These instructions generally describe the installation, operation and maintenance of the Germinator-UV. Questions that are not specifically answerable by these instructions should be directed to the factory. MSEC takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damages. Do not install damaged equipment. Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.
SAFETY INSTRUCTIONS

1. Read and follow ALL safety instructions.
2. Intended for indoor use only.
3. Do not alter the construction or design.
4. Do not use this sanitizer for other than its intended purpose, as described in this manual.
5. Do not use this sanitizer in occupied areas. The supplied “DANGER - DO NOT ENTER...” sign(s) MUST be clearly displayed to warn against entering the area during the disinfection cycle without proper personal protection equipment.
6. CAUTION: Germicidal ultraviolet rays may break down plastic, rubber or other non-metallic materials, fade colors and can be damaging to plant life. Shield all plastic, rubber or other non-metallic parts, plant life, etc. which may be exposed to direct or reflected germicidal ultraviolet rays.
7. Do not remove any labels or devices.
8. CAUTION: Do not operate without proper electrical ground.
9. Do not operate the sanitizer if the power cord and/or plug are damaged, or if any other damage to the sanitizer is visible or suspected.
10. Utility power supplied, to the sanitizer, must match power requirements listed on the sanitizer label.
11. WARNING: Always disconnect power to the sanitizer and unplug before performing any service or maintenance.
12. Read and follow all notices and warnings on the sanitizer.
13. SAVE THESE INSTRUCTIONS.

SAFETY LABELS

It is the user’s responsibility to determine and validate the suitability of this equipment for use in the user’s system or process.

No warranty or representation is made by the manufacturer with respect to suitability or performance of this equipment or to the results that may be expected from its use.

The user should periodically inspect, clean as necessary and confirm the presence and good legibility of the product safety labels. Contact the factory for replacement labels in the event that any of the labels are missing or illegible.
PRODUCT APPLICATIONS

CONSTRUCTION

The Germinator-UV consists of:

- Audible warning to warn that the lamps will be switched on in 3 minutes or 2 minutes after last movement detected.
- Germicidal ultraviolet lamps (05-0893) - Deliver ultraviolet energy at the specific wavelength of 254 nanometers (nm). This wavelength is highly effective against microbes including: virus, bacteria, and mold spores.
- Electronic ballasts - available in 120v 50/60Hz or 230v 50/60Hz.
- Timer - A microprocessor controller provides easy programmable treatment times in minutes and hours (up to 24 hours), to suit a variety of room sizes.
- Intrusion detector to delay treatment if the treatment area is inhabited.
- Exit Warning and Time Delay - Provides an audible warning for 3 minutes after the start button is pushed, allowing the operator time to leave the area before the disinfection cycle begins.
- Intruder alert and delay timer - shows a repetitively pulsed warning pf intruders within the treatment area delays the start or continuance of the treatment until the intruder sensor has seen no activity for two minutes.
- Elapsed Time Indicator - A non-resettable display of the operating hours. Useful for scheduling and recording maintenance and lamp replacement.
- Easily moveable when titled and wheeled to charge required location.
- Power Cord - For 120VAC 50/60Hz single-phase standard household current, a NEMA 5-15, three-prong plug is provided for a properly grounded outlet. 230VAC 50/60Hz models use a CEE 7/7 (Schuko type) plug.
- Storage Cover - Protects the germicidal lamps from breakage while transporting and/or storing the sanitizer and provides a way to safely test the ultraviolet lamp operation.
- Sight Ports - Located on the top cover, allow observation of the germicidal lamps without the risk of ultraviolet exposure when the storage cover is on.
- Lamp Guard Assembly - Protects lamps from damage during normal operation.
- All electronics and wiring are housed in an enclosure constructed of stainless steel. Stainless steel construction provides strength, durability and will withstand most harsh environments.
- Remote display shows which of the eight lamps are lit or not lit.

