

Owner's Guide for Installation, Operation & Maintenance

SMART EAC1000 Electronic Air Cleaner

Filter Grille Mount



Furnace Mount

Table of Contents

Introduction..... Page 1
Specifications..... Page 2
Air Cleaner Construction..... Page 3
Planning The Installation..... Page 4
Installation..... Page 5 - 12
Operation & Maintenance..... Page 13 -15
Warranty Page 16 -18

CAUTION: Read installation instructions carefully before proceeding.

Air Pollution: The Inside Story

In the real world, the quality of the air we breathe can greatly impact the quality of our life. Indoor air pollution is a serious health hazard that can be life threatening. The very young and the elderly are the most vulnerable.

Indoor air pollution has everything to do with small particles that stay suspended in the air we breathe. Small airborne particles like bacteria, viruses, carbon soot and tobacco smoke are the main culprits, small enough to be inhaled directly into your lungs where they can and do cause damage.

Most of us spend 90% of our lives indoors, in nearly air-tight homes and offices, breathing recirculated air.

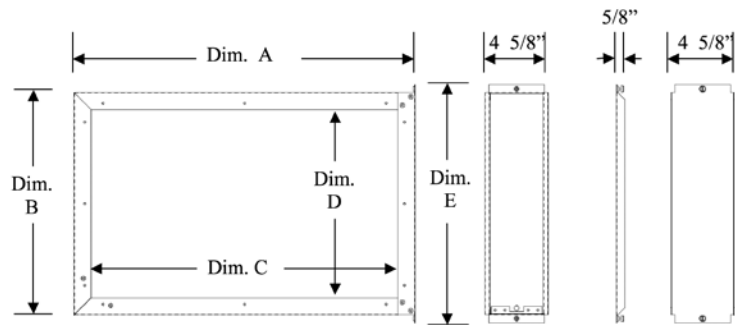
Your professional HVAC contractor is a clean air specialist. The SMART Electronic Air Cleaning system can make a huge difference in the quality of the air you breathe and in the health of your family.



Specifications

	FG (Filter Grille) Model	FM (Furnace Mount) Model
Electrical Input	24 Vac, 60 HZ	24 Vac, 60 HZ
Electrical Output	24,000V DC	24,000V DC
Power Consumption	2 Watts (Nominal)	2 Watts (Nominal)
Filter Housing Weight	N/A	8 lbs.

HOUSING DIMENSIONS: FURNACE MOUNT MODEL



MODEL NUMBER	DIM. A (IN)	DIM. B (IN)	DIM. C (IN)	DIM. D (IN)	DIM. E (IN)
FMEAC1620C	21	16-3/8	18-1/2	13-7/8	17-1/2
FMEAC1624C	25	16-3/8	22-1/2	13-7/8	17-1/2
FMEAC2020C	21	20-3/8	18-1/2	16-7/8	21-1/2
FMEAC2024C	25	20-3/8	22-1/2	16-7/8	21-1/2

Air Cleaner Construction

Four basic components create the powerful, patented SMART Electronic Air Cleaner (EAC). These components have been time tested in the production of more than 800,000 units. Each element of the SMART Bi-Polar system demonstrates breakthrough innovation.

- A. The SMART Power Supply is the heart of all Bi-polar EAC products. It is compact, fully encapsulated and very powerful – so reliable it is warranted for 5 years.
- B. The Power Grids are non-metallic, permanently coated with Macon-D (an exclusive and proprietary development), which allows very high conductivity without capacitance build up eliminating arcing and sparking.
- C. The Ion Chamber is a fully enclosed electronic Bi-polar closed loop. There is no line ground contact. The full power of 24,000 (-/+) volts is concentrated only on the airflow, separating toxic particles from the air stream. As sub-micron particles become polarized and attach to the polarized disposable collection media, they also “agglomerate”, a process where smaller particles combine to form larger particles. The now larger particles, with greater surface area, become electro-statically attached to the collection media attracting smaller toxic particles, increasing the collection efficiency over time. This is a major improvement over conventional wire and plate metal electronic air cleaners.
- D. The SMART Disposable Collection Media has a minimum of ten times greater collection surface than metal cell collectors.

Planning The Installation: FILTER GRILLE MODEL

APPLICATION

The SMART EAC is used in forced air heating, cooling and ventilating systems. The FG Model should be installed in the cold air return system so that all the household air is circulated through the air cleaner.

