Bioclimatic®
AIR PURIFICATION SYSTEM
Model MC-880

CLEAN AIR
A COMPELLING REQUIREMENT

It is generally acknowledged that indoor air quality existing within most public buildings-large and small is unsatisfactory and unhealthy. Studies and research correlate billions of dollars in lost productivity with poor air quality. Federal, state and local regulations now mandate various types of protection to virtually all employees in public buildings against airborne contaminants and hazards. The use of Air Purification Systems for buildings of any size and use is a necessity to guard against the many hazards existing within the air we breathe.

THE CHALLENGE

The challenge is to remove the contaminants and odors produced by biological, chemical and particulate matter.

SYSTEM DESCRIPTION

• **Self-contained,** complete with blower, various types of filters, and Bi-polar Ionization or UV "C". The MC-880 System is designed for installation into a T-bar ceiling grid and is also suitable for recessed mounting into a concealed spline or dry wall ceiling.

• **Bi-polar Ionization** has been used for the past 28 years in the HVAC and Food Processing Industries. It has proven effective by controlling hundreds of different micro-organisms, ordors and static electricity. When recirculated air passes through the ionization or plasma field, entrained contaminants are neutralized and rendered ineffective.

• **UV "C" Sterilization** has been proven to kill virtually any Microorganism. Our unique lamp produces up to six times the output of other commercially available lamps and therefore possesses exceptional gemicidal effectiveness.

• **Gas Phase Filter Media** utilizes one or more of the processes: adsorption, neutralization, oxidation-reduction or catalysis. Our family of media is available to address the extensive quantity and diversity of odors, contaminants, corrosive and toxic gas compounds encountered in our daily life.

THE BIOCLIMATIC SYSTEM, Model MC-880

The System combines Bi-polar ionization technologies or UV "C" sterilization high-efficiency and gas filter media to offer a System capable of efficiently controlling indoor air quality problems. By virtue of its varied filter options, the MC-880 is a suitable for many different applications.

MC-880 in a T-bar ceiling system.

APPLICATIONS

Bioclimatic Systems are used in hundreds of applications including indoor air quality, odor control, air pollution control and electronic corrosion control. They are particularly effective in areas of strong offensive odors and high concentrations of particulate. Successful applications include:

- Office Buildings
- Restaurants
- Hospitals
- Animal Facilities
- Bingo Halls
- Cosmetology
- Conference Rooms
- Laboratories
- Photographic Processing
- Data Processing Facilities
- Commercial Printing
- Bowling Centers

FEATURES AND BENEFITS

- Neutralizes, not masks odors
- Removes respirable particles including submicronic sizes
- Electrolyze mold, bacteria and virus rendering them ineffective
- Simple installation, easy maintenance
- No need to increase outside air for dilution
- More efficient and effective than electronic air cleaners
- Reduces static electricity

• **High Efficiency & HEPA Filters** are widely used in Health Care, Clean Rooms and critical applications. Fibrous filters are the preferable method of filtering air because they do not unload and their efficiency is constant with use. They require no cleaning with only require periodic replacement.

SPECIFICATIONS

STANDARD FEATURES

Size (L x W x H)	47.75 x 23.75 x 12.0 in.	1213 x 603 x 305 mm
Weight (min/max)	76 lb. / 97 lb.	34.6 Kg / 44.1 Kg
Construction/Finish	Type 5052 Aluminum	Type 5052 Aluminum
Blower	DWDI, forward curved, twin units	DWDI, forward curved, twin units
Blower Motor	1/8 Hp, 1725 rpm, 2.0 amps, 2 speed, direct drive	1/8 Hp, 1725 rpm, 1.0 amp, 1 speed, direct drive
Electrical Service	115 Volts, 5.0 amps, 60 Hz	230 Volts, 2.5 amps, 50/60 Hz
Nominal Rated Capacity	9,000 cu. ft.	255 cu. M.
Air Delivery	700 cfm	1,190 cmh
Average Sound Pressure	55 dB (High Speed)	55 dB (High Speed)
	45 dB (Low Speed)	NA
Available Filter Stages	Five (5)	Five (5)
Available Bi-Polar Ion tubes	Two (2) "E" Type	Two (2) "E" Type
Filter Change Indicator	Prefilters & Primary Filter	Prefilters & Primary Filter
Accoustical Foam	Full coverage	Full coverage

OPTIONAL FEATURES

Medium to high efficiency ASHRAE Standard 52.2 filters
Absolute filters (95% to 99.97% DOP)
Electronically Enhanced Media Filter (Particle removal to 0.01µ)
Bi-polar Ionization
UV "C" Sterilization
Gas Phase Media
– Three standard products in a throw-away design)
Remote Control & BMS Interface
Black face grilles

