



Installation, Operation and Maintenance Guide

FC-400 Series



OUR MISSION

To improve health and wellness by actively restoring indoor air to its pure, natural state where no pollution or contaminants exist, while reducing energy use and emissions in the process.

IMPORTANT

Save this Document
for Future Reference &
Warranty Information



AtmosAir.com
CAG-24-03-008

Trademarks

Any brand names and product names included in this document are trademarks, registered trademarks, or trade names of their respective holders.

To the Holder of this Document

The contents of this document are current as of the date of publication. AtmosAir® reserves the right to change the contents without prior notice.

In no event will AtmosAir be liable for any special, incidental, or consequential damages or for commercial losses even if AtmosAir has been advised thereof as a result of issue of this document.

WARNING

Failure to follow this warning could result in personal injury or death.

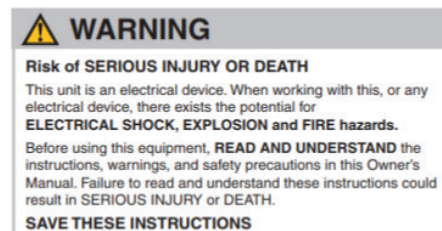
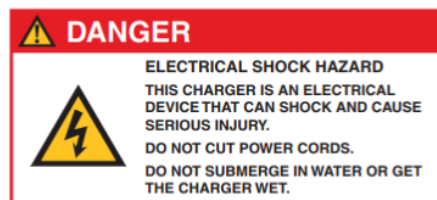
For installation you **MUST:**

- Always disconnect all electrical power to the unit before handling any of the components, to the air handler before removing access panels, or to perform any maintenance activities.
- Do NOT connect to the power before the installation is complete and personnel are aware of the imminent operation – secondary voltage to the ionization tube can be as high as 3,000 VAC.
- Installation of AtmosAir equipment is not to be performed in areas with extreme conditions such as extreme heat or cold, or where water or condensing moisture can impact the system.
- Carefully read this instruction booklet before beginning the installation.
- Follow each installation or repair step exactly as shown and explained in this guide.
- Observe all local, state, national, and international electrical codes.
- Pay close attention to all warnings and caution notices given in this guide.

1. Before installing or servicing system, always turn off main power to system.

Note: There may be more than one disconnect switch.

2. AtmosAir equipment must be installed with a proper ground. The electrical cable enclosed with your AtmosAir unit must be used as it has a special plug which provides a ground circuit for the equipment.
3. Always replace fuse with the same rating and type of fuse.
4. Failure to follow this caution may result in personal injury or product and/or property damage.
5. Although special care has been taken to minimize sharp edges in the construction of your unit, be extremely careful when handling parts or reaching into the unit.
6. Do NOT block or obstruct the air flow over or around the ionizing tubes.
7. Do NOT touch ionizing tubes when power is on.
8. Tube cleaning should be performed only when the power is disconnected.
9. The tubes require minimal cleaning with routine operation and maintenance.
Longer operating cycles and reduced ionizing efficiency may indicate the need for cleaning or replacing tubes by your AtmosAir dealer or qualified installer.



Commissioning Statement

Do not commission new airhandlers after installation. All duct cleaning must be performed before the unit is installed.

Disclaimer: The air purification technologies provided by Clean Air Group are intended to improve indoor air quality. They are not intended as a replacement for reasonable precautions aimed at preventing the transmission of contaminants, airborne or otherwise. All persons having access to the serviced premises should comply with applicable public health laws and guidelines issued by federal, state and local governments and health authorities such as the Centers for Disease Control and Prevention (CDC). Clean Air Group does not maintain that its products will protect people from all modes of transmission of bacteria, viruses or other contaminants, and excludes liability for loss or damage arising from any such claims or the consequences arising out of the application, use or misuse of its products.

Table of Contents

01 PRODUCT OVERVIEW	5
FC-400 Diagram	5
02 INSTALLATION	6
Mechanical Installation	6
Electrical Installation	7
03 FIELD WIRING DIAGRAMS	8
Diagram 1	8
Diagram 2	9
Diagram 3	10
Diagram 4	11
Diagram 5	12
04 OPERATION	13
05 MAINTENANCE RECOMMENDATIONS	13
06 TROUBLESHOOTING	14
07 EXPLANATION OF TECHNOLOGY	15
08 PRODUCT WARRANTY	16

01 PRODUCT OVERVIEW

The AtmosAir FC-400 series ionization generators are designed for installation in air conditioning systems or in custom-designed air distribution systems. AtmosAir equipment is effective in reducing odors and harmful pollutants through the introduction of positive and negative ions into the airstream to be treated. The number and size of the ionization units used is dependent upon the airflow, size of the space, and severity of the pollution and odors. The AtmosAir FC-400 series equipment is designed for minimal maintenance. The FC-400 series has two components that require inspection and maintenance:

1. AtmosAir FC-400 series base unit components + fuse
2. Ionization tube

There are no user-serviceable components inside.

