

## Operations & Maintenance Manual

# AF Air Purifier iSeries AF1000 and AF2000



### 1.0 INTRODUCTION

Congratulations! You are now the owner of a QUATRO AirFlow Series RNP system, an advanced effective air purifier, designed specifically to help protect the human respiratory system. You can expect a noticeable improvement in air quality as the unit begins the process of reducing microscopic airborne particulate.

The RNP system was designed to provide flexibility in the field. It can be used with adjustable discharge grills for simple recirculation or it can be converted to a negative pressure system by replacing the adjustable grill with 6" (AF1000RNP) or 10" (AF2000RNP) discharge collar which has been supplied.

This will allow the end user to exhaust clean air from the room to create a negative pressure environment.

### 2.0 PRECAUTION

Read all the instructions contained within this manual before operating this unit. Keep this manual, as it contains information for proper operation and maintenance. Keep all fastening hardware tight to ensure that the unit is in good working condition. Familiarise yourself with the way in which filters are removed, installed, and serviced. All filters must be in place whenever this machine is in operation. Use only on a grounded electrical circuit; do not use any two-wire electrical prong adapters to defeat the three-pronged plug on the end of the cord. When servicing the motor, be careful when touching the exterior of the motor as soon as it has been turned off; it may be hot enough to be painful or cause injury. They are built to operate at higher temperatures. **Do not substitute any other filters (particulate or chemical) for those supplied, as this will alter the unit efficiency. DO NOT SERVICE MOTOR OR CONTROL PANEL UNLESS UNIT IS UNPLUGGED FROM RECEPTACLE (ITS POWER SUPPLY)!**

### 3.0 PRINCIPLE OF OPERATION

The air is drawn in through an intake grille located at the bottom of unit. The air then passes through the particulate, HEPA and optional odor filters. The clean air is then released through the top discharge grills into the controlled space. The **AF iSeries Purifier** features a threefold method of operation; a) captures general particulate; b) HEPA filter removes microscopic particulate matter; c) Optional Chemical filters adsorbs, reacts or scrubs toxic or nuisance gases (optional).

#### **4.0 MAIN SYSTEM COMPONENTS**

**BLOWER ASSEMBLY:** The blower is factory balanced and tested to ensure quiet, vibration-free operation.

**CONTROL PANEL:** Designed for easy monitoring, features micro-processor based control for speed variation and filter alarms

#### **5.0 SYSTEM SPECS**

Description	AF2000	AF1000
Nominal Airflow (CFM/m3/hr)	1000 / 1700	600 / 1020
Dimensions, Height:	71" (1803mm)	52" (1321mm)
Dimensions, Width: *	24" (610mm)	22" (559mm)
Dimensions Length:	26" (660mm)	16" (406mm)
Voltage	120/1/60 or 230/1/50	120/1/60 or 230/1/50
Current:	5.4 or 2.3 amps	1.6 or 0.8 amps
Approx. Weight:	350lbs (159kgs)	200lbs (91kgs)

\* - add 2" for bend on power cord if req'd for width dimension

#### **6.0 UNIT RECEIVING INSTRUCTIONS**

Upon receipt, inspect unit for either visible or concealed damage. Damage should be immediately reported to the transport company. Ensure:

- a) All internal components are present and are adequately supported and installed;
- b) Labels and serial numbers are present for future identification;
- c) Verify that power supply is compatible with equipment. Also check that the unit is plugged into a grounded receptacle;
- d) Ensure that unit-mounted casters are tight and secure before manoeuvring the system.
- e) Remove any spare filters supplied inside the unit and store for future use.

#### **7.0 START-UP**

- a) Place unit on a flat surface, ensure filters are installed (see **Equipment Installation and Filter Maintenance Guide** on face of unit);
- b) Ensure that supply and return air grilles are not obstructed in any way (air circulation patterns will be inhibited if airflow is obstructed);
- c) Insert male end of cord into the correct voltage circuit. Control will emit 3 beeps and 4 LEDs will flash along with those beeps.
- d) Press Power button and adjust airflow (speed control) accordingly. See Section 9.1.