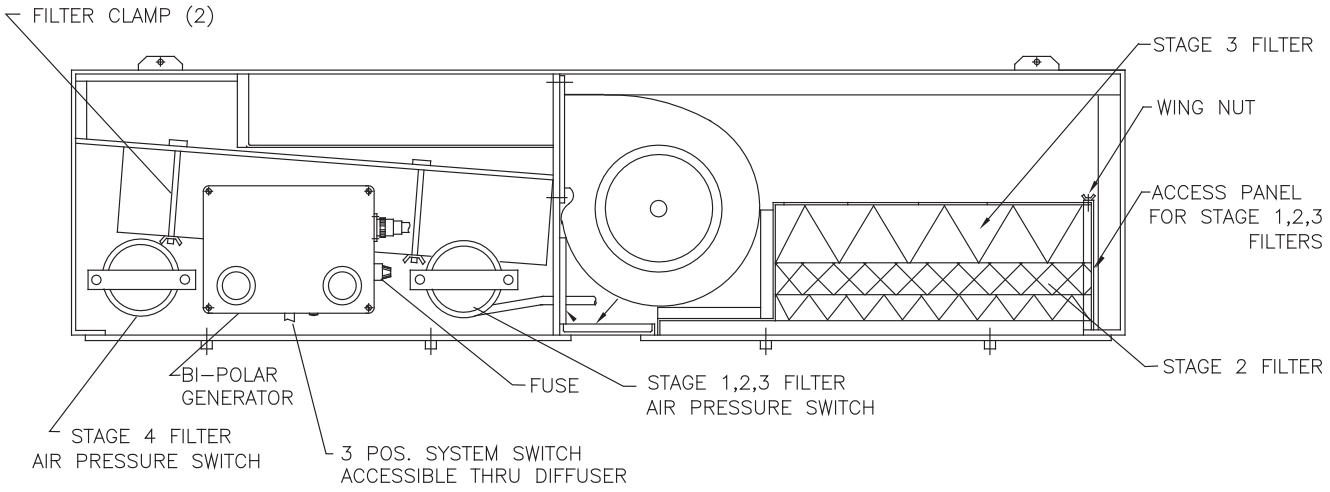
Bi-Polar Ionization
Nomial Odor Control Capacity

Ion Tubes Qty-size	Room Volume	
	cu. ft.	cu. M.
1E	3,960	112
2E	7,920	224

PERFORMANCE DATA

Representative Filter Combinations	Blower Speed	Noise Criteria[1]		Air Delivery[1] 60 Hz		50 Hz	
		@ 115V	@ 230V	115 V cfm	230 V cmh	230 V cfm	230 V cmh
MC-8813A, MC-8811C, MC-8821	High	48	46	500	850	400	680
(3-ply panel, 2 in. prefilter, 99.97% HEPA)	Low	43		250			
MC-8813A, MC-8811C, MC-8815	High	50	48	625	1063	500	850
(3-ply panel, 2 in. prefilter, 95% DOP)	Low	40		300			
MC-8813A, MC-8811C, MC-8827A	High	54	50	700	1190	560	952
(3-ply panel, 2 in. prefilter, 4 in. MERV 14 ESM_3)	Low	40		320			
MC-8811C, MC-8827C	High	56	54	925	1573	740	1258
(2 in. prefilter, 4 in. MERV 11 ESM)	Low	42		400			
MC-8811C, MC-8836C/D, MC-8827C	High	54	50	700	1190	560	952
(2 in. prefilter, 2 x 2 in. T/A Media, 4 in. MERV 11 ESM)	Low	40		320			
MC-8811C, MC-8836C, MC-8827A	High	50	49	600	1020	480	816
(2 in. prefilter, 2 in. T/A Media, 4 in. MERV 14 ESM)	Low	40		300			

1) Test data developed at sea level with clean filters.
2) Noise Level measured one meter from supply grille in a standard office environment with carpeting, accoustical ceiling tile & dry wall partions.
3) ESM = Extended Surface Minipleat



Section View MC-880 with MC-8865

Selection Procedures:

A. Primary method
1. Use our Bioclimatic IAQ modeling software based on ASHRAE Standard 62.1 to determine the quantity of cleaned air to be delivered, odor control and fibrous filter selection.
2. Select filters from Filter Selection Guide, page 4.
3. Estimate the actual airflow from the MC-880 with the selected filters. Use 2-E tube per 500 cfm of air delivered or the appropriate gas phase media from page 4.
4. Determine the quantity of MC-880 units required.

B. Alternate method
1. Determine the air exchange rate required from the Applications & Selection Guide, Engineering Catalog, Section 3.
2. Calculate air delivery required from the MC-880.
   Air Delivery (cfm) = (Room Volume x Air Exchange Rate) ÷ 60.
3. Calculate the odor control requirement for Bi-polar Ionization in the given application.
   Quantity of E tubes = Actual Room Volume ÷ (Performance Factor x 3960)
4. Select filters from Filter Selection Guide, page 4.
5. Determine the actual airflow from the MC-880 with the selected filters.
6. Determine the quantity of E tubes and MC-880 units required.

Notes:
1. Gas phase media may be used in place of Bi-polar Ionization for odor control. Refer to page 4 or the Engineering Catalog, Section 3.
2. Obtain the Performance Factor for Bi-polar Ionization and suggested Air Exchange Rate from the Engineering Catalog, Section 3.

