



Installation, Operation and Maintenance Guide

Bioclimatic ActiveOx™

FC Series

OUR MISSION

To design and build quality engineered air cleaning systems to provide indoor comfort, protect occupants, and ensure the reliability of critical systems and processes.

IMPORTANT

Save this Document for Future Reference & Warranty Information



Bioclimatic.com
003-JUN-2022

!IMPORTANT!

READ THIS BEFORE STARTING INSTALLATION.
DO NOT THROW AWAY THIS GUIDE.

For installation you **MUST**:

- Always disconnect power to the unit before handling any of the components.
 - DO NOT connect to the power before the installation is complete and personnel are aware of the imminent operation.
 - Carefully read this instruction booklet before beginning the installation.
 - Follow each installation or repair step exactly as shown and explained in this guide.
 - Observe all local, state, national and international electrical codes.
 - Pay close attention to all warnings and caution notices given in this guide.
-

How to Contact Us: If you need help, please contact a Bioclimatic Air Systems Representative for technical assistance.

!CAUTION!

Do not touch while in operation shut off electricity before servicing!

This equipment should be inspected frequently and collected dirt removed from it regularly to prevent excessive accumulation that may result in flashover or risk of fire.

!MISE EN GARDE!

Ne touchez pas pendant le fonctionnement couper l'électricité avant l'entretien

Cet équipement doit être inspecté fréquemment et la saleté collectée doit être retirée régulièrement pour éviter toute accumulation excessive pouvant entraîner un court-circuit ou un risque d'incendie.



UL Recognized
Component Mark

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01 INTRODUCTION

1.1 Disclaimer

These instructions are submitted with the implicit understanding that:

1. This manual is to guide the user of Bioclimatic Air Systems (B.A.S.) equipment in the proper installation, operation, and maintenance procedures to insure maximum equipment life with efficient operation.
2. The customer has assigned competent maintenance and operating personnel to the system described herein and will assume operational and maintenance responsibility upon start-up of the system.
3. The customer will read and thoroughly examine the foregoing instructions and will notify the seller of any points not fully understood, points of conflict or error.
4. The customer, in lieu of any notification to the contrary, has read and fully understands the operation of the system and is aware of the hazards of corrosion, abrasion and fire or explosion and shall take the necessary steps in the operation of equipment to control such hazards to the maximum extent possible.
5. Start-up assistance or field engineering service provided by B.A.S. shall in no way relieve the customer of responsibility for the proper operation of the system.



IMPORTANT: Any modifications to the unit by unauthorized personnel will void factory warranty. The unit must be installed in accordance with the manufacturer's instructions to preserve warranty.

1.2 Receiving

Products leaving the B.A.S. factory are inspected and in satisfactory operating condition. All equipment should be thoroughly inspected when received. Although all units are properly packaged, rough handling in transit can cause breakage. Any shortage or damage should be reported at once to the transportation company. Note the damage on the bill of lading before signing for the shipment. **No equipment may be returned to Bioclimatic without written authorization. Returned equipment sent without authorization will be refused and returned to sender.**

All products are shipped F.O.B. (Ex Works, FCA) Bioclimatic warehouse. Responsibility for all equipment passes to the buyer at the time equipment is loaded onto the carrier's truck.

1.3 Storage

If the generator unit(s) is not installed upon delivery, it should be stored in a cool, dry, weather protected location. Do not stack any other equipment on top of the unit.

Continue on Next page

1.4 Warranty

THE SELLER WARRANTS BI-POLAR IONIZATION PRODUCT (EQUIPMENT) AGAINST DEFECTIVE WORKMANSHIP AND MATERIAL FOR **2 YEARS** FROM DATE OF FACTORY SHIPMENT. THE SOLE OBLIGATION OF SELLER SHALL BE TO REPAIR OR REPLACE, AT ITS OPTION, F.O.B. ITS FACTORY, ANY PART OR PARTS WHICH ARE RETURNED F.O.B. ITS FACTORY, SHIPPING CHARGES PREPAID, AND WHICH AFTER INSPECTION BY SELLER ARE FOUND TO BE DEFECTIVE. BUYER SHALL NOTIFY SELLER OF DEFECT IN WRITING, PROMPTLY UPON DISCOVERY AND WITHIN THE WARRANTY PERIOD. THIS WARRANTY DOES NOT COVER DEFECTS CAUSED BY CORROSION OR NORMAL DETERIORATION; IT DOES NOT EXTEND TO CONSEQUENTIAL DAMAGE, LOSS OR DELAY ASSOCIATED WITH A WARRANTY DEFECT; AND IT DOES NOT COVER ANY COST OF LABOR, TRAVEL, OR OTHER EXPENSE ASSOCIATED WITH THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. SELLER ASSUMES NO LIABILITY FOR PRODUCT LOSS OR OTHER CLAIMS WHATSOEVER ARISING OUT OF THE USE OR APPLICATION OF THE EQUIPMENT IN ANY OPERATIONS, WHETHER THE EQUIPMENT IS USED ALONE OR IN CONJOINT USE WITH OTHER EQUIPMENT OR PROCESSES. NOTWITHSTANDING THE FOREGOING, SELLER'S WARRANTY OBLIGATIONS WITH RESPECT TO ANY ITEMS NOT MANUFACTURED BY SELLER SHALL NOT EXCEED THE OBLIGATIONS UNDERTAKEN BY THE MANUFACTURER THEREOF UNDER EXPRESS WARRANTY TO THE SELLER.

