

## FirstResponder® Metro Sterilizer

Catalog #	Description/Content	Contents
E411FRMS	FirstResponder® Metro Sterilizer, 110V	1 Sterilizer Device with remote control; 2 High Velocity Scrubbers with scrubber filters; 14 Gauge 3 Pin power cord 1 Extension cord hub with 5 outlets 1 Dual outlet power strip with remote control

Related Products	Catalog #
FirstResponder® High Velocity Scrubbers, 2 each	E4110HVS
FirstResponder® High Velocity Scrub Filter, 1 each	E411HVSF
FirstResponder® Scrub Filters, 2 each	E4002SF
FirstResponder® Ozone Plates, 20 each	E400120P
FirstResponder® Sterilizer, 110V	E4110FRS
FirstResponder® NEST	E40010FR
SteriZAP® Germicidal Sprayer	E800GSP
SteriZAP® UV-C Room Sterilizer SS, 110V	E500UVST
SteriZAP® Electrostatic Backpack Sprayer, Rechargeable	E700EBS
FirstResponder® Portable UVC Sterilizer, Rechargeable	E500UVCP

**Storage:** Keep items stored in shipping container while not in use to protect filters and electronics from contamination and dust.



FirstResponder® Metro Sterilizer and Remote Control



FirstResponder® High Velocity Scrubbers



14 Gauge power cord



Extension cord hub

Power strip and remote control

### INTRODUCTION

The FirstResponder® Metro Sterilizer\* is the newest and most powerful sterilization tool in the growing line of FirstResponder and SteriZAP sterilization products. This sterilizer generates very high-levels of Triatomic Oxygen (TO), also known as ozone, to clean and sterilize large transportation spaces like train cars, airplane cabins, moving trucks, large ambulances, cruise ship spaces, etc. The unit will eliminate surface and airborne bacteria, mold, fungi, spores and viruses, and eliminate odors as well. The FirstResponder Metro Sterilizer is a complete system with all the parts needed to allow maximum functionality and effectiveness.

The ozone produced by the Genlantis FirstResponder Metro Sterilizer readily gives up its single oxygen atom, which combines with other molecules and neutralizes them via a powerful and natural oxidative process. Best of all, the FirstResponder Sterilizer contains a built-in scrubbing feature in addition to two High Velocity Scrubbers; this trio of scrubbing action will ensure that TO is converted back to oxygen as rapidly as possible within large spaces, so down times are minimized.

**PRECAUTIONS AND WARNINGS**



- (a) **DEVICE IS NOT INTENDED FOR USE IN ANY OCCUPIED SPACES.** Ozone may cause respiratory irritation; make sure the FirstResponder device finishes its sterilization and scrub cycles in full before entering a treated vehicle or space.
- (b) **Read all instructions before using the device, which must be used ONLY as intended and described in this manual.**
- (c) **Do NOT operate the FirstResponder® Metro Sterilizer without the scrub filters or the High Velocity Scrubbers.**
- (d) **DO NOT Immerse the FirstResponder® Metro Sterilizer in water or operate at high humidity levels above 80%.**
- (e) **Do not operate this appliance if it has a damaged cord or plug,** if it is not working properly, or if it has been damaged or dropped.
- (f) Do not attempt to repair the unit unless you are a Genlantis qualified repair technician.

SPECIFICATIONS	
Electrical	120 VA, 60 Hz. AC
Fuse	215V, 4 Amp, slow blow
Dimensions	15 x 27 x 19 inches (38 x 68.6 x 48.2 cm)
Weight	64.0 lbs. (29.0 kg.)
Ozone Fans	220 CFM x 6 = 1,320 CFM
Ozone Output	48,000 mg/hour (mgph)
De-ozonation (scrub) Fans	8 @ 110 cfm (880 CFM total)
Warranty	One (1) year parts and labor

