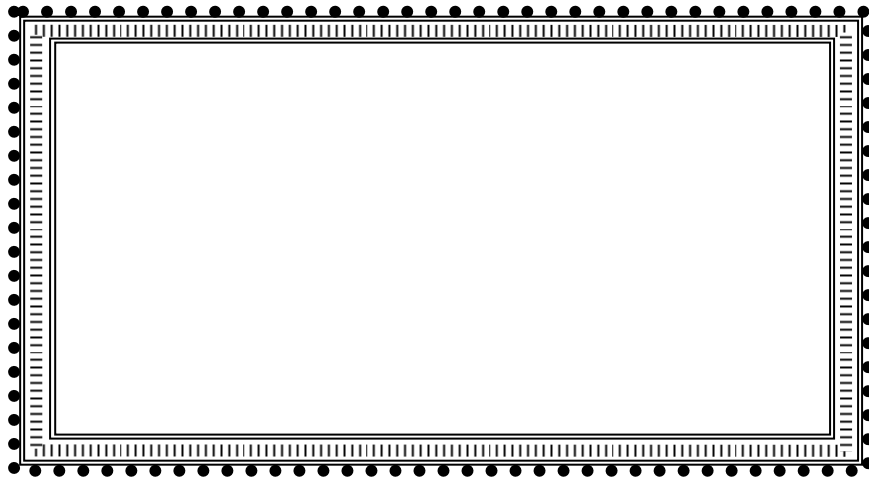


# MICROCON®

EXC7 and EXC7-UV

## User Manual

Read and Save these Instructions



Manufactured by

**BIOLOGICAL**  
*Controls*

749 Hope Road, Suite A- Eatontown, NJ 07724 USA  
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# **SAFETY INSTRUCTIONS**


Understand the signal words that are universally used for overall safety.


- **DANGER**
- **WARNING**
- **CAUTION**

**DANGER** identifies the most serious hazards, which will result in severe personal injury or death.


**WARNING** signifies hazards, which could result in personal injury or death.


**CAUTION** is used to identify unsafe practices, which would result in minor personal injury or product and property damage.


** DANGER** BEFORE INSTALLATION OR PERFORMING MAINTENANCE OR SERVICE, TURN OFF THE MAIN HIGH VOLTAGE POWER BREAKER TO THE UNIT. ELECTRICAL SHOCK CAN CAUSE INJURY OR DEATH. THERE MAY BE MORE THAN ONE DISCONNECT.

** WARNING** READ INSTRUCTION MANUAL THOROUGHLY AND FOLLOW ANY WARNINGS OR CAUTIONS IN THIS MANUAL AND ATTACHED TO THE UNIT BEFORE STARTING INSTALLATION OR MAINTENANCE ACTIVITIES. IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE, MAINTENANCE, OR USE CAN CAUSE FIRE, ELECTRICAL SHOCK, OR OTHER CONDITIONS THAT MAY CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

**WEAR SAFETY GLASSES AND WORK GLOVES AND FOLLOW ALL SAFETY LOCAL BUILDING AND ELECTRICAL CODES. CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY OR YOUR SUPPLIER FOR INFORMATION OR ASSISTANCE.**

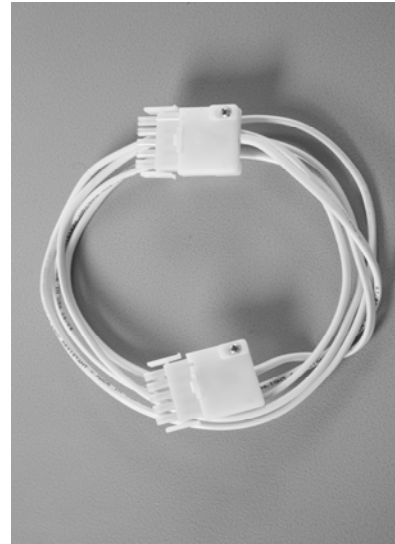
** WARNING** NEVER OPERATE THE UNIT WITH THE BLOWER EXHAUST PORT UNCOVERED TO PREVENT CONTACT WITH THE BLOWER IMPELLER BLADES. ALWAYS WAIT UNTIL THE BLOWER STOPS SPINNING BEFORE UNCOVERING THE IMPELLER.

** CAUTION** NEVER EXPOSE EYES OR SKIN TO ULTRAVIOLET LIGHT FROM ANY SOURCE. UV LAMPS MUST BE OFF BEFORE OPENING THE EXC-UV CHASSIS TO PERFORM MAINTENANCE OR SERVICE. PERSONAL INJURY MAY RESULT.

** CAUTION** THE UV LAMP CONTAINS A SMALL QUANTITY OF MERCURY. IF THE LAMP BREAKS, CLEAN AND DISPOSE OF WITH CARE.



**Blower Module**



**Interconnect Cable Assembly**



**Module Control Panel**



**Filter Module**

**Filter**

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# MICROCON®

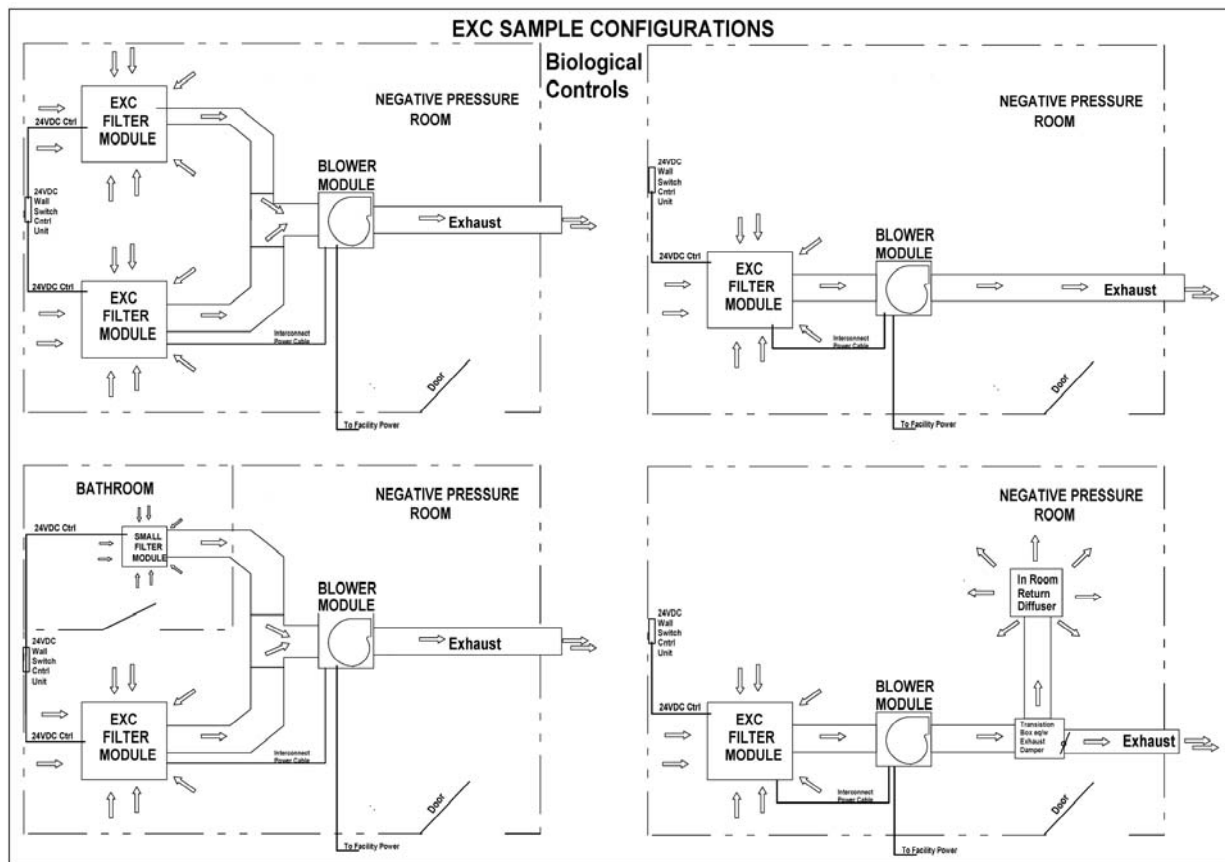
## EXC7 and EXC7-UV

### 1. INTRODUCTION

The MICROCON® EXC7 and EXC7-UV are HEPA-Filter based filtration systems that provide superior room air-purification. The difference between the EXC7 and the EXC7-UV is the addition of the UVC germicidal light components located in the Filter Module (FM); otherwise, the filter modules are identical. The Blower Module (BM) portion of the system contains a 1/5hp, ¼ hp motor, or ½ hp blower motor. All of the configurations are capable of producing either negative or positive room-pressure environments.

