



## KBA/KBP/KBX BIO Air SYSTEMS



### OPERATION MANUAL

**BIOAir (Models KBA600, 1000, 1800)**

**BIOAir Plus (Models KBP600, 1000, 1800)**

**BIOAir Max (Models KBX600, 1000, 1800)**

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## SECTION I UNIT COMPONENTS

*Before installing and using the KwiKool BIOAir Series Portable Air Scrubber, read this manual carefully for instructions and proper usage and all safeguards. This manual should be retained for future reference.*

### A GENERAL DESCRIPTION

The KwiKool Hygienic Portable Air Scrubber (KwiKool BIOAir System) is designed to provide hospitals, labs and clean rooms with a higher level of clean air. The KwiKool BIOAir air systems are engineered to provide dust-free, and contaminant-free air using “Air Therapy”, a hygienic process involving HEPA air filters (KBA, KBP, KBX) UV-C light (KBP and KBX), and negative air purifiers (ionizers) (KBX only).

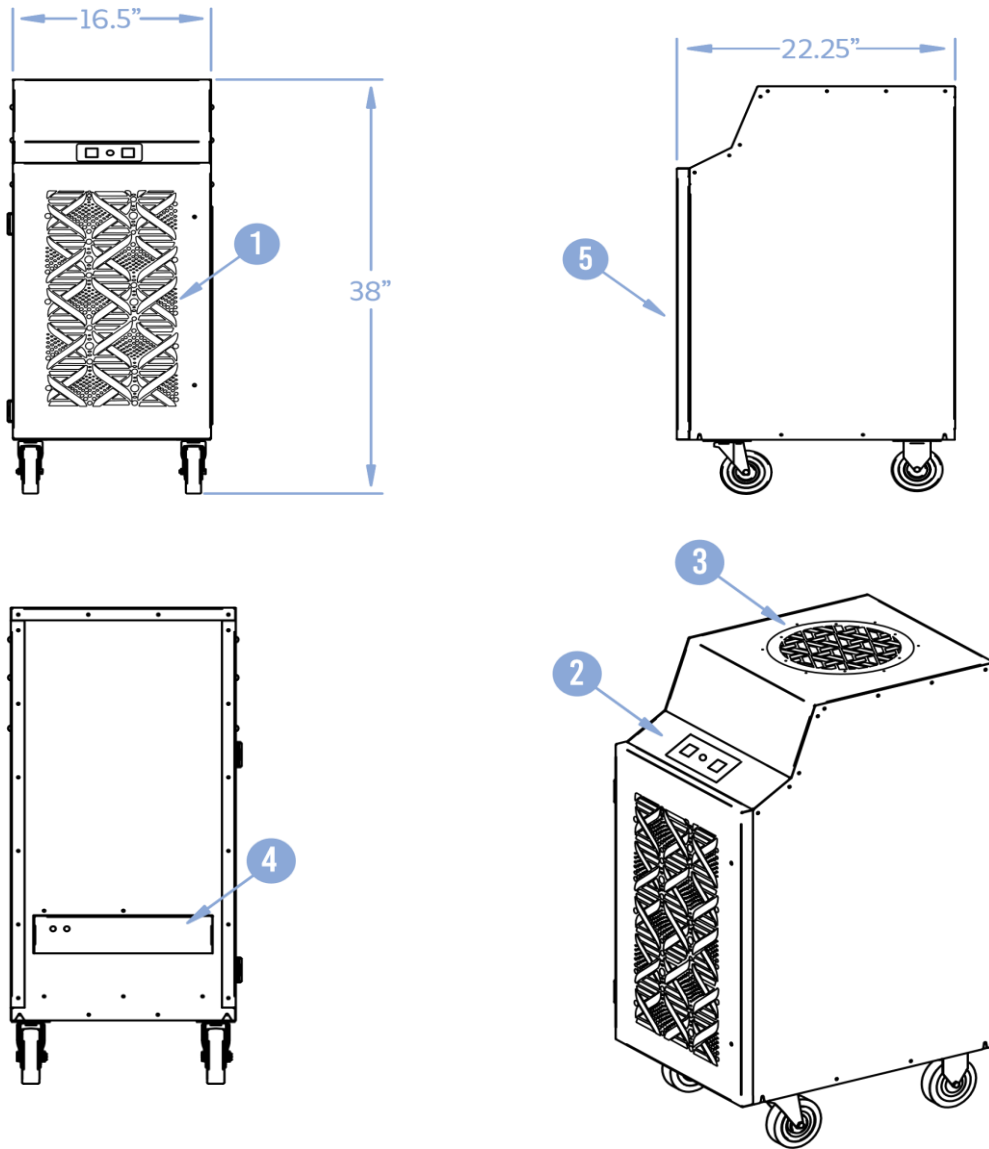
KwiKool’s BIOAir exclusive “air therapy” process:

- **Cleans** - ULPA filter - a high efficiency ULPA filter which filters 99.999% of particulates greater than 12 microns in size.
- **Disinfects** –KBP & KBX only, Internal UV-C light is used to further reduce microorganisms by irradiating the internal surfaces of the Return Air chamber.
- **Retards Growth**- Non porous and smooth surface insulation helps drastically reduce the ability of molds or other microbes from attaching and forming in the Return Air compartment.

Each of the three types of BIOAir systems contain multiple models to ensure adequate coverage for a range of conditions.

**B KBA BIOAir**

The KBA series is designed as a stand-alone negative air pressure and filtering machine. It comes equipped with a duct collar designed to attach to the top of the KBA. The size of the collar is 8 inches for the 600 model, 10 inches for the 1000 model and 12 inches for 1800 model. All models can use the optional 12-inch duct and collar (not included with the KBA600 or 1000 unit and designed for use with CK12S ceiling kit or 12" ducting). Ducting to move the air outside the space is necessary to create a negative pressure. Using the unit without ducting allows the unit to be utilized as a HEPA-filtered room air scrubber.



