



Installation, Operation and Service Manual

Bluezone® Model 420 Air Cleaning System

IMPORTANT SAFEGUARDS
READ AND SAVE THESE INSTRUCTIONS

Safety

This operation and service manual contains important instructions and safety information about the Bluezone Air Purification System. Observe the following dangers, warnings, cautions and notices when installing, operating and servicing the Bluezone Model 420.



Electrical System

Energized electrical circuits present a potentially life-threatening hazard.

Ensure the unit's power cord is unplugged before performing any installation or service work.

Ensure there are no other electrical power circuits connected to the Bluezone Model 420.

Do Not Operate unit with a damaged cord or plug. Discard unit or return to an authorized service facility for repair.

Follow all lockout/tagout procedures for all electrical circuits.



System Operation



Do not operate the Bluezone Model 420 while fogging with chlorine bleach or other disinfectant solutions. Disinfectants can poison the Bluezone catalyst and reduce its effectiveness.

- Turn off the Bluezone Units if disinfectant fogging or cleaning is underway.

Turn Bluezone units back on after disinfectants have dissipated. Never hose down the Bluezone Model 420 or clean with a water jet. Direct flow of water onto the catalyst can reduce its effectiveness in eliminating ozone.

Turn off Bluezone units and cover with plastic if the room is being hosed with water or steam.



System Maintenance

The Bluezone Model 420 contains 4 UV-C light bulbs; the UV light is completely contained inside the unit during operation.

Unplug or disconnect the unit from power source prior to any servicing.

The Bluezone Model 420 has multiple safety systems to ensure that you cannot view the UV bulbs while they are operating.

Do NOT attempt to override the cover switch to allow the bulbs to operate when the cover is off.

Skin or eye damage may result from directly viewing the light produced by the lamp in this apparatus. Always disconnect power before relamping or servicing. Replace lamps using Lamp Replacement Kit Model No. 005-000002, manufactured by Bluezone Products Inc. or an Authorized Bluezone Partner.

Never look at an illuminated UV-C bulb without proper eye protection against UV light frequencies.

The UV-C lamps generate ozone. This ozone is contained inside the Bluezone Model 420.

When conducting maintenance, power down the unit and wait 15 minutes before removing the cover. There will be residual ozone inside the Bluezone Model 420. Do not breathe air directly from inside the unit.

Description

The Bluezone® Model 420 is an air purification device that eliminates airborne contaminants including microbes (virus, fungi, mold and bacteria), odors and ethylene.

The Model 420 can be hung or mounted to the ceiling or wall, or located on a shelf.

The Bluezone Model 420 draws in air containing viruses, mold, spores or fungus, and discharges air with a highly reduced concentration of these impurities.

The unit is completely self-contained. The facility, equipment, and personnel have no contact with the process that is cleaning the air.

The Bluezone unit's operation is controlled by a microprocessor-based controller that

ensures safe operation at all times and alerts the user to any system faults.

Specifications

The specifications of the Bluezone Model 420 are shown in Table 1.

Table 1: Bluezone Model 420 Specifications

Specification Category	Model 420
Size	31" X 14" X 13.5" 79cm X 36 cm X 34 cm
Product Weight	25 lbs./11kg
Shipping Size	36" X 20" X 20" 91cm X 51cm X 51cm
Shipping Weight	28 lbs/13 kg
Operating Environment	50°F – 104°F 1C – 40C up to 85% RH
Storage Environment	-4°F – 150°F -20C – 65C up to 85% RH
Input Voltage	120 VAC 1 Phase
Current	3 amps (at 120VAC)
Power	250 Watts max
Electrical Connection	IEC 320-C13 120 VAC power cord
Mounting Options:	Hung from ceiling, placed on shelf/rack/cart, or mounted to wall
Certifications	cETLus Listed ARB certified – Ozone Emissions NSF per request

Key Components

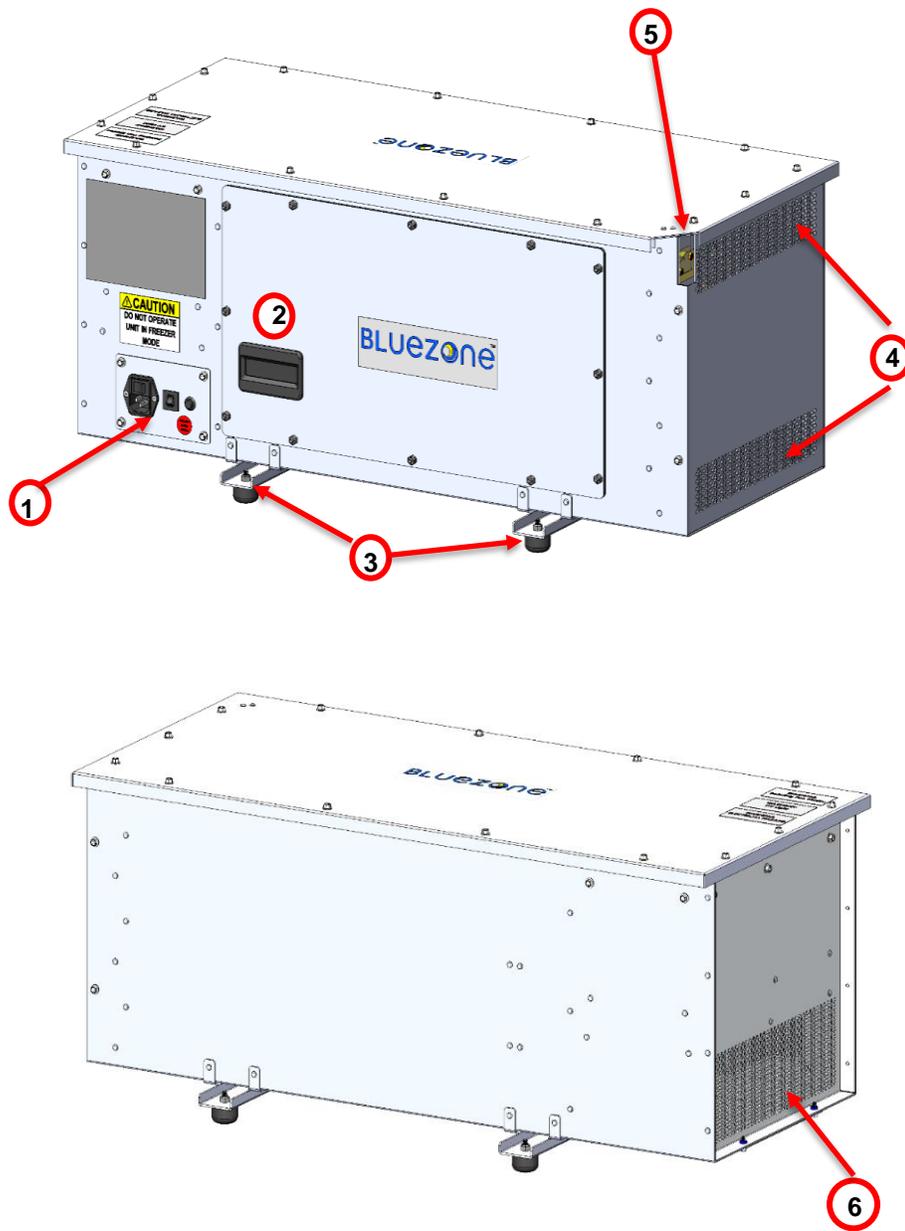


Figure 1: Bluezone Key Components

ITEM #	DESCRIPTION
1.	Control Panel
2.	Display Screen
3.	Mounting Rails/Feet
4.	Air Inlets
5.	Cover Switch Location
6.	Clean Air Outlet

Electrical System

Use the first two numbers in the serial number to identify the wiring in your unit.

First two numbers of serial number	Wiring diagram
45	Figure 3
48	Figure 4



Figure 2: Location of Serial Number

Wiring diagrams of the Model 420-045 and the 420-048 are shown as Figure 3 and Figure 4 respectively.