PRINCIPLE OF OPERATION

The design has been carefully conceived to provide direct germicidal ultraviolet exposure for air or surface disinfection in unoccupied space to disinfect and prevent areas and surfaces from microorganisms. The ultraviolet disinfection dosage is a function of time and the intensity, of the ultraviolet radiation to which the air and surrounding surfaces are exposed.

⚠️ CAUTION: It is the user’s responsibility to determine and validate the suitability of the equipment for use in system or process. No warranty or representation is made by the manufacturer with respect to suitability or performance of this equipment or to the results that may be expected from its use. Indoor Use Only – The equipment must be sheltered from exposure to the elements and extremes in temperature. Temperature range: 40°F to 100°F. The user should periodically inspect, clean as necessary and confirm the presence and good legibility of the Product safety labels. Contact the factory for replacement labels in the event that any of the labeling is missing or illegible.

LIMITATIONS

- Safety procedures should be implemented to prevent ultraviolet exposure of occupants to direct or reflected ultraviolet rays. Exposure to germicidal ultraviolet rays will result in the irritation of the eyes and reddening of the skin.
- Personal protection equipment is required when entering the irradiated space with the germicidal lamp(s) operating. Personal protection equipment includes skin and eye protection such as gloves, long sleeves with no gaps between cuff and gloves, and an ultraviolet blocking faceshield (included with the purchase).
**UNPACKING**

- Remove the *Germinator-UV* from its shipping carton.
- MSEC takes all possible precautions when packaging this unit to prevent damage. Carefully inspect the unit, power cord and plug for damage, report all damage immediately. Do not assemble or operate if there is any damage, visible or suspected.
- Germicidal lamps are packed separately, to ensure maximum protection for the lamps. Keep the lamps aside until ready for installation.
- Carefully inspect all packing materials to prevent the loss of accessories, spare parts or instructions.
- Do not discard packing materials until unit is assembled, checked and confirmed.

The Portable Area Sanitizer includes:
- 1 - Eight lamp unit with power cord - Includes a microprocessor controller with a remotely controlled time display and push button controls.
- 8 - High output Germicidal ultraviolet lamps (05-0893)
- 1 - Operating Instructions
- 2 - Laminated Warning Signs
- 1 - Storage Cover

**INSTALLATION**

**DIMENSIONAL DATA**

![Figure 1 - Dimensional Data](image-url)

All specifications, dimensional data, etc are approximate and subject to change without notice.
**Unit Placement**

- The Germinator-UV does not require professional installation.
- For maximum efficiency should be located as centrally as possible, away from the corners of the treatment area. The Portable Area Sanitizer is most effective when it is located in the vertical center of the room and the ultraviolet rays are unobstructed.
- Access to the room **MUST be** avoided while the sanitizer is operating.
- The intrusion sensors will detect movement if anyone is in the treatment area and the lamps will be switched off until 2 minutes after movement has ceased.

**Set-Up Instructions**

**Lamp Installation**

**CAUTION: Germicidal lamps are easily damaged. Exercise care when handling lamps.**

*See assembly photograph.*

1. Disconnect power cord.
2. Holding the lamp vertically, carefully insert the lamp into the top of the wire guard assembly.
3. Align the connector pins on the lamp base with the socket below.
4. Carefully insert the lamp in the socket.
5. Install the remaining seven lamps.
6. Snap into the lamp guide located on the lamp guard assembly.

**Quick Test**

The unit must be situated in an empty room to avoid activating the movement sensors;

- Connect the power cord.
- The POWER indicator should light.
- Check the movement sensors: Any movement will be detected by the four movement sensors at the top of the **Sanidyne**® and a red LED will flash below the sensor to indicate the movement detection.
- In another room switch on the remote control (See “Switching on” note 3 following) and allow it to find and connect to the WT41-A (Bluetooth) signal from the Sanitizer
- See “Changing the Cycle Time” below: Use the Hours & Minutes buttons of the remote control to set the Treatment time to display a short time, 00:05 (Five minutes).
- Touch the START button. The audible alarm will beep.
- Touch the PAUSE button to pause the exit warning. Confirm that the audible warning has stopped.
- Touch the PAUSE button again to restart the exit timeout.
- At the end of the three minute exit time, and if there is no movement within the treatment area, the audible alarm will stop and the POWER indicator light will stop flashing.
• Ensure that all eight lamps are lit by viewing the display on the remote control.

