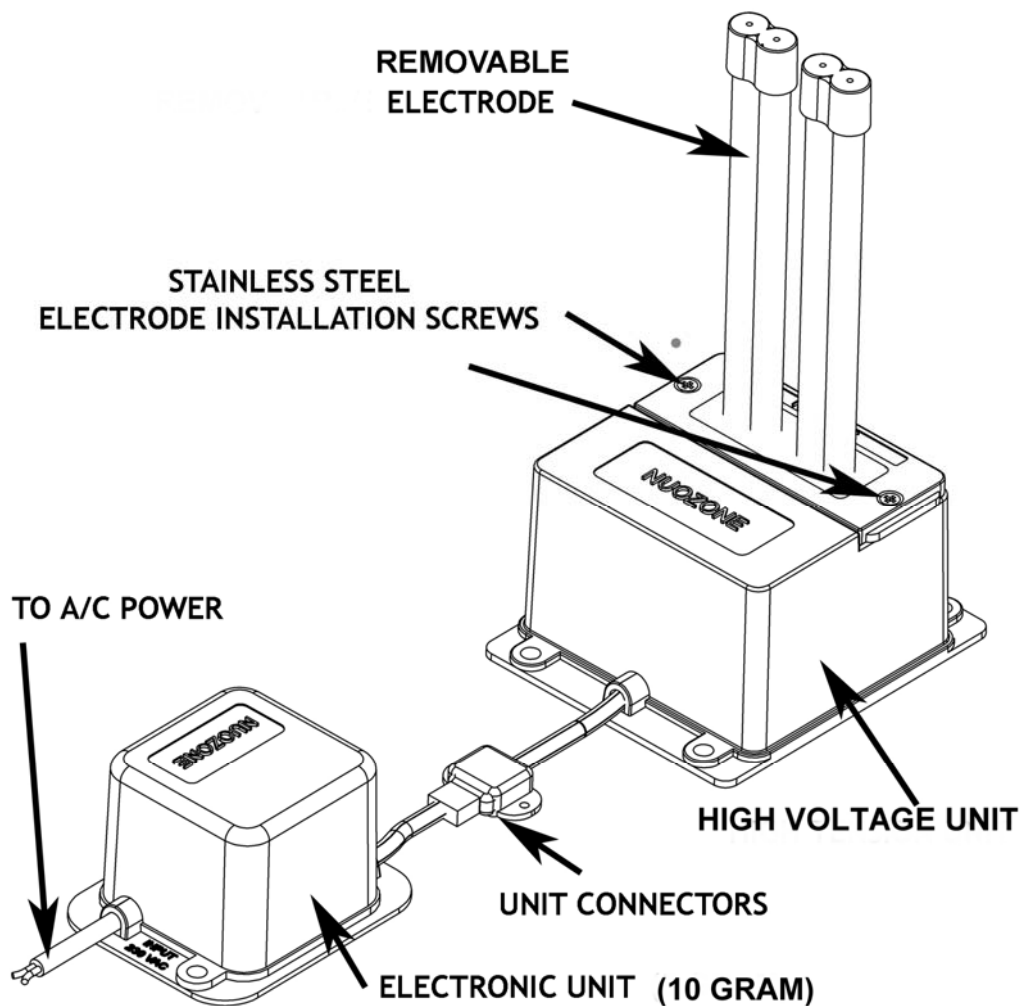




**NUOZONE – 10 GRAM OEM OZONE GENERATOR MODULE  
WITH DETATCHABLE ELECTRODE AND POWER & HT SUPPLY  
November 2006**



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## 1. General Information

The innovative NUOZONE ozone module with integrated corona electrode and AC mains transformer achieves a high ozone output of 10 grams per hour, at considerably low power consumption rate and without a supplementary oxygen or compressed air feed.

Utilizing state of the art Dielectric Barrier Corona Discharge technology, the unit has been designed for efficiency, durability and ease of installation. It generates ozone from ambient air, can withstand the harshest of environments and can easily be incorporated in standard enclosure venting systems

In engineering this product Nuozone has paid careful attention the end-user's needs. That's why we have incorporated a strong element of modularity into the design. This allows for easy service and maintenance as well as a flexibility of configuration in multiples housings of your choice, within air treatment plants or ducting.