THIS EXPRESS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OF FITNESS OF THE MACHINE FOR ANY PARTICULAR PURPOSE. THERE ARE NO OTHER REPRESENTATIONS, WARRANTY OF CONDITION IN ANY RESPECT EITHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONTRACT OR TORT, OTHER THAN WHAT IS STATED ABOVE.

THE SELLER SHALL NOT BE HELD LIABLE IN ANY WAY FOR CONSEQUENTIAL DAMAGES, HOWEVER CAUSED.

THIS WARRANTY WILL NOT APPLY IF THE SELLER'S EQUIPMENT HAS BEEN DAMAGED DUE TO IMPROPER INSTALLATION, ALTERATION, ABUSE OR MISUSE, ACCIDENT, FIRE, FLOOD OR ACT OF GOD. FURTHER, THIS WARRANTY WILL NOT APPLY IF REPAIRS, REPLACEMENTS, OR ALTERATIONS ARE MADE BY OTHERS WITHOUT THE SELLER'S PRIOR WRITTEN AUTHORIZATION.

IN THE EVENT THE STATE IN WHICH THE EQUIPMENT IS INSTALLED DOES NOT PERMIT THE LIMITATION OR EXCLUSION OF IMPLIED WARRANTIES OR CONDITIONS UNDER GIVEN CIRCUMSTANCES, THE PROVISIONS OF THIS WRITTEN WARRANTY ARE IN ADDITION TO AND NOT A MODIFICATION OF THE STATUTORY WARRANTIES AND OTHER RIGHTS AND REMEDIES PROVIDED BY SUCH LAWS.

NOTES: "ANY MODIFICATION OR UNAUTHORIZED REPAIR TO ORIGINAL EQUIPMENT BY ANY COMPANY OR PERSON OTHER THAN THE MANUFACTURER WILL SERVE TO VOID THE SELLER'S LIABILITY UNDER THE MANUFACTURER'S WARRANTY. ION GENERATOR, MODULES AND CONTROL ENCLOSURES CONTAINING ELECTRONIC COMPONENTS ARE SEALED TO PREVENT UNAUTHORIZED TAMPERING OR ADJUSTMENTS. ONLY AUTHORIZED SERVICE PROVIDERS MAY BREAK SEALS TO COMPLETE CALIBRATION OR REPAIRS. UNAUTHORIZED TAMPERING OR BREAKING SEALS WILL RELEASE THE SELLER FROM ANY AND ALL LIABILITY UNDER THIS WARRANTY."

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

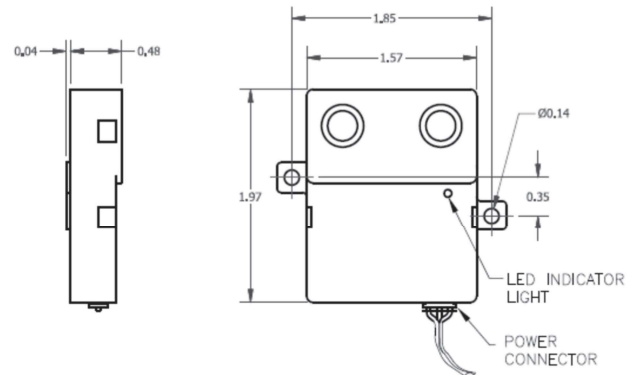
02 PHYSICAL DESCRIPTION & THEORY OF OPERATION

2.1 Principle of Operation

The Bioclimatic ActiveOx™ FC series ionization generator is designed specifically for duct or plenum mounting. Generators are normally installed in the supply air side of an air handling unit following the final filter. Alternatively, they can be installed in the return plenum.