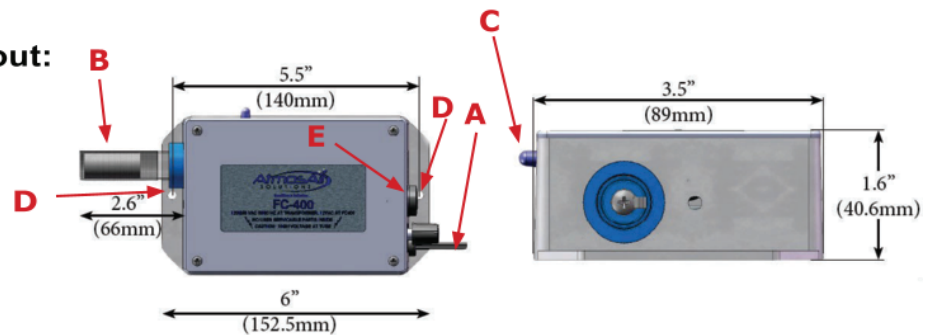
Because there are no moving parts, little maintenance is required, and the systems have very low failure rates. For more information, read the AtmosAir FC-400 series submittal document.

FC-400 Diagram

AtmosAir FC-400 Layout:

AtmosAir FC-400 Layout:

- A. Power Input
- B. Ionization Tube
- C. Blue LED Power Light
- D. Mounting Holes
- E. Fuse Holder



Overall Mounting Plate Dimensions:

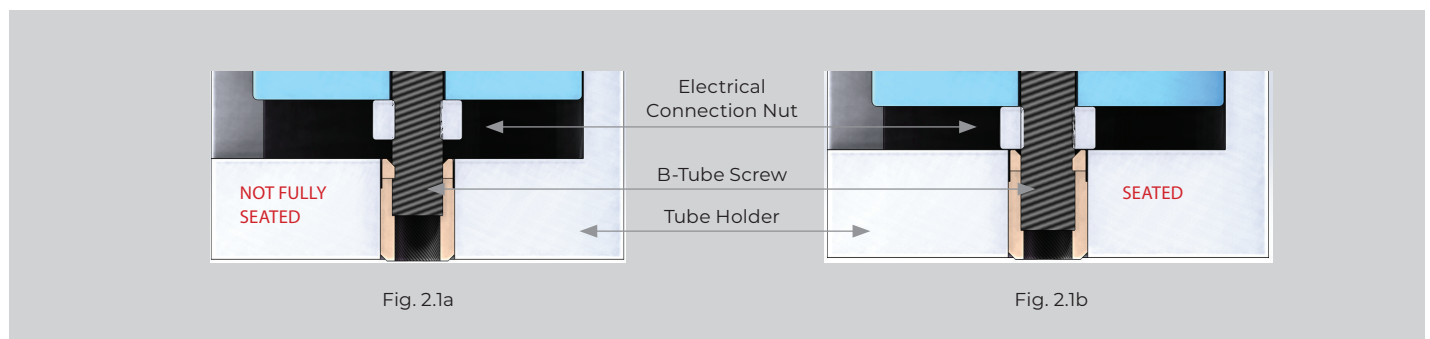
FC-400: 6" (15.25 cm) L × 3.5" (8.9 cm) W × 1.6" (4 cm) H

02 INSTALLATION

AtmosAir FC-400 series equipment are mounted using the baseplate mounting flange. The units operate best when located after all filters, coils, and fans. Various mounting arrangements are possible; however, the available options may be limited due to size and configuration restrictions. When mounted, the FC-400 ionization system should not be exposed to condensing moisture or excessive heat (refer to the Product Submittal for maximum environmental temperature specifications). The AtmosAir FC-400 operates on 100-250 VAC, 50/60 Hz. The tube and electrode contacts should not come into contact with any conductive surface. A minimum 38.1mm (1.5") clearance around the tube is recommended.