### **WARNING**

**This unit is generates ozone into air. It is not suitable for ozonating water.**

**This unit would NOT be suitable for use with oxygen as it would not be possible to sufficiently cool the electrode as it is constructed to be cooled with ambient air generated within the system.**

## 2. Safety Precautions & Warnings



Do not expose this equipment to rain or moisture. Should any liquid come into contact with the system, unplug it and have it serviced by qualified personnel before operating it further.



Unplug the system from power socket when it is not in use. When unplugging, never pull the plug by the cord itself.



DO NOT enter the treated room during the operation of the system.



### **AVOID ELECTRICAL SHOCK!**

**This 220/240 volt AC unit is NOT supplied with a grounded cable as the transformers within do not require it. (THIS DOES NOT APPLY TO U.S 110 volts SPECIFICATION which IS supplied with grounding cable)**

**In any case the metal enclosure in which this product is installed MUST be grounded!!!**

### **WARNING!**

**There are no user serviceable parts within system; the power supply and high voltage units are hermetically sealed and the internal circuitry potted in a tamper proof resin. Removal of these parts by unauthorized personnel will result in voiding the WARRANTY!**



## **CAUTION!**

**OZONE IS A POWERFUL OXIDISER. USE THIS EQUIPMENT WITH CARE IN UNINHABITED AREAS ONLY. READ ALL OPERATING INSTRUCTIONS BEFORE USING THIS MACHINE.**

**RE OCCUPY TREATED AREA ONLY WHEN THE EQUIPMENT IS NO LONGER IN OPERATION.**

**DO NOT ATTEMPT TO ENTER THE AREA WHILST EQUIPMENT IS IN OPERATION. VENTILATE AREA AFTER USE**

**Remaining in the treated area while unit is in operation or entering before completion of cycle may be hazardous to your health. You must leave the room immediately and seal entrance to prevent activated oxygen leakage.**

## **WARNING - IN EMERGENCY**

**DO NOT RE-ENTER THE ROOM UNTIL SUFFICIENT TIME HAS ELAPSED FOR OZONE CONCENTRATION TO BE AT SAFE LEVELS.**

Ozone has a half life of around 30 minutes. As a guide, a 24 hour production of Ozone will take around 15 hours to naturally decompose to a safe limit.

**IN AN EMERGENCY USE AN ACTIVATED CARBON FILTER BREATHING MASK TO GAIN ACCESS TO THE AREA**

### 3. Technical Specifications

The Nuozone Tri-element modules can be incorporated into a stand alone unit to generate ozone into AIR. A suitable enclosure and fan need to be constructed. The unit can also be incorporated into ducting.

#### OZONE GENERATION

Each of our units will generate **10 grams of ozone/hour +/- 10%** at ambient temperatures of 25 degrees Centigrade, at a humidity of 80% at sea level atmospheric pressure.

#### OPERATION FREQUENCY

The Double Barrier Discharge structure allows the use of a high voltage between **10-15 KV** and with a high frequency to support the linear output.

#### POWER REQUIREMENT

The unit requires only **220/240 volt AC single phase power** mains supply and airflow fan (dust filter and pressure switch also recommended). Modular design allows for the easy and cost effective replacement of parts if necessary. The unit uses **approximately 125 watts at 230 volts AC 50 cycles (0.6 amps)**

(110 Volt 60 cycle units with step up transformer available for U.S. market.)

Part description	Input	Output
Electronic unit	230 volt 50/60 Hz 0.6 A	230volt 22 KHz
High voltage unit	230volt 22 KHz	10 kV 22KHz 30mA
Electrode unit	10 KV	10 KV

### 4. Electrode Cooling

***The electrode must be air cooled by system airflow. Minimum air cooling required - 250 cubic feet/minute (375 Cu/Metres/Hour)***

**For maximum ozone output we would recommend keeping the heat around the electrodes under 50 °Centigrade.** The glass tubes can sustain a temperature of over 150° Centigrade before damage, but there will be no ozone generation at high temperatures. **(We would suggest you use an infra-red thermometer to check the temperature of the glass tubes and to determine sufficient airflow cooling parameters for your needs)** This unit would NOT be suitable for use with oxygen as it would not be possible to sufficiently cool the electrode as it is constructed to be cooled with ambient air generated within the system.