**KBA600/1000**

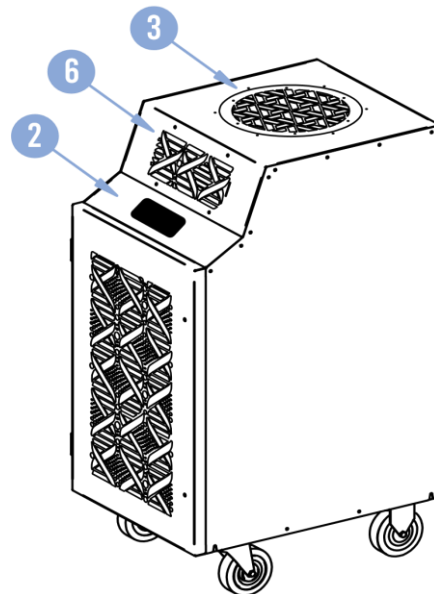
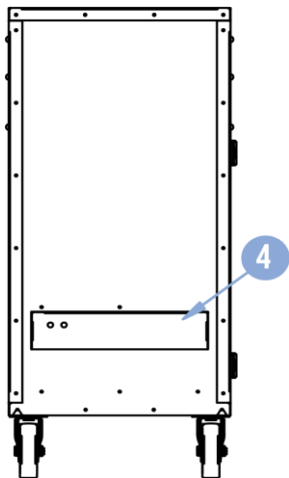
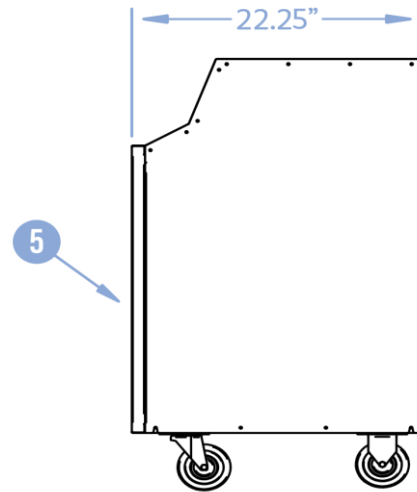
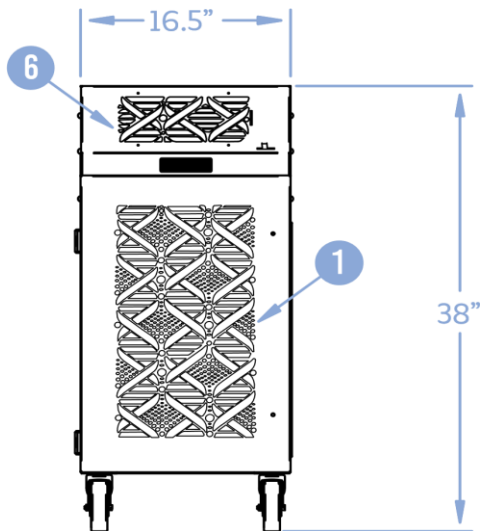
Legend

- 1. Room Air Return
- 2. Control Panel
- 3. Filtered Negative Air Supply
- 4. Cord Storage
- 5. Filter Access Door & Room Air Return

**C KBP BIO Air Plus**

The KBP series comes equipped with 2 cover plates and a duct collar that is 8 inches for the 600 model, 10 inches for the 1000 model and 12 inches for 1800 models. All models can use the optional 12-inch duct and collar, (designed for use with CK12S ceiling kit or 12-inch ducting). By adding or removing the cover plates or collars, this machine becomes:

- An Air Scrubber - only top plate installed
- A Negative Air Machine – Front plate installed and top collar with ducting installed
- A combination Air Scrubber/Negative Pressure Machine. Only top collar and ducting installed.