Mechanical Installation

1. Carefully remove the equipment from its shipping container. Inspect the box, components, and tubes for damage. Verify that the unit's voltage rating is the same as the available voltage, 100-250 VAC 50/60 Hz.
2. Install the ionization tube: Gently pull the conductor strap back to allow the tube to turn freely; screw the end screw of the tube into the tube-holder hand-tight. Ensure that the tube is **FULLY SEATED**.
3. Once the tube is secure, return the conductor strap to its normal position and ensure solid, flat, and continuous contact is made with the tube's outer mesh. (See page 8.)
4. **Location and Orientation:** Install the unit downstream of filters, coils, and fans with tubes perpendicular to airflow whenever possible. Contact AtmosAir Engineering for Installations outside this scope.
5. Mark the drill holes for the self-tapping screws to mount the FC-400.
6. Affix the unit securely using self-tapping screws. Do not over-tighten, this may strip the screw-hole.
7. Units should be installed to allow easy access for maintenance. Install units so that the power adjustment knob, fuse, and status light are easily accessible, variable, and visible.



!!!WARNING!!!

The secondary voltage to the ionization tubes can be as high as 3000 volts AC. Do NOT connect to power before the installation is complete and all personnel are aware of imminent operation. Always disconnect power to the unit before handling any of the components.

Electrical Installation

- AtmosAir FC-400 series systems require an average of 4.5 watts per unit.
- Follow proper electrical procedures, guidelines, and codes for providing power supplies to the systems. Including requirements for conduit, sufficient ampacity, phase balancing, etc. Electrical installation should be performed by a qualified electrician.
- Field-install a power plug outlet or power receptacle within 1.83 meters (6') of the unit(s).
- Each FC-400 series unit is shipped with an 2.44 meters (8') power cord with a field install pair of wire hot/neutral connector on one end and a quick-disconnect plug on the other end. The FC-400FM has a polarized quick-disconnect on the unit. Each unit is shipped with two wiring options per country-specific requirements:
 1. Two-conductor, field wire connection (No Ground)
 2. NEMA 5-15 two-prong plug adapter

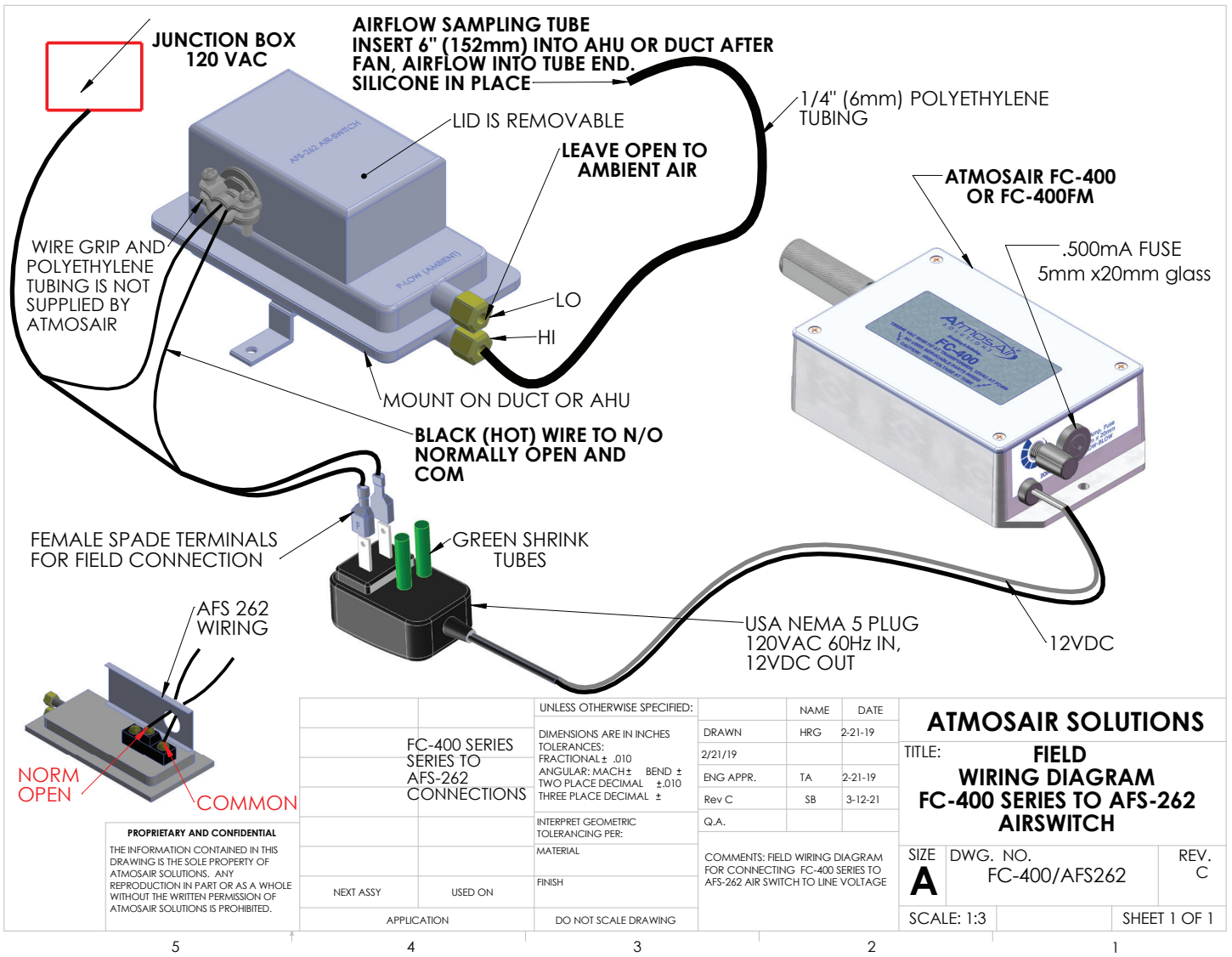
!!!WARNING!!!