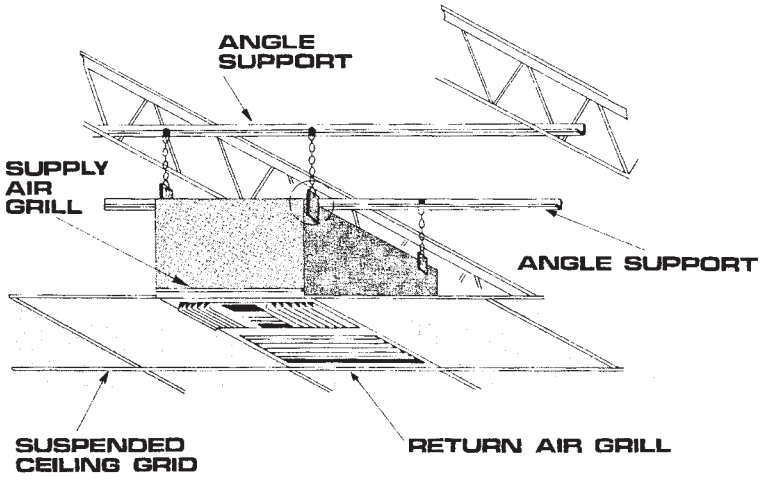
INSTALLATION & MAINTENANCE

Efficient air distribution for effective operation of the Air Purification System is established by displacing the airborne particulate to the return air grille on the MC-880. Attempting to control airborne particulate by exhaust is only effective within a one or two-inch distance from the return air grille. On the other hand, odors are controlled by increasing room air exchange rates.

Select a ceiling or room location such that room air circulation patterns will compliment the effectiveness of the MC-880. The unit may be controlled from the lighting circuit or a wall mounted remote control.

The MC-880 is well suited for installation with Variable Air Volume Systems since a constant volume of cleaned air is supplied to the room during periods of light thermal and occupant loads. This will overcome occupant complaints from lack of air circulation.

The MC-880 is designed for fast and easy maintenance and to provide consistent performance over an extended period. The prefilters and blower assembly are accessed by removing the return air grille while removal of the supply air grille provides access to the Bi-polar ionization tube(s), controls, primary filter, and UV "C". The results are reduced service and maintenance costs.



Model MC-880

FILTER SELECTION GUIDE*

Applications (Partial List)	Stage I		Stage II, III				Stage IV					Stage V	Stage III-B
	MC-8813	MC-8811	MC-8836				MC-8826	MC-8827		MC-8815	MC-8821	Bi-polar Ion	UV "C"$_5$
	A	A	B	C	D	E		A	C				
Anatomy Laboratory	X			X	X			X		S		X	
Animal Holding Rooms (Odor)	X			X	X			X		S		X	
Animal Holding Rooms (Disease)	X										X	X	S_4
Biology Laboratories			X	X	X		S		X			X	
Breweries/Taste Test		X		X	X			X				O	
Chemistry Laboratories		X		X_2	X_2	S_2	S		X			O	
Commercial Printing	X	S		X	X	S		S	X			X	
Computer Print Room	X	S	S	O				X		S		X	
Cosmetology	X	S		X	O		X		S			X	
Diazo Process		S	X	X	O	S_1	X		S			X	
Graphic Arts	S	X	X	X	O			S	X			X	
Hospitals/Patient Rooms, ICU$_3$	X			O						S	X		O
Locker Rooms	X				O			X	S			X	
Nursing Homes			X		O			X		S		X	S_4
Offices/Conference Rooms			X					S	X			X	
Pathology Laboratory		S	X	O	X			X		S		X	S_4
Photographic Laboratory		X	X	X	O			X	S			X	
Restaurant/Food Odors			X	O	O			X	S			X	
Soldering & Brazing		X	X	X				X		S		O	
Tobacco Smoke (heavy)	X		S		X			X		S		X	
Tobacco Smoke (light)		X	X					X		S		X	
Vehicle Emissions		X	X	X	X			X	S			O	
Veterinary Hospital	X			O	O					X	S	X	S_4

Recommended X
Optional (Addition) O
Optional (Substitution) S

Notes:
1) MC-8836E includes BC-700. BC-700 is available by special order subject to minimum quantity.
2) Consult Sales Dept. for recommendation based on chemicals in use.
3) This application excludes infectious disease control.
4) UV "C" may be substituted for Bi-polar Ionization.
5) MC-880 available with UV in place of Bi-polar Ionization and installed upstream of Stage IV.

*The recommendations listed above represent the manufacturer's best estimate of application requirements based on prior experience.
Certain applications may require additional filtration depending on the contaminants present and their concentration.
Consult your factory authorized representative or Sales Department for additional information.