Airflow capacity:

Generator AOXFC up to 1200 CFM per Module



2.1.1 Bioclimatic ActiveOx™ FC Series

The Bioclimatic ActiveOx™ FC Series generator is a bipolar ionization device. The unit produces synchronized bipolar ionization of an air stream whose flow is perpendicular to the axis of the needle pair. Thus, depending upon the volume of air, its velocity, chemical and biological content, ionization is adjusted by means of local control to affect particle discharge density sufficient to produce the desired volumetric air purification. Externally, the generator includes ionization modules ActiveOx FC, circuit breaker (if installed), control switch, indicator LED and BMS port. The ActiveOx FC is designed for installation in air handler housings and roof curbs. The ActiveOx FC kit includes ionization modules, power supply and required bracket, and a wiring harness to connect the ionization module to the power supply.

2.1.2 System Regulation

Power input to ionization generators is not adjustable.

Illuminated blue light indicates the generator is operating.

2.1.3 Building Management System Control (BMSC)

The ActiveOx FC generator requires an optional AOXBMS control box for building management system (BMS) or building automation system (BAS) interface.

The BMS (BAS) dry contact may be wired in series with AOXBMS control boxes.

03 INSTALLATION

3.1 Initial Setup

Generators are normally installed in the supply air side of an air handling unit following the final filter. Alternatively, they can be installed in the return plenum. Minimum clearances between final filter and generators and heating or cooling surfaces shall be four inches (101 mm). Where space permits, increase clearances on the downstream side of the generators to 12 inches (305 mm).

Alternately, the ActiveOx FC may be installed in the air handling unit supply plenum or ductwork subject to ambient temperature limitations. Allow a minimum of 8 inches (203 mm) clearance between generators and heating surfaces and 12 inches (305 mm) clearance between generators and cooling surfaces. The maximum ambient temperature for the generators is 160°F. Follow local and national electric codes.

3.2 Installation

Install the Bioclimatic unit in accordance with the following guidelines.

NOTE: Proper filtration is required to remove airborne particulates. B.A.S. systems are compatible with most types of mechanical filtration systems. At minimum, MERV 8 rated prefilter is required. Higher efficiency is a plus.



CAUTION: Do not attempt to connect the generator ActiveOx FC unit(s) across multi-phase 3 or 4 wire circuits or across any electrical service in which pole to pole voltage exceeds 240 Volts RMS.

04 OPERATION

Provide 100-240 VAC or 24 VAC power (depending on power supply) to power terminal. The blue LED will illuminate. The optional BMS (BAS) dry contact will close.

05 MAINTENANCE

Maintenance is typically not required. B.A.S. recommends semi-annual inspections to be sure the modules are free of debris. As a best practice, the modules can be cleaned using a compressed gas duster (as used to clean electronic equipment) or a cotton swab or small soft brush (similar to an artist brush). **Caution should be taken not to bend the needles.**



WARNING: DO NOT ATTEMPT TO SERVICE ANYTHING WHILE POWER TO THE SYSTEM IS ON. DISCONNECT ALL POWER BEFORE SERVICING ANY UNIT.

06 TROUBLESHOOTING GUIDE

See Appendices for the custom wiring diagram for the specific job being serviced.

6.1 The ActiveOx FC Generators Will Not Energize

Possible Cause:	Possible Solution:
Facility circuit breaker is tripped or turned off.	Check the circuit breaker and reset it if necessary.
The control power switches are turned to the "Off" position.	Ensure all power switches are activated.
There is a faulty wiring connection between the circuit breaker and the ActiveOx FC generator.	Ensure all wiring connections between the circuit breaker and ActiveOx FC generator are secure and correct. See Appendices for custom wiring diagram.