The system is typically equipped with a single Blower Module and one or two Filter Modules. The components are mounted separately and interconnected with 10" or 12" diameter ducting and with a provided connectorized Interconnect Cable Assembly.

When a controlled negative room-pressure is required, the system will include a ceiling diffuser and an exhaust control-duct (transition box with damper). Several low voltage (24V) remote power control and monitoring options are available.



## **2. INSTALLATION MECHANICAL**

**⚠ WARNING** Turn off power at the facility fuse or circuit breaker panel before proceeding with wiring or installation activities.

**⚠ WARNING**

**The system has more than one electrical-disconnect.**

**⚠ WARNING**

**Always Support the Equipment Directly From Building Structure. Obtain an approved fixture attachment design before proceeding with the installation. The ceiling support system of the building must be checked to assure that it is sufficient to carry the weight of the hardware.**

### **2.1. System Ducting**

Connect the ducting to the Blower Module, Filter Module(s), room diffusers, and transition boxes per the system design. Secure the ducting to the inlet and exhaust collars making sure that no air-leaks exist in the system. Ducts should run in straight lines whenever possible since elbows, bends, and long runs will decrease the system airflow capacity (cfm).

When maximum CFM is desired, use twelve (12") ducting wherever possible. Blower and Filter Modules are typically equipped with 12" duct-collars. The exception is with the smaller 1/5 hp Blower Module option that use 10" duct-collars. A 10"- 12" adaptor is added to systems that use the 1/5hp blower module. The same adaptor may be fitted to the Filter Module if it is desired to use 10" ducting between the two components.

Solid-wall ducting is generally preferred over flex-ducting since it provides the lowest air resistance and best CFM performance. Flex-ducting is used where the speed and ease of installation is the priority. A combination of duct types and sizes is also an option.

### **2.2. Blower Module-Mechanical**

The Blower Module can be mounted on a platform or suspended. Typically it is mounted above a suspending ceiling-grid and supported by the four corners of the chassis. The Blower Module is designed to mount in any position depending upon the height restrictions within the ceiling area. The unit may be supported using threaded rod, chain or perforated metal straps. All corners and sides of the larger chassis are equipped with small depression marks in the sheet-metal to mark standard support locations. Drill out at least four (4) of the chassis depressions to attach the desired hardware. A set of four (4) eye-bolts eq/w nuts are provided with each Blower Module (1/4 x 20 w/ 9/16" ID diameter loop) for a chain support system. The eye-bolts typically extend 1<sup>5/16</sup> inches off the mounting surface of the chassis. To prevent air leaks, always calk air-gaps around holes or mounting hardware attached to the chassis.

The 1/5 hp blower module chassis dimensions are smaller than the 1/2 and 1/4 hp Blower Module chassis. See the specifications for dimensions. In general, the 1/5 hp system is equipped for 10 inch ducts and the 1/4 and 1/2 hp systems utilizes 12" ducting. Adaptors may be equipped when required.

### **2.3. Filter Module-Mechanical**

The MICROCON® EXC7 and UV Filter Modules are designed to fit within the standard (nominal 24" x 24") T-bar hardware used to suspend ceiling tiles. Gasket each Filter Module onto the T-bar grid surface to provide an air-tight seal between the module and the T-bar channels.

**Four (4) small brackets located on the top of the Filter Module chassis must be used to level and support the weight of the unit using approved cable, wire, or chain hardware.**

### **2.3.1. Blower Intake collar-plate**

To avoid freight damage, the duct collar-plate is usually mounted with just four (4) sheet metal screws with the duct-collar facing into the blower chassis. The plate must be turned around prior to installation and reattached using these screws and ten (10) others packaged in a small plastic bag taped to the Blower Module.

The plate may be attached in one of two (2) positions since the collar is not centered on the blower chassis. Select the position that best aligns the inlet duct-work with the chassis.

### **2.3.2. Exhaust collar-plate ¼ and ½ HP Blower Modules**

This plate is the same part as the Inlet Collar but has only one correct mounting and is shipped in the proper position. The collar must align with the blower chassis exhaust port opening.

### **2.4. Spacing Modules and Components**

The distance between a Blower Module and Filter Module cannot exceed nine (9') feet without a custom-length Interconnect Cable Assembly. A “slave” Filter Module (a second Filter Module) requires no Interconnect Cable; therefore, spacing is determined by the duct length restrictions only.

The distance between the Filter Module intake-grille (door) and any ceiling diffuser should be at least 6-8 feet to avoid a “short-circuit” of air-circulation. This happens if most of the air-circulation occurs only between the Filter Module and the ceiling diffuser; as opposed to dispersing the air more evenly throughout a room.

## **3. INSTALLATION ELECTRICAL**

### **⚠ WARNING**

**Turn off power at the facility fuse or circuit breaker panel before proceeding with wiring or installation activities.**

**All electrical installation and maintenance must be performed by qualified individuals and in accordance with the National Electrical Code. ANSI/NFPA 70-1999 and local codes.**

### **3.1. Blower Module-Electrical**

The module contains an electrical box to connect to the facility high voltage source (115/230VAC 50/60Hz). The electrical box contains a fuse or breaker to protect the internal wiring. Follow the appropriate wiring schematic in the appendix depending upon the voltage source available at the facility power panel. Note that the blower module has been pre-wired for a specific voltage. Always check the serial number label to confirm the power requirements.

#### **3.1.1. High Voltage Wall Switch (optional)**

A high voltage wall switch may be installed to control the input power to the Blower Module. The switch is provided by the installing electrician.

### **3.2. Filter Module-Electrical**

The Filter Module contains the system power switch, pressure gauge, and optional Hour-Meter. It also contains some additional components when the remote monitoring and power control options are provided. **Note that the UV lamps for EXCFM-UV units are not installed** to protect them during shipping. The lamps are packaged and taped to the inside of the unit. The lamps should be installed before adding duct-work to the unit. They can be accessed and installed through the 12” duct opening in the side of the unit. If not, the bulbs can be accessed by removing the HEPA filter.



Make sure the lamps are clean before installing them into the bi-pin connectors mounted inside the filter module. The quartz glass may become damaged (etched) when powered with finger grease or other debris on the lamp surfaces.

### **3.2.1. Blower to Filter Module Interconnect Cable Assembly**

A 10-foot (10') five (5) conductor wiring-harness is included with each Filter Module. This cable contains the 120-230VAC circuits necessary to operate the system. It is fitted with insulated molded-connectors at each end that mate to connectors equipped on the Blower and Filter Module units. Connect the Filter Module to the Blower Module using the interconnect cable after all mechanical work is completed.

### **3.2.2. Remote Control-Cable (24VDC)**

When an optional 24VDC remote wall-switch controller is employed an 18-22ga. low voltage cable is connected between the Filter Module and a wall mounted switch or control unit. Note that the Filter-Module front panel power-switch will over-ride a remote switch; therefore, the Filter Module front panel power switch must remain in the "ON" position to activate the remote control function. The Filter Module power switch will illuminate only when both the Filter Module Power switch and the remote key-switch are in the "ON" position. Some Filter Modules are equipped with an internal 24VDC power module. A label near the exit port for the low voltage control cable indicates the presence of the 24VDC power module.

