

# ACU-EVAC® IE

# ACU-EVAC® II



## OWNER/OPERATOR MANUAL

HIGH EFFICIENCY FILTRATION PARTICULATE, FUME AND SMOKE EVACUATOR

(DO NOT USE IN THE PRESENCE OF FLAMMABLE GASES)



Acu-Evac® model IE shown



**Acuderm®, Inc.**

TECHNICAL INFORMATION

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## ACUDERM INC<sup>®</sup>

***Congratulations on your purchase of the latest advancement in surgical smoke evacuation technology!***

### **IMPORTANT SAFETY INFORMATION!**

- **Intended Use :** This unit is designed for use in clinical, office and surgical environments.
- **Operator Qualifications:** The operator should be familiar with equipment commonly used in clinical and surgical settings.

**To ensure optimal performance and longevity, please follow these operating procedures:**

#### **1. Powering On:**

- a. Connect power cord to the main power switch (located at the back of the unit). Push in until fully connected.
- b. Plug the power cord into the power outlet.
- c. Turn the main power switch to ON.  
The Green light in front is now on. If you have purchased a footswitch, attach it to the back of the unit as shown in the drawing on page 23, Position the selector switch to ON.
- d. If you did not purchase a footswitch, turn the selector switch to OFF.
- e. Adjust the power level using the rotary switch.  
Start at a moderate setting (around 11 to 1 o'clock) adjust as the filter becomes full and suction decreases
- f. Use the footswitch to control the unit during operation. Avoid adjusting the rotary switch unless necessary.

#### **2. Powering Off:**

- a. Step on the footswitch to turn off the unit.
- b. Turn off the main power switch.

**NOTE:** The filter timer will not turn off until the main power switch is off.

- 3. Power-Down Recommendation:** It is recommended to power down the Acu-Evac<sup>®</sup> when not in use to conserve energy and prolong the life of the unit.

**Please refer to section 10 of this manual for detailed instructions and troubleshooting tips.**

## FOREWORD

Welcome to a growing family of satisfied Acuderm®, and Acu-Evac® product owners!

As a leader in High-Efficiency Surgical Smoke Evacuation, our goal is to engineer and manufacture safe, efficient, and high-quality products.

We are confident you'll find your new Acu-Evac® Surgical Smoke Evacuator meets this standard.

To achieve maximum efficiency this equipment must be properly maintained as described in this manual and not misused, neglected or abused.

**This manual provides essential information to ensure optimal performance and longevity of your Acu-Evac® Surgical Smoke Evacuator.**

The guidelines outlined here apply to all Acu-Evac® models.

**Before using your new Acu-Evac® unit, please take the time to carefully read this manual.**

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## OPERATION INSTRUCTIONS

### Intended Use

Acu-Evac<sup>®</sup> is designed to capture, collect, and filter surgical smoke generated during procedures involving electrosurgical devices, cautery, or lasers. This device helps mitigate visibility issues, respiratory inflammation, and potential health risks associated with surgical smoke.

### Operating Principles

Acu-Evac<sup>®</sup> employs a multi-stage filtration system:

1. **TX Nozzle:** A specialized nozzle captures smoke and directs it into the system.
2. **Pre-Filter:** A preliminary filter removes larger particles and blood droplets.
3. **Main Filter:** A high-efficiency ULPA filter and charcoal filter removes fine particulates, harmful gases and odors.

### Operating Procedure

#### 1. Power On:

- Plug the unit into a power outlet.
- Turn the main power switch to ON.
- Turn on the footswitch
- Adjust the airflow using the rotary knob. Start at a moderate setting and increase as needed.

#### 2. Nozzle Positioning:

- Position the TX Nozzle within 3 inches of the surgical site, considering room airflow
- For larger procedures , an assistant may be needed to reposition the nozzle as needed.

#### 3. Filter Monitoring:

**The timer board monitors filter usage and displays as:**

- Top flashing yellow light indicates the TIMER CLOCK is recording.
- Top yellow L.E.D. off and bottom yellow L.E.D. flashing after 15 hours.
- Both yellow flashing yellow lights indicates it's been 16 hours.
- Replace Main Filter if full ( see 4. Full filter Alert) and reset timer.
- Push reset button to start a new 16 hours timer cycle.

#### **4. Full Filter Alert:**

##### **Time to replace the Main Filter:**

- When the suction is interrupted and the motor starts whining (cycling ON and OFF) and the 2 yellow lights are flashing, check for obstruction at the Nozzle/Prefilter. If clear, your Main Filter is full and needs to be replaced before you can continue.

#### **Important Considerations**

- **Regular Filter Replacement:** Adhere to the recommended filter replacement schedule.
- **Keep new Main Filters** and TX Nozzle packs or LTX Nozzle packs available nearby for ease of replacement.
- **Proper Maintenance:** Clean the units regularly according to the manufacturer 's instructions
- **Operating Training:** Ensure operators are trained on proper use and maintenance procedures.

**By following these guidelines, you can effectively minimize exposure to surgical smoke and protect the health of both patients and healthcare workers.**

## 2. DESCRIPTION OF SYMBOLS AND NOTES



*"Operating instructions"*

---



*"Warning" notes alert the user to the possibility of personal injury.*

---



*"Caution" notes alert the user to the possibility of damage to the equipment.*

---



*"Notes" alert the user to the possibility of damage to the equipment.*

---



*"Electrical Hazard" DO NOT OPEN CABINET! No serviceable parts within unit.*

---



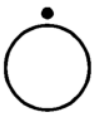
**BIOHAZARD** *"Biological Hazard" Use proper biohazard handling/disposal procedures*

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*TYPE BF APPLIED PART*

---



*"OFF" for part of the equipment TYPE BF APPLIED PART*

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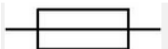
*"ON" for part of equipment*

---



*Protective earth (ground)*

---



*"Fuse"*

---



*"Dangerous voltage"*

---



*Single Phase*

---



*Do not tamper*

---



*Do not reuse*

---



*Manufacturing Date*

---



*Manufacturer*

---



*Foot Switch*

---



*Serial Number*

---



*Medical Device*

---



*Unique Device Identifier*

---



### 3. IMPORTANT INFORMATION

#### 3.1 MAIN FILTER



The Main Filter is designed to filter surgical smoke generated by electrosurgical units (Hyfrecator, Bovie, Ellman, etc.), cautery and laser (CO<sub>2</sub>, Erbium, etc.).

Under normal conditions the M-1 main is rated for up to 16 hours and the M-2 filter up to 32 hours (may be shorter with erbium lasers or longer depending on the amount of smoke captured).

When the filter becomes saturated, you will notice a significant drop in suction power. When the FULL filter alert is activated, the main filter needs to be replaced.

**Do not continue using a saturated filter**

#### 3.2 VACUUM HAZARDS



Acu-Evac<sup>®</sup> utilizes a powerful vacuum system. **Improper use can lead to serious injury.**

To minimize risk:

- **Never leave the nozzle unattended near a patient**
- **Start the unit gradually and bring the nozzle slowly towards the surgical site.**
- **Avoid placing the nozzle near eyes, ears, nose, or open wounds.**
- **Do not use the unit to suction liquids.**
- **Prevent the nozzle of hose from becoming blocked.**
- **Unplug the unit when not in use.**

**By following these guidelines, you can ensure the safe and effective operation of your Acu-Evac<sup>®</sup>**

### 3.3 PREVENTING OVERHEATING OR THERMAL SHUTDOWN



- **Clear Exhaust:** Ensure the exhaust grill is unobstructed
- **Filter Replacement:** Replace the filter promptly when the full filter alert is activated
- **Disposable Packs:** Use appropriate disposable packs for the procedure duration
- **Nozzle and Hose:** Keep the nozzle and hose free of obstructions.

