



TECHNICAL INSTRUCTIONS

Bio Turbo 300 User Guide

AIRBORNE BACTERIA & ETHYLENE REMOVAL

| | |
|---------------------------|---|
| Specification Sheet | 2 |
| Installation Guide..... | 3 |
| Layout Diagram..... | 4 |
| Maintenance Guide | 5 |
| Wiring Diagram..... | 6 |
| Pull Sheet | 8 |



Bio Turbo 300

Specification Sheet

Features

- LED's for quick diagnostics
- Remote On and Off control
- Easy service
- Easy changing of ozone plates and filters
- Four models for proper coverage
- Aluminum and Stainless Steel generation chamber
- Easy to install and operate
- Low maintenance

| | |
|------------------------------------|--|
| Model | BIO TURBO 300 |
| Maximum volume up to | 10000 ft ³ (300 m ³) per 24 hours |
| Airflow | 8 CFM (0.3 CMM) |
| Location Requirements | |
| Electrical Source | 100-240 VAC |
| Circuit breaker | 15 A |
| Maintenance | |
| Air Filter | Change every 12 months |
| Ozone Plate(s) | Change every 12 months |
| Number of Ozone Plates | 1 |
| Specifications | |
| Dimensions: | |
| Generation Chamber | 10 x 12 x 10 inches (25 x 30 x 25 cm) |
| Catalytic Converter/ Controller | 14 x 9 x 11 inches (36 x 23 x 28 cm) |
| Reaction Chamber | 13 x 14 x 30 inches (33 x 36 x 76 cm) |
| Weight | 41 lb (18 kg) |
| Construction | |
| Materials: | |
| Generation Chamber | Aluminum |
| Catalytic Converter/ Controller | Aluminum |
| Perforated Generator Plate | Stainless Steel |
| Controls | |
| | Remote Control |
| | Power Switch |

Bio Turbo 300

Installation Guide

DESCRIPTION

The Bio Turbo 300 is referred to, as the BT 300. The 300 indicates the amount of Cubic Meters the unit can properly control within a 24 hour period. The BT 300 was designed to remove ethylene from cold rooms and storage areas where fruits and vegetables are stored in order to extend their storage life.

TECHNOLOGY OVERVIEW

STAGE 1: AIR FILTER

The air filter removes dust and visual particles from the air.

STAGE 2: CELL DISRUPTER

An anti-microbial chemical is applied to the surface of a specifically designed substrate. This combination pierces and ruptures cell membranes of airborne pathogens as they pass by, stopping the normal life development of the cells. This stage can be especially effective at controlling spores.

STAGE 3: OZONE CHAMBER

This chamber uses the positive effects of ozone to eliminate ethylene gas while destroying up to 99.5% of the bacteria and pathogens that are being broken down during the previous stage. The ozone is safely contained within the chamber providing a safe work environment.

STAGE 4: BIO CLEAN MODULE

In this final stage, a catalyst is used to change the ozone into clean oxygen. The catalyst creates a reaction that breaks down the ozone molecule. From here the clean oxygen is released back into the environment.

SYSTEM PLACEMENT

The Bio Turbo 300 was designed to mount as high as possible in the cold room. Ethylene is lighter than air so it will rise toward the ceiling.

WARNING: position the Bio Turbo in a way to avoid direct air flow from the coolers or fans to the air intake on a Generating Chamber.

NOTE: due to the dimension of the Bio Turbo system, installation is much easier with two technicians.

The large Reaction Chamber should be mounted first. Inspect the ceiling for any obstructions, pipes and wiring before drilling any holes. Also consider an electrical receptacle to power the system. Mark the two holes for the Reaction Chamber and drill the two 3/4 inch holes through the ceiling. Use the two 8 inch bolts with wing nuts, self-locking nuts and washers to attach the Reaction Chamber to the ceiling (see picture 1).

If supplied fasteners will not work for your installation, you will need to purchase necessary hardware locally.

Next, mount the Generation Chamber to the Reaction Chamber. Ensure the gasket is in place around the opening on the Generation Chamber.



Picture 1



Picture 2



Picture 3



Picture 4



Picture 5

Use the four locking nuts that were supplied and attach the two chambers together. Only tighten these nuts SNUG (4 inch pounds) (see picture 2).

Separate the Catalytic Converter from the Controller by unlatching the two latches and lifting the Catalytic Converter causing the hinges to separate.

Attach Catalytic Converter to the Reaction Chamber with four small nuts (same setup procedure like with Generation Chamber placing, described above).

Mount the Controller box by sliding the hinges together and latching the two latches (see picture 3).