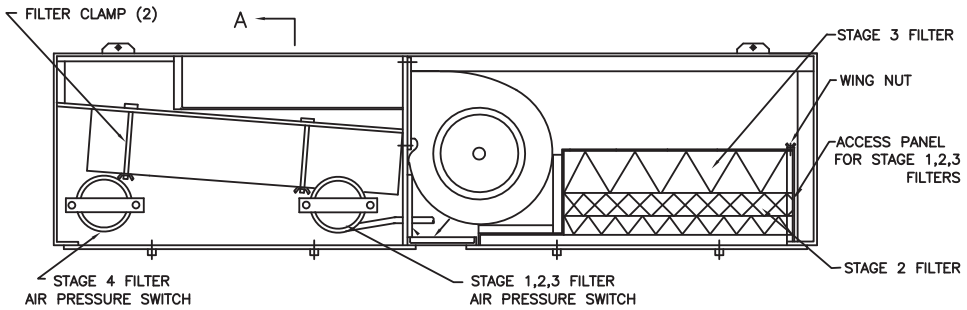
FILTER REFERENCE GUIDE

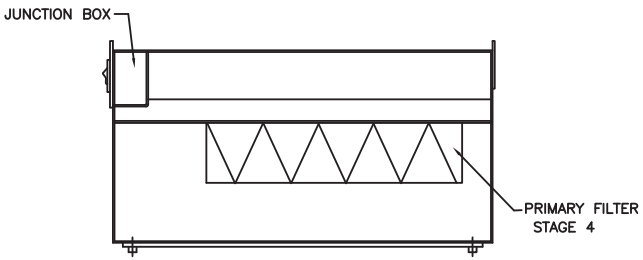
Part No.	Description
MC-8811C	2 in. Pleated MERV 8
MC-8813A	1 in. 3-Ply Panel MERV 7
MC-8813B	1 in. 4-Ply Panel MERV 8
MC-8815	4 in. Mini-pleat 95% DOP/HEPA Type
MC-8821	4 in. Mini-pleat 99.97% HEPA
MC-8826	4 in. Pleated MERV 7
MC-8827A	4 in. Extended Surface MERV 14
MC-8827B	4 in. Pleated MERV 13
MC-8827C	4 in. Extended Surface MERV 11
MC-8836C	2 in. Throw-away Media Filter with BC-400
MC-8836D	2 in. Throw-away Media Filter with BS-100XL
MC-8836E	2 in. Throw-away Media Filter with BC-700

Notes:
1. MC-8811A or MC-8813A may be used in Stage I as prefilters.
2. MC-8836 maybe used as an intermediate filter in Stage II and III.
3. MC-8836E is a special order filter subject to minumum quantities.

SUGGESTED GUIDE
MC-880 SYSTEM SPECIFICATION

The Air Purification System shall be self-contained, flush mounted for installation into a standard "T" Bar ceiling grid and include all required filter elements, Bi-polar Ionization (UV "C") elements, blower assembly and controls required for the application. The System shall be capable of effectively controlling the gas and particulate phase contaminants normally found in a _____(application). The process shall include progressive density fibrous filters with a final efficiency of MERV_____ ASHRAE 52.2/_____% DOP; Bioclimatic Bi-polar Ionization/UV "C"; and_____gas filter media enclosed in honeycomb throw away panels. The cabinet shall be constructed from Type 5052 Aluminum sheet, assembled with rivets and lined with one inch accoustical foam. Seal all metal to metal surfaces with silicone sealant. The Air Purification System shall deliver _____cfm with all filters installed. Input electrical service shall be 115Volts, 1 phase, 60 Hz.





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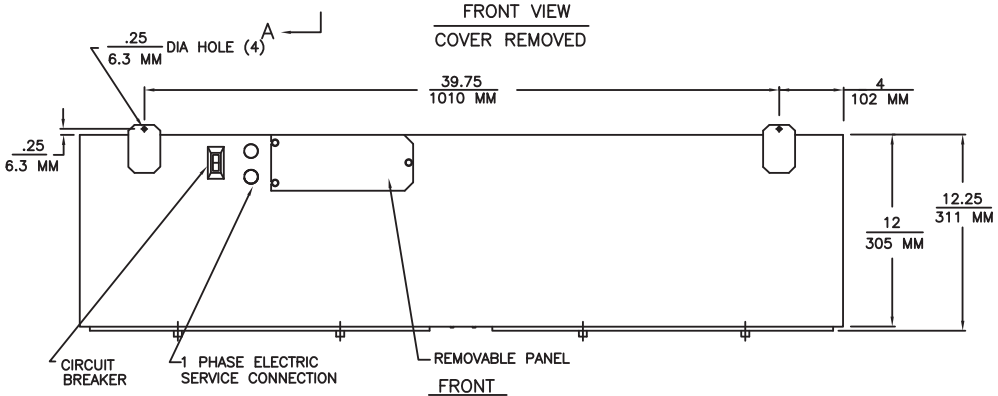

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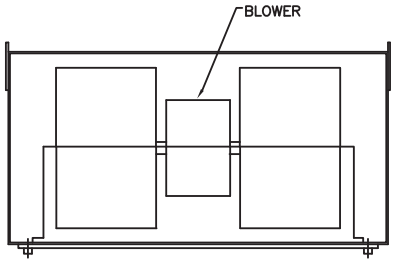
FRONT