THE SECONDARY VOLTAGE TO THE IONIZATION TUBE CAN BE AS HIGH AS 3000 VOLTS AC. DO NOT CONNECT TO POWER BEFORE THE INSTALLATION IS COMPLETE AND ALL PERSONNEL ARE AWARE OF IMMINENT OPERATION. ALWAYS DISCONNECT POWER TO THE UNIT BEFORE HANDLING ANY OF THE COMPONENTS.

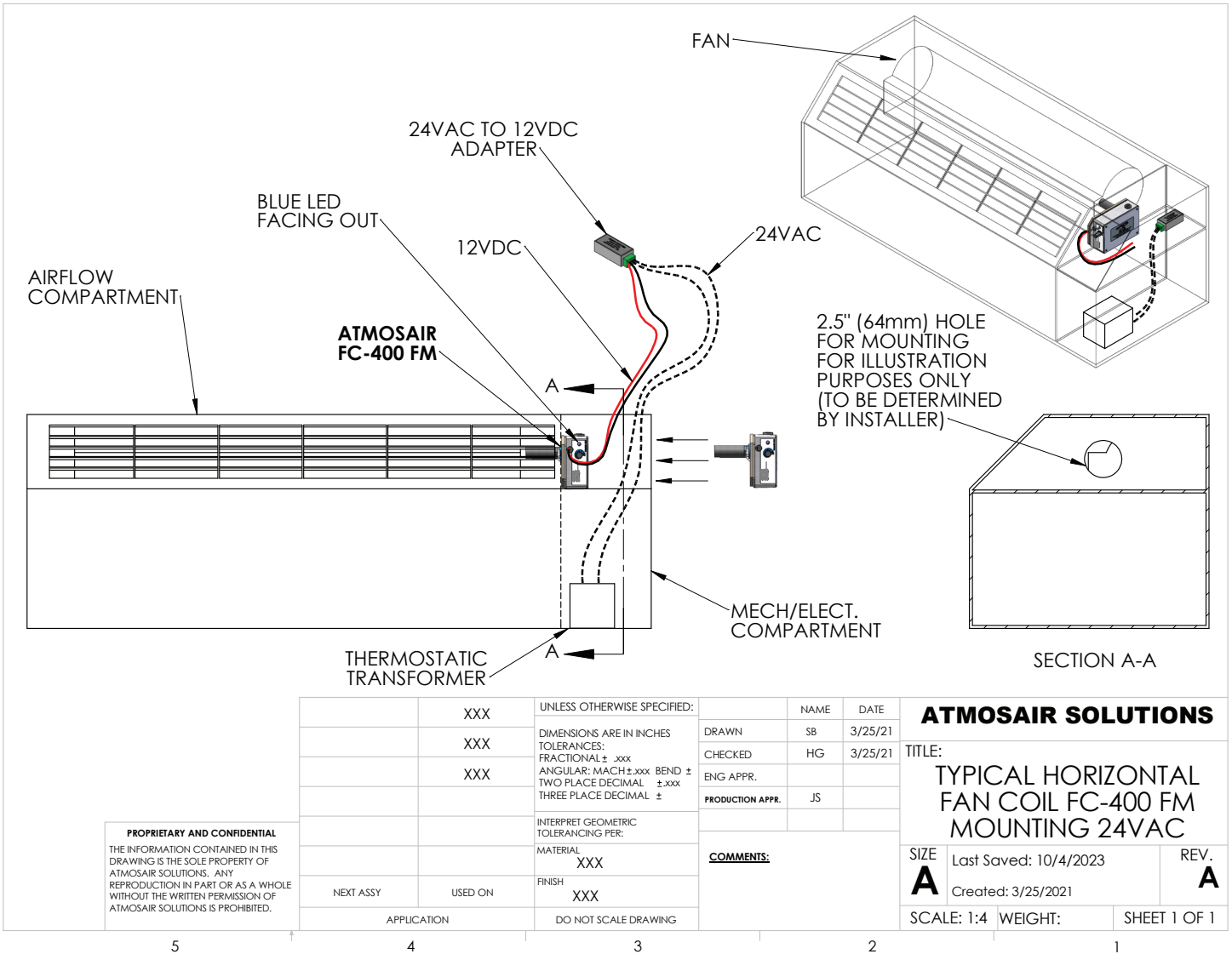
Caution!

