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Installation & Operations Manual for Energenics UV-MAX Mobile Disinfection System

Table of Contents	Page 1
Energenics UV-MAX	Page 2
Advisories (Purpose/Contents)	Page 3
UV-MAX Safe Operation Procedure	Page 4
Safety Guidelines	Page 5
System Description	Page 6
System Delivery	Page 7
Operation Overview	Page 8
Operation Settings (Default)	Page 9
Operation Settings (Customizable)	Page 10
Cycle Stop Status Screens	Page 11
System Care	Page 12
Troubleshooting	Page 13

Energenics UV-MAX



Advisories

Purpose

The Energenics UV-MAX system has been designed to offer direct disinfection exposure to surface areas. The system design allows for microbial disinfection control.

The Energenics UV-MAX system was developed as a cleaning device utilizing Ultraviolet Light (UV) for direct exposure disinfection. The system can disinfect 360 degrees from the system center.

Contents

This manual will serve as your reference guide for installation, operation, and service of your UV-MAX system. Reference to all parts, warranty, and support are included.

This manual covers the system/equipment/products listed below:

- Energenics UV-MAX

Safety Observation: It is required for the person(s) responsible for the installation of this equipment, operators of this equipment, and operation personnel managers to review and understand this manual.

USE OF LISTED SYSTEM / EQUIPMENT MUST COMPLY WITH INSTRUCTIONS AND SAFETY REQUIREMENTS.

UV-MAX Safe Operation Procedure

1. Always wear personal protective equipment (PPE) when operating UV-MAX to limit exposure to light
2. Place UV-MAX in area to be treated
3. Connect UV-MAX to 120vac plug receptacle
4. Press start on UV-MAX control and exit treatment area
5. Adhere to recommended safety precautions to avoid potential injury or blindness

Safety

1. You should never look directly at a UV lamp in operation
2. The space should be vacant and closed prior to UV-MAX operation
3. **Never command the system on when the treatment space is occupied**

Safety Guidelines

Exposure to ultraviolet light is dangerous, both direct and reflected. UV can produce eye injuries and skin erythema. These effects are considered transient. UV may also be carcinogenic but since it has very limited penetrating ability it is unlikely to cause damage to anything besides outer layers of skin or other exposed surfaces.

The Energenics UV-MAX is designed for zero user exposure to UV; however, we will review safety factors regarding UV for better knowledge and understanding.

Protective Clothing and Eyewear

It is not recommended that any personnel be subject to direct UV exposure. In the event such exposure is probable, personnel should wear PPE providing full coverage of exposed skin and appropriate eye protection.

UV safety glasses designed to filter UV-C and those of the wrap-around type are recommended. Be aware, not all glasses offer complete coverage or UV-C filtering.

OSHA Guidelines for Ultraviolet Exposure

OSHA provides technical guidance regarding protecting employees from ultraviolet light with respect to laser hazards. You can find this guidance in the (*OSHA Technical Manual* (TED 1-0.15A, Section III – Chapter 6)). The relevant chapter includes information on control measures and safety programs for laser hazards associated with exposure to UV. This is the best documented guideline available.

NIOSH Limits

The National Institute of Occupational Safety and Health (NIOSH) provide a recommended exposure level (REL) for UVGI at 6 mJ/cm^2 (or 0.006 J/cm^2).

System Description

The Energenics UV-MAX is designed for maximum disinfection through the shortest exposure time. The system design provides the optimum in:

- UV dosage output to footprint served
- Rugged design build
- Ease of use controls
- User safety protection

INDUSTRIAL STRENGTH
FRAME AND STRUCTURE

CORROSION PROOF
CONSTRUCTION

6" INDUSTRIAL CASTORS

HIGH OUTPUT PRE-HEAT
LAMPS FOR LONG RUN
TIME LENGTH



MOTION/HEAT DETECTION
SAFETY SHUTOFF


INDIVIDUAL LAMP
FAILURE INDICATORS

EMERGENCY STOP
BUTTON

BUILT TO IP58 WATER
AND DUST STANDARDS

System Delivery

When you receive your UV-MAX, you will need to unpack and inspect the system. Please perform the following procedure:

1. Unpack your new system and stand upright
2. Inspect fully for damage
 If damage present, contact Energenics prior to use (800) 944-1711
3. Verify secure lamp installation
4. Plug in system power cord
5. Power on the unit