The power plug may be removed when treatment is finished.

**REMOTE CONTROL NOTES**

1. The button at top right is the only button that should be pushed, (when turning the remote on or off). The other buttons of the touch-screen display only require a gentle touch to respond.

2. **The Round buttons are, (From left to right):**

   ![](image)

3. **Switching on**
   - Turn the control on by pressing and holding the concealed button on the top right of the control, until the control buzzes. Wait for the Lamp Control display to appear on the screen.
   - If the Germinator-UV is switched on, the remote control attempts to connect to the Germinator-UV. The words “**Connecting to WT41A**” will be shown until the connection is made,
   - The bottom left button of the display then becomes an arrow.

4. **Battery condition:**
   - This is roughly displayed by the icon at the top right of the screen. By gently touching the icon, the percentage of charge can be displayed.
   - If the battery condition is low it should be connected to the charger. (the controller is still useable while being recharged).

5. **Cycle Time:**
   - This is the time set for the treatment cycle that will be activated when the start button is pressed.
   - The treatment cycle cannot be started if the cycle time shows 00.00.
   - It cannot be charged or set if the Germinator-UV is not switched on.

6. **Changing the Cycle Time:** To set or change the Cycle time, gently touch the “Cycle Time” display until a new display appears and this displays the current cycle time and allows the time to be changed. Touch the word “done”, when satisfied with the selection, to return to the Lamp Control display.

7. **Current Time:**
   - Displays the current time – Hours: Minutes and seconds.

8. **Total Op Time:**
   - Shows the total recorded operating time since the Germinator-UV was first used. New treatment times are added at the end of the treatment cycle.

9. **Starting a treatment cycle**
   - Gently touch the left-hand button. The remote clicks and shows a red square in the right-hand button.
   - The Countdown time will be displayed in red at top right and will count down through the exit time.
   - If the infra-red detectors on the top of the Germinator-UV detect any movement, the elapsed time will be paused until the movement has ceased and will recommence after two minutes.
   - If there is no movement or if the movement time has ceased, the alarm will beep until the end of the exit time when the lamp indicators – 1 to 8 will show that the lamps are lit.
   - The Elapsed time will count up the time until it is equal to the displayed Cycle time, then the Germinator-UV will switch off.
10. **Pausing or stopping a cycle**
   - Touching the center button changes the II display to a circle to show that the cycle has been paused. It can be restarted by touching the center button again.
   - Touching the red square will stop the cycle and a new screen will be displayed asking if you wish to save the session. Press no, or yes if you want a record of the session.

11. **Switching off the Remote Control**
   - Press the button top right on the outside of the remote until the screen shows a menu, then touch Power off (or Restart if required).
   - Another screen says “Your phone will shut down”. Touch OK to confirm.
   - The handset will then switch off.

12. **Recorded Sessions**
   - To see the record of sessions, touch the small icon at the bottom left below the display area.
   - A small screen will appear and touching the word ‘Sessions’ will display the recorded sessions (If any).
   - Touching the icon at the bottom left below the display area, will return the remote to the main screen.

**TIMER CONFIGURATION**

**Timer Features**

**Treatment Time**
- Displayed in Hours : Minutes and indicates how much time is left until the treatment is concluded. During the treatment, the display counts down until the treatment is completed and the lamps switch off. The time display will then restore to the last setting.

**Cycle Time Set (Hours & or Minutes)**
- Place a finger on the words Cycle time and hold it there until the display changes to a “Cycle time” display. The “minutes” or “seconds” can be set after the required time is selected. And after the word “done” is selected.

