corynebacterium diphtheriae	3,370	6,510	5
Ebertelia typhosa	2,140	4,100	3
Escherichia coli	3,000	6,600	4
Leptospiracanicola - infectious Jaundice	3,150	6,000	4
Micrococcus candidus	6,050	12,300	8
Micrococcus sphaeroides	1,000	15,400	1
Mycobacterium tuberculosis	6,200	10,000	8
Neisseria catarrhalis	4,400	8,500	6
Phytomonas tumefaciens	4,400	8,000	6
Proteus vulgaris	3,000	6,600	4
Pseudomonas aeruginosa	5,500	10,500	7
Pseudomonas fluorescens	3,500	6,600	5
Salmonella enteritidis	4,000	7,600	5
Salmonella paratyphi - Enteric fever	3,200	6,100	4
Salmonella typhosa - Typhoid fever	2,150	4,100	3
Salmonella typhimurium	8,000	15,200	11
Sarcina lutea	19,700	26,400	27
Serratia marcescens	2,420	6,160	3
Shigella dysenteriae - Dysentery	2,200	4,200	3
Shigella flexneri - Dysentery	1,700	3,400	2
Shigella paradysenteriae	1,680	3,400	2
Spirillum rubrum	4,400	6,160	6
Staphylococcus albus	1,840	5,720	3
Staphylococcus aureus MRSA	2,600	6,600	4
Staphylococcus hemolyticus	2,160	5,500	3
Staphylococcus lactis	6,150	8,800	8
Streptococcus viridans	2,000	3,800	3
Vibrio comma - Cholera	3,375	6,500	5
<b>Molds</b>	90% (1 log reduction)	99% (2 log reduction)	99% Kill Times (in seconds) @ 6 inches
Aspergillus flavus	60,000	99,000	82
Aspergillus glaucus	44,000	88,000	60
Aspergillus niger	132,000	330,000	180
Mucor racemosus A	17,000	35,200	23
Mucor racemosus B	17,000	35,200	23
Oospora lactis	5,000	11,000	7
Penicillium expansum	13,000	22,000	18
Penicillium roqueforti	13,000	26,400	18
Penicillium digitatum	44,000	88,000	60
Rhizopus nigricans	111,000	220,000	151
<b>Protozoa</b>	90% (1 log reduction)	99% (2 log reduction)	99% Kill Times (in seconds) @ 6 inches
Chlorella Vulgaris	13,000	22,000	18
Nematode Eggs	45,000	92,000	61
Paramecium	11,000	20,000	15
<b>Virus</b>	90% (1 log reduction)	99% (2 log reduction)	99% Kill Times (in seconds) @ 6 inches
Bacteriophage - E. Coli	2,600	6,600	4
Infectious Hepatitis	5,800	8,000	8
Influenza	3,400	6,600	5
Poliovirus - Poliomyelitis	3,150	6,600	4
Tobacco mosaic	240,000	440,000	327
<b>Yeast</b>	90% (1 log reduction)	99% (2 log reduction)	99% Kill Times (in seconds) @ 6 inches
Brewers yeast	3,300	6,600	4
Common yeast cake	6,000	13,200	8
Saccharomyces carevisiae	6,000	13,200	8
Saccharomyces ellipsoideus	6,000	13,200	8
Saccharomyces spores	8,000	17,600	11