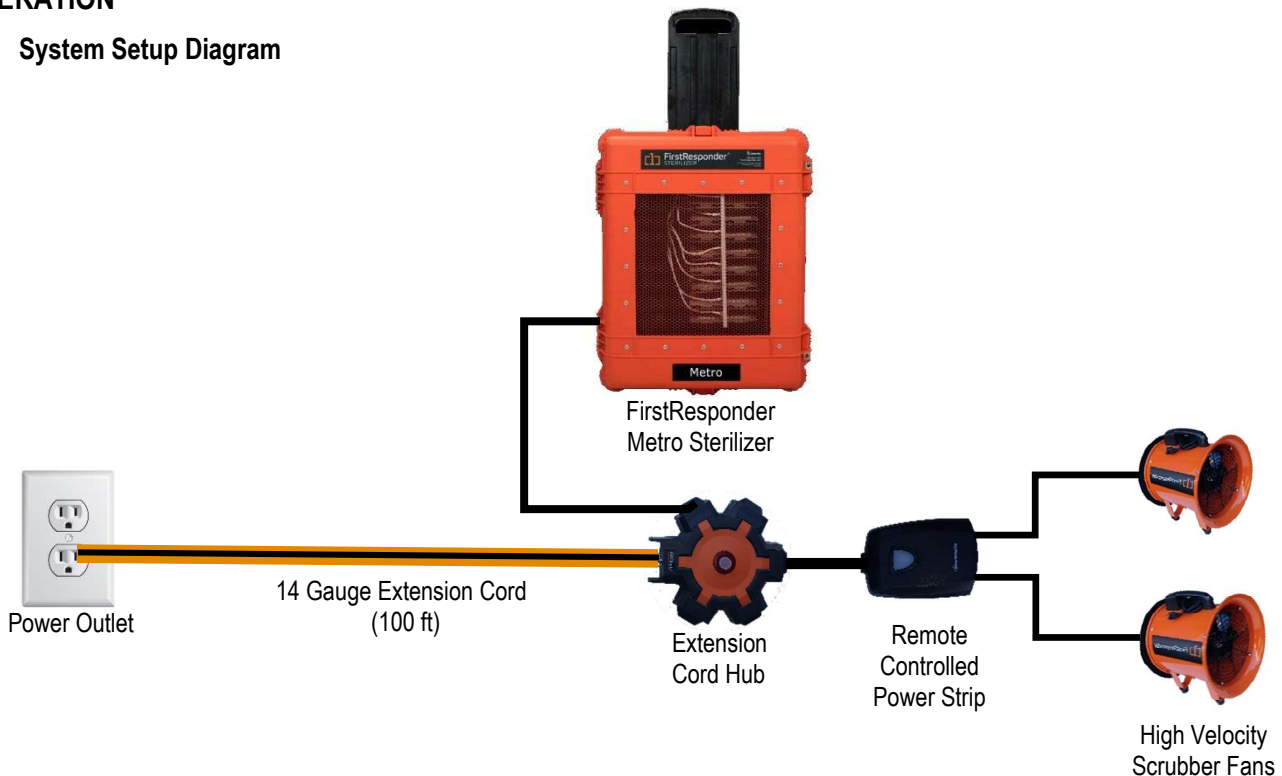
**\* Disclaimer:** The Genlantis FirstResponder Metro Sterilizer should not be used to sterilize equipment for use directly in medical or surgical applications of any kind. The FirstResponder Metro sterilizing cycles can eliminate or reduce most surface contaminants, especially bacteria and fungus that exist under normal use, however heavier concentrations of contaminants **MUST** be removed or wiped clean first before using the sterilizer. **CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS FOR OPERATION OF THE FIRSTRESPONDER METRO STERILIZER.** Avoid walking into any vehicle or space while the FirstResponder Metro Sterilizer is still running **AND** before it completes its full sterilization and scrub cycles.

†Genlantis makes no claims and offers no guarantees of any kind that the FirstResponder Metro Sterilizer will eliminate or reduce all contaminants under all circumstances. Whenever and wherever possible, users should test a sterilized area for presence of trace contaminants if absolute cleanliness is desired or required.

\* U.S. Patent Numbers 9,623,140 and 9,987,388. Registered under EPA Establishment Number 91845-CA-001

**OPERATION**

**I. System Setup Diagram**



## II. Positioning the Unit

The FirstResponder® Metro Sterilizer system is ready to plug in and use directly out of the box. Its effectiveness depends on how the ozone is dispersed through the air. We recommend placing the unit as centrally as possible in the space, or closest to known or suspected heavy contamination areas.

## III. Preparing the Area to Be Sterilized

1. Clean floors or surfaces that needs sterilization from heavy or excess contaminants using wipes or cleaning solutions like soap, ethanol, bleach, etc.
2. Seal the space to be sterilized by closing all doors and windows and verifying that there are no noticeable gaps or openings. An airtight space will prevent ozone gas from escaping and will allow the buildup of ozone molecules to the high levels needed for effective sterilization. If any spaces cannot be closed off, it is necessary to seal openings with plastic sheeting and tape or any other appropriate method.



**CAUTION:** Spaces which cannot be effectively sealed **should NOT be** sterilized with The FirstResponder Sterilizer. It is the end user's responsibility to ensure that the space intended for sterilization with the FirstResponder Metro Sterilizer is devoid of openings that would allow for ozone gas to escape. In cases where ozone gas smell becomes strong outside of the area being sterilized, or in case of accidental exposure to high levels of ozone, refer to the FIRST AID instructions on page 5 of the manual.

