



## **Manual for Gruntech Ozone Generators**

**[www.Gruntech.co.za](http://www.Gruntech.co.za)**

# 1 Operation and Maintenance

Ozone is best introduced into water with a venturi. Water flow through the venturi creates a low pressure to suck the ozone gas into water. The venturi is specified according to flow and pressure.

## 1.1 Operation and Technical data:

- All commercial units use 220 Volt, 50 Hertz power.
- Do not install unit in wet area.
- Do not install unit directly outside. Always install unit underneath a roof/canopy. Where there is a concern that the machine can receive some spray, consider one of our weather boxes for protection.
- Our ozone generator has an on/off switch and a green LED which indicate when ozone is produced. Do not inhale the ozone.
- There is a fuse holder. If the unit fail to work, this fuse can be checked and changed if necessary.
- If the unit does not work and the fuse is still working, then the machine must be sent for repairs.
- Make sure your venturi system is operational. If water flow through the venturi, it must create suction.
- Connect ozone generator to a non-return valve system and the non-return valve system to the venturi. The non-return valve must let flow through from the ozone generator to the venturi and must prevent any water from reaching the ozone generator. Make sure that the hose and the non-return valve system is ozone resistant.
- Test flow: Disconnect hose at venturi. Switch generator on and feel with a finger if there is any flow. One should be able to smell the ozone on your finger. Ozone should not be inhaled directly. Switch unit off.
- If Venturi is working correctly, reconnect hose to venturi.
- Before switching on generator for use, make sure the water flows through the venturi, so that there is a suction before the unit is switched on. If this work with a pump then the ozone generator can be wired to the pump electricity supply, so that they can switch on together. Make sure that the power supply is 220 Volt, 50 Hertz, single phase.
- Check the system every now and again. Test flow as described above.
- Most units come with a build-in air drier. The air drier consumes 500 W 1 hour long and is then off for 3 hours. Thus an average of 125 W.
- The standard 5 g/h ozone unit consumes 100 W and the 10 g/h 150 W and will supply ozone flow of 20 l/min, without the air drier. Recommended cable > 6 Amp

## 1.2 Maintenance:

- Gruntech's units are designed so that if some part of the unit fails, only that part can be changed, but the unit needs to be sent back to Gruntech for that or an approved Gruntech trained technician. The user can therefore only change the 3.15 Amp fuse. Spare parts are

relatively cheap. Units that have failed without reason will be investigated and a free repair will be considered if the failure was not because of faulty installation, example the non-return valve was installed the wrong way around or not at all, which can cause the fluid to reach the cell and cause a short circuit. If the failure light turn from green to orange, the unit is due for a service. If the light turns red, then it should be inspected by Gruntech.

- An optional GSM module can connect to the ozone generator. This allows remote monitoring of the system. Please inquire from Gruntech regarding this.

## 2 WARNINGS:

- Ozone Generators produce high voltage, therefore keep the generator itself away from water and moist
- Moist air at ozone generator inlet decreases the amount of ozone generation
- Moist air at ozone generator inlet can cause small amounts of Nitric Acid to form in ozone generation process. Over time this will shorten the life/maintenance cycle of the ozone generator
- Ozone is a very strong oxidizer. It will corrode material that is not ozone resistant
- Do not to inhale ozone
- The user should not at any times open the ozone generator.
- Make sure that the ozonation does not react to leave a toxic by-product. The best known example is Bromate and forms thereof.

