

# Installation Instructions & Consumer Information

## **RS4** **Whole House** **IAQ System**

- ✓ RS4 Whole House IAQ System
- ✓ Polarized-Media Electronic Air Cleaner
- ✓ Activated Carbon Matrix System
- ✓ Series2 Germicidal UV Lamp

Note: Read these instructions carefully before installation



### **Introduction**

Your RS4 Whole House IAQ System is a high efficiency air cleaning system designed to remove all three types of airborne contaminants: particles, biologicals, and gas phase contaminants. The large surface areas of the air cleaner and activated carbon help to reduce air velocity and static pressure resistance for more effective filtration.

### **Section I. Cabinet Installation**

- 1) Turn the thermostat fan switch to the "OFF" position.
- 2) Turn off power to the furnace/air handler.
- 3) Remove the existing filter from the furnace/air handler or return air grille.
- 4) Locate the RS4 cabinet on the return side of the ductwork, adjacent to and upstream of the blower compartment. This placement will ensure that the furnace blower and cooling coil are kept clean. Determine the mounting orientation in a location that is readily accessible for service and maintenance, allowing a minimum of 27" in front of the slide-out access panel.
- 5) If the cabinet is installed on a flat surface, seat the cabinet on vibration pads (1/2" minimum) to provide adequate clearance for the door operation.
- 6) When securing the RS4 cabinet into the HVAC system, do so with the cabinet door in place to keep the cabinet plumb. This will ensure that the access door fits properly after installation.
- 7) The RS4 cabinet uses interchangeable block-off plates that can be positioned to allow airflow through the cabinet at a right-angle or flow-through from side to side or top to bottom. Mounting holes are provided in the air cleaner cabinet for #10 sheet metal screws or 1/8" rivets. All system components allow for installation with airflow in any direction.
- 8) The RS4 cabinet includes one set of adjustable duct flanges that can be adjusted to connect the top/bottom 24"x8" duct opening to duct sizes of 24"x8", 24"x9", 24"x10", 24"x11", or 24"x12". The cabinet is shipped with top flanges in the 24"x10" center position. To adjust the flanges, remove the flange screws, adjust the flanges to the desired duct size, and secure with screws. Openings on the side of the cabinet measure 23.5" x 13.5". Additional duct flange kits for side connections (part no. RS4-FLANGEKIT) are available as an optional accessory.

- 9) Holes for wiring access are provided on both sides of the cabinet and a grommet is provided for the wiring hole. Once the cabinet has been secured, seal all seams and holes with foil tape or mastic so that the cabinet is air tight and UV light cannot escape.