**WARNING: DO NOT OPERATE UNIT UNLESS ALL FILTERS ARE IN PLACE.**

#### **8.0 FILTER & BLOWER MAINTENANCE**

Proper maintenance is critical to extend the life of the system. The information presented below outlines basic maintenance procedures ensuring the unit will provide trouble-free operation. The purifier is designed to allow quick access to the filters, blower/motor and control panel assembly.

Level	Type	Replacement Frequency	AF1000*	AF2000*
Level I	Dust Filter	Every 3 months	F007-8/box	F001-8/box
Level II	12" Intermediate Hi Capacity Filter	Every 6 months	F015-1/box	F014-1/box
or	6" Intermediate High Capacity filter	Every 6 months	F016	(2) F016
or	Intermediate General VOC/Odor Filter	Every 12 months	(1) F003-GPC	(2) F003-GPC
Level III	Hepa Filter (99.97%)	Every 12-18 months	F057-1/box	F052-1/box
or	Hepa Filter High Capacity (99.97%)	Every 12-18 months	F550-1/box	-
or	Hepa Filter (99.995%)	Every 12-18 months	F357	F352

\* The filters shown are for the most popular filter sequences. Verify the part number on the filter in your system before ordering.

#### **8.1 FILTER-ALERT SYSTEM AND FILTER REPLACEMENT**

QUATRO has included in this unit a "FILTER ALERT" Warning System. When filters need to be replaced, the "Service Filter(s)" light (LED) illuminates and beeper sounds for 2 seconds every 4 hours. When the appropriate "Service Filter(s)" light (LED) illuminates, it is time to replace the filters following the above table. The information presented below outlines basic maintenance procedures ensuring the unit will provide trouble-free operation for years to come.

#### **8.2 PARTICULATE FILTER REPLACEMENT**

- a) Open the filter access door with the appropriate tool (Phillips screw driver) to avoid stripping of screws;
- b) Carefully slide pre-filters and high capacity filters along their support channels, Slide clean filters gently into place;
- c) Ensure Dust Filters are replaced as per airflow indications;
- e) If encountering difficulties, confirm that there are no obstructions in the filter track;
- f) Hi-Efficiency filters must be replaced as per airflow arrow on the filter casing;

Units with serial numbers Previous to SN: 89373

- (g) HEPA filters should be installed with gaskets facing up to seal on the section above the filter.  
For critical applications, a secondary seal can be applied using continuous bead of removable sealant. (Part# AR321)  
This would be applied to the middle of the gasket in a continuous bead prior to putting the HEPA into the system and then inserting pressure seal rods
- (h) The RNP systems are equipped with a HEPA pressure sealing mechanism. The easiest and most effective way to change the HEPA filters is with the unit lying down on its back. Two or more people will be required to do this safely. Once lying down the pressure sealing mechanism rods are to be pulled out to release the seal. There are loops on the rods to help pull. If it is difficult to remove please use a tool for additional leverage. Please note it critical for these filters to be tight and secure to avoid by-pass so this is completely normal. If secondary sealant was applied please remove this prior to installing new filter.
- i) Care must be taken not to damage the exposed portions of the new HEPA filter. DO NOT bend aluminium separators as this will obstruct airflow.
- j) **RESET "Service Filter(s)" Light (see section 8.6)**

Units with serial numbers AFTER and including SN: 89373

- g) HEPA filters should be installed with gaskets facing up to seal on the section above the filter:

➔ **Tools required:**

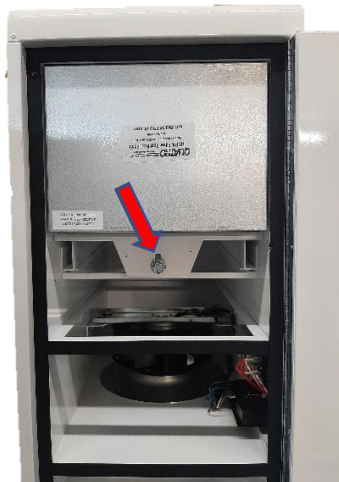
- 9/16 Socket wrench
- #3 Philips screwdriver OR #2 Robertson screwdriver

➔ **Instructions:**

1. Power off your AF1000 unit then UNPLUG it.
2. Open the unit door; Use your screwdriver to unfasten the (2) screws securing it.