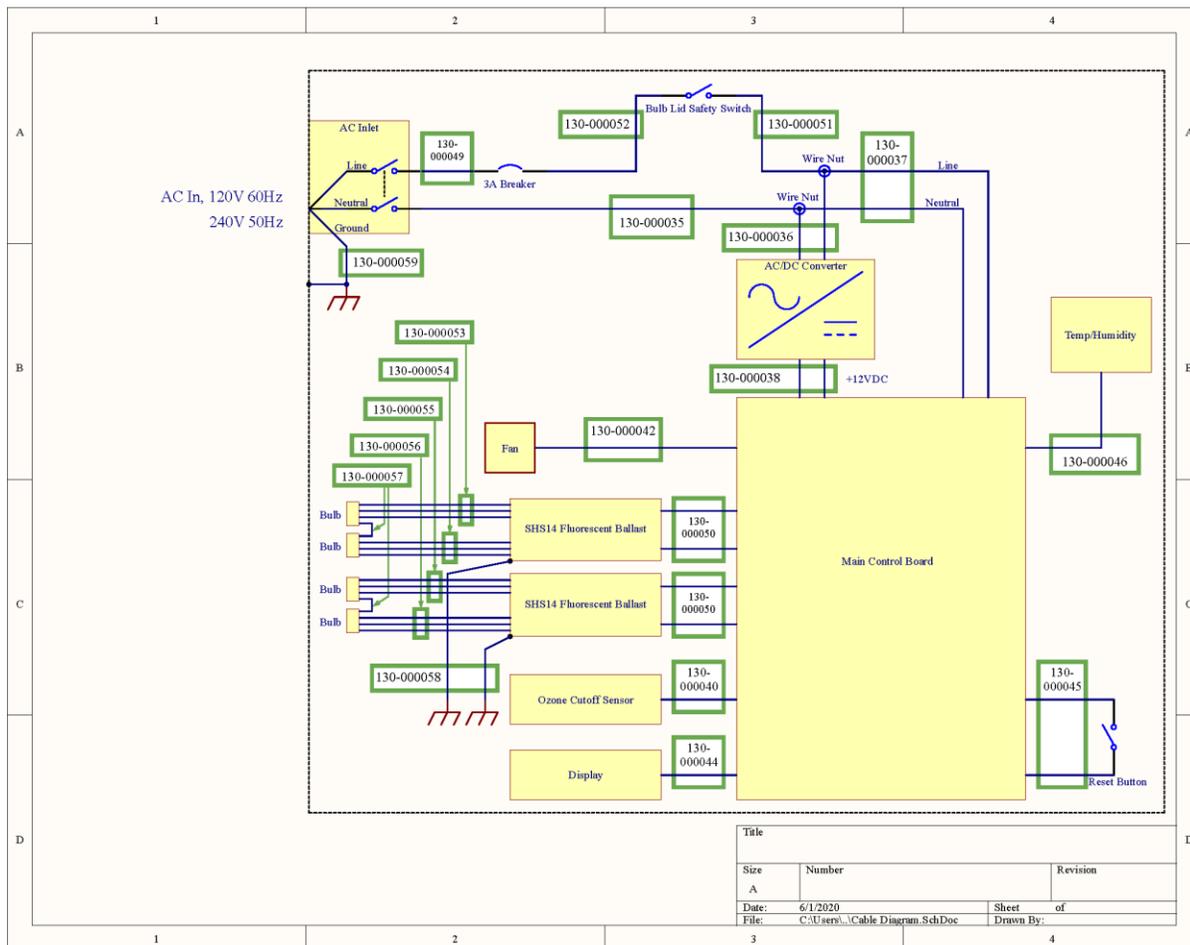


Figure 3: Wiring Diagram of Model 420-045 Unit

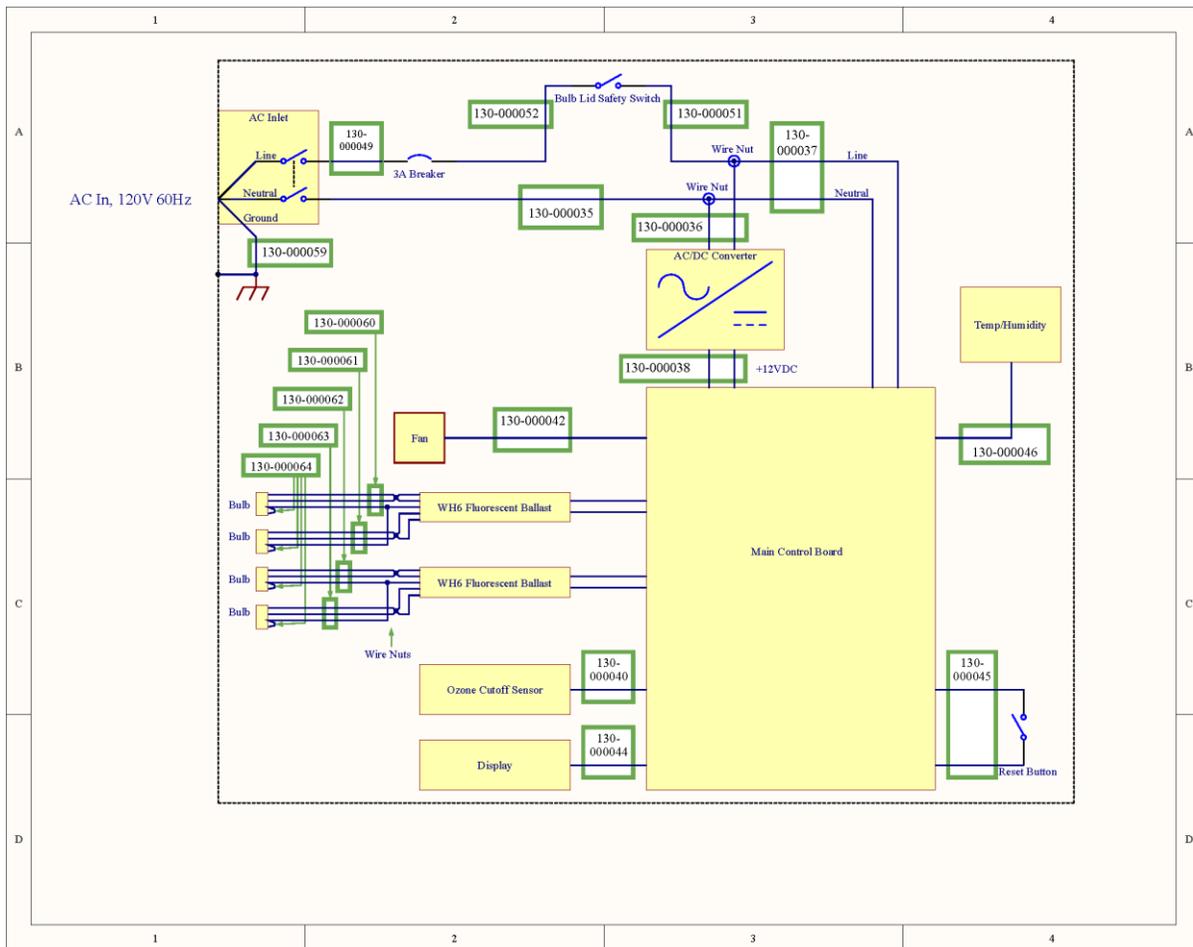


Figure 4: Wiring Diagram of Model 420-048 Unit

Installation

An overview of Mechanical and Electrical Installation instructions is contained in this section. Details of steps to hang the Model 420 from the ceiling or mount on a shelf are contained in Appendix A.

Installation Guidelines

Place the Model 420 in the room so that air flow from the HVAC system, fans or other air flow systems does not blow directly into or pull air through the Model 420 air inlet or clean air outlet.

Ensure a minimum clearance distance of 10' (3m) from an air handler outlet to the Model 420 to avoid excessive air flow through the unit.

Place the unit so that the control panel and display are visible and accessible.

If multiple Bluezone Model 420 units are being installed in a room, the following are recommended guidelines for the placement of the Bluezone units:

1. Distribute the units relatively evenly throughout the space.
2. Generally spreading the locations across the available space is good practice.
3.  Warning: Hang the units from the ceiling, mount to the wall or on a shelf/rack to avoid unintended bumping of the units.
4. Units hung from the ceiling should be hung to the level of the lights, but not below lights to avoid blocking light to the plants.
5.  Warning: If the unit is located in an area with foot traffic and there is a concern that it could be bumped by personnel, it should be labeled with colored tape to make it more visible and reduce the risk of collision.
6.  Warning: Locate the junction boxes for the units as close as possible to the units to avoid the risk of hooking the cord and pulling it out. If the distance to the junction box is more than 2' (0.6 m), the cord should be tied to the wall, rack, or ceiling to keep it protected.

Mechanical Installation

The Bluezone unit can be hung from the ceiling or placed on a shelf. A ceiling mount kit and a shelf mounting kit are available for purchase.

A drawing of the mounting locations on the Model 420 is provided in Figure 5.

See Figure 6 for mounting kits.

Sound deadening mufflers can be installed to reduce noise in occupied space applications. Installation instructions for the mufflers are included in Appendix A.