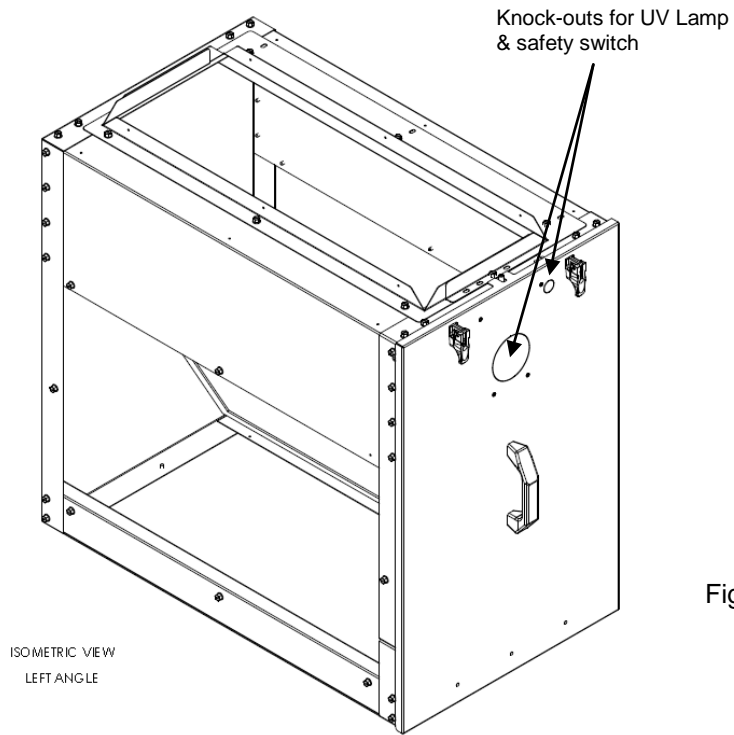


Figure 1

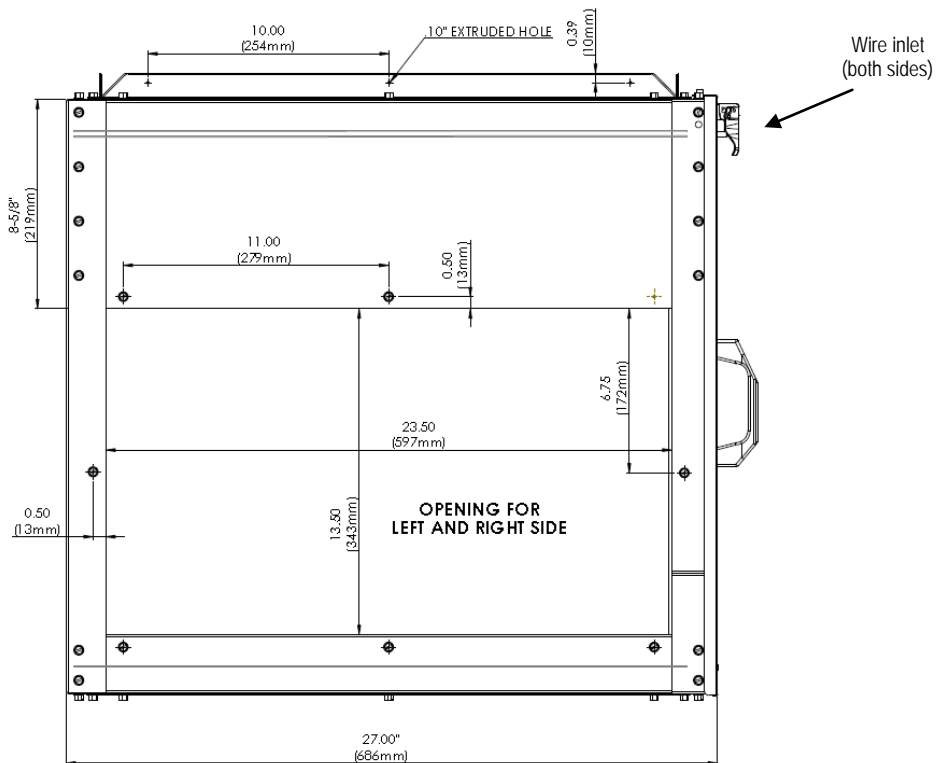


Figure 2 – Side View

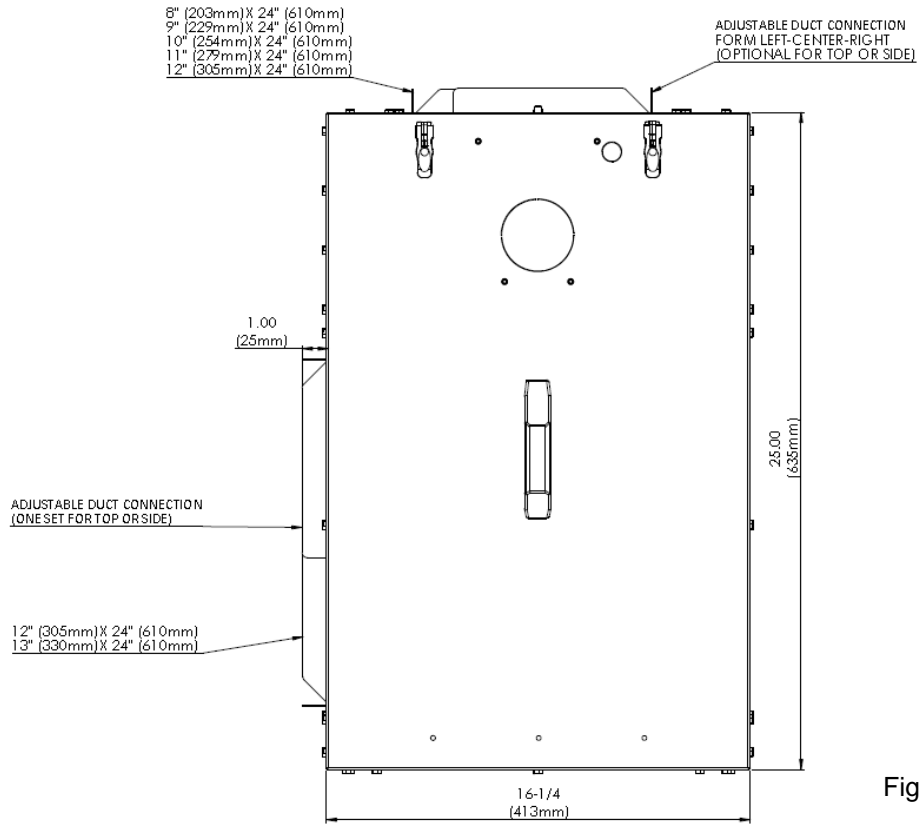


Figure 3 – Front View

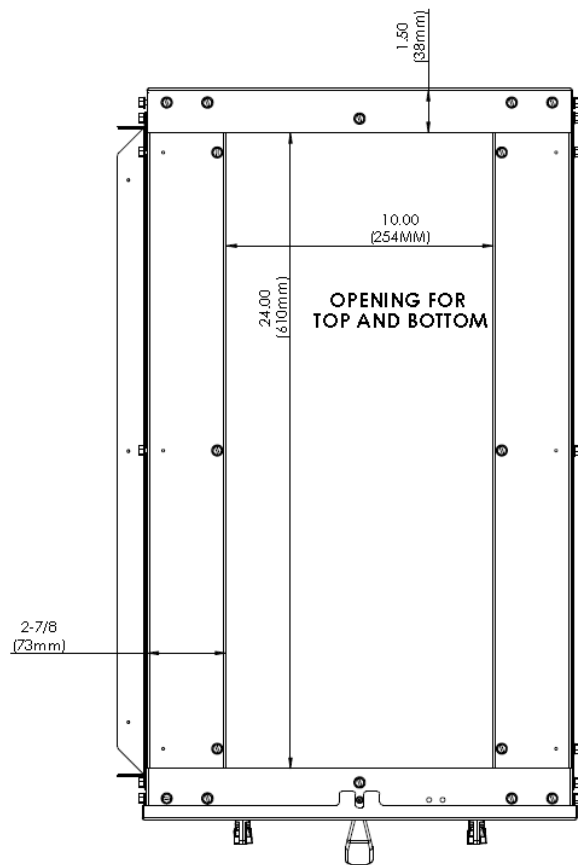


Figure 4 – Top/Bottom View

## Section II. Air Cleaner Installation

- 1) Wiring to an integrated furnace control (IFC) board or on-board transformer:

NOTE: ONLY A QUALIFIED ELECTRICIAN SHOULD PERFORM ELECTRICAL WIRING.

If there is a terminal strip such as the one shown in figure 5, connect the black wire of the power cord to the "Common" terminal (typically the "C" terminal) and the black wire with the white stripe to the "Hot" 24vac terminal (typically the "R" terminal). Output from the 24vac transformer may vary due to local line voltage fluctuations. Outputs up to 28vac are acceptable.