Connect the remote cable by screwing the connector of the remote to the connector on the Controller (see picture 4).

Route the remote to the desired location. Plug Generation Chamber power cord into the female socket on the Controller Box (see picture 5). Plug the detachable power cord into the male socket on the Controller Box and the power supply receptacle.

OPERATION

Upon plugging the power cord into the power receptacle, two LED's should be glowing green on the controller. This tells us that power is to the Controller and the circuit breaker is good.

Turn on the power switch. Two more LED's on the Controller should come "ON". These indicate there is power to the power transformer and there is power to the fan.

There is also an LED on the Generation Chamber which should be "ON" and also a low hum can be detected indicating everything is operational.

COUNTDOWN SERVICE TIMER



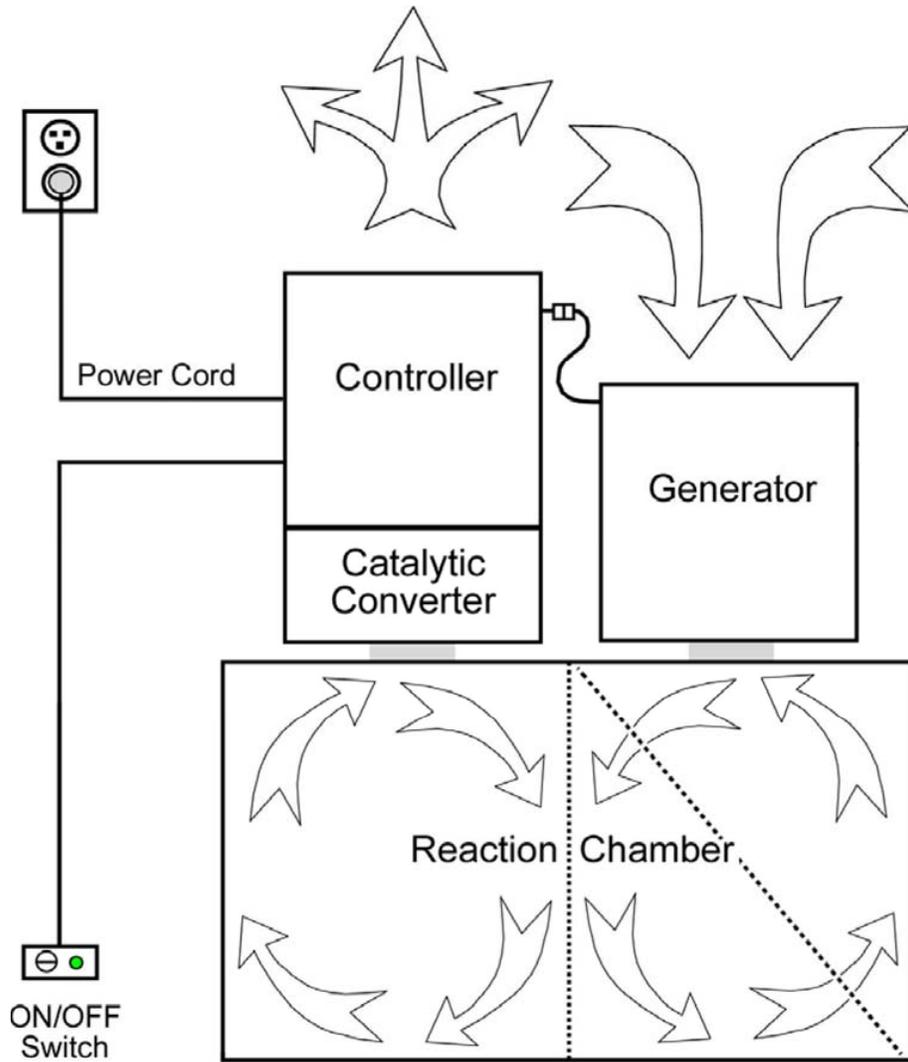
Picture 6

System is equipped with the Service Timer which is counting down days to the next maintenance when system is operating. Timer is set to 360 days and when it gets down below 10 days it starts beeping and Service Red LED light on the controller box and strobe light on the remote control will flash, signaling maintenance is due. Service Timer has to be reset back to 360 days after maintenance is completed (see maintenance guide page for further instruction).

NOTE: please apply the BT Facility Entrance Label #25070, supplied in a pack with system, near the facility entrance (see picture 6).

Bio Turbo 300

Layout Diagram



Bio Turbo 300

Maintenance Guide

CAUTION:

ALWAYS UNPLUG POWER BEFORE SERVICE!

Maintenance Requirements

Annual service requires the replacement of Air Filter (more often if environment is very dusty) and the replacement of the Ozone Generation Plates.