#### **CAUTION**

**The internal 24VDC power module is hard-wired to be on 24/7 and there is no power-off switch. The Blower Module High Voltage must be turned off at the facility circuit breaker panel or the Interconnect Cable Assembly must be unplugged from one end to turn off the 24VDC low voltage power.**

### **3.2.3. 24VDC Remote Controls (optional)**

Several methods may be used to provide a 24VDC low voltage "on/off" remote-control function for the system. See the schematic section of this document. Use standard alarm or thermostat-type wiring to extend the control cable if needed. The control cable is provided on the Filter Module only when the remote switching option is ordered.

- A standard single-pole light switch (provided by the installing electrician).
- A **Key-Switch** mounted on a stainless-steel switch-plate (available from Biological Controls). Part # KSW1 or KSW2 adds a green Power "ON" LED.
- Facility management system capable of providing a "dry-contact" single-pole relay.
- **Wall Plate Control Unit** (see description below). Part # WPC.

### **3.2.4. Wall Plate Control Unit (optional)**

The Filter-Module is equipped with a 30-foot 3-conductor control cable (4-wire when a pressure switch option is included). This cable can be lengthened by splicing it to a similar alarm or thermostat-type (18-22ga.) cable.

A 24VDC universal input power-module is supplied with each Switch Plate Control Unit. The power-module output can be spliced into the cable at any point in the run. It must be plugged into a facility AC power source that will not be interrupted during normal activity. **Note that the polarity (+,-) of the power-module 24VDC must be observed as shown in the schematic for proper operation.** The module positive (+) wire is marked with a white-ink dashed line.

Some Filter Modules are equipped with an optional internal 24VDC power module. When equipped do not use an external unit described above. See the Schematic wiring for each option in the Appendix.

### 3.2.5. Key-Switch (optional)

The Key Switch provides only an on/off - key-switch and a LED power indicator.



Switch Plate Controller



Key Switch

## 4. SYSTEM START-UP

### **WARNING**

After electrical wiring is completed and before applying power to the system, check the ground (earth) wiring continuity to all of the components per the electrical safety requirements.

*Note: UV units are shipped with the lamps uninstalled and packaged inside the chassis. The lamps should be installed into their sockets before starting the system to avoid having to remove the HEPA filter to gain access.*

When the system components have been mounted and all of the duct-work and electrical wiring connections have been completed, the system is ready for operation. Use the on/off switch located on the Filter Module face-plate or use the optional wall mounted remote switch (**note the Filter Module power-switch must always remain “ON” when used with any remote control switch option**). When powered, the hour-meter will start recording system run-time (the decimal-point blinks). The mini-helic pressure-gauge will register the filter resistance and the Filter Module power-switch will illuminate.

Note: When the UV lamps in the EXC7-UV are operating properly a view-port on the faceplate will glow blue.

For negative-pressure environments (see the System Applications Section), adjust the damper in the transition-box to achieve the desired room-pressure. (Note: A pressure monitor will be necessary for this procedure. Wall mount and portable units are available from Biological Controls.)

## 5. MAINTENANCE INFORMATION

### **WARNING**

**Remove power from the Blower Module before starting maintenance routines. Procedures involving electrical wiring should only be performed by qualified electricians.**

#### 5.1. Blower Module

The Blower Module requires no maintenance since it is equipped with permanently lubricated bearings. The facility power is connected to a circuit-breaker (fuse for 1/5 HP option) mounted in this module. The breaker/fuse should never open during normal operation. Always consult an electrician if the breaker/fuse opens since this usually indicates a more serious electrical problem.

##### 5.1.1. Blower Removal

In the unlikely event the blower must be removed from the Blower-Module chassis follow these steps:

- Remove the intake collar plate from the blower box by removing the screws around the periphery. Disconnect the internal power cable (three (3) conductors connecting the motor to the Blower-Module electrical box. This cable will be reused if a new motor is installed.
- Use a ¼” inch hex socket to unfasten the four #6 sheet-metal screws that connect the blower exhaust-port to the blower chassis.
- Remove the six (6) ¼-20 hex-head bolts holding the blower motor-mounts to the chassis. The blower along with the motor mounting feet can now be withdrawn from the blower chassis for repair or replacement.
- Transfer the mounting feet to the new motor using the same hardware. Reinstall in the reverse order.

#### 5.2. Filter Module

The Filter Module contains the HEPA and Pre-filter media that requires renewal when indicated by the Air Pressure Gauge or optional Air Switch change-filter LED mounted on the wall mounted control unit. When the Air Switch option is not provided the Wall Switch Control Plate will not include the “Chg Fltr” Red LED.

All units are factory tested and meet or exceed both Electrical Hi-Pot and Particle-Count (99.997% clean exhaust-air @ .3micron particle size) tests per FDA requirements. A ¼ inch diameter probe-port is accessed by removing a plastic snap-in cover in the center of the rear panel chassis-cover when field testing is required.

The UV lamps require change-out every 8000 hrs (approximately 1 year) of continued use. Log the Hour-Meter readings to determine the UV maintenance schedule. The UV view-port mounted on the control panel will glow blue when the UV bulbs are active.

### **5.2.1. Cleaning**

Wipe the face of the stainless steel Filter Module grille periodically. This is attributable to dust being attracted by static charge to the grille face before being captured by the pre-filter. A stainless steel cleaner, mild detergent or alcohol will do the job.

Do not get the filters wet. The filters are not reusable and must be disposed of when loaded.

The UV lamps only require cleaning during the installation process to remove finger oils. Never attempt to clean the UV lamps when mounted inside the unit. If cleaning is necessary always remove the lamps from the Filter Module chassis.

### **5.2.2. Hour Meter**

The meter is equipped on the Filter Module and one is also standard on the Switch Plate Control unit. The meters are activated whenever the blower-fan is operating. The LCD display is always on to show continuous hours of system run-time. The decimal-point will flash when the system is running. An internal non-replaceable battery powers the meter for 5-8 years of continuous use. If the display goes blank when power is turned off it indicates that the meter requires replacement. A new meter is available from the factory. It is easily replaced by removing the four (4) screws that secure the control panel, pressing out the old unit and inserting the new one, and finally reinstalling the panel to the Filter Module chassis. The meter does not have a reset function to prevent inadvertent resets. Always log the meter readings on the Filter Module label after maintenance activity.

## **5.3. Filter Renewal**

### **5.3.1. Pre-Filter**

#### **⚠ CAUTION**

**Whenever renewing a pre-filter or when performing any maintenance procedure where personnel may come into contact with a filter or contaminated surfaces surrounding the filter-chassis, wear approved face masks, latex gloves, and follow the contamination cleaning and waste-disposal rules and procedures of the facility.**

Filter replacement is necessary when the Minihelic pressure-gauge increases by .1" WC of the value when the filter was new. This, on average, is every 3-4 months of continuous use.

Open the swing-down stainless steel filter access door by depressing the two ball button-latches. The door is now free to swing down. Remove the old filter from the door recessed area and replace it with a new one. Close and secure the door by making sure the two button-latches are engaged. Log the maintenance activity and hour-meter reading on the door label.

### **5.3.2. HEPA Filter**

Replacement is necessary when the pressure gauge increases by a reading 50-60% greater than when both filters were new (generally readings above 1.5"WC). The average usage time of the HEPA is 12-18 months of continuous use.

#### **⚠ CAUTION**

**When handling a new HEPA filter, hold it by its external frame without touching the media. Temporally place cardboard over the entire room-side face of filter to protect the media during the procedure. Remove the protective cardboard just before the filter clamps are fully tightened.**

The HEPA filter is replaceable from within the room. Open the swing-down stainless steel door by depressing the two ball button latches. Once the HEPA filter is exposed, loosen the four (4) filter clamp-nuts but **do not remove them or the clamps from the threaded-rod**. Use a 7/16-inch deep-socket on an extension to loosen the nuts and position them to the end of the threaded-rods that run through the clamps.