07 SPECIFICATIONS

7.2 Electrical

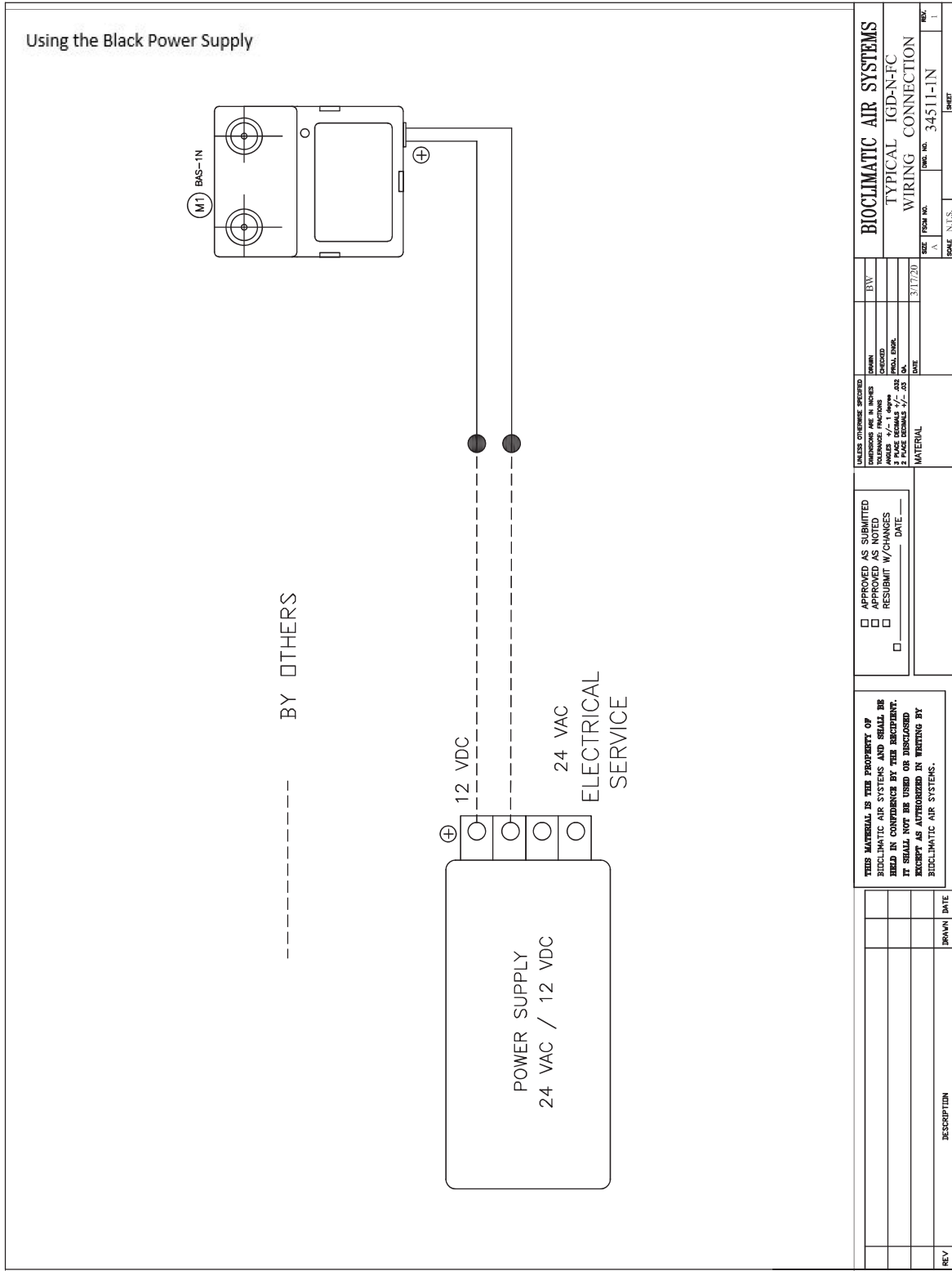
Modules	24 VAC	120 VAC	208 VAC	240 VAC
1	0.036	0.021	0.017	0.0105
2	0.061	0.028	0.022	0.014
3	0.082	0.035	0.027	0.0175
4	0.105	0.042	0.032	0.021
5	0.127	0.05	0.037	0.025
6	0.149	0.058	0.043	0.029
7	0.17	0.065	0.047	0.0325
8	0.194	0.071	0.052	0.0355