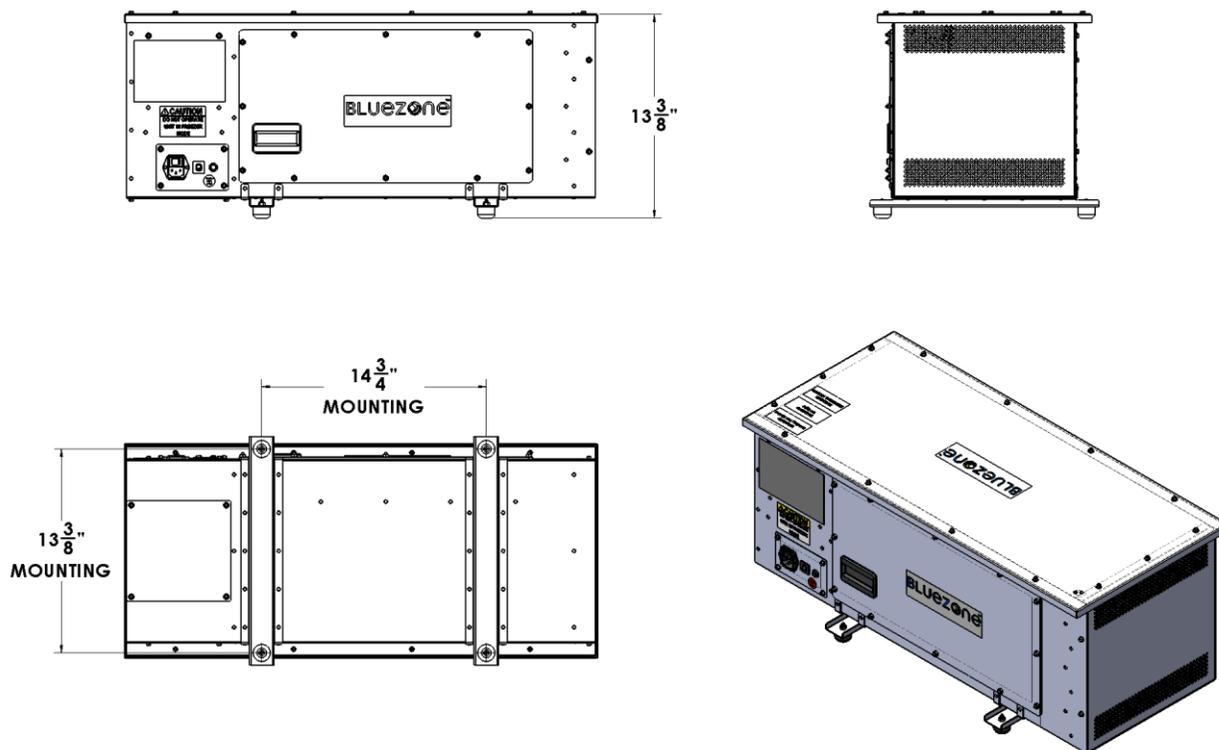


Figure 5: Bluezone Model 420 Mount Dimensions (units in inches)

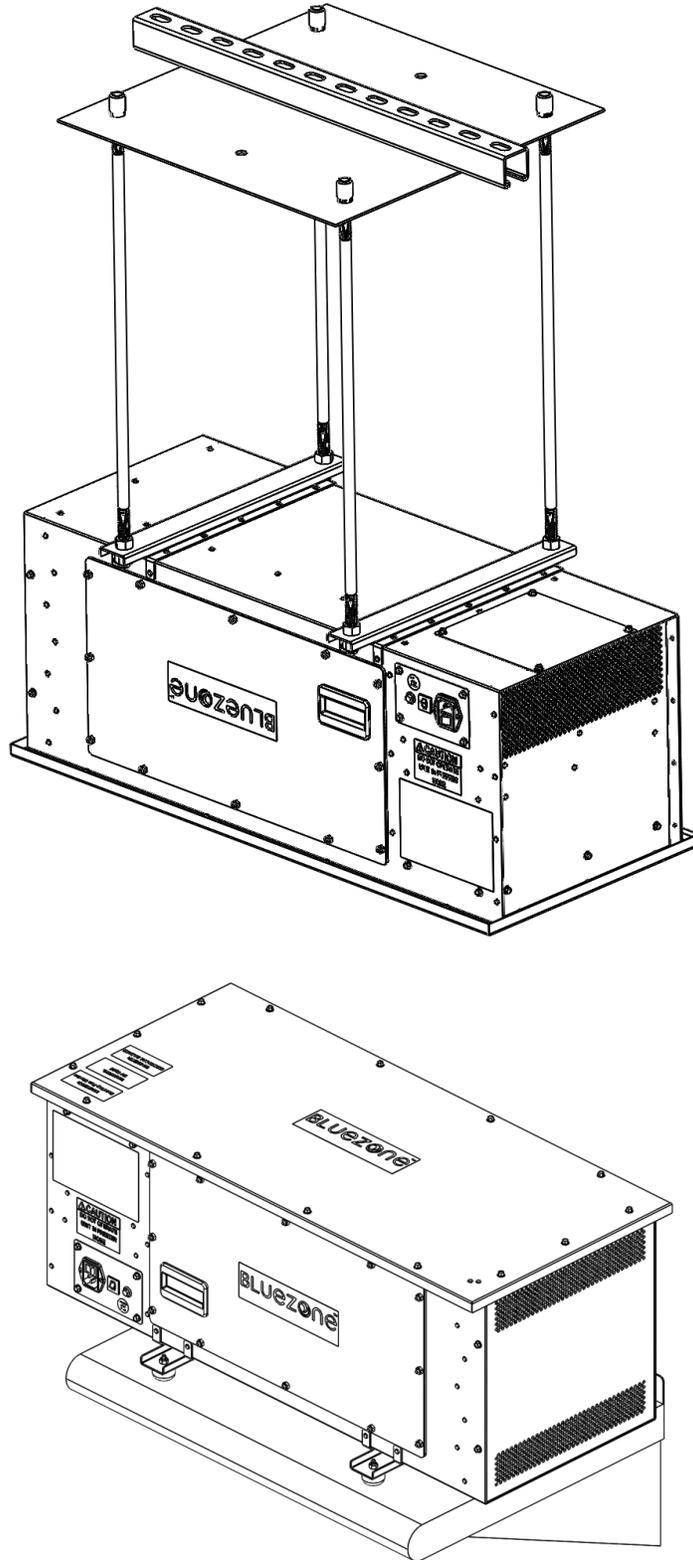


Figure 6: Illustration of the Ceiling Mount and Shelf Mount

Electrical Installation

The Bluezone unit is equipped with a power entry module.

Model 420-048 must be connected to 120VAC 60Hz input only

Model 420-045 is may be connected to 120V or 230V AC 50/60Hz input.

The unit is cETLus listed at 120 VAC.

The Model 420 is shipped standard with a 6' (2m) power cord.

Plug the power cord into the power entry module.

Once the Model 420 is positioned mechanically in the space, plug the cord into the nearest un-switched electrical outlet rated to the voltage on the unit's model/serial number plate.

Secure the cord.



Warning

The power cord is attached to the front of the unit and may be caught and pulled during activities in the space. Secure the power cord to the shelving, wall or other stable surface.

Electrical Requirements

Input Voltage: 120VAC

Input Frequency: 60Hz

Input Current: 3A max @ 120VAC

Input Power: 250W max

Operation

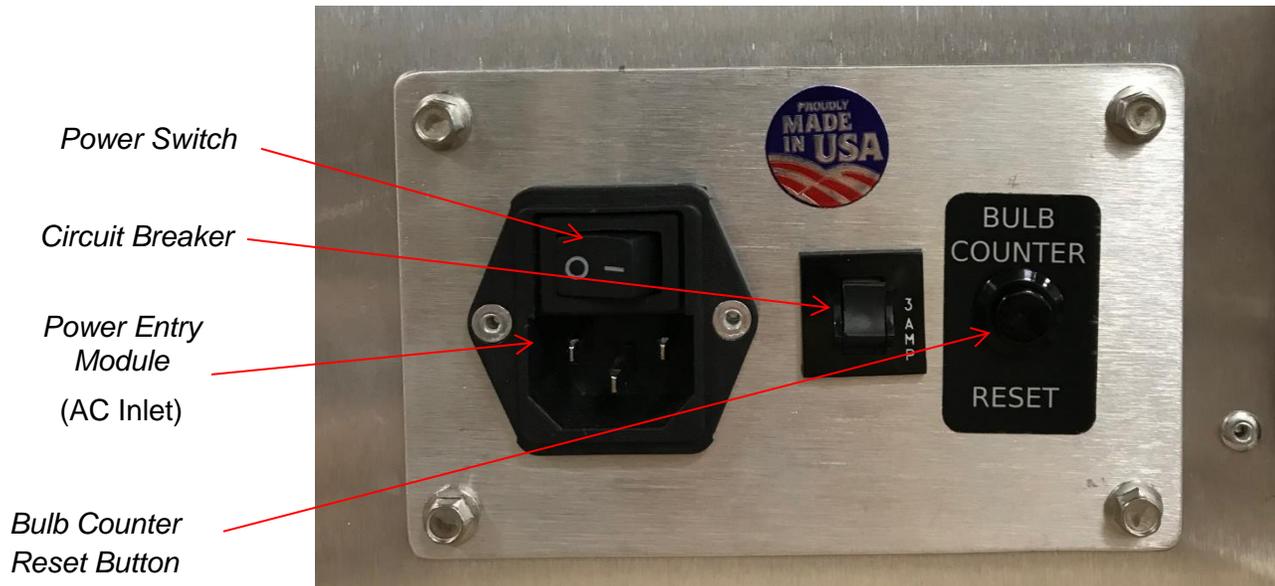


Figure 7: Control Panel on Bluezone Unit

Once the Model 420 is mounted and wired, it can be turned 'On' using the power switch on the control panel.