The HEPA filter drops out of Filter Module after twisting the loosened clamps away from the filter body. Place a plastic bag, large enough to cover the swing down door and the HEPA filter, and drop the filter into the bag. Seal the bag and dispose of according to facility procedures. Depending upon the length of time the filter has been in place, it may be necessary to pry it loose from the framework. Caution must be exercised to prevent damage to the Filter-Module chassis during the extraction. The HEPA filter is of no value for reuse, so damage to the filter while handling is inconsequential, although caution should be exhibited to prevent contaminant exposure. Clean the area where the HEPA gasket makes contact with the Filter Module Chassis surface to remove debris using alcohol.

Support the new HEPA inside the threaded-rods by twisting the filter clamps to fit around the filter body. The HEPA gasket should face into the Filter Module. Check the HEPA gasket to make sure it is compressible and not damaged.

The filter media is very fragile and can be damaged easily. Be careful not to touch or puncture the HEPA filter face. If the media is ruptured or punctured, it is important to replace or repair it immediately, by a qualified individual, using approved methods.

Secure the filter in place by tightening the filter clamp nuts. Tighten the nuts until the gasket is compressed by approximately 50-60%. **DO NOT over tighten.**

**NOTE: HEPA and pre-filters are disposed of after use. They are not washable or cleanable and cannot be reused. Treat as contaminated.**

#### 5.4. UV Lamp Renewal

For EXC7-UV models only  
(Replacement Part No. UB-002)

**⚠ WARNING** DO NOT EXPOSE EYES OR SKIN TO UVC LIGHT FROM ANY SOURCE. DO NOT VIEW UV LAMPS WITHOUT USING PROPER EYE AND SKIN PROTECTION.

**⚠ CAUTION** Oil and dirt from fingerprints or other sources will permanently etch the quartz-glass of the lamp and weaken the structure. Always clean lamps outside of the chassis.

**⚠ CAUTION** Use of incorrect lamps can result in damage to the ballast, LAMP AND compromise the function of the filtration unit.

**⚠ CAUTION** A UV lamp contains a small amount of mercury. If the lamp breaks, clean and dispose of with care according to your facility regulations. Make sure all glass fragments have been removed from the unit before starting the blowers.

**⚠ CAUTION** Never attempt to replace lighted UV lamps. When changing UV lamps, use approved UV eye and skin protection.

UV lamps require renewal every 8000 hours (approx. 1 year) of operation. Check the Hour-Meter Log to determine a routine maintenance schedule.

To access the UV lamps, open the filter access door and remove the pre-filter and HEPA as described in the filter renewal process. The lamps are bi-pin type and twist in and out of the connectors. Replace all lamps at the same time, dispose of properly.

Power the module momentarily to test the lamps. **Follow all of the Safety notices above.** If all lamps are working remove power and reinsert the HEPA and pre-filter following the filter renewal instructions above. Secure the swing down door, log the maintenance activity, and reactivate the system.

## 6. System Applications

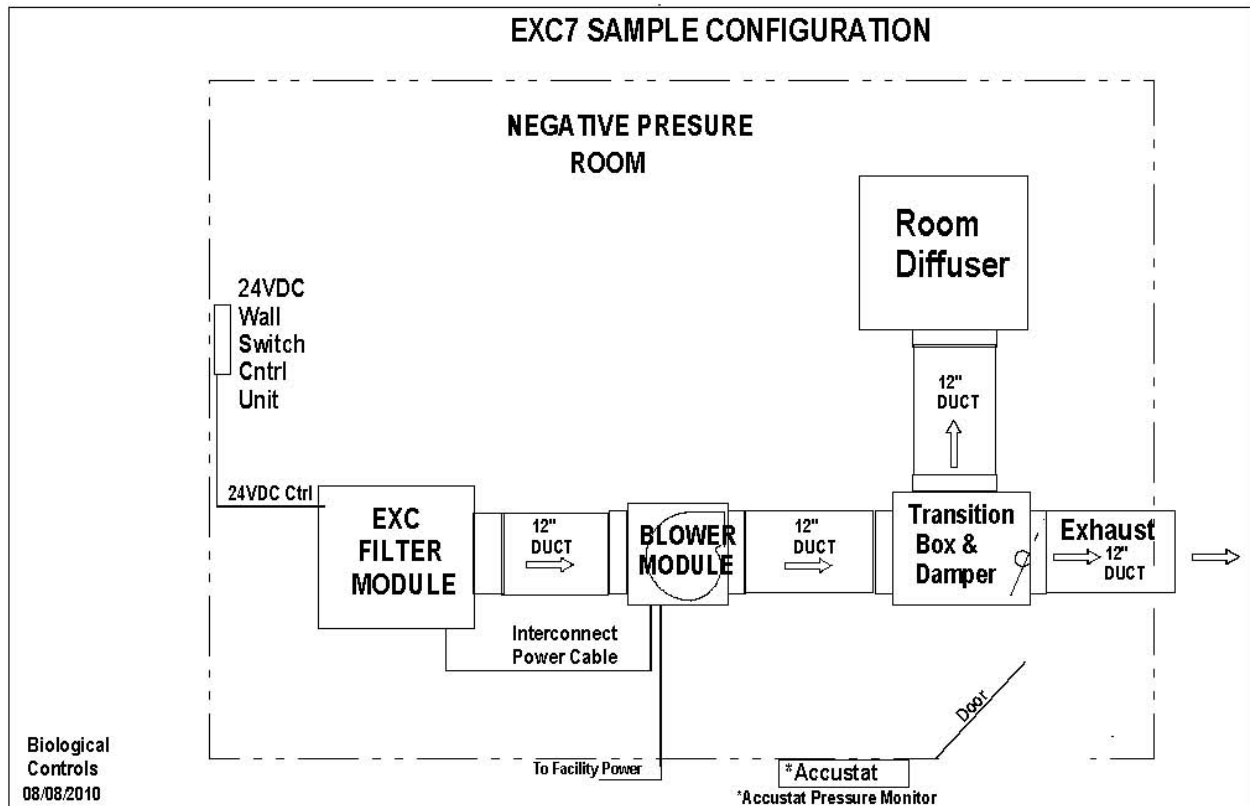
### 6.1. Creating A Negative Pressure Room

Negative pressure will be achieved when more air is exhausted from the room than is entering it (CDC Guidelines state that room exhaust-flow should be either 10% or 50 cfm greater than the supply to achieve negative pressure). The most recent guidelines call for pressure differential of negative .010" H<sup>2</sup>O (W.C.) or minus 2.49 Pascal's.

**The room must be sealed well and leak-free (especially the ceiling) to create a negative pressure environment.** This allows air to only enter the room from the opening under the door, the corridor or a designated positive pressure area.

When exhausting directly to the outside, it is advisable to place the Blower Module as close to the exit vent as possible. The longer the total length of the ducts and the more bends and turns in the ducting, the higher the air flow-resistance and conversely the lower the exhaust air-volume (CFM).

To create negative pressure within a room (the room pressure is less inside the room than in the surrounding areas) the MICOCON® EXC7 components are placed in any ceiling location that makes it convenient for attachment to the nearest exhaust duct or outside wall. The length of all duct-runs should not exceed 12 feet and the total duct-rise should not exceed 10 feet. Since the exhaust-air has been filtered it is possible to exhaust directly into an air-return area above a sealed ceiling.



## **6.2. Room Filtration Only**

The system can be used to filter and recirculate air within a room. (The transition-box and exhaust duct would be removed in the above example and the blower 12" duct is used to connect directly to the ceiling diffuser.)

In this application, the clean air from the exhaust will be returned to the room through one or more ceiling diffusers. The best placement for the Filter-Module intake would be above the area generating the source of contamination. The room diffuser(s) should be placed 6-8 feet away from the filter-module intake to prevent "short circuiting" the filtered air. This distance will allow adequate space for the reintroduction of the air back into the room, providing better filtration and dilution; thereby, increasing the effectiveness of the in-room air changes.