3. Use a copy of the "CAUTION" page in this manual (Page 7), or make your own note and prepare to affix on the outside of the sterilization space to indicate that a sterilization cycle is in progress. This is necessary to avoid disrupting a sterilization cycle and to eliminate accidental human exposure to high levels of TO.

## IV. Programming Run Times

### General Notes

- a. Different materials will react differently to ozone. Consult Appendix A on page 6 for guidance.
- b. For safety reasons, the unit will not operate if the lid is open.
- c. The unit can be set to operate between 00:01 and 99:99 minutes for either of the TO or scrub cycles.
- d. Consult Table 1 below for ideas on sterilization and scrubbing times needed.



Figure 1: Front panel of FirstResponder® Metro Sterilizer

To set the run time for the **ozone cycle**:

- a. Press the [OZONE TIME] button; the digital display will light up and read either "0000" or a previously set time.
- b. Press [TIME SELECT] button; the left-most digit will blink;
- c. Press [SET TIME] up or down arrow button repeatedly until desired time is selected.
- d. Press [TIME SELECT] button to move to next digit, repeat Step c, then press [SET TIME] to move to the next digit.
- e. Repeat Step d. one last time to set the last digit; the display now should read the ozone time with no blinking digits.

To set the run time for the **scrub cycle**:

- f. Press the [SCRUB TIME] button; the digital display will read either "0000" or a previously set time.
- g. Press [TIME SELECT] button; the left-most digit will blink;
- h. Press [SET TIME] up or down arrow button repeatedly until desired time is selected.
- i. Press [TIME SELECT] button to move to next digit, repeat Step c, then press [SET TIME] to move to the next digit.
- j. Repeat Step d. one last time to set the last digit; the display now should read the ozone time with no blinking digits.
- k. If needed or desired, set a lab timer with the total sterilization and scrubbing cycle times as a reminder before you run the unit. Once the ozone and scrub cycles have been set, press the [RUN] button; the green light will turn on and you will hear the machine operate. Immediately seal the area that is being sterilized.
- l. Upon sterilization and scrub cycles completion, the FirstResponder Sterilizer will automatically turn off and the digital display will be blank; users can enter the vehicle or room that is being sterilized. If needed, the FirstResponder Sterilizer can be run again with current or readjusted settings for further cleaning cycles.

Table 1: Recommended Sterilization and Scrubbing Times

## FirstResponder® Metro Sterilizer Manual

Enclosure Type Examples	Subtype	Recommended Minimum Sterilization Time (hours)	Recommended Minimum Scrubbing Time**	High Velocity Scrubbers Needed?
Ambulance**	EMS Types I, II, and III	15 minutes	5 minutes	No
Train boxcar (50 x 9 x 11 feet)	~5,000 cubic feet	1 hour	30 hour	Yes
Airplane cabin	~6,600 cubic feet	2 hours	1 hour	Yes

\*\*For an initial sterilization of a cabin or space that has been in service for a long time, we recommend using a 4-hour sterilization cycle followed by a 2-minute scrub cycle. Minimum Scrub Times can be extended by running additional scrub cycles if needed.

### V. Running the First Responder Metro System

1. Make sure the following steps have been completed:
  - a. Clean area to be sterilized from excess contaminants (see above);
  - b. Fully seal area to be sterilized, except for exit door (see above);
  - c. Setup the FirstResponder Metro Sterilizer system and place appropriately (see above);
  - d. Program ozone and scrub cycles (see above);
  - e.
  - f. Press the Run button, and ensure green light on button turns on.
  - g. Leave the area immediately and close or seal exit door;
  - h. Note when the time sterilization has started, and the amount of time you set for the ozone cycle. This will be used as follows: if sterilization was started at 2 pm, and the ozone cycle time is 2 hours, users must return at 4 pm. to initiate scrubbing cycle with the High Velocity Scrubbers.
  - i. Once the ozone cycle is completed, use the included power strip remote control and press the “on” button to turn the High Velocity Scrubbers on.
  - j. Return at the end of the time you have selected for the Scrub cycle on the FirstResponder Metro Sterilizer unit, then enter the sterilized space;
  - k. It is normal to detect low levels of ozone smell in the space even after the recommended scrub cycle, however if the smell is too strong or causes any irritation, follow the recommendation in Section VI below.

#### Remote Control Operation

The FirstResponder® Metro Sterilizer is provided with a remote control, which switches the Sterilizer [RUN] cycle from “Ozone” to “Scrub”. This allows users to prematurely terminate the sterilization cycle when needed and the unit will start to remove generated TO gas for the amount of time that has been programmed by the user.