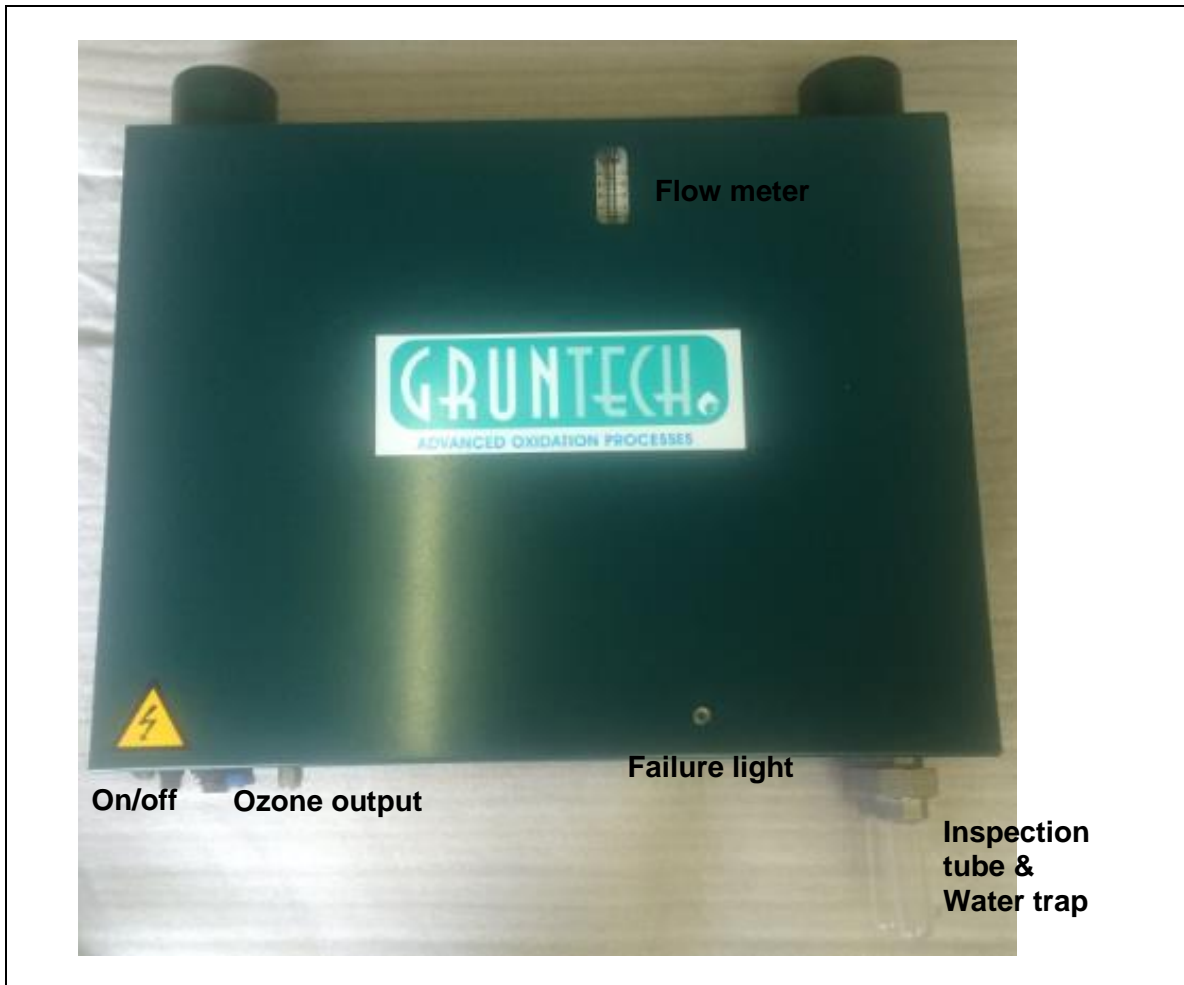
## 3 The ozone generator

The generator should only be opened and fixed by Gruntech. The following needs to be noted on the unit for operation.