3. Use socket wrench – counter-clockwise rotation - on the bolt centered on the HEPA seal mechanism.



- An acorn-nut on the back of the bolt will stop the mechanism once it is fully “removed”. Slide out the HEPA filter once the track comes out, demonstrated below.



- Insert new HEPA filter onto the filter track – gasket facing upwards



- Tighten the HEPA seal mechanism – clockwise rotation – until gasket is fully compressed.

#### RESET “Service Filter(s)” Light (see section 8.6)

### **8.3 Optional CHEMICAL FILTER TRAY (F003) MAINTENANCE**

It is essential that the chemical filter media be replaced approximately every twelve months **OR** immediately following any detection of odor. After an operating period of twelve months (or when the filters are consumed), call your authorised distributor to purchase a new set of chemical filtration assemblies (Part No: F003-xxx ) prior to removal of existing one.

To replace Odor Filter (Part No: F003-xxx)

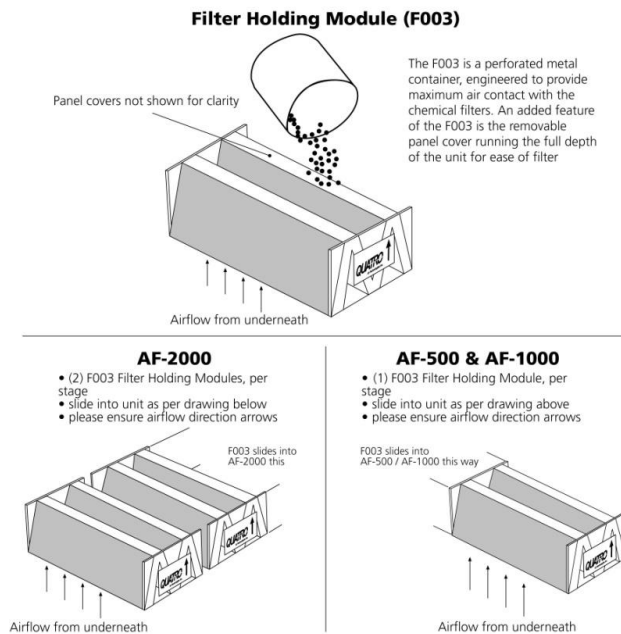
- Ensure that the unit is unplugged, open door with appropriate tool to avoid stripping of screws;
- Slide out the existing F003 chemical module, remove new F003 from the box that it was shipped in;
- Reinsert new filter back into the system with removable lid on top;
- Return door to the closed position and verify that an airtight seal is maintained;
- RESET “Service Filter(s)” Light (see section 8.6)**

### **8.3 Optional BULK CHEMICAL MEDIA FILTER TRAY (F003) MAINTENANCE**

To refill existing F003 chemical filter cell with new bulk odor media:

- Slide out existing F003 filter (see diagram below);
- Unscrew the screws and lift off access cover;
- Pour out used odor filter (**this procedure may be dusty, therefore it is recommended to do this in a well-ventilated area. It is also recommended to wear a dust mask, goggles and gloves when replacing bulk media**);
- Refill F003 container with fresh odor filters and replace the 2 panel covers and re-insert into unit as per diagram on last page of manual;
- RESET “Service Filter(s)” Light (see section 8.6)**

**Filter disposal is the responsibility of the end-user. Please contact local authorities for proper and legal disposal.**



## **8.4 BLOWER MAINTENANCE**

**WARNING: Switch unit off and unplug power cord from wall before servicing the blower.**

The motor is equipped with electric motor grade double shielded ball bearings and a special lubricant, assuring long life and quiet operation. No extra motor maintenance is required.