**Power Indicator:**
- Red POWER light glows red when power is applied and switched on.

**START (First Button):**
- Touch to start the treatment time.

**PAUSE (Second Button)**
- Touch to pause the treatment. Press again to resume.

**STOP (Third Button)**
- Touch to end the treatment. (And save details if required)

**IF IT IS NECESSARY TO RE-ENTER THE TREATMENT AREA BEFORE THE END OF THE TREATMENT CYCLE, THE MOVEMENT SENSORS SHOULD DETECT MOVEMENT, SWITCH OFF THE LAMPS AND PAUSE THE TREATMENT UNTIL MOVEMENT IN THE AREA HAS NOT BEEN SENSED FOR TWO MINUTES.**

**AUTOMATIC EXIT TIMER:**
- Provides 3-minute delay after “START” button has been touched, to allow the operator to exit the treatment area.
- Provides a pulsing audio alarm during the same time.
**DETERMINING TREATMENT TIME**

Using Figure 3 - “Recommended Treatment Time for Room Sizes”

Treatment times are based on an ultraviolet dose of 30,000 microwatt-seconds per square centimeter at 254nm.

1. Along the horizontal axis, “Longest Room Dimension (Feet)”, locate the room’s longest dimension.
2. Follow up the vertical line until it intersects the heavy black curve.
3. From the intersection follow back along the horizontal line to the vertical axis, “Timer Setting In Minutes”, note the recommended treatment time.

![](image)

**Figure 3 - Recommended Treatment Time for Room Sizes**

**TREATMENT CYCLE**

1. When the treatment time has been determined, set the unit on a cleared table or on the floor in the center of the room to be treated. (Treatment is most effective when the unit is in the vertical center of the room and the ultraviolet rays are unobstructed.)
2. Post the warning sign(s) outside the entrance(s) to the area being treated and notify the appropriate persons that the area should not be entered until the disinfection cycle is complete.
3. Connect power to the unit and the red **POWER** indicator should light.
4. Remove the protective storage cover.
5. Set the required time using the **HOURS** and **MINUTES** up and down buttons. When the Treatment time is displayed correctly, the **START** button can be pushed. An audio alarm will start beeping and the power indicator light will flash as a warning.
6. Pressing the **START** button again will pause the timer and allow a change of the time settings if required. Push again to reset and restart the exit time.
7. Leave area quickly (within three minutes) to avoid ultraviolet exposure.
8. After the three minute exit period, the beeper will stop and the treatment time will commence.
9. At the start of the last remaining minute of the treatment time (when the treatment time indicates 00:00), the pulsing audible alarm and flashing light will start again and will stop when the treatment time ends.

![](image)

**Wear personal protection equipment; Gloves, long sleeve shirt with no gaps between cuffs and gloves and an ultraviolet blocking face shield must be worn to cover and protect eyes and all exposed skin.**

If it is necessary to re-enter the treatment area before the end of the treatment cycle, protective clothing, gloves and ultraviolet blocking face shield **MUST** be worn!

**NOTE:** Following the end of a treatment cycle, there is a delay of up to two minutes before a fresh treatment cycle can be started.
WARNING: Always disconnect power to the unit before performing any service or maintenance.

- The Germinator-UV is designed to operate with a minimal amount of maintenance. Occasional ultraviolet measurements should be made to ensure that germicidal ultraviolet intensities in the treated areas remain within the allowable exposure limits and above minimum levels.

- A regular cycle of cleaning, the germicidal lamp, should be established based on visual inspection and experience. The frequency of cleaning will vary with the conditions surrounding each installation. It is recommended that the germicidal lamp(s) and unit surfaces be cleaned at least once every three (3) months.

- The germicidal ultraviolet lamp(s) used in the Germinator-UV unit have a manufacturer’s rated average effective life of 13,000 hours. Lamps may operate longer than their rated effective life, but the reduction in ultraviolet output will make it impractical to use past the manufacturer’s rated life. For maximum efficiency lamp replacement is recommended every 13,000 hours of operation or about one (1) year of continuous use.