- The flow meter: This indicates that there is flow through the unit. If the unit is switched on there must always be flow through the unit. If there is no flow, the unit will overheat and eventually fail. The amount of flow is not important as long as it is very clear that there is a flow. Usually is should be around 3-6 l/min.
- On/off switch: This is where the unit is switched on
- Fuse holder: The fuse is there for the protection of the unit. If the unit has no power but the supply cable gives power, then one can always check the fuse. The fuse is a 3.15 Amp 240 V fuse 32 mm long.
- Ozone output: This is where the ozone that is produced exits the machine.
- Water trap indicators: There are two water trap indicators. These traps are more for indication of failures then it is for protection. They are in different stages in the unit. Water should not accumulate in the traps. If water accumulates in the traps then it is an indication that failure might take place. Little bit of water over time is of little concern, but if water starts to accumulate fast then notice should be taken. The water trap indicators must never ever be full. The traps can be emptied by unscrewing the unions. Make sure the unions are properly closed / air tight sealed when screwed on again. If water accumulates in the front tube, then it is an indication of water that has flowed back into the unit. Check that venturi is sucking properly, Check that the venturi has no particles stuck in its throat, and check the working of the non-

return manifold. If water accumulates in the back venturi, then it is an indication of either the air drier failure or a blocked venturi

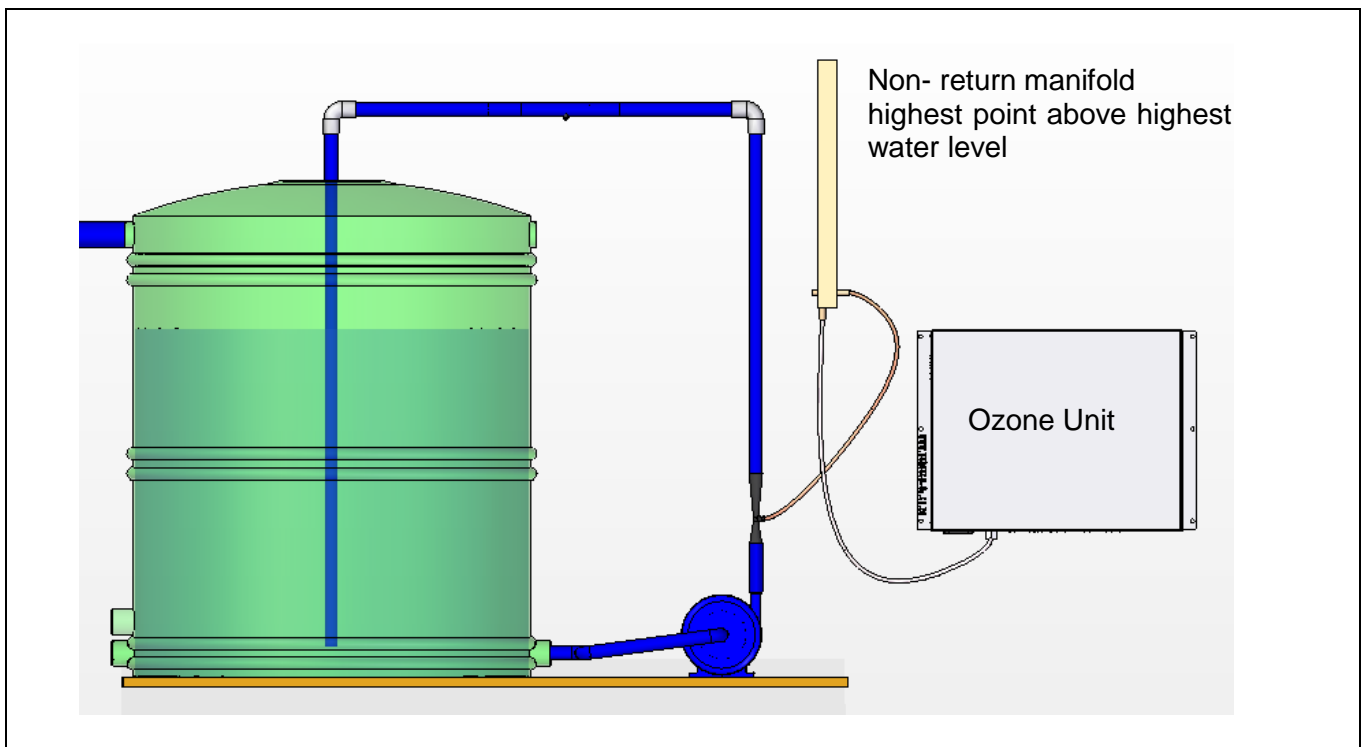
- Failure light. If the light is green then the unit is functioning properly. If the light turned red, the machine needs to be send to Gruntech for inspection.



