

# UV-MAX RAD AIR DISINFECTION UNIT

## USER GUIDE



Models:

UV-MAX RAD

# ENERGENICS, CORP.

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## ADVISORIES

### Purpose

Energenics Room Air Disinfector (RAD) is designed to protect room occupants including personnel, students, clients and patients from infection due to airborne microbes, particularly in crowded or poorly ventilated areas where the risk of cross infection is highest.

Energenics Room Air Disinfector is an enclosed germicidal ultraviolet fixture that efficiently and effectively destroys airborne bacteria, mold, viruses in enclosed, occupied spaces and is safe for use in most applications.

### Contents

This manual will serve as your general reference guide for installation, operation, and service of your UV-MAX device. Reference to all parts, warranty, and support are included. This manual covers the following product:

- **Room Air Disinfector**

Questions that are not specifically answered by these instructions should be directed to the manufacturer.

### 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.



# SAFE OPERATION

## Safety

1. You should never look directly at a UV lamp in operation without wearing approved safety glasses. Safety glasses should be made of any material other than Quartz or Teflon.

## Disposal of Mercury Added Lamps

Germicidal ultraviolet lamps, like standard fluorescent lamps contain small amounts of mercury. Mercury added lamps should not be placed in the trash. Dispose of properly. For further information regarding the disposal and recycling of lamps containing mercury, along with Federal and State requirements visit [LampRecycle.org](http://LampRecycle.org).

## Safety Guidelines

Exposure to UV-C light is dangerous. The adverse health effects that may occur are erythema (sunburn) and photokeratitis (a feeling of sand in the eyes). These effects are considered transient. UV-C may also be carcinogenic but since it has very limited penetrating ability, it is unlikely to cause damage to anything beyond the outer layer of skin or other exposed surfaces. Unfortunately, there are no immediate warning symptoms to indicate overexposure to UV radiation and adverse effects typically appear hours after exposure has occurred.

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

## Protective Clothing and Eyewear

It is not recommended that any personnel be subject to direct UV-C exposure. Personnel that may be exposed to harmful amounts and wavelengths of UV must take adequate steps to shield themselves and in some cases limit the duration of exposure.

If there is any potential for the eyes and face to be exposed to UV radiation, a polycarbonate face shield stamped with the ANSI Z87.1-1989 UV certification must be worn to protect the eyes and face. Ordinary prescription eyeglasses may not block UV radiation. UV certified goggles and safety glasses will protect the eyes, but workers may suffer facial burns in the areas not covered by the goggles or glasses.

## OSHA Guidelines for Ultraviolet Exposure

There is no Occupational Safety and Health Administration (OSHA) standard regarding exposure to ultraviolet light, but the OSHA general duty clause states the employer must provide a workplace free of recognized hazards that may cause death or serious physical harm.

## SAFETY INSTRUCTIONS

**WARNING:** To guard against injury, basic safety precautions should be observed, including the following:

1. Read and follow ALL safety instructions.
2. Avoid exposure to direct or highly reflected germicidal ultraviolet rays.  
(Ultraviolet rays are harmful to eyes and skin)
3. This device is intended for indoor use only.
4. Do not alter the device in any way.
5. Do not override safety interlocks.
6. Do not remove or alter safety labels or devices.
7. Do not operate damaged equipment. Replace damaged power cords immediately.
8. Do not operate equipment that is not properly grounded.
9. Keep blower inlets and outlet free of debris and blockage.
10. Do not operate without louvered panels and air filters in place.
11. Stay clear of moving parts that may cause injury.
12. Use only appropriate power sources as specified on device labeling.
13. Disconnect power source prior to performing any maintenance to avoid electrical hazard.
14. Read and follow safety notices and warnings in the disinfectant labels and user touchscreen.
15. **Retain this safety manual for future reference.**



## SYSTEM DELIVERY / OPERATION OVERVIEW

**When you receive your Energenics Room Air Disinfector you will need to unpack and inspect the system. Please perform the following procedure:**

1. Unpack your new system and stand device upright
2. Inspect fully for damage  
(If damage present, contact manufacturer prior to use at 1.239.643.2778)
3. Verify secure lamp installation within upper chamber
4. Plug in system power cord to ensure power to device
5. Do not activate unit without reading and adhering to instruction below

**The Energenics Room Air Disinfector is designed to operate in the following manner:**

### Audio and Visual Indicators

#### Audio

1. When in operation, blower fan is audible with variation between Low and High settings

#### System Display

1. Operating Status
2. Control Functions
3. Indication of System Functions

### Start Sequence

1. Position unit in treatment space, centralized for optimum performance operation
2. Lock wheels to secure in position
3. Plug system into appropriate power supply
4. Press on-screen "Start Cycle" to initiate
5. System is operating with blower fan and UV-C lamps on

Time Settings Can Be Customized on Units Prior to Shipment. Consult factory for custom settings prior to unit shipped.