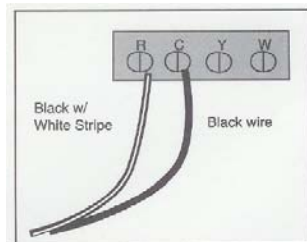


Figure 5

If the terminals are unmarked, or to confirm the markings, use a voltmeter to find the Common and "Hot" 24vac terminals:

- a. Turn off the power to the furnace/air handler and the transformer.
- b. With the voltmeter set to "Continuity", check for continuity between each terminal and the metal frame of the furnace/air handler. Choose a spot on the furnace/air handler such as a screw or unpainted edge, where a good electrical contact can be found.
- c. If continuity is found between one of the terminals and the furnace/air handler, that terminal will be the Common terminal.
- d. With the power on to the transformer, use the voltmeter to locate the 24vac terminal.

If a Common or 24vac terminal cannot be located, it will be necessary to install a separate transformer. If a hard-wired transformer is used, an isolated class II transformer is recommended. The transformer must be installed according to local codes and ordinances.

- 2) Route the power cord to the air cleaner. The cord should be run so that it is not crimped or abraded and should have enough slack to allow the air cleaner service drawer to be fully extended for routine maintenance. Position the power cord slack to keep it away from the furnace/air handler blower and other moving parts.
- 3) Plug the power cord into the air cleaner once it is securely in place (fig 6).



Figure 6

- 4) A plug-in transformer (part number A412402) is available as an optional accessory to plug into any 110-Volt (AC) outlet to provide 24-Volt (AC) power to the unit. Do not substitute other 110vac-24vac transformers. Damage could result to the air cleaner electronics and void the air cleaner warranty.

### Section III. Carbon Matrix Installation

- 1) Unlatch and open the empty carbon matrix tray adjacent to the polarized-media air cleaner.
- 2) Leaving the protective foam border in place, carefully place the carbon sections into the tray as shown below. The carbon matrix should be positioned downstream of the polarized-media air cleaner in order to extend the service life of the carbon.

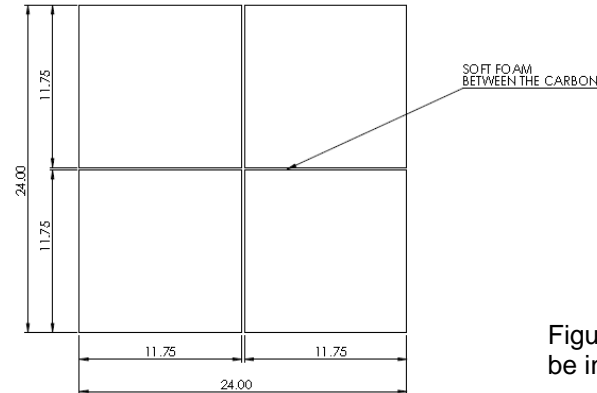


Figure 7. Airflow can be in either direction

- 3) Close and latch the carbon tray. Secure the latches with screws (provided) for extra security.
- 4) Close the cabinet access door and latch securely.
- 5) Turn on the power to the furnace/air handler and UV lamp. The thermostat fan switch should be set to the "ON" position.
- 6) Affix the caution label and Replacement Record sticker in prominent locations to the cabinet.

**IMPORTANT: FOR BEST AIR CLEANING EFFICIENCY AND OPTIMUM COMFORT, THE FURNACE/AIR HANDLER FAN SHOULD BE RUN CONTINUOUSLY WITH THE FAN SWITCH IN THE "ON" POSITION RATHER THAN THE "AUTO" POSITION.**