## **8.5 ANNUAL GENERAL INSPECTION**

The sealing integrity of the **AF iSeries Purifier** is essential. Every 12 months, verify that all gaskets are in proper condition. Should the door gaskets adhere to the unit when opening a door, lubricate its surface with a transparent grease or petroleum jelly. Should the unit be relocated continuously for optimum efficiency, ensure all casters are tightly fastened.

The motor is equipped with electric motor grade double shielded ball bearings and a special lubricant, assuring long life and quiet operation. No extra motor maintenance is required.

## **8.6 RESETTING FILTER LIGHTS**

When filters need to be replaced, the filter light illuminates and beeper sounds for 2 seconds every 4 hours.

### **Resetting “Service Filter(s)” Alert**

- 1- Ensure filter access door is closed
- 2- Plug power back to the unit
- 3- Press & hold SPEED UP & DN simultaneously until unit BEEPS
- 4- Hold for 10+ seconds, when panel is beeping continuously, release buttons
- 5- You are now in RESET MENU, in this condition, “System ON” Led is FLASHING QUICKLY
- 6- Press SPEED DN (2 Times) until “Service Filter(s)” LED is FLASHING
- 7- Press & HOLD POWER button while “Service Filter(s)” LED is FLASHING & unit is BEEPING continuously
- 8- Release, when LED stops FLASHING & stops BEEPING



### **9.1 SPEED CONTROL**

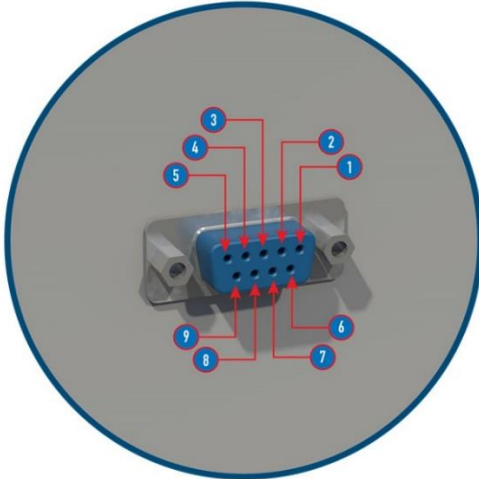
The unit is equipped with built-in speed control. By pressing & holding down the speed UP or DOWN triangles, you respectively increase and decrease unit's speed. When you reach the highest or lowest speed, the panel will continuously BEEP alerting you that you have reached the highest or lowest speed.

Units that are equipped with factory optional Remote Control subD 9 pin connector can purchase an optional foot pedal switch (part# AA175 ) to turn unit on/off remotely. Also pins 1 and 2 can be wired to any dry contact switch for remote on/off capability.

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## DB9 – Pinout Pins 1-9

**QUATRO**  
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Pin 1	Dry Contact Board Return/Board Ground
Pin 2	Dry Contact +
Pin 3	1-30 V AC/DC +
Pin 4	1-30 V AC/DC -
Pin 5	Status (Fault or Run) Signals Common
Pin 6	Status Fault Signal - Normally CLOSED
Pin 7	Status Fault Signal - Normally OPEN
Pin 8	12 Vdc +
Pin 9	Status Run Signal - Normally OPEN

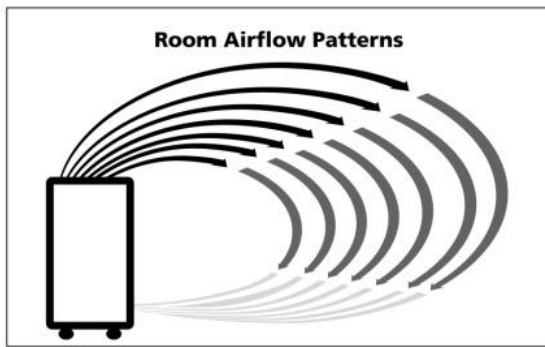
### NOTES

## 9.2 Replacement and optional components

10" collar plate for AF2000	H184	AF2000 HEPA seal rod kit (2)	AR329-03	AF2000 (120V) Fan	AR329-02-16
6" Collar plate for AF1000	M701	AF1000 HEPA seal rod kit (2)	AR336-01	AF1000 (120V) Fan	A001-16
8" Collar plate for AF1000	M271-38	Tube of removable sealant	AR321	120 volt power cord	E220
AF1000 grill plate (incl. 3 grills)	AR336-02	Single multi-directional grill	H507	AF2000 replacement grill	H001