7.3 Mechanical

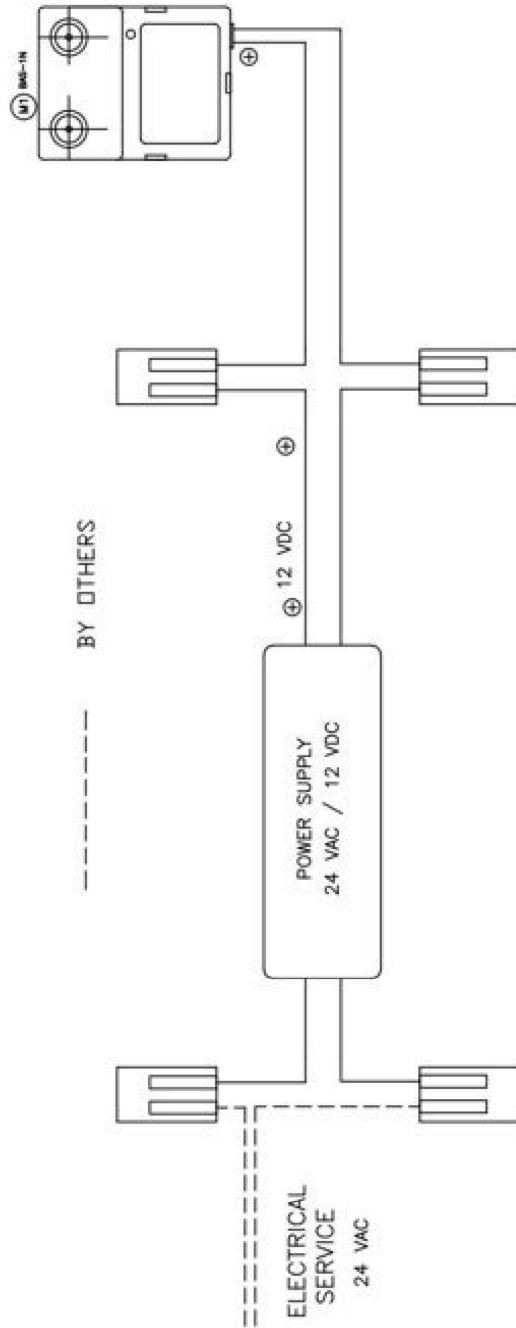
See **Appendices** at the end of this document.

