



## **FA1-Mini Air Filtration System**

### **Operations Manual**

#### **READ AND SAVE THESE INSTRUCTIONS**

**WARNING:**



Disconnect from power supply before performing maintenance procedures such as cabinet cleaning, changing filters or servicing of electric motor or other electric components

**WARNING:**



To reduce the risk of fire or electric shock, do not use this fan with any solid-state speed control device.

**WARNING:**



For general ventilating use only. Do not use to exhaust hazardous or explosive materials or vapors.

**WARNING:**



Use only a 10-Amp fuse.

**CAUTION:**



Do not operate without having all filters in place.

Do not operate any fan with a damaged cord or plug. Discard fan or return to an authorized service facility for examination and/or repair.

Do not run cord under carpeting. Do not cover cord with throw rugs, runners or similar coverings. Arrange cord away from traffic area and where it will not be tripped over.

# **GETTING STARTED**

## **Initial set-up**

1. Open all cartons and locate inlet, hose, hose clamps and wheels. Refer to Table 1 for the applicable part numbers for your model.
2. Remove ALL filters and packing materials from cartons and the unit cabinet.
3. Place the unit on its side and install wheels in the bottom plate.
4. Attach the inlet to the top of the lid with the six screws provided.
5. Remove plastic wrap from gas/odor filter.
6. Carefully remove perforated cardboard from top and bottom of FA101D filter to expose “Green” media.
7. Place FA101D gas/odor filter into bottom of cabinet (NOTE: Pay attention to direction of airflow arrow).
8. Place FA100-2 HEPA filter on top of gas/odor filter (NOTE: Pay attention to direction of airflow arrow).
9. Place the FA102 panel filter on top of the HEPA filter (NOTE: Pay attention to direction of airflow arrow).
10. Place the FA103 pre-filter on top of the panel filter.
11. Close and latch the lid.
12. Attach power cord to the power receptacle located on the lower rear of the cabinet.

## **Locating the air cleaner**

Placing the FA1-Mini unit as close as possible to the pollution source reduces the amount of ducting needed, reduces back-pressure, lowers power consumption, and improves overall performance. Placement should minimize hose length and the number of bends. Use capture hoods with high efficiency entry whenever possible. The unit exhausts through the bottom panel make sure to allow for adequate ventilation.

## **Inlet hose attachment**

The FA1-Mini units ship standard with a 1 x 2”, 2 x 2” or 1 x 3” inlet. Attach flex hose over the metal air inlet tube and tighten securely with the stainless-steel clamp. Connect the hose to a Fumex suction hood or place as close as possible to the pollution source.

## **Electric power**

FA1-Mini is manufactured with a universal blower/motor assembly (90-250/1/50-60) and must only use a 10-Amp fuse. Default power cord/plug is US (120V). Contact Fumex for additional information or options.

***Confirm that correct power supply is available.***

# CONTROLS

## On/Off Switch

Simple one touch controls – The green light above the POWER button will illuminate confirming power to the unit.

## Blower/Fan

The FA1-Mini utilizes a variable speed blower with three speed settings. Press the up and down arrow buttons to increase/decrease blower speed. A green light next to the specific speed (Low, Med, or High) will indicate speed setting. In the case of a blower failure, all 3 blower speed lights will flash. To reset the blower's internal thermal protection, disconnect the unit momentarily from its power source and reconnect. If the lights continue to flash contact Fumex LLC. for replacement information.

## Filter monitoring

The FA1-Mini utilizes a pressure differential switch to monitor the status of the particulate filters. The system monitors across all filters simultaneously and the Red "FILTER" light will illuminate when one or more filters need to be replaced. The recommended procedure is to first replace the Pre-Filter and then press the "FILTER RESET" button. If the light remains illuminated or turns off and comes back on then replace the HEPA filter and press the "FILTER RESET" button.

The FA1-Mini contains a VOC sensor to detect odors/gases in the exhaust stream. When the gas/odor filter becomes saturated and breakthrough of the VOC occurs the "GAS" warning light will illuminate.