**Keep a supply of TX Nozzle/Prefilter packs and Main Filter on hand to prevent disruptions.**

### IMPORTANT INFORMATION



### NO USER-SERVICEABLE PARTS

- Do not attempt to open or repair the unit
- Unauthorized modifications will void the warranty.



### Warning:

- Modifying the equipment without written authorization is strictly prohibited.



### Sealed Units:

- Acu-Evac<sup>®</sup> IE and II units are factory-sealed
- Opening or disassembling the unit will VOID the warranty

### Disclaimer:

- Acuderm<sup>®</sup> Inc. is not liable for damages, injuries, or death resulting from unauthorized use, modifications, or misuse of the product.
- Under any circumstances, Acuderm shall not be liable for damages in excess of the purchase price of the equipment.
- Always refer to this manual for proper operations and maintenance.

### 3.4 DISPOSABLES PROCEDURE



#### IMPORTANT WARNINGS

##### **PREFILTER/NOZZLE PACKS (TX PACK and LTX PACK):**

- **Proper disposal:** Must be disposed of as biohazardous waste according to OSHA regulations.
- **Do not disassemble:** Dispose the entire unit.

##### **MAIN FILTERS (M-1 & M-2)**

- **Proper Disposal:** Use the red plug supplied with each new Main Filter to plug the used Main Filter prior to disposal as biohazardous waste according to OSHA regulations.

##### **HOSE:**

- **Recommended replacement:** Replace the hose with each Main Filter replacement.
- **Proper Disposal:** Place the used hose in biohazardous waste bag in accordance with OSHA regulations.

##### **Acu-Evac® Smoke Evacuators (IE and II models):**

- **Continuous operation:** Designed for extended use.
- **Voltage:** 110-120V AC 50/60Hz or 220-240V AC 50/60Hz single phase (see section 3.7)

##### **Safety features:**

- Over-temperature protection
- Over-current protection
- Filter performance monitor
- High vacuum protection
- Non-flammable, non-conductive & non-corrosive cabinet.

##### **Key Safety Considerations:**

- **Proper disposal of biohazardous waste according to OSHA regulations**
- **Follow manufacturer's instructions for the Acu-Evac® units**
- **Regularly inspect and maintain equipment**
- **Be aware of potential hazards associated with surgical smoke and fumes.**

### 3.5 RECEIVING INSPECTION

This product has been packed and shipped in a special container for safe transit. Before removing the units from the shipping container inspect the container for possible damage. While removing the unit (from the shipping container and packing material) inspect the unit for possible damage. If any damage has occurred, contact both the appropriate shipping carrier and Acuderm<sup>®</sup>, Inc.

### 3.6 STORAGE

This unit can be stored in temperatures between 32°F (0°C) and 151°F (66°C) and the relative humidity is between 10% and 90%

**\*\*Save the shipping carton and packing material for any future shipping requirements.**

### 3.7 UNIT SUPPLIES (as needed)



Acu-Evac<sup>®</sup> comes equipped with a 10 ft. Hospital Grade Cord with an integral molded Hospital Grade 3 prong plug (110V – 120V models only).

#### 3.7.1 ACU-EVAC<sup>®</sup> WALL MOUNT STARTER PACKAGE INCLUDES:

- One of the following models:
  - Acu-Evac<sup>®</sup>IE-1 (110-120V)
  - Acu-Evac<sup>®</sup>IE-2 (220-240V)
  - Acu-Evac<sup>®</sup>II-1 (110-120V)
  - Acu-Evac<sup>®</sup>II-2 -(220-240V)
- 110 – 120V AC models only: Hospital Grade plug with a 10' Power Cord  
OR,  
220V- 240V AC models only: 10' Power cord with wires bare, must install Hospital Grade plug (not included)
- M-1 Main Filter
- 6' Hose
- TX Nozzles (5 of each)
- Wall Mount Kit (Bracket, 4 toggle bolts (8-32) 4 machines screws (8-32x2"), 1 Flat head screw

Optional accessories– Not included with Wall Mount Package but available for purchase:

- Pneumatic Footswitch
- Boom Arm

### 3.7.2 ACU-EVAC® CART MOUNT STARTER PACKAGE INCLUDES:

- All components listed in Wall Mount Package except Wall Mount Kit
- Cart Includes:
  - Cart Handle
  - Cart Base
  - 2 bolts (2 ½" x 3/8") and 2 nuts (3/8") for cart base
  - 2 bolts (2 ½" x ¼") and 2 wing nuts to attach unit to cart
  - 2 Brackets and 6 Screws – attaches to back of Acu-Evac® unit
  - E-surge bracket installed (for electrosurgical units such as Hyfrecator, Bovie, etc.) See cover picture
- Boom Arm
- Pneumatic Footswitch

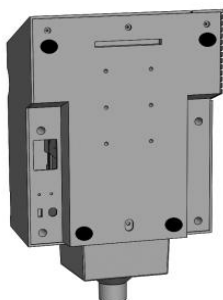


**Do not place Cart on an incline greater than 5 degrees, the cart may become overbalanced and fall over.**

### 3.7.3 ACU-EVAC® COUNTER MOUNT PACKAGE INCLUDES ONE OF THE FOLLOWING:

- All components listed in Wall Mount Package except Wall Mount Kit
- 4 Rubber adhesive pads – Affix to back of Acu-Evac® unit

**For countertop, use accessory “CTFEET”  
refer to the figure below for correct placement.**



LOCATIONS FOR CTFEET PLACEMENT

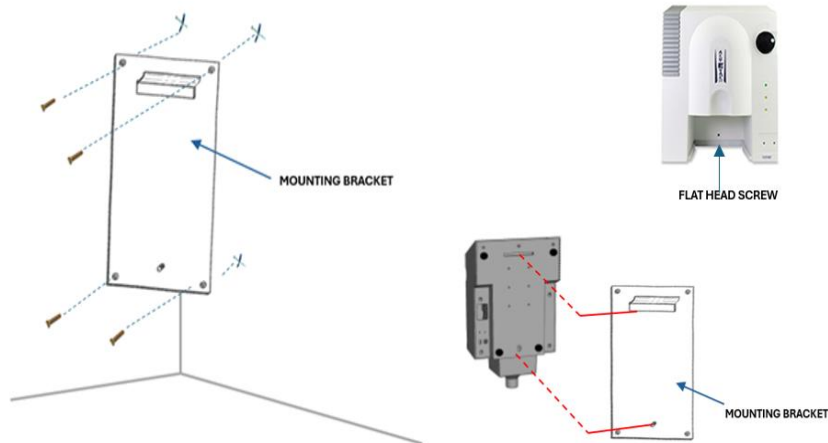
Optional accessories– Not included with Counter Mount Package but available for purchase:

- Pneumatic Footswitch
- Boom Arm



## 4. MOUNTING INSTRUCTIONS

### 4.1 WALL MOUNTING INSTRUCTIONS FOR DRY WALL



**Power Cord must be connected to the power input module (rear of enclosure) before hanging Acu-Evac® to wall mounting bracket.**

1. Using the mounting bracket as a template, use a level to position the bracket horizontally.
2. Mark the holes at center point with a pencil.
3. Using a power drill, drill a 3/8" hole at the center of each center point pencil mark. If you don't have a drill, hammer in a nail and then wiggle it around to make the hold larger. Remove the nail and continue to enlarge the hole with a screwdriver until the toggle will slide in.
4. Insert a 2" screw into one of the 4 holes of the wall bracket and then thread the spring loaded metal wings approximately 1/2" onto the bolt slightly so that the wings face the bolt head.
5. Fold the metal wings together and insert into the hole. Pull the bolt back toward you slightly so the expanded metal wings hit the back side of the wall and then slightly tighten the screw. The spring-loaded metal wings will now snap open.
6. Repeat the instructions above for the remaining 3 corners. Once the bracket is level and squared, tighten all screws.