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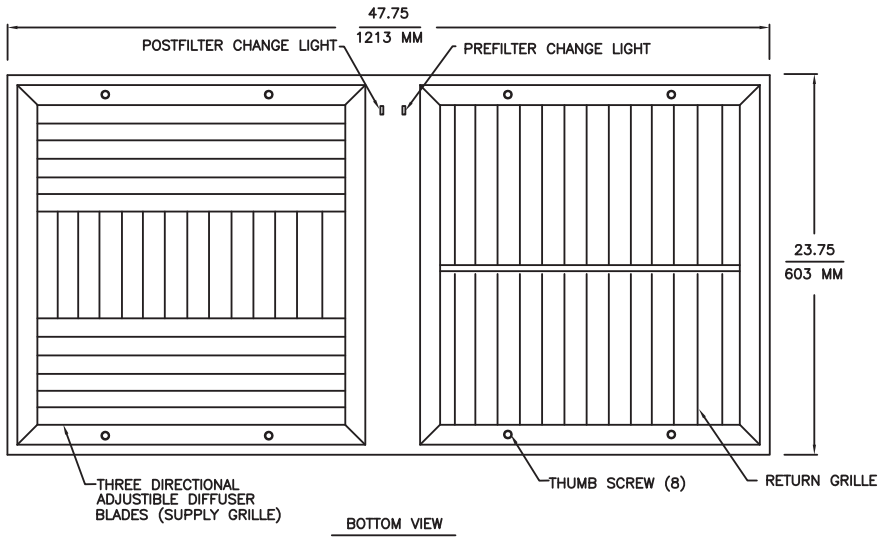


BOTTOM VIEW

CONSTRUCTION	ALUMINUM, PAINTED BAKED ENAMEL
WEIGHT	80 lb / 36 kg
ELECTRICAL SERVICE	115 VAC, 1ø ,60 Hz / 230 VAC, 1ø ,50/60 Hz
BLOWER	TWIN UNITS, DOUBLE INLET, FORWARD CURVED
BLOWER MOTOR	1/8 HP, 1725 RPM, 1.5 AMP
SOUND LEVEL	53.5 DB @ 4.5 FT

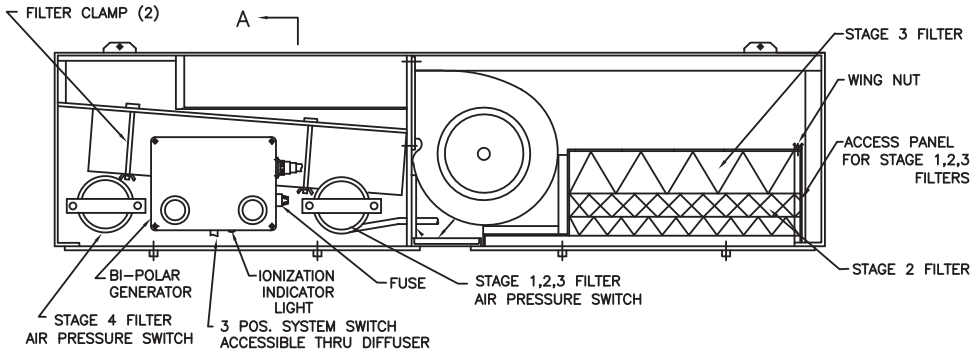
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCE: FRACTIONS
ANGLES
3 PLACE DECIMALS
2 PLACE DECIMALS
MATERIAL

DRAWN 10
CHECKED
PROJ. ENGR.
QA.

BIOCLIMATIC AIR SYSTEMS

MC–880
UNIVERSAL AIR HANDLING UNIT (MC–8809)

SIZE | FSCM NO. | DWG. NO. 30771 | REV. B
SCALE | SHEET 1



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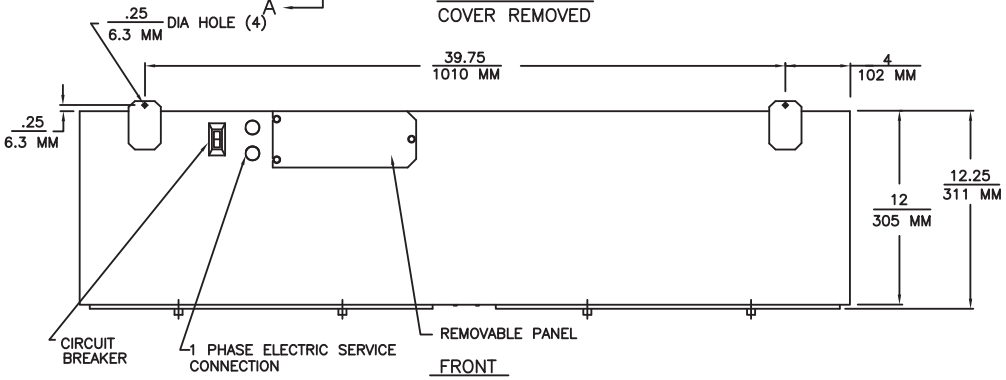