## **7. FACTORY RETURNS (RMA)**

Before shipping any component to the factory, a Return Material Authorization (RMA) Number must be issued for units under warranty. For units out of warranty, a written purchase order must be issued to Biological Controls prior to the return. The factory will NOT accept and will refuse any merchandise returned without proper authorization. The factory is not responsible for any damage to or loss of merchandise during return shipping. **DO NOT RETURN CONTAMINATED FILTERS TO THE FACTORY.**

## **8. WARRANTY**

Limited Warranty:

Biological Controls warrants that the product is free of defects in workmanship and materials during normal use and service for a period of Twelve (12) months from the date of purchase by the original end-user.

If at anytime during the warranty period the product is defective or malfunctions, Biological Controls or its dealer or distributor, from whom the product was purchased, shall at the option of Biological Controls replace or repair the defective part or component.

This warranty shall not apply if it is shown that the defect or malfunction was caused by damage due to shipment, improper electrical connections, or improper use or abuse of the product.

The sole responsibility of Biological Controls shall be to repair or replace the product within the terms stated above. Biological Controls shall not be liable for any loss or damage of any kind, including any incidental or consequential damages resulting, directly or indirectly, from any breach of warranty, expressed or implied, or any other failure of this product. (Some areas do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.) The warranties set forth are exclusive and Biological Controls expressly disclaims all other warranties, whether written or oral, implied or statutory, including but not limited to any warranties of merchantability, workmanship, or fitness for a particular use.

In our continuing effort to produce the highest quality products, we reserve the right to change or alter product specifications and materials without notice.

This warranty gives you specific legal rights and you may have other rights, which vary, from state to state or country to country.

### **8.1. Making a Warranty Claim**

To make a warranty claim or if you have questions about the warranty policy, contact the distributor from whom you purchased the product.

NOTE: Do not return any products or components directly to the factory without a factory issued "Return Merchandise Authorization (RMA) number" issued by the Biological Controls Customer Service Department.

Manufacturer:	<b>TEL: 800-224-9768</b>
<b>BIOLOGICAL CONTROLS</b>	<b>FAX: 732-389-8821</b>
<b>749 Hope Road Suite A</b>	<b>WEB SITE: <a href="http://www.biologicalcontrols.com">www.biologicalcontrols.com</a></b>
<b>Eatontown, NJ 07724</b>	



## 9. SPECIFICATIONS

### 9.1. Filter Module

	Feature	Description
<i>Part Number</i>	EXC7FM (-UV option)	EXC7FM Standard (EXC7FM-UV Optional)
<i>Duct collar sz.</i>	12" diameter x 2" high galv steel collar	Optional 12" to 10" adaptor for 1/5HP Blower Module
<i>Door access</i>	20 ga. hinged perforated stainless steel	Perforated Protective Screen
<i>Pressure ga.</i>	Pressure Gauge	Optional Pressure Switch (for Remote Monitoring)
<i>Mount access</i>	HEPA Door & Modular Control Panel	Rear Access Panel is removable
<i>Control</i>	Illuminated On/Off Switch	Add 2-Speed Switch - 1/5HP Blower only. See Remote Control Opts.
<i>Housing</i>	16 ga. Galvanized steel & aluminum	
<i>Elec. Connection</i>	10' Interconnect Cable Assembly	Standard-Prewired Cable Assy. w/connectors on both ends
<i>UV</i>	UV indicator view-port (UV only)	
<i>Hour meter</i>	Electronic hour meter (UV only)	Standard with UV option only
<i>UV Lamps</i>	4 - 25 watt germicidal UV lamps (UV only)	
<i>Hangers</i>	Suspension hangers (4 corners)	
<i>Dimensions</i>	(W) 23.75" (L) 23.75" (H) 13"	
<i>Weight</i>	43 lbs.	
<i>Agency</i>	FDA Approved Product	
	<b>Filters:</b>	
<i>Filter type</i>	Certified High Efficiency Particulate Air	HEPA
<i>Filter mfg.</i>	Manufactured in ISO Class 7 clean-room	HEPA
<i>Efficiency</i>	99.99% on .3 micron particles	HEPA
<i>HEPA Filter size</i>	22" x 16.5" x 4"	HEPA
<i>Media</i>	100% waterproof glass microfiber	HEPA
<i>Media type</i>	Separatorless low profile	HEPA
<i>Filter frame</i>	Heavy duty, Anodized Extruded Alum.	HEPA
<i>Sealant</i>	Fire retardant polyurethane	HEPA
<i>Gasket</i>	1 piece molded in place	HEPA
<i>Pre-filter</i>	1" two ply synthetic 35%	