For testing purposes, it will be necessary construct a suitable container with dust filter and fan (NOT INCLUDED) to provide sufficient airflow for the unit to work correctly. If you wish to use a rear push fan, we would recommend a minimum size of 172x51 that will give sufficient air flow **(375 Cu/Metres/Hour)** and also will sustain a bigger pressure drop. (May we suggest that you use a push fan similar to [W2E143](http://www.ebmpapst.com) Tubeaxial series (<http://www.ebmpapst.com>) in your test chamber or a pull blower to give the required minimum air cooling. Alternative fans are available worldwide with similar characteristics)

## 5. Pressure Switch (OPTIONAL)

We would suggest the use of a differential pressure switch within the OEM system (OPTIONAL AND NOT INCLUDED). The pressure switch is used to monitor the flow of air generated by the cooling fan, which is necessary to cool the electrode to prevent breakage and also to prevent ozone degradation at high temperature. If the fan fails, the drop of air pressure will be sensed by the pressure switch venturi and will shut down the electrode, thus preventing damage. A suitable differential pressure switch such as the CLIMAIR® 930.8X series is obtainable from Beck GMBH ([www.beck-sensors.com](http://www.beck-sensors.com))

**GLASS TUBE DAMAGE:** Assuming our guidelines are followed, the glass tubes should remain intact and operational

## 6. Cleaning & Maintenance

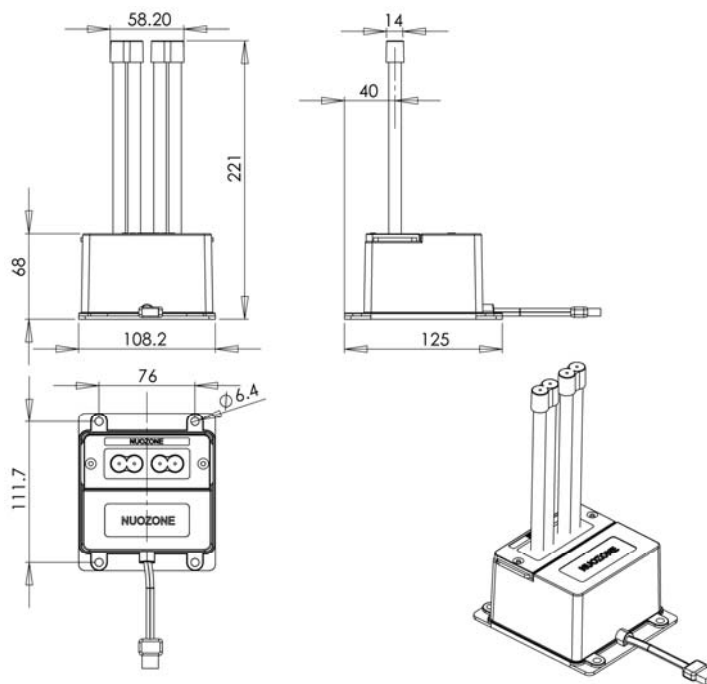
Disconnect the unit from electrical mains prior to any  
cleaning and maintenance procedure.