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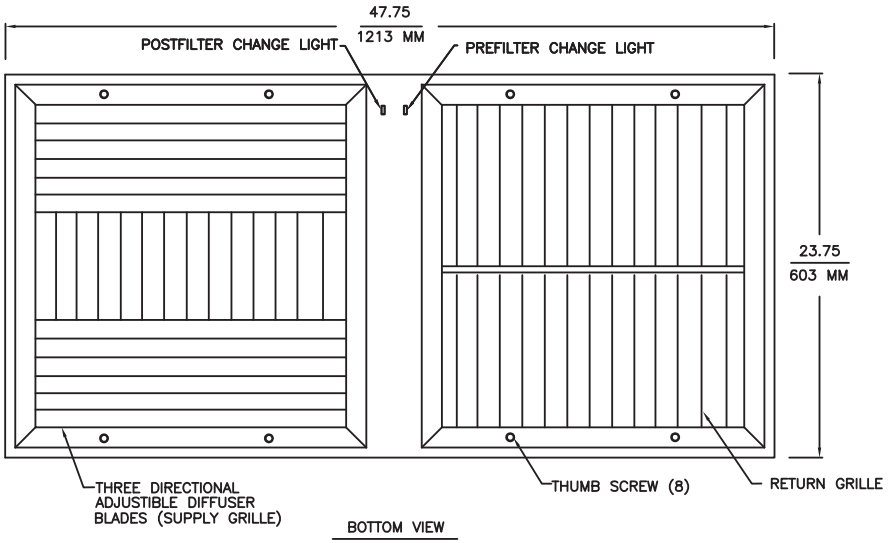
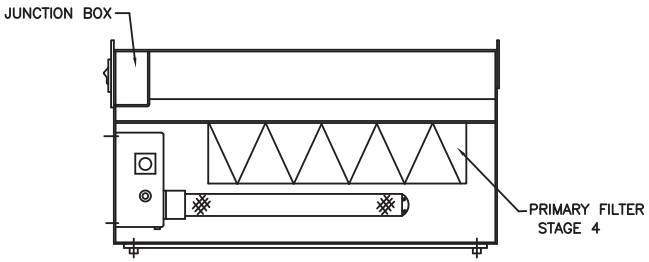


BOTTOM VIEW



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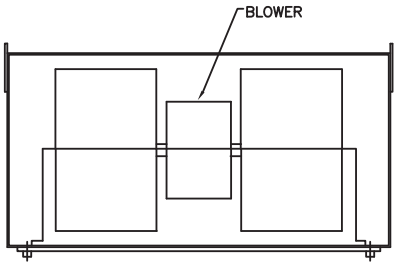

SIDE VIEW
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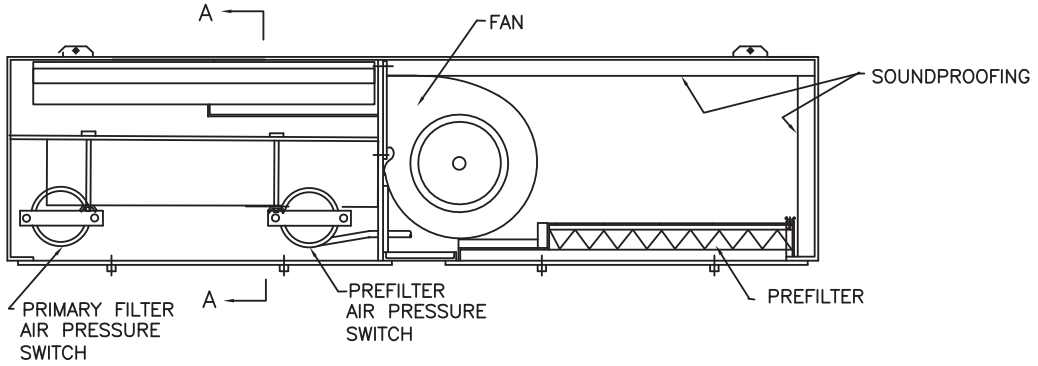
CONSTRUCTION	ALUMINUM, PAINTED BAKED ENAMEL	
WEIGHT	80 lb	36 kg
ELECTRICAL SERVICE	115 VAC, 1ø ,60 Hz	230 VAC, 1ø ,50/60 Hz
BLOWER	TWIN UNITS, DOUBLE INLET, FORWARD CURVED	
BLOWER MOTOR	1/8 HP, 1725 RPM, 1.5 AMP	
SOUND LEVEL	53.5 DB @ 4.5 FT	

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS ARE IN INCHES	DRAWN	11
TOLERANCE: FRACTIONS	CHECKED	
ANGLES		
3 PLACE DECIMALS	PROJ. ENGR.	
2 PLACE DECIMALS	QA.	
MATERIAL		

BIOCLIMATIC AIR SYSTEMS

MC–880
WITH BI–POLAR GENERATOR (MC–8865)