### 9.2. Blower Modules

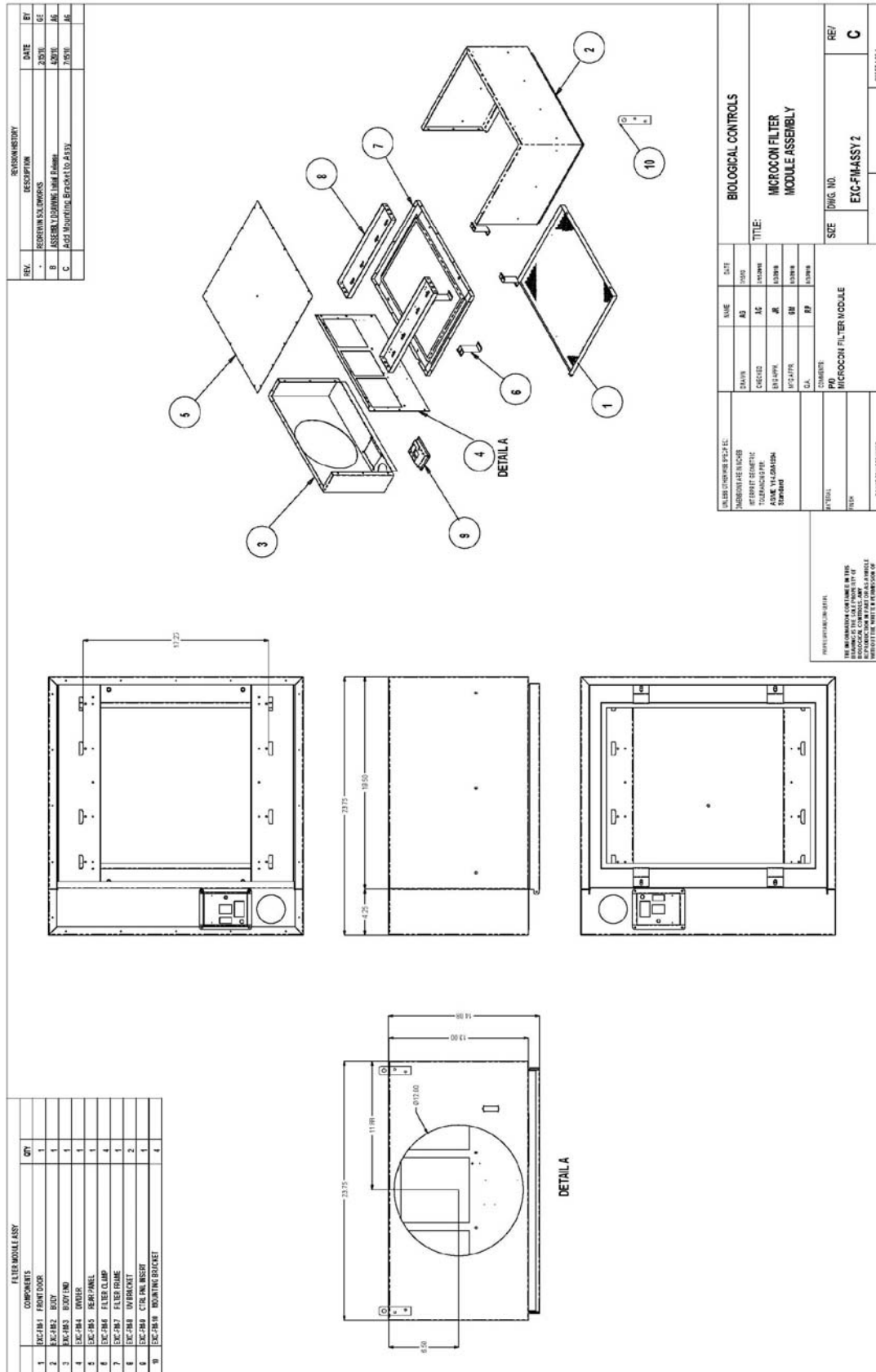
	Blower Module 1/5 HP:	Blower Module 1/4 HP:	Blower Module 1/2 HP:
<i>Part Number</i>	EXC7BM 1.2	EXC7BM 1.25 or 2.25 (115v or 230V)	EXC7BM 1.5 or 2.5 (115v or 230V)
<i>Blower Type:</i>	PSC Direct Drive Forward Curve	PSC Direct Drive Forward Curve	PSC Direct Drive Forward Curve
<i>Bearing Type:</i>	Perm. Lub. Sleeve-Bearings	Perm. Lub. Ball-Bearings	Perm. Lub. Ball-Bearings
<i>Volts:</i>	115 volts, 50/60 Hz 1 Phase	115/230 volts @50/60 Hz 1 Phase	115/230 volts @50/60 Hz 1 Phase
<i>FLA Amps:</i>	2.2 - 3.3 Amps, 50/60 Hz	3.66 Amps(115V) 1.8 Amps (230V)	7.3 Amps (115V) 3.7 Amps (230V)
<i>H.P. rating:</i>	1/5 hp, two speed	1/4 hp single speed	1/2 hp single speed
<i>Therm. protect:</i>	Auto-reset thermal overload	Auto-reset thermal overload	Auto-reset thermal overload
<i>Free Air:</i>	549-797 cfm	990 cfm	1202 cfm
<i>cfm delivered:</i>	435 / 495 Low/High cfm	500 cfm	800 cfm
<i>rpm:</i>	Low/High 970/1360	1080	1390
<i>Service:</i>	Maintenance free	Maintenance free	Maintenance free
<i>Position:</i>	All position mounting	All position mounting	All position mounting
<i>Oper. Temp.:</i>	min/max range -20° to 104°F	min/max range -20° to 104°F	min/max range -20° to 104°F
<i>FMI Connection</i>	Cable Assy Chassis Connector	Cable Assy Chassis Connector	Cable Assy Chassis Connector
<i>HV Electric</i>	Facility Power 2 x 4 utility box	Facility Power 2 x 4 utility box	Facility Power 2 x 4 utility box
<i>Fuse</i>	5 amp fuse	10 Amp Circuit Breaker	10 Amp Circuit Breaker
<i>Hangers</i>	4 threaded eye hook suspension	4 threaded eye hook suspension	4 threaded eye hook suspension
<i>Housing</i>	20ga.Galvz Epoxy Painted Steel	20ga.Galvz Epoxy Painted Steel	20ga.Galvz Epoxy Painted Steel
<i>Collar</i>	10" diam x 2" high In/Out	12" diam x 2" high In/Out	12" diam x 2" high In/Out
<i>Weight</i>	30 lbs.	36 lbs.	49 lbs.
<i>Dimensions</i>	(W) 13.5" (L) 13.5" (H) 13.5"	(W) 18" (L) 17" (H) 15"	(W) 18" (L) 17" (H) 15"
<i>Agency</i>	FDA Approved Product	FDA Approved Product	FDA Approved Product

#### Optional Wall Mt Remote Controls:

	Remote power & filter monitoring requires a Power Relay in FM
24VDC Wall Key-Switch	optional
Filter LED (Red)	optional
Hour Meter	optional
Power-On LED (Green)	optional
High Voltage Wall Switch (opt)	Wall switch connects High Voltage to the BM (customer provided)

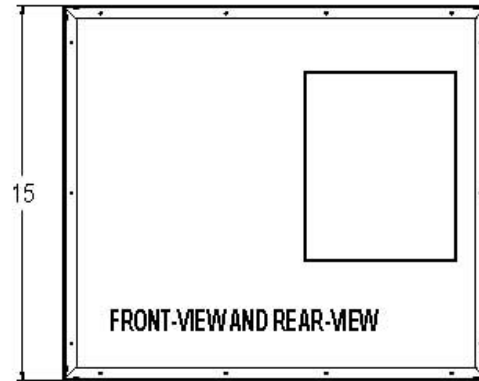
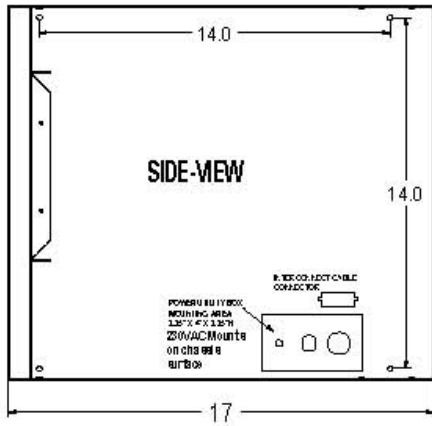
# 10. ASSEMBLY FIGURES & DIMENSIONS

## 10.1. Filter Module

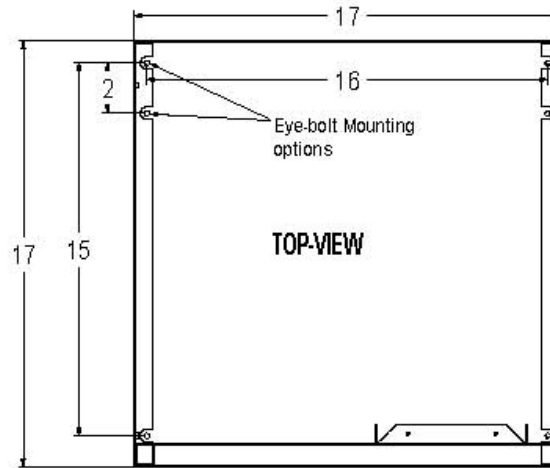
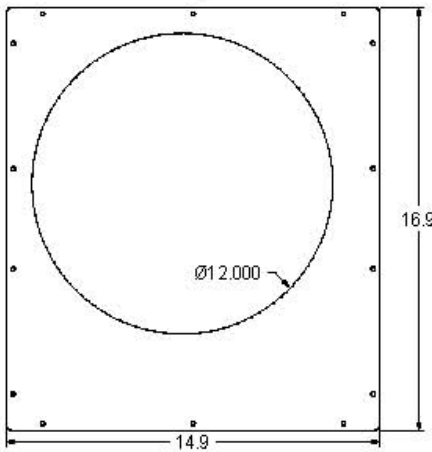


10.2. **Blower Module**

**1/4 and 1/2 Horse Power Chassis**

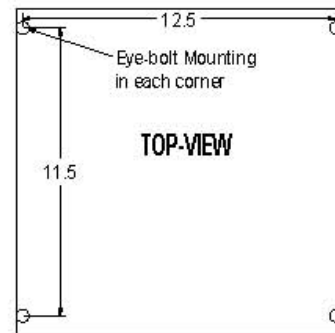
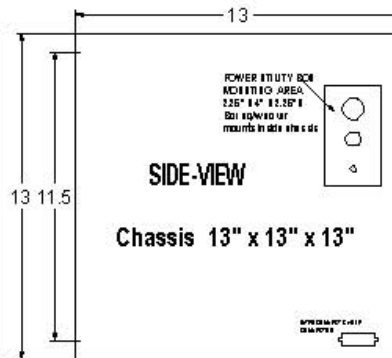
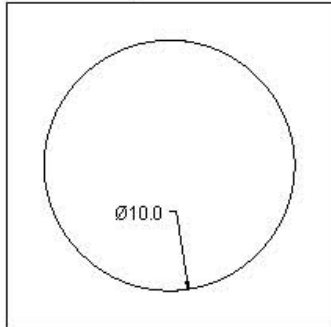