Toggle the power switch to the "On" position to energize the unit.

Normal Operation

Once the Bluezone is switched "On", the Display Screen will indicate "Bluezone M420" on a green background on the top line.

The bottom line of the display screen will confirm bulb operation, a bulb life counter, the temperature, humidity and fan speed.



Figure 8: Display Sequence in Time

Fault Conditions and Fault Codes

If there are issues with the operation of the Model 420, the onboard diagnostics will indicate the nature of the problem.

Display Screen codes are shown in **Error! Reference source not found.**

Table 2: Display Screen Status Indicator Fault Codes

Display Color	Display Text	Fault	Operation	Action to Take
Green Background	Bluezone M420 Unit conditions scrolling	System operating properly.	Operates	None
Flashing Green Background	Bluezone M420 Unit conditions scrolling	Freezing temperatures detected, or Humidity above threshold	Unit is off and will power up when temperature increases to >0C or humidity drops below 85%	Do not run unit in a freezing environment.
Yellow Background	Contact Bluezone	Fan not rotating, or Humidity sensor failure, or Bulb counter failure	Unit automatically powered down.	Check fan for any visible obstructions. Contact Bluezone Products for service.
	Replace Bulbs, Unit conditions scrolling	Bulb life >7,200 hours of operation.	Operates until 8,800 hours of operation.	Check bulb counter Order new bulbs
Red Background	Contact Bluezone	Ozone sensor Trip	Unit automatically powered down until sensor resets.	Contact Bluezone Products
	Replace Bulbs	Bulb life at 8,800 operation hours.	Unit automatically powered down until bulbs replaced and counter reset.	Replace bulbs and reset bulb life counter.

Diagnostics

If the Display Screen has no light or text then the Model 420 is not being powered. Check the following list for possible causes and solutions:

1. Make sure the cover is on and the Cover Switch is Activated.

Controls will not energize if the cover is off or if the cover switch is not engaged. Make sure the cover switch tab engages inside the cover switch opening.

See Figure 9 for proper installation of the cover switch.

2. Check that unit is powered.
 - a. Power "Off" unit by pressing the power switch located on the control panel.
 - b. Plug unit in.
 - c. Turn unit "On."

3. Restart the unit.
 - a. Power "Off" unit by pressing the power switch located on the control panel.
 - b. Wait 5 seconds.
 - c. Turn unit "On."
 - d. Repeat 3 times
4. Check whether the unit's circuit breaker has tripped.
 - a. Visually check the circuit breaker located on the control panel. If a white strip is visible, then the breaker needs to be reset.
 - b. Power "Off" unit using the power switch located on the control panel.
 - c. Reset circuit breaker located on the control panel by pushing the visible indicator back into the circuit breaker.
 - d. Turn unit "On" using the power switch located on the control panel.



Danger

DO NOT activate the cover switch without the cover on. UV light will be emitted.

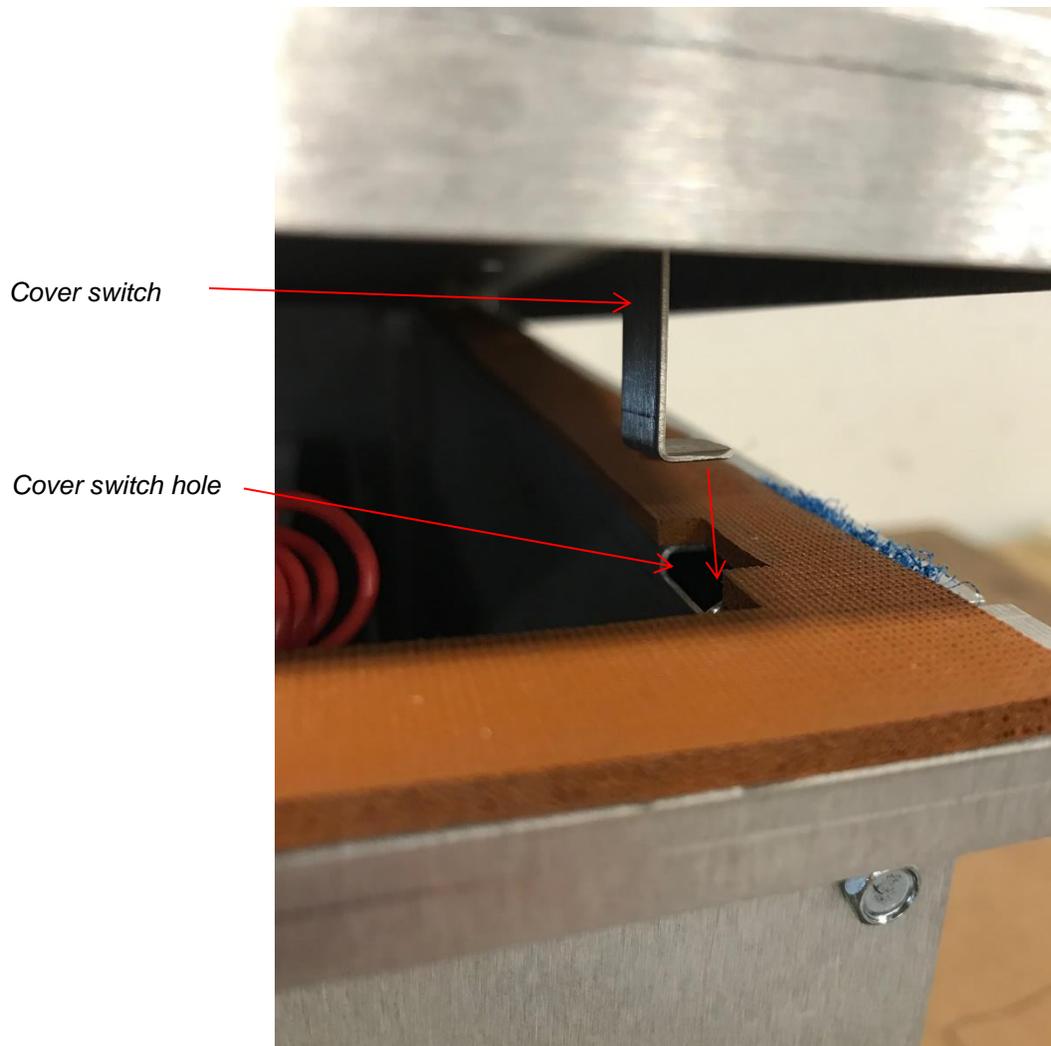


Figure 9: Bluezone Cover Switch and Cover Switch Hole

New Equipment Warranty

Online warranty registration form must be completed to validate your New Equipment Warranty. Please visit www.BluezoneFresh.com to complete the online warranty registration.

Bluezone Products, Inc. warrants that new equipment manufactured in Bluezone's facilities are free of defects due to poor materials or workmanship for a period of 1 year from the date of purchase.

Bluezone Products, Inc. warrants that the equipment will function properly, to our specifications and will be repaired, if necessary, at no charge for a period of 1 year (See our warranty policy for details).

All Bluezone products have been tested by independent labs and in many facilities, proving the performance as described in our literature. Our air purification equipment is a powerful tool to help purify your environment yet, we cannot guaranty that under your operating conditions and procedures, the results will be the same as experienced by other users.

If you are not satisfied with the purchase or the operation of our equipment, it can be returned if the equipment was un-used and was returned within 14 days. The customer will be charged return freight and an additional 10% of the purchase price as a restocking fee.

Bulb Disposal

Bulbs contain a small amount of mercury

Bulb handling should be similar to that used for fluorescent or compact fluorescent bulbs.

Bluezone Products, Inc. recommends that you take advantage of available local recycling options for CFLs. Lists of recycling facilities are available at: www.earth911.org.

Dispose of according to local, state or federal laws.

Service

BULBS NEED TO BE REPLACED AFTER 8,800 HOURS OF USE. BULB KITS MUST BE PURCHASED DIRECTLY FROM BLUEZONE PRODUCTS OR AN AUTHORIZED PARTNER AS THEY ARE PROPRIETARY BULBS.

Bulbs must be replaced at 8,800 hours of operation. The display screen reads accumulated bulb hours throughout the unit's operation. At 7,200 hours the display screen will turn yellow and read "Replace Bulbs." The bulbs should be ordered and replaced immediately. At 8,800 hours, the display screen will turn red and the unit will automatically be powered **OFF** until bulbs are replaced.

After bulbs are replaced, the bulb counter needs to be reset. To reset the bulb counter please follow the steps below.

- 1) Press and hold the red bulb counter reset button for 5 seconds. The display screen will read "Hold: reset counter" during the 5 second hold.
- 2) After holding for 5 seconds, the display screen will read "push to confirm." Release button and push to confirm reset.

A bulb replacement kit and instructions can be ordered from Bluezone Products, Inc.

Please call (781) 937-0202 or email support@bluezonefresh.com for ordering information.

