



Scientific Air Management LLC  
800-923-9309

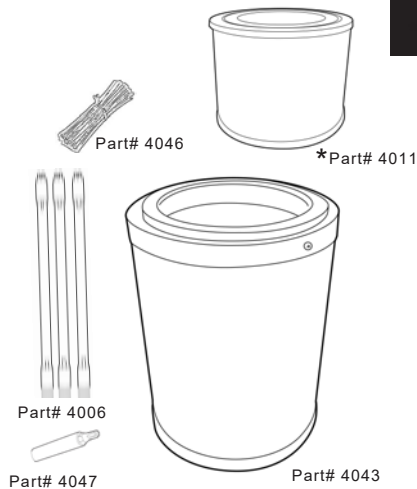
HEPA Filter Replacement  
UVC-Light Array Replacement  
Carbon Canister Replacement

# S400 Model 400 Service Kit Guide

## HEPA Filter UV-C Light Array Carbon Filter Canister Replacement

S400 Service Kit User Installation Guide Manufacturer:  
Scientific Air Management LLC © Revised 07.27.2020

**IMPORTANT NOTICE WARRANTY INFORMATION**  
S400 REPLACEMENT FILTERS AND CONSUMABLE  
PARTS are manufactured and tested to be effective for one  
year. Use only Scientific Air Management Parts.



This HEPA Filter Replacement can be purchased individually.

a) Service Kit Part# SK5001 HEPA Filter Replacement Kit.  
Includes - Part# 4011 - 1 each HEPA Filter Canister

b) Service Kit Part# SK 5002 Annual Service Replacement Kit Includes:  
Part# 4006 -1 each UV-C 3 Bulb Light Array Replacement  
Part# 4046 -1 each 6 UV-C treated plastic twist ties  
Part# 4043 -1 each Carbon Filter Canister Filter Replacement  
Part# 4047 -1 each #27 Security Screw Tip (Tool Required)

## 751 HCB.

*I gY'cb`miGVYbhjZW5 Jf`A UbUj Ya YbhA Ubi ZUWi fYX`Service Parts `Zf`dfcdYf`  
7 UbjghYf` ; Ug\_ YhZlHjbl` UbX`A Ubi ZUWi fYf`K UffUblm7 ca d`JUbVW`"*

*: cf`UggjghUbWY. ; \$\$"- & "- ' \$-*



**WARNING!**  
Skin or eye damage may result from directly viewing the light produced by the lamp in this apparatus. **ALWAYS** disconnect the power before opening device or servicing.

## S400 Service Kit Guide:

1. HEPA Filter Replacement
2. UV-C Light Array Replacement
3. Carbon Canister Replacement

S400 Filtration and UV-C Components are manufactured and tested to be effective for one year.

Portable air filtration units require proper consumable parts replacement for their effective continued operation. This procedure should specify recommended personal protective equipment (PPE) when performing service on the unit. The maintenance procedure should be performed in an area safely away from any patient locations. It is recommended that it be done in an authorized maintenance location that has appropriate ventilation. The area should be a contained area and easily cleaned. Based upon manufacturer's recommendation and any additional suggested protocol from facility maintenance, a standard routine service procedure should be developed for this unit. Such maintenance should include but is not limited to:

- o Disconnecting power source (unplug this unit) before any service performance procedures.
- o Authorized designated maintenance personnel familiar with these instructions.
- o All Consumable Components are manufactured to be effective for one year. Facility Protocol may require more frequent change. Always follow facility details on "bag out" protocol and proper disposal of consumable components. Since these components may be contaminated, expired parts should be treated as such and handled with appropriate PPE.

### Getting Started

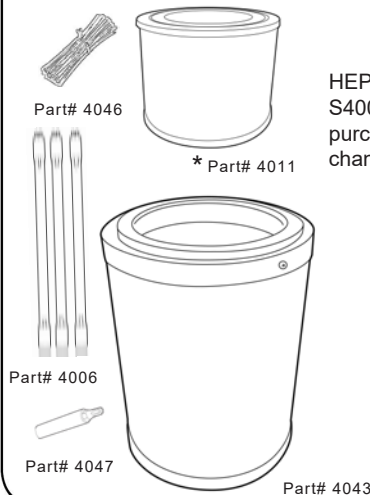
**Personnel:** Facility authorized Maintenance Personnel familiar with these instructions and PPE, "bag-out" protocol procedures.