**Collar Plate, 12" Intake/Exhaust Collar**



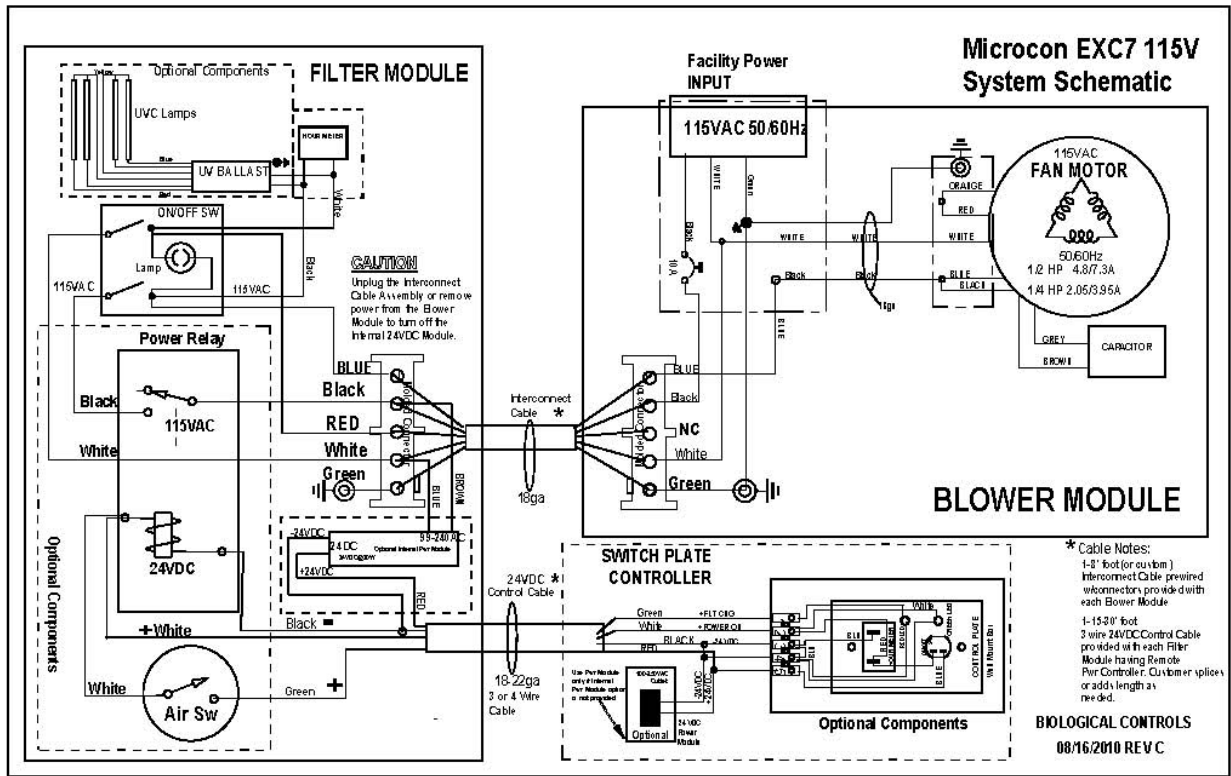
**Similar (smaller) 1/5th Horse Power Chassis**