Environment: Indoor only

08 APPENDICES

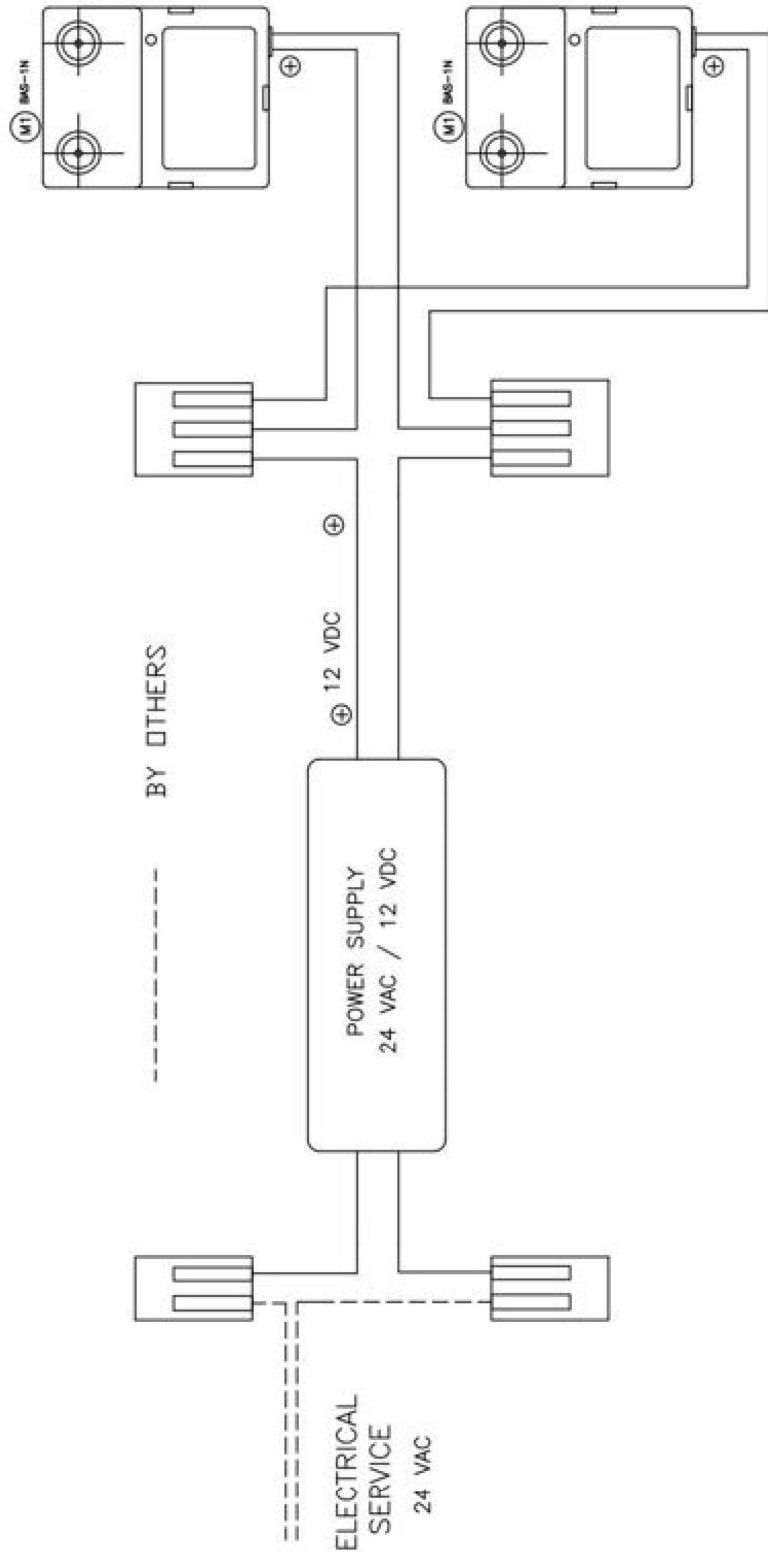


Using the White Power Supply

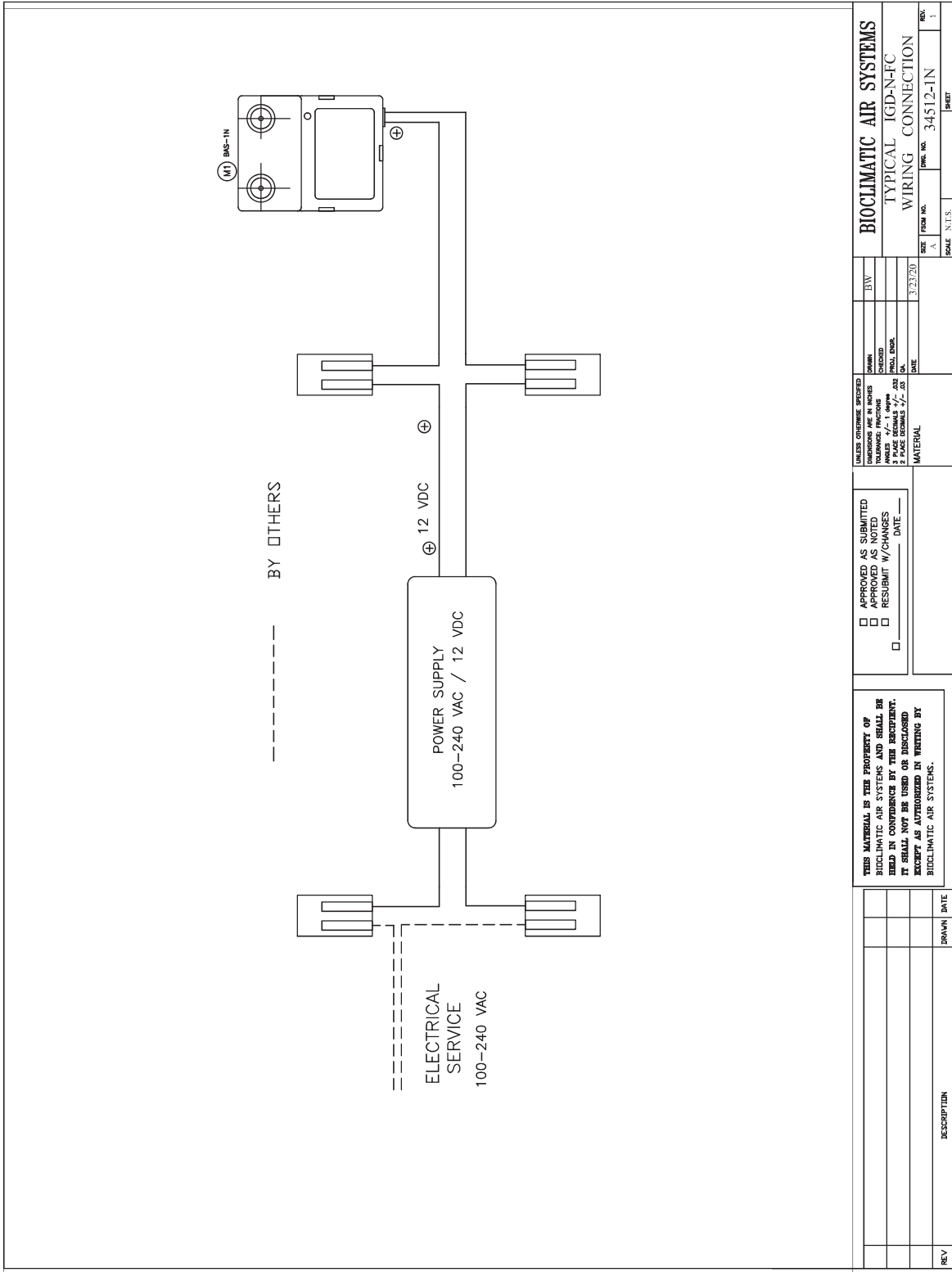


<p>THIS MATERIAL IS THE PROPERTY OF BIOCLIMATIC AIR SYSTEMS AND SHALL BE USED IN COMPLIANCE WITH THE WARRANTY. IT SHALL NOT BE USED OR DISCLOSED WITHOUT AN APPROVED IN WRITING BY BIOCLIMATIC AIR SYSTEMS.</p>		<p><input type="checkbox"/> APPROVED AS SUBMITTED</p> <p><input type="checkbox"/> APPROVED AS NOTED</p> <p><input type="checkbox"/> RESUBMIT W/CHANGES</p> <p>DATE _____</p>	<p>DATE ENGINE SPECIFIED _____</p> <p>DESIGNER _____</p> <p>PROJECT _____</p> <p>NO. OF SHEETS _____</p> <p>SHEET NO. _____</p>	<p>REV _____</p> <p>DESCRIPTION _____</p> <p>DATE _____</p> <p>DRAWN _____</p>
<p>BIOTERMAL AIR SYSTEMS</p> <p>AOX-F1-24</p> <p>WIRING CONNECTION</p>		<p>DATE 6/7/23</p> <p>REV. NO. 34568-1</p> <p>SHEET 1</p>	<p>SCALE _____</p> <p>PROJECT _____</p> <p>DATE _____</p>	<p>DATE _____</p> <p>DRAWN _____</p>