A non-functioning LED light may improperly indicate that the system is not functioning. Be sure to disconnect from the main power before performing maintenance or troubleshooting the system.

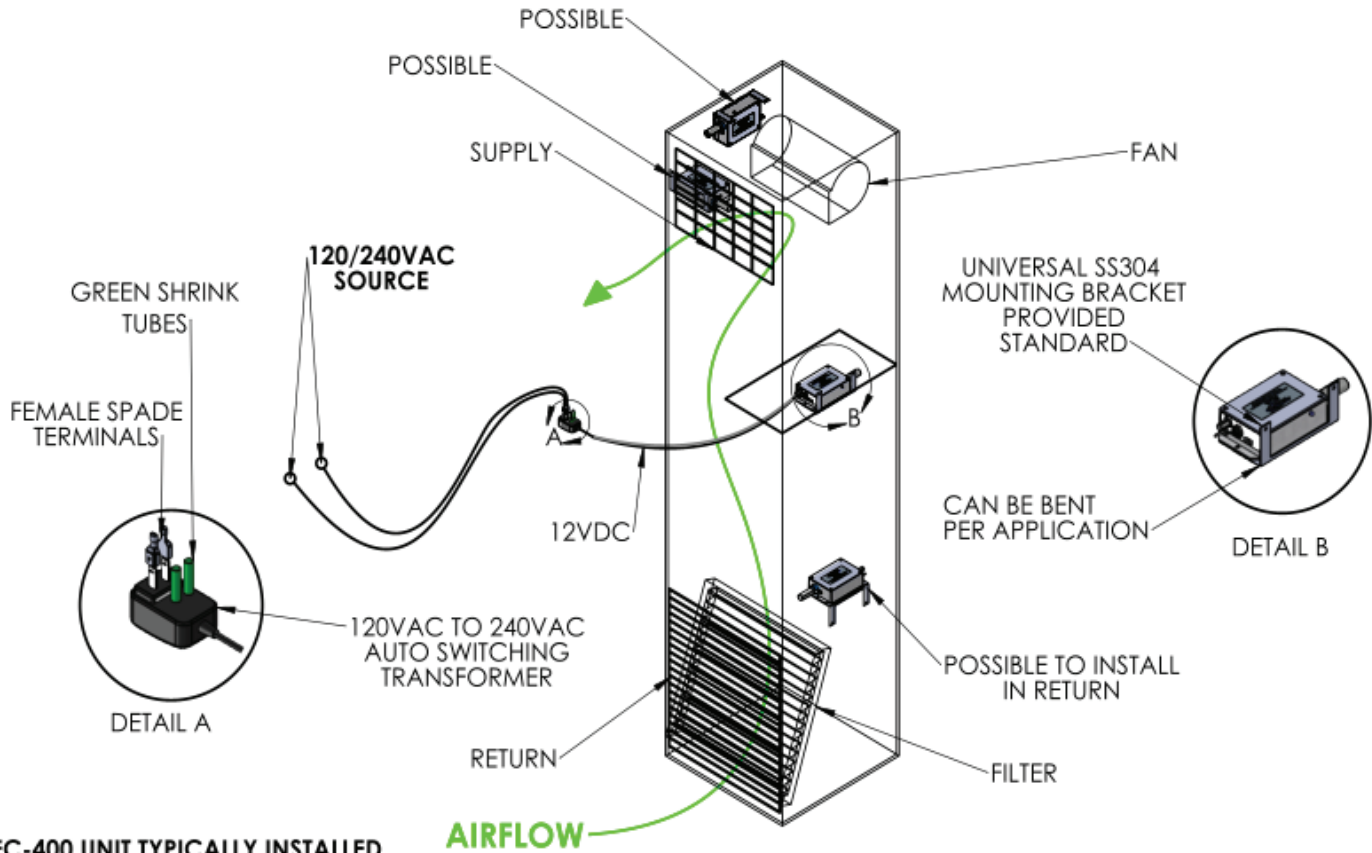
03 FIELD WIRING DIAGRAMS



03 FIELD WIRING DIAGRAMS CONTINUED



03 FIELD WIRING DIAGRAMS CONTINUED



FC-400 UNIT TYPICALLY INSTALLED IN SUPPLY, HOWEVER UNDER SPECIAL CIRCUMSTANCES CAN BE INSTALLED IN RETURN

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ATMOSAIR SOLUTIONS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ATMOSAIR SOLUTIONS IS PROHIBITED.

XXX	UNLESS OTHERWISE SPECIFIED:	NAME	DATE	ATMOSAIR SOLUTIONS TITLE: TYPICAL VERTICAL FAN COIL FC-400 MOUNTING SIZE A Last Saved: 3/26/2021 Created: 3/25/2021 SCALE: 1:4 WEIGHT: SHEET 1 OF 1
XXX	DIMENSIONS ARE IN INCHES	DRAWN	SB 3/25/21	
XXX	TOLERANCES:	CHECKED	HG 3/25/21	
	FRACTIONAL ± .xxx	ENG APPR.		
	ANGULAR: 1/16" ± .xxx BEND ± TWO PLACE DECIMAL ± .xxx	PRODUCTION APPR.	JS	
	THREE PLACE DECIMAL ±	COMMENTS:		
	INTERPRET GEOMETRIC TOLERANCING PER:			
	MATERIAL			
NEXT ASSY	USED ON			
	FINISH			
APPLICATION	DO NOT SCALE DRAWING			

04 OPERATION

Once the system is properly installed and all personnel are clear of the high voltage tubes, the system can be turned on:

1. Ensure the ionization power knob is turned to the appropriate quadrant: from low to high clockwise. Typically, it is suggested to start at a baseline of 50% ionization. Twenty-four hours later, re-evaluate your air quality and adjust accordingly.
2. Plug the power cord on the FC-400 ionization system into the plug receptacle.
3. Once the FC-400 system is plugged in the system will be on. Check that the blue embedded LED light is lit. The LED is programmed to indicate that the system is on, ionization has been activated, and high voltage is being sent to the tube.
4. Settings are determined upon commissioning and installation with the Criteria below:
5. The system is intended to deliver ions into the treated area such that the ion levels should be between 350 and 1500 negative ions/cm³. The desired ion increase is dependent on many factors, including space, use, contaminant level, humidity RH, and distribution effectiveness. An authorized AtmosAir design consultant should recommend the desired ion increase and appropriate system layout.

05 MAINTENANCE REQUIREMENTS

Caution!

A non-functioning LED light may improperly indicate that the system is not functioning. Be sure to disconnect from the main power before performing maintenance or troubleshooting the system.

The maintenance requirements on an AtmosAir system are mainly site-dependent; a heavily contaminated environment may require more frequent inspection and maintenance. Annual system maintenance is recommended. A bi annual tube replacement is required. Your local AtmosAir dealer can provide you with an annual service contract.