### Section IV. UV Lamp Installation

- 1) The model 407H-16 or the 407H-16-O3 Series2 Germicidal UV Lamp is standard on some models or available separately.
- 2) Remove the cover from the unit by removing the top and bottom retaining screws using a screwdriver.
- 3) Remove the knock-outs on the RS4 cabinet door for UV lamp and safety switch (fig 1).
- 4) Attach back of the UV unit to the cabinet door using the four 1/4" 8-32 screws provided.
- 5) Attach 3/4" 8-32 safety switch screw to cabinet frame (fig 8) to activate safety switch.
- 6) Remove germicidal lamp holder using a 11/32 size nut driver (fig 9).
- 7) Slide germicidal lamp into lamp opening and reinstall lamp holder.
- 8) Plug lamp into lamp connector.
- 9) Connect power in accordance with local wiring codes. The multivoltage ballast is self-adjusting and operates with voltages from 120 - 240 VAC. Use the provided 120 VAC power cord. For 240 VAC, install 5 amp inline fuses and use the optional 240 VAC power cord, Part #PC-240.

**IMPORTANT: WHEN USING THE 407H-16-O3 LAMP WITH ACTIVATED OXYGEN, POWER TO THE LAMP MUST BE INTERLOCKED WITH THE FURNACE BLOWER.**

- 10) For 407H-16-O3 ONLY – Plug the 120 VAC power cord into an outlet which is interlocked with the furnace blower. If an EAC terminal is available, supply power to the outlet from the EAC terminal. If there is no EAC terminal, interlock the UV unit with the furnace blower using an appropriate alternate.
- 11) Verify voltage is operating between 120 - 240 VAC when the air handler is operating.
- 12) Replace and secure cover using the two retaining nuts. Affix caution labels if necessary.

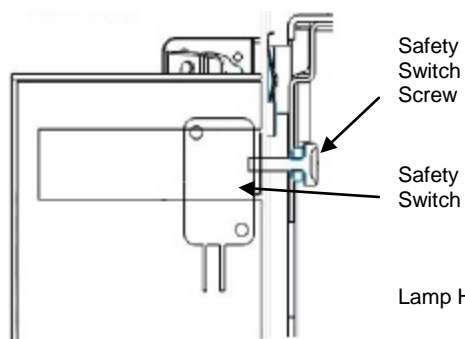


Figure 8 – Safety Switch (side view)

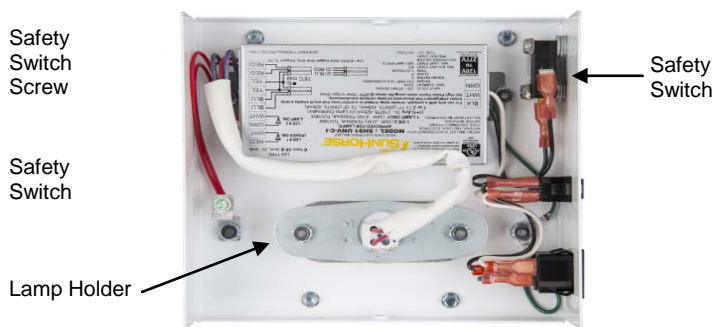


Figure 9 – Lamp Back Mounting Plate

**NOTE: CARE SHOULD BE TAKEN TO ENSURE THAT UVC LIGHT DOES NOT SHINE ON PLASTIC SURFACES INCLUDING WIRING.**

## Section V. Maintenance – Air Cleaner Media Pads

Air cleaner media pads generally last *3 to 4 months*, depending on household conditions. In a new installation, however, it is suggested that the media pad be inspected and/or replaced after one month of operation due to initial cleanup of contaminants. Only GENUINE replacement media pads should be used with your air cleaner. Failure to do so could cause damage to the air cleaner, alter air cleaner performance, and/or void your Warranty. Replacement media pads are available from your heating and air conditioning contractor.