**KBP/KBX600/1000**

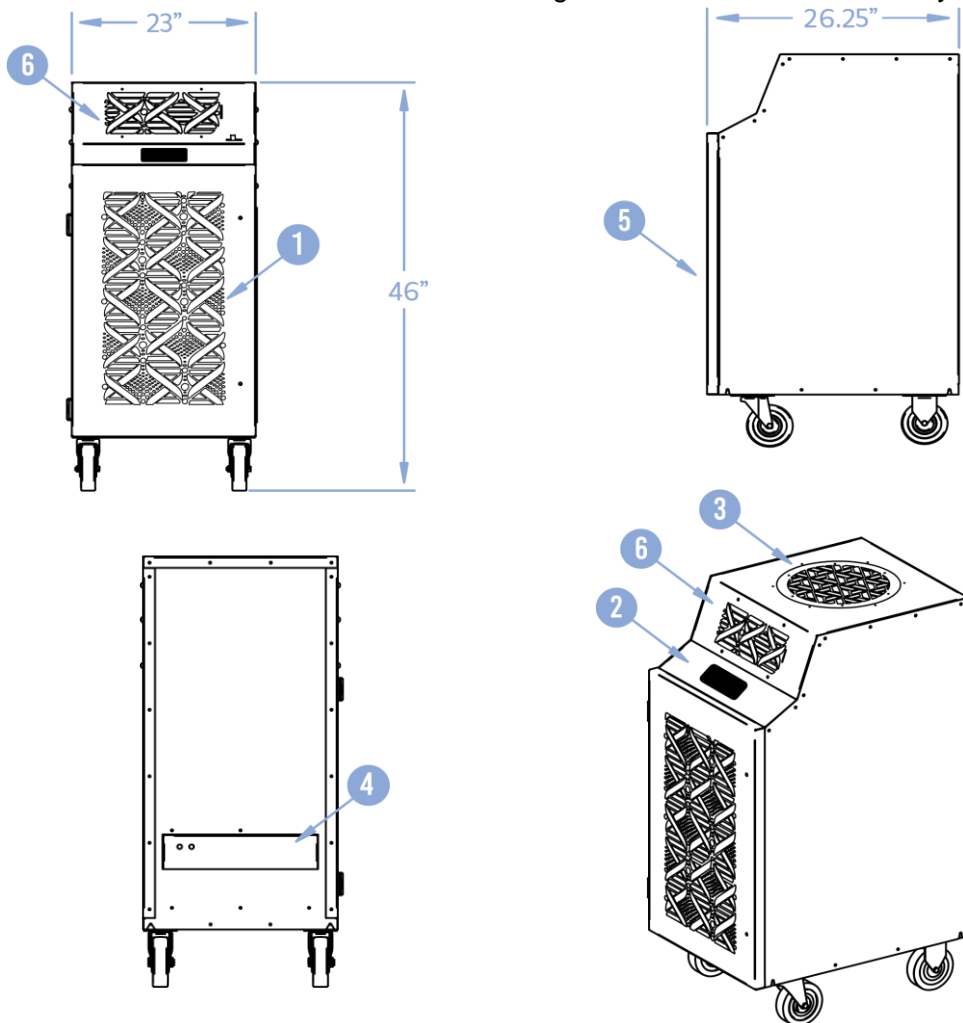
Legend

- |                                 |   |
|---------------------------------|---|
| 1. Room Air Return              | 4. Cord Storage                         |
| 2. Control Panel (Touch Pad)    | 5. Filter Access Door & Room Air Return |
| 3. Filtered Negative Air Supply | 6. Cleaned Room Air Supply              |

**D KBX BIOAir MAX**

The KBX series includes all of the features of the KBP, but also adds an air ionizer feature that uses electricity to create negatively charged air particles that are circulated in the area of operation. These negatively charged air particles are attracted to positively charged air particles in the operating space that may contain allergens and microorganisms that otherwise would be too small to filter out or too light to settle in the ambient air. The combined air particles with the contaminants and microorganisms can then be captured in the KBX HEPA filter and be destroyed by exposure to the Ultra Violet C-band light (UV-C). The process also reduces the amount of static electricity in the air. This machine can function as:

- An Air Scrubber - only top plate installed.
- A Negative Air Machine – Front plate installed and top collar with ducting installed.
- A combination Air Scrubber/Negative Pressure Machine. Only top collar and ducting installed.



**KBP/KBX1800**

**LEGEND**

- |                                |                           |
|--------------------------------|---------------------------|
| 1 Room Air Return              | 4 Cord Storage            |
| 2 Control Panel (Touch Pad)    | 5 Filter Access Door      |
| 3 Filtered Negative Air Supply | 6 Cleaned Room Air Supply |

## SECTION II DESCRIPTION

### A PREVIEW THE INSTALLATION SITE

#### NOTE

*Place the KBA, KBP or KBX in the space that is being treated, for best results. The BIOAir unit is designed to be in the treated space and ducted out if desired.*

Before moving the BIOAir unit into place, verify the following:

- The direction from which the Supply Air is coming.
- The direction to which the Return Air is going.
- The direction to which the filtered discharge air is going.
- The location of the power supply.

Position the unit based on these guidelines for best results.

#### NOTE

*Leave at least five feet of open space around the Make-up Air inlets to ensure proper operation.*

### B ASSEMBLY AND INSTALLATION

#### **KBA600, KBA1000 and KBA1800**

These arrive from the factory ready to operate after the unit is removed from the packing and the cabinet protective film is removed. Remove the film by pulling down from the top of the cabinet to expose the stainless steel surfaces. Only attachment of the collar, optional ceiling kit or user supplied ducting is required. See Ceiling Kit in section C.

#### **KBP600, KBP1000, KBP1800, KBX600, KBX1000 and KBX1800**

Users will need to remove the cabinet protective film by pulling down from the top of the cabinet to expose the stainless steel surfaces and remove one or both cover plates on the Supply Air before operating and/or installing the duct collar to the top of the unit depending on the application requirements.

#### NOTE

*If the front plate is removed on KBP & KBX systems, this will direct the air flow through the quad directional vents. If the top plate is removed, this will direct the air flow through the top flange. When both plates are removed the Supply Air divides the airflow through both openings.*

1. Remove the front cover plate by extracting the 4 screws on each corner of the front cover plate.



2. Replace the screws back into the unit when the plate is removed.
3. Remove the top cover plate by removing the 6 screws attaching the plate.
4. Install the included collar to the unit using the screws from the top plate, if using the unit to produce negative air pressure.

## C CEILING KIT

For all KBA, KBP & KBX systems, the Optional Accessory Ceiling Kit is used to create a negative pressure in the space. The CK12S ceiling kit is comprised of a flange with foam tape, fasteners, one 8-foot length of flexible duct, duct clamps, and one 24"X24" replacement ceiling tile. The tile is used in drop ceiling grids but is not limited to only that use. It can be used through any opening that is approved for the filtered air to pass through such as a window or a vertical opening in a wall.

Follow these installation steps:

1. Align the holes of the flange to the holes located on the top of the unit on the outside perimeter of the installed collar. There is no need to remove the factory installed collar on 600 and 1000 models. 1800 models are equipped only with a 12" collar. Attach to the top of the KBA, KBP or KBX unit using the factory supplied #2 Phillips fasteners.
2. Attach the duct to the flange on the replacement ceiling panel. Secure the duct to the flange using the supplied clamp.
3. Install the panel in the ceiling grid or in the approved opening with the duct attached, connect the open end of the duct to the flange on the KBA, KBP or KBX and secure with the supplied clamp. Be sure the area being used for ducting is approved for the filtered air.
4. **For Ceiling Kit Users** - This kit is used to create a negative pressure in the space by ducting the filtered air out to a different sealed area, this allows fresh air to be pulled into the space. Be sure the filtered air is approved to enter another space before installation. The ceiling kit is not limited to ceiling use and may be used on any vertical or horizontal surface that it can be mounted to. If utilizing this Kit, the space above the ceiling must be an open plenum or have Make-up Air and a path for discharge.