**Work Area:** Facility authorized facility maintenance area

**Tools Required:** Security Screw Tip #27 (provided in Kit SK5002) and proper hand held screw tip device (not included)

**Parts Requirement:** 1 each Part # SK 5001 or SK 5002

### Parts Needed



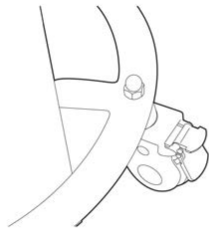
HEPA Replacement Service Kit Part# SK5001  
S400 HEPA Canister Filter. \*Can be purchased alone for more frequent filter changes.

Annual Service Kit (including HEPA Filter)  
Part Number # SK5002. Purchased as a kit as part of annual procedure filter change.

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www.scientificairmanagement.com

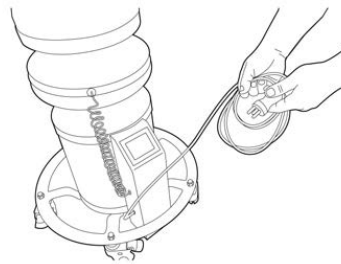
### Preparation for all service work

#### Step 1



Place unit on level flooring with enough area to work within a 5 foot radius around unit. Using toe-locks on each wheel press outer most tab down to lock wheels in place.

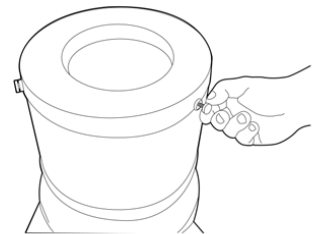
#### Step 2



Once unit is locked into place - be sure unit is unplugged. We suggest wrapping the cord into a coil and placing under the unit - out of the way.


### HEPA Filter Replacement Instructions

#### Step 3




Locate the three (3) Black Plastic Thumb Screws at the very top of the unit along the HEPA Canister Housing. Unscrew (counter clockwise) each of the three (3) Thumb Screws removing them completely. Place screws in secure location for later use to complete filter change procedure.

**Step 4**




With all three (3) thumb screws removed lift top plate from HEPA Canister Housing to reveal HEPA canister filter.

**Step 5**



Remove HEPA canister filter from HEPA Canister Housing. Dispose of used HEPA canister filter per facility protocol for expired HEPA filtration materials.


**Step 6**



Position replacement HEPA canister filter in unit. Be sure to have the Black Solid closed top of HEPA canister filter facing upward with the filter canister open end facing down towards Motor Housing.


*Warning! Steps 5 and 6 require exposing the Motor and Fan Housing to possible debris. NEVER let any objects fall or be misplaced into the Motor and Fan Housing area!*

**Step 7**



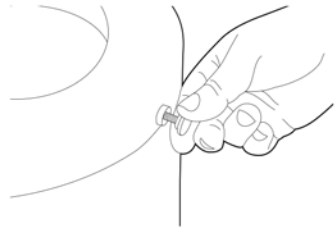
With replacement HEPA Filter Canister positioned properly level and closed Black Solid top of canister facing up, place HEPA Canister Housing Lid back onto HEPA Canister Housing,

**Step 8**



Note: HEPA Canister Housing Lid will be a snug fit as to apply downward pressure compressing the anti-leakage gaskets. Align the screw holes properly.

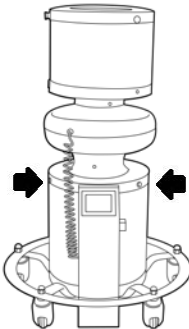
**Step 9**



With screw holes in proper position replace thumb screws and hand tighten (clockwise) until firmly seated. New HEPA Filter installation is now complete .


*The HEPA Filter Canister replacement portion of service is now complete. If proceeding to Annual Service Kit Replacement the unit is now ready for UV-C Light Array and Carbon Final Filter Canister Replacement.*

**Step 10**



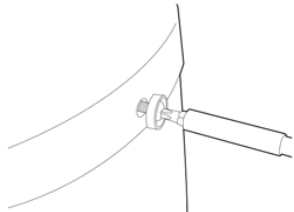
Locate the three (3) Security Screws (1/4"x3/4" #20) for the Carbon Filter Canister Housing just below the Motor Housing Shroud. See illustration.