7. Insert the power cord into the power input module in the Acu-Evac<sup>®</sup>. (located at the rear of the enclosure)
8. Hang the Acu-Evac<sup>®</sup> to the wall bracket.
9. Insert the 8-32 ½" flat head screw into the lower center hole of the mounting bracket and tighten fully.
10. Plug the power cord into the wall receptacle. Your Acu-Evac<sup>®</sup> is ready to use.

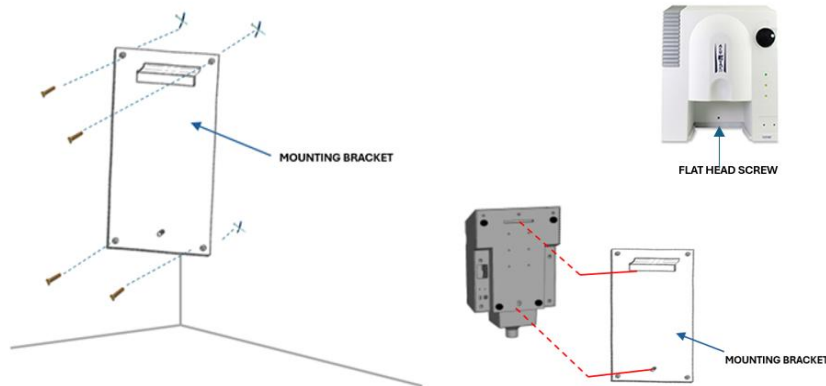
### **MATERIALS (Included)**

- 4 – 8-32 Toggle bolts
- 4 – 8-32 X 2" and Machine screws
- 1 – 8-32 ½" Philips Flat head machine screw
- 1 – Wall Mounting Bracket

### **TOOLS REQUIRED (Not included)**

- Pencil
- Level
- Philips or Standard Flat Screwdriver (as required for screws)
- Power Drill with 3/8" bit or hammer
- Eye Protection.

## **4.2 WALL MOUNTING INSTRUCTIONS FOR CONCRETE BLOCK WALLS**



1. Using the mounting bracket as a template, use a Level to position the bracket horizontally squared.
2. Mark the holes at center point with a pencil.
3. Using a power drill, drill a 3/8" hole at the center of each center point pencil mark.
4. Blow out the masonry dust from the holes and tap in an anchor with a hammer into each of the 4 holes.
5. Align the wall bracket to the anchors and screw in the screw to each of the four corners, tighten completely.

6. Insert the power cord into the power input module in the Acu-Evac<sup>®</sup> (located at the rear of the enclosure)
7. Hang the Acu-Evac<sup>®</sup> to the wall bracket.
8. Insert the 8-32 ½" flat head screw into the lower center hole of the mounting bracket and tighten fully.
9. Plug the power cord into the wall receptacle. Your Acu-Evac<sup>®</sup> is ready to use.

**MATERIALS (Included)**

- 1 – 8-32 ½" Philips Flat head machine screw
- 1 – Wall Mounting Bracket

**TOOLS REQUIRED (Not included)**

- 4 – lead masonry anchors
- 4 – 2" flat head screws
- Pencil
- Level
- Pliers or Channel Locks
- Philips or Standard Flat Screwdriver (as required for screws)
- Power Drill with 3/8" bit
- Hammer
- Eye Protection

#### **4.3 CART ASSEMBLY**

**MATERIALS (Included)**

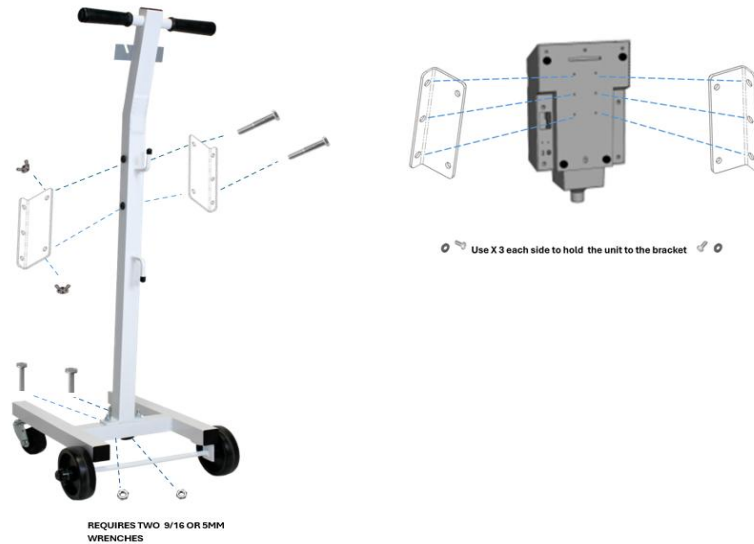
- 2 bolts (2-1/2" X 3/8") and 2 nuts (3/8") for cart base
- 2 bolts (2-1/2" X ¼") and 2 wing nuts to attach unit to cart
- 2 Brackets and 6 Screws – attaches to back of Acu-Evac<sup>®</sup> unit
- 1 – Wall Mounting Bracket

**TOOLS REQUIRED (Not included)**

- 2 – 9/16" Open Ended Wrenches
- 1 – Philips Screwdriver

1. Align right bracket to the 3 holes on the right side of the cabinet as shown in diagram below. Tighten 3 screws.
2. Align left bracket to the 3 holes on the left side of the cabinet. Tighten 3 screws.

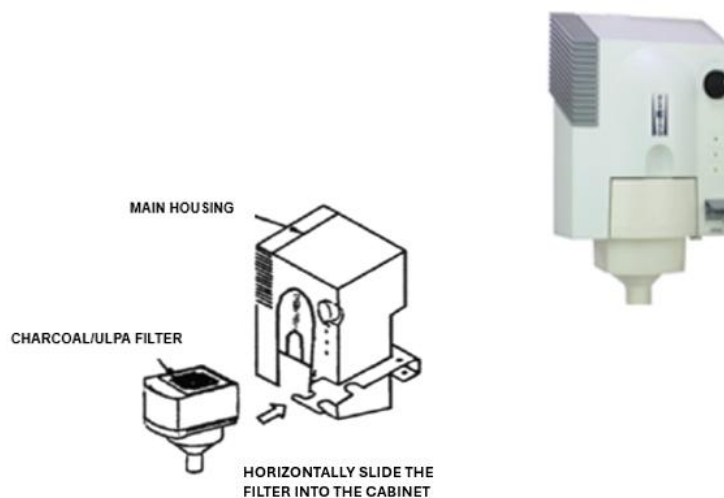




1. Align handle to cart base as shown.
2. Use two 9/16 Inch open end wrenches to secure cart handle to cart bottom, by using supplied two 2 1/2" X 3/8" bolts and two 3/8" nuts.
3. Attach the Acu-Evac<sup>®</sup> unit to cart by using supplied two 2 1/2" X 1/4" bolts and two 1/4" wingnut.