INSTALLATION REQUIREMENTS

The air cleaner will extend 2" into return air housing, so be sure there is proper clearance before installing.

Planning The Installation: FURNACE MOUNT MODEL

APPLICATION

The SMART EAC is used in forced air heating, cooling and ventilating systems. The SMART EAC should be installed in the cold air return system so that all the household air is circulated through the air cleaner.

INSTALLATION REQUIREMENTS

The best location for the FM Model is in the return air duct adjacent to the blower compartment, under the blower compartment (for upflow) or above blower compartment (for downflow). *CAUTION: For downflow applications, the SMART EAC should be installed at minimum 12" above the blower compartment, with fan delay set at maximum. To avoid contact with the SMART filter, sheet metal screws should be pointed away from the SMART cabinet/housing when attaching to the air handler and duct sheet metal.*

TRANSITIONS

If the return air plenum does not fit the air cleaner cabinet, a gradual transition is recommended to reduce air turbulence through the air cleaner and maximize efficiency. Not more than a 20 degree on expansion should be used on each side of the transition fitting.

CAUTION

Only qualified HVAC professionals should perform installation or repair of your SMART EAC1000 system in accordance with all applicable codes and standards.

- Very few elements of the SMART unit are user serviceable. Attempts to service or enter unserviceable components may cause serious injury due to electrical shock.
- Ensure that at minimum, a Class 2, UL listed 24 Volt power source is used for input power. Minimum power rating of 6VA is required.
- Do not install the SMART EAC in the discharge air duct.

NOTE: The SMART EAC is designed to be connected to a 24VAC Power Source which is live only when the air handler/blower is running.

WARNING: Disconnect power to furnace/air handler or other power source until installation is complete as 120Volts may cause serious injury from electrical shock.

Prior to installing air cleaner, read instructions carefully for safe operation. Failure to follow them could damage the product and invalidate the warranty.

Installation: FILTER GRILLE MODEL

PREPARING THE SITE

Read all instructions thoroughly before beginning any work. Failure to follow instructions could damage the product and invalidate the warranty. Only qualified HVAC professionals should perform installation or repair of your SMART EAC system in accordance with all applicable codes and standards.



1. Disconnect power to furnace/air handler. Ensure thermostat is in "off" position.



2. Open the Filter Grille housing and remove any existing filter materials.



3. Remove SMART EAC from box. Carefully open front grid door using handle, remove filter collection media and included 3 wire nuts, grommet and 4 plastic retaining bolts. Set aside.



4. Drill 3/8" hole in return air sheet metal as shown to provide path for wire.

ELECTRICAL WIRING

5. Install a Class 2, 120V to 24VAC step-down transformer to a grounded surface near Air Handler. Note: minimum Transformer power rating of 6VA is required.

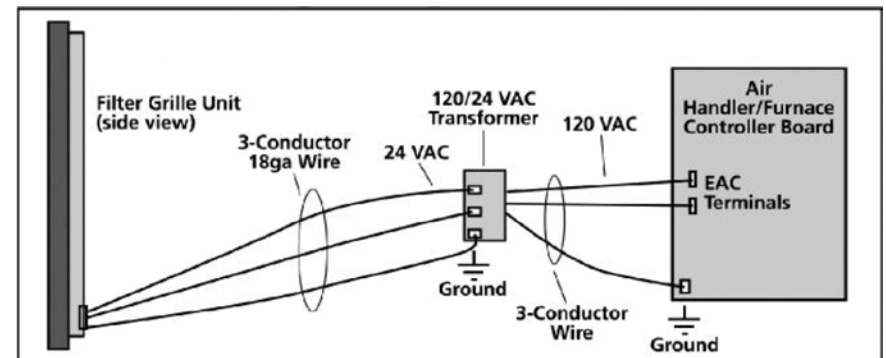
6. Run 18 ga. wire (3 conductor min.) from 24VAC transformer to the return air filter grille housing. Use provided grommet for sheet metal penetration point. Note: Assumes 3-conductor wire has 1 Green wire (designated for Ground) and 2 others.

7. Transformer Wiring Connections

- Transformer to Air Handler: Connect primary 120V transformer input to the 120V EAC terminals of the furnace/air handler in accordance with transformer and furnace/air handler instructions.