**Step 11**



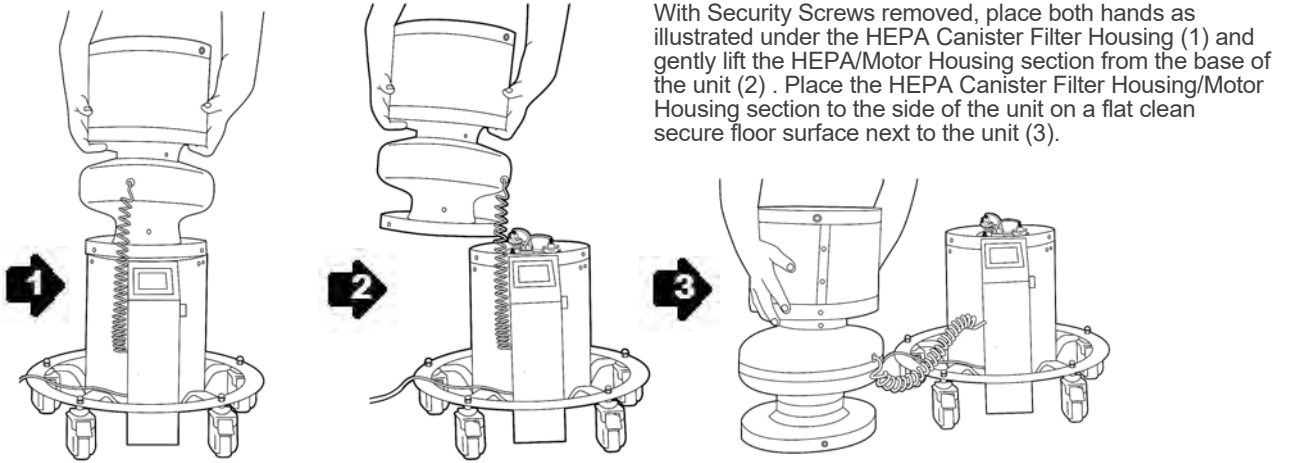
Place the provided Security Screw Tip (#27) into the proper hand held screw device. **DO NOT use powered screw driver devices .**

**Step 12**



Remove the three (3) Security Screws (counter clockwise). Look for the three (3) Poly Washers as part of Security Screw Assembly. Place Security Screws and Poly Washers Assemblies in secure place for future use.

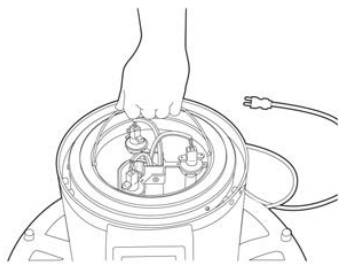
**HEPA Filter Canister and Motor Housing Removal**



With Security Screws removed, place both hands as illustrated under the HEPA Canister Filter Housing (1) and gently lift the HEPA/Motor Housing section from the base of the unit (2) . Place the HEPA Canister Filter Housing/Motor Housing section to the side of the unit on a flat clean secure floor surface next to the unit (3).

**Warning!** Steps 14 through 32 require exposing the Carbon Canister and UV-C Light Array to possible debris. Be sure to NEVER let any objects fall or be misplaced into the The Carbon/UV-C Housing area!

**Step 14**



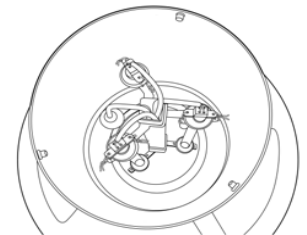
Locate the Carbon Canister Lift Handle directly on the inside of the top of the Carbon Canister.

**Step 15**



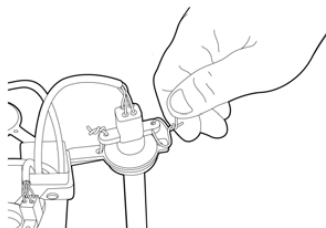
Use the Carbon Canister Lift Handle to remove the Carbon Cannister by gently pulling it directly up and out of the base Carbon and UV-C Housing Section. Discard the expired Carbon Canister.

**Step 16**



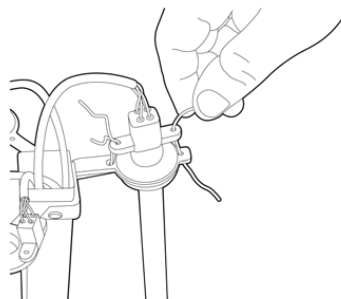
With Carbon Canister removed the UV-C Light Array is accessible for servicing . See Illustration

**Step 17**



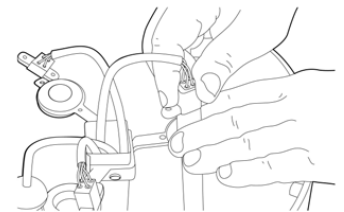
Each UV-C Light Electrical Assembly Post will have two (2) twist ties each, for a total of six (6) twist ties. Untwist the ties for each UV-C Light Assembly Post.

**Step 18**



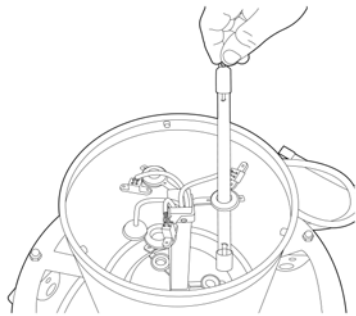
Remove twist tie and set aside for further uses (Step 27).