To replace the Air filter and the Ozone Generation Plate:

- Unlatch the bottom cover on the Generation Chamber and remove the Air filter (#13).

CAUTION: *slowly and carefully open the cover to ensure the filter does not fall down. The door helps to secure it in place.*

- To replace the Generator Plate (#17) release plastic holder from the cassette, remove Generator Plate and replace with new one. Fix plastic holder back on place to secure Generator Plate.

System is equipped with the Service Timer (#5) which is counting down days to the next maintenance when system is operating. Timer is set to 360 days and when it gets down below 10 days it starts beeping and Service Red LED light on the controller box will flash, signaling maintenance is due. Service Timer has to be reset back to 360 days after maintenance is completed.

To reset the Service Timer:

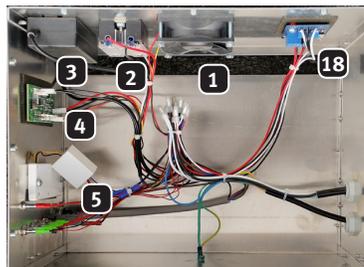
Carefully press and hold the button for about 10 sec. until numbers will start flashing. By releasing and pressing again the same button select 360 from the options. Wait until it is defined (numbers will stop flashing).

NOTE: *a blunt object should be used to reset, so damage won't occur to the timer.*

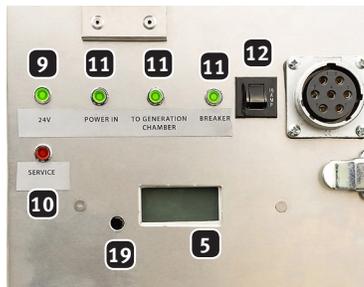
| Diagnostic LED's Name | Description |
|---|---|
| “Power” (on the Remote Control) | Power to the Main Switch |
| “Breaker” (on the Controller Chamber) | Power to the Unit |
| “Power IN” (on the Controller Chamber) | Power to the Power Supply |
| “24 V” (on the Controller Chamber) | Power to the Fan |
| “To the Generation Chamber” (on the Controller Chamber) | Power to the Generation Chamber |
| “Service” (on the Controller Chamber) | When the service is needed or when protection triggered |
| Strobe Light (on the Remote Control) | When the service is needed or when protection has triggered |

NOTE: *If service Red LED comes ON along with strobe light, and timer is showing more than 10 — the ozone generation current protection might be triggered. This could happen due to the damage of ozone plates or power jump in power supply network. Unplug the system and check the ozone plates. If this happened because of power jump — restart the system by switching it OFF on a remote control and put back ON after 30 seconds.*