## 4 Installation

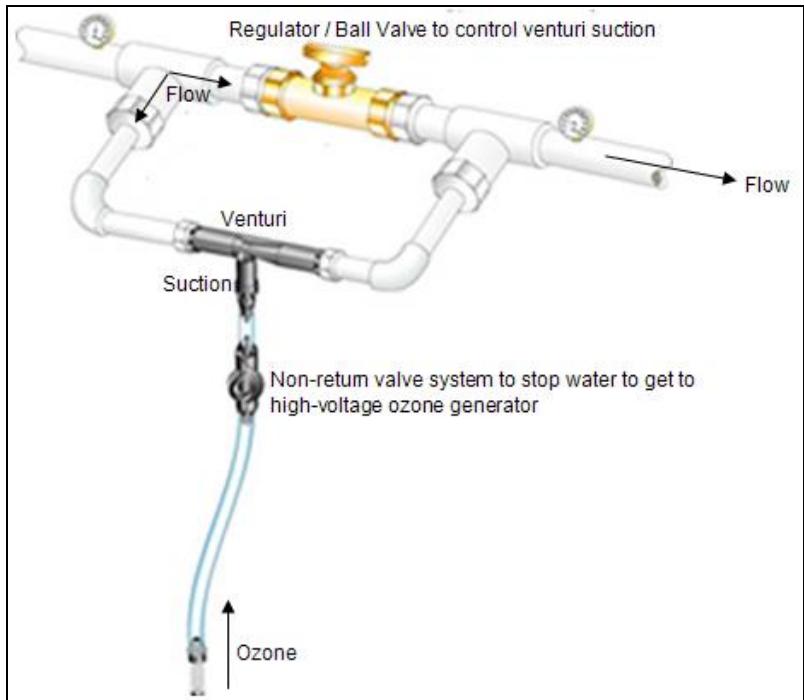
Gruntech ozone generators are designed to be mounted against a wall and must be done so for the system to be upright. The ozone outlet and switch is the bottom part of the unit. Take care to have the proper protection so that no water can enter the ozone generator.