**CAUTION: WHENEVER INSTALLING OR REMOVING THE AIR CLEANER, THE POWER TO THE FURNACE/AIR HANDLER SHOULD BE TURNED OFF. CARE SHOULD BE TAKEN NOT TO LET THE JACK TOUCH ANY GROUNDED OR METAL SURFACES.**

- 1) Turn the thermostat fan switch to the “OFF” position.
- 2) Turn off power to the furnace/air handler.
- 3) Turn off power to UV air purifier and disconnect power cord (if applicable).
- 4) Open the access panel on the RS4 cabinet.
- 5) Unplug the power cord from the air cleaner power supply.
- 6) Remove the air cleaner from the filter rack.
- 7) Open the air cleaner latches, carefully remove the old media pad, and discard.
- 8) Carefully position the new replacement media pad so that it is centered within the air cleaner frame.
- 9) Close and re-latch the air cleaner.
- 10) Return the air cleaner to its location in the filter rack.
- 11) Plug the power supply cord into the air cleaner once it is securely in place (fig 6).

- 12) Close the cabinet access door and restore power to the furnace/air handler and UV air purifier.
- 13) Switch the thermostat back to the "ON" position. For optimum results, the furnace or air handler should be run continuously with the fan switch in the "ON" position, rather than the "AUTO" position.
- 14) In damp or humid areas, the new media pad may make a slight snapping sound when first installed. This is normal and should stop within 24 hours of operation.

**WARNING: FAILURE TO CHANGE THE MEDIA PAD ON A REGULAR BASIS COULD REDUCE AIRFLOW AND CAUSE DAMAGE TO THE HEATING AND COOLING SYSTEM.**

## **Section VI. Maintenance – Activated Carbon Matrix**

Carbon Matrix inserts generally last 18000 hours or two years, depending on household conditions. Replacement carbon inserts are available from your heating and air conditioning contractor.

**CAUTION: WHENEVER INSTALLING OR REMOVING THE AIR CLEANER, THE POWER TO THE FURNACE/AIR HANDLER AND UV AIR PURIFIER SHOULD BE TURNED OFF. CARE SHOULD BE TAKEN NOT TO LET THE JACK TOUCH ANY GROUNDED OR METAL SURFACES.**

- 1) Turn the thermostat fan switch to the "OFF" position.
- 2) Turn off power to the furnace/air handler and UV air purifier.
- 3) Open the access panel on the RS4 cabinet.
- 4) Unplug the power cord from the air cleaner power supply.
- 5) Remove the air cleaner from the filter rack.
- 6) Open the air cleaner latches, carefully remove the old carbon inserts and discard.
- 7) Position the new carbon inserts so that they are centered within the frame (fig 7).
- 8) Close and re-latch the air cleaner.
- 9) Return the air cleaner to its location in the filter rack.
- 10) Plug the power supply cord into the air cleaner once it is securely in place (fig 6).
- 11) Close the cabinet access door and restore power to the furnace/air handler and UV air purifier.
- 12) Switch the thermostat back to the "ON" position. For optimum results, the furnace or air handler should be run continuously with the fan switch in the "ON" position, rather than the "AUTO" position.

## **Section VII. Maintenance – UV Air Purifier**

Series2 UV lamps are designed to last 18000 hours or two years, depending on household conditions but should be cleaned after 9000 hours (1 year) of operation.

- 1) Cleaning Instructions:
  - a. Turn off power and disconnect power cord to the UV air purifier.
  - b. Remove the cover from the unit by removing the top and bottom retaining screws using a screwdriver.
  - c. Unplug the lamp connector from the end of the lamp.
  - d. Remove lamp holder using a 11/32 size nut driver. (*Figure B*)
  - e. Remove the lamp by grasping the plastic end cap and extract carefully.
  - f. Using a soft cloth moistened with rubbing alcohol, wipe down the lamp. If there is a large build-up of dust particles, you may wish to use a can of air first. Always handle lamp by the end caps.
  - g. Slide the lamp back into lamp opening by grasping the plastic end cap and reinstall lamp holder.