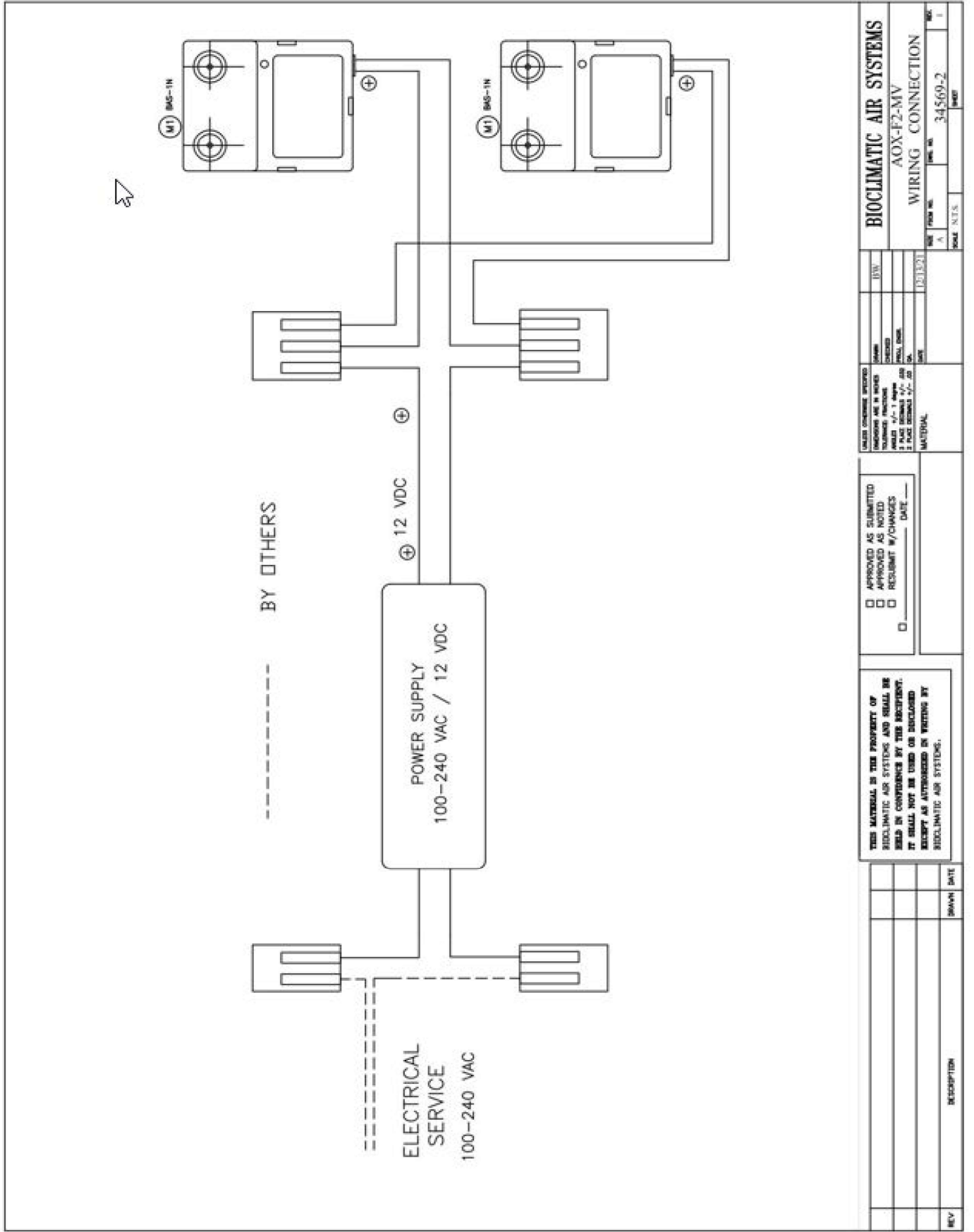
Using the White Power Supply



<p>BIOCLIMATIC AIR SYSTEMS AOX-F2-24 WIRING CONNECTION</p>		<p>REV. NO. 34568-2</p>	<p>REV. 7</p>
<p>DATE CHANGES APPROVED</p> <p>REVISIONS AS NOTED</p> <p>ISSUED 1/11/2022</p> <p>BY: [Signature]</p>		<p>DATE</p> <p>6/2/23</p>	<p>SCALE</p> <p>N.T.S.</p>
<p>APPROVED AS SUBMITTED</p> <p>APPROVED AS NOTED</p> <p>REVISIT W/CHANGES</p> <p>DATE</p>		<p>THIS MATERIAL IS THE PROPERTY OF BIOCLIMATIC AIR SYSTEMS AND SHALL BE USED IN CONFORMANCE WITH THE WARRANTY. IT SHALL NOT BE USED OR REPRODUCED EXCEPT AS APPROVED IN WRITING BY BIOCLIMATIC AIR SYSTEMS.</p>	
REV	DESCRIPTION	DRAWN	DATE



<p>BIOCLIMATIC AIR SYSTEMS</p> <p>TYPICAL IGD-NFC WIRING CONNECTION</p> <p>FROM NO. _____ DRAW. NO. 34512-IN REV. 1</p> <p>SCALE N.T.S.</p>	
<p>UNLESS OTHERWISE SPECIFIED</p> <p>CONNECTIONS ARE IN INCHES</p> <p>INDICATED DIMENSIONS ARE IN INCHES</p> <p>2 PLACE DECIMALS 1/2, .00</p> <p>3 PLACE DECIMALS 1/4, .000</p>	<p>DATE _____</p> <p>BY _____</p> <p>CHANGED _____</p> <p>BY _____</p> <p>DATE _____</p>
<p><input type="checkbox"/> APPROVED AS SUBMITTED</p> <p><input type="checkbox"/> RESUBMIT W/CHANGES</p> <p><input type="checkbox"/> RESUBMIT _____ DATE _____</p>	<p>THIS MATERIAL IS THE PROPERTY OF BIOCLIMATIC AIR SYSTEMS AND SHALL BE HELD IN CONFIDENCE BY THE RECIPIENT. IT SHALL NOT BE USED OR DISCLOSED EXCEPT AS AUTHORIZED IN WRITING BY BIOCLIMATIC AIR SYSTEMS.</p>
<p>REV. _____</p> <p>DESCRIPTION _____</p> <p>DRAWN _____ DATE _____</p>	<p>DATE _____</p>



BIOCLIMATIC AIR SYSTEMS		AOX-F2-MV	
WIRING CONNECTION		REV. NO. 34,560-2	
DATE		DRAWN	
CHECKED		DATE	
DESIGNED		DATE	
PROJECT NO.		DATE	
JOB NO.		DATE	
MATERIAL		DATE	
<p>UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES FRACTIONS DECIMALS. PLACE DECIMALS 1/16, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8.</p>			
<p><input type="checkbox"/> APPROVED AS SUBMITTED</p> <p><input type="checkbox"/> APPROVED AS NOTED</p> <p><input type="checkbox"/> REQUIRMENT #/CHANGES</p> <p><input type="checkbox"/> _____ DATE _____</p>			
<p>THIS MATERIAL IS THE PROPERTY OF BIOCLIMATIC AIR SYSTEMS AND SHALL BE HELD IN CONFIDENCE BY THE RECIPIENT. IT SHALL NOT BE USED OR DISCLOSED WITHOUT AS AUTHORIZED OR WRITING BY BIOCLIMATIC AIR SYSTEMS.</p>			
REV	DESCRIPTION	DRAWN	DATE

09 PRODUCT NUMBERS*

ActiveOx FC
AOXF1-24
AOXF2-24
AOXF1-MV
AOXF2-MV

*If your specific model is not listed please contact the factory at:
1-800-394-3458 for operating instructions, safety information and
replacement parts or service.