- Unless lamp replacement is due to failure or breakage, it is recommended that all lamps be replaced at the same time.

Personal protection equipment, such as gloves; long sleeves with no gaps between cuffs and gloves, and an ultraviolet resistant face shield, is required when entering the irradiated space.

LAMP INSTALLATION, REPLACEMENT OR CLEANING

WARNING: Always disconnect power, to the unit before performing any service or maintenance.

CAUTION: Germicidal lamps are easily damaged. Exercise care when handling lamps.

1. To remove lamps follow the steps in “Set-Up and Lamp Installation” on page 6 in reverse order.
2. Moisten a clean, lint-free cloth with denatured alcohol and wipe down the outer surface of the lamp.
3. When lamp has been removed and cleaned, then safely set aside, remove any loose dust or dirt from the interior of the unit with a soft dry cloth, or vacuum.
4. To reinstall lamps follow the steps in “Set-Up and Lamp Installation” on page 6.
5. Re-install the top cover and tighten the four thumbscrews.
6. Replace the storage cover and secure using the three latches.
7. Reconnect unit to utility power, and restart unit.

WARNING: Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.

8. Wear personal protection equipment then verify operation by viewing lamp(s). If the unit is not operating properly, go to “Troubleshooting” section.

BREAKAGE

CAUTION: Broken Quartz is SHARP.
Wear protective gloves when handling broken ultraviolet lamps.
In the event of breakage, DO NOT use a household vacuum cleaner to pick up fragments of the lamp. Sweep up debris into a plastic bag and dispose of properly.

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 http://www.lamprecycle.org. Product Data Sheets for germicidal ultraviolet lamps can be found in the “PDF Library for Ster-I-Ray® Germicidal Ultraviolet Lamps”.

**TROUBLE SHOOTING**

**WARNING:** Always disconnect power to the unit before performing any service or maintenance.

Wear personal protection equipment; Gloves, long sleeve shirt with no gaps between cuffs and gloves and an ultraviolet blocking face shield **MUST** be worn to cover and protect eyes and all exposed skin.

- **IMPORTANT:** This unit is to be serviced ONLY by qualified and factory authorized personnel.

**Table 1 - Troubleshooting**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germinator-UV not operating . . .</td>
<td>Power disconnected...</td>
<td>Check connections.</td>
</tr>
<tr>
<td></td>
<td>Fuse . . .</td>
<td>Remove power connector to check and replace fuse if necessary.</td>
</tr>
<tr>
<td>Lamp not operating . . .</td>
<td>Germicidal lamp fault...</td>
<td>Swap suspect lamp, with lamp known to be good. If suspect lamp does not operate, replace lamp.</td>
</tr>
<tr>
<td></td>
<td>Germicidal lamp not properly seated...</td>
<td>Check lamp socket and re-install lamp if necessary.</td>
</tr>
<tr>
<td></td>
<td>Loose Connection...</td>
<td>Inspect for loose or disconnected wires.</td>
</tr>
<tr>
<td></td>
<td>Ballast</td>
<td>Disconnect the fixture from utility power. Then replace ballast.</td>
</tr>
<tr>
<td>Germinator-UV fails to shut off . . .</td>
<td>Timer assembly faulty...</td>
<td>Wearing protective clothing and face shield, enter area, and disconnect power to unit. Call factory for technical service.</td>
</tr>
</tbody>
</table>