**Step 19**



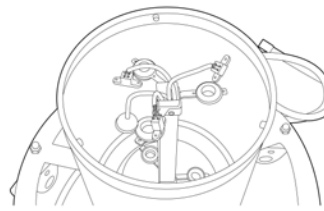
Gently grasping the UV-C Light Electrical Assembly top "female" section, pulling upward to separate it from the UV-C Bulb "male" Electrical Pin Counter part. Continue procedure for all three (3) UV-C Light Bulb Assembly Posts.

### Step 20



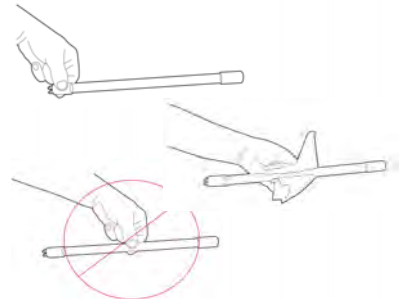
Pulling UV-C Light Bulb straight up to remove from Rubber Grommet UV-C Bulb Holders. Continue procedure to remove all three (3) UV-C Light Bulbs. Dispose of expired UV-C Light Bulbs in line with facilities protocol.

### Step 21



With all expired UV-C Light Bulbs removed from Light Array Assembly Posts, unit will look like this. See illustration.

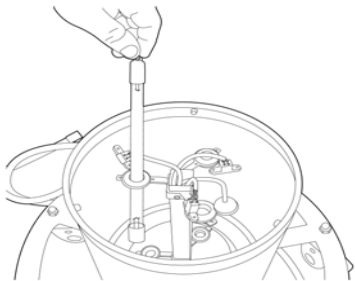
### Step 22



Locate the three (3) NEW UV-C Replacement Light Bulbs. Handle the NEW replacement Bulbs with clean material (tissue or shop rag) or handling by the ceramic end caps only.

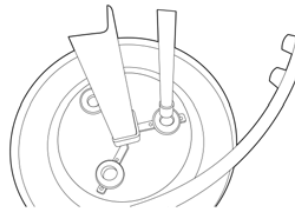
**Warning! Steps 5 and 6 require exposing the Motor and Fan Housing to possible debris. NEVER let any objects fall or be misplaced into the Motor and Fan Housing area!**

### Step 23



Handling replacement bulbs as recommended, slide bulbs into the top of the UV-C Light Array Assembly Post Rubber Grommet light bulb holder be sure that UV-C Light Bulb Electrical Pin connectors (male) are facing up.

### Step 24



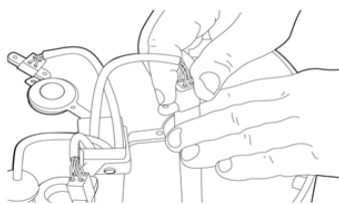
*Continue sliding UV-C Light Bulb through Top UV-C Bulb Circular Holder to align within UV-C Bulb Bottom Rubber Grommet resting on the bottom.*

### Step 25



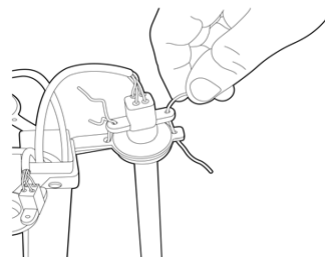
Connect UV-C Light Bulb Electrical Assembly Pins (male) with Coordinating Electrical Assembly Plug (female). Continue for all three (3) UV-C Light Bulb Electrical Pin and Plug Assemblages.

### Step 26



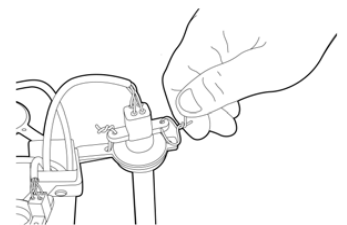
*Note: Proper alignment requires Male Electrical Pins (rectangular pattern) to match Female Receptor rectangular pattern. This is the only alignment requirement, UV-C Light Bulb Electrical Assembly will not fit easily if improperly aligned - do not force.*

### Step 27



*Place Twist Tie through corresponding UV-C Light Bulb Electrical Assembly Connectors (male and female) Bracket Holes, (one hole for each only required) continue for all Three (3) Light Bulb Electrical Connectors Assembly Bracket Holes.*

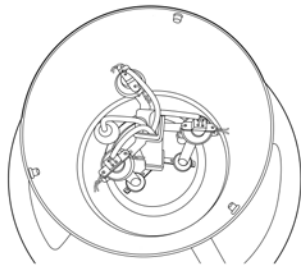
### Step 28



*Hand tighten all three (3) Twist Ties. Do **NOT** over tighten.*



**Step 29**



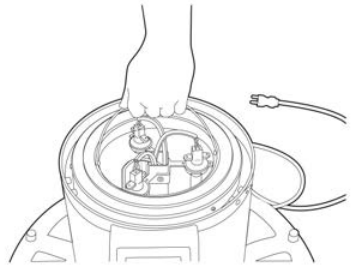
Completed UV-C Light Array with Replacement UV-C Bulbs installed correctly will look like this illustration.