SIZE	FSCM NO.	DWG. NO.	REV.
		11023	C
SCALE		SHEET 1	



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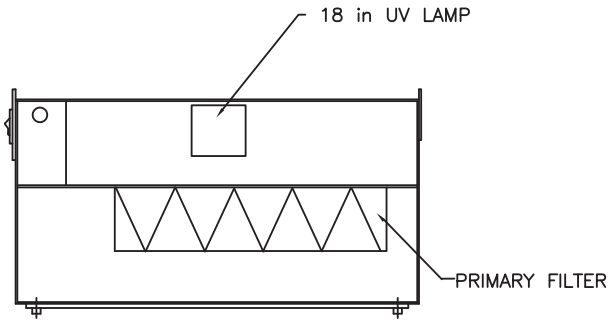

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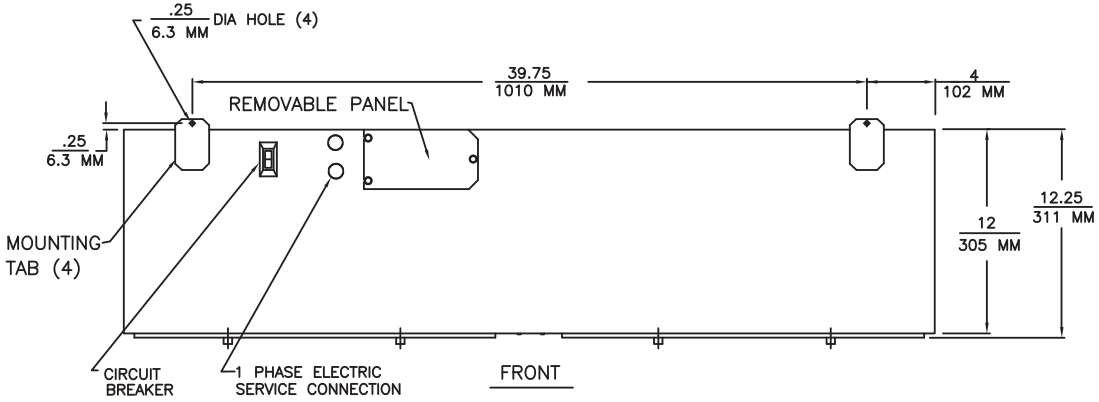

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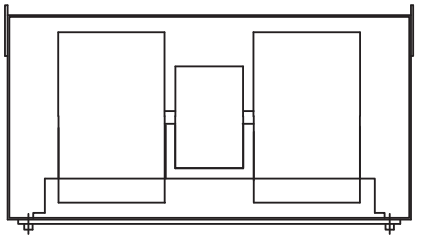

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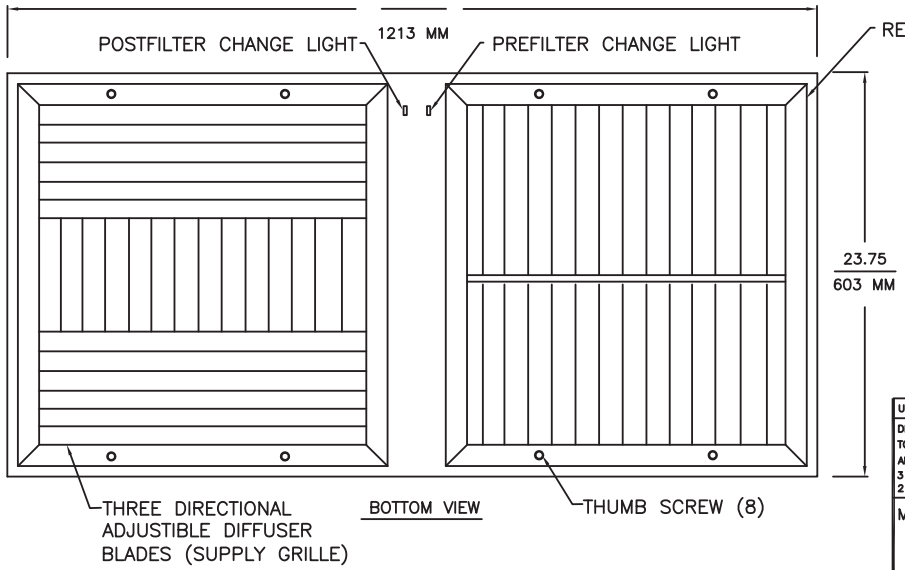


BOTTOM VIEW

CONSTRUCTION	ALUMINUM, PAINTED BAKED ENAMEL
WEIGHT	80 lbs / 36 kg
ELECTRICAL SERVICE	115 VAC, 1 Ph, 60 Hz
BLOWER	TWIN UNITS, DOUBLE INLET, FORWARD CURVED
BLOWER MOTOR	1/8 HP, 1725 RPM, 1.5 AMP
SOUND LEVEL	53.5 DB @ 4.5 FT
UV OUTPUT	11 $\mu W/cm^2$/INCH ARC LENGTH @ 1 METER, 400 FPM & 68° F