NOTE: Alternate Connection Method: Connecting transformer to 120V equipment without EAC terminals; Install a pressure differential switch (Example: Grainger 2E462). Always follow manufacturer's instructions to ensure suitability to your specific job application.

- Connect wires from the SMART unit to the 24VAC side of the step-down transformer. *NOTE: Assumes 3-conductor wire has 1 Green wire (designated for Ground) and 2 others. Ensure Green wire is properly grounded.*



Installation: FILTER GRILLE MODEL *(continued)*

ELECTRICAL WIRING *(continued)*

8. Complete the Installation



- Remove small cover plate (remove single screw) from the front of the SMART EAC to allow access to wiring compartment. Insert 3-conductor wire through hole from rear of system, through the wiring compartment, and out through the front of the system.



- Pull several inches of slack wire through the wiring box.
- Insert the SMART EAC completely into filter grille housing, seating it flush against the rear sheet metal flange. Secure unit into place by inserting the 4 plastic retaining bolts fully into the pre-drilled holes in the unit. **DO NOT USE METAL SCREWS OR BOLTS TO SECURE THE SMART EAC.**



NOTE: the retaining bolts are pushed into place from the INSIDE of the unit, and are secured OVER the sheet metal flange of the Filter Grille housing.



- Replace the SMART clean filter collection media and close grid door securely. *NOTE: Collection media should be installed so the more tightly woven fabric is located in the rear of the SMART unit.*

- Wiring the SMART system to the 3-conductor wire:
NOTE: Assumes 3-conductor wire has 1 Green wire (designated for Ground)



- Note that 3 wires are present within the SMART wiring compartment: 2ea BLACK, 1ea GREEN (for Ground). To wire - Connect the green ground wire from the SMART EAC filter to the green wire. Connect each of the black wires from SMART EAC to the remaining 2ea 24VAC wires coming from the Transformer. Use wire nuts provided.



- Replace cover plate over wiring compartment and secure with the single screw.

9. Powering System

- After all electrical connections are complete, reconnect power to the Furnace/Air Handler.
- Ensure SMART power switch is in "on" position (white dot is depressed).
- Close Filter Grille housing door.
- Switch Thermostat to "Fan on" position.
- Green SMART Power light should now be illuminated.
- Set Thermostat for normal operation. Green Lamp will only be illuminated when blower/fan is running.

10. Your SMART system is now operational.

Installation: FURNACE MOUNT MODEL

PREPARING THE SITE

1. Preparing the cabinet for the SMART EAC



- Insert rubber grommet into the pre-drilled hole at rear of the housing. *(NOTE: If retrofitting an existing cabinet: 3/8" hole must be drilled at rear of cabinet as shown below).*



- Insert power cord from inside of the housing cabinet through grommet in preparation to connect to 24VAC power source as described below. Leave the jack connector end hanging out of the front of the cabinet.
- Place one plastic retrofit track on the floor of the housing, using the 4ea strips of 2-sided tape to secure in place. Ensure that the wire is lying loose in the center of the housing floor, under the retrofit.

2. Install cabinet to furnace using the pre drilled holes and appropriate screws to attach to air handler. Seal with either mastic or duct tape to create an air tight connection.

3. Install the return air plenum to the filter cabinet.

4. Ensure that the SMART filter media is positioned inside the system with the loosely woven side facing upstream toward incoming air.

ELECTRICAL WIRING

5. Disconnect power to furnace/air handler. Ensure thermostat is in "off" position. To maintain warranty integrity, SMART system must be installed to a power source which is live only when the air handler/blower is running.

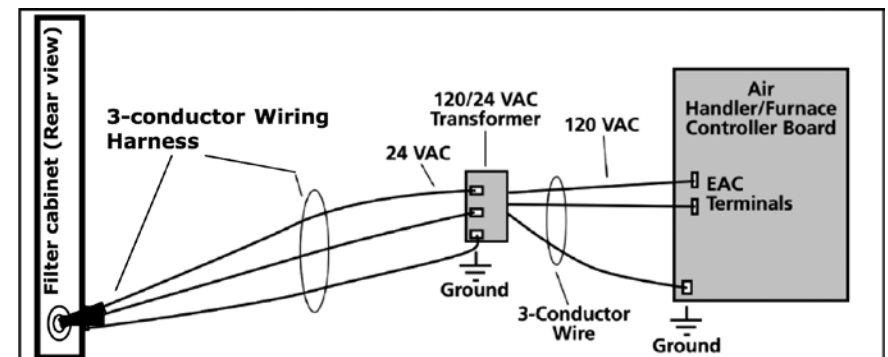
- Install a Class 2, 120V to 24VAC step-down transformer to a grounded surface near Air Handler. Note: minimum Transformer power rating of 6VA is required.