# SYSTEM DESCRIPTION & INSTALLATION

## Description

The **Energenics Room Air Disinfector** is a recirculation unit, continuously recirculating the ambient room air through a multi-stage filtration and UV-C disinfection system and removing airborne contaminants every time the air passes through the unit. The device is designed for maximum disinfection. Disinfection times vary based on size of treatment space. The system design provides:

- User safety protection
- Ease of use controls
- Industrial strength frame and structure
- Corrosion proof construction
- 12,000 Hour high-output shatterproof UV-C lamps (8)
- Antimicrobial powder coating
- 6" Rubber wheels with locks
- Individual lamp and ballast monitoring
- Hospital grade filtration
- Pressure sensing filter monitoring
- Reflective stainless core
- UL controls
- 6" Touchscreen control
- Proven ultraviolet treatment application

## Application

Safe for use in a clean, dry environments, the **Energenics Room Air Disinfector** effectively destroys airborne microbes including; bacteria, mold and viruses in enclosed spaces. In operation, air is drawn into louvered filter panels located around the base of the fixture. The air passes into the exposure chamber where it is irradiated by 8 germicidal ultraviolet lamps. The air then passes out of the fixture through the exhaust panel located at the top of the fixture.

## Installation

Remove the **Energenics Room Air Disinfector** from its shipping container. Inspect the unit for damage. If noticeable damage to the device is present, call manufacturer. Do not operate a damaged unit.

## Location

The **Energenics Room Air Disinfector** is recommended for use in large spaces where occupants remain for extended periods of time. This may include cafeterias, conference halls, auditoriums and the like.

**WARNING:** Take caution to avoid room occupant direct line-of-sight from above of device exhaust vent (top). This may occur in auditorium or stadium type settings potentially exposing occupants to the UV-C lamps within the unit.

## System

The **Energenics Room Air Disinfector** is completely portable. The device requires no professional installation. The unit is equipped with locking swivel castors and can be moved to any location. Once in place, simply lock wheels, plug into appropriate power source. The device is now ready for use.



# OPERATION SETTINGS

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

## Safety

Read and follow safety notices and warnings on device labels and user touchscreen. For detailed safety information, see Page 9 of this Installation & Operation Manual.

## Device Operation

1. Review system for condition
  - a. There should be no physical damage to the device
  - b. Display of the system should be clean
  - c. Upper and lower doors should be latched securely
2. Plug in power cord
3. Observe power to display screen
  - a. Advisory screen will illuminate briefly followed by Home screen
4. Start System
  - a. Press Start Cycle on Home screen to initiate treatment
  - b. Observe "UV Lamps & Blower Fan On" status screen
5. Ending Cycle
  - a. Select Turn Off from "UV Lamps & Blower Fan On" status screen

## High / Low Fan Selection

1. From the Home screen, select User Settings
2. Choose preferred fan speed option on System Status screen
3. Press Home to return to main screen

\*Fan speed selection can be made prior to starting treatment cycle or while the device is in operation.

ULTRAVIOLET GERMICIDAL IRRADIATION: SYSTEM OFF



START CYCLE

ALARM  
LOG

USER  
SETTINGS

ULTRAVIOLET GERMICIDAL IRRADIATION IS RUNNING




UV LAMPS & BLOWER FAN ON

123 H 12 MIN 12 SEC

USER  
SETTINGS

TURN OFF

**SYSTEM STATUS**

FAN STATUS	BALLASTS STATUS	12345 TOTAL CYCLES
 12.34 AMPS	BALLAST 1 OK BALLAST 2 OK BALLAST 3 OK BALLAST 4 OK	SYSTEM TOTAL RUNNING HOURS 12345 H 12 MIN 12 SEC SERVICE HOURS 12345 H 12 MIN 12 SEC
HIGH SPEED LOW SPEED		LAMPS RUNNING TIME
ALARM LOG	SERVICE MAINTENANCE	RESET FILTER ALARM
		HOME