Recommended Maintenance Procedures:

- Visually check the performance of the system by checking the blue light on the unit. If not, proceed to the troubleshooting section for repair. Maintain a physical distance between all personnel and the tubes while system is operating or turned on.
- **Optional:** Check performance using a high voltage probe paired with a multimeter (minimum of 5000 V probe). Contact AtmosAir for additional minimum probe specifications. Follow proper procedures for dealing with high voltages. If you are uncertain, do NOT perform any maintenance with the power on and proceed to the next step.
- Disconnect the system from the main power before performing any maintenance steps.
- Inspect the unit box, plastic tube caps, and tube-mounting area. Remove particles from mounting area, and thoroughly wipe clean any tracks or grooves that may have developed in the plate or caps.
- Inspect connections: tightness of all nuts and screws; remove deposits on the connections using wire brush or similar tool - it may be necessary to remove the tubes for this step.
- It may be beneficial to clean the tubes to improve performance. The tubes can be cleaned using an air compressor for a quick clean, or more thoroughly with cleaning solutions. Do not immerse the tubes in water. Ensure that the tubes and mesh are completely dry before re-installing.

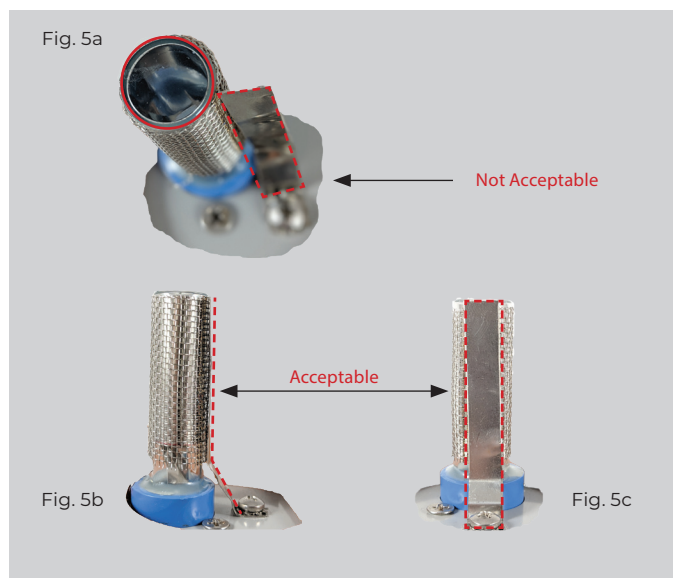
Tube Replacements:

Bi-annual tube inspections are recommended, in addition to tube replacements once every two years as the production efficiency slowly declines over time due to the stress caused by plasma and (lack of) cleanliness of the electrodes. Old or excessively dirty tubes can also put undue stress on the transformer causing premature failure.

06 TROUBLESHOOTING

In the event that the system is not functioning, follow these steps **IN ORDER**:

1. Check the fuse. If it is blown, replace it with the appropriately sized slow-blow 1000 mA (1 Amp) glass 5 mm × 20 mm fuse rated at 250 V and continue to the next step.
2. Check that the main power supply is sending the correct power to the unit (100-250 VAC).
3. If the main power is controlled or any other power limiting device is installed, check that these are not preventing power from being sent to the system.
4. If power is reaching the unit and it was necessary to replace the fuse, the next step is to determine whether there is a fault in the system or a tube. First, to check that the system's power is functioning, set the ionization power knob and the power switch both to the 'off' position. Make sure all personnel are clear of the high voltage tubes, then re-connect the power supply. Flip the power switch to 'on' and observe the green light. If the light does not turn on, there is still a problem with delivering power to the system. If all external sources of failure are eliminated, the system should be serviced by a qualified AtmosAir technician. Refer to the contact information at the bottom of this page.
5. Check that the spring tang is making **CLEAN, FLAT-TO-TUBE** contact with the tube as shown below:



The next step is to determine the cause of the failure, or blown fuse. Typically, failures are caused by arcing between the inner and outer electrodes, or between one electrode and ground. Often, this occurs either because the tube isn't properly seated, or because of damaged tubes or dirty and/or wet conditions that have allowed carbon tracking to temporarily connect two electrodes and/or a grounding point electrically.

6. Inspect the mounting plate for tracking evidence.
7. Inspect the tubes for cracks, pitting, or other degeneration of the dielectric material that causes the dielectric to fail and arcing to occur.
8. If physical inspection has not revealed the cause of failure, one may carefully observe the tubes as the ionization system is turned on to determine whether arcing is occurring at a particular tube. The fuse will usually blow, again, but for a short time, one may observe the cause of the power surge in the form of a visual or audio cue. Usually, a failing tube can be determined in a darkened room by looking for a flash or arc from the failing tube.
9. If the fuse blows, then the system should be serviced by a qualified AtmosAir Technician. You can contact repair services at RMA@atmosair.com or by contacting us at 1-888-MY-AIR11.
10. If the fuse continuously blows, then the system should be serviced by a qualified AtmosAir technician. **DISCONTINUE USE IMMEDIATELY!**
11. Otherwise, replace the damaged tube(s), clean and smooth any mounting plate or end cap carbon tracking, and return the system to service.