To activate the Scrub cycle, point the remote in the direction of the FirstResponder Metro Sterilizer, preferably while having direct line of sight, then press either button A or B to activate the Scrub cycle; the green [RUN] button on the unit starts to flash and the Scrub Cycle time appears on the display.

**NOTE:** each unit comes with a note attached to the remote indicating which A or B button is the active one. The C and D buttons are never used or activated.



### VI. Post Sterilization Steps

During the sterilization process, TO gas will penetrate into hidden areas and crevices. Even after scrub cycles, some TO gas may remain trapped in certain areas, like in AC vents for example or in the folds or fabrics and on adherent surfaces. It is also normal to detect the smell of residual ozone in sterilized spaces even after proper scrub and ventilation steps, however to minimize the smell and to reduce exposure to residual ozone gas, follow one or more of these recommended steps:

- a. If the smell of ozone is too strong or causes irritation after a scrub cycle, consider performing a secondary scrub cycle for another 15 minutes by turning the High Velocity Scrubbers on with the power strip remote control.
- b. Open all available doors and windows to the outside and let the High Velocity Scrubbers blow the air out of the space.
- c. Turn any ceiling fans or ventilation/AC fan(s) on and run for a few minutes to help circulate air and dissipate remaining ozone gas.

**TROUBLESHOOTING**

Problem	Solution
Unit does not start when [OZONE TIME] or [SCRUB TIME] buttons are pressed.	<ul style="list-style-type: none"> <li>• Check that power cord is attached on the back of the unit;</li> <li>• Check that the FirstResponder® Metro Sterilizer case is closed and latched tight.</li> <li>• Sometimes during shipping, the ozone plates may get dislodged. Check the plates and seat them properly by removing them and reinserting them back tightly in their respective slots (refer to the MAINTENANCE Section below on how to do this properly).</li> </ul>
Ozone smell is not as noticeable as usual, or there is no detectable ozone smell.	Clean the ozone plates as described in the MAINTENANCE section. If plates are older than two years replace with new ones (Cat# E40014MP).
Power does not come on.	Check fuse on the back side of the unit; and if blown, replace with type 239, 250V, 3 Amp fuse.

**MAINTENANCE**



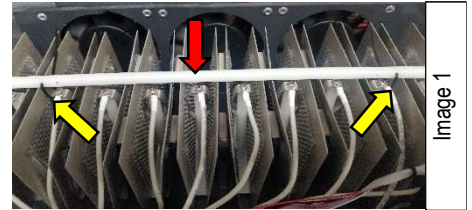
**WARNING:** The FirstResponder® Metro Sterilizer generates high voltage current inside the unit. **MAKE SURE TO UNPLUG UNIT from power source before performing any parts cleaning or replacements.**

(a) Scrub Filters Replacement: Replace the scrub filters according to the following guidelines:

	Time Used	Hours Used
Light Use	12 months	≤ 500 hours
Moderate use	9 months	≤ 1,000 hours
Heavy use	6 months	≤ 3,000 hours

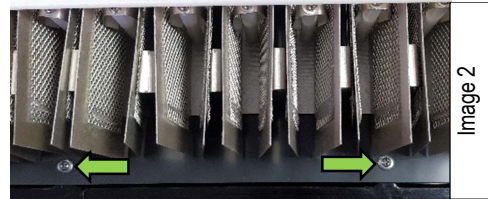
(b) Ozone Plates Cleaning or Replacing: Clean the ozone plates at the beginning of each new season, or when you suspect that ozone production has decreased. To clean the ozone plates, follow these steps:

1. Unplug the unit from the power source then unlatch and open the unit's lid;
2. Locate the white rod that secures the filters in place (Image 1, red arrow) then cut the zip ties on both ends of the rod (Image 1, yellow arrows);
3. Remove plates, inspect them for any defects and dirt. Replace defective plates, and clean dirty one by washing with warm soapy water then air drying them (it is acceptable to use a hair dryer to accelerate the process).



**NOTE: to avoid arcing or damaging the FirstResponder Metro Sterilizer, make sure plates are completely dry before re-inserting into the unit.**

4. To access the ozone plates on the lower deck, remove the 4 screws on the base of the top deck (Images 2 and 3, green arrows), and lift the top deck out. Repeat process in Step 3 above.



5. Reseat cleaned or new plates back into their slots. If needed, replace old plates with new ones, and re-attach the white securing rod with new zip ties (provided).