## D FREESTANDING APPLICATIONS

Use KBA, KBP or KBX systems to filter and refresh air in the space by placing the system in the space being operated in and turn the system on to start the filtering process. The KBA, KBP and KBX will work to improve the overall air quality by re-circulating the air in the room through its filters and on KBP and KBX systems, filters and Ultra Violet light. KBX systems also provide an ionizer for collecting dust particles too small for normal filtering.

## E CHARCOAL FILTER

Optional Accessory. Order installed from the factory or later as a user installed option. The charcoal filter helps to eliminate and reduce odors in the space. See Section VIII (Maintenance), Paragraph D for installation and set-up guide.

## F POWER CONNECTION

Verify that the source power, phase and breaker size is compatible with the KwiKool BIOAir serial plate information and that the electrical circuit is dedicated only for the use of the KwiKool BIOAir unit. Contact a licensed electrician to ensure proper power is available. KwiKool BIOAir systems are factory equipped with 8 feet of power cable sized to meet the power requirement of the system. Extension power cable is allowed but cannot exceed 25' plus the original 8 feet and must be rated to operate the KwiKool BIOAir. KBA, KBP and KBX systems come supplied with a factory installed male power plug and require the matching receptacle to match the plug and exact circuit size and power. Cutting the power plug on the KBA, KBP or KBX unit will void its warranty.

## SECTION III OPERATIONAL SAFEGUARDS

Read the following safeguards carefully before installing the KwiKool BIOAir Units.

### WARNING

Do not operate or install the BIOAir unit in a potentially explosive, combustible, or corrosive gas atmosphere.

### WARNING

To avoid burns and fire damage, keep the BIOAir unit away from flammable materials and open flame.

### WARNING

To avoid electrical shock, keep the BIOAir unit away from direct contact with water or any other liquids. Do not touch the system with wet hands.

### WARNING

Do not move the BIOAir unit while it is operating. Before moving the system, first turn system to OFF, then unplug the system from the power source. Remove all ducts and hoses attached to the BIOAir unit. Only then should the casters be unlocked.

### CAUTION

*To ensure the BIOAir unit is stable, the floor on which the system is to be placed should be level, free of vibration, and the mounting strong enough to support the weight of the BIOAir unit. Lock casters to prevent unit movement.*

**CAUTION**

*Do not tilt the BIOAir unit, since this could cause the system to overturn.*

- Do not place objects on top of the unit.
- Do not insert your hand or any other object into the air supply.
- Do not operate the KwiKool BIOAir system with its service doors open.

If the KwiKool BIOAir system makes abnormal noises or vibrations, call KwiKool at 1-800-594-5665 (1-800-KWIKOOL).

**SECTION IV OPERATIONAL FUNCTIONS****A KBA ONLY**

Select the desired KBA operational function before using the system.

**REFRESH AIR**

Use the KBA to filter and refresh air in the space by placing the system in the space being operated in and turn the system on to start the filtering process. The KBA will work to improve the overall air quality by re-circulating the air in the room through its filters and supplying the filtered air back into the space.

**NOTE**

*For odor control, order the optional charcoal filter with the KBA system.*

**CREATE NEGATIVE PRESSURE**

KBA systems can be configured to remove air from a sealed space, creating a negative pressure in the space to allow for fresh air to be exchanged with the ambient air. The filtered air being discharged is directed out of the space. This is achieved with the optional ceiling kit (see Section II Description, paragraph C), or use the factory supplied flange on the top of the system by connecting the duct to the flange and direct it out of the space (25' Max).

- The KBA600 is equipped with an eight-inch collar.
- The KBA1000 is equipped with a ten-inch collar.
- The KBA1800 is equipped with a twelve-inch collar.
- All KBA systems can be fitted with a 12" collar for optional ceiling kit use.

**CAUTION**

*Reducing the diameter of the collars or duct will decrease the effectiveness of the system.*

## B KBP & KBX ONLY

Select the desired KBP or KBX operational function before using the system.

### USE AS AN AIR SCRUBBER

The KBP and KBX are the only products capable of being used in this manner. The system is placed in the space that needs filtering and refreshing. Be sure the filter grill is fully exposed in the space. For odor control, add the optional charcoal filter to the system.

- KBP and KBX systems also include dual UV-C lights with a reflective chamber to aid in reducing pathogens, molds and biological contaminants.
- KBX systems have an air ionizer for added protection from containments. When configured in this manner, the system works to remove particulates from the space by pulling in the surrounding air, filtering it, then processing the filtered air through the UV-C light. The processed air is supplied back into the space.
- KBP and KBX gives the operator Supply Air distribution options. Remove the front vent cover just above the control to allow the Processed Air to supply through the multi directional vent, or remove the top vent cover to allow the Processed Air to supply through the top. Remove both vent covers to distribute the air through both supply points.

### USE AS A NEGATIVE AIR PRESSURE MACHINE

KBP and KBX systems can be configured to remove air from a sealed space, creating a negative pressure in the space to allow for fresh air to be exchanged with the ambient air. The filtered air discharged is directed out of the space. This is achieved with the optional ceiling kit (see Section II (Description), paragraph C), or use the factory supplied flange on the top of the system by connecting duct to the flange and directing it out of the space (25' Max).

- The KBP and KBX600 systems are equipped with an eight-inch collar
- The KBP and KBX 1000 are equipped with a ten-inch collar
- The KBP and KBX 1800 is fitted with a twelve-inch collar
- All BIOAir systems can be fitted with a 12" collar for optional ceiling kit use

Be sure and remove the cover from the top flange before connecting duct on KBP and KBX systems.