07 EXPLANATION OF TECHNOLOGY

AtmosAir Solutions'™ mission is to bring and restore every indoor environment the same clean and pure quality air that is typically found at higher mountain elevations.

AtmosAir's unique and proven air purification process significantly reduces mold, controls the spread of bacteria and airborne viruses, and reduces airborne particles that evade normal filtration solutions.

AtmosAir equipment uses non-thermal plasma technologies to generate bi-polar ionization that attacks and breaks down odors and contaminants.

08 PRODUCT WARRANTY



CLEAN AIR GROUP, INC. – PRODUCT WARRANTY

Clean Air Group, Inc. d/b/a AtmosAir Solutions (“Clean Air Group”) warrants to the original purchaser of this product (“Customer”), that should it prove to be defective by reason of improper materials or workmanship, for **twenty-four (24) months** from the date of installation, or **twenty-seven (27) months** from the date of Clean Air Group’s original delivery of the product, whichever occurs first, Clean Air Group shall repair or replace the product without charge to the Customer. Proof of malfunction and return of the non-working product must be presented by the Customer if submitting a warranty claim. This warranty is invalid if the factory applied serial number has been altered or removed from the product. This warranty does not cover damage due to acts of God, misuse, abuse, negligence, or modification of or to any part of the product. This warranty does not cover damage due to improper installation, operation or maintenance, connection to improper voltage or electrical supply, or repair by anyone other than an authorized Clean Air Group service provider. To obtain warranty service the Customer must: (1) provide proof of purchase in the form of a Bill of Sale or receipted invoice, with evidence that the product is within the warranty period; (2) request a Return Merchandise Authorization (“RMA”) from Clean Air Group prior to shipping; and (3) ship the product with the RMA to Clean Air Group, freight prepaid, in either its original packaging or packaging affording an equal degree of protection. The product should be delivered to *AtmosAir, 2115 East Cedar Street, Suite 6, Tempe, AZ 85281*. All transportation charges and shipping expenses are the Customer’s responsibility. Clean Air Group will return the product by the same method it receives the product. A product returned for repair after the warranty period, or that shows damage outside of the warranty coverage described herein, shall be repaired for a reasonable charge as determined by Clean Air Group. The Customer will be advised of the cost of repair or replacement before Clean Air Group proceeds.

THE OBLIGATIONS OF CLEAN AIR GROUP HEREIN ARE EXPRESSLY GRANTED IN LIEU OF ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE LIMITED TO THE TERM OF THE EXPRESS WARRANTY GRANTED HEREIN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE FOREGOING LIMITATION OR EXCLUSION MAY NOT APPLY TO THE CUSTOMER.

With the exception of damages resulting from Clean Air Group’s failure to comply with any obligation under federal or state warranty laws, Clean Air Group SHALL NOT BE LIABLE TO THE CUSTOMER OR ANY OTHER PERSON OR THIRD PARTY FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO CONSEQUENTIAL, SPECIAL, INDIRECT, INCIDENTAL AND PUNITIVE DAMAGES AND/OR DAMAGES BY REASON OF INJURY TO ANY PERSON DUE TO ANY DEFECT OR MALFUNCTION OF THE PRODUCT OR ANY PART OR PARTS THEREOF OR FOR ANY OTHER REASON. This warranty gives the Customer specific legal rights and the Customer may have rights which vary from state to state. If the Customer’s product is defective, the Customer should contact Clean Air Group or the dealer where the product was purchased.

Disclaimer:

The air purification technologies provided by Clean Air Group are intended to improve indoor air quality. They are not intended as a replacement for reasonable precautions aimed at preventing the transmission of contaminants, airborne or otherwise. All persons having access to the serviced premises should comply with applicable public health laws and guidelines issued by federal, state and local governments and health authorities such as the Centers for Disease Control and Prevention (CDC). Clean Air Group does not maintain that its products will protect people from all modes of transmission of bacteria, viruses or other contaminants, and excludes liability for loss or damage arising from any such claims or the consequences arising out of the application, use or misuse of its products.

Manufacturer,

A handwritten signature in black ink, appearing to read "Anthony M. Abate".

Anthony M. Abate
Chief Technology Officer
Clean Air Group, Inc.