**The exterior of the unit and electrode should be cleaned with a damp non  
abrasive cloth.**

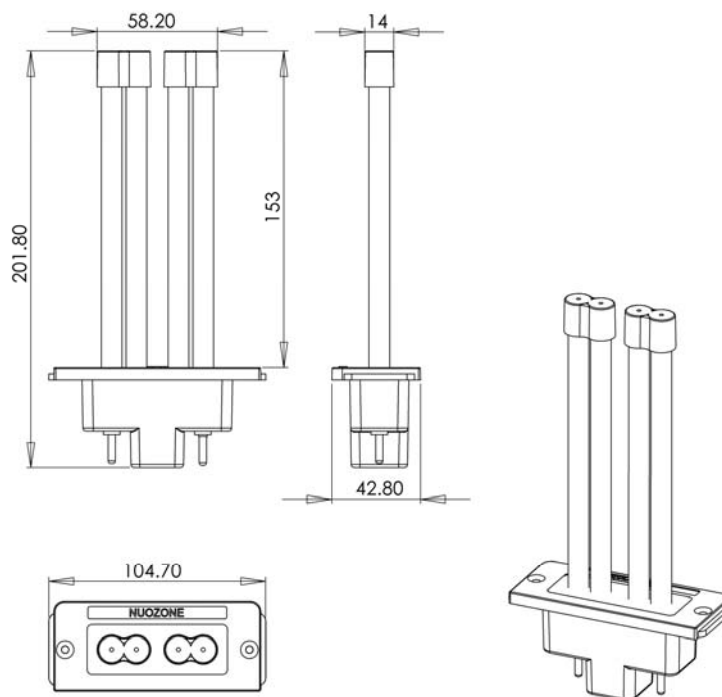
To prevent dirt being electro statically drawn to the electrode and coupled with humidity, subsequently adhering to the glass, it is important that these electrodes, which are easily removable, are carefully cleaned on a regular basis to enable this to be done. The electrodes have been constructed and refined from our own experience of sewage pumping stations, where similar electrodes are working in a bad environment non stop, 24 hours a day, seven days a week. In spite of the harsh conditions, we have found that on running the electrodes with a satisfactory air supply, periodic cleaning and air dust filtration, electrode performance remains constant for at least a whole year (7000 hours approx.).