# GENERAL FILTER CARE

Fumex's FA1-Mini air purifier features a multi-stage filtration system designed to remove a wide range of pollutants from the process plume in an extremely efficient, cost-effective manner. The system utilizes a pressure differential switch to indicate blocked / clogged filters. Once the warning lights illuminate, filters should be checked and clogged filters replaced.

## **STANDARD FILTERS:**

### Part # FA102 Pleated Panel Filter

Pleated panel filters are merv 11 efficiency for use in removing particles as small as 10 $\mu$  from the pollution stream. Particles of this size are respirable and can cause respiratory problems in concentrations exceeding OSHA mandated levels.

#### *Replacement:*

A pleated panels' service life is determined by the volume of particles remaining in the air stream after passing through the polyester pre-filter. When properly protected by the pre-filter, and depending on loading, pleated panel filters service life is 4-6 weeks.

### **Part # FA103 Pre-Filter**

The disposable polyester pre-filter is the first stage of the filtration process. Its main function is to remove dust particles 100 $\mu$  and larger in advance of the more expensive pleated panel filter.

#### ***Replacement:***

The service life of the polyester pre-filter is determined by the type and volume of large particles collected. Average service life is 4-6 weeks

### **Part # FA100-2 HEPA Filter**

The HEPA filter is 99.97% efficient in removing particles as small as 0.3 $\mu$  from an airstream.

Particles of this size are respirable and can cause significant respiratory problems.

#### ***Replacement:***

A HEPA's service life is determined by the volume of sub-micron particles remaining in the airstream after passing through the pre-filters. When properly protected, and depending on loading, HEPA filters often provide months of service. Average service life is 2-4 months.

### **Part # FA101D Gas/Odor Filter**

Most process plumes contain several gases, some odorous – some not, some toxic at elevated concentrations – some completely harmless regardless of concentration. To ensure employee safety the type and concentration of pollutants must be determined. Please contact Fumex Engineering for filter selection assistance. These filters utilize a blended activated carbon and activated alumina impregnated with KMnO<sub>4</sub> filter to capture and treat gases/odors. This combination of materials provides protection across a broad range of gases commonly found in industrial manufacturing processes.

## **GENERAL MAINTENANCE**

- 1) The blower motor is a sealed unit, 24,000 hr. MTBF rated. It is permanently lubricated and does not require oiling – keep it free of dust accumulations to prevent overheating.
- 2) Remove any loose accumulations of dust/debris from the air filter chamber periodically.

“This product employs overload protection (fuse). A blown fuse indicates an overload or short-circuit situation. If the fuse blows, unplug the product from the outlet. Replace the fuse as per the user servicing instructions (only 10-Amp fuse) and check the product. If the replacement fuse blows, a short circuit may be present and the product should be discarded or returned to an authorized service facility for examination and/or repair”.

# Remote Interface and Connectivity Function

The FA1-Mini can be supplied with an optional interface package providing remote start/stop and filter monitoring capabilities (Part # FA228). Please see instructions below for Relay Activation/De-Activation procedures and refer to the drawing in Figure 1 for remote connections.

## **WARNING**

**“To Prevent the Risk of Electrical Shock, Connect Remote Interface Cable to 24v, Class 2 Power Supply Only”**



## **WARNING**

**“Disconnect From All Power Supplies Before Servicing”**



<b>R e p l a c e m e n t P a r t s</b>			
<b>Part #</b>	<b>Item</b>	<b>Part #</b>	<b>Item</b>
<b>Cabinetry</b>		<b>Electrical</b>	
FA106A	Flanged air inlet 3”Ø	FAAU500	Universal blower motor / assembly – 90-250/1/50-60
FA106B	Flanged air inlet 2 x 2”Ø	FA004	Control board assembly
FA106C	Flanged air inlet 1 x 2”Ø	FA113	Fuseholder
FA108	Wheels, standard	FA114	Fuse, 10 amp (120VAC)
FA109	Vibration Isolators	FA115	Cordset (120VAC)
FA117	Cabinet latch	FA115B	Cordset (230VAC)
FA118	Cabinet hinge		
<b>Filters</b>		<b>Gas / Odor Filter</b>	
		FA101D	Blended carbon media
FA100-2	HEPA Filter – 2”		
FA102	Pleated panel filter		
FA103	Polyester pre-filter		