**Step 30**



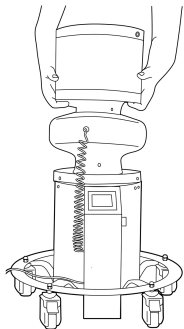
Using Canister Handle - slide New Replacement Carbon Canister into Carbon Canister Base Housing. Any position, as long as flat and level, will do.

**Step 31**



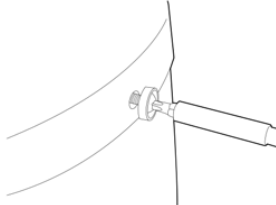
Once Replacement Canister is seated flat and level, fold Carbon Canister Handle down into the interior of canister.

**Step 32**



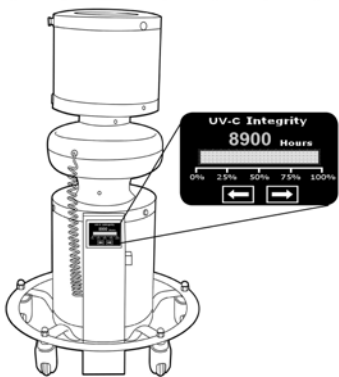
Placing hands under HEPA Canister Housing, lift the Canister Housing/ Motor Housing Section to place back on to UV-C/Carbon Canister Housing Section, line ups screw holes.

**Step 33**



Using Security Screw Tip (#27) replace Poly Washer and Security Screws back into Security Screw holes. Hand tighten firmly - do NOT over tighten. Service of unit is now complete and ready for one (1) year service.

**RESET THE DIGITAL ON BOARD DISPLAY**

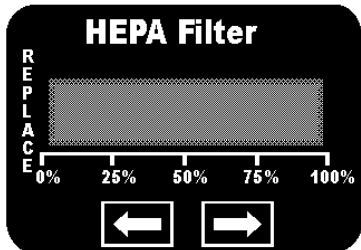


When powered on, display screen will automatically return to previous readings. **See Reset Instructions.**

❖ **Important Final Step** ❖


Resetting the On Board Digital Display Metering Screen. For more information see Digital Display Screen Instructions.

**Resetting Digital Display**



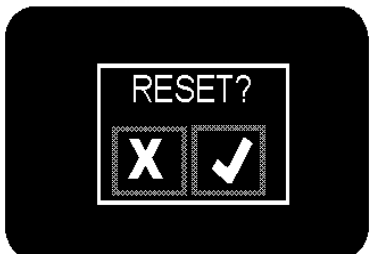
Reset Request works from any Screen Display Position. Hidden touch points are in each four (4) corners of screen. Pressing each corner in sequence will display Reset Request.

**Screen Reset Sequence**



From any Screen Display, starting at top left of screen, press each corner in the 1-2-3-4 sequence as shown above. Each corner will appear as above with progression of sequence.

**Metering Reset**



Once sequence is completed the above RESET display will appear for five (5) seconds. Confirm RESET pressing screen on Yes (Green Check Mark) and Digital Display will RESET back to original - new usage-setting.

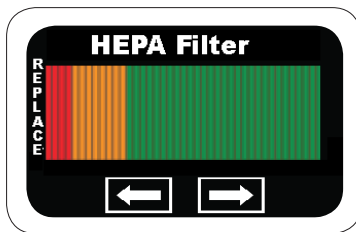
## On Board Digital Monitoring and Performance Screen Instructions

The S400 has an on-board efficiency and continuous operational metering digital display screen. There are four continual meter readings:

1. HEPA Filter Integrity
2. UV-C Light Integrity-Intensity Status
3. Final Carbon Filtration Integrity-Saturatuion Status
4. CFM Air Processed (Particulates Pathogen) Volume Status (Instructions next page)

Monitoring operations will display the four (4) metered screen readings every five (5) seconds on a continuous loop. Left and Right Arrows can be pressed to access previous or next screen. If unit is powered off any metering data is stored in non-volatile memory.

Fully  
Operational



Green and Amber bar represent full filter functional capacity. No action required.