### CAUTION

*Reducing the diameter of the collars or duct will decrease the effectiveness of the system.*

### USE AS A COMBINATION AIR SCRUBBER AND NEGATIVE AIR MACHINE

KBP and KBX are the only products capable of being used in this manner.

1. To use, remove the directional vent cover and the top cover,
2. Attach the duct collar and duct.
3. Direct the duct to the desired location outside of the space, (25' Max) or connect the optional ceiling kit (Section II (Description) paragraph C).

The KBP or KBX is now configured to be both an air scrubber and negative air machine and will supply filtered air back into the space through the directional vent while ejecting Processed Air out of the space creating a negative pressure that pulls in fresh air.

## SECTION V UNIT OPERATIONS

### A APPLY ELECTRICAL POWER

#### KBA BIOAir

Once the KBA BIOAir system is connected to a power source, the **ON/OFF** switch will display a red light to indicate power is connected. If the system is not indicating that power is supplied after plugging it in, refer to Section X (Troubleshooting Guide) at the back of this manual.

#### KBP BIOAir + and KBX BIOAir Max

Once the KBP or KBX BIOAir system is plugged into a power source, the unit will display the current room temperature. The display shows the unit is set to **OFF** and the fan is set to **HIGH**. If the system is not indicating that power is supplied after plugging it in, refer to Section X (Troubleshooting Guide) in this manual.

### B CONTROL PANEL FOR KBA

The control panel shows the current operational status of the unit. The control panel of these systems is comprised of 2 rocker switches and an indicator light to alert operators of scheduled maintenance.

1. **ON/OFF** switch - Operating the rocker switch on the left, as seen by the operator facing the control, turns the system **ON** or **OFF**. The **ON/OFF** switch is illuminated when the unit is plugged into a power source.
2. **FAN** switch - Operating the rocker switch on the right side, as seen by the operator facing the control, selects high or low speed **FAN**.
3. **LIGHT** - The indicator light is **ON** when Filter maintenance is required. This light works only when high speed fan is selected. The light may flicker to indicate the first stages of air flow restriction.

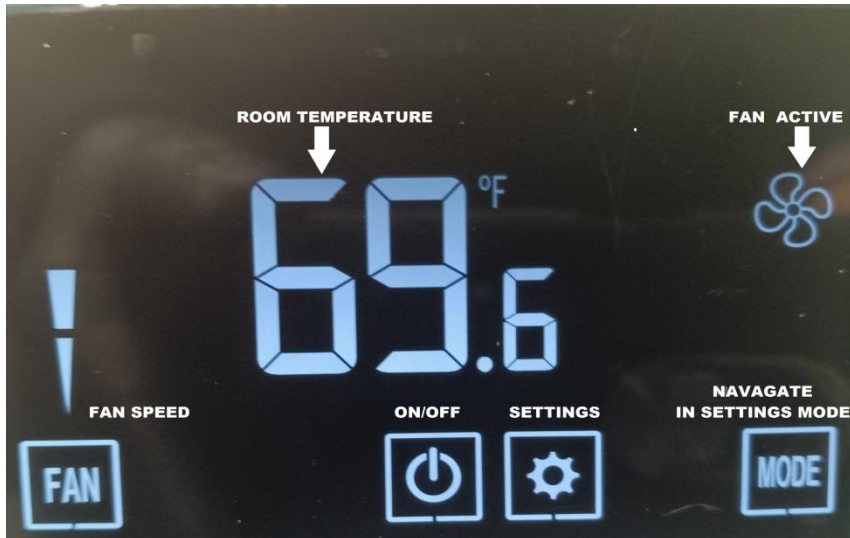


### C CONTROL PANEL FOR KBP & KBX











The control panel display shows the current operational status of the unit and the current room temperature.

1. **ON/OFF** Button: Pressing this button on the control panel engages or shuts down the KBP or KBX system. All settings selected are stored in the microprocessor board even if the power is lost including the **ON/OFF** selection. Refer to Section X (Troubleshooting Guide) of this manual if the KBP or KBX system is alerting an alarm after selecting **ON**.
2. **FAN** Button- A short press on the **FAN** button will cycle through the fan speeds. Each press cycles the fan from low to medium to high, signified by an ascending set of arrows above the FAN button.

3. **MODE** Button used to navigate in the settings function and access administration settings.
4. **USER PARAMETER SETTINGS** - Entrance into this function is gained by a (5-second) press on the “Settings” button. A short press on this button changes the display to **F** or **C** temperature display. Use the FAN and Mode buttons to scroll through the available parameters.



**LCD BUTTONS FUNCTIONALITY TABLE**

BUTTON	OPERATION INSTRUCTIONS	FUNCTION
On/Off 	Short Press	Start or Stop Operation
On/Off 	Short Press	EXIT, in Tech and User Settings List
Up or Down Arrows 	Short Press	Change Parameter Value, in Admin and User Settings List
Up or Down Arrows 	Constant Press	Rapid Value Change of Parameter in Tech & User Settings
Mode 	Short Press	Scrolls Thru Available Parameters In Settings (not operational in normal operations)
Mode 	Short Press	Goes to Next Parameter, in Tech and User Settings List
Settings 	Short Press	Change to F or C for Temperature Display
Settings 	Long Press (5 seconds)	Enter User Settings
FAN 	Short Press	Fan Speed Selection
FAN 	Short Press	Go to Previous Parameter, in Tech and User Settings List

**USER OPERATING PARAMETERS LIST**- Entrance into this function is gained by a 3-second press on the **SETTINGS** button (a short press on this button changes the temperature display to C or F).

Use the **FAN** and **Mode** buttons to scroll through the different settings while in the “User Parameters”.