IMPORTANT: Each bulb kit satisfies replacement parts for 1 unit. The four bulbs in each replacement kit cannot be replaced with bulbs purchased from anywhere, but Bluezone Products or an Authorized Partner. Installation of the incorrect bulbs results in a voided warranty. Purchase of bulbs from an outside vendor results in a voided warranty. Bluezone will not operate correctly with bulbs purchased from outside vendors.

Service Kit includes:

- (4) U-shaped bulbs
- (2) Nitrile gloves
- Extra cover screws

Additional tools needed:

- N/A

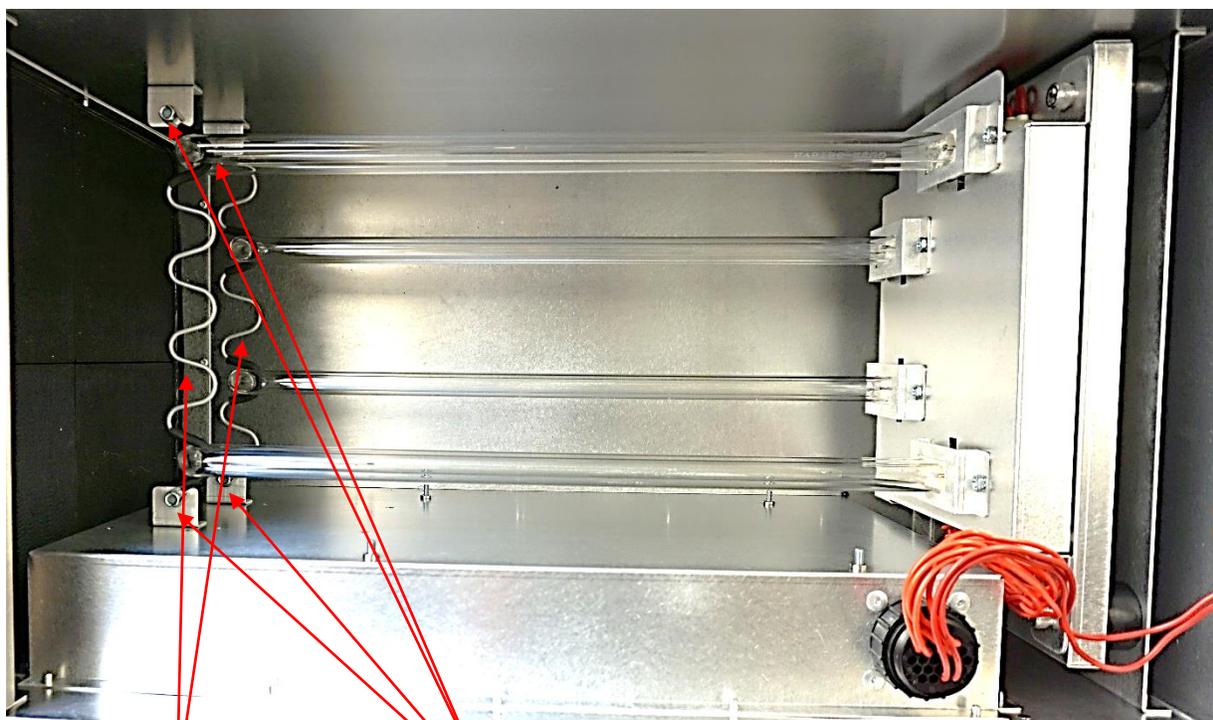
Instructions for Bulb Replacement:

- 1) Toggle the power switch located on the unit's control panel to OFF.
 - 2)  Wait 15 minutes for the ozone to clear from the Bluezone reaction zone.
 - 3)  **WARNING:** Before proceeding to next step, unplug the unit from it's power supply.
 - 4) Use the ¼" hex nut driver to unscrew the 14 screws on the cover, see Figure 10 below.
 - 5) Slowly, remove the cover and place it on a flat surface.
 - 6) Use the gloves provided to remove and replace the bulbs. This will prevent oil on your hand from damaging the new bulbs.
 - 7) Unscrew the ¼" screws on Bulb Support Wires. See Figure 11 below.
 - 8) Carefully remove Bulb Support Wires and place aside. See Figure 12 below.
 - 9) Unscrew ¼" screws on Bulb Clips. See Figure 13 below.
 - 10) Remove the old bulbs (Note: pull on them at the ceramic base, not on the glass) Put the bulbs to the side for disposal.
 - 11) Carefully remove Bulb Clips and place aside. See Figure 14 below.
 - 12) Hold replacement bulbs by the ceramic end and push the pins into the slots in the receptacle.
 - ⇒ They need to be pushed in until a "click" is heard and felt.
 - 13) Put Bulb Clips over new bulbs and use screws to tighten Bulb Clips in place.
 - 14) Thread Bulb Support Wires through bulbs and use screws to tighten Bulb Support Wires in place.
 - 15) Tighten cover back onto the unit.
 - 16) Dispose of used bulbs, according to standard practice for florescent bulbs.
-  **IMPORTANT**
- 17) Press and hold the red bulb counter reset button for 5 seconds. The display screen will read "Hold: reset counter" during the 5 second hold. See Figure 12.
 - 18) After holding for 5 seconds, release and press the bulb counter reset button again to finalize reset. The display screen will read "push to confirm" after the 5 second hold.

Estimated total bulb replacement time:
approximately 30 minutes per unit.



Figure 10: Unscrew 14 Screws on Bluezone M420 Cover



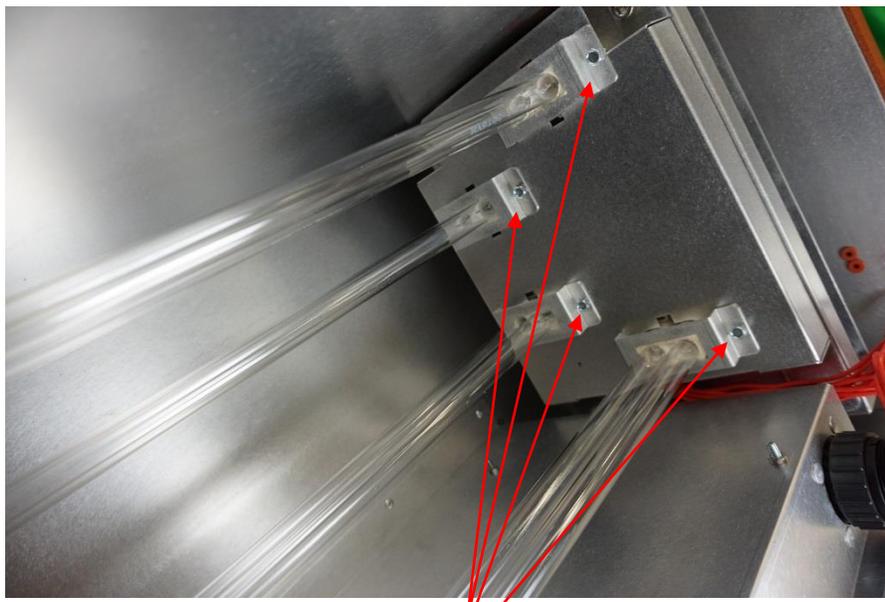
Bulb Support Wires to be removed

1/4" screws to be removed

Figure 11: Remove 1/4" Screws Holding Bulb Support Wires



Figure 12: Remove Bulb Support Wires and Place Aside



1/4" screws to remove

Figure 13: Remove 1/4" Screws on Bulb Support Clips

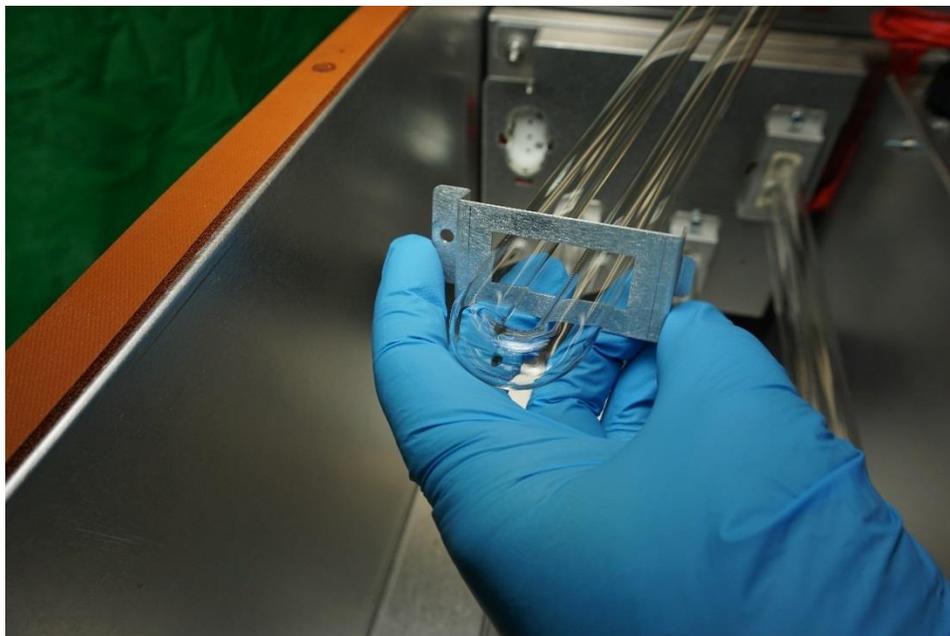


Figure 14: Carefully Slide off Bulb Clips using Nitrile Gloves



Figure 15: Completed Bulb Assembly



Figure 16: Bulb Counter Reset Button

Appendix A:

Bluezone Unistrut Channel Mount Installation

Bluezone Shelf Mount Installation

Muffler Installation

Bluezone Unistrut® Channel Mount Installation

The Bluezone Model 420 can be mounted to the ceiling using existing your facility's existing Unistrut® metal framing system, and the Bluezone Mounting Kit as shown below.