## 5. INSTALLATION

### 5.1 MAIN FILTER INSTALLATION



Power switch must be turned OFF before proceeding.  
 Prior to installing the new Main filter, remove the RED plug  
 Remove the used Main Filter from Unit  
 Place the RED plug in the used Main Filter (Discard in the biohazard bag or receptacle)  
 Slide the new Main Filter until it is completely inside the housing.



**NOTE: REMOVE RED PLUG FROM BOTTOM OF NEW MAIN FILTER PRIOR TO OPERATING ACU-EVAC®.** Failure to do so will render the unit inoperative and will result in overheating and possible motor damage.

Turn Power On

Press reset button once

The timer is now reset for 16 hours

The reset button is located on the bottom right side of the housing.



When the motor is whining (goes on and off) and the 2 yellow timer lights are flashing, this is an indication that the filter is FULL, or the nozzle is obstructed.

## 5.2 HOSE INSTALLATION



If the Main Filter requires replacement, the hose should be replaced

Slide the larger end of the hose into the Main Filter

The other end of the hose has a plastic connector to attach to the TX Nozzle or LTX Nozzle

### 5.3 PRE-FILTER/ NOZZLE INSTALLATION



Slide and rotate the round end of the TX Nozzle or LTX Nozzle onto the hose connector

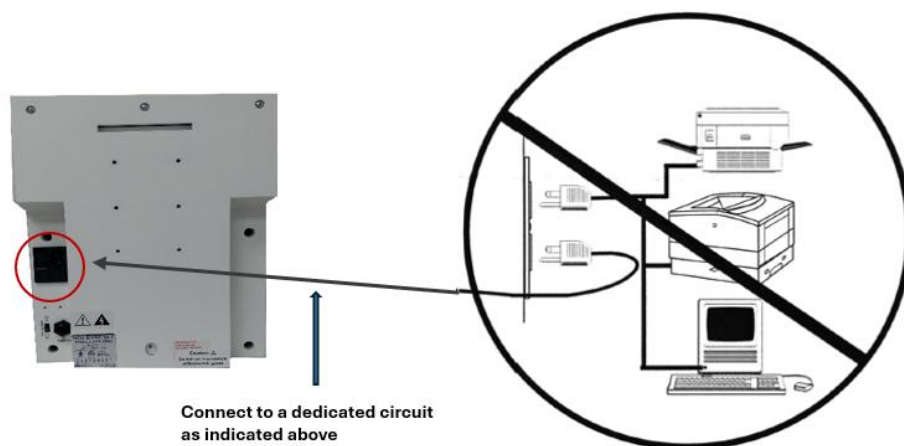
Your multi-stage filtration system is ready to use.

### 5.4 ELECTRICAL CONNECTION

Below is the electrical connection diagram for all Acu-Evac<sup>®</sup> models. The unit requires a dedicated outlet as follows;

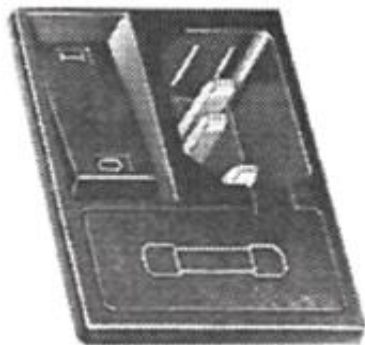
**Acu-Evac<sup>®</sup> IE - 1 and Acu-Evac<sup>®</sup> II - 1:** Requires connection to single phase  $\sim$  110 / 120V AC, 15 Amp outlets

**Acu-Evac<sup>®</sup> IE - 2 and Acu-Evac<sup>®</sup> II - 2:** Requires connection to single phase  $\sim$  220 / 240V AC, 20 to 30 Amp outlets.



## 6. CONTROLS AND OPERATION

All Acu-Evac<sup>®</sup> models have the same controls features listed below.



### Power ON/OFF Switch

The power on/off switch is located on the back of the enclosure.

Turns power to Acu-Evac<sup>®</sup> IE or II on and off.

Fuse Box containing two 7.0 amps fuses for 120V AC models or 4 amps for 240V AC models. See 7.2 page 25 for Fuse Replacement instructions.

(See Appendix III)

### 6.1 OPERATION POWER ON / OFF

The main power switch is located on the right side of the back of the enclosure, when looking at the unit from the front. The power switch is part of the power input module which contains the power cord receptacle and fuse module (See Appendix III). To Power On / Off unit please follow the steps below;

1. Turn Airflow Control to a minimum (around 8 o'clock).
2. Make sure that Main Filter and Necessary Accessories are installed.
3. Position Footswitch to OFF (see section 6.5)
4. Insert power cord into power input module, rear of enclosure (See section 5.4) insert male end into wall unit.
5. Push power switch to ON - Green indicator will light.
6. Slowly advance AIRFLOW CONTROL, check for airflow at end of TX nozzle. Set AIRFLOW CONTROL about mid-range for maximum smoke/plume capture.

For Footswitch see page 23.

## 6.2 RESET SWITCH AND INDICATORS



**POWER ON** - Green L.E.D. **ON**

**FILTER MONITOR** – Timer is ON. Top yellow L.E.D. flashing, bottom yellow L.E.D. **OFF**.

**LOW FLOW** - Top yellow L.E.D. OFF and bottom yellow L.E.D. flashing after 15 hours (1 hour before 16 hours timer is completed)

**REPLACE MAIN FILTER** – Both Top yellow L.E.D. and bottom yellow L.E.D. flashing indicating completion of 16 hours timer. Replace Main Filter and/or reset timer.

**AFTER MAIN FILTER REPLACEMENT** – Press and Hold **RESET BUTTON** to reset Timer to Zero for the next 16 Hours. The Green light will be ON and **FILTER MONITOR** yellow LED will be flashing.

**RESET BUTTON PRESSED** - both yellow L.E.D.'s on (green L.E.D. on)

**RESET BUTTON RELEASED** - both yellow L.E.D.'s off (timer reset to zero)

## 6.3 MAIN FILTER TIMER RESET SWITCH

The reset switch is used to reset Filter Monitor Timer to 00:00:00. Press reset when placing a new filter or to reset the clock to start a new 16-hour cycle.

When using an M-2 Filter, push the reset button to reset the timer to use the second portion of the filter. The M-2 Filter is a 32 hour filter (2 sets of 16 hours) which requires 1 timer reset after 16 hours to continue to the next 16 hour set. Mark the M-2 front label with an X in the empty second box.