### OPERATING PARAMETERS LIST, USER

P30- Beeper enable	Select 0 or 1	0- Disable, 1-enable
P40-Filter counter	Hours/10- 0 thru 999	Read Only
P41-Filter counter reset	Select 1 to reset	Defaults back to 0
P42-Filter Alarm Delay	Days, select 0 thru 180	0- Disable
P100- Enable Dimming	Select 0 or 1	0-Disable, 1 Enable
P101-Dimming time	Min, Select 0 through 10	Defaults to 5
P102 Dimming brightness	% 1,5,10 through 90	Defaults to 10
P105-Brightness in active state	% 50 through 100	Defaults to 100
P106-UV light inspection time settings hours x100	Set 0 through 999 (99900 hours max) 160 default	0-Disable
P107-UV Light Counter	0-999 x 100 Remaining time till Inspection	Read Only
P108-UV Light Counter Reset	Select 1 to Reset	Defaults back to 0
P201	Control Version	Read Only

**ADMINISTRATOR OPERATING PARAMETERS LIST** - Entrance into this function is gained by a long press of the **MODE** button until it beeps and flashes a lock icon, then a long press on the **FAN** button until it beeps, then release the **FAN** button and once again a long press on the **FAN** button. There will be a beep and then display **P04**. Use the **FAN** and **MODE** buttons to scroll through the different settings while in the “Administrator Parameters”.

Select **ON/OFF** to exit, or after 1 minute the display will default back to the operating screen.

### OPERATING PARAMETERS LIST, ADMINISTRATOR

P04- Lock Fan Button	Select 0 or 1	0-Unlock, 1-Lock
P05- Lock Mode Button	Select 0 or 1	0-Unlock, 1- Lock
P06- Lock On/Off Button	Select 0 or 1	0-Unlock, 1- Lock
P07- Lock Plus/Minus	Select 0 or 1	0-Unlock, 1- Lock
P11-N/A	N/A	N/A
P13-N/A	N/A	N/A
P14-N/A	N/A	N/A

## D SYSTEM OPERATION

### KBA

1. Turn **ON** the KwiKool BIOAir system (KBA). Select the **ON** position with the lighted **ON/OFF** rocker switch and the system will begin to operate. The Supply Air fan starts.
2. Select the fan speed. KBA systems have a 2 speed fan that is adjusted by changing the fan speed rocker switch on the control panel.
3. Turn **OFF** the KBA system – After use of the system is completed, use the illuminated **ON/OFF** rocker switch on the KBA to shut the system down. The fan will turn off. The KBA system **ON/OFF** switch will remain illuminated as long as power is supplied to the system.

### KBP AND KBX

1. Pressing the **ON/OFF** button on the touch screen will turn the unit on
2. Select the fan speed. KBP & KBX systems have a three speed fan. A short press on the FAN button will cycle through the fan speeds. Each press cycles the fan from low to medium to high, signified by an ascending set of arrows above the **FAN** button.
3. The Ultra-Violet (UV) lights and air ionizer turn on automatically.

### NOTE

*The UV-C lights are automatically turned on when **ON** is selected. Operators do not have control of the UV-C light operation. KBX systems air ionizer is on when **ON** is selected. Operators do not have control of this feature.*

4. Turn off the KBP & KBX systems:
  - Use the **ON/OFF** button to turn the system off.
  - The fan will stop operation.
  - The UV-C lights will turn off.
  - KBX systems air ionizer will also turn off.
  - The KBP & KBX systems will retain the memory of the previous fan setting.

## SECTION VI BUILT IN SAFEGUARDS

### A AUTOMATIC RESTART

The KBA, KBP, and KBX systems will automatically restart if power is lost and then restored. All operational functions are preserved in the memory of the Microprocessor Board.

### B ULTRA-VIOLET LIGHT SAFETY SWITCH - KBP AND KBX ONLY

There is a safety switch to prevent accidental exposure to Ultra Violet (UV) light. The switch turns the system off and activates an audible alarm. If the system is **ON**, the code **A2** appears on the display screen when the HEPA filter is removed from the Return Air compartment where the UV-C lights are located. The system should be turned off until the filter is reinstalled, then turned back on.



**C FILTER AND UV-C LIGHT ELAPSED TIME COUNTER - KBP AND KBX ONLY**

A visual display on the control appears when maintenance is required for the UV-C lights and filter. The KBP and KBX will display **FIL** when the filter timer has elapsed. The factory default setting is 90 days. The pre-filter may need to be inspected and cleaned more often. KBP and KBX systems will display **UL** when the UV-C light timer has elapsed. The factory default setting is 16000 hours (625 days). The factory recommends replacing both bulbs at this time to ensure best efficiency. Refer to Section VIII (Maintenance).

**D FILTER AIR FLOW MONITOR-KBA ONLY**

The KBA system will display a red indicator light on the control panel that may flicker during the first stages of air flow restriction when it is time to service the System air filters, normally done every 90 days. The pre-filter may need to be inspected and cleaned more often. Refer to Section VIII (Maintenance) for step by step instructions. This function is only active in high speed.

**E SMOOTH AND REFLECTIVE INSULATION**

Retards pathogens and microbe growth and also reflects the UV-C light in KBP & KBX systems inside the Return Air compartment.

**F WASHABLE AND REUSABLE PRE FILTER**

Factory installed in all KwiKool BIOAir systems to help preserve the HEPA filter.

**G OPTIONAL CHARCOAL FILTER**

Removes odors from Returned Air and supplies Refreshed Air into the space. Can be ordered from the factory or installed later on all KBA, KBP and KBX systems.

**H LOCKING CASTERS**

To prevent unintended movement of the unit, locking casters are installed on the front of all KwiKool BIOAir units. Move the unit to a level surface and move the locks on the casters to the ON position to lock the unit in place. Move the locks to OFF when moving the unit.

## SECTION VII APPLICATION REQUIREMENTS

### A POSITIONING OF UNIT

The KwiKool System should be positioned so that the output of the unit can be focused as close to the space to be filtered and refreshed as often as possible with the front grill fully exposed.