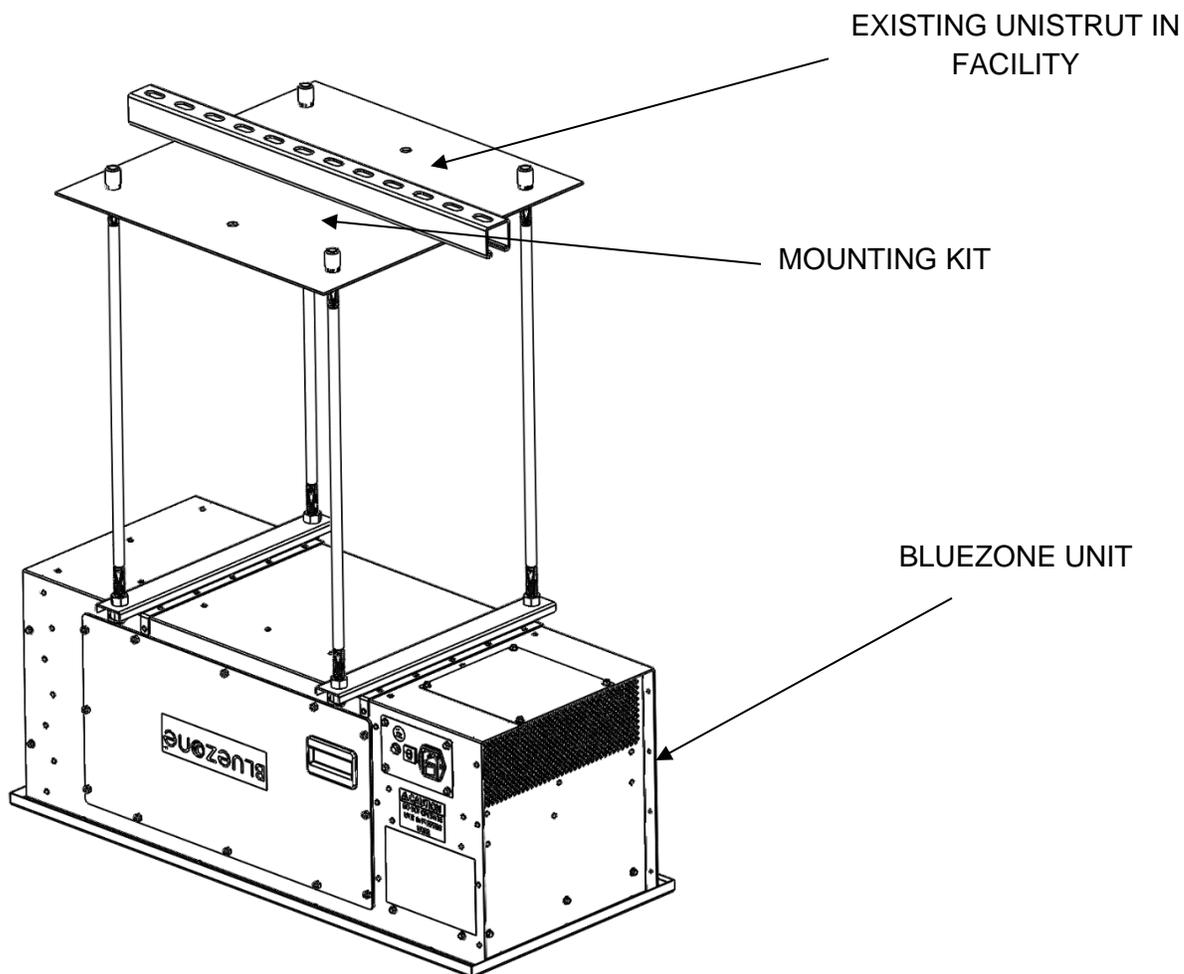


Figure 17: Drawing of Unistrut Installation

Mounting Kit

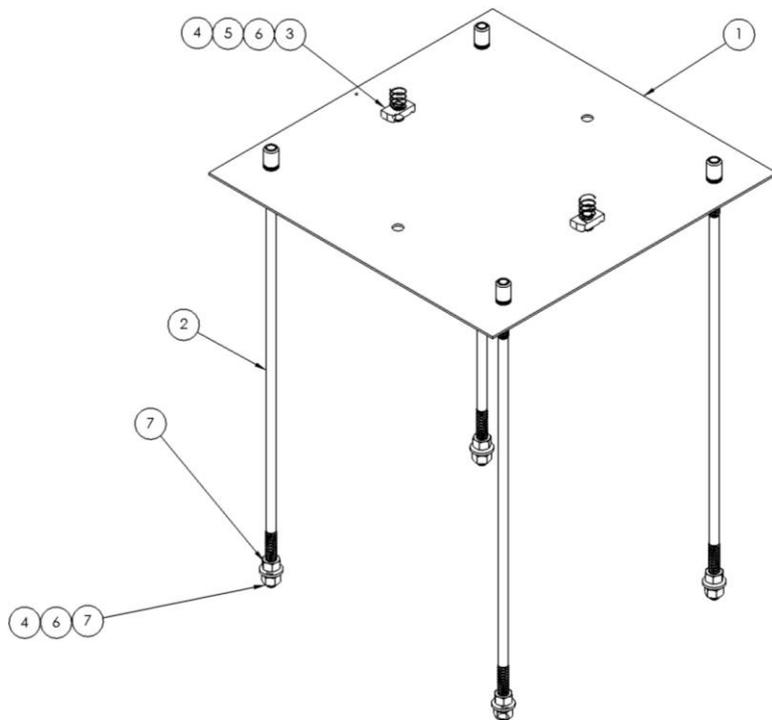


Figure 18: Drawing of Mounting Kit

Mounting Kit Materials

Item Number	Number of Pieces	Description
1	1	Steel mounting plate, 12 AWG, 18" x 18" with rivet nuts installed
2	4	Threaded rod 1/2" – 2-foot standard size, custom lengths available
3	2	Strut channel nut with spring, 1/2"
4	6	Washer, 1/2"
5	2	Hex head screw, 1/2"
6	6	Split lock washer, 1/2"
7	8	Hex nuts, 1/2"

Not included in kit...

- Unistrut channel
- Bluezone unit

Instructions

1. Insert 2 channel nuts 12" apart in Unistrut® channel. Please note Unistrut channel is existing in client facility.

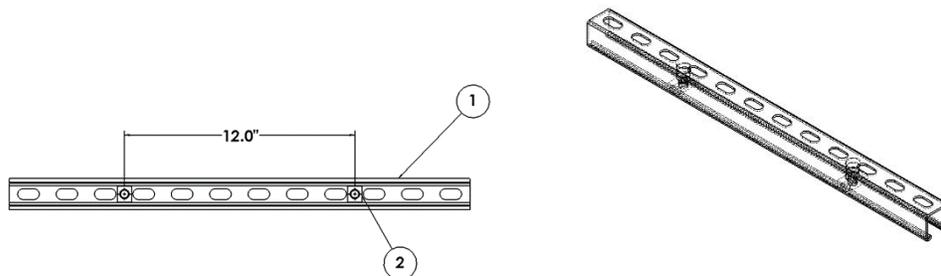


Figure 19: Placement of Channel Nuts in Unistrut Channel

2. Attach mounting plate to Unistrut channel by inserting hex screws with washer and lock washer into channel nuts.

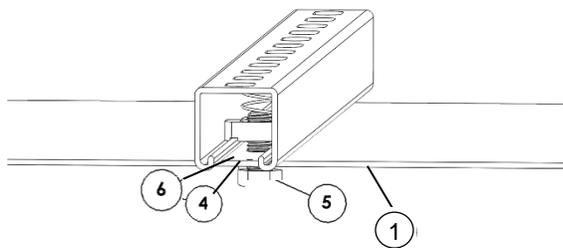


Figure 20: Attaching Mounting Plate to Unistrut Channel

3. Insert (4) threaded rods into rivet nuts. Threaded rods should hang Bluezone at the level of the grow lights. Ensure all threaded rods are completely inserted.