**TECHNICAL SPECIFICATIONS**

**Table 2 - Technical Specifications**

<table>
<thead>
<tr>
<th>Model:</th>
<th>40-5087A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts:</td>
<td>100-240V</td>
</tr>
<tr>
<td>Amps:</td>
<td>10A @ 120vac 5.2A @ 230vac</td>
</tr>
<tr>
<td>Hertz:</td>
<td>50/60Hz</td>
</tr>
<tr>
<td>Weight:</td>
<td>76 lbs.</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>Length: (Inches) 19 3/4”</td>
</tr>
<tr>
<td></td>
<td>Width: (Inches) 20”</td>
</tr>
<tr>
<td></td>
<td>Height: (Inches) 63”</td>
</tr>
<tr>
<td>Lamp Data:</td>
<td>Lamp Model: 05-0893</td>
</tr>
<tr>
<td></td>
<td>Number of Lamps: 8</td>
</tr>
<tr>
<td></td>
<td>Power Consumption: ① (Watts/Lamps) 120W</td>
</tr>
<tr>
<td></td>
<td>Ultraviolet Output: ② (Watts/Lamps)</td>
</tr>
<tr>
<td></td>
<td>Average Effective Life: (Hours) 13,000</td>
</tr>
</tbody>
</table>

① Wattage is lamp watts only and does not include ballast loss.
② Ultraviolet output at 254nm at 100 hours and 80°F (approximate).

All specifications, dimensional data, etc. are approximate and subject to change without notice.
OPTIONAL ACCESSORIES

Zenith™ Ultraviolet Meter
A sensitive, hand-held, ultraviolet meter; used to check the intensity of aging germicidal ultraviolet lamps.

The Zenith™ Part No. 30-0081 is the recommended meter for this application.

REPLACEMENT PARTS

Table 3 - Replacement Parts

<table>
<thead>
<tr>
<th>Item NO.</th>
<th>DESCRIPTION</th>
<th>120V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Germicidal Lamp</td>
<td>QTY</td>
</tr>
<tr>
<td>2</td>
<td>Ballast</td>
<td>PART NO.</td>
</tr>
<tr>
<td>3</td>
<td>Protective Storage Cover</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Power Cord</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Adjustable Headgear</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Face Shield</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Warning Sign 8.5” x 11”</td>
<td></td>
</tr>
</tbody>
</table>

Other replacement parts are available. Consult the MSEC for specific requirements.
USER ASSISTANCE

MSEC makes every effort to ensure that the Germinator-UV is a product of superior quality and workmanship. This manual describes the installation, operation and maintenance of the Germinator-UV. Please read and become familiar with the contents of this manual before installing or using this unit. If after reading the manual you still have questions, or concerns, regarding the installation or use of this unit, contact our office, weekdays between 8:30 am and 5:00 pm Central Time.

PRODUCT REGISTRATION

MSEC takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damage. Do not install damaged equipment. Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.

For your convenience, record the following information below. The model and serial number can be found on a label located on the Germinator-UV. Keep this manual, along with proof of purchase, handy when contacting our offices.

<table>
<thead>
<tr>
<th>Purchased From:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model:</td>
<td>Serial No.:</td>
</tr>
</tbody>
</table>

WARRANTY

We warrant that this product will be free from defects in material and workmanship for a period of one year from the date of shipment thereof or the product’s total rated life, whichever first occurs. Within the warranty period we shall repair or replace such products, which are returned to us with shipping charges prepaid, and which are determined by us to be defective. This warranty will not apply to any product, which has been subjected to misuse, negligence, or accident; or misapplied; or modified; or repaired by unauthorized persons; or improperly installed.

The Buyer shall inspect the product promptly after receipt and shall notify us at our main office in writing of claims, including claims of breach of warranty, within thirty (30) days after the Buyer discovers or should have discovered the facts upon which the claim is based. Failure of the Buyer to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person, for injury to person, damage to, or loss of property or value caused by any product which has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the MSEC be liable for any incidental, consequential or special damages, losses or expenses arising from the contract for this product, or in connection with the use of, or inability to use, our product for any purpose whatsoever.

PATENT NOTICE

No attempt has been made to determine the patent status of applications illustrated or described in this publication. Inclusion in this publication of any design or method of use, which may be patented, is not to be construed as promoting or sanctioning unauthorized use.