## 6.4 AIRFLOW CONTROL

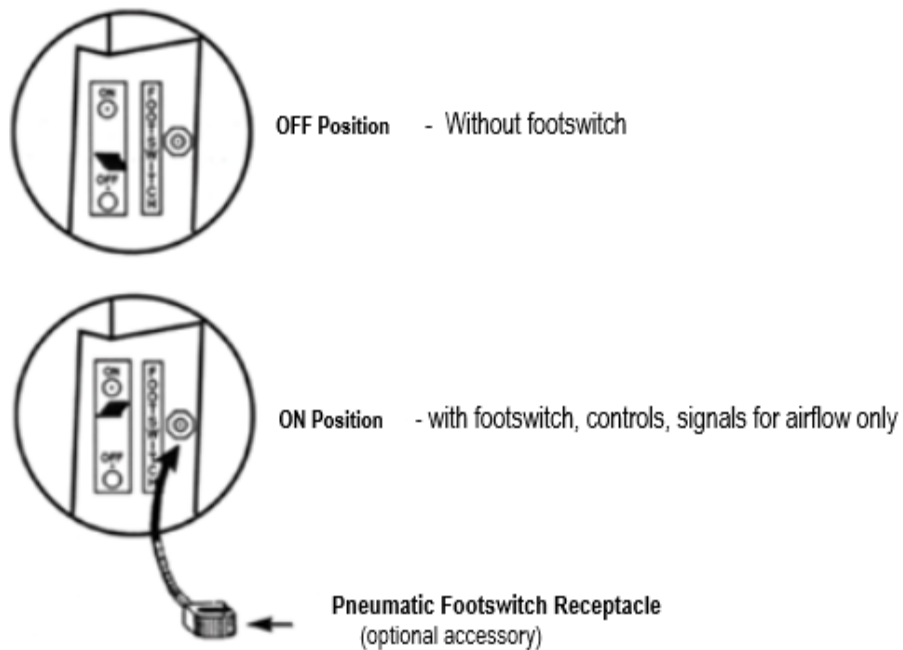


Clockwise (CW) Turn right Rotation increase airflow.

Counterclockwise (CCW ) turn left to decrease airflow.

Airflow Control should be set counterclockwise (turn left) for minimum airflow before turning on power. Power On and advance Airflow Control Slowly clockwise (turn right) while positioning TX nozzle at surgical site. Slowly advance airflow control clockwise until fumes and smoke plume are captured (evacuated) from surgical area.

## 6.5 PNEUMATIC FOOTSWITCH ON/OFF SELECTOR AND RECEPTACLE



## 6.6 OPTIONAL PNEUMATIC FOOTSWITCH

1. Position Selector Switch to the ON position. INSERT Footswitch tube into Footswitch Receptacle. (See section 6.5)
2. Press Footswitch to control the stop/start of airflow. The Filter Monitor Timer continues to run until the main power is turned OFF

**NOTE** ►

**THE FOOTSWITCH DOES NOT TURN OFF MAIN POWER AND DOES NOT STOP THE TIMER ON THE FILTER.**

## 7. ADDITIONAL INFORMATION

### 7.1 ELECTRICAL HAZARDS AND GENERAL SAFETY

To minimize the risk of fire, electric shock, or personal injury, it is imperative to adhere to fundamental safety precautions when operating electrical devices.



#### **Safety Precautions:**

- Carefully read all instructions before use.
- To prevent electrical shock, never immerse the cord plug, the Evac unit, or its disposable accessories into water or any other liquids.
- For optimal electrical and general safety, operate the Acu-Evac<sup>®</sup> only on clean and dry floors.
- Ensure the Acu-Evac<sup>®</sup> is connected to a properly grounded 3-prong receptacle and protected by the correctly rated circuit breaker or equivalent safety device.
- Avoid using any type of extension cord.
- Do not use 3-to-2 prong adapters for outdated 2-prong receptacles. Such receptacles should be replaced by a qualified electrician to ensure safety compliance.



#### **Operational and Safety Guidelines:**

- Never use the Acu-Evac<sup>®</sup> to suction liquids of any kind
- Do not operate the unit outdoors.
- Ensure the power cord is carefully routed to prevent it from being damaged by wheels, casters, slides, or any other appliances or fixtures. The same precaution applies to the footswitch, cord, and tubing.
- Unplug the unit when not in use.
- Regularly inspect the hospital-grade power cord for signs of damage, including nicks, cuts, breaks in the jacket, or exposed conductors.
- If the power cord or plug is damaged immediately cease using the unit and contact 1-800-327-0015 (available in the USA) or +1(954)733-6935.





### Warnings:

- Never attempt to open sealed Acu-Evac<sup>®</sup> cabinet, as it contains no user-serviceable components.
- Opening the cabinet will immediately void the warranty.
- Acuderm<sup>®</sup>, Inc. assumes no liability for damages, injuries or death resulting from unauthorized actions such as opening the cabinet, tampering with the unit, misuse, abuse, or failure to follow the recommended usage instructions.

## 7.2 FUSE REPLACEMENT



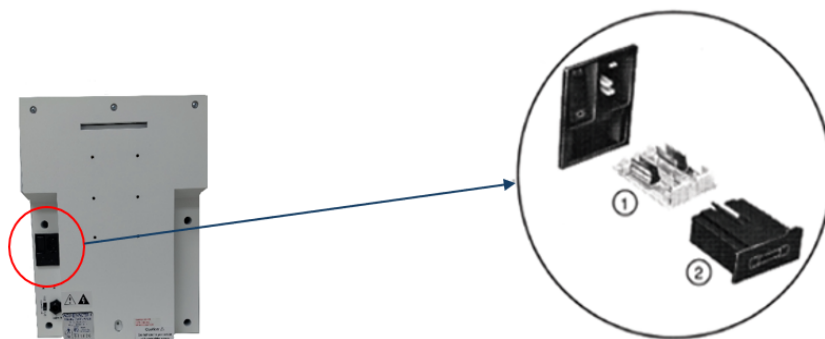
Turn power off and remove line cord from receptacle.

For all Acu-Evac<sup>®</sup> models, both fuses should be checked as shown below. As above, be certain Acu-Evac<sup>®</sup> is unplugged before performing any maintenance.

Acu-Evac<sup>®</sup> IE-1 and Acu-Evac<sup>®</sup> II-1 is protected by two Slo-blo<sup>®</sup> fuses (type MDL, 1/4" x 1 1/4") rated 7.0 amps, for 120V AC, 50/60Hz (U.S.A.).

Model Acu-Evac<sup>®</sup> IE-2 and Acu-Evac<sup>®</sup> II-2 is protected by two Slo-blo<sup>®</sup> fuses (type MDL, 1/4" x 1 1/4") rated 4.0 amps for 240V AC, 50/60Hz

If the unit fails to operate, operate, the Acu-Evac<sup>®</sup> may require factory service (Call 1-800-327-0015 or +1(954)733-6935 for further instructions).



REMOVE FUSE CARTRIDGE FROM UNIT. (2)

REMOVE THE FUSE HOLDER FROM CARTRIDGE.  
INSERT FUSES (7.0 AMP FOR 110/120 Vac OR 4 AMP FOR 220/240 Vac) INTO FUSE HOLDER

INSERT FUSE HOLDER BACK INTO THE UNIT ACCORDINGLY



Dual voltage models have both voltages listed on the rating plate. DO NOT attempt to convert a unit from rating on the name plate



### 7.3 MAIN FILTER MONITOR



**POWER ON** - Green L.E.D. **ON**

**FILTER MONITOR** – Timer is ON. Top yellow L.E.D. flashing, bottom yellow L.E.D. **OFF**.

**LOW FLOW** - Top yellow L.E.D. OFF and bottom yellow L.E.D. flashing after 15 hours (1 hour before 16 hours timer is completed)

**REPLACE MAIN FILTER** – Both Top yellow L.E.D. and bottom yellow L.E.D. flashing indicating completion of 16 hours timer. Replace Main Filter and/or reset timer.