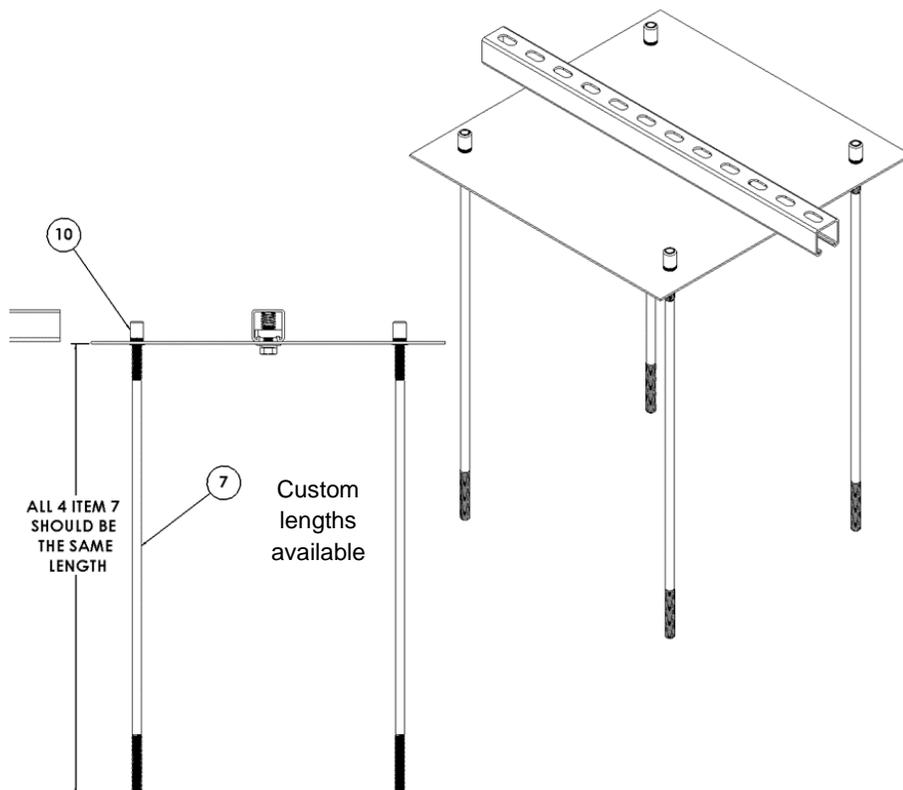


Figure 21: Placement of Threaded Rods

- Attach 1/2" hex nuts onto all threaded rods, ~1" up threaded rod.

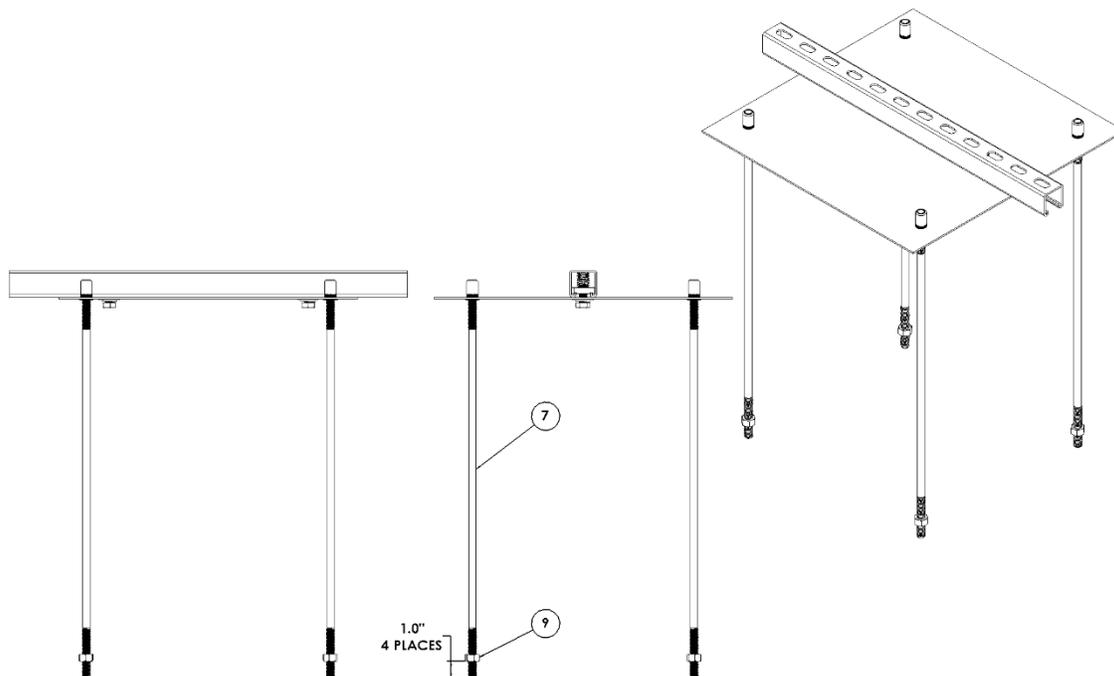


Figure 22: Attach Hex Nuts on Threaded Rods

- Secure Bluezone to threaded rods using lock washer, washer and hex nut. This step requires two workers... one to hold the Bluezone and one to attach hardware.

