

VMUS-4 Ozone Generator & VMD Air Dryer Manual

Environment (pre-install)

1. Ozone (O₃) is a very strong oxidant. Only O₃ resistant materials can be used in contact with O₃ gas.
2. Balance Barometer (BB) must be used with water treatment installation. A check valve is not a sufficient alternative.
3. A properly ventilated room is necessary for proper use. Air dryers/Oxygen (O₂) concentrator release moisture and small amounts of O₃ can be created around the high voltage terminals inside the generator. Both of these can accumulate over time and cause the equipment to fail.
4. The air in the room for the O₃ equipment must be free of dust, oil, acid and other volatile vapors. All these elements shorten the life of high voltage circuits and the Air dryers/O₂ concentrators.
5. If using air dryer, the air dryer requires uninterrupted power. If the power is disrupted, flow must be stopped. If power is restored to the unit within 2 hours if initial loss the unit can operate as normal. If the time exceeds 2 hours or there is continuous flow through the unit while powered down then a full 8 hour cycle needs to be run through before the O₃ generator can be turned on again.
6. The equipment must be protected from splashing water, rain, sun, mist above 85% R.H. And above 35°C.

Installation

1. Mount the O₃ Generator on a suitable wall and place the Air dryers/O₂ concentrators in tan appropriate close location (wall hanging is also possible).
2. Connect the Air dryers/O₂ concentrators to the "Feed Gas" port on the O₃ generator with 3/16" to 1/4" I.D (TP) clear vinyl tubing.
3. Install the BB on a wall to close and, preferable, below the O₃ generator.
4. Connect the lowest port on the BB via stainless steel ball valve to the injector. With the Teflon lined 1/4" I.D (1/4" TTL).
5. Connect the "O₃" outlet on the O₃ generator to the upper port fitting on the BB also with the same TTL tubing used in #5
6. fill BB with water until the lower (open) section is roughly 4" below the lip.

First Start up with Air Dryer (if using O2 Concentrator skip this step)

1. Start the pump and observe the water level inside the BB.
2. Check the flow meter on the O3 Generator. The flow should be ~ 5 LPM on the scale. If the flow is higher, reduce it with the s. s. valve.
3. Plug in the O3 generator and air dryer (air dryer can be plugged in earlier to speed up the process)
4. Keep the O3 generator off until the blue crystal indicator is blue. If the air dryer was in storage for a long time, it may take up to 6 hours to recover.
5. When the crystals are blue and flow no higher than 5 LPM, you can turn ON the O3 generator.
6. Test-stop the booster pump. The red lamp NO FLOW should lite.

First Start Up with O2 Concentrator

1. Disconnect the tubing to the O2 concentrator at this point temporarily.
2. Start the pump and observe the water level inside the BB> Slowly open the SS valve until the water level stabilizes about 4" inches below the suction port.
3. Check the flow meter on the O3 generator. The flow should be ~5 LPM on the scale. If the flow is higher, reduce it with the s. s. valve.
4. Start the O2 concentrator (tubing is still disconnected) and set the flow to be equal to the flow on the O3 concentrator.
5. Connect the tubing back toe the O2 concentrator. Due to the flows being equal, the BB should now level out. If there is an imbalance it is preferred that there is slightly more vacuum than pressure i.e. the water level should be slightly higher on the taller side.
6. To prevent water overflowing the BB and O3 leaks when the suction stops the O2 concentrator must be linked to the pump, or equivalent, to turn it on and off with the suction.
7. Test-stop the booster pump. The red lamp NO FLOW will lite.

Operation

The System works automatically. To stop the system, stop the pump that created the suction or the O2 concentrator.

Maintenance

Warning! Do not attempt to enter the unit. THERE IS DANGEROUS HIGH VOLTAGE INSIDE. Only trained and qualified personnel are allowed to repair the equipment.

Daily Checks

1. The fans must be running and the airflow unobstructed.
2. If the FUSE light is lit, call for service.
3. The Moisture indicator should remain BLUE at all time. If the color is not blue, refer to the list below for possible meaning:
 1. WHITE: the dew point is above the allowable -40°C . If a **power failure** took place within the last five hours, continue to operate as is. The crystals will turn blue again in the next five hours. If not, contact your nearest dealer.
 2. BLACK: the blue crystals are permanently damaged by **exposure to O3**. Check and restore the room ventilation, replace the indicator.
 3. YELLOW: the blue crystals are permanently damaged by an **exposure to oil vapors**. In this case also the air-drying desiccant in main cylinders is damaged and must be replaced.
 4. PINK/RED: the blue crystals are permanently damaged by an **exposure to acid vapors** in the air. The source of the problem must be identified and removed. Examples: A solid fuel burner nearby, overcharged battery.
4. Check the flow meter for proper airflow. A low flow may indicate a problem with the pump, injector, or integrity of the tubing.
5. Check the water level inside the clear pipe of the BB and refill if the water is too low.
6. Check for signs of excessive dust around the cooling fan intakes.

Annually

Disconnect the O3 generator from power and check for excessive dust. Failures caused by excessive dust are not covered under warranty.

Two to Five Years

The air dryer may need new desiccant. This depends on the quality of the air, also whether the dryer operates full time under full flow requirements. Under reduced flow and dust free ambient air the desiccant may last 2-5 years. Oily vapors will decrease life span of the desiccant dramatically. The O2 concentrator has a similar bed of beads which would require servicing roughly on the same time line and would be affected by the same environmental conditions.

>5 years

The cooling fans are rated for up to 100,000 hours of continues duty under ideal conditions. Excessive dust may decrease the life span considerably. No other parts are expected to fail. With regular service, cleaning, and maintenance the units can run indefinitely.

Please call us if you have any question.

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