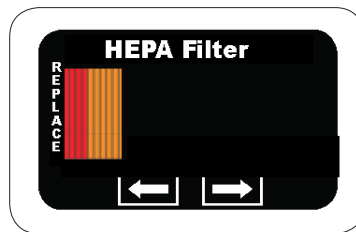


Green digits, Green and Amber bar represent full UV-C functional capacity. No action required.

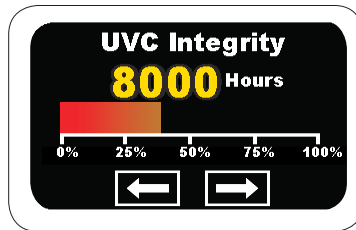


Green digits, Green and Amber bar represent full Carbon Filter function capacity. No action required.

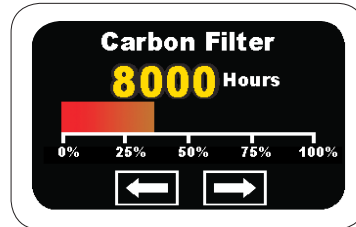
Fully Operational  
**Scheduled Service**  
Required with-in 40 days.



Amber bars represent full filter functional capacity but need scheduled service.

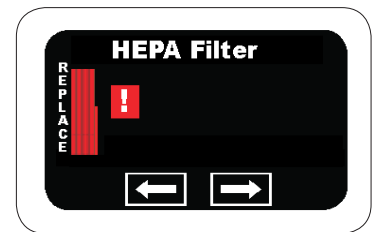


Amber digits and Amber bar represent full functional capacity but need scheduled service.

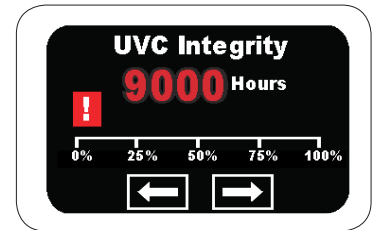


Amber digits and Amber bar represent full functional capacity but need scheduled service.

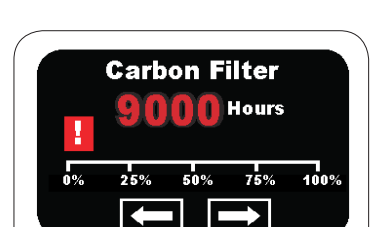
**Diminished Operation**  
**Service Required.**



RED bars with alert Alarm indicates diminished filter capacity. Change HEPA Filter.



Red digits and Red bar with Alarm indicates diminished UV-C capacity. Change UV-C Light Array.

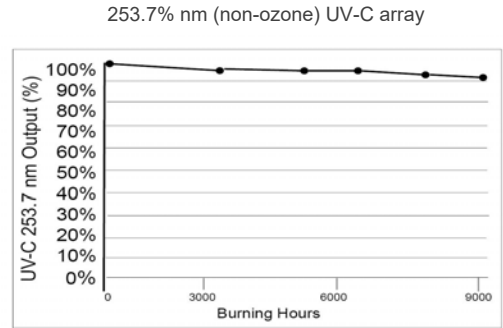


Red digits, Red bar with Alarm indicates diminished capacity. Change Carbon Filter.

### UV-C Lights Monitoring - Intensity Maintenance Curve

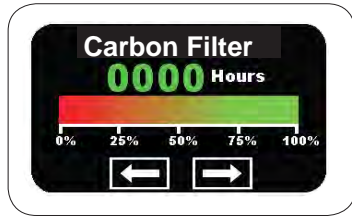


Scientific Air Management uses exclusively manufactured 253.7 nanometer (nm) wavelength UV-C light fixtures. UV-C 253.7 nm lights create extreme germicidal capabilities with zero ozone production. The useful life of our UV-C lights are greatly increased by precision design of our ignition, on/off cycle, and ballast electrical construction. Further enhancing the effective germicidal longevity of our UV-C is the inherently designed HEPA pre-filter and air flow, keeping the UV-C light fixture debris free and constantly cooled. UV-C lights are rated and output tested for 100% gradually to 92% intensity for 9000 hours.



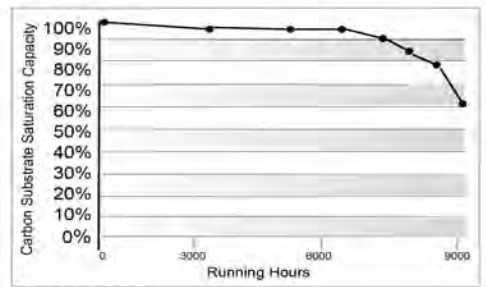
253.7 nm UV-C lights are rated and factory certified for 100% gradually to 92% intensity for 9000 hours.