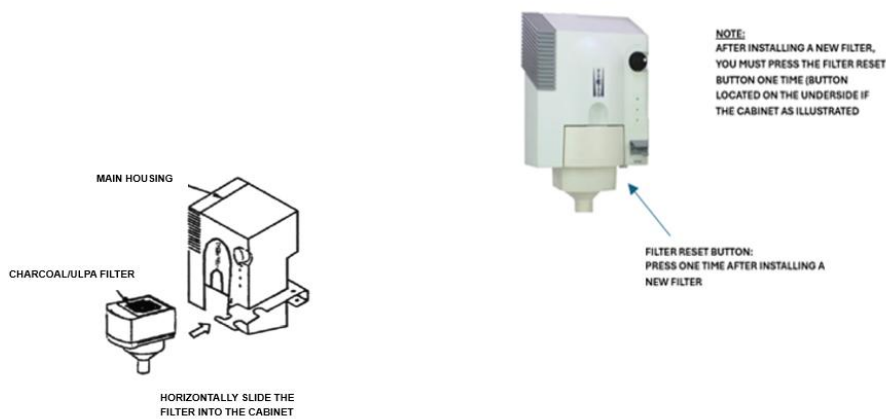
**AFTER MAIN FILTER REPLACEMENT** – Press and Hold **RESET BUTTON** to reset Timer to Zero for the next 16 Hours. The Green light will be **ON** and **FILTER MONITOR** yellow LED will be flashing.

**RESET BUTTON PRESSED** - both yellow L.E.D.'s on (green L.E.D. on)

**RESET BUTTON RELEASED** - both yellow L.E.D.'s off (timer reset to zero)

## 7.4 MAIN FILTER REPLACEMENT

With unit in the OFF position, install a new main filter as follows.



1. Remove the red plug from the new Main Filter. **DO NOT DISCARD.**
2. Turn the unit OFF, and power the unit down before proceeding.
3. Remove the expired main filter by pulling the main filter straight out of the cabinet, similar to opening a drawer.
4. Use the red plug from the new Main filter and insert it to the bottom of the expired filter
5. Dispose the expired filter in accordance with OSHA's Universal Bloodborne Pathogen Standards.
6. Install the new filter into the main cabinet, ensure the front face of the main filter is flush with the adjacent surfaces on the cabinet face.



### Spare Filters Recommendation

It is always recommended to keep at least two new spare Main Filters on hand for each Acu-Evac® unit. Call 1-800-327 -0015 to re-order.

When using the Acu-Evac with Erbium: Yag lasers, the lifespan of the Main Filter may be reduced by up to half, resulting in a lifespan shorter than 16 hours.

### Clogged filter indication.

In the event that the main filter becomes clogged prior to the activation warning L.E.D, the motor will cycle on and off in cycles of approximately 10 seconds. This cycle behavior is an indication that the main filter is clogged and requires replacement.

Replace clogged filters following instructions detailed in section 7.4

## 8. UNIT MAINTENANCE

### 8.1 MAINTENANCE

In addition to the regular replacement of disposable products (section 3.4) and cleaning (section 8.3), the only ongoing maintenance required is periodic unit inspection as detailed below:

1. Power Cord - Acu-Evac<sup>®</sup> is equipped with a special low-leakage Hospital Grade Cord featuring a Hospital Grade molded plug.
2. Periodically inspect the power cord for
  - Cuts in the jacket,
  - Exposed wires,
  - Frayed insulation,
  - Damage to the plug.

**Note:** The plug may be damaged by pulling out the plug out of the socket by the cord or if excessive sideways pressure is applied to the cord while plugged in.

#### Foot Switch and Tubing Inspection

Regularly inspect the foot switch and tubing for any signs of damage.



#### Acu-Evac<sup>®</sup> Cabinet Guidelines and Warranty Information

Acu-Evac<sup>®</sup> cabinets are specially sealed at the factory at time of manufacture. There are no user-serviceable parts inside the cabinet.

All units that have been opened by anyone other than Acuderm<sup>®</sup>, Inc. or its authorized facilities immediately forfeit any warranty.

Acuderm<sup>®</sup>, Inc. is not liable for damages, injury, or death as a result of unauthorized use, disassembly, tampering, or use other than that implied or expressed within this manual, by Acuderm, Inc. or any of its authorized representatives.

## 8.2 INSPECTION GUIDELINES FOR ACU-EVAC® EQUIPMENT

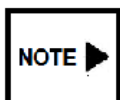
**Prior to use with each patient, make sure that Acu-Evac® is equipped with proper disposables.**

1. **Main Filter** - verify that the Main Filter is within its 16-hour service life (look for the green indicator light or the combination of yellow and green light indicators.)
2. **TXPACK / LTXPACK** - Confirm that a new procedure pack (TXPACK or LTXPACK) is installed per instructions outline in sections 5.2 and 5.3.
3. **Suction Test** - turn the Acu-Evac® unit on for a few seconds to check for adequate suction performance.
4. **Boom Arm** - for procedures requiring the Boom Arm is used, ensure the hose and nozzle assembly are secured within the hook-and-loop bindings.
5. **Foot switch** – if the foot switch is utilized, cycle it on and off once prior to starting the procedure to assure it is operating properly.

## 8.3 CLEANING / MAINTENANCE GUIDELINES FOR ACU-EVAC HOUSING AND COMPONENTS

Acu-Evac® should be included in the same regular regimen for cleaning as other in the room or area where it is being used.

Acu-Evac® should be cleaned with each filter change.



**Acu-Evac housing** is made of a non-corrosive, non-conductive, non-flammable material and finished with a hard-baked paint finish.

Clinics and hospitals are advised to follow their normal disinfection protocol with cleaning agents, never use:

- Chlorine bleach
- Sodium hypochlorite
- Mineral spirits which may dull the painted finish.

This same directive applies to cleaning the dual cart and boom arm. Cleaning solvents should not be sprayed directly on to electrical parts including the power switch and rotary airflow knob.

The main filter cannot be cleaned and should be replaced when the light indicates it is time to replace the filter.

## 9. ORDERING INFORMATION

**Acuderm® , Inc.**

**TOLL-FREE TECHNICAL INFORMATION:**

**1-800-327 -0015**

Direct : (954) 733-6935 • Fax : (954) 252-4264 • E-Mail : cust-service@acuderm.com  
6555 Powerline Road, Suite 114, Ft. Lauderdale, FL 33309 USA