6. Transformer Wiring Connections

- Transformer to Air Handler: Connect primary 120V transformer input to the 120V EAC terminals of the furnace/air handler in accordance with transformer and furnace/air handler instructions.

NOTE: Alternate Connection Methods: Connecting transformer to 120V equipment without EAC terminals; Install a pressure differential switch (Example: Grainger 2E462). Always follow manufacturer's instructions to ensure suitability to your specific application.

- Connect wires from the SMART unit to the 24VAC side of the step-down transformer. *NOTE: Assumes 3-conductor wire has 1 Green wire (designated for Ground) and 2 others. Ensure Green wire is properly grounded.*



Installation: FURNACE MOUNT MODEL

(continued)

ELECTRICAL WIRING (continued)



7. Install the SMART EAC filter unit into the cabinet by sliding it over the retrofit track.



8. Insert Power Connector plug into the SMART jack (Located on underside of blue panel).

9. Powering System

- After all electrical connections are complete, reconnect power to Air Handler.
- Switch Thermostat to "Fan ON" position to test that power is being delivered to the system. Green Power Light should illuminate.
- SMART recommends testing that the lamp illuminates during "Heating, Cooling, and Fan ONLY" conditions.
- Set thermostat for normal operation. Green Lamp will only be illuminated when blower is operating.

10. Your SMART system is now operational.

Operation & Maintenance

GENERAL OPERATION

Your SMART EAC should work reliably for many years to come. Optimal cleaning performance is obtained when the system blower is set for continuous operation, at lowest fan speeds. The SMART Green Power indicator lamp will only illuminate when the blower is running.

GENERAL MAINTENANCE

Every 6-12 months the collection media should be replaced. This is a general guideline. The collection media may need to be changed more or less often depending on usage and amount of particulate matter in the air. You should initially visually check the filter every 3 months until you see that it should be changed. Collection media will typically be black or gray in color throughout when it needs to be changed. We recommend that the collection media be changed at minimum every 12 months.

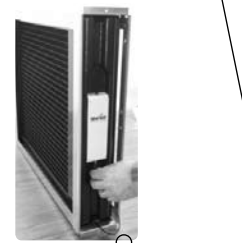
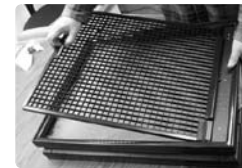
CAUTION: Excessively dirty collection media causes the air handler to work harder and consume more energy as it attempts to pull air through the filter. Failure to change your collection media as required could cause damage to your air handling equipment.

Operation & Maintenance *(continued)*

CHANGING THE COLLECTION MEDIA: FG MODEL

1. Ensure thermostat is set for "fan off" position. SMART EAC lamp should not be illuminated.
2. Open door of Filter Grille Housing. Use caution as static electricity may be present on the metal grille.
3. Open front door panel of SMART EAC and remove dirty collection media. Take care to place the dirty media in a plastic bag for disposal.
4. Follow instructions to install new collection media and close front door panel. *NOTE: Collection media should be installed so the more tightly woven fabric is located in the rear of the SMART EAC unit.*
5. Close door to filter grille housing.
6. Set Thermostat for normal operation. Green Lamp will only be illuminated when blower/fan is running.
7. Your SMART EAC is now operational.

CHANGING THE COLLECTION MEDIA: FM MODEL



1. Ensure thermostat is set for "fan off" (or AUTO with heating/cooling set to "Off"). Fan blower should not be running.
2. Remove the filter cabinet door. Lamp should not be illuminated on the SMART unit.
3. Disconnect Power Plug from the front of the SMART EAC unit.
4. Slide SMART filter completely out of cabinet.
5. Open the hinged door panel of SMART EAC by carefully pulling the handle.
6. Remove dirty collection media. Take care to place the dirty media in a plastic bag for disposal/recycling.
7. Install new collection media and close door. Ensure that the SMART filter media is positioned inside the system with the loosely woven side facing upstream toward incoming air.
8. Wipe the grids with a dry cloth if excessively dusty.
9. Slide SMART filter unit into cabinet.
10. Insert Power Connector plug into the SMART jack (Located on underside of blue panel).
11. Install door panel onto cabinet.
12. Set thermostat for normal operation. Green Lamp should only be illuminated when blower is operating.
13. Your SMART EAC is now operational.