### Carbon Filter Monitoring - Adsorption Maintenance Curve



Scientific Air Management uses a proprietary treated carbon substrate to accomplish physical adsorption and chemisorption. This substrate has a much larger particle size with a small external surface, thus making the total number of pores and filtration surface vast (up to five micron miles). The substrate used in our canisters is chemically impregnated for several ranges in containment filtration to assist in the adsorption process. This process decreases moisture absorption while increasing filter efficacy and longevity. Carbon filtration longevity is enhanced by particulate pre-filter HEPA.

Operating in average facility humidity 30.06 inHg bm reading.



Manufacturer certified for adsorption (100%) to break out adsorption (0%) at standard rate fan speed induction. Chart represents 100% through gradual 65% non-breakout capacity for 9000 hours.

### UV-C and Carbon Monitor Screens Reset Screen

Entry to this screen requires the user to press on the 4 corners of the screen in a specific sequence as shown.

If a screen change occurs during the time the user is entering the number sequence the sequence will continue unaffected.

If the sequence is not entered correctly, the reset sequence will immediately cancel and the screen cycle will continue unaffected. The user must also complete the sequence within 5 seconds to avoid cancellation.

The user has 5 seconds to confirm or reject the reset request before the screen disappears and the 4-screen sequence resumes.



A successful number sequence will display the reset screen.



### Manual Scroll Arrows



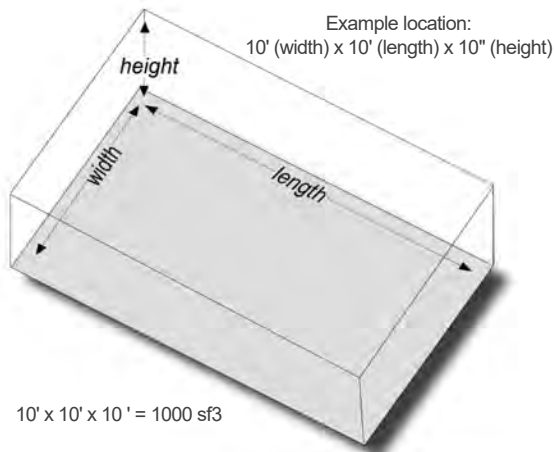
Left and Right arrow buttons at the bottom of each screen allow the user to jump forward or back from each screen without having to wait for the five (5) second sequence.



## CFM Air Processed Monitor

The S400 includes a CFM Air Processed reporting system. This enables the user to estimate and report the amount of air processed (particulate, pathogen, mold, and odor removal) for any given location and time period.

By calculating the location's Cubic Foot volume this meter will correlate the amount of times that location's air was "scrubbed" and brought down to "zero contaminants" in a room via air changes.



CFM Air Proceeded Reading (24 hrs)	*288,000	TCF
Example location:	1000	SF <sup>3</sup>
Room Total Air Changes:	288	TAC
Passes for Room Air Disinfection:	**3	Passes
Total Room Air Changes Processed Daily:	96	Per Day
Total Room Air Changes Processed Hour:	4	Per Hour

Location has been processed for whole room pathogens, particulates mold, and odors: **96x in 24 hours or 4x per hour.**

### Using the CFM Air Processed Screen for reporting

Place unit in desired location. Power unit up.  
Reset CFM Air Processed Monitor (see below).



After desired time period, record CFM Air Processed (24 hours in this example) Estimate cubic feet of location (see example to left).

$$\frac{\text{Total CFM Air Processed}}{\text{Approximate Room Cubic Feet}} = \text{Total Air Changes}$$

$$\frac{\text{Total Air Changes}}{3 \text{ (passes)}} = \text{Total Processed Air Changes}$$

$$\frac{\text{Total Processed Air Changes}}{\text{Run Time}} = \text{Processed Air Changes Hour}$$

\* S400 operates at 400 CFM on Full Fan Speed. CFM of 200 is average induction fan speed at "medium" rheostat switch position, or maintenance air flow level.

\*\*Per certified studies an average of 3 "passes" or room air changes are required for full room pathogen, particulate, mold, odor, and VOC elimination.

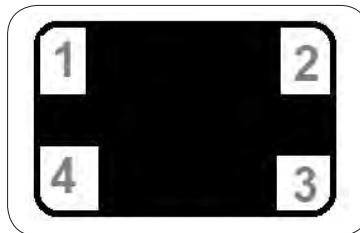
### CFM Air Processed Monitor Reset from Screen

Entry to this screen requires the user to press on the 4 corners of the screen in a specific sequence as shown.

If a screen change occurs during the time the user is entering the number sequence the sequence will continue unaffected.