**The installation of a suitable dust filter will also preserve the efficiency of the electrode.**

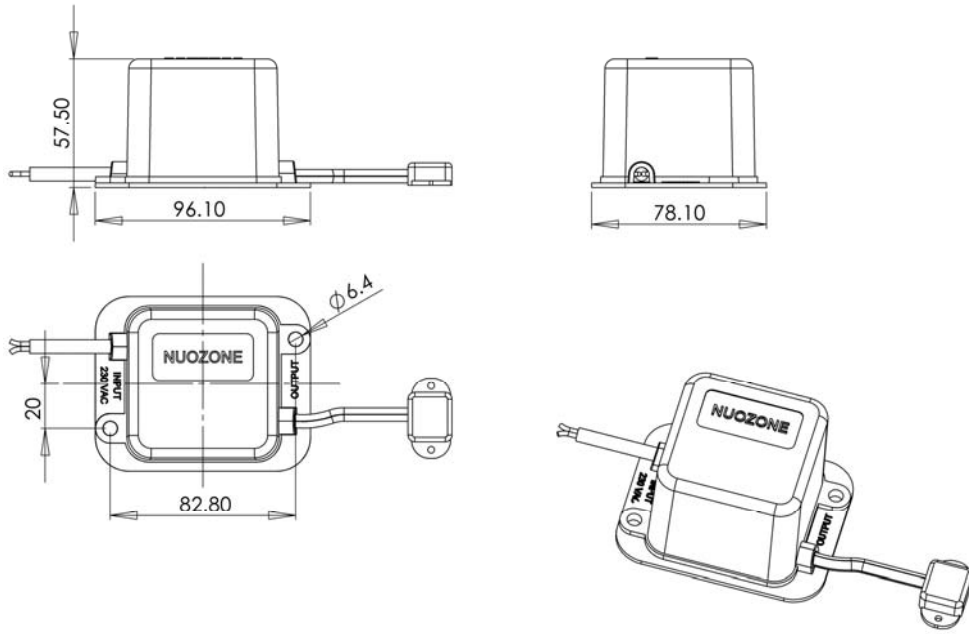
## 7. Diagrams



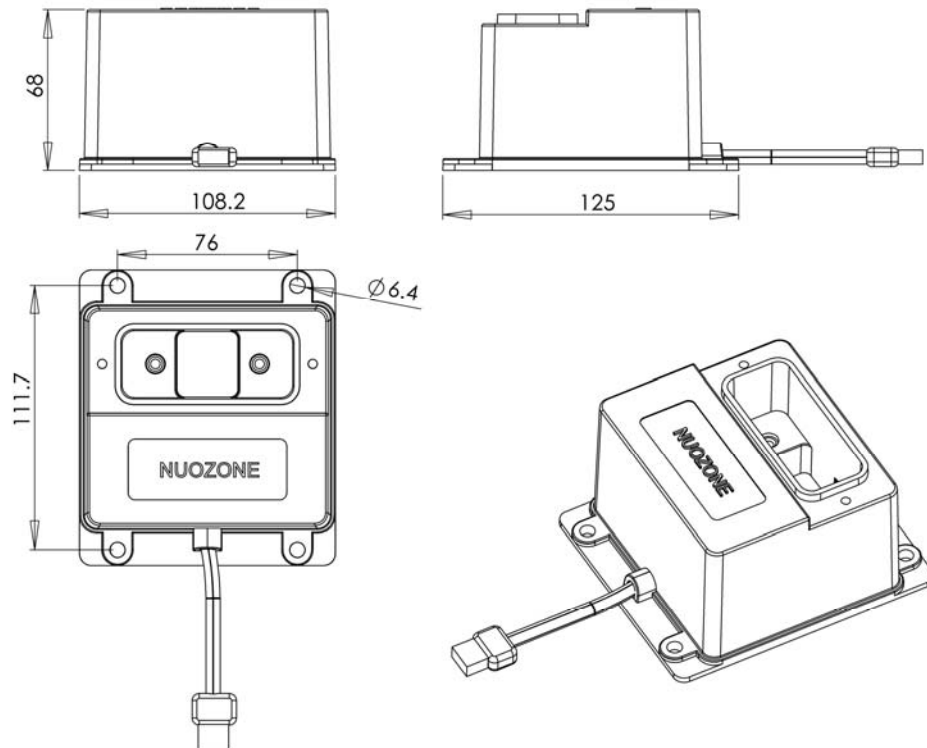
High Voltage Unit with Electrode



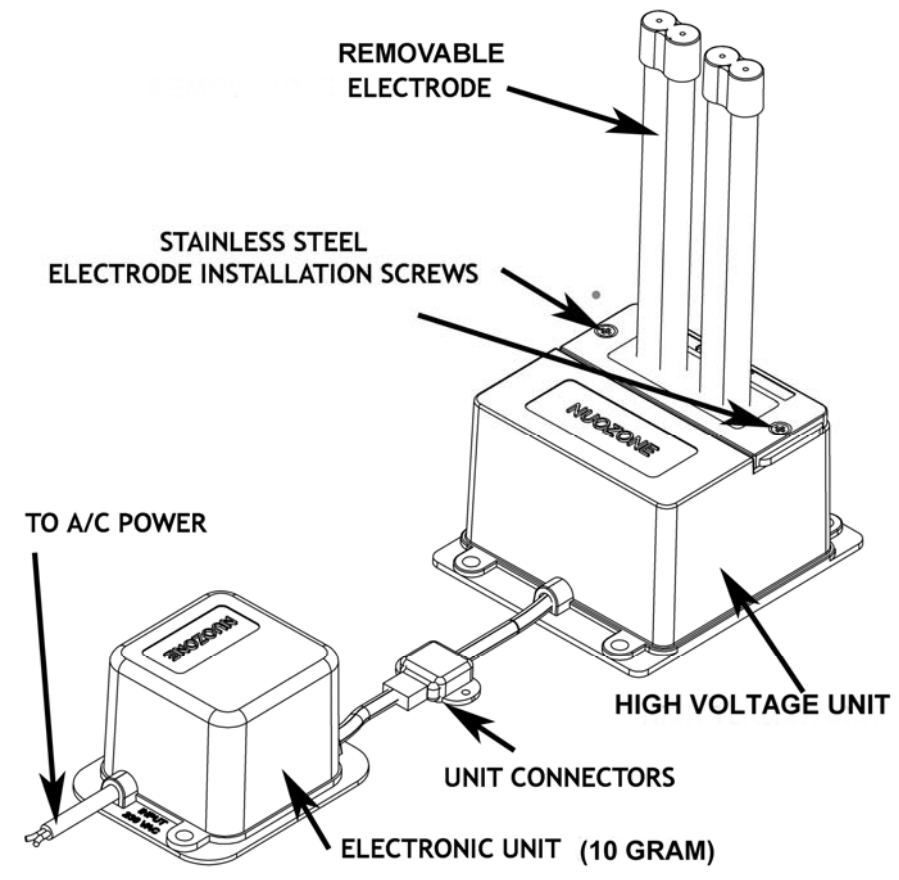
Electrode



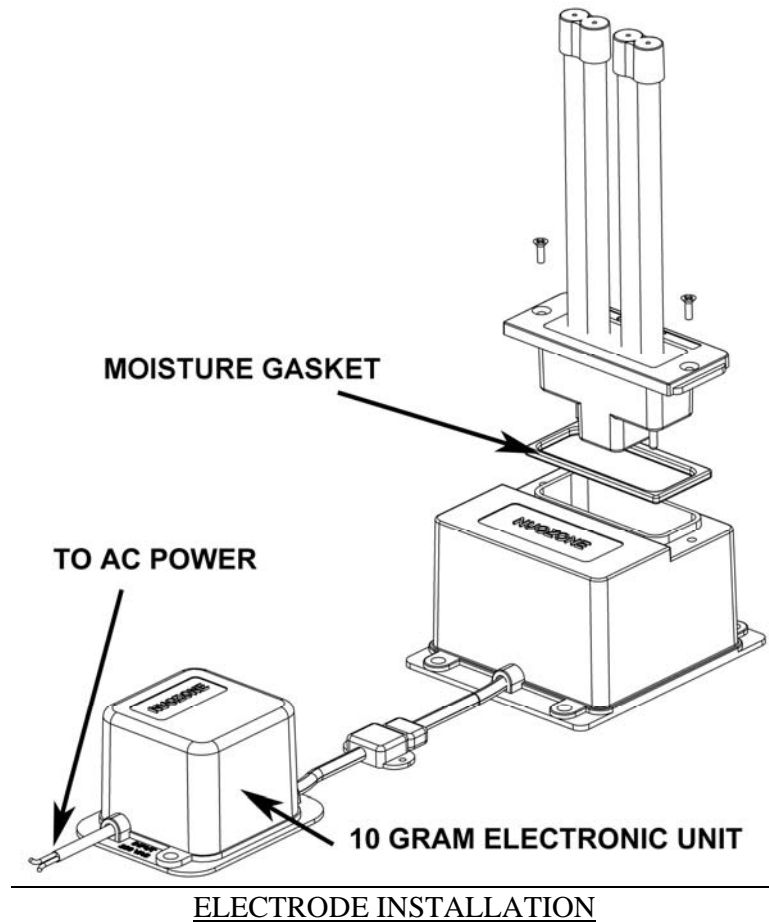
Electronic Unit



High Voltage Unit



ASSEMBLY



## 8. Assembly and Electrode Installation

**NOTE:** The electrode can only be inserted into the high tension unit one way. Please ensure that the wording NUOZONE on the ELECTRODE faces AWAY from the wording NUOZONE on the HIGH VOLTAGE UNIT. The electrode is held in the unit by 2 stainless steel screws.

The high voltage unit and electronic unit are connected together using the installed male and female connectors.

The A/C mains supply from the electronic unit is connected to the manufacturers system as applicable.

**The 220/240 volt A.C. unit is NOT supplied with a grounded cable as the transformers within do not require it. THIS DOES NOT APPLY TO U.S.A. 110 volt A.C. SPECIFICATION which IS supplied with ground cable. The appearance of the U.S.A unit will vary slightly as the High Voltage Unit contains a 110volt to 220volt step UP transformer.**

## **9. Warranty**

NUOZONE warrants to the original retail purchaser or licensee of the Products that the Products will conform to and perform in accordance with the published technical specifications and any accompanying written materials supplied by NUOZONE and will be free from defects in materials and workmanship under normal use and conditions for the applicable warranty period indicated below. This warranty does not extend to Products that have been subject to misuse, accident, tampering or use in a manner not approved by NUOZONE in writing.

### **WARRANTY PERIOD**

The warranty period for product from NUOZONE is one year or 7000 operating hours, whichever falls first, unless otherwise specified in writing, commencing on the date of shipment to the original retail purchaser or licensee.

### **REMEDY**

If NUOZONE determines that any Products was defective at the time of shipment to the customer, NUOZONE will, at its option, either replace or repair such Product or refund the purchase price. **This is the exclusive remedy for any breach of warranty.** The sole purpose of this remedy shall be to provide the customer with the replacement or repair of nonconforming Products, or a refund of the price therefore, in the manner provided herein.

**Nuozone Company has a policy of continuous product improvement and reserves  
The right to modify or change the specification at any time without further notice.**