Controller chamber



Controller chamber



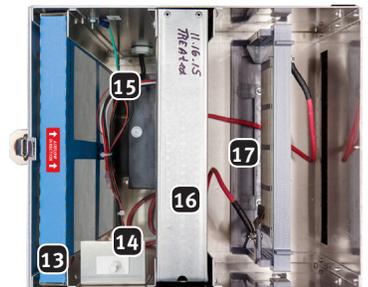
Power cord



Remote control



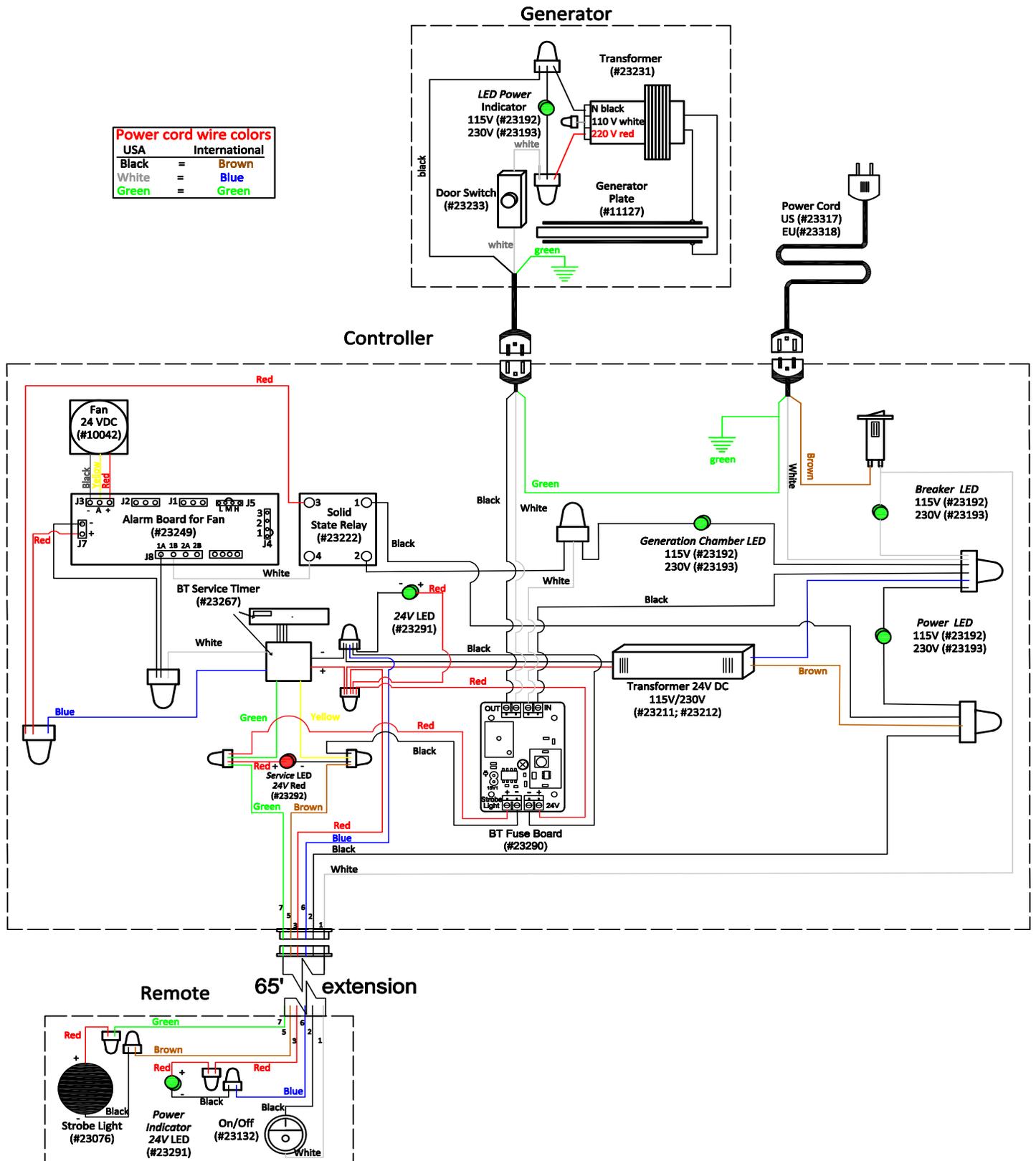
Generation chamber



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Fan 24 V DC (#10042) 2. Solid state relay (#23222) 3. Transformer 115 V (#23211)/ 230 V (#23212) 4. Alarm board for fan (#23249) 5. BT service timer (#23267) 6. Rocker switch (#23132) 7. Power Indicator 24V LED (#23291) 8. Strobe light (#23076) 9. 24 V LED (#23291) 10. Service 24 V LED Red (#23292) | <ol style="list-style-type: none"> 11. 3 LEDs 230 V (#23193), 115 V (#23192) 12. 15 Amp Breaker (#23007) 13. Air filter (#11139) 14. Door switch (#23233) 15. Ozone transformer (#23231) 16. Cell disrupter (#11124) 17. Generator plate (#11127) 18. BT Fuse Board (#23290) 19. Timer Reset Hole 20. Power Cord US plug (#23317) / EU plug(#23318) |
|---|---|

Bio Turbo 300

Wiring Diagram



Bio Turbo 300

Pull Sheet Pack

| PART NO. | PART NAME | AMOUNT | INSP. |
|----------|--|--------|-------|
| 24001 | #8 x 3/4 Self-tapping Screw (Phillips) | 25 | |
| 24006 | 8 x 32 Kept Nut | 10 | |
| 24101 | 1/4" x 1" Fender Washer | 5 | |
| 24078 | Cable Tie 6" Black | 25 | |
| 24102 | 8" x 1/4" Threaded Rod | 5 | |
| 24103 | 1/4" Self-locking Nut | 5 | |
| 24104 | 1/4" Toggle Fastener | 5 | |
| N/A | Remote with 65' Cord | 1 | |
| BT 300 | Aluminum Preassembled Boxes with Miotech Logos: Ozone Generator Chamber, Reaction Chamber, Catalytic Converter and Controller Chamber | | |
| 25070 | BT Facility Entrance Label *See order for language | 1 | |
| | Power Cord 6' 18g with female end *See order for the plug | 1 | |

DATE _____

PULLER _____

CHECKER _____



Miotech Inc.
9480 SE Lawnfield Road
Clackamas, OR 97015
www.miotech.org

For further technical support in North America call 1-800-933-6478
If outside North America call to the USA at 1-503-659-5680