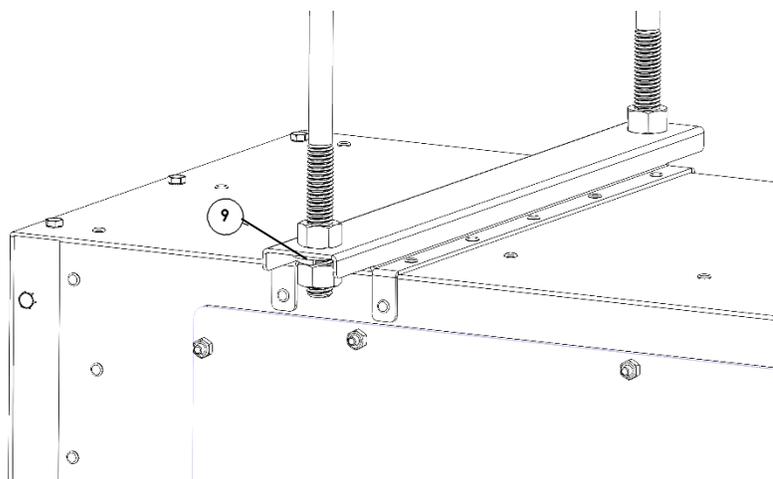


Figure 23: Securing Bluezone to Threaded Rods

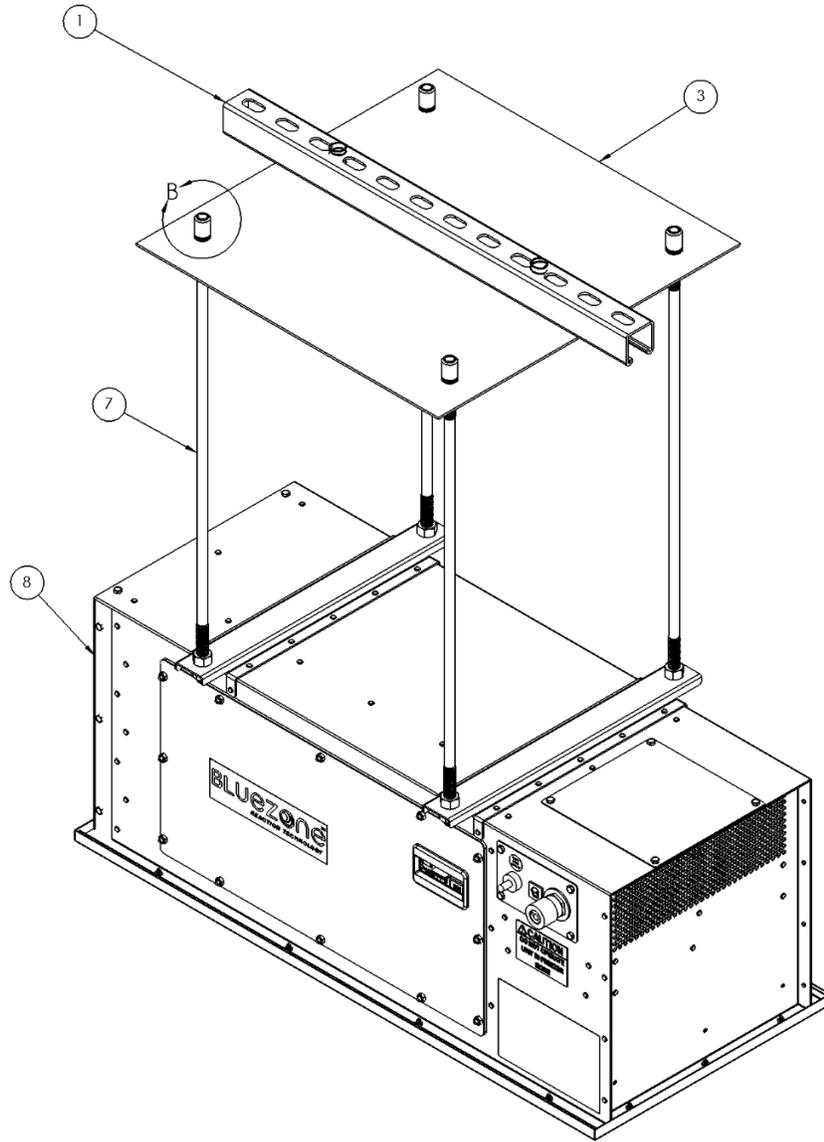


Figure 24: Completed Assembly

Shelf Mount

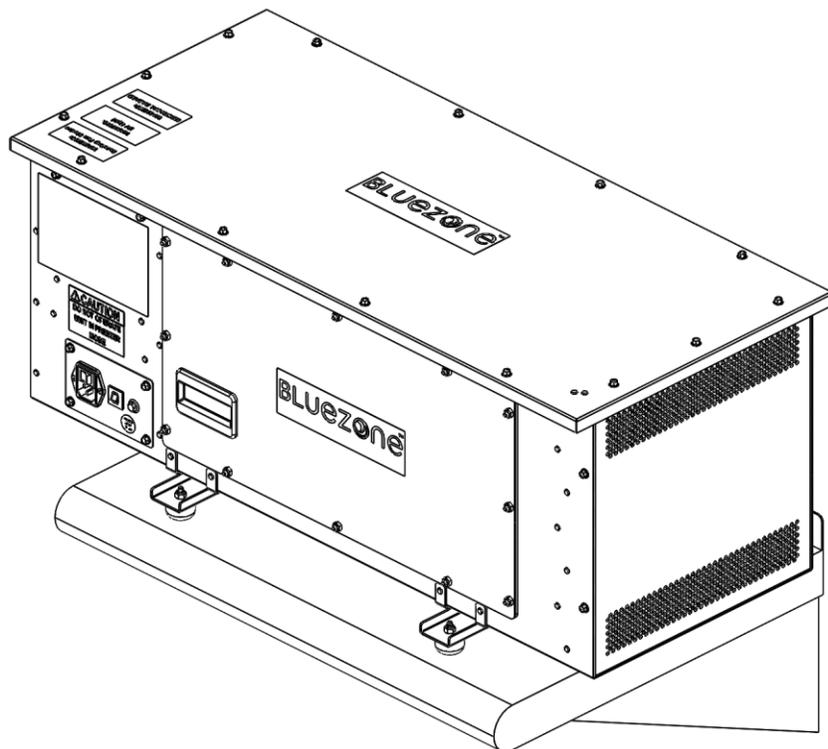


Figure 25: Drawing of Shelf Mount

Materials

Included in kit:

- Wall mount shelf
- Mounting brackets
- Installation screws and anchors

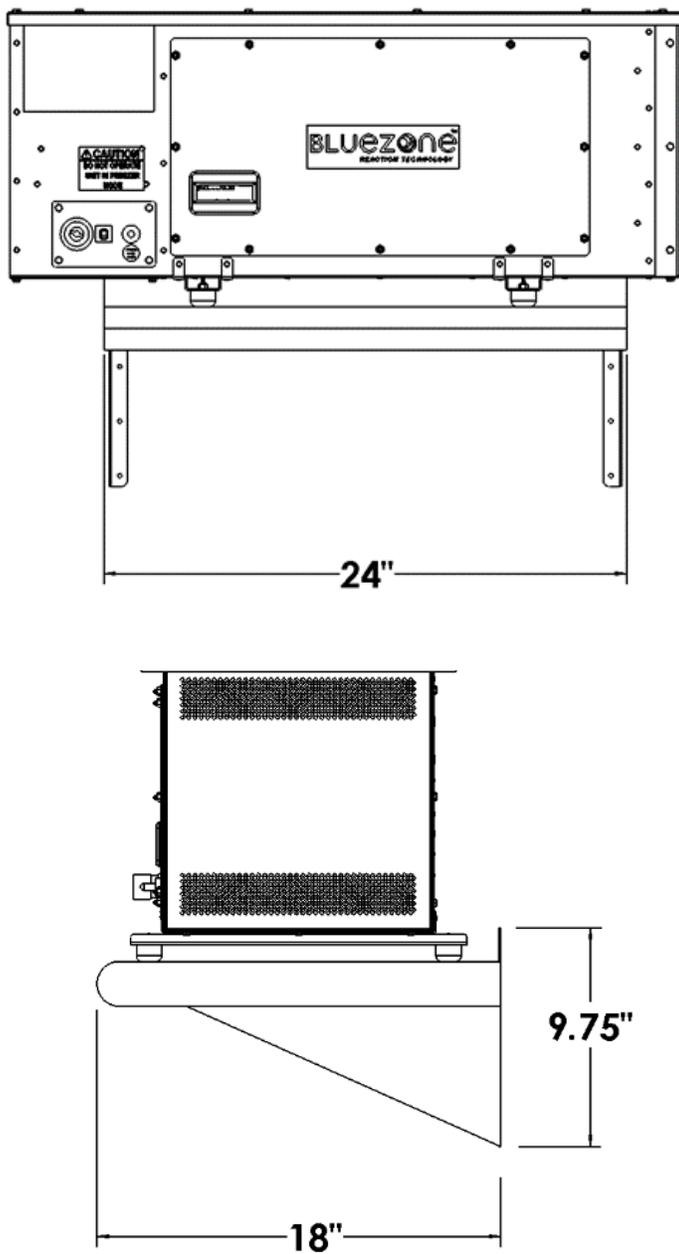


Figure 26: Shelf Mount Dimensions

Muffler Install

Materials needed:

- Bluezone muffler
- 1/4" hex nut driver

Instructions

1. Remove top 2 screws on the fan cover.



Figure 27: Bluezone with Fan Cover

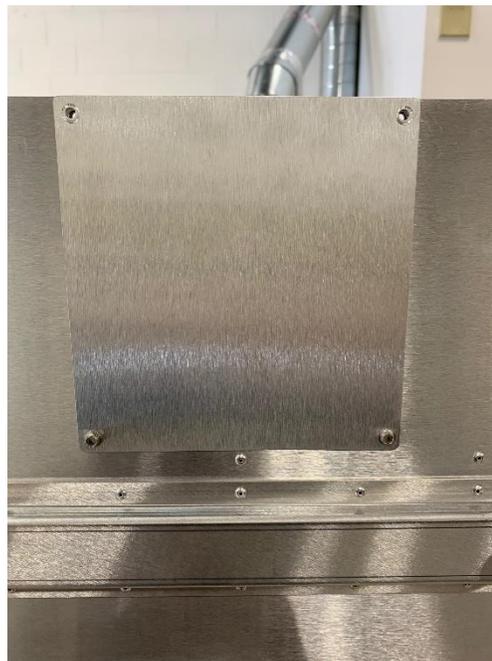


Figure 28: Screws Removed

2. Install Bluezone muffler onto the outlet end of the Bluezone. Holes on the top of the muffler clip onto the top 2 rivets of the Bluezone outlet.

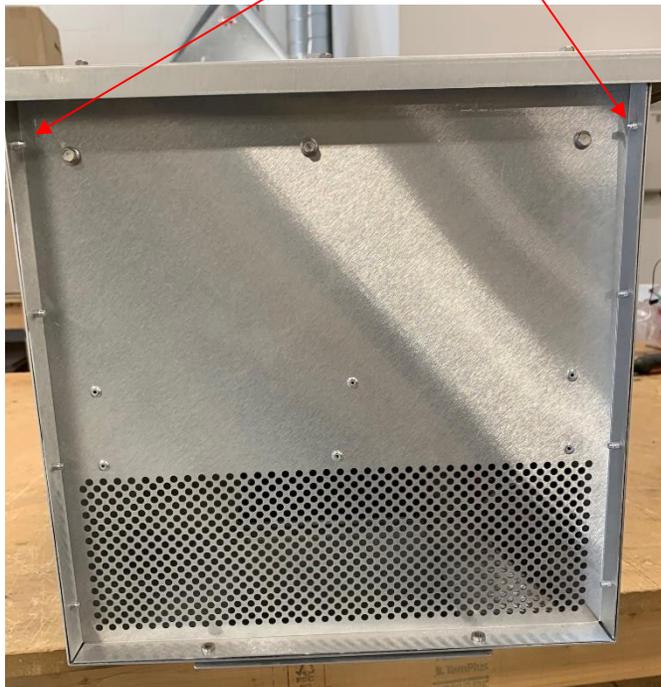


Figure 29: Bluezone Outlet without Muffler



Figure 30: Bluezone Outlet with Muffler

3. Reinstall screws into muffler and fan cover.



Figure 31: Screws not installed into Bluezone Muffler and Fan Cover



Figure 32: Screws Installed into Bluezone Muffler and Fan Cover



Figure 33: Completely Installed Bluezone Muffler

Vendor Contact Information:

Technical Support is provided by:

Bluezone Products, Inc.
225 Wildwood Ave
Woburn, MA 01801
(781) 937-0202
support@bluezonefresh.com