## CYCLE STOP NOTIFICATIONS

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

### System Faults

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

1. Observe the fault on the display screen
2. Ensure all system faults have been properly addressed
3. Select Alarm Log then Home to return to main screen
4. Press Start Cycle to resume normal operation

**DOOR OPENED!!!!**

**SYSTEM SHUTS DOWN**

CLOSE ALL DOORS TO START NEW CYCLE

ALARM  
LOG

USER  
SETTINGS

### Fan Overload Indication

Should the blower fan overload resulting in system shut-down, the following should occur to resume normal operation:

1. Recognize fault notification(s) on display screen
2. Disconnect power supply to device as UV lamps will remain on
3. Ensure filters are clean and there is no intake blockage
4. With power disconnected, open lower compartment and locate black fan reset button on back of control panel
5. Close lower compartment door and secure shut
6. Plug in power cord and observe fault notification has cleared
7. No red text should be present on Alarm Log for normal device operation to occur
8. On Home screen, press Start Cycle to resume treatment

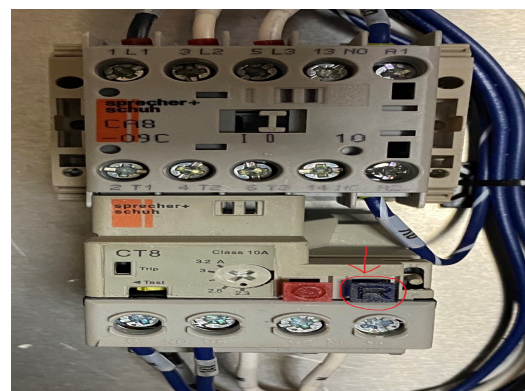
**FAN OVERLOAD  
TRIPPED!!**

**SYSTEM SHUTS DOWN**

RESET THE OVERLOAD TO START A NEW CYCLE

ALARM  
LOG

USER  
SETTINGS



# FILTER REPLACEMENT & ALARM

The **Energenics Room Air Disinfector** is designed to monitor internal pressure changes signaling increased amperage draw of the device. Generally, increased draw is a result of:

1. Need for filter replacement / dirty filter(s)
2. Blockage to intake airflow

Alarm notification will be present on display screen should the amperage cross the factory preset threshold. After a 10 second sustained draw above the preset amperage threshold, the device will shut off. To resume normal operation of the device:

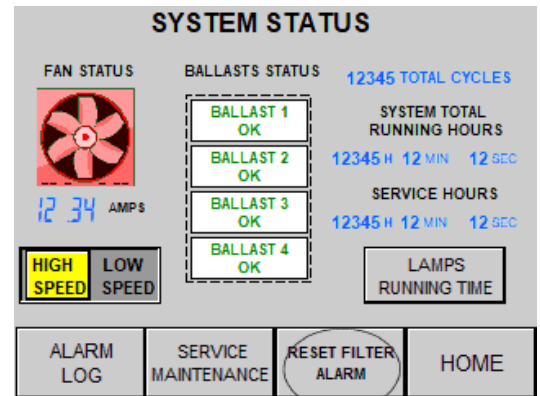
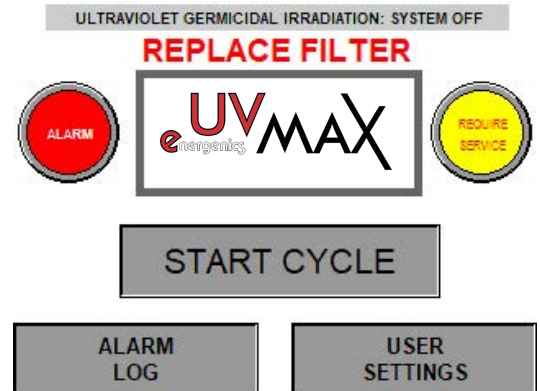
1. Check to ensure there is no air intake blockage
2. Replace outdated / dirty filter(s)
3. Press Reset Filter Alarm on System Status screen
4. Press Home and Start Cycle to resume normal operation

## Replacing Filter(s)

**Filters should be replaced 90 days from date of installation or when they are visibly soiled. Do not operate device with damaged or missing filters.**

To replace filters with Filter Alarm present:

1. Turn off unit at display and disconnect power supply
2. Replace filters and secure louvered vent hatches
3. Reconnect power supply
4. Select User Settings on display screen, then Reset Filter Alarm
5. Press Home and Start Cycle to resume operation
6. Alarm notifications should be cleared from display(s)