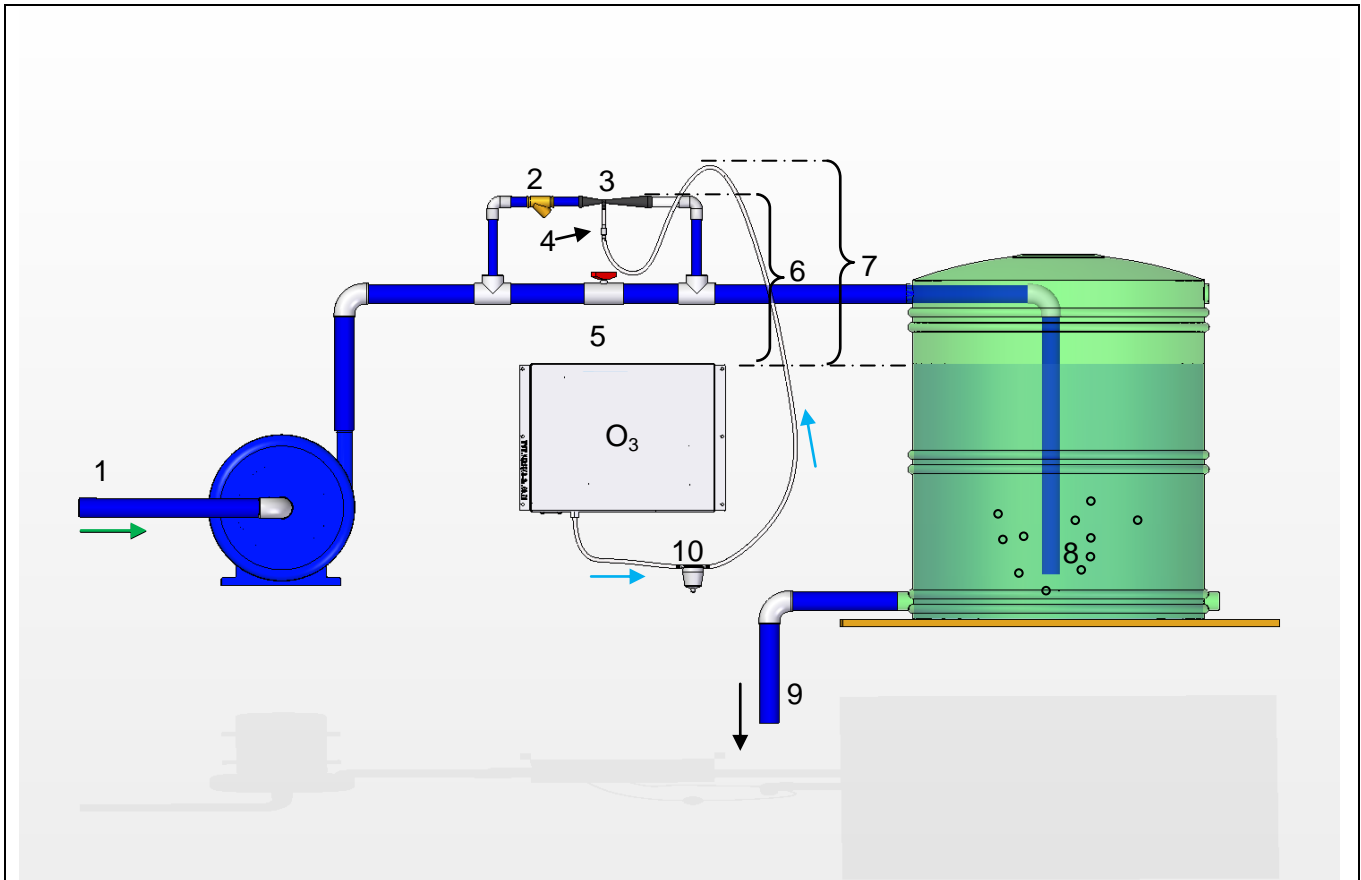
The non-return manifold (NRM) 's highest point must be above the highest water level. This helps insure no water flow back into the unit. The NRM has 2 functions: It has a overflow valve that opens if the venturi gets blocked. This prevent the unit from overheating. Secondly the NRM also helps prevent back flow of water into the unit.



## 4.1 Venturi Configuration

There are several configurations to install the venturi. There is a straight inline configuration as depicted in the drawing above, but the venturi can also be configured in a side line as in the drawings below. This option allows one to control the flow and suction of the venturi. It also allows for larger flows without increasing the venturi size.





O <sub>3</sub>	Ozone Generator
1	Water in
2	Strainer to prevent particles to get stuck in venturi.
3	Venturi. Flow through venturi cause suction and introduce O <sub>3</sub> into water. Note venturi flow direction.
4	Non-Return valve to keep any water to go to ozone generator. Take care to put it the right way
5	Control valve controls the flow through the venturi and therefore controls the venturi suction. Adjust to optimal suction
6, 7	Either distance 6 or 7 must be above the highest water line, preferably both. This prevents any water leakages or moist that accumulates to drain to the ozone generator. The best way is to put the ozone generator higher than the venturi and the venturi higher than the highest water line. This way no moist can get into the ozone generator, insuring a long safe working life for any ozone generator.
8	O <sub>3</sub> +Water exit. Keep outlet as deep under waterline as possible, to increase ozone contact time for better results.
9	Clean water out
10	Water trap. Traps any accumulating moist or leakages, insuring a long and safe working life for any ozone generator.
→	Ozone flow
→	Water flow