#### CAUTION

*Do not block the front of the unit, since this will cause a restriction in the airflow and can cause low performance.*

### B LOCK THE CASTERS

Be sure the system is on level ground to prevent unintended movement of the system. Move the lever on the casters to **ON** to secure the system.

### C WATER AND MOISTURE

The KBA, KBP & KBX are not rated for outdoor use. Avoid using the systems in damp and wet areas or transporting them in uncovered vehicles.

### D POWER

Each KBA, KBP or KBX system must have its own dedicated power to operate. Extension cords are allowed, but no longer than 25 feet.

## SECTION VIII MAINTENANCE

### A PRE FILTER

KBA, KBP and KBX systems come from the factory with a washable pre-filter installed on the evaporator inlet to prevent dust and debris from entering the HEPA filter, also pre-installed.

#### CAUTION

*The operator will need to periodically clean the pre-filter based on the air quality. Failure to maintain the pre filter will cause restricted air flow and low overall unit performance.*

For optimum performance, inspect/clean this filter every 30 days. Inspect more often, if operated during periods of poor air quality.

1. Open the filter access door, below the control, by releasing the 2 slotted fasteners on the right side of the compartment.
2. Remove the pre-filter from the door frame and use a compressed gas in an approved area wearing the proper PPE to blow through the filter to remove loose particles
3. Rinse the filter with clean water and allow complete drying before re-installing.

## B AIR FILTERS

For optimum performance, inspect/replace HEPA filters every 90 days of operation.

### CAUTION

*Failure to maintain the filter will cause restricted air flow and low overall unit performance.*

### NOTE

*HEPA filters are 21"X13.5"X4".*

1. Unplug the KwiKool system - Remove any and all power sources from the unit.
2. Access the filters - Loosen the two screws on the filter access door until the door opens.
3. Remove the charcoal filter (optional). Remove the charcoal filter by sliding the filter forward past the frame and set aside. Replace if needed.
4. Remove the HEPA filter:
  - a) Pull forward on the top of the filter until it stops
  - b) Pull forward on the bottom of the filter until it stops. Use this method alternating top and bottom until the filter clears the frame. Do NOT jam the filter by pulling too hard.
5. Install the new HEPA filter. Noting the correct air flow direction, push the HEPA filter into the housing.
6. Install the optional charcoal filter
  - a) Push the top edge of the charcoal filter into the lip of the frame.
  - b) Repeat for the bottom.
  - c) Close the front panel and tighten the screws until they are firmly secured.

## C BULB REPLACEMENT

### CAUTION

*Failure to replace the UV-C light will inhibit cleansing of the air and lower overall unit performance.*

### NOTE

*UV-C Bulb Replacement for KPB and KBX only – Bulb, Max voltage 210 volts/Max Wattage 85 watts. Call 1-800-KWIKOOL (800-594-5665) for replacement UV-C bulbs.*

1. Unplug the KwiKool system. Remove any and all power sources from the system.
2. Open the filter access door. Loosen the two slotted fasteners on the filter panel until the door opens.
3. Remove the optional charcoal filter, if installed, by pulling it forward from the frame.
4. Remove the HEPA filter:

- a) Pull forward on the top of the filter until it stops
- b) pull forward on the bottom of the filter until it stops. Use this method alternating top and bottom until the filter clears the frame. Do not jam the filter by pulling too hard.
5. Once removed, the Return Air compartment is revealed and the UV-C bulbs are visible at the bottom of the compartment. For best results replace both UV-C bulbs at the same time to ensure the most efficient operation of the KBP & KBX systems.
6. Unplug the UV-C bulb - With one hand holding the plug and the other holding the white end cap of the bulb in place, pull the two apart.
7. Remove the bulb from the system. Reach inside the unit and pull the bulb out of its retaining clips from the middle of the clip.
8. Properly dispose of the old UV-C bulb.
9. Install the new bulb
  - a) Take the bulb in the hand and slide the hand with the bulb into the cavity.
  - b) Push the bulb in to its clip in the same manner in which the bulb was pulled out.
10. Plug in the new bulb. Hold the bulb in place with one hand and push the plug onto the connector with the other. Keep in mind that the connector is meant for a particular direction. The male connection will not match up with the female portion if the orientation is incorrect. If they do not match up, rotate the plug 90 degrees and try again.
11. Re-install filters and close the filter door - Rotate the screws clockwise to securely close the door.

## **D CHARCOAL FILTER INSTALLATION FOR ALL KWIKOOL BIOAIR SYSTEMS**

This section covers the set up and installation of the charcoal filter in the field. Users that have ordered the charcoal filter installed from the factory will not need to complete these steps.

1. Open the filter access door. Loosen the 2 slotted fasteners on the filter panel until the door opens.
2. Remove the HEPA filter – Pull forward on the top of the filter until it stops, then pull forward on the bottom of the filter until it stops, use this method, alternating top to bottom, until the filter clears the frame. Do not jam the filter by pulling too hard.
3. Once removed, the operator will see 4 rails attached to the sides, top and bottom of the compartment. These rails stop the HEPA filter from going into the compartment. Remove the two 5/16<sup>th</sup> fasteners that are in each rail and move each rail to the next set of holes in front of the holes from which the fasteners were just removed.
4. Once all 4 rails have been moved forward, re-install the HEPA filter. The HEPA filter recedes back an extra 1". This allows the charcoal filter to be inserted flush into the frame.
5. Install the charcoal filter by lining the filter up with the space in front of the HEPA filter and pushing it into place
6. Close the access door and operate the KwiKool BIOAir system as normal.

## **E AIR IONIZER, KBX SYSTEMS**

The Ionizing device is located in the Supply Air compartment and requires no maintenance. The Ionizing system is fully automatic and self-cleaning. The device is on when the KBX system is turned on, and off when the KwiKool system is turned off.