ALARM LOG		
ALARM	TIME ON	TIME OFF
FAN OVERLOAD TRIPPED	05/03 16:21:22	
DOOR OPEN	05/03 16:21:22	05/03 16:21:22
RESTART WITH LIGHT ON	05/03 16:21:22	
SERVICE MACHINE	05/03 16:21:22	05/03 16:21:22
LAMP 1 FAULT	05/03 16:21:22	
LAMP 2 FAULT	05/03 16:21:22	05/03 16:21:22
LAMP 3 FAULT	05/03 16:21:22	

Below the table are four buttons: 'Up', 'Down', 'User Settings', and 'Home'.

## SYSTEM CARE

**WARNING:** To guard against injury, basic safety precautions should be observed, including the following:

1. Read and follow ALL instructions.
2. Avoid exposure to direct or strongly reflected germicidal ultraviolet rays.
3. **Disconnect power source prior to performing any maintenance to avoid electrical hazard.**
4. Do not alter the device in any way.
5. Do not operate damaged equipment.
6. Stay clear of moving parts that may cause injury.

### System Care

The **Energenics Room Air Disinfecter** 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 for damage
2. Clean exterior of device as needed

#### Monthly

1. Inspect system interior for loose debris
2. Remove debris if present avoiding contact with lamps

#### 90 Days

1. Replace filters and clean intake grills
2. Gently wipe down UV lamps with soft cloth to remove dust build-up

### Service Maintenance

Should a service issue arise that is unable to be remedied by the methods on the previous pages of this manual, it is recommended that the machine be placed "Out-of-Order" with power source disconnected.

For issues concerning lamps or ballasts, please contact the manufacturer:

- (239) 643-1711
- [sales@energenics.com](mailto:sales@energenics.com)

## FAQ'S & TROUBLESHOOTING

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

A: Verify there is power to the system by observing that all time sequence buttons are illuminated.

A: Verify the Emergency Stop is not engaged

**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: What should I do if the unit will not come on?**

A: Verify there is power to the system

A: Verify the display reads correctly

A: Verify the doors are properly latched and the interlock safety interrupter has not been tripped

**Q: What should I do if the lamps turn on but the fan doesn't?**

A: Check the Overload Reset

A: Contact Energenics for further information 1.239.643.1711

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

A: Verify the Start Cycle button was pressed

A: Inspect the lamps for physical failure (breakage)

A: Contact Energenics for further information if needed

**Q: How do I clear the Replace Filter notification?**

A: Ensure the vent intakes are not blocked

A: Replace damaged or dirty filters

A: Press the Rest Filter Alarm button on the User Settings screen

**Q: What should I do if I have a ballast or lamp alarm notification?**

A: Contact Energenics for further information 1.239.643.1711

## APPENDIX A: DOSE GUIDELINES

### ENERGENICS ROOM AIR DISINFECTOR AIR CHANGES PER HOUR (ACH) CHART

Area Measurements		8' Ceiling			10' Ceiling			12' Ceiling		
Room Dimensions (feet)	Room Square Footage	Room Cubic Feet	Low Fan ACH	High Fan ACH	Room Cubic Feet	Low Fan ACH	High Fan ACH	Room Cubic Feet	Low Fan ACH	High Fan ACH
10 x 10	100	800	67.5	82.5	1,000	54.0	66.0	1,200	45.0	55.0
15 x 15	300	1,800	30.0	36.6	2,250	24.0	29.3	2,700	20.0	24.4
20 x 20	400	3,200	16.9	20.6	4,000	13.5	16.5	4,800	11.3	13.8
25 x 25	625	5,000	10.8	13.2	6,250	8.6	10.6	7,500	7.2	8.8
30 x 30	900	7,200	7.5	9.2	9,000	6.0	7.3	10,800	5.0	36.7
35 x 35	1,225	9,800	5.5	6.7	12,250	4.4	5.4	14,700	3.7	4.5
40 x 40	1,600	12,800	4.2	5.2	16,000	3.4	4.1	19,200	2.8	3.4
45 x 45	2,025	16,200	3.3	4.1	20,250	2.7	3.3	24,300	2.2	2.7
50 x 50	2,500	20,000	2.7	3.3	25,000	2.2	2.6	30,000	1.8	2.2

\*ACH calculated using 900 CFM (low fan speed) and 1,100 CFM (high fan speed) inputs with MERV 14 filtration.



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