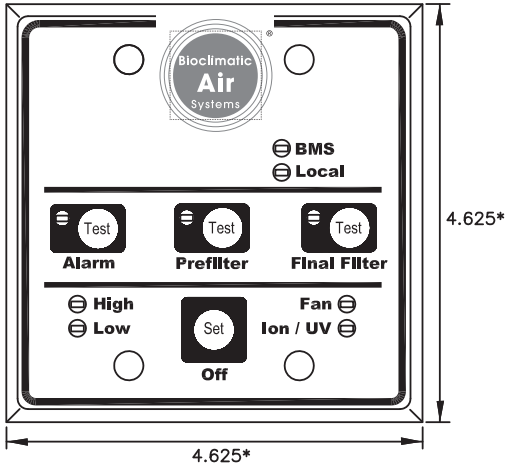
UNLESS OTHERWISE SPECIFIED		
DIMENSIONS ARE IN INCHES TOLERANCE: FRACTIONS ANGLES 3 PLACE DECIMALS 2 PLACE DECIMALS	DRAWN	10
	CHECKED	
	PROJ. ENGR.	
	QA.	
MATERIAL		

BIOCLIMATIC AIR SYSTEMS

MC–880
WITH UV EMITTER (MC–8864)

SIZE	FSCM NO.	DWG. NO.	REV.
		10861	B
SCALE		SHEET 1	

REMOTE CONTROL
(24 VDC)



* WITH ALUMINUM PLATE

LED

"BMS" – BLUE
"LOCAL" – YELLOW

"ALARM" – RED (ION GENERATOR FAILURE)
"PREFILTER" – RED (DIRTY FILTER)
"FINAL FILTER" – RED (DIRTY FILTER)

"HIGH" – AMBER (HIGH BLOWER SPEED & ION LEVEL)
"LOW" – YELLOW (LOW BLOWER SPEED & ION LEVEL)

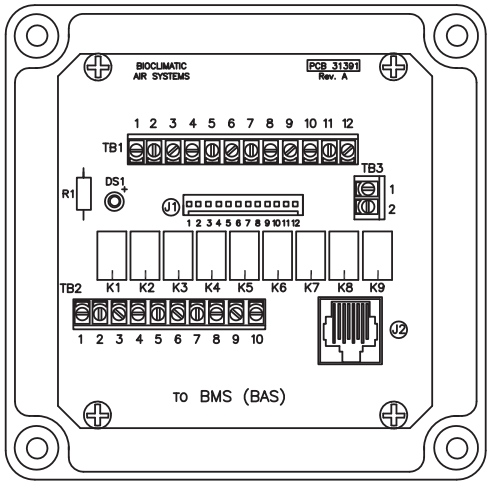
"FAN" – GREEN (BLOWER – ON)
"ION/UV" – GREEN (ION GENERATOR/UV – ON)

BMS FUNCTIONS

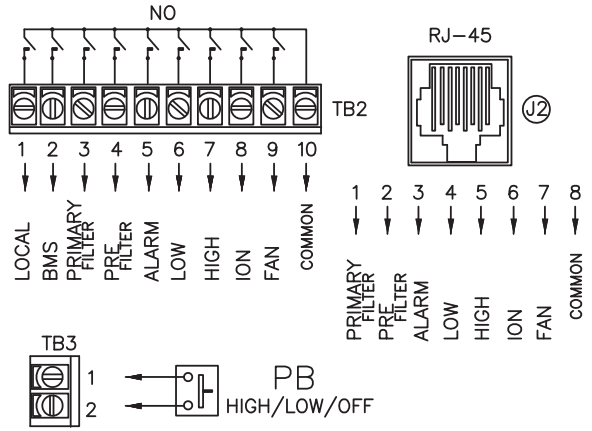
- START/STOP
- HIGH/LOW
- OBSERVE: – "PREFILTER" ALARM
  – "FINAL FILTER" ALARM
  – FAN, ION GENERATOR STATUS

MC–880 OPERATION

– PUSH BUTTON "SET" FIRST TIME – "HIGH", "LOCAL", "FAN", & "ION" LIGHTS WILL BE ON. UNIT WILL BE ON (HIGH MOTOR SPEED/ IONIZATION LEVEL).
– PUSH BUTTON "SET" SECOND TIME – "LOW", "LOCAL", "FAN", & "ION" LIGHTS WILL BE ON. UNIT WILL BE ON (LOW MOTOR SPEED/ IONIZATION LEVEL).
– PUSH BUTTON "SET" THIRD TIME – NO LIGHTS. UNIT OFF.



BMS KIT



ELECTRICAL CONNECTION
(BY OTHERS)

REV	DESCRIPTION	DRAWN	DATE

☐ APPROVED AS SUBMITTED
☐ APPROVED AS NOTED
☐ RESUBMIT W/CHANGES
☐ _____ DATE ___

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS ARE IN INCHES	DRAWN	NO
TOLERANCE: FRACTIONS	CHECKED	
ANGLES +/– 1 degree	PROJ. ENGR.	
3 PLACE DECIMALS +/– .032	QA.	
2 PLACE DECIMALS +/– .03		5/14/10
MATERIAL	24 VDC	

BIOCLIMATIC AIR SYSTEMS

MC-880: REMOTE CONTROL PANEL AND BMS INTERFACE KIT

SIZE	FSCM NO.	DWG. NO.	REV.
A		30725-2	A
SCALE		SHEET	