Table 1

## **Warranty and Liability Limitations:**

Fumex FA1 air cleaners are guaranteed for 24 months from date of invoice to be electrically and mechanically sound. This warranty covers the material and workmanship only. Any defective item will be repaired or replaced, at our option, free of charge provided it has not been misused, abused, or otherwise damaged and is returned PREPAID to:

Fumex, LLC. 1150 Cobb International Pl., Kennesaw, GA 30152

There are no warranties which extend beyond the descriptions set forth in this warranty, notwithstanding any knowledge of Fumex, LLC. regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Fumex personnel. Customer is responsible for determining the suitability of Fumex products for customer’s use or resale, or for incorporating them into objects or applications which customer designs, assembles, constructs or manufactures.

Fumex reserves the right to discontinue any item and to make changes in the specifications, terms and conditions or prices at any time without prior notice. Information furnished in the specifications is believed to be accurate and reliable at time of printing, however Fumex accepts no responsibility for product use, or the effect of future design or specification changes.

***For Assistance or Technical Support please Contact Fumex LLC.***

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# **RELAY ACTIVATION PROCEDURES FOR FA1-MINI UNITS**



**DO NOT WORK ON PANEL WITH POWER APPLIED!**

1. Disconnect all power sources from FA1-Mini unit.
2. Remove the 8 screws securing the bottom panel and gently pry bottom panel loose.
3. Locate relay activation switch on the rear of the control panel as shown in Figure 2.
4. Flip the Relay Activation Switch to the “ON” position as indicated in Figure 3.
5. Reinstall bottom panel using the 8 screws removed in step 2.
6. Apply incoming power to the unit by connecting the power cord and turning the power switch located near the power cord on. Make sure the blower is not running and the green power light is off. This is called the “Soft On” state.
7. Now that the physical switch is activated and the unit is in the “Soft On” state, the software will need to be reprogrammed via a flash drive with a configuration file and the USB port on the control board. (Contact Fumex to acquire the correct configuration file for your unit).
8. Reprogram the software by changing the “remoteSwitchOnly” setting in the configuration file to “1”. This will lock out the Control Board power button. The ON/OFF function will only be able to be controlled remotely.
9. After changing and saving the configuration file, plug the flash drive into the USB port on the front of the control board. (Make sure the unit is in the “Soft On” state before plugging in the flash drive.)
10. After the reprogramming is complete the light above the USB port will turn green and remain lit until the flash drive is removed from the USB port.
11. Remove the flash drive and apply 0-24 VDC to the start relay according to the wiring diagram in Figure 3 to start the unit.

Once the relay activation switch is turned on and the configuration file has been reprogrammed the unit will only start by applying the proper voltage to the start/stop relay.

# **RELAY DE-ACTIVATION PROCEDURES FOR FA1-MINI UNITS**



**DO NOT WORK ON PANEL WITH POWER APPLIED!**

1. Disconnect all power sources from FA1-Mini.
2. Remove the 8 screws securing the bottom panel and gently pry bottom panel loose.
3. Locate relay activation switch on the rear of the control panel as shown in Figure 1.
4. Flip the Relay Activation Switch to the “OFF” position as indicated in Figure 2.
5. Reinstall bottom panel using the 8 screws removed in step 3.
6. Apply incoming power to the unit by connecting the power cord and turning the power switch located near the power cord on. Make sure the blower is not running and the green power light is off. This is called the “Soft On” state.
7. Now that the physical switch is activated and the unit is in the “Soft On” state, the software will need to be reprogrammed via a flash drive with a configuration file and the USB port on the control board. (Contact Fumex to acquire the correct configuration file for your unit).
8. Reprogram the software by changing the “remoteSwitchOnly” setting in the configuration file to “0”. This will unlock the Control Board power button. The ON/OFF function will only be able to be controlled by the front panel on the unit.
9. After changing and saving the configuration file, plug the flash drive into the USB port on the front of the control board. (Make sure the unit is in the “Soft On” state before plugging in the flash drive.)
10. After the reprogramming is complete the light above the USB port will turn green and remain lit until the flash drive is removed from the USB port.
11. Remove the flash drive and start the unit as described in the “Controls” section.