### 9.1 RECOMMENDED SPARE PARTS AND ACCESSORIES PARTS LIST

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CAT #             | Size | Quantity  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------|-----------|
| <b>M1 Main Filter</b> - Consists of a charcoal/odor filter and ULPA filter rated 99.99997% efficiency on particles 0.01 micron and 0.12 microns MPPS. Each filter has been tested and certified to be free of leaks at time of shipment. Seal used filter with red plug for easy disposal. Normal use filter life: 16 hours except for erbium smoke - discard after 16 procedure hours (using one LTX for each procedure) or when vacuum switch alert indicates full filter. 6" W X 8.5" H X 7.25" D                  | <b>M1- Filter</b> |      | Each      |
| <b>M2 Hospital/Office Filter</b> - Consists of a charcoal/odor filter and an ULPA filter - rated 99.99997% efficiency on particles 0.01 micron and 0.12 microns MPPS. Each filter has been tested and certified to be free of leaks at time of shipment. Seal used filter with red plug for easy disposal. Normal Use Filter life: 32 hours except for Erbium smoke -Discard after 32 procedure hours (using one LTX for each procedure) or when vacuum switch alert indicates full filter. 6" W X 11.5" H X 7.25" D. | <b>M2- Filter</b> |      | Each      |
| <b>TX™ Nozzle Pack</b> - Includes TX Nozzle, preliminary filter 8" hose section assembly connects to Hose. Intended for short procedures of up to 15 minutes duration.                                                                                                                                                                                                                                                                                                                                                | <b>TXPACK</b>     | 8"   | Box of 25 |
| <b>LTX™ Nozzle Pack</b> - Includes TX Nozzle, preliminary filter 18" hose section assembly connects to Hose. Intended for long duration procedures of up to 1 hour.                                                                                                                                                                                                                                                                                                                                                   | <b>LTXPACK</b>    | 18"  | Box of 16 |
| <b>Hose</b> - 6 feet long X 1.3" diameter with connector for use with TXPACK or LTXPACK listed above                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>HOSE</b>       | 6"   | Each      |
| <b>Hose Connector</b> - connects TX pack or LTX pack to hose                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>HOSECON</b>    | 2.5" | Each      |
| <b>Boom Arm</b> - Flexible boom arm holds hose and nozzle in place for handsfree operation, easily affixed to ACU-EVAC unit. Adjustable. Not intended for use with lasers over large surfaces.                                                                                                                                                                                                                                                                                                                        | <b>ARM</b>        | 36"  | Each      |
| <b>Foot Switch</b> - Pneumatic foot switch provides convenient ON-OFF control of Acu-Evac                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>PFTSW</b>      |      | Each      |
| <b>Wall Mount Bracket</b> - For mounting Acu-Evac IE or Acu-Evac II to a wall                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>EWMB</b>       |      | Each      |
| <b>Cart</b> - Provides portability and convenience, Unit has four wheels, two of which swivel. Isolated from vibration. Balanced proportioning and robust "Euro-Style" grips for superb handling.                                                                                                                                                                                                                                                                                                                     | <b>DUALCART</b>   |      | Each      |
| <b>Cart Bracket</b> - for mounting Hyfreator or Bovie units.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>CMB</b>        |      | Each      |
| <b>Rubber Feet</b> - For Countertop / Tabletop                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>CTFEET</b>     |      | Each      |
| <b>Fuse</b> - Fuse type MDL 1/4" X 1 -1/4" rated 7 amps 120vac models. For Acu-Evac® IE-1 and Acu-Evac® II-1                                                                                                                                                                                                                                                                                                                                                                                                          | <b>OEI-MAP066</b> |      | Each      |
| <b>Fuse</b> - Fuse type MDL 1/4" X 1 -1/4" rated 4 amps 240 vac models. For Acu-Evac® IE-2 and Acu-Evac® II-2                                                                                                                                                                                                                                                                                                                                                                                                         | <b>OEI-MAP065</b> |      | Each      |

## 10. TROUBLESHOOTING

If you should encounter a problem or malfunction with your Acu-Evac® always check the trouble-shooting chart below to see if there is something you can do to resolve the problem before calling for service.

To use the chart first find the problem listed in the column at the left of the chart. Note the possible causes in the center column (which are most likely to occur) and follow the procedures outlined in the right hand column for a remedy to the problem.

If the problem you are having is not listed, or after trying the remedies listed and your problem still exists, call the factory at 1-800-327-0015 or 954-733-6935.

### 10.1 TROUBLESHOOTING TABLE

| PROBLEM                                             | ASK QUESTION                                          | YES/NO | POSSIBLE CAUSE                                                                        | SOLUTION                                                                                                              |
|-----------------------------------------------------|-------------------------------------------------------|--------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Unit will not run                                   | Is the Green POWER ON LED on?                         | YES    | Foot Pedal Selector is in the wrong position                                          | If you are using Pneumatic Foot Pedal, make sure the Selector Switch is ON                                            |
|                                                     |                                                       | YES    | Internal Failure                                                                      | Stop. Call factory                                                                                                    |
|                                                     |                                                       | NO     | Power Cord unplugged                                                                  | Check the power cord to be sure the cord has not been accidentally unplugged or partially pulled from the receptacle. |
|                                                     |                                                       | NO     | Blown Fuse                                                                            | Check Fuses. (See page 25 (7.2 Fuse Replacement))                                                                     |
| Running but no airflow or low airflow               | Is the Air Flow Control knob set to minimum?          | YES    | Operator Error                                                                        | Increase the air flow by turning the knob clockwise (turn right)                                                      |
|                                                     |                                                       | NO     | TX/LTX Filter and/or main filter clogged                                              | Replace TX/LTX Filter. If the problem persists, replace the Main Filter                                               |
| Motor ON-OFF, Yellow LED (Replace Filter) flashing. | Is the Main Filter replaced after 16 operation hours? | YES    | Airflow restricted due to clogged hose or TX/LTX filter                               | Check Hose and replace the TX/LTX Filter                                                                              |
|                                                     |                                                       | NO     | Airflow restricted due to clogged hose or TX/LTX filter. Possibly Main Filter is FULL | Replace Main Filter. Check the hose and replace the TX/LTX filter if necessary.                                       |

## **11. WARRANTY**

### **LIMITED WARRANTY**

**Acu-Evac® II      Acu-Evac® II-1      Acu-Evac® II-2**

**Acu-Evac® IE      Acu-Evac® IE-1      Acu-Evac® IE-2**

Acuderm®, Inc. warrants its smoke evacuator and accessories to the original purchaser to be free from defective materials and workmanship. Under this warranty the product will be repaired or replaced, at our option, without charge for parts or labor when returned to Acuderm®, Inc. 6555 Powerline Road, Suite 1114, Ft. Lauderdale, FL 33309 or another location as we may determine.

This warranty does not apply to cosmetic defects nor to any product whose exterior has been damaged or defaced, not to any product subjected to misuse, abnormal service or handling, nor to any products which have been opened, altered, or repaired by other than Acuderm's Service Center.

The period of this warranty covers 2 years on parts and labor from date of purchase.

This warrant entitles the original purchaser to have warranted parts and labor rendered at no cost for the period of the warranty described above when the product is carried or shipped, prepaid, to Acuderm's Service Center together with the proof of purchase.

The limited warranty set forth herein covers only those defects that arise as a result of the normal use of the product and does not cover any other problems, including but not limited to, arising as a result of:

- a. improper maintenance
- b. modified operation outside of or inconsistent with equipment specifications.
- c. unauthorized use or modification of the equipment

Acuderm Inc. is not obligated or required to repair, replace or refund unless and until Customer returns the defective product to Acuderm, Inc.

### **LIMITATIONS OF WARRANTY**

TO THE EXTENT ALLOWED BY LOCAL LAW NEITHER ACUDERM, INC. NOR ITS THIRD PARTY SUPPLIERS MAKES ANY WARRANTY OR CONDITION, EXCEPT AS SPECIFICALLY SET FORTH HEREIN, OF ANY KIND, WHETHER EXPRESS OR IMPLIED, WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY OR FITNESS FOR A PARTICULAR PURPOSE.



## LIMITATIONS OF LIABILITY

To the extent allowed by local law the remedies provided in the Warranty Statement are the customers sole and exclusive remedies.