If the sequence is not entered correctly, the reset sequence will immediately cancel and the screen cycle will continue unaffected. The user must also complete the sequence within 5 seconds to avoid cancellation.

The user has 5 seconds to confirm or reject the reset request before the screen disappears and the 4-screen sequence resumes.



A successful number sequence will display the reset screen.



### Manual Scroll Arrows



Left and Right arrow buttons at the bottom of each screen allow the user to jump forward or back from each screen without having to wait for the five (5) second timeout.

## Preventive maintenance tasks:

The S400 is designed, manufactured, and quality control tested for continual 24/7 use at peak performance for over one year with virtually no preventive maintenance required. We provide a complete Annual Maintenance Service and Consumables Replenishment Kit for once a year required consumable parts replenishment. CAUTION: Service of this device should be designated only to facility personnel familiarized with Scientific Air Management's authorized service instructions and using only authorized Scientific Air Management's replacement parts. Failure to comply will void Manufacturer's Warranty.

Once power is on - below is the check list for operational indicators:

### UV-C Light View Port:

The Green Light at the front of your S400 is a UV-C shielded view port. Illumination when power is on is indication that the UV-C air pathogen "kill chamber" is fully functioning, additionally the on-board digital display screen will meter UV-C Integrity and Intensity (See Operators Instructions Digital Display Screen)

### Fan Motor Running:

The Fan Motor engages automatically to HIGH SPEED FAN when the power is turned on. The rheostat switch can be turned clockwise to lower fan speed. Listen for smooth fan operation and slight "humming" noise. Any noise produced other than slight humming and smooth fan air flow turn the unit off and call service agent. The on-board display screen will meter air flow and fan operation as well (See Operators Instructions Digital Display Screen)

### On-Board Digital Display Screen:

When powered on the On-Board Digital Display Screen will illuminate. The HEPA Filter Air Flow, UV-C Light Integrity Intensity, Carbon Final Filtration Integrity, and CFM Air Processed screens will appear in five (5) second continuous rotation schedule. If screen fails to illuminate turn the unit off and call service agent. For detail description of Digital Screen Function See Operators Instructions Digital Display Screen.

### Air Pressure - Air Flow:

Powered on, the S400 creates remarkably very little air-flow. Our Patented 360 Degree air induction and expulsion system creates virtually unnoticeable wind pressure. Fan motor humming is best indication of air flow. However, if visual verification is desired, a standard square of tissue paper will adhere to the HEPA intake housing when placed directly on housing. The same "tissue test" can be applied to the bottom Carbon Filtration Housing in which it will be slightly pushed away.

## Recommended Preventive Maintenance tasks:

Item	Schedule	Visual Inspection	Functioning	Non-Functioning	Discontinue
					Service
HEPA Filter	Monthly	HEPA Monitor Screen	See Display Instructions	Screen Indicates Service	No
				Schedule Service	
HEPA Filter Replacement		Facility Protocol	HEPA Service Kit Instructions		
Fan Motor	Monthly	Listen For Running Smoothly. No Clicking	Running Smooth Quiet "Fan" hum	Clicking or Buzzing	Yes
				Call Manufacturer	
UV-C Light Array	Monthly	UV-C View Port	Illuminated Green	Call Manufacturer	Yes
		UV-C Monitor Screen	See Display Instructions	Schedule Service	
Carbon Final Filter	Monthly	Carbon Monitor Screen	See Display Instructions	Schedule Service	Yes
		Odor			
Electrical Outlet Cord	Monthly	No breaks or rips in outer Insulation	No tears or rips in outer Insulation		Yes
		Lose connection at junction box			
Rheostat Switch	Monthly	ON/OFF/Speed Control	No on/off	Call Manufacturer	Yes
			No Speed Control		
Monitor Display Screen	Monthly	Scroll Through Readings	Illuminated with Readings	Call Manufacture	No
Caster Wheel Assembly	Monthly	Unit Rolls Easily	Easily Maneuverability	Call Manufacturer	No
		No sticking or off center wheels	Toe Locks functioning	Call Manufacturer	
Annual Service Required	Manufacturer Service Requirement		See Service Instructions	Call Manufacturer	No

## Exterior equipment cleaning tasks:

The S400 is designed, manufactured, and quality control tested for continual 24/7 use at peak performance for over one year with NO INTERIOR CLEANING REQUIRED. Follow facility protocol for equipment exterior cleaning . This devise can be cleaned with standard facility cleaning products including anti-microbial "bleach-like" cleaning product. Avoid excessive cleaning product application on digital screen equipment. DO NOT use Petroleum or Acetone based cleaning products.

**For assistance: 800.923.9309**