SMART EAC1000 Limited Five-Year Warranty

This limited warranty (hereinafter "Warranty") covers all SMART Furnace Mount and Filter Grille Electronic Air Cleaning Systems (hereinafter "System") manufactured and sold after January 1, 2010, and is extended to the original purchaser and to any succeeding owner of the real property to which the System has been originally affixed. This Warranty applies only to products purchased and retained for use within the United States of America and Canada.

Hart & Cooley, Inc. hereby warrants its electronic air cleaner to be free from defects in workmanship or material, under normal use and service, for a period of five (5) years from the date of original purchase by the original owner. If any part of your System fails under normal use as the result of either faulty workmanship or materials within five (5) years from the date of original purchase, Hart & Cooley, Inc. will, without charge to you, make all the necessary repairs to your System or replace the System in its entirety with either a new or refurbished System, entirely at our discretion. This Warranty does not cover the disposable collection media which must be replaced periodically, as outlined in your SMART EAC Owner's Guide.

During this five (5) year period, all costs to ship your System to Hart & Cooley, Inc. for repair or replacement will be paid by the Customer. Hart & Cooley, Inc. will pay the freight charges to return the unit back to you, our Customer.

Any and all additional costs: local transportation costs, related service labor, costs of service calls to diagnose the problem, to remove the system prior to shipment, or to reinstall the system are expressly excluded from this Warranty and subject to additional charge.

This Warranty shall not apply if Hart & Cooley, Inc. determines that the defect or malfunction resulted from Customer's unreasonable use or customer's failure to properly maintain their System.

To qualify for this Warranty, the following conditions must be met:

1. The System must have been sold and installed by a qualified HVAC Contractor/Dealer.
2. The System must have been properly enrolled in Hart & Cooley, Inc.'s warranty program.
3. The System to be repaired must have been removed from the housing by a licensed HVAC Contractor/Dealer.

4. When calling for warranty service, the customer or their Contractor/Dealer must provide Hart & Cooley, Inc. with the model number, serial number, the name of the Contractor/Dealer who originally installed the system, the date of installation, the name of the Dealer/Installer who is providing the warranty service, the problem the customer is experiencing and the Contractor/Dealer's diagnosis of the probable root cause of the problem.

Please note: in order for this Warranty to be applicable, customers must not attempt to remove, repair, or replace the System or any part of the System, as it is Hart & Cooley, Inc.'s express intent that its System, and parts and products thereof be sold, installed and maintained by qualified HVAC Contractors/Dealers.

THIS WARRANTY SHALL NOT OBLIGATE HART & COOLEY, INC. FOR ANY LABOR COSTS OTHER THAN THOSE EXPLICITLY STATED ABOVE, AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS CAUSED DIRECTLY OR INDIRECTLY BY YOUR OWN INSTALLER.

THE IMPLIED WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFOREMENTIONED FIVE (5) YEAR PERIOD. HART & COOLEY, INC.'S TOTAL LIABILITY SHALL BE LIMITED AND CAPPED AT THE TOTAL PURCHASE PRICE FOR THE SYSTEM. UNDER NO CIRCUMSTANCES SHALL HART & COOLEY, INC. BE OR INCUR ANY LIABILITY OF ANY KIND FOR SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF THE AFOREMENTIONED WARRANTIES OR OTHERWISE ALL WARRANTIES HEREIN ARE VOID IF DEFECTS OR DAMAGES RESULT FROM A FAILURE TO HAVE THE SYSTEM INSTALLED, MAINTAINED AND/OR REPAIRED BY A QUALIFIED AUTHORIZED HART & COOLEY, INC. HVAC CONTRACTOR OR IF END-USE CUSTOMER USES THE SYSTEM IN AN UNREASONABLE MANNER OR IN A MANNER FOR WHICH IT IS NOT INTENDED.

Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages so the above exclusion or limitation may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.



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Hart & Cooley, Inc.

5030 Corporate Exchange Blvd. SE

Grand Rapids, MI 49512

info@hartcool.com

www.smartairandenergy.com

800.433.6341 p

616.656.8200 p

800.223.8461 f

616.656.6399 f