**Once the relay activation switch is turned off and the configuration file has been reprogrammed the unit will only start by using the front control panel. All relays will become non-functional.**

# DRAWINGS AND FIGURES

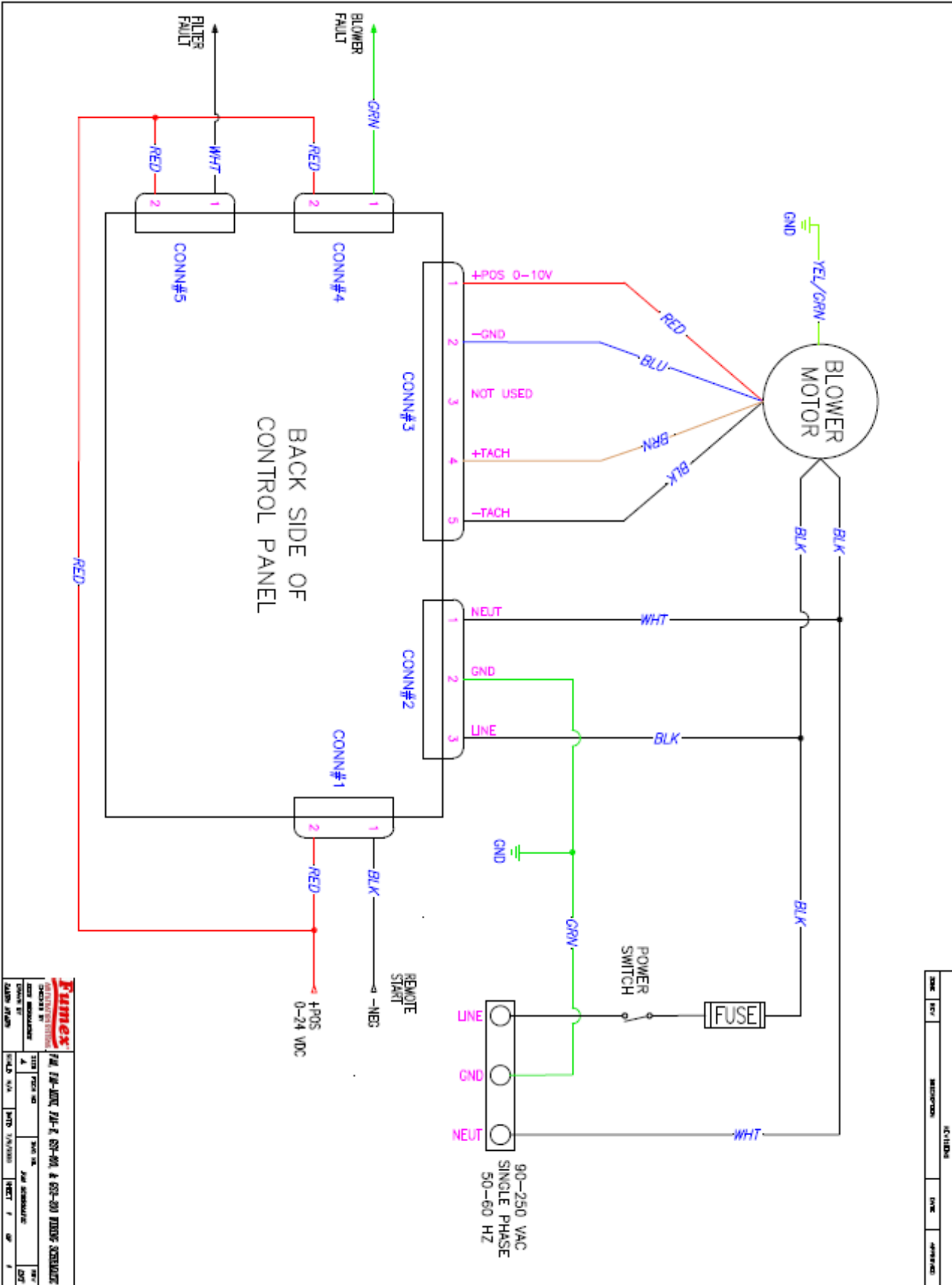


Figure 1



# DRAWINGS AND FIGURES

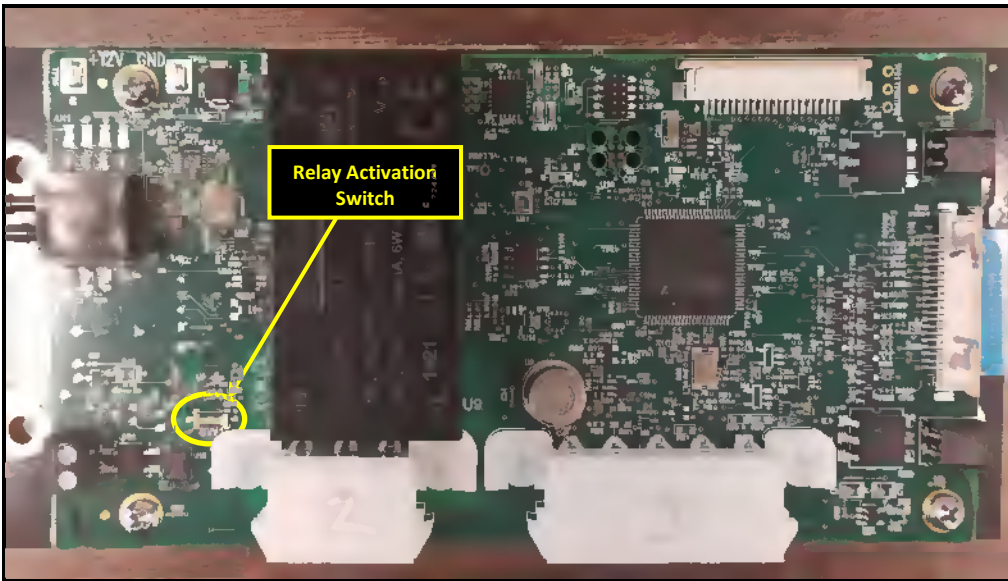


Figure 2

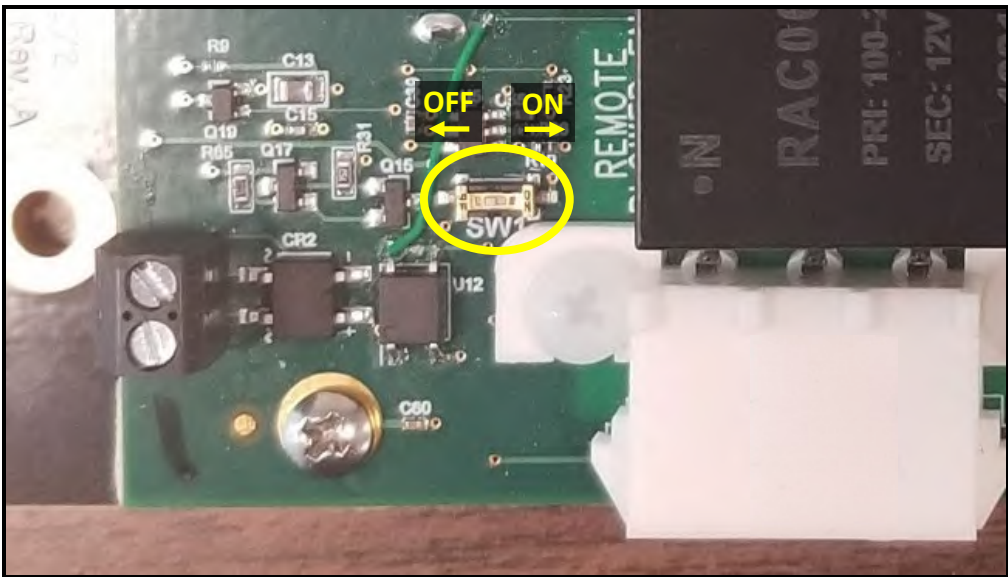


Figure 3