Your Energenics UV-MAX system is now ready for operation
(See Operation Overview)

Operation Overview

The UV-MAX is designed to operate in the following manner:

Start Sequence

1. Locate unit in unoccupied space positioned for operation
2. Plug system into power supply
3. Review display for “Start Cycle” state
4. Turn on system
5. Evacuate space

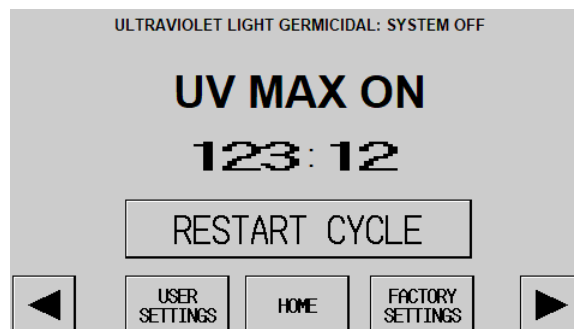
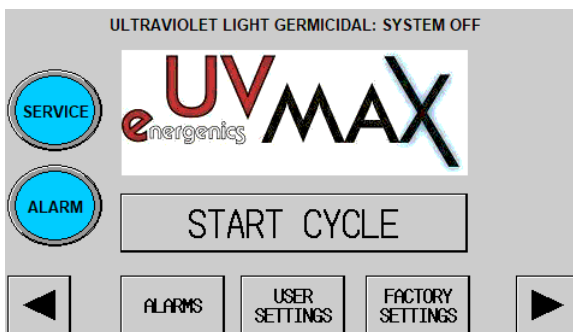
Audio and Visual Indicators

1. Audio Alarm
 - a. Once Started: Short warning beeps increasing in frequency
 - b. During Process: Long stroke beeps
 - c. Process Complete: Three short beeps (no beep thereafter)
2. Visual Indicator
 - a. Red Light – Warning, get out process running
 - b. Green Light – Safe/Process complete
3. Display of System
 - a. Operations
 - b. Controls
 - c. Indication of System Functions

Operation Settings

Normal operation for factory default settings are covered on this page.

1. Review system for condition.
 - a. There should be no physical damage to the system
 - b. Lamps shall be clean
 - c. System frame shall be in good condition
 - d. Display of system shall be clean
2. Plug in system power cord
3. Ensure all personnel are out of treatment area
4. Operate system
 - a. Press START CYCLE
 - b. The system will enter countdown mode (1 min)
 - c. Once the process is complete, control panel will display cycle status
 - d. Press RESTART CYCLE to return to home screen



Customizable Operation Settings

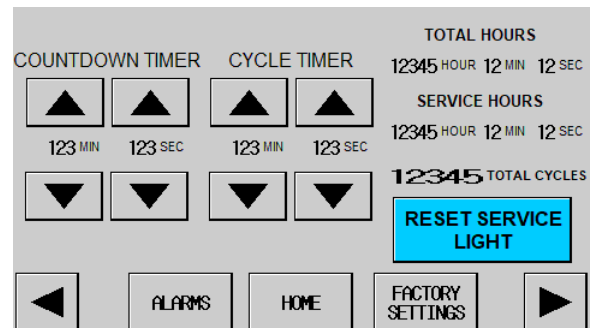
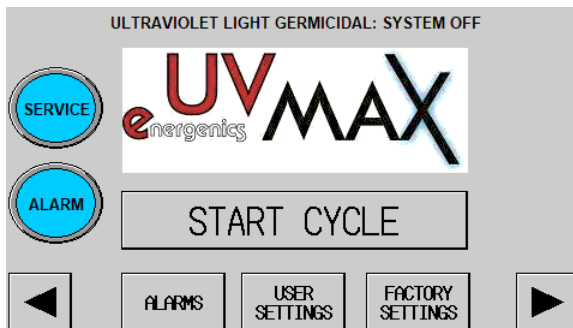
Customizing settings for normal operation are covered on this page.