- h. Plug the lamp into the lamp connector.
- i. Replace and secure the cover using the two retaining nuts.
- j. Plug power cord back into outlet, or restore power to unit.

- 2) Replacing the UV Lamp:
  - a. Replacement lamps are available from your heating and air conditioning contractor and should be replaced after every 18000 hours (2 years) of operation. Follow the same steps as above, excluding step f.

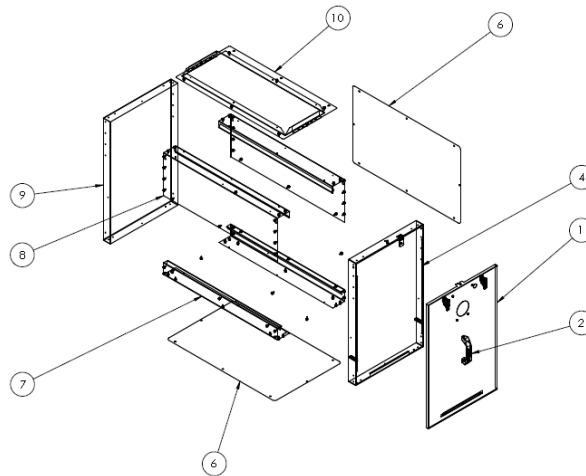
## Section VIII. Replacement Parts

- 1) Maintenance is limited to periodic replacement of the air cleaner media pads, typically every 3 to 4 months. Activated carbon inserts and Series2 UVC lamps should be replaced every 18,000 hours, or every two (2) years. Use only GENUINE replacement parts.
- 2) Replacement parts can be ordered from your heating and air conditioning contractor. Have the model number or unit size available when calling.

### Filter Box Parts

#### Item Description

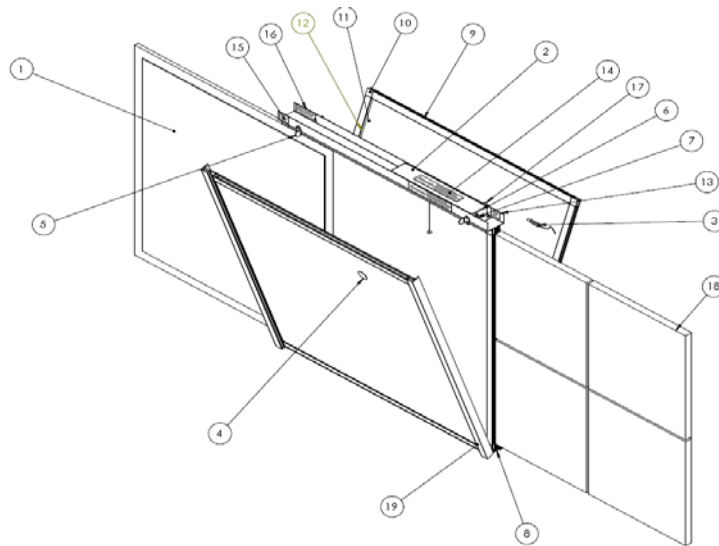
- 1 Door Assy
- 2 Door Handle
- 3 Door Clip
- 4 Front Frame Assy
- 5 Door Lock Nut
- 6 Block off plate
- 7 Bottom Angle
- 8 Top Angle
- 9 Back Cover
- 10 Flange Assembly



### Air Cleaner / Carbon Tray

#### Item Description

- 1 Media Pad
- 2 Power Head
- 3 Power Cord
- 4 Insulator Button
- 5 Latch
- 6 Indicator Light
- 7 Input Jack
- 8 Hinge
- 9 Frame
- 10 Corner
- 11 Screen
- 12 Spline
- 13 Warning Label
- 14 Brand Label
- 15 Patent Label
- 16 Size Label
- 17 Carbon Tray Latch
- 18 Carbon Inserts (4)
- 19 Track



**FOR TECHNICAL SUPPORT CALL (800) 578-7873**

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GEN-212 (7/14)