## SECTION IX FAULT CODES, KBP & KBX ONLY

KwiKool BIOAir Plus and BIOAir Max units incorporates a self-diagnostic system that sounds an audible alarm, stops the system and displays a fault code to indicate that maintenance is needed on the system. The nature of the maintenance is displayed on the touchscreen panel. See Section X, Troubleshooting Guide, at the end of this manual for further information.

### ALARM CODES

A1	Customer installed input	Optional-shuts down system
A2	System access door is opened	Standard-shuts down system
AL	Indicates system is in fault	Standard (displays reason in the top left of the control)
FIL	Filter maintenance time is due	Standard-Activated by the user, alerts operators, system is still operational during this fault
UL	UV light inspection is due	Standard-Activated by the user, alerts operators, system is still operational during this fault

**UL** = 16,000 hours have elapsed (625 Days) with the UV-C bulbs in operation. (Factory setting may be modified by administrators) Displays **UL**, system still operates. Clears upon control reset.

**AL** Indicates system is in fault, displays reason in the top left of the control)

**FIL** = 90 days of operation (factory default) have passed with the currently installed filters. (Factory setting may be modified by administrators). Displays **FIL** when time limit has passed. System still operates. Clears upon control reset.

**A1** = Customer installed device on the KBP or KBX system is activated (if equipped). Displays **A1**, system shuts down. Reset is determined by installed device.

**A2** = KBX or KBP system UV-C light compartment is opened & HEPA filter removed. Displays **A2**, system shuts down. Resets when filter is installed and compartment is closed.

**F1** = System is being operated in an ambient temperature below 28 degrees F. System still operates and resets to the room temperature. Resets automatically when temperature rises above 28 F.

## SECTION X KBA, KBP & KBX TROUBLESHOOTING GUIDE

### A FAULTS ON KBP & KBX CONTROL

FAULT	POSSIBLE CAUSE	POSSIBLE SOLUTION
Control displays <b>UL</b> , on start up or while operating, <b>AL</b> blinks on control, system continues to operate.	15,000 hours have elapsed (625 Days) with the UV-C bulbs in operation. (Factory setting, may be modified or turned off by administrators).	Replace Ultra Violet lights in Return Air compartment as described in Section VIII (Maintenance), paragraph C. Reset the counter in User Settings. <b>P108</b> is set to 1 to reset. Always defaults back to 0
Control Displays <b>FIL</b> during start up or while operating, <b>AL</b> blinks on control, system continues to operate.	90 days have elapsed with the currently installed filters in operation. (Factory setting, may be modified or turned off by administrators).	Replace HEPA Filter in Return Air compartment as described in Section VIII (Maintenance), paragraph B, then reset the counter in User Settings. <b>P41</b> is set to 1 to reset.
Control Displays <b>A1</b> during start up or while operating, <b>AL</b> blinks on control. System shuts down (Optional add on control).	Microprocessor board has detected customer installed device is activated.	Consult with administrator to determine what aftermarket device is installed, and corrective action to take.
Control Displays <b>A2</b> during start up or while operating, <b>AL</b> blinks on control. System shuts down.	Microprocessor board has detected HEPA filter compartment is open and the filter is not in place.	Install HEPA filter in accordance with Section VIII (Maintenance), paragraph B and confirm frame of the filter is pushed completely flush with the compartment switch & close the door.
Control Displays <b>F1</b> during start up or while operating. Room temperature display is replaced on control by <b>FF</b> , system continues to operate.	Microprocessor board has detected Return Air temperature below 28 degrees F. This alarm might cycle on and off.	Normal operation in low ambient temperature, no action required.
System is <b>ON</b> but the microprocessor board resets when the system attempts to start.	Microprocessor board detects voltage drop below operating parameters.	<ul style="list-style-type: none"> <li>• Confirm the integrity of the source power.</li> <li>• Check for proper wire size and length of power extension cable.</li> <li>• Be sure the circuit is dedicated to the operation of the <b>KBA</b> BIOAir+ and no other equipment is on that circuit.</li> </ul>

**B FAULTS ON KBA, KBP, KBX SYSTEMS**

<b>FAULT</b>	<b>POSSIBLE CAUSE</b>	<b>POSSIBLE SOLUTION</b>
On <b>KBA</b> systems, the rocker switch is not lighted red. Control is blank on <b>KBP</b> or <b>KBX</b> systems.	Power circuit is not engaged, system is not plugged in.	Check source power breaker and verify incoming power to connector. Ensure the KwiKool system is plugged into the proper outlet. Call 1-800-KWIKOOL for assistance.
System trips breaker on start-up.	Incoming power is incorrect. Breaker is undersized or faulty, and/or extension power cable is too long and undersized.	Verify the circuit and extension power cable is within the systems specifications. Consult with an electrician or call 1-800-KWIKOOL for guidance.
Supply Air flow is limited; <b>KBA</b> control displays a red light that may flicker or stay solid red when the fan is in High speed.	Air flow is slowed by pre-filter need for cleaning or HEPA filter need for replacement. The light may flicker during the first stages of air flow restriction. Activates only in high speed.	For pre-filter maintenance, refer to Section VIII (Maintenance), paragraph A. For HEPA filter replacement, refer to Section VIII (Maintenance), paragraph B.
Ultra Violet lights are not on, <b>KBP &amp; KBX</b> systems only.	<ul style="list-style-type: none"> <li>• HEPA filter is not installed.</li> <li>• Bulb life is expired.</li> <li>• UV-C lights are missing.</li> <li>• Safety switch is displaced or faulty.</li> </ul>	<ul style="list-style-type: none"> <li>• Confirm HEPA filter is installed and activate the safety switch.</li> <li>• Refer to Section VIII (Maintenance), paragraph C for bulb replacement steps.</li> <li>• Confirm the system is equipped with UV-C lights.</li> <li>• Call 800-KWIKOOL if switch is depressed and not activating the UV-C lights.</li> </ul>