1. From the START CYCLE home screen, press USER SETTINGS button
2. The COUNTDOWN TIMER / CYCLE TIMER screen is displayed and may be used to modify system variables as follows:

Countdown Timer– control for time delay from when Start Cycle button is pressed to when system lamps come on

Cycle Timer – control for duration of cycle operation

3. After adjusting to preferred settings, press HOME button to return to Start Cycle
4. Press START CYCLE button to begin customized treatment cycle



Cycle Stop Status Screens

Cycle stop displays for normal system operation are covered on this page.

Emergency Stop

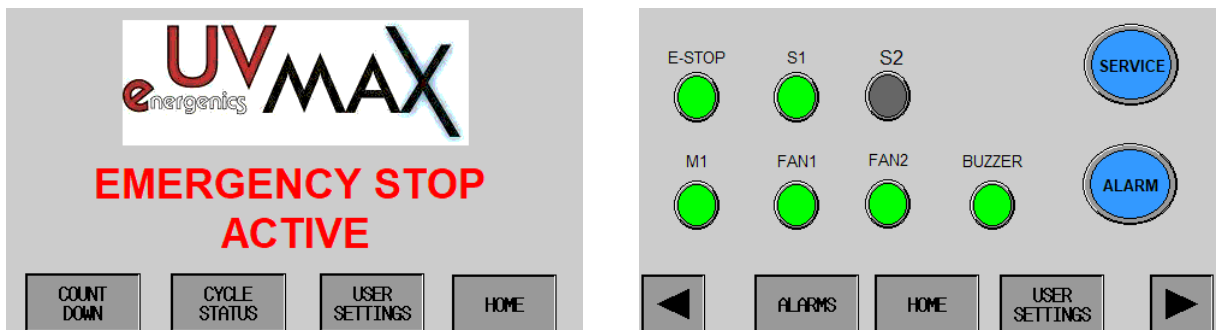
Should cycle deactivation occur by engagement of the Emergency Stop button, the following method will be required to reset the system:

1. Observe Emergency Stop Active status on control screen
2. Release Emergency Stop by pulling up on the red knob
3. Select HOME button to return to main screen
4. Press START CYCLE to resume normal operation of system

System Faults

Should cycle deactivation occur by means of a system fault, the following method will be required to reset the system:

1. Observe the fault status type on the control panel
2. Ensure all system faults have been properly addressed
3. Select HOME button to return to main screen
4. Press START CYCLE to resume normal operation of system



System Care

The Energenics UV-MAX system is designed for repeat performance with consistent results. Based on system designs, minimal maintenance is required. Adherence to the following regular service of your system should provide years of disinfection.

Each Duty Cycle

1. Inspect the system interior, exterior, and lamps for clean conditions
2. Clean as needed

Monthly

1. Inspect the system interior, exterior, and lamps for clean conditions
2. Clean as needed
3. It is recommended to test system performance using an ATP meter

Bi-Annual

1. Inspect the system interior and exterior lamp for clean conditions
2. Clean as needed
3. It is recommended to test system performance using an ATP meter

“Service Machine” Message

1. Every 8 running hours it is recommended that lamps be wiped down with isopropyl or rubbing alcohol. This will remove any debris that may have accumulated on the lamp. Once cleaned, you can reset this message by pressing USER SETTINGS button followed by RESET SERVICE LIGHT

Note: The above steps are listed as the basic level of care, should the system be utilized in a heavy work environment, further care may be required.

Troubleshooting

The below statements are listed as troubleshooting guidelines. Further information is available through Energenics support.

Q: What should I do if the unit will not turn on?

A: Verify there is power to the system

A: Verify the display is reads correctly

A: Verify the Emergency Stop is not engaged

Q: Why does the unit turn off when I enter the room?

A: Safety features turn off lamps based on motion detected

Q: My system will turn on, but the lamps will not come on.

A: Verify the start cycle button is pressed

A: Inspect the lamp for age or physical failure

A: Contact Energenics Support for further information

Q: My system is running fine, how do I verify the lamp output is correct?

A: The system has a status screen at the end of the cycle

A: Faults will indicate if the system is not performing correctly

Q: The touchscreen has presented a flashing "Service Machine" icon. What does this mean?

A: Every 8 running hours it is recommended that lamps be wiped down with isopropyl or rubbing alcohol. This will remove any debris that may have accumulated on the lamp. Once cleaned, you can reset this message by pressing USER SETTINGS button followed by RESET SERVICE LIGHT