## 9.3 POSITIONING OF UNIT

Mounted on four casters, the unit can be wheeled virtually anywhere in the room for optimal convenience. The unit is designed in an up-flow configuration allowing the air to create a "sweeping" effect across the room. The clean air is released from top of unit, moving across the room in a downward motion. The clean air pushes particulate and gaseous matter towards the floor level and draws it in the intake grille located at bottom of unit. This configuration allows the particles which have already accumulated towards the ground to be pulled towards the return air grille. This results in a very effective means of space cleaning. The **AF iSeries Purifier** is more efficient the closer it is placed to its intended source. Conversely, the unit's efficiency is diminished as it is placed further from the source of pollutants.



### **9.3 REDUCTION IN AIRFLOW**

As the unit cleans the air, the filters are removing the submicronic particles and dust from the air stream. As the filters accumulate debris (both visible and microscopic), a restriction on the blower/motor is created. As the restriction becomes greater, the air capacity delivered by the blower decreases rendering the unit less effective. IT IS VERY IMPORTANT TO CHANGE FILTERS ON A REGULAR BASIS.

### **10.0 TROUBLESHOOTING GUIDE**

Symptoms	Possible Cause	Suggested Solution
Unit will not start	<ul style="list-style-type: none"> <li>o Faulty Power supply</li> <li>o Blown fuse</li> <li>o Unit not plugged into receptacle</li> </ul>	<ul style="list-style-type: none"> <li>o Check breaker box</li> <li>o Replace fuse</li> <li>o Plug unit in</li> </ul>
Excessive noise	<ul style="list-style-type: none"> <li>o Blower wheel contacting cone</li> <li>o Fan isolators loose or off</li> </ul>	<ul style="list-style-type: none"> <li>o Realign/replace wheel</li> <li>o Replace isolator</li> </ul>
Insufficient airflow	<ul style="list-style-type: none"> <li>o Obstruction in system</li> <li>o Clogged filters</li> </ul>	<ul style="list-style-type: none"> <li>o Remove obstruction</li> <li>o Replace filters</li> </ul>
Excessive airflow	<ul style="list-style-type: none"> <li>o Filters not in place</li> </ul>	<ul style="list-style-type: none"> <li>o Install filters</li> </ul>

### **11.0 WARRANTY**

QUATRO Air Technologies warrants its equipment to be free from defect in material and workmanship under normal use and service for a period of one year from date of shipment. QUATRO's obligation under this warranty shall be limited to replacing any parts, thereof, which shall be demonstrated to have been defective. This is expressly in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness. QUATRO claims no warranty as to merchantability or as to the fitness of the merchandise for any particular use and shall not be liable for any loss or damage. No person, firm or corporation is authorized to assume for QUATRO any other liability in connection with the sale of these goods. Equipment, parts and material manufactured by others and incorporated in QUATRO's equipment are warranted by QUATRO only to the extent of the original manufacturer's liability to QUATRO Air Technologies Inc.

Conditions and Limitations:

**This warranty does not cover** abuse, misuse, maintenance negligence, improper assembly, acts of vandalism, acts of God, fear wear, modifications of the equipment or installation of a part not recommended by QUATRO Air Technologies, as well as operation of the equipment at voltages other than those specified by QUATRO Air Technologies Inc.

The AF1000RNP and AF2000RNP multipurpose systems are shipped to you as a recirculation system complete with adjustable inlet grill and adjustable discharge grills installed. If it is desired to operate as a negative pressure system, the 6" (AF1000) or the 10" (AF2000) discharge collars will need to be installed on the unit. If an additional collar or flexible hose is required to complete the installation, please see replacement parts table above