TO THE EXTENT ALLOWED BY LOCAL LAW, EXCEPT FOR THE OBLIGATIONS SPECIFICALLY SET FORTH IN THIS WARRANTY STATEMENT, IN NO EVENT SHALL ACUDERM OR ITS THIRD PARTY SUPPLIERS BE LIABLE FOR SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT TORT OR OTHER LEGAL THEORY AND WHETHER ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THIS SHALL BE THE EXCLUSIVE WRITTEN WARRANTY OF THE ORIGINAL PURCHASER AND NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY EXPRESSED OR IMPLIED, SHALL EXTEND BEYOND THE PERIOD OF TIME LISTED ABOVE.

**MADE IN THE U.S.A.**



**ACUDERM® INC.**

**6555 Powerline Road Suite 114, Fort Lauderdale, FL 33309 USA  
1-(800) 327-0015 • FAX: (954) 252-4264 \* Email: [cust-service@acuderm.com](mailto:cust-service@acuderm.com)**

## **APPENDIX I**

### **TECHNICAL DATA** (TYPE BF CLASS I)

#### **Acu-Evac® IE**

#### **CERTIFICATIONS**

Model Acu-Evac® IE-1 certified to IEC 60601-1, and certified to ISO 13485:2016 MDSAP

Model Acu-Evac® IE-2 certified to IEC 60601-1, and certified to ISO 13485:2016 MDSAP

#### **ELECTRICAL RATING**

Model Acu-Evac® IE-1 = 110 -120 V AC, 50/60 Hz at 7.0 amps, 840 Watts

Model Acu-Evac® IE-2 = 220 -240 V AC, 50/60 Hz at 4.0 amps, 960 Watts

#### **Fuses**

110V: 7A/250V AC Slo-Blo® fuse

220V: 4A/250V AC Slo-Blo® fuse

#### **CORD/PLUG**

Hospital Grade

#### **SIZE**

11.5 " W X 15.5" H X 6.6" D

#### **SHIPPING WEIGHT**

16.6 lbs (7.5 kg.)

#### **OPERATION**

0°C (32°F) to 50°C (122°F)

#### **STORAGE**

0°C (32°F) to 66°C (150°F)

#### **NOISE**

<50db at 2 meters @ max.

#### **AIR FLOW CONTROL**

1 cfm to MAX

#### **AIR VELOCITY**

≥11,000 fpm with a 1.3" nozzle I.D.

#### **CFM**

>100 cfm (1.3" hose)

#### **MATERIALS**

Non-conductive/Non-corrosive G.E. Noryl fn 215 resin L94V-0

#### **WARRANTY**

2 year full warranty parts and labor

## **Acu-Evac® II**

### **CERTIFICATIONS**

Model Acu-Evac®II-1 certified to IEC 60601-1, and certified to ISO 13485:2016 MDSAP

Model Acu-Evac®II-2 certified to IEC 60601-1, and certified to ISO 13485:2016 MDSAP

### **ELECTRICAL RATING**

Model Acu-Evac®II-1 = 110 -120 V AC, 50/60 Hz at 7.0 amps, 840 Watts

Model Acu-Evac®II-2 = 220 -240 V AC, 50/60 Hz at 4.0 amps, 960 Watts

### **Fuses**

110V: 7A/250V Slo-Blo® fuse

220V: 4A/250V Slo-Blo® fuse

### **CORD/PLUG**

Hospital Grade

### **SIZE**

11.5 " W X 15.5" H X 6.6" D

### **SHIPPING WEIGHT**

16.5 lbs (7.5 kg.)

### **OPERATION**

0°C (32°F) to 50°C (122°F)

STORAGE

0°C (32°F) to 66°C (150°F)

NOISE

<50db at 2 meters @ max.

### **AIR FLOW CONTROL**

1 cfm to MAX

### **AIR VELOCITY**

≥8,200 fpm with a 1.3" nozzle I.D.

CFM

>62 cfm (1.3" hose)

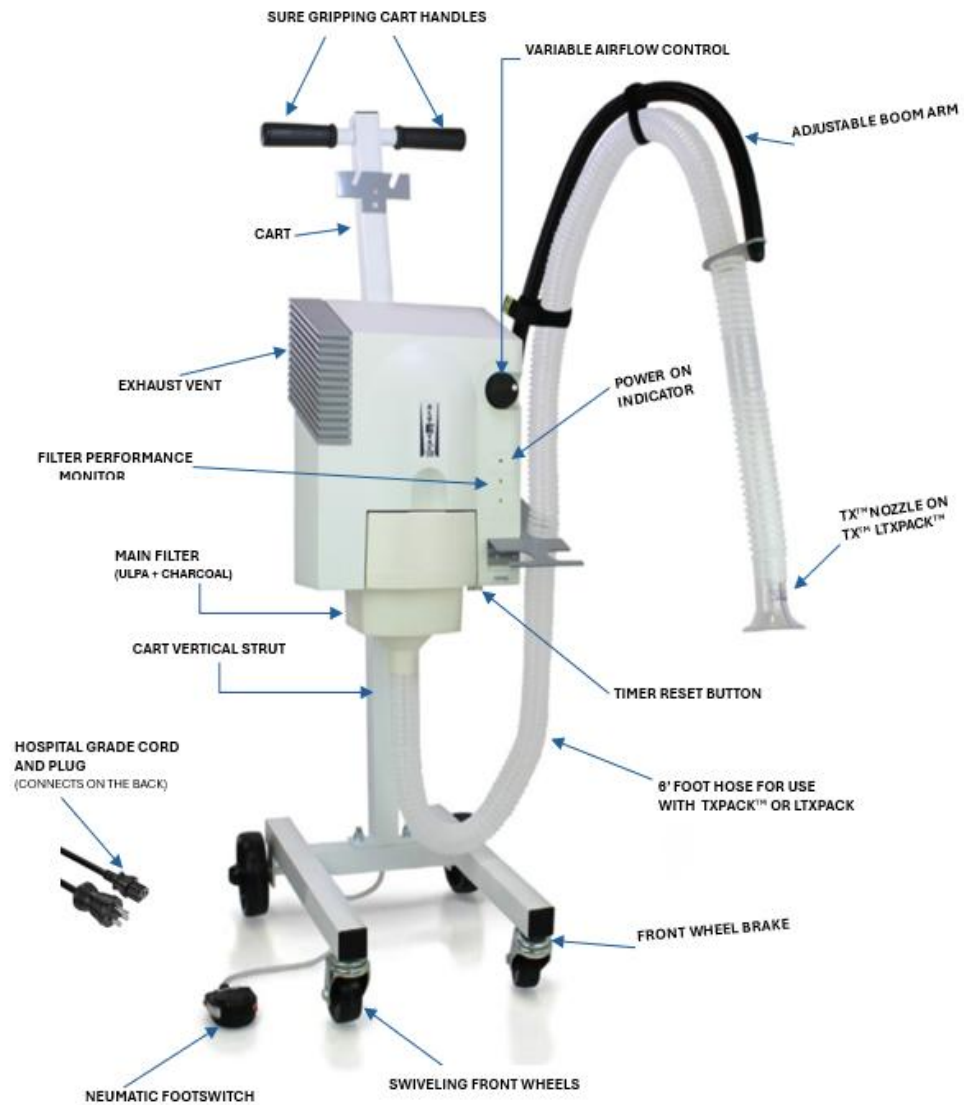
### **MATERIALS**

Non-conductive/Non-corrosive G.E. Noryl fn 215 resin L94V-0

### **WARRANTY**

2 year full warranty parts and labor

## APPENDIX II FRONT ENCLOSURE CONTROL LOCATIONS



### APPENDIX III

#### Back Enclosure Controls Location Unit Markings



#### NOTE ►

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