**FIRST AID: in case of eye or breathing irritations, immediately take the following steps:**

- (i) Turn the sterilization cycle off by pressing the [RUN] button;
- (ii) Remove affected person from the area and administer first aid as necessary and described in the Material Safety Data Sheet;
- (iii) Run a scrub cycle as indicated in this Owner's Manual, Section III "Operating the Unit" on Page 2; alternatively, turn the FirstResponder device off and air the affected area until the odor of ozone is faint or is no longer detectable.

**LIMITED LICENSE: The FirstResponder® Sterilizer is Patent Pending.** The purchase price paid for the FirstResponder® Sterilizer grants end users a non-transferable, non-exclusive license to use the unit in a research laboratory setting, and for sterilizing purposes only 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 Sterilizer be used on food or drink products intended for human or animal consumption. At all times, care and attention should be exercised in handling and using the FirstResponder Sterilizer by following the instructions in the manual, using common sense practices, wearing protective clothing and eyewear when appropriate. NEVER OPERATE THE FIRSTRESPONDER STERILIZER IN A ROOM OR AREA WHERE PEOPLE OR ANIMALS ARE PRESENT. Purchasers may refuse this license by returning the FirstResponder Sterilizing unit unused and its original packaging. By keeping or using the FirstResponder device, 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

## APPENDIX A

**WARNING:** Different materials respond differently to TO molecules, and some common first responder gear and triage materials may be damaged by exposure. To minimize material damage, carefully read and adhere to the following guidelines:

**SE = Strong effect:** Materials are most susceptible to triatomic oxygen (TO) degradation; these materials should be removed from areas to be sterilized.

**MEH = Moderate Effect High:** Materials are noticeably affected by TO and exposure should be limited to short periods of time only. Frequent exposure of these materials to TO will require they be discarded or replaced.

**MEL = Moderate Effect Low:** Materials are not affected by infrequent, brief exposure, but TO can deteriorate materials found under MEL. Prolonged exposure to high levels of TO will require they be discarded or replaced.

**ZE = Zero Effect:** materials are not affected by TO; sterilize as often as needed.

**Unlisted Materials:** if a laboratory material is not listed in the table below, err on the side of caution and remove these unlisted materials from areas to be sterilized with the FirstResponder Mobile Gear Sterilizer.

**Genlantis is not responsible for damage arising from failure to follow these guidelines.**

Material	SE	MEH	MEL	ZE
Buna-N (nitrile) / Fiber reinforced plastic (FRP) / Magnesium...	X			
Natural Rubber / Nylon / Steel / Zinc.	X			
Acetal resin (Delrin™) / Cast Iron / Galvanized Steel...		X		
Chlorosulfonated polyethylene (CSPE) (Hypalon™)...		X		
Thermoplastic elastomer (Hytrel™) / Monel™ / Neoprene (Polychlorprene™)...		X		
Polyamide / Polypropylene / Glass filled polypropylene (GFPP).		X		
ABS Plastic / Acrylic / Aluminum / Brass / Bronze / Copper...			X	
Ethylene propylene diene monomer (EPDM) / Flexelene™ tubing...			X	
Low-density polyethylene (LDPE) / Poly(vinyl chloride) (PVC)...			X	
Polyacrylate / Polyethylene / Polysulfide / Tygon™.			X	
Butyl / Chlorinated polyvinyl chloride (CPVC) / Cross linked polyethelene (PEX)...				X
ehylene propylene / Ethylene acrylic elastomer (Vamac™) /				X
Ethylene propylene rubber (EPR) / Fluorosilicone / Glass...				X
High-density polyethylene (HDPE) / Polycarbonate / PVDF...				X
Perfluoroelastomer (Kalrez™, Chemraz™, Viton™) / Silicone...				X
Polychlorotrifluoroethene(PCTFE) / Polyether ether ketone (PEEK)...				X
Polytetrafluoroethylene (PTFE) / Polyurethane / Stainless Steel...				X
Superalloys (Hastelloy™, Inconel) / Thermoplastic elastomer (TPE) / Titanium.				X

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Chemraz™ is a registered trademark of Green, Tweed and Co.

Tygon™ is a registered trademark of Saint-Gobain Corporation

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# CAUTION

## **Sterilization Cycle in progress**

**Do NOT open door until this sign is removed**

For users with remote control, press the remote button to immediately cancel the Ozone cycle and shift the device into the Scrub cycle. Allow the FirstResponder device to fully run the Scrub cycle (the digital display will go blank) before entering space, or opening cabinet that is being sterilized.

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Time Sterilization Cycle Started:** \_\_\_\_\_

**Expected Cycle Completion:** \_\_\_\_\_