**Collar Plate, 10" Intake/Exhaust**

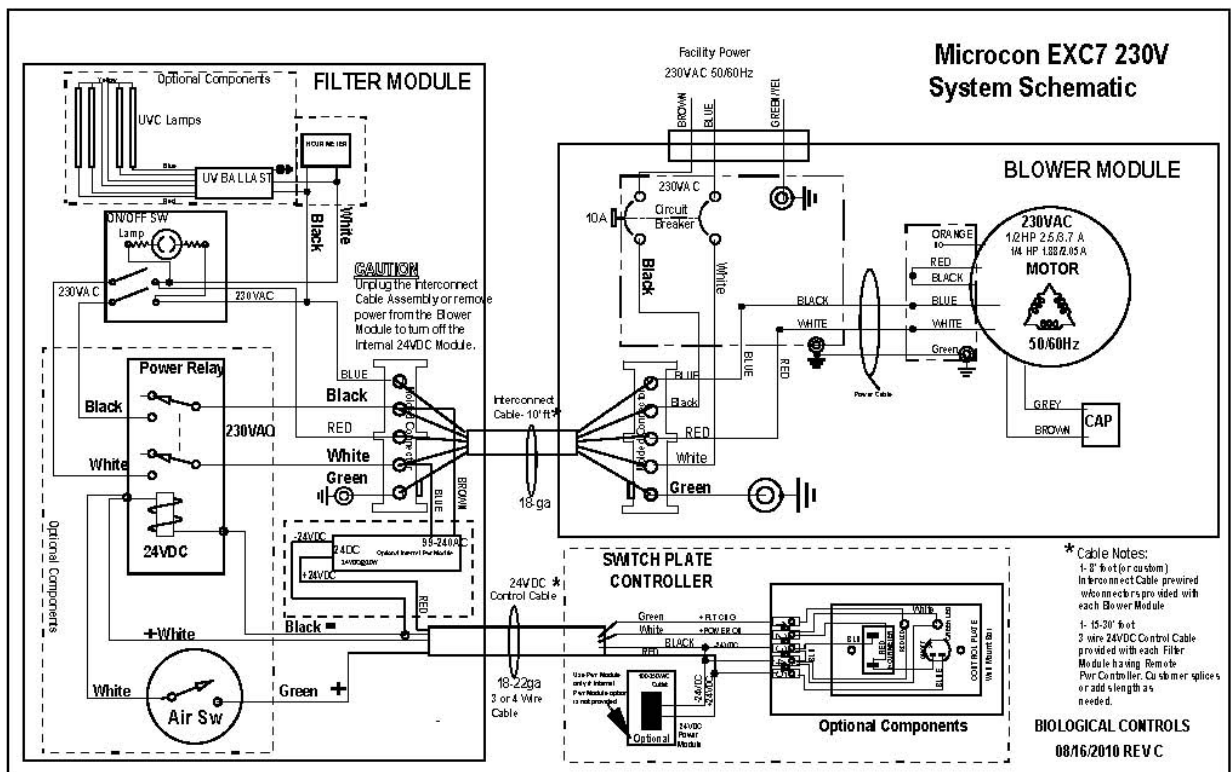


# 11. SCHEMATICS

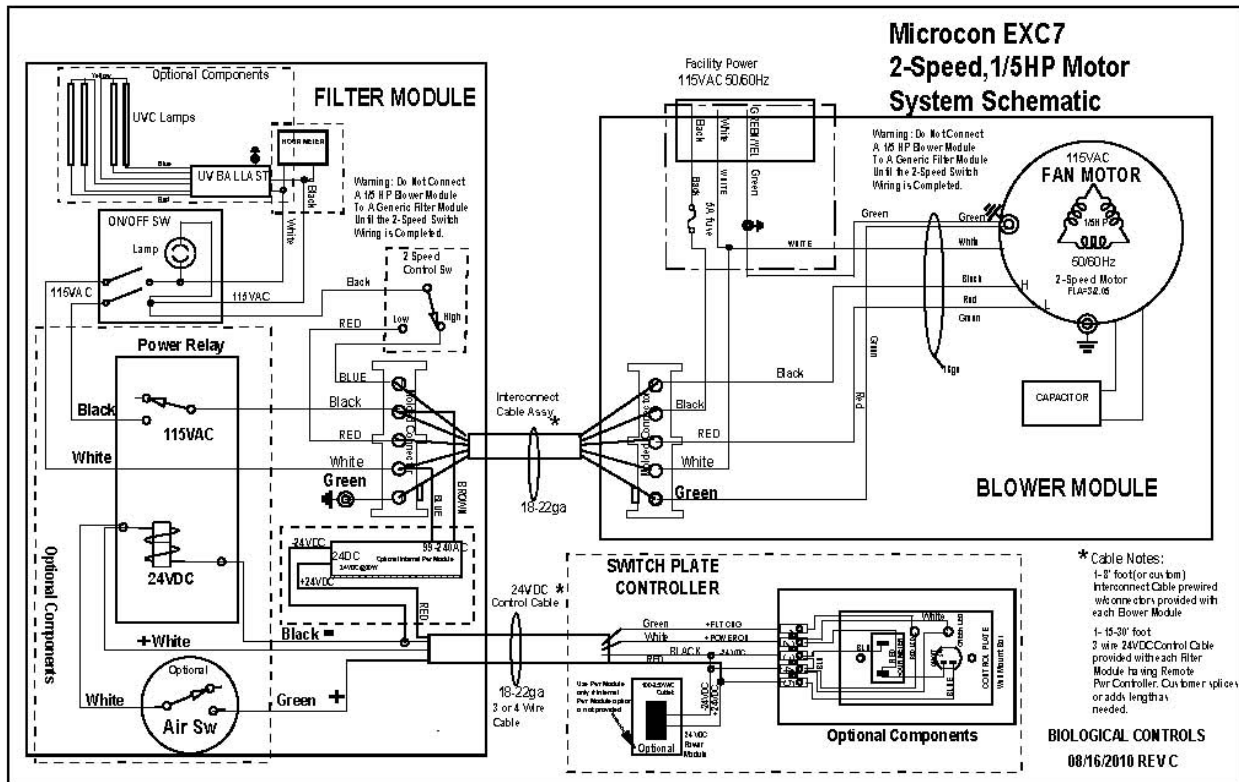
## 11.1. Typical System 115V Schematic



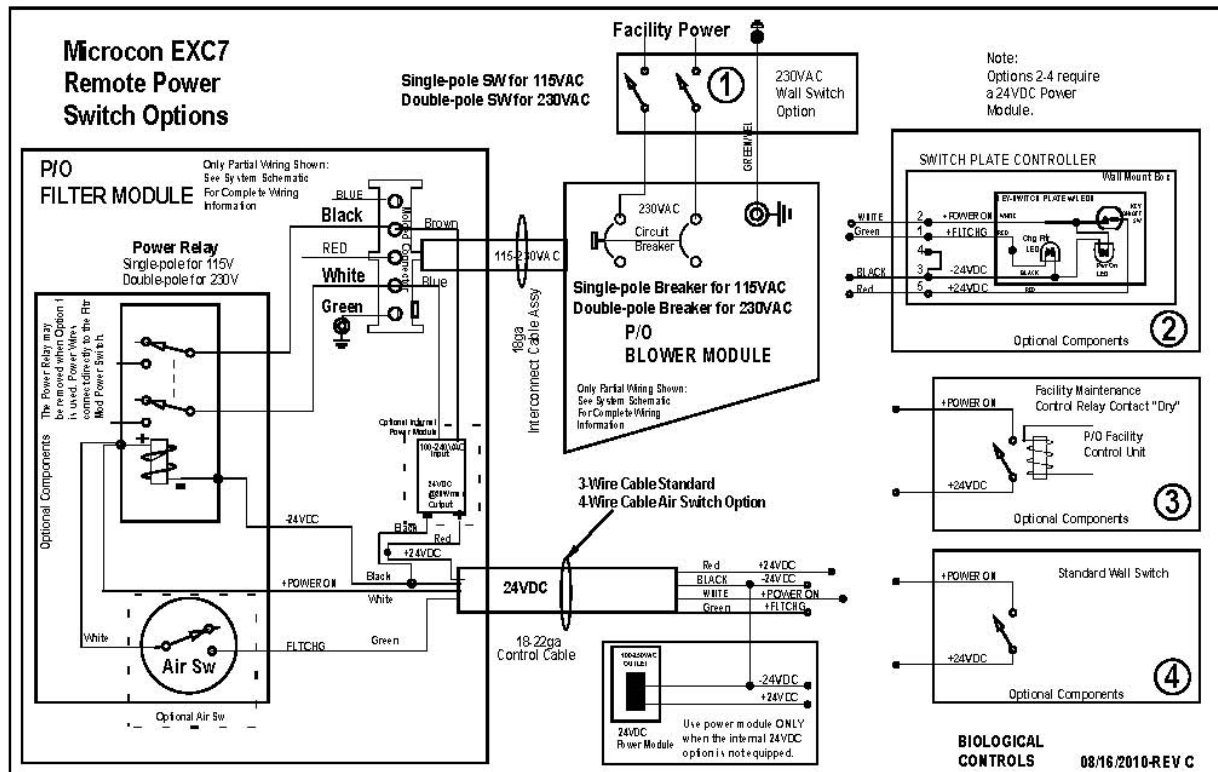
## 11.2. Typical System 230V Schematic



### 11.3. Typical System 1/5 HP 2-Speed Motor Schematic



### 11.4. Remote Wall Switch Option Schematics



## 12. EXC7 PARTS LIST

ITEM#	PART NUMBER	DESCRIPTION
1	EXC-FM	<b>EXC7-Filter Module Assembly</b>
2	-UV	EXC7-UV Filter Module Assy
3	- R	Filter Module Power Relay for Remote Power control - includes 30' 3-wire 18ga cable)
4	-AS	Filter Module Air Switch for Remote Pressure Monitoring (includes 30' 4-wire 18ga cable)
5		
6	-KSw1	Remote pwr Key switch only on, ss switch plate, 24vdc module add -R
7	-KSw2	Remote power switch- green "on" LED, ss switch plate, 24vdc module, add -R
8	-WPC	Wall Plate Control - eq/w Key SW , Hour Meter, Pwr on LED,Chk Fltr LED, Box ,Manual -R
9	KS	Stainless Steel Switch Plate, Wall mount enclosure, Instr. Sheet
10	WS	Customer supplies High Voltage Wall Switch
11		
12	UV-LAMP	UVC lamp
13	7HEPA	HEPA FILTER for EXC7FM
14	7Pre	Pre-Filter for EXC7FM
15	TRB-002	3-sided transition box eq/w 12"ducts and one 12"damper (add 10"adaptors AR)
16	-12/10adpt	12" to 10" duct adaptor
17	10" dpr	12" damper control (ship separately)
18	-12"dpr	10" damper control (ship separately)
19	-12"Y	12" Y adaptor (ship separately)
20	FD10(ft)	10" flex duct (price per foot( standard 5')
21	FD12(ft)	12" flex duct price per foot (standard 5' )
22	TIEIN	Tie-in module to connect Wall Accustat (EXC7FM eq/w EXC7BM1.20 only ) Auto speed ramp up
23	24Vmod	24VDC pwr module (plug-in )Includes 30' of 3 or 4 wire 18ga control/alarm type cable
24	-I24Pwr	Internal 24VDC Power Module (100v-260v 5-/60 input ) includes 30' 3 or 4-wire 18ga cable
25	EXC7BM1.5	<b>EXC7 Blower Assembly - 1/2 HP wired for 115VAC 50/60Hz</b>
26	EXC7BM2.5	<b>EXC7 Blower Assembly - 1/2 HP wired for 230VAC 50/60Hz</b>
27	EXC7BM1.25	<b>EXC7 Blower Assembly - 1/4 HP wired for 115VAC 50/60 Hz</b>
28	EXC7BM2.25	<b>EXC7 Blower Assembly - 1/4 HP wired for 230VAC 50/60 Hz</b>
29	EXC7BM1.20	<b>EXC7 Blower Assembly - 1/5 HP wired for 115VAC 50/60 Hz</b>
25		
26		
27		
28		
29		
30		
31	EXC7-CBLASSY-10	(Standard) 10' Cable Assembly connecting the EXC7 Filter Module to the Blower Module
32	EXC7-CBLASSY-(ft)	(Custom Length) Cable Assembly (min 5' max 30')
33		
34		
35	EXC7 Manual (date)	<b>Installation, Operation &amp; Service Manual (Issue)</b>